



Tennessee Valley Authority, Post Office Box 2000, Soddy-Daisy, Tennessee 37379-2000

March 4, 1997

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket Nos. 50-327
50-328

SEQUOYAH NUCLEAR PLANT (SQN) - ADDITIONAL INFORMATION FOR SECOND
TEN-YEAR INTERVAL - INSERVICE INSPECTION (ISI) AND INSERVICE PRESSURE
TEST (ISPT) PROGRAM PLANS

Reference: NRC letter to TVA dated December 17, 1996, "Request for Additional
Information - Second Ten-Year Interval Inservice Inspection Program
Plant - Sequoyah Nuclear Plant Units 1 and 2 (TAC Nos. M94115 and
M94116)"

Enclosed is the TVA response to NRC's request for additional information (Section 2 of
the enclosure to the above reference) concerning SQN's ISI and ISPT program plans
for the second ten-year interval. TVA's responses reflect the information that was
discussed during teleconferences with the NRC staff and Idaho National Engineering
Laboratory staff.

Enclosure 1 contains the additional information for items 2.A through 2.I of the
referenced letter. Please note that TVA is withdrawing relief requests I-ISI-4 and 2-ISI-
4 in response to Item 2.I.1. Enclosure 2 contains TVA commitments associated with
SQN's ISI and ISPT Programs.

Please direct questions concerning this issue to D. V. Goodin at (423) 843-7734.

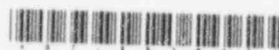
Sincerely,

R. H. Shell
Site Licensing and Industry Affairs Manager

Enclosure
cc: See page 2

9703110121 970304
PDR ADOCK 05000327
G PDR

LADINISL DVG EAM



A04711

U.S. Nuclear Regulatory Commission
Page 2
March 4, 1997

Enclosure

cc (Enclosure):

Mr. R. W. Hernan, Project Manager (w/enclosure)
Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852-2739

NRC Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy-Daisy, Tennessee 37379-3624

Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

ENCLOSURE 1

SEQUOYAH NUCLEAR PLANT

UNITS 1 AND 2

RESPONSE TO NRC REQUEST

FOR ADDITIONAL INFORMATION

DATED DECEMBER 17, 1996

ITEMS 2.A., 2.B, 2.C. 2.D, 2.E, 2.F, 2.G, 2.H, and 2.I

NRC REQUEST - ITEM 2.A.

The licensee has not provided a schedule of examinations to be performed in the second interval for Unit 1. In accordance with ASME, Section XI, IWA-1310, "Components Subject to Inspection and Testing," licensee's are required to identify components for inspection and testing. The selection of components for the inservice inspection plan is subject to review by the regulatory and enforcement authorities having jurisdiction at the plant site. IWA-1400 (c), "Owners Responsibility," requires the preparation of inspection plans and schedules, and filing of these plans and schedules with enforcement and regulatory authorities having jurisdiction at the plant site. Based on these requirements, provide a schedule for each examination for Unit 1, that will be performed during the second ten-year interval. If the schedule is not complete, provide the methodology that will be used to select welds for examination. This discussion should include the similarities and differences with the Unit 2 schedule. Also provide an estimated completion date for development of this schedule.

TVA RESPONSE

The component examination schedule for the SQN Unit 1 second interval is in the final phases of development. As discussed with the staff in previous teleconferences, the component examination schedule for SQN Unit 1 will be completed by May 1, 1997. The component examination schedule will include the following information: component identifiers, examination categories, item numbers, drawing numbers, examination method(s) and examination period in which the examinations are currently scheduled.

The component selection process for the SQN Unit 1 component examination schedule is representative of the plan prepared for SQN Unit 2. The Unit 2 component examination schedule is complete and was previously provided to you in TVA's September 6, 1996 letter.

NRC REQUEST - ITEM 2.B.

Examination Categories B-G-1 and B-G-2, Items B6.180, B7.60, and B7.70 require volumetric or VT-1 visual examination. These examinations can be performed in place under tension. Provide a technical discussion explaining why Sequoyah, Unit 2 has these examinations scheduled only if an Examination Category B-L-2 or B-M-2 component is examined.

TVA RESPONSE

Examination categories B-G-1 and B-G-2, Item Numbers B6.180, B7.60, and B7.70 require volumetric or VT-1 visual examination per the requirements of Table IWB-2500-1 of ASME Section XI 1989 Edition. In TVA's interpretation of the Code, Note 3 for Item Number B.6.180 and Note 2 for Item Numbers B7.60 and B7.70 are stated as an exemption to perform examinations unless B-L-2 or B-M-2 examinations are performed. The B-L-2 and B-M-2 Note 2 examinations are required only when the component is disassembled for maintenance, repair, or volumetric examination.

Notes 2 and 3 for Examination Category B-G-1 and B-G-2:

For heat exchangers, piping, pumps, and valves, examinations are limited to components selected for examination under Examination Categories B-B, B-J, B-L-2, and B-M-2.

Note 2 for Examination Category B-M-2 and B-L-2:

Examination is required only when a pump or valve is disassembled for maintenance, repair, or volumetric examination. Examination of the internal pressure boundary shall be performed to the extent practicable. Examination is required only once during the inspection interval.

In response to NRC request for performing examinations in place under tension, Sequoyah's ISI program plan (Specifically Attachment 1, Attachment 4 (Unit 1) and Attachment 5 (Unit 2) of O-SI-DXI-000-114.2) will be revised by May 1, 1997 to reflect the following:

An (in-place under tension) examination of Examination Categories B-G-1 or B-G-2 will be performed by the end of the interval if B-L-2 or B-M-2 components have not been dissembled and examined as a result of maintenance, repair or volumetric examination.

NRC REQUEST - ITEM 2.C.

Requests for Relief 1-ISI-5 and 2-ISI-5 request authorization to implement Code Case N-509, "Alternative Rules for the Selection and Examination of Class 1,2, and 3 Integrally Welded Attachments". This Code Case has not been incorporated into NRC Regulatory Guide 1.147 and, therefore, NRC approval is needed for licensee implementation. The NRC is allowing the implementation of Code Case N-509 provided that the licensee commits to examine a minimum of 10% of the total number of non-exempt integral attachments in Class 1, 2, and 3 systems. Upon review of Attachment 4 to the Sequoyah Program it appears that there are one hundred eighty Class 2 integrally welded attachments and only fourteen are scheduled for examination. Based on the conditions that the NRC has placed on the use of Code Case N-509, provide an upgraded schedule of examination for Class 1, and 2 integrally welded attachments. This schedule should represent all non-exempt integrally welded attachments with 10 percent sample being selected for examination.

TVA RESPONSE

Requests for Relief (1-ISI-5 and 2-ISI-5) will be revised to examine a minimum of 10 percent of the total number of non-exempt integral attachments in Class 1, 2, and 3 systems.

The program plan (Attachments 1, 2, 4, and 5 of 0-SI-DXI-000-114.2) is currently being revised to incorporate these comments. The program plan for Units 1 and 2 will be revised to represent a minimum of 10 percent of the total number of non-exempt Class 1, 2 and 3 integrally welded attachments on piping, pumps, and valves.

A revised copy of Relief Request 1-ISI-5, and Relief Request 2-ISI-5, is provided for information.

The program revision described above will be completed by May 1, 1997.

Revised Request for Relief 1-ISI-5

<u>Components:</u>	Class 1, 2, and 3 Integrally Welded Attachments of Vessels, Piping, Pumps and Valves.
<u>Class:</u>	ASME Code Class 1, 2, and 3 (Equivalent) Integrally Welded Attachments
<u>Examination Categories:</u>	B-H, B-K-1, C-C, D-A, D-B, and D-C
<u>Item Numbers:</u>	B8.10, B8.20, B8.30, B8.40 ; B10.10, B10.20, B10.30 ; C3.10, C3.20, C3.30, C3.40 ; D1.20, D1.30, D1.40, D1.50, D1.60 ; D2.20, D2.30, D2.40, D2.50, D2.60 ; D3.20, D3.30, D3.40, D3.50, D3.60.
<u>Code Requirement:</u>	Selection and Examination of Class 1, 2 and 3 Integrally Welded Attachments in accordance with the 1989 Edition of ASME Section XI, Division 1 and Code Case N-491.
<u>Alternative Requirements:</u>	Relief is requested to use Code Case N-509, "Alternative Rules for the Selection and Examination of Class 1, 2, and 3 Integrally Welded Attachments", Section XI, Division 1 in lieu of the 1989 Edition of ASME Section XI as stated above.
<u>Basis for Relief:</u>	<p>In many cases, performing a surface examination on Class 1 and Class 2 integrally welded attachments requires the removal of pipe clamps. Pipe clamp removal is labor intensive and often destroys bolting in the process. Pipe clamp removal on larger components such as those found on the Main Steam and Feedwater Systems are particularly difficult.</p> <p>Sequoyah did not identify any significant problems with integrally welded attachments in the first ISI Inspection Interval. The costs for preparing and examining integrally welded attachments are significant, as is the attendant additional radiation exposure. Code Case N-509 provides an overall cost savings and exposure reduction without compromising safety or quality.</p>

Revised Request for Relief 1-ISI-5 (continued)

By utilizing Code Case N-509 the number of integral attachments requiring examination is reduced for Class 1

integrally welded attachments where base material design thickness is 5/8" or greater, Class 2 integrally welded attachments where base material design thickness is 3/4" or greater, and Class 3 integrally welded attachments

However Code Case N-509 increases the Class 1 and 2 integral attachment population for certain areas due to the elimination of the material design base thickness exemption and for Class 3 integrally welded attachments a more stringent visual examination method (VT-1 in lieu of a VT-3) is required.

Alternate Examinations:

The examination requirements of Code Case N-509 will be used as an alternative to the examination requirements of the 1989 Edition of ASME Section XI, Division 1.

Note: Code Case N-509 requires selection of component supports for examination in accordance with IWF of the 1990 Addenda. Sequoyah will implement Code Case N-509 utilizing Code Case N-491, which contains the same requirements for selection of component supports for examination as the 1990 Addenda. Code Case N-491 has been approved for use in Regulatory Guide 1.147.

SN will perform surface examinations on a minimum of 10 percent of the total number of non-exempt Class 1, 2 and 3 integral attachments on piping, pumps and valves.

In the case of multiple vessels of similar design, function, and service, only one integral attachment of only one of the multiple vessels will be examined.

Revised Request for Relief 1-ISI-5 (continued)

Examinations will be performed on integral attachments when a component support member deformation (e.g. broken, bent, or pulled out parts) is identified during operation, refueling, maintenance, examination, inservice inspection, or testing.

Justification:

Code Case N-509 was accepted by the ASME Code Committee as an alternative to the provisions in ASME Section XI for the examination of integral attachments. The alternate examinations specified in the code case maintain an acceptable level of safety and are sufficient to assure structural integrity for the integral attachments.

Conclusion:

Based on the above justification and the reasons stated previously, it is concluded that the alternate examination requirements of Code Case N-509 provide an acceptable level of quality and safety.

Therefore, pursuant to 10CFR50.55a(a)(3)(i), it is recommended that relief be granted.

Implementation Schedule:

Code Case N-509 will be implemented during the Second ISI Inspection Interval for Sequoyah Unit 1.

Revised Request for Relief 2-ISI-5

Components: Class 1, 2, and 3 Integrally Welded Attachments of Vessels, Piping, Pumps and Valves.

Class: ASME Code Class 1, 2, and 3 (Equivalent)
Integrally Welded Attachments

Examination Categories: B-H, B-K-1, C-C, D-A, D-B, and D-C

Item Numbers: B8.10, B8.20, B8.30, B8.40 ; B10.10, B10.20, B10.30 ; C3.10, C3.20, C3.30, C3.40 ; D1.20, D1.30, D1.40, D1.50, D1.60 ; D2.20, D2.30, D2.40, D2.50, D2.60 ; D3.20, D3.30, D3.40, D3.50, D3.60.

Code Requirement: Selection and Examination of Class 1, 2 and 3 Integrally Welded Attachments in accordance with the 1989 Edition of ASME Section XI, Division 1 and Code Case N-491.

Alternative Requirements: Relief is requested to use Code Case N-509, "Alternative Rules for the Selection and Examination of Class 1, 2, and 3 Integrally Welded Attachments", Section XI, Division 1 in lieu of the 1989 Edition of ASME Section XI as stated above.

Basis for Relief: In many cases, performing a surface examination on Class 1 and Class 2 integrally welded attachments requires the removal of pipe clamps. Pipe clamp removal is labor intensive and often destroys bolting in the process. Pipe clamp removal on larger components such as those found on the Main Steam and Feedwater Systems are particularly difficult.

Sequoyah did not identify any significant problems with integrally welded attachments in the first ISI Inspection Interval. The costs for preparing and examining integrally welded attachments are significant, as is the attendant additional radiation exposure. Code Case N-509 provides an overall cost savings and exposure reduction without compromising safety or quality.

Revised Request for Relief 2-ISI-5 (continued)

By utilizing Code Case N-509 the number of integral attachments requiring examination is reduced for Class 1 integrally welded attachments where base material design thickness is 5/8" or greater, Class 2 integrally welded attachments where base material design thickness is 3/4" or greater, and Class 3 integrally welded attachments.

However Code Case N-509 increases the Class 1 and 2 integral attachment population for certain areas due to the elimination of the material design base thickness exemption and for Class 3 integrally welded attachments a more stringent visual examination method (VT-1 in lieu of a VT-3) is required.

Alternate Examinations:

The examination requirements of Code Case N-509 will be used as an alternative to the examination requirements of the 1989 Edition of ASME Section XI, Division 1.

Note: Code Case N-509 requires selection of component supports for examination in accordance with IWF of the 1990 Addenda. Sequoyah will implement Code Case N-509 utilizing Code Case N-491, which contains the same requirements for selection of component supports for examination as the 1990 Addenda. Code Case N-491 has been approved for use in Regulatory Guide 1.147.

SQN will perform surface examinations on a minimum of 10 percent of the total number of non-exempt Class 1, 2 and 3 integral attachments on piping, pumps and valves.

In the case of multiple vessels of similar design, function, and service, only one integral attachment of only one of the multiple vessels will be examined.

Examinations will be performed on integral attachments when a component support member deformation (e.g. broken, bent, or pulled out parts) is identified during operation, refueling, maintenance, examination, inservice inspection, or testing.

Justification:

Code Case N-509 was accepted by the ASME Code Committee as an alternative to the provisions in ASME Section XI for the examination of integral attachments. The alternate examinations specified in the code case maintain an acceptable level of safety and are sufficient to assure structural integrity for the integral attachments.

Conclusion:

Based on the above justification and the reasons stated previously, it is concluded that the alternate examination requirements of Code Case N-509 provide an acceptable level of quality and safety.

Therefore, pursuant to 10CFR50.55a(a)(3)(i), it is recommended that relief be granted.

Implementation Schedule:

Code Case N-509 will be implemented during the Second ISI Inspection Interval for Sequoyah Unit 2.

NRC REQUEST - ITEM 2.D

Request for Relief ISPT-02 requests authorization to implement Code Case N-416-1, "Alternative Pressure Test Requirement for Welded Repairs or Installation of Replacement Items by Welding." This Code Case has not been incorporated into NRC Regulatory Guide 1.147 and therefore, NRC approval is needed for licensee implementation. The NRC is allowing the implementation of Code Case N-416-1, provided the licensee commits to perform an additional surface examination on the root pass layer of butt and socket welds on Class 3 pressure-retaining boundary during repair and replacement activities.

TVA RESPONSE

TVA will revise relief request ISPT-02 to include the requirement for performing an additional surface exam of the root pass for Class 3 welds which require a surface examination as required by ASME Section III, Subsection ND-5222. The relief request will be revised by July 1, 1997.

NRC REQUEST - ITEM 2.E

Request for Relief ISPT-04 requests authorization to implement Code Case N-522, "Pressure Testing of Containment Penetration Piping." This Code Case has not been incorporated into NRC Regulatory Guide 1.147 and, therefore, NRC approval is needed for licensee implementation. The NRC is allowing the implementation of Code Case N-522 provided the licensee commits to 1) performing the tests at peak calculated containment pressure and 2) that the test procedures include methods for detection and location of through-wall leakage in containment isolation valves (CIVs) and pipe segments between the CIVs.

TVA RESPONSE

TVA will revise relief request ISPT-04 to: 1) perform the tests at peak calculated containment pressure and 2) include methods for detection and location of through-wall leakage in containment isolation valves (CIVs) and pipe segments between CIVs. The relief request will be revised by July 1, 1997.

NRC REQUEST - ITEM 2.F

Request for Relief ISPT-06 requests authorization to implement Code Case N-546, "Alternate Requirements for Qualification of VT-2 Examination Personnel." This Code Case has not been incorporated into NRC Regulatory Guide 1.147 and, therefore, NRC approval is needed for licensee implementation. The NRC is allowing the implementation of Code Case N-546 provided the licensee commits to: 1) develop procedural guidelines for obtaining consistent, quality VT-2 visual examinations; 2) document, and maintain records to verify, the qualification of persons

selected to perform VT-2 visual examinations, and 3) implement independent review and evaluation of leakage by persons other than those that performed the VT-2 visual examinations.

TVA RESPONSE

TVA will revise relief request ISPT-06 to: 1) develop procedural guidelines for obtaining consistent, quality VT-2 visual examinations; 2) document, and maintain records to verify the qualification of persons selected to perform VT-2 visual examinations and 3) implement independent review and evaluation of leakage by persons other than those that performed the VT-2 visual examinations. The relief request will be revised by July 1, 1997.

NRC REQUEST - ITEM 2.G

Request for Relief ISPT-07 requests authorization to implement Code Case N-533, "Alternative Requirements for VT-2 Visual Examination of Class 1 Insulated Pressure-Retaining Bolted Connections." This Code Case has not been incorporated into NRC Regulatory Guide 1.147 and, therefore, NRC approval is needed for licensee implementation. The NRC is allowing the implementation of Code Case N-533, provided the licensee commits to observing a 4-hour hold time at test conditions prior to the VT-2 visual examination.

TVA RESPONSE

TVA will revise relief request ISPT-07 to observe a four-hour hold-time at test conditions prior to the VT-2 visual examination. The relief request will be revised by July 1, 1997.

NRC REQUEST - ITEM 2.H

Requests for Relief ISPT-03 and ISPT-08 provide different alternatives for the same Code requirement. Provide clarification as to the alternative that the licensee plans to follow in lieu of the Code.

TVA RESPONSE

ISPT-03 requested the use of the 1990 Addenda to the 1989 Edition of ASME Section XI. The 1990 Addenda allowed for the removal of only one bolt at a leaking bolted connection. ISPT-08 goes beyond the requirements of ISPT-03. ISPT-08 allows for an engineering evaluation to be performed on a bolt at the source of leakage at a bolted connection. If the evaluation determines that there is sufficient structural integrity, then the bolt can be left in place until the next refueling outage and removed at that time. If the evaluation determines that sufficient structural integrity

does not exist, then the necessary actions to remove a bolt for examination will be obtained. SQN does not have a history of leaking bolted connections found during pressure testing. ISPT-08 was written as a separate relief request to ISPT-03 since it went beyond the published Code rules given in the 1990 Addenda. Since the provisions of ISPT-08 encompass the provisions of ISPT-03, TVA will consider ISPT-03 withdrawn if ISPT-08 is approved. As a contingency however, TVA requests that ISPT-03 be considered for NRC review and approval in the event ISPT-08 is denied approval.

NRC REQUEST - ITEM 2.1.1

Requests 1-ISI-4 and 2-ISI-4 were submitted pursuant to 10 CFR 50.55a(g)(6)(I). However, the bases provided do not support impracticability. Provide appropriate references to the Code of Federal Regulations and supporting documentation for the subject requests.

TVA RESPONSE

TVA is withdrawing Requests for Relief 1-ISI-4 and 2-ISI-4.

The issue of exemption requirements is currently being addressed by the ASME Boiler and Pressure Vessel Committee. An inquiry was previously submitted by TVA to clarify the ASME Section XI Code requirements regarding Paragraphs IWC-1221, IWC-1222, IWD-1220.1, and IWD-1220.2.

SQN will technically evaluate the need to resubmit Requests for Relief 1-ISI-4 and 2-ISI-4 pending a reply from the ASME Boiler and Pressure Vessel Committee.

TVA's ISI Program Plan (0-SI-DXI-000-114.2) will be revised by May 1, 1997 to remove relief requests 1-ISI-4 and 2-ISI-4.

NRC REQUEST - ITEM 2.1.2

Requests ISPT-1 through ISPT-8, were submitted without reference to a section of the Code of Federal Regulations. Provide appropriate references to the Code of Federal Regulations and supporting documentation for the subject requests.

TVA RESPONSE

Listed below are the relief requests and the appropriate reference from 10CFR50.55a for which relief is being requested. ISPT-01 through -04 and 06 through -07 are deemed to provide an acceptable level of quality and safety since they are implementing approved Code rules. The basis for these reasons are found within each individual relief request. ISPT-05 and ISPT-08 are

deemed as hardships and/or unusual difficulty without a compensating increase in the level of quality and safety. ISPT-05 is submitted as a relief request that is identical to a relief request previously approved by the NRC during SQN's first ten-year interval. The ISPT-05 relief request was written due to a hardship in performing the required Code examinations.

The basis for this determination is provided within the relief request. ISPT-08 was also written due to hardships in performing the required Code examinations. The basis for ISPT-08 is provided within the relief request.

ISPT-01	10CFR50.55a(a)(3)(i)
ISPT-02	10CFR50.55a(a)(3)(i)
ISPT-03	10CFR50.55a(a)(3)(i)
ISPT-04	10CFR50.55a(a)(3)(i)
ISPT-05	10CFR50.55a(a)(3)(ii)
ISPT-06	10CFR50.55a(a)(3)(i)
ISPT-07	10CFR50.55a(a)(3)(i)
ISPT-08	10CFR50.55a(a)(3)(ii)

ENCLOSURE 2

TVA COMMITMENTS

1. Item 2.A; The component examination schedule for SQN Unit 1 will be completed by May 1, 1997. The component examination schedule will include the following information: component identifiers, examination categories, item numbers, drawing numbers, examination method(s) and examination period in which the examinations are currently scheduled.
2. Item 2.B; Attachments 1, 4 and 5 of 0-SI-DXI-000-114.2 will be revised by May 1, 1997 to reflect the following: An (in-place under tension) examination of Examination Categories B-G-1 or B-G-2 will be performed by the end of the interval if B-L-2 or B-M-2 components have not been disassembled and examined as a result of maintenance, repair or volumetric examination.
3. Item 2.C; Requests for Relief (1-ISI-5 and 2-ISI-5) and the program plan will be revised to examine a minimum of 10 percent of the total number of non-exempt integral attachments in Class 1, 2 and 3 systems. The revisions will be completed by May 1, 1997.
4. Item 2.D; TVA will revise relief request ISPT-02 to include the requirement to performing an additional surface exam of the root pass for Class 3 welds which require a surface examination as required by ASME Section III, Subsection ND-5222. The relief request will be revised by July 1, 1997.
5. Item 2.E; TVA will revise relief request ISPT-04 to: 1) perform the tests at peak calculated containment pressure and 2) include methods for detection and location of through-wall leakage in containment isolation valves (CIVs) and pipe segments between CIVs. The relief request will be revised by July 1, 1997.
6. Item 2.F; TVA will revise relief request ISPT-06 to: 1) develop procedural guidelines for obtaining consistent, quality VT-2 visual examinations, 2) document, and maintain records to verify the qualification of persons selected to perform VT-2 visual examinations and 3) implement independent review and evaluation of leakage by persons other than those that performed the VT-2 visual examinations. The relief request will be revised by July 1, 1997.
7. Item 2.G; TVA will revise relief request ISPT-07 to observe a four-hour hold-time at test conditions prior to the VT-2 visual examination. The relief request will be revised by July 1, 1997.
8. Item 2.I.1; TVA's ISI Program Plan (0-SI-DXI-000-114.2) will be revised by May 1, 1997 to remove relief requests 1-ISI-4 and 2-ISI-4