



**Commonwealth Edison**  
 1400 Opus Place  
 Downers Grove, Illinois 60515

May 26, 1994

Mr. William T. Russell, Director  
 Office of Nuclear Reactor Regulation  
 U.S. Nuclear Regulatory Commission  
 Washington, D.C. 20555

Subject: Zion Nuclear Station Unit 2  
 Second Interval Inservice Inspection  
 Program Relief Request  
NRC Docket No. 50-304

Dear Mr. Russell:

By letter dated June 27, 1983, Commonwealth Edison Company, (CECo) submitted the Inservice Inspection for the Second Ten Year Interval for Zion Station. As required by 10 CFR 55(a)(g), the plan was prepared in compliance with ASME Section XI, 1980 Edison through Winter 1981 Addenda.

Pursuant to 10 CFR 50.55(a)(g)(5)(iii), CECo is seeking to modify its inservice inspection requirements with the following relief requests:

1. Relief Request IWB-15
2. Relief Request IWB-16
3. Technical Approach and Position 13

Relief request IWB-15 proposes alternate examinations for the Pressurizer Vessel to Support Shirt Integral Attachment Weld. Relief Request IWB-16 seeks relief from the performance of the Code-required examination of the internal surfaces the Reactor Coolant Pump Casings.

Technical Approach and Position 13 adopts Code Case N-356, which addresses the recertification of NDE personnel.

If there are any questions or comments regarding this matter, please direct them to this office.

Sincerely,

T.W. Simpkin  
 Nuclear Licensing Administrator

Attachments

cc: J.B. Martin, Regional Administrator - RIII  
 C.Y. Shiraki, Project Manager - NRR  
 J.D. Smith, Senior Resident Inspector - Zion

AC47

ZION GENERATING STATION  
UNIT 2

RELIEF REQUEST IWB-15

COMPONENT IDENTIFICATION:	Unit 2 Pressurizer Vessel to Support Skirt Attachment Weld
CODE CLASS:	1
REFERENCES:	Table IWB-2500-1 Figure IWB-2500-13
EXAMINATION CATEGORY:	B-H
ITEM NUMBER:	B8.20
DESCRIPTION:	Pressurizer Vessel to Support Skirt Integral Attachment Weld.
COMPONENT NUMBER:	2RC002
CODE REQUIREMENT:	Surface examination shall be performed on surfaces A-B and C-D as shown in figure IWB-2500-12 per Table IWB-2500-1.

BASIS FOR RELIEF:

Relief is requested on the basis that compliance with the code requirements would result in hardship or unusual difficulty without a compensating increase in the level of plant quality and safety.

The Pressurizer Vessel to Support Skirt Integral Attachment Weld is best represented by ASME Section XI Figure IWB-2500-13 (reference Zion figure B15 for Zion Unit's configuration). Tight clearances beneath the pressurizer prohibit physical access for surface preparation and inspection of surface area C-D of figure IWB-2500-13 (shown in Zion figure B15) of the pressurizer support skirt to vessel integral attachment weld. In addition, insulation and associated support steel on the lower head of the pressurizer hinder access to the examination surface. The removal of the insulations covering the lower pressurizer head will result in high radiation exposure to plant personnel.

A radiological survey performed in the area of the Unit 2 lower pressurizer head found dose rates of 2.25 rem/hr on contact with the surge nozzle, 1.2 rem/hr at 18", and 700 rem/hr in the general area. The dose rates will increase if the mirror insulation was removed.

ZION GENERATING STATION  
UNIT 2

RELIEF REQUEST IWB-15

BASIS FOR RELIEF: (continued)

In order to perform exams on area C-D of figure IWB-2500-13, the surface area must be accessible for proper surface preparation and examination. Area C-D is not accessible since the insulation covering the lower head of the pressurizer was not designed to be removed. In addition, adequate weld preparation and inspection is not physically possible due to the tight clearances beneath the pressurizer.

The lower head of the pressurizer is covered by 4 inch thick multi-layered stainless steel mirror insulation which was not designed for removal. In order to remove the insulation, the 78 pressurizer heater cables would have to be disconnected (reference Zion figures B12 and B13) and each of the 78 convection stops which are riveted to the insulation would have to be cut and removed so that the insulation could be removed over the pressurizer heaters (reference Zion figure B14). The lower head insulation is supported by structural steel that is attached to the support skirt and presents an additional barrier that prohibits access to surface area C-D. The structural steel will also need to be removed in order to access area C-D.

Even if the insulation was removed, tight clearances beneath the pressurizer head would prohibit physical access needed to prepare and examine the weld.

The radiation exposure to plant personnel for insulation removal, structural steel disassembly, surface preparation, and inspection is estimated to be a 63 person-rem (based on a dose rate of 1.2 rem/hr). The radiological conditions would result in significant individual and cumulative radiation exposure and conflicts with Zion Station's ALARA objectives.

Relief is requested on the basis that compliance with the code requirements would result in hardship or unusual difficulty without a compensating increase in the level of plant quality and safety.

PROPOSED ALTERNATE EXAMINATION:

Surface examination will continue to be performed on surface area A-B. In addition, the support skirt will receive a VT-3 examination.

The compressive loading on the support, as well as, the mild environmental does not favor the initiation of service induced flaws in the weld. Examination of surface A-B of Figure IWB-2500-13 would result in adequate information to evaluate the integrity of the weld.

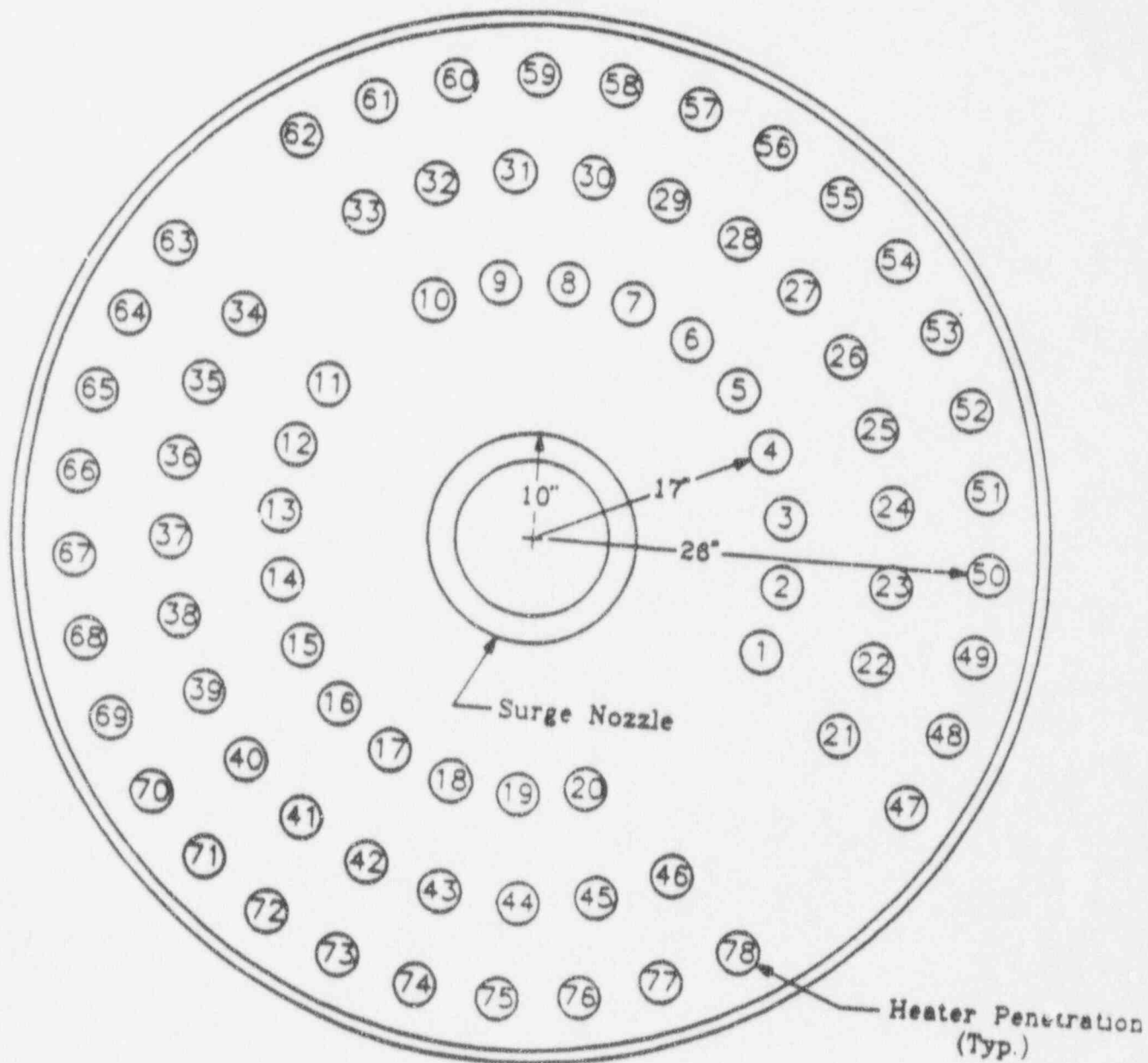
APPLICABLE TIME PERIOD FOR RELIEF:

Relief is requested for the Second Ten-year ISI Interval.

RELIEF REQUEST IWB-15

FIGURE B12

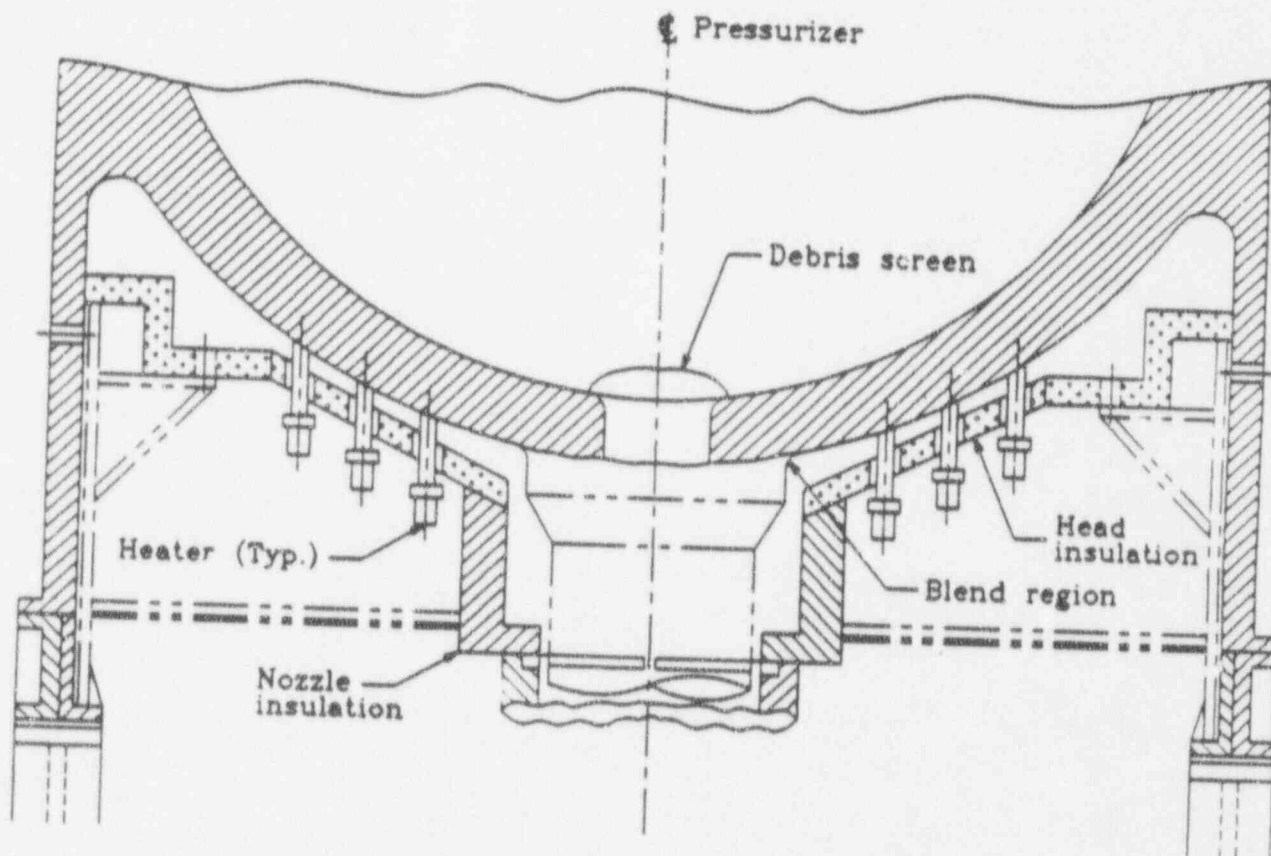
BOTTOM VIEW OF PRESSURIZER



RELIEF REQUEST IW8-15

FIGURE B13

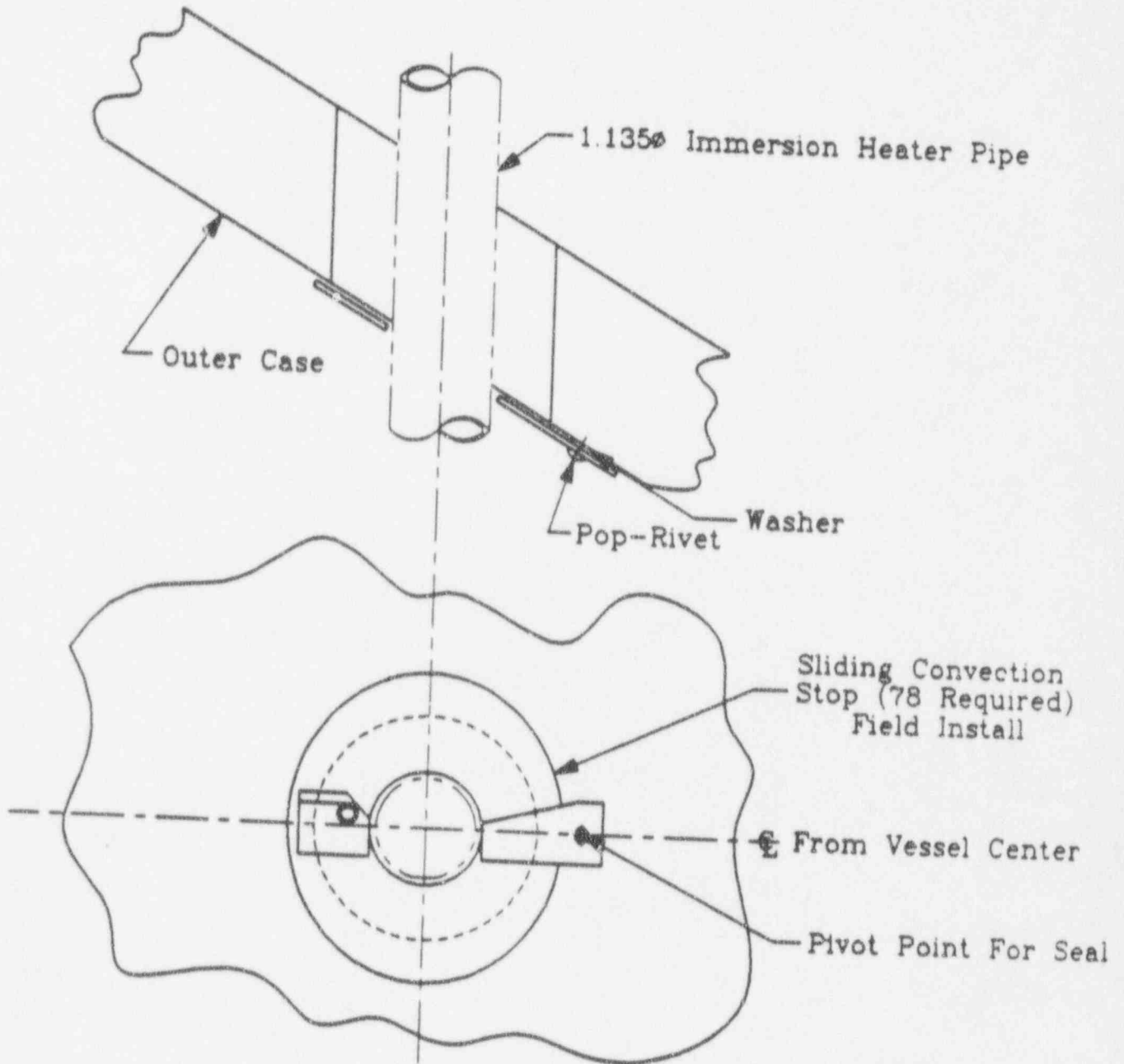
SIDE VIEW OF UNIT 2 PRESSURIZER HEAD CONFIGURATION  
WITH INSTALLED INSUATION AND SUPPORT SKIRT  
(NOT TO SCALE)



RELIEF REQUEST IWB-15

FIGURE B14

SIDE AND BOTTOM VIEWS OF A TYPICAL  
CONVECTION STOP FOR A PRESSURIZER HEATER



RELIEF REQUEST IWB-15

FIGURE B15

PRESSURIZER VESSEL TO SUPPORT SKIRT  
INTEGRAL ATTACHMENT WELD

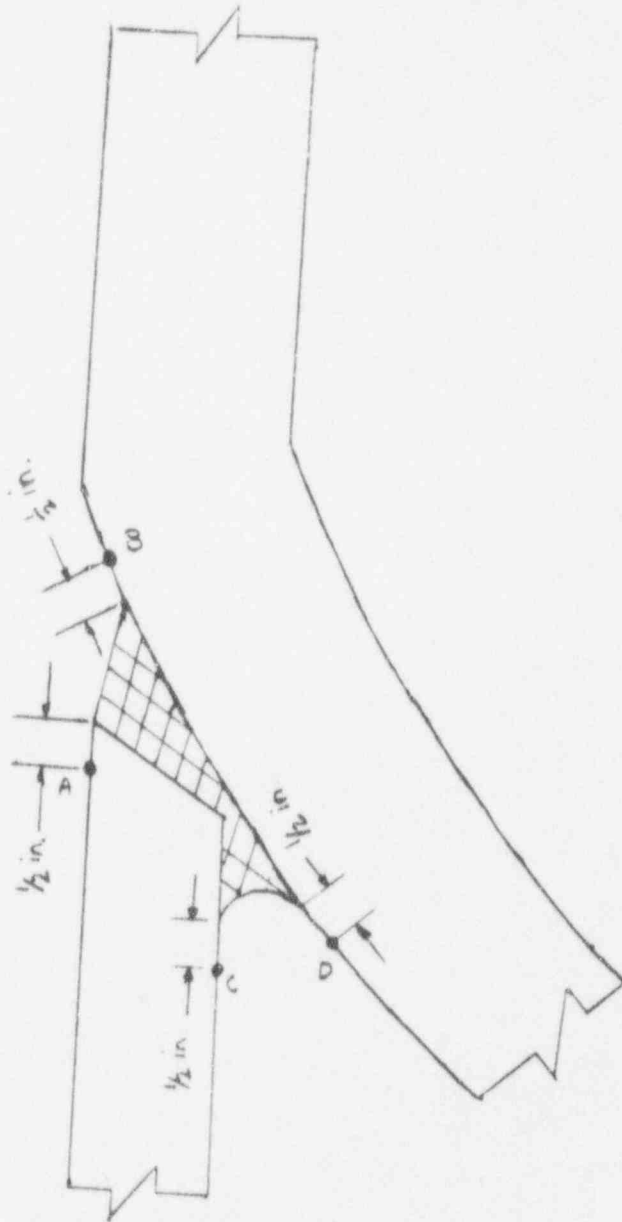


FIGURE IWB-2500-13 MODIFIED  
FOR ZION UNIT 2 PRESSURIZER CONFIGURATION

ZION GENERATING STATION  
UNIT 2

RELIEF REQUEST IWB-16

COMPONENT IDENTIFICATION:	Reactor Coolant Pump
CODE CLASS:	1
REFERENCES:	Table IWB-2500-1
EXAMINATION CATEGORY:	B-L-2
ITEM NUMBER:	B12.20
DESCRIPTION:	Reactor Coolant Pump Casings
COMPONENT NUMBER:	2RC110, 2RC210, 2RC310, 2RC410
CODE REQUIREMENT:	VT-3 examinations are required on the internal surfaces. Examinations are limited to welds in at least one pump in each group of pumps performing similar functions in the system. Examinations may be performed on the same pump selected for volumetric examination of welds.

BASIS FOR RELIEF:

Relief is requested on performing examinations on the Reactor Coolant Pump casing internal surface on the basis that compliance with the Code requirement would result in hardship or unusual difficulty without a compensating increase in the level of plant quality and safety.

Later editions of Section IX (beginning with the 1988 addenda) do not require the examination of the Reactor Coolant Pump casing internal surface unless disassembled for maintenance. Previous experience with similar pumps throughout the industry has not revealed any significant degradation.

In order to access the internal surface of the reactor coolant pump, the pump must be disassembled. Based upon the data acquired during the 1D Reactor Coolant Pump replacement performed in January 1991, it is estimated that 32 rem of radiation exposure would be received to prepare the area, disassemble, and reassemble a reactor coolant pump.

The Reactor Coolant Pump is made of ASTM A-351, Grade CF8 which is high quality cast stainless steel with an excellent history of erosion and corrosion resistance. Strict control of the reactor coolant water chemistry prevents the occurrence of a corrosive environment. Excessive erosion of the pump casing would be evidenced by a reduction in the RCS flowrate. Such a reduction has not been observed.



## BASIS FOR RELIEF (continued):

VT-3 exams were conducted on the 1D Reactor Coolant Pump when it was disassembled for maintenance in January 1991. Aside from the light rub marks that were noted on the inside surface (most likely from disassembly) no indications of degradation were observed.

Due to the fact that very high radiation exposures to personnel would occur if the pump is disassembled to provide access to the internal surface and the fact that the Reactor Coolant Pump casing is made of high quality material that is highly resistant to erosion and corrosion, the data obtained from this inspection does not provide a compensatory increase in quality and safety sufficient to justify the hazards of personnel radiation exposure received to obtain the data.

Reactor Coolant Pump casing degradation has not been a problem in the industry.

## PROPOSED ALTERNATE EXAMINATION:

VT-3 exams will be performed on the internal surface if the pump is disassembled for maintenance. The proposed alternative examination is consistent with the 1989 Edition of Section XI which requires the exam only if the pump is disassembled.

VT-2 examinations of the pump exterior will be performed as required by Section XI.

## APPLICABLE TIME PERIOD FOR RELIEF:

This relief request is for the Second Ten-Year Interval.

ZION STATION UNITS 1 AND 2  
SECOND TEN YEAR INTERVAL

TECHNICAL APPROACH AND POSITION 13

COMPONENT IDENTIFICATION:

CODE CLASS: N/A

REFERENCES: IWA-2300(a)(1)

EXAMINATION CATEGORY: N/A

ITEM NUMBER: N/A

DESCRIPTION: Triennial recertification of Level III  
NDE Personnel

CODE REQUIREMENT:

IWA-2300(a)(1) states: "All level III nondestructive examination personnel shall be qualified to SNT-TC-1A 1980 by examination. All Level I, II, and III personnel shall be recertified by examination on a triennial basis."

POSITION:

It is the position of Zion Station to allow NDE Level III personnel to be recertified by examination every five years as allowed by Code Case N-356. Recertification intervals for Level I and II personnel will remain unchanged. This position is consistent with later editions of Section XI.

Code Case N-356 is approved for use in Regulatory Guide 1.147 Revision 10 dated July 1993.