



Tennessee Valley Authority 2000

AUG 02 2000

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

Gentlemen:

In the Matter of ) Docket No. 50-390  
Tennessee Valley Authority )

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - RELIEF REQUEST ISPT-08,  
INSULATION REMOVAL FOR BOLTED CONNECTIONS FOR VT-2 EXAMINATION (TAC  
NO. MA8568)

The purpose of this letter is to revise the response to Question (a) of TVA's letter dated July 21, 2000. By revising Question (a), Question (b) must also be revised. This revised response is based on a teleconference call with the NRC's Material Branch and NRC Project Manager on July 27, 2000.

Enclosure 1 provides the revised responses. Enclosure 2 provides the revised table which includes the original 26 valves from TVA's relief request dated March 23, 2000. Twelve valves had been deleted in TVA's letter dated July 21, 2000. Following the teleconference call on July 27, 2000, these twelve valves are being added back into the relief request.

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If you have any questions concerning this matter, please telephone me at (423) 365-1824.

Sincerely,



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

Enclosures

cc (Enclosures):

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNIT 1  
RELIEF REQUEST ISPT-08  
REQUEST FOR ADDITIONAL INFORMATION

TVA submitted a request for relief ISPT-08 on March 23, 2000, concerning insulation removal from bolted connections. NRC reviewed this request and provided their position and request for additional information in a letter dated May 19, 2000. TVA responded to that request by letter dated July 21, 2000. On July 27, 2000, a teleconference call with NRC discussed the response provided by TVA in Question (a). NRC indicated that the request should have been for SA-193 material for the studs in lieu of SA-194 material which is for the nuts as operating experience has shown that nuts have never been a problem. Therefore, TVA is revising the response to Question (a) and subsequently Question (b) of the July 21, 2000 letter with the responses below.

Provide the following information regarding the Watts Bar relief request:

- (a) Heat Treatment of any **SA-193**, Grade B6 (410 stainless steel) bolting

RESPONSE

As noted in Attachment 1, TVA does not have any SA-193 bolting material in the twenty-six valves requested by this relief request.

- (b) Preload of an SA-453, Grade 660 (A-286), bolted connections

RESPONSE

TVA General Engineering Specification G-29, "Process Specification for Material Fabrication and Handling Requirements for Stainless Steel," Process Specification (PS) 4.M.4.4, provides the requirements for preloading/torqueing of bolting at Watts Bar Nuclear Plant. The requirements of this Engineering Specification are implemented through Maintenance Instruction (MI) 0.014, "Pressure Retaining Bolted Connections." Both G-29, PS 4.M.4.4, and MI-0.014 specify a maximum preload/torque value of 45 ksi. Both documents also provide that a different preload/torque value may only be used when specified in the vendor documentation. A review of the vendor documentation [Vendor Manuals WBN-VTD-W120-2958, WBN-VTD-F130-0930, WBN-VTD-V085-0010, and WBN-VTD-F130-0170] for the valves in request for relief ISPT-08, revealed no instructions for preloading/torqueing that exceeded 100 ksi. Attachment 2 of this enclosure, lists the stud diameters involved in the valves involved in this relief request, the torque/preload specified by G-29, PS 4.M.4.4, and the torque/preload specified by the vendor's manual.

ENCLOSURE 1  
ATTACHMENT 1

WATTS BAR NUCLEAR PLANT UNIT 1  
RELIEF REQUEST ISPT-08  
REQUEST FOR ADDITIONAL INFORMATION

Body, Bonnet, and Adjacent Piping Material Specifications  
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IDENTIFIER	CONTRACT	DRAWING	SIZE	COMPONENT	DESCRIPTION	STUD	NUT	PIPE	FITTING	BODY	BONNET
1-CKV-62-638	54114-01	934D183	3"	Check valve	CVCS Normal Charging Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-240 TP 316
1-CKV-62-640	54114-01	934D183	3"	Check valve	CVCS Alternate Charging Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-240 TP 316
1-CKV-62-659	54114-01	934D183	3"	Check valve	CVCS Normal Charging Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-240 TP 316
1-CKV-62-660	54114-01	934D183	3"	Check valve	CVCS Alternate Charging Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-240 TP 316
1-CKV-62-661	54114-01	934D183	3"	Check valve	CVCS Charging to RCS Spray Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-240 TP 316
1-CKV-63-558	54114-01	934D185	6"	Check valve	Hot Leg 4 Safety Injection Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 316	SA-403 TP 304 or TP 316	SA-182 F316	SA-240 TP 316
1-CKV-63-559	54114-01	934D185	6"	Check valve	Hot Leg 2 Safety Injection Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 316	SA-403 TP 304 or TP 316	SA-182 F316	SA-240 TP 316
1-CKV-63-560	54114-01	934D187	10"	Check valve	Cold Leg 1 Injection Header Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 316	SA-403 TP 304 or TP 316	SA-182 F316	SA-240 TP 316
1-CKV-63-561	54114-01	934D187	10"	Check valve	Cold Leg 2 Injection Header Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 316	SA-403 TP 304 or TP 316	SA-182 F316	SA-240 TP 316
1-CKV-63-562	54114-01	934D187	10"	Check valve	Cold Leg 3 Injection Header Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 316	SA-403 TP 304 or TP 316	SA-182 F316	SA-240 TP 316
1-CKV-63-563	54114-01	934D187	10"	Check valve	Cold Leg 4 Injection Header Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 316	SA-403 TP 304 or TP 316	SA-182 F316	SA-240 TP 316
1-CKV-63-622	54114-01	934D187	10"	Check valve	SIS Cold Leg Accumulator 1 Outlet Check	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 316	SA-403 TP 304 or TP 316	SA-182 F316	SA-240 TP 316
1-CKV-63-623	54114-01	934D187	10"	Check valve	SIS Cold Leg Accumulator 2 Outlet Check	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 316	SA-403 TP 304 or TP 316	SA-182 F316	SA-240 TP 316
1-CKV-63-624	54114-01	934D187	10"	Check valve	SIS Cold Leg Accumulator 3 Outlet Check	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 316	SA-403 TP 304 or TP 316	SA-182 F316	SA-240 TP 316
1-CKV-63-625	54114-01	934D187	10"	Check valve	SIS Cold Leg Accumulator 4 Outlet Check	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 316	SA-403 TP 304 or TP 316	SA-182 F316	SA-240 TP 316

ENCLOSURE 1  
ATTACHMENT 1

WATTS BAR NUCLEAR PLANT UNIT 1  
RELIEF REQUEST ISPT-08  
REQUEST FOR ADDITIONAL INFORMATION

Body, Bonnet, and Adjacent Piping Material Specifications  
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IDENTIFIER	CONTRACT	DRAWING	SIZE	COMPONENT	DESCRIPTION	STUD	NUT	PIPE	FITTING	BODY	BONNET
1-CKV-63-641	54114-01	934D185	6"	Check valve	Hot Leg 1 Injection Header Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-240 TP 316
1-CKV-63-644	54114-01	934D185	6"	Check valve	Hot Leg 3 Injection Header Check Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-240 TP 316
1-FCV-62-69	54114-01	54A0242	3"	Globe Valve	CVCS Letdown Isolation Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-182 F316
1-FCV-62-70	54114-01	54A0223	3"	Globe Valve	CVCS Letdown Isolation Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-182 F316
1-FCV-68-332	54114-01	115E010	3"	Gate Valve	Pressurizer PORV Block Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-182 F316
1-FCV-68-333	54114-01	115E010	3"	Gate Valve	Pressurizer PORV Block Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-182 F316
1-FCV-74-1	54114-01	115E622	12"	Gate Valve	Loop 4 Hot Leg to RHR Suction Isolation	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-182 F316
1-FCV-74-9	54114-01	1167E79	10"	Gate Valve	1-FCV-74-1 Bypass RHR Suction Isolation	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-182 F316
1-ISV-68-580	54114-01	E73-035-R	3"	Gate Valve	RCS Loop 3 Letdown Isolation Valve	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-182 F316
1-PCV-68-340B	54114-01	54A0278	4"	Gate Valve	RCS Loop 2 Pressurizer Spray Line Isolation	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-182 F316 Note 1
1-PCV-68-340D	54114-01	54A0278	4"	Gate Valve	RCS Loop 1 Pressurizer Spray Line Isolation	SA-453, Grade 660	SA-194, Grade B6	SA-376 TP 304	SA-403 TP 304	SA-182 F316	SA-182 F316 Note 1

Notes:

- The part identified by the manufacturer as the bonnet does not come in contact with the contained fluid, and is not identified on the ASME Code NPV-1 form as a pressure retaining item. Instead, it serves as the attachment bracket to connect the operator to the valve. The part of the valve that does perform a pressure retaining function, is identified as such on the ASME NPV-1 Form, is in contact with the contained fluid, and forms the other half of the "body-to-bonnet" connection is identified by the manufacturer as the packing box. The packing box is bolted directly to the body and forms the pressure retaining boundary. The material specifications listed in the bonnet column is the one associated with the part identified by the manufacturer as the packing box.

ENCLOSURE 1  
ATTACHMENT 1

WATTS BAR NUCLEAR PLANT UNIT 1  
RELIEF REQUEST ISPT-08  
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Body, Bonnet, and Adjacent Piping Material Specifications  
Page 3 of 3

Adjacent Material Specifications	Grade	Chromium Content
SA-376	TP304	18-20*
SA-376	TP316	16-18*
SA-403	TP304	18-20*
SA-403	TP316	16-18*
Body Material Specifications	Grade	Chromium Content
SA-182	F316	16-18*
Bonnet Material Specifications	Grade	Chromium Content
SA-182	F316	16-18*
SA-240	TP 316	16-18*

ENCLOSURE 1  
ATTACHMENT 2

WATTS BAR NUCLEAR PLANT UNIT 1  
RELIEF REQUEST ISPT-08  
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

Summary of Bolting Preload/Torque Values  
Page 1 of 1

Applicable Valve	Stud Diameter	Preload Value [Torque] Specified by G-29, PS 4.M.4.4	Preload Value [Torque] Specified by the Vendor's Manual
1-FCV-62-69	0.625"	45 ksi [90 ft-lbs]	65 ksi [130 ft-lbs]
1-FCV-62-70	0.875"	45 ksi [240 ft-lbs]	63.75 ksi [340 ft-lbs]
1-ISV-68-580	0.5625	45 ksi [68 ft-lbs]	45ksi [67 ft-lbs]
1-PCV-68-340B	0.875	45 ksi [240 ft-lbs]	41.25 ksi [220 ft-lbs]
1-PCV-68-340D			
All Remaining Valves	0.875"	45 ksi [240 ft-lbs]	41.25 ksi [220 ft-lbs]
	1.000"	45 ksi [368 ft-lbs]	61.14 ksi [500 ft-lbs]
	1.250"	45 ksi [750 ft-lbs]	54 ksi [900 ft-lbs]
	1.625"	45 ksi [1650 ft-lbs]	57.27 ksi [2100 ft-lbs]
	1.875"	45 ksi [3000 ft-lbs]	52.5 ksi [3500 ft-lbs]

## ENCLOSURE 2

WATTS BAR NUCLEAR PLANT UNIT 1  
RELIEF REQUEST ISPT-08

**TABLE**  
**CODE CLASS 1 BOLTED CONNECTIONS INSIDE THE POLAR CRANE WALL**

IDENTIFIER	SIZE	COMPONENT	DESCRIPTION	STUD	NUT	RFO2 Dose Rate <sup>1</sup>	Estimated Man-Hours <sup>2</sup>	Projected RFO3 Dose <sup>2</sup>
1-CKV-62-638	3"	Check valve	CVCS Normal Charging Check Valve	↑	↑	40/40/40	↑	↑
1-CKV-62-640	3"	Check valve	CVCS Alternate Charging Check Valve			GA 30-50		
1-CKV-62-659	3"	Check valve	CVCS Normal Charging Check Valve			40/40/40		
1-CKV-62-660	3"	Check valve	CVCS Alternate Charging Check Valve			GA 30-50		
1-CKV-62-661	3"	Check valve	CVCS Charging to RCS Spray Check Valve			100/80/80		
1-CKV-63-558	6"	Check valve	Hot Leg 4 Safety Injection Check Valve			70/30/25		
1-CKV-63-559	6"	Check valve	Hot Leg 2 Safety Injection Check Valve			200/30/20		
1-CKV-63-560	10"	Check valve	Cold Leg 1 Injection Header Check Valve	SA-453	SA-194	140/100/80	668	4.02
1-CKV-63-561	10"	Check valve	Cold Leg 2 Injection Header Check Valve	Grade 660	Grade B6	250/140/40		
1-CKV-63-562	10"	Check valve	Cold Leg 3 Injection Header Check Valve	↓	↓	160/80/40		
1-CKV-63-563	10"	Check valve	Cold Leg 4 Injection Header Check Valve			GA 30-50	↓	↓
1-CKV-63-622	10"	Check valve	SIS Cold Leg Accumulator 1 Outlet Check			GA 10-20		
1-CKV-63-623	10"	Check valve	SIS Cold Leg Accumulator 2 Outlet Check			10/10/10		
1-CKV-63-624	10"	Check valve	SIS Cold Leg Accumulator 3 Outlet Check			GA 10-20		
1-CKV-63-625	10"	Check valve	SIS Cold Leg Accumulator 4 Outlet Check			GA 10-20		

Person-Rem



## ENCLOSURE 2

WATTS BAR NUCLEAR PLANT UNIT 1  
RELIEF REQUEST ISPT-08TABLE  
CODE CLASS 1 BOLTED CONNECTIONS INSIDE THE POLAR CRANE WALL

IDENTIFIER	SIZE	COMPONENT	DESCRIPTION	STUD	NUT	RFO2 Dose Rate <sup>1</sup>	Estimated Man-Hours <sup>2</sup>	Projected RFO3 Dose <sup>2</sup>
1-CKV-63-641	6"	Check valve	Hot Leg 1 Injection Header Check Valve	↑	↑	GA 40-50	↑	↑
1-CKV-63-644	6"	Check valve	Hot Leg 3 Injection Header Check Valve			GA 60		
1-FCV-62-69	3"	Globe Valve	CVCS Letdown Isolation Valve			180/80/50		
1-FCV-62-70	3"	Globe Valve	CVCS Letdown Isolation Valve			GA 50		
1-FCV-68-332	3"	Gate Valve	Pressurizer PORV Block Valve	SA-453	SA-194	GA 10-20	668	4.02
1-FCV-68-333	3"	Gate Valve	Pressurizer PORV Block Valve	Grade 660	Grade B6	GA 10-20		
1-FCV-74-1	12"	Gate Valve	Loop 4 Hot Leg to RHR Suction Isolation	↓	↓	GA 50-100	↓	↓
1-FCV-74-9	10"	Gate Valve	1-FCV-74-1 Bypass RHR Suction Isolation			GA 50-100		
1-ISV-68-580	3"	Gate Valve	RCS Loop 3 Letdown Isolation Valve			200/100/35		
1-PCV-68-340B	4"	Gate Valve	RCS Loop 2 Pressurizer Spray Line Isolation			300/100		
1-PCV-68-340D	4"	Gate Valve	RCS Loop 1 Pressurizer Spray Line Isolation			150/100		

## Notes:

- Where three numbers are presented, separated by a slash, they represent Dose on contact/Dose at 30 centimeters/General area dose. Numbers preceded by the letters GA are general area dose rates in the vicinity of the component. All dose rates are expressed in mrem/hour.
- Man-hour and dose estimates are for insulation removal and replacement only.