



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

MAR 31 2006

10 CFR 50.55a

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket No. 50-390

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - AMERICAN SOCIETY OF
MECHANICAL ENGINEERS (ASME) SECTION XI INSERVICE PRESSURE
TESTING PROGRAM REQUEST FOR RELIEF ISPT-09 (TAC NO. MC8305)

The purpose of this submittal is to provide TVA's response to
NRC's request for additional information dated
February 3, 2006 concerning the subject relief request. The
Enclosure provides TVA's response to this request.

There are no regulatory commitments associated with this
submittal. If you have any questions concerning this matter,
please call me at (423) 365-1824.

Sincerely,

P. D. Pace
Manager, Site Licensing
and Industry Affairs

Enclosure
cc: See Page 2

A-047

U.S. Nuclear Regulatory Commission
Page 2

MAR 31 2006

Enclosure

cc (Enclosure):

NRC Resident Inspector
Watts Bar Nuclear Plant
1260 Nuclear Plant Road
Spring City, Tennessee 37381

Mr. D. V. Pickett, Senior Project Manager
U.S. Nuclear Regulatory Commission
MS 08G9a
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2738

U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth St., SW, Suite 23T85
Atlanta, Georgia 30303

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

NRC QUESTION 1

Relief Request (RR) No. ISPT-09 requests relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Division 1 (henceforth Section XI), Table IWB-2500-1, Examination Category B-P, based on the hardship provisions that are specified in Paragraph (a)(3)(ii) of Title 10 of the Code of Federal Regulations. Specify which Edition of Section XI is the Code of record for Watts Bar Nuclear Plant, Unit 1 (WBN-1). In addition, specify which Inspection Items in Section XI Table IWB-2500-1, Examination Category B-P are applicable to the piping segments that are within the scope of the relief request, as identified in Table 1, "Piping Segment Descriptions," of the Enclosure to the relief request.

TVA RESPONSE

The Code of Record for the WBN First Inservice Inspection Interval is the 1989 Edition of ASME Section XI.

Applicable inspection items for the piping segments are Item No. B15.51 for the piping itself and Item No. B15.71 for the valves contained within and establishing the boundary of each piping segment.

NRC QUESTION 2

Reference the basis (e.g., Academic Textbook, ASME Section XI paragraph, NUREG Report, etc.) for the following equation that is specified on Page E-4 of the RR No. ISPT-09 submittal:

$$L_p = L_{XI} \times (P_p / P_{XI})^{1/2}$$

TVA RESPONSE

The basis for the equation $L_p = L_{XI} \times (P_p / P_{XI})^{1/2}$ is the ASME Operation and Maintenance (OM) Standard 10, paragraph 4.2.2.3(b)(4) which provides guidance for correction of valve seat leakages to full functional differential pressure for tests that are performed at reduced pressures. OM-10, paragraph 4.2.2.3.(B)(4) states that leakage is proportional to the ratio

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

of the test differential pressure to the full functional differential pressure raised to the $\frac{1}{2}$ power. In the case of pressure testing of piping, the applicable pressures are reduced test pressure P_r and the Code specified test pressure P_{XI} .

NRC QUESTION 3

The relief request proposes to perform the required hydrostatic pressure tests of the ASME Code Class 1 piping segments at test pressures lower than those that are required in Section XI Table IWB-5220-1, which is called out by reference in Section XI Paragraph IWB-5222(a). Confirm that the alternative pressure tests proposed in RR No. ISPT-09 will be subject to the minimum hold times that are required by Section XI Paragraph IWA-5213 for hydrostatic pressure tests and the minimum test temperatures that are required by Section XI Article 5000 (e.g., the minimum temperature requirements in Paragraph IWB-5230 in Editions through the 1992 Edition or in Paragraph IWB-5240 in the 1995 Edition and more recent Editions).

TVA RESPONSE

The minimum hold time required by ASME Section XI paragraph IWA-5213(d) for system hydrostatic tests will be observed.

The minimum test temperature requirements of ASME Section XI paragraph IWB-5230 will be applied.

These hold times and temperatures are implemented in the implementing instruction for the 10-year hydrostatic pressure test.

NRC QUESTION 4

Table 1, "Piping Segment Descriptions," of the Enclosure to RR No. ISPT-09 (i.e., the enclosure to the Tennessee Valley Authority letter of September 8, 2005) provides the descriptions of the piping segments that are within the scope of the relief request. The staff seeks the following clarifications for the piping segments descriptions that are provided in Table 1:

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Note: In the following clarifications, the word "inboard" refers to the end of the boundary that is nearest to the reactor core and the word "outboard" refers to the end of the boundary that is furthest from the reactor core.

- a. Reactor Coolant Loop 1 on Page E-7: "Low pressure safety injection from RHR system CKV-63-633 to the 10-inch Loop 1 cold leg injection line." Clarify which component in the 10-inch Loop 1 cold leg injection line bounds the end of the piping segment that requires pressure testing.

TVA RESPONSE

The 10-inch Loop 1 cold leg injection line adjoined by this 6-inch branch connection is the second item in the listing of Loop 1 pipe segments and is bounded by CKV-63-622 and CKV-63-560. This 6-inch branch connection begins at outboard check valve CKV-63-633 and continues inboard to the point where it joins the 10-inch Loop 1 cold leg injection line.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and Updated Final Safety Analysis (UFSAR) Figure number which are attached for convenience.

- b. Reactor Coolant Loop 1 on Page E-7: "High pressure safety injection piping from the 3-inch common header from CKV-63-581 to Loop 1 cold leg piping to CKV-63-586." Confirm that the component description should be "High pressure safety injection piping from CKV-63-581 in the 3-inch common header to CKV-63-586 in the Loop 1 cold leg piping."

TVA RESPONSE

This piping segment does not run from CKV-63-581 to CKV-63-586. The high head safety injection piping between the inboard and outboard check valves is described in four segments, one for each loop. The common piping, which begins at CKV-63-581 and continues through the 2½-inch and 3-inch headers, is included with the segment containing the

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

1½-inch branch line to Loop 3. This piping segment is a 1½-inch branch connection that begins at Loop 1 inboard check valve, CKV-63-586, and continues outboard to the point where it joins the 3-inch supply header coming from CKV-63-581. The 3-inch supply header to which this branch is adjoined is the 3-inch portion of the fourth item down in the Loop 3 grouping of pipe segments. The 3-inch supply header is also part of the segment discussed in Item 4.j of this response.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- c. *Reactor Coolant Loop 1 on Page E-7: "Safety injection pump piping from CKV-63-543 to the 8-inch Loop 1 hot leg injection line." Clarify which component in the 8-inch Loop 1 hot leg injection line bounds the end of the piping segment.*

TVA RESPONSE

The 8-inch Loop 1 hot leg line adjoined by this 2-inch branch connection is the last piping segment in the listing of Loop 1 piping segments and is bounded by CKV-63-640 and CKV-63-641. This 2-inch branch connection begins at outboard check valve CKV-63-543 and continues inboard to the point where it joins the 8-inch residual heat removal (RHR) hot leg injection piping.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- d. *Reactor Coolant Loop 1 on Page E-7: "Safety injection pump piping from CKV-63-551 to the 6-inch Loop 1 cold leg injection line." Clarify which component in the 6-inch Loop*

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

1 cold leg injection line bounds the end of the piping segment.

TVA RESPONSE

The 6-inch Loop 1 cold leg injection line is the third item down in the Loop 1 grouping of pipe segments and is bounded by CKV-63-633. The 6-inch Loop 1 cold leg injection line, which is discussed in Item 4.a of this request, connects to the 10-inch cold leg accumulator (CLA) 1 discharge line that is the second item down in the Loop 1 grouping of pipe segments and is bounded by CKV-63-622 and CKV-63-560. The segment discussed in this item is a 2-inch branch connection beginning at outboard check valve, CKV-63-0551, and continuing inboard to the point where it joins the 6-inch Loop 1 cold leg injection line.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- e. *Reactor Coolant Loop 2 on Page E-8: "Low pressure safety injection from RHR system CKV-63-632 to the 10-inch Loop 2 cold leg injection line." Clarify which component in the 10-inch Loop 2 cold leg injection line bounds the end of the piping segment.*

TVA RESPONSE

The 10-inch Loop 2 cold leg injection line adjoined is the second item in the listing of Loop 2 pipe segments and is bounded by CKV-63-623 and CKV-63-561. This piping segment is a 6-inch branch connection beginning at outboard check valve CKV-63-632 and continuing inboard to the point where the segment joins the 10-inch piping coming from CLA 2.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- f. *Reactor Coolant Loop 2 on Page E-8: "High pressure safety injection piping from the 3-inch common header from CKV-63-581 to Loop 2 cold leg piping to CKV-63-587." Confirm that the component description should be "High pressure safety injection piping from CKV-63-581 in the 3-inch common header to CKV-63-587 in the Loop 2 cold leg piping."*

TVA RESPONSE

This piping segment does not run from CKV-63-581 to CKV-63-587. The high head safety injection piping between the inboard and outboard check valves is described in four segments, one for each loop. The common piping, which begins at CKV-63-581 and continues through the 2½-inch and 3-inch headers, is included with the segment containing the 1½-inch branch line to Loop 3. This piping segment is a 1½-inch branch connection that begins at the Loop 2 inboard check valve CKV-63-587 and continues outboard to the point where it joins the 3-inch supply header coming from CKV-63-581. The 3-inch supply header to which this branch is adjoined is the 3-inch portion of the fourth item down in the Loop 3 grouping of pipe segments. The 3-inch supply header is also part of the segment discussed in Item 4.j of this response.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- g. *Confirm that the Loop 2 piping segment descriptions on page E-8 should not include an entry from a check valve in the Safety Injection pump piping to a valve in an 8-inch or 6-inch Loop 2 hot leg injection line in the manner they have been included for Reactor Coolant System Loops 1, 3, and 4. If the Loop 2 entries should include such a piping segment description and the entry has not been included in Table 1, please amend Table 1 to add it. If the Loop 2 entries in Table 1 do include such a piping segment entry, please*

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

identify which entry contains the applicable component description.

TVA RESPONSE

The words "Loop 2 hot leg injection line" were not included in the Loop 2 segment containing CKV-63-547 and CKV-63-559. However, this piping segment is in fact the hot leg injection supply from the Safety Injection Pumps. The segment consists of 2-inch and 6-inch piping, with the transition to 6-inch piping being made less than a foot before the piping joins inboard check valve CKV-63-559.

ISPT-09 Table 1 has been resorted to include a specific reference to the Safety Injection Pumps in this segment identifier for clarity. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- h. *Reactor Coolant Loop 2 on Page E-8: "Safety Injection pump piping from CKV-63-553 to the 6-inch Loop 2 cold leg injection line." Clarify which component in the 6-inch Loop 2 cold leg injection line bounds the end of the piping segment.*

TVA RESPONSE

The 6-inch Loop 2 cold leg injection line (the third item down in the Loop 2 grouping of pipe segments) is bounded by CKV-63-632. The 6-inch RHR branch connection connects to the 10-inch CLA 2 discharge line (the second item down in the Loop 2 grouping of pipe segments) which is bounded by CKV-63-623 and CKV-63-561. The segment of piping discussed here is a 2-inch branch connection beginning at outboard check valve CKV-63-553 and continuing inboard to the point where it joins the 6-inch Loop 2 cold leg injection line. The 6-inch Loop 2 cold leg injection line is discussed in Item 4.e of this response.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- i. *Reactor Coolant Loop 3 on Page E-9: "Low pressure safety injection from RHR system CKV-63-634 to the 10-inch Loop 3 cold leg injection line." Clarify which component in the 10-inch Loop 3 cold leg injection line bounds the end of the piping segment.*

TVA RESPONSE

The 10-inch Loop 3 cold leg injection line adjoined is the second item in the listing of Loop 3 pipe segments and is bounded by CKV-63-624 and CKV-63-562. This piping segment is a 6-inch branch connection beginning at outboard check valve CKV-63-634 and continuing inboard to the point where it joins the 10-inch Loop 3 cold leg injection line.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- j. *Reactor Coolant Loop 3 on Page E-9: "High pressure safety injection piping from CKV-63-581 to Loop 3 cold leg piping to CKV-63-588." Confirm that the component description should be "High pressure safety injection piping from CKV-63-581 in the 3-inch common header to CKV-63-588 in the Loop 3 cold leg piping."*

TVA RESPONSE

This piping segment is high pressure safety injection piping and does run from CKV-63-581 to CKV-63-588. The high head safety injection piping between the inboard and outboard check valves is described in four segments, one for each loop. The common piping, which begins at CKV-63-581 and continues through the 2½-inch and 3-inch headers, is included with this segment, which also contains the 1½-inch branch line to Loop 3. The other three piping segments are 1½-inch branch connections that begin at their respective RCS loop inboard check valves (CKV-63-586, -587, and -589)

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

and continue outboard to the point where the segments join the 2½-inch and 3-inch supply headers coming from CKV-63-581 that are contained in this piping segment. The other three 1½-inch branch lines are discussed in Items 4.b, 4.f, and 4.n of this response.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- k. **Reactor Coolant Loop 3 on Page E-9: "Safety injection pump piping from CKV-63-545 to the 8-inch Loop 3 hot leg injection line." Clarify which component in the 8-inch Loop 3 hot leg injection line bounds the end of the piping segment.**

TVA RESPONSE

The 8-inch Loop 3 hot leg injection line adjoined is the last piping segment in the listing of Loop 3 piping segments and is bounded by CKV-63-643 and CKV-63-644. This segment of piping is a 2-inch branch connection beginning at outboard check valve CKV-63-545 and continuing inboard to the point where it joins the 8-inch Loop 3 hot leg injection line.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- l. **Reactor Coolant Loop 3 on Page E-9: "Safety injection pump piping from CKV-63-555 to the 6-inch Loop 3 cold leg injection line." Clarify which component in the 6-inch Loop 3 cold leg injection line bounds the end of the piping segment.**

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

TVA RESPONSE

The 6-inch Loop 3 cold leg injection line is the third item down in the Loop 3 grouping of pipe segments and is bounded by CKV-63-634. It is also discussed in Item 4.i of this response. The 6-inch Loop 3 cold leg injection line connects to the 10-inch CLA 3 discharge line bounded by CKV-63-624 and CKV-63-562. The 10-inch CLA 3 discharge line is the second item down in the Loop 3 grouping of pipe segments. The piping segment addressed by this item is a 2-inch branch connection beginning at outboard check valve CKV-63-555 and continuing inboard to the point where it joins the 6-inch Loop 3 cold leg injection line.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- m. *Reactor Coolant Loop 4 on Page E-10: "Low pressure safety injection from RHR system CKV-63-635 to the 10-inch Loop 4 cold leg injection line." Clarify which component in the 10-inch Loop 4 cold leg injection line bounds the end of the piping segment.*

TVA RESPONSE

The 10-inch Loop 4 cold leg injection line is the second item in the listing of Loop 4 pipe segments and is bounded by CKV-63-625 and CKV-63-563. The piping segment discussed in this item is a 6-inch branch connection beginning at outboard check valve CKV-63-635 and continuing inboard to the point where it joins the 10-inch Loop 4 cold leg injection line.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

- n. *Reactor Coolant Loop 4 on Page E-10: "High pressure safety injection piping from the 3-inch common header from CKV-63-581 to Loop 4 cold leg piping to CKV-63-589." Confirm that the component description should be "High pressure safety injection piping from CKV-63-581 in the 3-inch common header to CKV-63-589 in the Loop 4 cold leg piping."*

TVA RESPONSE

This piping segment does not run from CKV-63-581 to CKV-63-589. The high head safety injection piping between the inboard and outboard check valves is described in four segments, one for each loop. The common piping, which begins at CKV-63-581 and continues through the 2½-inch and 3-inch headers, is included with this segment, containing the 1½-inch branch line to Loop 3. The piping segments discussed here is the 1½-inch branch connection that begins at the Loop 4 inboard check valves, CKV-63-589, and continues outboard to the point where the segment joins the 3-inch supply header coming from CKV-63-581. The 3-inch supply header to which this branch is adjoined is the 3-inch portion of the fourth item down in the Loop 3 grouping of pipe segments. The 3-inch supply header is also part of the segment discussed in Item 4.j of this response.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- o. *Reactor Coolant Loop 4 on Page E-10: "Safety injection pump piping from CKV-63-557 to the 6-inch Loop 4 cold leg injection line." Clarify which component in the 6-inch Loop 4 cold leg injection line bounds the end of the piping segment.*

TVA RESPONSE

The 6-inch Loop 4 cold leg injection line is the third item down in the Loop 4 grouping of pipe segments and is bounded by CKV-63-635. The 6-inch Loop 4 cold leg injection line is also discussed in Item 4.m of this response. The 6-inch

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) SECTION XI
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Loop 4 cold leg injection line in turn connects to the 10-inch CLA 4 discharge line that is bounded by CKV-63-625 and CKV-63-563. The 10-inch CLA 4 discharge line is the second item down in the Loop 4 grouping of pipe segments. The segment of piping discussed in this item is a 2-inch branch connection beginning at outboard check valve CKV-63-557 and continuing inboard to the point where it joins the 6-inch Loop 4 cold leg injection line.

ISPT-09 Table 1 has been resorted to group the piping segment descriptions so that the interconnected segments are grouped together rather than by the RCS Loop to which the pipe attaches. This should clarify the scope and boundaries of the piping segments involved. The table has also been revised to indicate the appropriate drawing number and UFSAR Figure number which are attached for convenience.

- p. ***Reactor Coolant Loop 4 on Page E-10: "RHR piping between FCVs-74-1 and 8 and FCVs-74-2 and 9." The staff recommends that the pipe segment description be broken into two separate entries because it is confusing exactly which flow control valves are the valves that bound the length of the piping segments.***

TVA RESPONSE

Flow Control Valves, FCVs-74-1 and -2 are the preferred valves to be opened to establish a suction connection to the RCS during the shutdown process. Each valve is provided with a bypass valve [FCVs-74-8 and -9 respectively] installed in parallel with the preferred valve that can be opened by operator action if one of the preferred valves fail to open. The four valves are required to describe the boundary of this piping segment. FCVs-74-1 and -9 provide the inboard boundary and FCVs-74-2 and -8 provide the outboard boundary. See attached UFSAR Figure 5.5-3-1 (TVA Drawing No. 1-47W810-1).

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

TABLE 1 - PIPING SEGMENT DESCRIPTIONS

Description	Nominal Pipe Diameter (inches)	Pipe Schedule	Segment Length (feet)	Pipe Material	Piping Design Pressure (psig)	Proposed Test Pressure (psig)
Safety Injection Accumulator No. 1 Outlet Piping from the Outlet Isolation Valve to the Reactor Coolant System, Including the Branch Connections from RHR and SIS, Consisting of the Following Piping Segments: UFSAR FIGURE 6.3-1 SH 1 (TVA DRAWING 1-47W811-1)						
Safety injection Accumulator No. 1 outlet isolation valve to outlet check valve (FCV-63-118 to CKV-63-622) (Ref: C/N 83015; Dwg. E-2879 IC-89)	10	140	23	SA-376 Type 316	2485	610-660
Safety injection Accumulator No. 1 outlet check valve to Loop 1 cold leg (CKV-63-622 to CKV-63-560) (Ref: C/N 83015; Dwg. E-2879 IC-89)			18			1500
6-inch branch connection from the 10- inch Safety Injection Accumulator 1 outlet piping to the low pressure safety injection (RHR system) check valve CKV-63-633 (Ref: C/N 83015; Dwg. E-2879 IC-89)	6	160	23			
2-inch branch connection from the 6inch RHR system branch to the Safety Injection System check valve CKV-63-551 (Ref: Weld Map 435-7 Sheet 2)	2		10	SA-376 Type 304		

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Description	Nominal Pipe Diameter (inches)	Pipe Schedule	Segment Length (feet)	Pipe Material	Piping Design Pressure (psig)	Proposed Test Pressure (psig)
Safety Injection Accumulator No. 2 Outlet Piping from the Outlet Isolation Valve to the Reactor Coolant System, Including the Branch Connections from RHR and SIS, Consisting of the Following Piping Segments: UFSAR FIGURE 6.3-1 SH 1 (TVA DRAWING 1-47W811-1)						
Safety injection Accumulator No. 2 outlet isolation valve to outlet check valve (FCV-63-98 to CKV-63-623) (Ref: C/N 83015; Dwg. E-27879 IC-90)	10	140	16	SA-376 Type 316	2485	610-660
Safety injection Accumulator No. 2 outlet check valve to Loop 2 cold leg (CKV-63-623 to CKV-63-561) (Ref: C/N 83015; Dwg. E-27879 IC-90)			15			1500
6-inch branch connection from the 10-inch Safety Injection Accumulator 2 outlet piping to the low pressure safety injection (RHR system) check valve CKV-63-632 (Ref: C/N 83015; Dwg. E-27879 IC-90)	6	160	12	SA-376 Type 316	2485	1500
2-inch branch connection from the 6-inch RHR system branch to the Safety Injection System CKV-63-553 (Ref: Weld Map 435-8 Sheet 6)	2		21	SA-376 Type 304		

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Description	Nominal Pipe Diameter (inches)	Pipe Schedule	Segment Length (feet)	Pipe Material	Piping Design Pressure (psig)	Proposed Test Pressure (psig)
Safety Injection Accumulator No. 3 Outlet Piping from the Outlet Isolation Valve to the Reactor Coolant System, Including the Branch Connections from RHR and SIS, Consisting of the Following Piping Segments: UFSAR FIGURE 6.3-1 SH 1 (TVA DRAWING 1-47W811-1)						
Safety injection Accumulator No. 3 outlet isolation valve to outlet check valve (FCV-63-80 to CKV-63-624) (Ref: C/N 83015; Dwg. E-2879 IC-91)	10	140	9	SA-376 Type 316	2485	610-660
Safety injection Accumulator No. 3 outlet check valve to Loop 3 cold leg (CKV-63-624 to CKV-63-562) (Ref: C/N 83015; Dwg. E-2879 IC-91)			17			1500
6-inch branch connection from the 10- inch Safety Injection Accumulator 3 outlet piping to the low pressure safety injection (RHR system) check valve CKV-63-634 (Ref: C/N 83015; Dwg. E-2879 IC-91)	6	160	17			
2-inch branch connection from the 6- inch RHR system branch to the Safety Injection System check valve CKV-63-555 (Ref: Weld Map 435-9 Sheet 4)	2		20	SA-376 Type 304		

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Description	Nominal Pipe Diameter (inches)	Pipe Schedule	Segment Length (feet)	Pipe Material	Piping Design Pressure (psig)	Proposed Test Pressure (psig)
Safety Injection Accumulator No. 4 Outlet Piping from the Outlet Isolation Valve to the Reactor Coolant System, Including the Branch Connections from RHR and SIS, Consisting of the Following Piping Segments: UFSAR FIGURE 6.3-1 SH 1 (TVA DRAWING 1-47W811-1)						
Safety injection Accumulator No. 4 outlet isolation valve to outlet check valve (FCV-63-67 to CKV-63-625) (Ref: C/N 83015; Dwg. E-2879 IC-92)	10	140	22	SA-376 Type 316	2485	610-660
Safety injection Accumulator No. 4 outlet check valve to Loop 4 cold leg (CKV-63-625 to CKV-63-563) (Ref: C/N 83015; Dwg. E-2879 IC-92)			24			1500
6-inch branch connection from the 20- inch Safety injection Accumulator 4 outlet piping to the low pressure safety injection (RHR system) check valve CKV-63-635 (Ref: C/N 83015; Dwg. E-2879 IC-92)	6	160	21			
2-inch branch connection from the 6- inch RHR system branch to the Safety Injection System check valve CKV-63-557 (Ref: Weld Map 435-6 Sheet 9)	2		7	SA-376 Type 304		

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Description	Nominal Pipe Diameter (inches)	Pipe Schedule	Segment Length (feet)	Pipe Material	Piping Design Pressure (psig)	Proposed Test Pressure (psig)
High Pressure [BIT Injection] Safety Injection System Piping from Check Valve CKV-63-581 to the Reactor Coolant System, Consisting of the Following Piping Segments UFSAR FIGURE 6.3-1 SH 1 (TVA DRAWING 1-47W811-1)						
High pressure safety injection piping from CKV-63-581 to Loop 3 cold leg injection check valve CKV-63-588 (Ref: C/N 83015; Dwg. E-2879 IC-86; Weld Map 435-9 Sheet 2)	3	160	20	SA-376 Type 304	2485	1500
	2½		83			
	1½		39			
1½-inch branch connection from the 3-inch common header coming from CKV-63-581 to Loop 1 cold leg injection check valve CKV-63-586 (Ref: Weld Maps 435-6 Sheet 3 and 435-7 Sheets 16-17; 47W435-7)	123					
1½-inch branch connection from the 3-inch common header coming from CKV-63-581 to Loop 4 cold leg injection check valve CKV-63-589 (Ref: Weld Map 435-6 Sheet 4)	25					
1½-inch branch connection from the 2½-inch common header coming from CKV-63-581 to Loop 2 cold leg injection check valve CKV-63-587 (Ref: Weld Maps 435-8 Sheet 14 and 435-9 Sheet 1)	107					

ENCLOSURE

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Description	Nominal Pipe Diameter (inches)	Pipe Schedule	Segment Length (feet)	Pipe Material	Piping Design Pressure (psig)	Proposed Test Pressure (psig)
RHR Hot Leg Injection Piping from Check Valve CKV-63-640 to the Reactor Coolant System, Including the Branch Connection from SIS, Consisting of the Following Piping Segments: UFSAR FIGURE 6.3-1 SH 1 (TVA DRAWING 1-47W811-1)						
Low pressure safety injection from RHR system CKV-63-640 to the Loop 1 hot leg injection CKV-63-641 (Ref: C/N 83015; Dwg. E-2879 IC-54)	8	160	29	SA-376 Type 304	2485	1500
	6		2			
2-inch branch connection from the 8- inch RHR piping to Safety Injection System Check Valve CKV-63-543 (Ref: Weld Map 435-7 Sheet 6)	2		5			
RHR Hot Leg Injection Piping from Check Valve CKV-63-643 to the Reactor Coolant System, Including the Branch Connection from SIS, Consisting of the Following Piping Segments: UFSAR FIGURE 6.3-1 SH 1 (TVA DRAWING 1-47W811-1)						
Low pressure safety injection from RHR system CKV-63-643 to the Loop 3 hot leg injection CKV-63-644 [Reduces to 6" NPS at the inlet to CKV-63-644] (Ref: C/N 83015; Dwg. E-2879 IC-55)	8	160	42	SA-376 Type 304	2485	1500
2-inch branch connection from the 8- inch RHR piping to Safety Injection System Check Valve CKV-63-545 (Ref: Weld Map 435-8 Sheet 9)	2		7			

ENCLOSURE

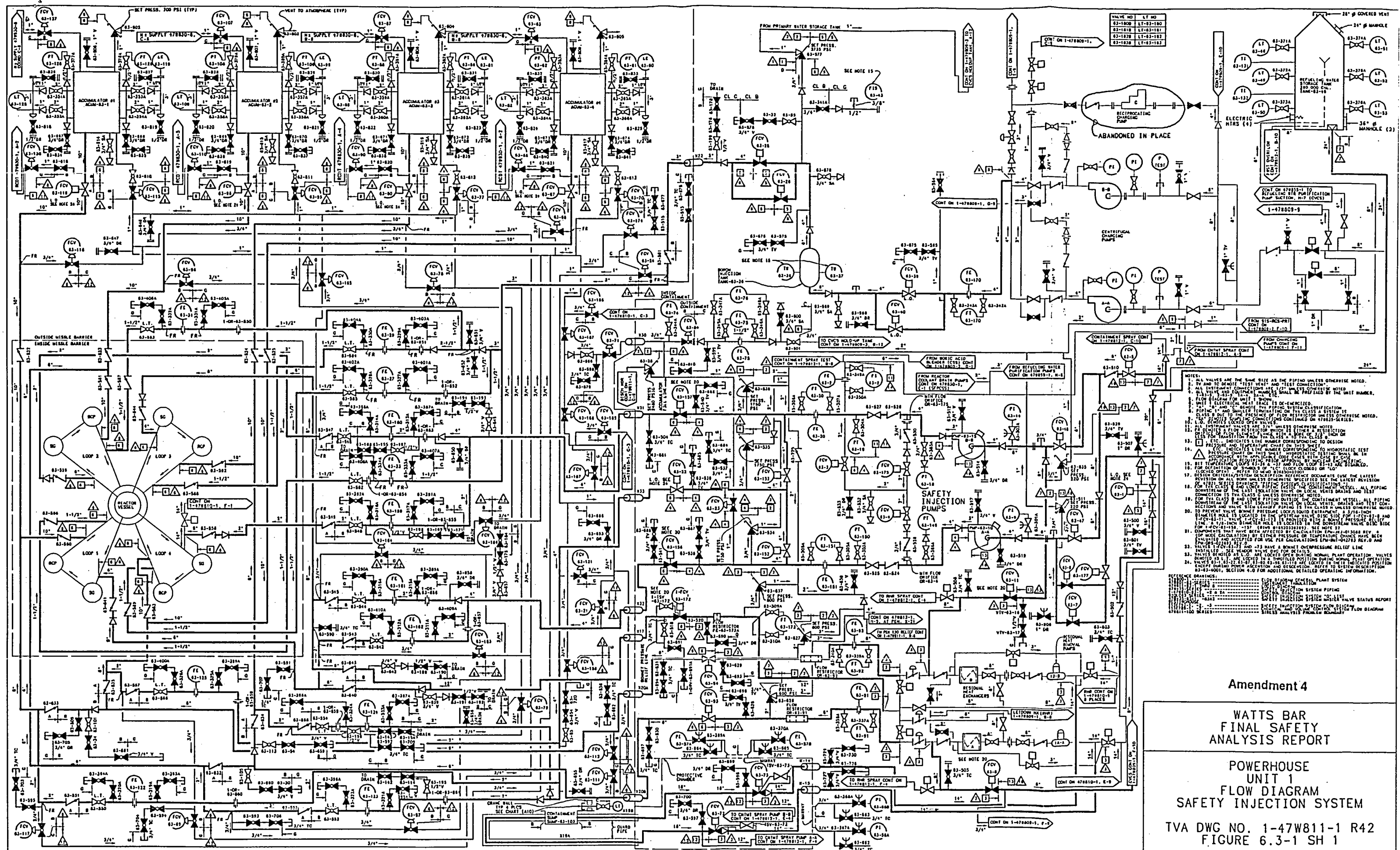
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Description	Nominal Pipe Diameter (inches)	Pipe Schedule	Segment Length (feet)	Pipe Material	Piping Design Pressure (psig)	Proposed Test Pressure (psig)
SIS Hot Leg Injection Piping from Check Valve CKV-63-647 to the Reactor Coolant System, Consisting of the Following Piping Segments: UFSAR FIGURE 6.3-1 SH 1 (TVA DRAWING 1-47W811-1)						
Safety Injection pump piping from CKV-63-547 to CKV-63-559 (Ref: C/N 83015, Dwg. E-2879 IC-90; Weld Map 435-8 Sheet 13)	2	160	30	SA-376 Type 304	2485	1500
	6		0.5	SA-376 Type 316		
SIS Hot Leg Injection Piping from Check Valve CKV-63-649 to the Reactor Coolant System, Consisting of the Following Piping Segments: UFSAR FIGURE 6.3-1 SH 1 (TVA DRAWING 1-47W811-1)						
Safety Injection pump piping from CKV-63-549 to CKV-63-558 in the 6 inch Loop 4 hot leg injection line (Ref: C/N 83015; Dwg. E-2879 IC-92; Weld Map 435-6 Sheet 1)	2	160	44	SA-376 Type 304	2485	1500
	6		0.5	SA-376 Type 316		
RHR Loop 4 Suction Piping from 1-FCV-74-2 and its Bypass Valve 1-FCV-74-8, to the Reactor Coolant System, Consisting of the Following Piping Segments: UFSAR FIGURE 5.5-4-1 SH 1 (TVA DRAWING 1-47W810-1)						
RHR piping between FCV-74-1 (and its bypass valve FCV-74-9) and FCV-74-2 (and its bypass valve FCV-74-8) (Ref: C/N 83015; DWG. E-2879 IC-53)	10	140	22	SA-376 Type 316	2485	350
	14		50			
Auxiliary Spray Piping Consisting of the Following Piping Segments: UFSAR FIGURE 9.3-15 SH 1 (TVA DRAWING 1-47W809-1)						
Auxiliary spray piping from 1-FCV-62-84 through 1-CKV-62-661 (Ref: C/N 83015; Dwg. E-2879 IC-36; Weld Map 406-9, Sheet 17; 47W406-7 & -8)	3	160	41	SA-376 Type 304	2485	325 to 2235

ENCLOSURE
ATTACHMENT

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
REQUEST FOR RELIEF ISPT-09
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

UFSAR FIGURE 9.3-15 SH 1 (TVA DRAWING 1-47W809-1)
UFSAR FIGURE 5.5-4-1 (TVA DRAWING 1-47W810-1)
UFSAR FIGURE 6.3-1 SH 1 (TVA DRAWING 1-47W811-1)



Amendment 4

WATTS BAR
FINAL SAFETY
ANALYSIS REPORT

POWERHOUSE
UNIT 1
FLOW DIAGRAM
SAFETY INJECTION SYSTEM

TVA DWG NO. 1-47W811-1 R42
FIGURE 6.3-1 SH 1