WOLF CREEK
NUCLEAR OPERATING CORPORATION

Richard A. Muench
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May 3, 1996

ET 96-0027

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Reference: 1) Letter dated March 6, 1996, from J. C. Stone, NRC, to N. S. Carns, WCNOC
2) Letter WM 95-0129, dated August 30, 1995, from N. S. Carns, WCNOC, to USNRC

Subject: Docket No. 50-482: Response to Request for Additional Information, Second 10-Year Inservice Inspection Interval

Gentlemen:

Attached is Wolf Creek Nuclear Operating Corporation's (WCNOC) reply to the Request for Additional Information transmitted by Reference 1. WCNOC's reply includes new Relief Requests I2R-19 and I2R-20. This reply also includes Relief Request I2R-17, which has been rewritten for clarification. The Enclosure provides a copy of ASME Code Case N-509 for your convenience.

Relief Request I2R-17 was previously submitted by Reference 2. It requests the use of alternative rules for system pressure testing of Standby Emergency Diesel Generator Subsystem components. Relief Request I2R-17, as revised by this transmittal, supersedes Relief Request I2R-17 submitted by Reference 2.

Relief Request I2R-19 requests the use of the alternative requirements of Code Case N-498-1 for the Second Interval Inservice Inspection Program. Relief Request I2R-20 requests the use of the alternative requirements of Code Case N-509 for the Second Interval Inservice Inspection Program.

This transmittal was discussed with the NRC Project Manager and the NRC Reviewer on April 24, 1996.

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If you should have any questions regarding this response, please contact me at (316)364-8831, extension 4034, or Mr. Richard D. Flannigan at extension 4500.

Very truly yours,

Richard A. Muench

Richard A. Muench

RAM/jra

Attachment

Enclosure

cc: L. J. Callan (NRC), w/a
W. D. Johnson (NRC), w/a
J. F. Ringwald (NRC), w/a
J. C. Stone (NRC), w/a

Response to Request for Additional Information

The following information is provided in response to the Request for Additional Information on the Second Interval Inservice Inspection Program Plan dated March 6, 1996.

Request Item a.

Section 2.1.3 states that Code Case N-498-1, "Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2, and 3 Systems," has been approved for use until it is incorporated into Regulatory Guide 1.147. Relief given to Wolf Creek Generating Station during the first interval does not apply to subsequent intervals. Is it the licensee's intent to submit for relief to use this Code Case during the second 10-year interval?

Response Item a.

It is the intent to have the ability to use the alternatives provided by Code Case N-498-1 in the second 10-year interval. Relief Request I2R-19 is provided for requesting use of the alternatives provided by Code Case N-498-1.

WOLF CREEK GENERATING STATION
SECOND INTERVAL ISI PROGRAM PLAN

RELIEF REQUEST I2R-19
(Page 1 of 2)

COMPONENT IDENTIFICATION

Code Classes:	1, 2, and 3
References:	Tables IWB-2500-1, IWC-2500-1, and IWD-2500-1 Examination Categories B-P, C-H, D-A, D-B, and D-C
Item Numbers:	All Item Numbers within Categories B-P and C-H; and D1.10, D2.10, and D3.10
Description:	Alternate Rules for 10-Year System Hydrostatic Testing of Class 1, 2, and 3 Systems.
Component ID:	All Class 1, 2, and 3 Systems

CODE REQUIREMENTS

Class 1 Systems

Table IWB-2500-1, Examination Category B-P requires the performance of a system hydrostatic test and accompanying visual examination VT-2 of all Class 1 system components at or near the end of each interval.

Class 2 Systems

Table IWC-2500-1, Examination Category C-H requires the performance of a system hydrostatic test and accompanying visual examination VT-2 of all Class 2 components within the pressure retaining boundary of the system at or near the end of each interval. The pressure retaining boundary is defined as all system components up to and including the first normally closed valve or valve capable of automatic closure when the system safety function is required.

Class 3 Systems

Table IWD-2500-1, Examination Categories D-A, D-B, and D-C, require the performance of a system hydrostatic test and accompanying visual examination VT-2 of all Class 3 components within the pressure retaining boundary of the system at or near the end of each interval. The pressure retaining boundary is defined as all system components up to and including the first normally closed valve or valve capable of automatic closure when the system safety function is required.

WOLF CREEK GENERATING STATION
SECOND INTERVAL ISI PROGRAM PLAN

RELIEF REQUEST I2R-19
(Page 2 of 2)

BASIS FOR RELIEF

Relief is being requested to allow the use of alternative requirements for system hydrostatic testing of Class 1, 2 and 3 systems as detailed in Code Case N-498-1. The basis for this request is as follows:

1) The ASME Section XI Working Group on Pressure Testing concluded that no additional benefit would be gained by conducting the existing Class 1, 2, and 3 system hydrostatic tests versus performing the 40 month pressure tests at nominal operating pressure.

2) Licensees incur considerable time, radiation dose, and monetary resources carrying out hydrostatic test requirements.

3) The NRC staff has recognized, through approval for use of Code Case N-498-1 in WCNOC's first inspection interval, that "..compliance with the Section XI hydrostatic testing requirements results in hardship and/or unusual difficulty for the licensees without a compensating increase in the level of quality and safety."

4) The alternate rules of Code Case N-498-1 provide an acceptable level of quality and safety.

PROPOSED ALTERNATIVE EXAMINATION

The requirements of Code Case N-498-1 may be used as an alternative to the system hydrostatic testing requirements.

PERIOD FOR WHICH RELIEF IS REQUESTED

Relief is requested for the second inspection interval, September 3, 1995 through September 2, 2005.

Request Item b.

Section 2.1.5 adopts Code Case N-509, "Alternative Rules for the Selection and Examination of Class 1, 2, and 3 Integrally Welded Attachments." The licensee expects Code Case N-509 to be incorporated into Regulatory Guide 1.147 prior to inspection activities at Wolf Creek Generating Station; therefore, a request for relief to use Code Case N-509 has not been provided. Explain how Code Case N-509 is being implemented at Wolf Creek; include the total population of non-exempt integral attachments by class and samples scheduled for examination by class.

Response Item b.

As discussed during the telecon on April 24, 1996, that included Wolf Creek personnel, Tom Sala from VECTRA, NRC personnel, and NRC contract personnel from INEL, the original submittal had included the total population of Class 1, 2, and 3 integrally welded attachments on a system basis. The applicable listings included identification of which components were selected for examination. The primary concern by the plan reviewers was whether the submittal had included all integrally welded attachments and was not limited to those supports selected through implementation of Code Case N-491. WCNOC personnel reassured the plan reviewers that the total population was included in the submittal and it was agreed that additional information did not need to be submitted.

In addition to the above, a relief request is being submitted to incorporate the alternatives provided by Code Case N-509 in the event approval for incorporation into Regulatory Guide 1.147 does not occur prior to completion of the first 40-month period of the second 10-year inspection interval. Therefore, Relief Request I2R-020 is provided requesting use of the alternatives provided by Code Case N-509.

WOLF CREEK GENERATING STATION
SECOND INTERVAL ISI PROGRAM PLAN

RELIEF REQUEST I2R-20
(Page 1 of 2)

COMPONENT IDENTIFICATION

Code Classes:	1, 2 and 3
References:	Table IWB-2500-1, Table IWC-2500-1, Table IWD-2500-1 Examination Categories: B-II, B-K 1, C-C, D-A, D-B, 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
Description:	Alternate Rules for the Selection and Examination of Class 1, 2 and 3 Integrally Welded Attachments
Component Numbers:	All Class 1, 2 and 3 Integral Attachments Subject to Inservice Inspection

CODE REQUIREMENTS

Class 1 Attachments

Table IWB-2500-1, Examination Categories B-H and B-K1 require the performance of surface or volumetric examinations, as applicable, on integral attachments with a design thickness of 5/8" or greater.

Class 2 Attachments

Table IWC-2500-1, Examination Category C-C requires the performance of a surface examination on integral attachments with a design thickness of 3/4" or greater.

Class 3 Attachments

Table IWD-2500-1, Examination Categories D-A, D-B, and D-C require the performance of a visual VT-3 inspection on integral attachments.

For complete details on ASME Section XI Code examination requirements, see Tables IWB-2500-1, IWC-2500-1 and IWD-2500-1.

BASIS FOR RELIEF

Relief is being requested to allow the use of alternate requirements for the examination and selection of Class 1, 2 and 3 integral attachments detailed in Code Case N-509. The basis for this request is as follows:

WOLF CREEK GENERATING STATION
SECOND INTERVAL ISI PROGRAM PLAN

RELIEF REQUEST I2R-20
(Page 2 of 2)

1) During the first inservice inspection interval at the Wolf Creek Generating Station, no inservice flaws were detected in integrally welded attachments which would affect safety or compromise the integrity of the plant.

2) Within the commercial nuclear power industry, failures of integral attachments have been very rare and have not affected plant safety. When failures or inservice defects are found in integral attachments, they are usually associated with a support which has been damaged during operation. Therefore, flawed or broken integral attachments are typically detected during the investigation of damaged supports rather than during scheduled inservice inspections. One feature of Code Case N-509 is to focus the examination of integral attachments on instances where the deformation of the associated supports is identified. This requirement will increase the likelihood of locating damaged integral attachments and thereby increase the level of quality and safety provided by those alternative rules, as compared to the rules of the 1989 Edition of Section XI.

3) There is a significant amount of man-rem exposure and cost associated with the scheduled inspection of Class 1, 2 and 3 integral attachments.

4) Unlike ASME Section XI, 1989 Edition, the alternate selection criteria of Code Case N-509 does not impose a minimum thickness requirement for the inspection of an integral attachment. Therefore, a greater population of integral attachments will be available for inspection because selection will not be limited to those above an arbitrary thickness. This provision improves the quality and safety level established by these examinations.

5) The alternate rules of Code Case N-509 provide an acceptable level of quality and safety.

PROPOSED ALTERNATE EXAMINATION

The requirements of Code Case N-509 will be used to select and examine integrally welded attachments. A copy of this Code Case is enclosed.

PERIOD FOR WHICH RELIEF IS REQUESTED

Relief is requested for the second inspection interval, September 3, 1995 through September 2, 2005.

Request Item c.

In Requests for Relief I2R-03, I2R-04, I2R-05, I2R-06, and I2R-09, which address welds that have received partial ultrasonic examinations, it is unclear how the coverages were calculated. Provide detailed information on how the coverage was determined, including the cumulative coverage for each examination area. Also provide a detailed drawing of each examination area depicting all limitations.

Response Item c.

The second interval relief requests that involve examination limitations included the same information as was provided for review and approval of the first interval relief requests for the same limitations in nearly all cases. Additional information can be provided for most of the subject relief requests. These are discussed individually as follows:

I2R-03: The information provided was the same as that provided for the first 10-year interval. However, this component's second interval examination (automated portion only) had been performed during Refueling Outage 8 in the Spring of 1996 and new coverage percentages were obtained. Figure 1 represents a drawing (not to scale) of the Flange to Upper Reactor Vessel Shell Weld and the applicable beam directions/angles are listed with the appropriate examination coverages.

The manual examination portion from the flange surface was 90% complete for the first 10-year interval and is therefore expected to be the same for the second interval. The amount of coverage for weld metal (WM) interrogation is shown as a separate value to identify the amount of coverage in the volume where a crack would have a higher probability of presence.

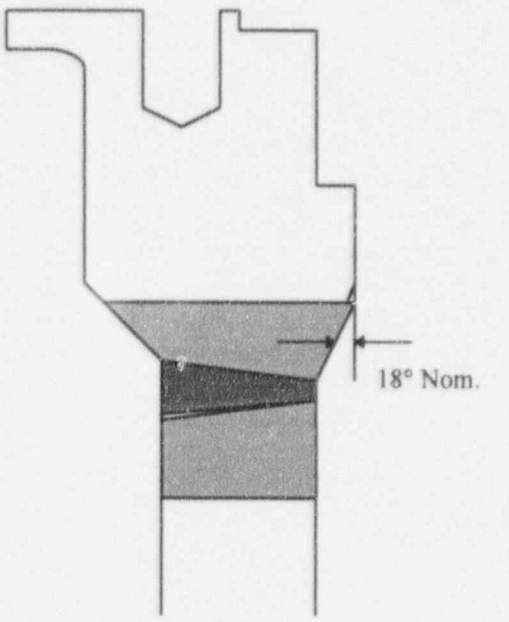
I2R-04: The information provided was the same as that provided for the first 10-year interval. Additional information in the form of a drawing (not to scale) is provided in Figures 2 and 3. In addition, the weld identification for this relief request needs to be corrected, the actual weld identification is CH-103-101.

I2R-05: A drawing provided for review and approval of the first 10-year interval relief request was inadvertently omitted in the submittal for the second 10-year interval. This drawing is represented by Figure 4. No other additional information is provided.

I2R-06: The second 10-year interval submittal included all of the information provided for approval of the first 10-year interval relief request. No additional information is provided.

I2R-09: The second 10-year interval submittal included all of the information provided for approval of the first 10-year interval relief request. No additional information is provided.

In addition to the above relief requests, the NRC contract reviewers had requested, during the telecon on April 24, 1996, coverage percentage information for Relief Request I2R-18. This too included the same information as the approved relief request contained for the first 10-year interval. These are Reactor Coolant System branch connection components that allowed only a single sided examination (pipe side only). Coverage of 100% was achieved from the one side and of both directions on the parallel scan (composite coverage of 75%). However, because of material properties as discussed in the relief request, the examiners were unable to accomplish an extended beam path to examine from the opposing direction.



Composite Coverage

64.8% - 2 angles
46.7% - 2 angles/2 directions
100% - 0° Scan

Coverage Summary

Parallel (2 angles) - 51.3%
Parallel (2 angles/2 directions) - 51.3%

Perpendicular (2 angles) - 78.2%
Perpendicular (2 angles/2 directions) - 42.0%

Zero Degree - 100%

Weld RV-101-121 (WM)

Examination Volume (EV)

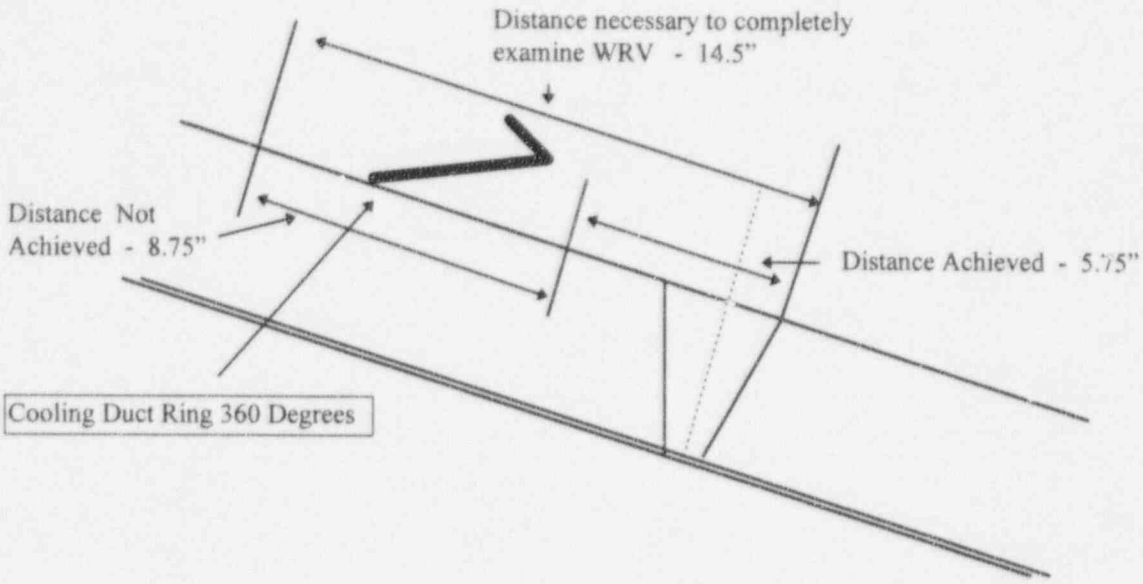
Coverage Breakdown for Parallel Scans

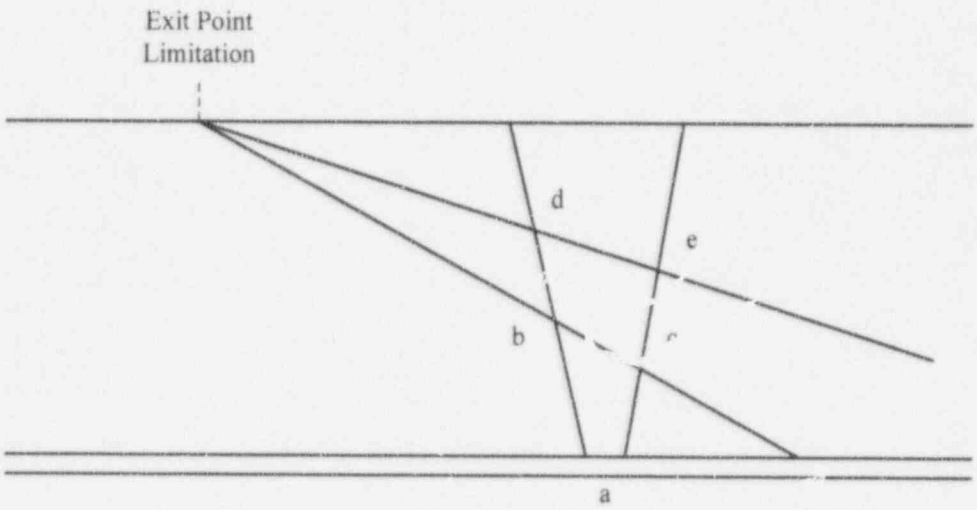
0° - 100%
45° - 97% WM, 51.3% EV(cw), 51.3% EV(ccw)
60° - 97% WM, 51.3% EV(cw), 51.3% EV(ccw)
70° - 100% WM, 65.2% EV(cw), 65.2% EV(ccw)

Coverage Breakdown for Perpendicular Scans

0° - 100%
45° - 58.0% WM(up), 74.8% WM(dn), 48.9% EV(up), 64.5% EV(dn)
60° - 86.9% WM(up), 27.0% WM(dn), 76.8% EV(up), 42.4% EV(dn)
70° - 0% WM(up), 100% WM(dn), 19.1% EV(up), 78.0% EV(dn)

Figure 1
RV-101-121 Scan Limitations
(I2R-03)

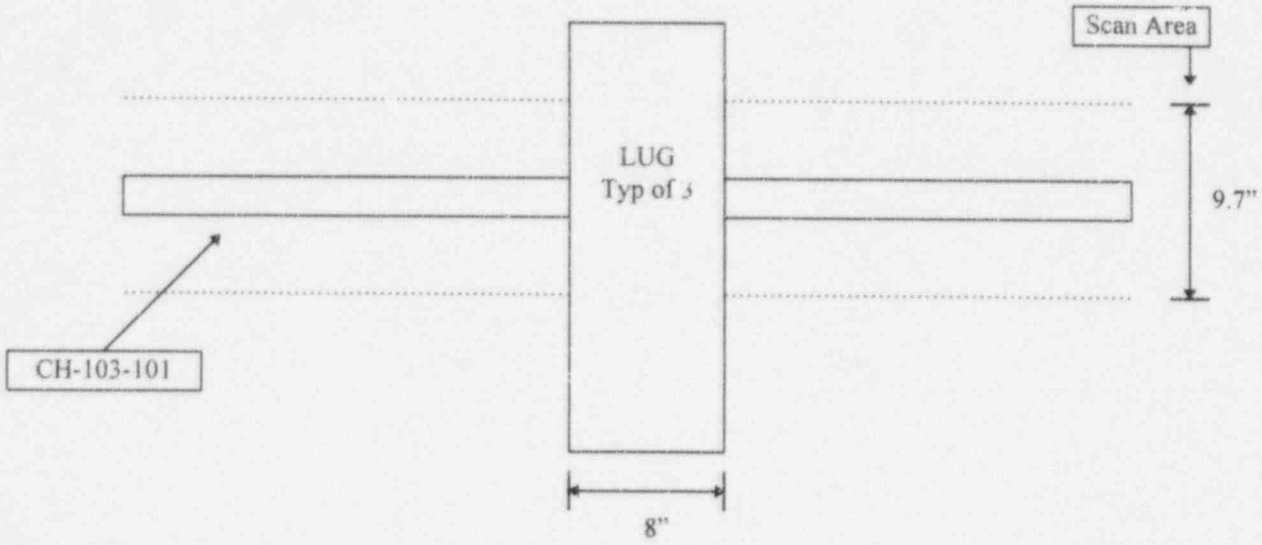




abc represents portion of weld not examined in two directions by 45° = 16.8%

ade represents portion of weld not examined in two directions by 60° = 47.3%

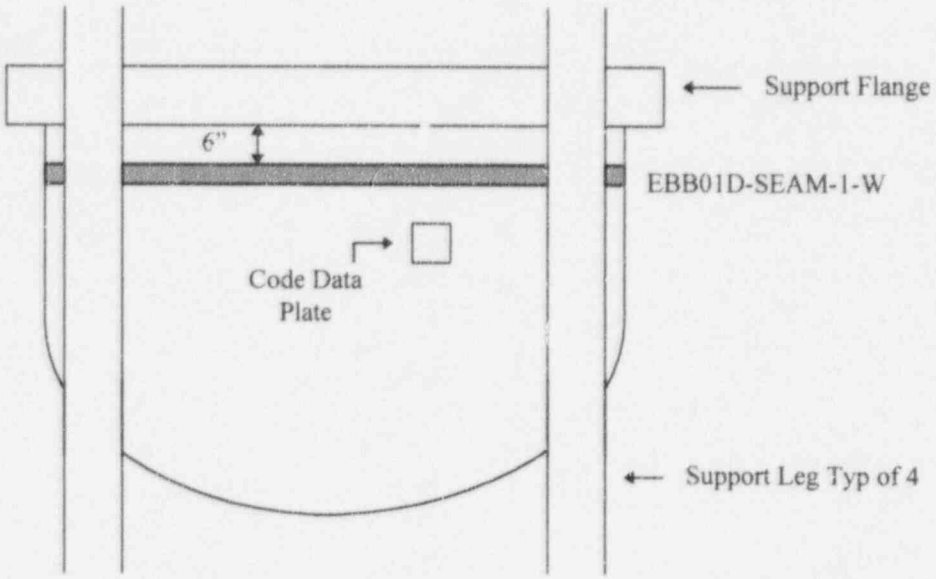
FIGURE 2
CH-103-101 Scan Limitation
Cooling Ring Limitation
(I2R-04)



Total weld length = 457"
Length obstructed by 3 lugs = 24"

24/457 = .0525 = 5.3%

FIGURE 3
CH-103-101 Scan Limitation
(Lug Limitations only)
(IR2R-04)



Support Leg Locations
21" to 45" CCW from Datum N
61 1/4" to 81 1/4" CW from Datum N
38" to 64" CW form Datum N
43" to 67" CCW from Datum N

FIGURE 4
EBB01D-SEAM-1-W Limitations
(I2R-05)

Request Item d.

Request for Relief No. I2R-11 asks for generic relief for vessels when flaws are detected that are determined to be construction related. Since Wolf Creek is entering its second 10-year interval, the locations of pre-existing flaws should be known. Provide a list of examination areas containing pre-existing flaws. In addition, provide detailed drawings and technical justification explaining why each flaw is considered a construction or fabrication flaw versus a service-related flaw.

Response Item d.

Relief Request I2R-11 was based on ASME Code Committee actions currently in process. A number of issues a still require resolution. Therefore, Wolf Creek Nuclear Operating Corporation withdraws Relief Request I2R-11.

Request Item e.

Request for Relief No. I2R-17 seeks relief from pressure test requirements for Class 3 diesel generator support systems. Describe the burden associated with the Code requirement.

Response Item e.

Relief Request I2R-17 is based primarily on the Technical Specification testing required for operability providing an acceptable level of quality and safety. The burden associated with pressure testing the subject subsystems is primarily an administrative burden and was not intended to be a large basis for relief. Therefore, Relief Request I2R-17 has been rewritten without hardship and burden as a basis.

In addition, the request contains more detailed information on the testing performed to meet the Technical Specification Surveillance Requirements.

WOLF CREEK GENERATING STATION
SECOND INTERVAL ISI PROGRAM PLAN

RELIEF REQUEST I2R-17
(Page 1 of 4)

COMPONENT IDENTIFICATION

Code Class:	3
References:	IWD-2500, Table IWD-2500-1
Examination Category:	D-B
Item Number:	D2.10
Description:	Alternative Rules For System Pressure Testing of Standby Emergency Diesel Generator Subsystem Components
Applicable Components:	Code Class 3 components within the Standby Diesel Generator "A" and "B" Starting Air, Jacket Cooling Water, Intake and Exhaust Air and Fuel Rack Supply Air Subsystems

CODE REQUIREMENT

Table IWD-2500-1, Category D-B requires that a system pressure test per IWD-5222 be performed each inspection period and a system hydrostatic test per IWD-5223 be performed each inspection interval on pressure retaining components.

BASIS FOR RELIEF

Pursuant to 10 CFR 50.55a(a)(3)(i), relief is requested on the basis that the proposed alternatives provide an acceptable level of quality and safety.

Component Design, Classification and Section XI Applicability

Due to the safety related function of the Standby Emergency Diesel Generators at WCGS, the components within the Starting Air, Jacket Cooling Water, Intake and Exhaust Air and Fuel Rack Supply Air Subsystems were designed per ASME Section III, Class 3 or equivalent codes and standards based on the criteria in ANSI N18.2, which was used in the design and classification of WCGS systems and components as a supplement to Regulatory Guide 1.26 criteria. Accordingly, per Technical Specification 4.0.5 Surveillance Requirements, ASME Section XI was employed during the first interval at WCGS.

Standby Emergency Diesel Generator Testing Requirements

The applicable testing requirements for these components include those in Technical Specification Surveillance Requirements 4.8.1.1.2 and 4.0.5. The Surveillance Requirements of 4.8.1.1.2 include extensive operability testing and inspection for the Standby Emergency Diesel Generators (and associated subsystems, components, etc.) at frequencies between 31 days and 10 years.

WOLF CREEK GENERATING STATION
SECOND INTERVAL ISI PROGRAM PLAN

RELIEF REQUEST I2R-17
(Page 2 of 4)

ASME Section XI Testing Requirements

The Surveillance Requirements of 4.0.5 include inservice inspection and inservice testing per ASME Section XI. System pressure testing (at operational pressure) of Code Class 3 components is required to be performed once per inspection period (approximately 40 months); and system hydrostatic testing (at pressures above operational) of Code Class 3 components is required to be performed once per inspection interval (10 years) per Table IWD-2500-1 of Section XI. Code Case N-498-1, which allows system pressure testing to be performed in lieu of hydrostatic testing has been requested for use per 2nd Interval Relief Request I2R-19.

Operability Testing In Lieu of Section XI Testing

The focus of the Technical Specification Surveillance Requirements is slightly different; 4.8.1.1.2 concentrates on component operability and 4.0.5 (inservice inspection) concentrates on component pressure boundary integrity. Because successful Standby Emergency Diesel Generator operability testing requires the associated subsystems such as the Starting Air, Jacket Cooling Water, Intake and Exhaust Air, and Fuel Rack Supply Air to maintain pressure boundary integrity, this operability testing indirectly verifies individual component integrity and is therefore deemed to provide an equivalent level of quality and safety to that of ASME Section XI inspections.

The repeatability of subsystem instrumentation (pressure and temperature) recorded during testing provides supporting data for the "indirect verification of component integrity." In addition, operations personnel specifically trained in the design and testing of the Standby Emergency Diesel Generators are aware of the necessity to maintain pressure boundary integrity for certain components and also of the necessity to maintain adequate flow characteristics for open ended components which provide intake air and process exhaust air. Although not a specific step in the Surveillance Procedure, visual verification of component pressure boundary integrity and adequate flow is an understood responsibility of the operations personnel performing Standby Emergency Diesel Generator operability testing. If evidence of leakage or inadequate flow is identified during testing, written notification is forwarded to plant maintenance for corrective actions or repairs and follow-up confirmatory testing is performed.

The following paragraphs provide specific procedural actions which support the use of the alternative operability testing in lieu of ASME Section XI System Pressure Testing and VT-2 Visual examination.

WOLF CREEK GENERATING STATION
SECOND INTERVAL ISI PROGRAM PLAN

RELIEF I2R-17
(Page 3 of 4)

Starting Air Subsystem

Per WCGS Surveillance Procedures STS KJ-005A & B, which are performed monthly, the Standby Emergency Diesel Generators are tested for operability. As part of these procedures, the pressure of the two starting air tanks for each Standby Emergency Diesel Generator is recorded to assure the associated discharge valves are properly performing their function (thereby satisfying Inservice Testing for valves). The satisfactory completion of this test also provides a positive indication that the pressure boundary integrity of the Starting Air Subsystem is intact. In addition, WCGS Surveillance Procedures STS KJ-002A & B, which are also performed monthly, include steps to verify starting air tank pressure at 2, 5, 10 and 15 minute points during the subsystem valve testing. A pressure drop of 20 psig maximum (from 600 psig, approximately 3.34%) is allowable to satisfactorily complete the test. This data also provides a positive indication that pressure boundary integrity is being maintained for the Starting Air Subsystem. Based on the monthly frequency and data collected during these alternative tests, WCNOC considers that testing performed to satisfy the Technical Specification Surveillance Requirements is an acceptable alternative to Section XI System Pressure Testing.

Jacket Water Cooling Subsystem

Similar to the Starting Air Subsystem, Jacket Water Cooling pressure and temperature data is recorded every 30 minutes as part of Standby Emergency Diesel Generator testing in accordance with Surveillance Procedures STS KJ-005A & B. Normal values for this data are provided within the procedures as well as limit(s) for the recorded values which provide a means to assess the data recorded. Again, this data provides a positive indication that pressure boundary integrity is being maintained. Based on the monthly frequency and data collected during these alternative tests, WCNOC considers that testing performed to satisfy the Technical Specification Surveillance Requirements is an acceptable alternative to Section XI System Pressure Testing.

Air and Fuel Rack Supply Air Subsystem

The air manifold temperature and pressure data associated with the Air and Fuel Rack Supply Air Subsystem is also recorded every 30 minutes as part of Standby Emergency Diesel Generator testing in accordance with Surveillance Procedures STS KJ-005A & B. Normal values for this data are provided within the procedures as well as limit(s) for the recorded values which provide a means to assess the data recorded. Again, this data provides a positive indication that pressure boundary integrity is being maintained. Based on the monthly frequency and data collected during these alternative test, WCNOC considers that testing performed to satisfy the Technical Specification Surveillance Requirements is an acceptable alternative to Section XI System Pressure Testing.

WOLF CREEK GENERATING STATION
SECOND INTERVAL ISI PROGRAM PLAN

RELIEF REQUEST I2R-17
(Page 4 of 4)

Intake and Exhaust Air Subsystem

Adequate flow of the Intake and Exhaust Air Subsystem is demonstrated by successfully operating the Standby Emergency Diesel Generators during testing. Specifically, the intake air vacuum data in inches of water is recorded every 30 minutes as part of Standby Emergency Diesel Generator testing in accordance with Surveillance Procedures STS KJ-005A & B. This data provides a positive indication that proper flow is being maintained and in turn proper exhaust flow is also being maintained. WCNOC considers that testing performed to satisfy the Technical Specification Surveillance Requirements is an acceptable alternative to Section XI System Pressure Testing.

Per Surveillance Requirement 4.8.1.1.2.g, each Standby Emergency Diesel Generator is subjected to an inspection in accordance with procedures prepared per the manufacturer's recommendation. The inspections performed per this procedure provide additional assurance that the components within the Starting Air, Jacket Cooling Water, Intake and Exhaust Air, and Fuel Rack Supply Air subsystems demonstrate pressure boundary integrity and the ability to provide adequate flow for satisfactory Standby Emergency Diesel Generator Operation.

Based on the information provided, WCNOC requests relief from the Section XI requirements to perform system pressure testing on the Code Class 3 Standby Emergency Diesel Generator subsystems listed above on the basis that Technical Specification Surveillance Requirements of 4.8.1.1.2 provide an acceptable level of quality and safety.

PROPOSED ALTERNATE EXAMINATION

WCNOC will implement the operability testing of Technical Specification Surveillance Requirement 4.8.1.1.2 in lieu of ASME Section XI System Pressure Testing.

PERIOD FOR WHICH RELIEF IS REQUESTED

Relief is requested for the second inspection interval, September 3, 1995 through September 2, 2005.

Request Item f.

Provide a list of the ultrasonic calibration standards being used during the second 10-year ISI interval at Wolf Creek Generating Station. This list should include the calibration standard identifications, material specifications, sizes, the applicable component, and any variance from Code requirements.

Response Item f.

As discussed during the April 24, 1996, telecon, provision of this information on a component by component basis would be voluminous; therefore, it was agreed that a table listing the blocks, block specification information, and Code Categories/Item Numbers that the components that utilize the itemized block applies too.

Table I lists the calibration standards required for the ultrasonic (UT) examinations scheduled in the Second Interval Inservice Inspection Program Plan. The calibration standard design and material selection is in accordance with Subarticle III-3400 of Appendix III of ASME Section XI. Nomenclature definitions for the listed calibration blocks follow Table I.

TABLE I
WCGS CALIBRATION STANDARDS

BLOCK NUMBER	DESCRIPTION/TITLE	APPLICABLE CATEGORY(S)/ ITEM NUMBER(S)
101	WC-03-PS-03.000-SA533-GR.A-CL-2-CSCL-101	B-B/B2.11 B-B/B2.12 B-D/B3.110 B-D/B3.120
102	WC-03-SG-03.000-SA533-GR.A-CL-2-CS-102	C-A/C1.10 C-A/C1.20 C-A/C1.30 C-B/C2.21 C-B/C2.22
104	WC-5.0-SG-05.035-SA216-WCCA-CSCL-104	B-B/B2.40 B-D/B3.140
105	WC-29-XXX-02.33-SA351-CF8A-CCSS-105	B-J/B9.11
106	WC-27 1/2-XXX-02.21-SA351-CF8A-CCSS-106	B-J/B9.31
108	WC-E-28-0.934-28-0.934-LR-ST-SA234-WPC-CS-108	C-F2/C5.51 USAR/3.6.2
110	WC-S-2.5-14-SA193-GR.B7-CS-110	C-D/C4.40
111	WC-03-40S-00.216-SA312-TP304-SS-111	USAR/3.6.2
112	WC-03-160-00.438-SA312-TP304-SS-112	C-F-1/C5.21 USAR/3.6.2
113	WC-04-160-00.531-SA508-CL.2-CS-113	USAR/3.6.2
114	WC-04-160-00.531-SA312-TP304-SS-114	B-J/B9.11 C-F-1/C5.21
115	WC-04-160-00-531-SA106-GR.B-CS-115	USAR/3.6.2
116	WC-14-080-00.750-SA106-GR.B-CS-116	C-F-2/C5.51 USAR/3.6.2
117	WC-06-160-00.719-SA312-TP304-SS-117	B-J/B9.11 C-F-1/C5.11
118	WC-12-140-01.125-SA312-TP304-SS-118	B-J/B9.11 B-J/B9.31 C-F-1/C5.11
119	WC-14-120-01.094-SA106-GR.B-CS-119	USAR/3.6.2
120	WC-10-140-01.000-SA376-TP304-SS-120	B-J/B9.11
121	WC-10-140-01.000-SA312-TP304-SS-121	B-J/B9.11
122	WC-10-140-01.000-SA358-TP304-CL.1-SS-122	B-J/B9.11 C-F-1/C5.11 C-F-1/C5.12
123	WC-10-080-00.594-SA333-GR.6-CS-123	C-F-2/C5.51 USAR/3.6.2
124	WC-14-120-01.094-SA333-GR.6-CS-124	USAR/3.6.2
126	WC-12-140-01.125-SA376-TP304-SS-126	B-J/B9.11
127	WC-14-120-01.094-SA508-CL.1-CS-127	USAR/3.6.2
129	WC-12-080-00.688-SA333-GR.6-CS-129	C-F-2/C5.51 USAR/3.6.2
130	WC-14-160-01.406-SA376-TP316-SS-130	B-J/B9.11
131	WC-16-080-00.844-SA106-GR.B-CS-131	C-F-2/C5.51
132	WC-28-01.500-SA106-GR.B-CS-132	USAR/3.6.2
134	WC-28-XX1-01.500-SA155-KCF70-CL.1-CS-134	C-F-2/C5.51
135	WC-28-XX1-00.934-SA155-KCF70-CL.1-CS-135	USAR/3.6.2

TABLE I Continued
WCGS CALIBRATION STANDARDS

BLOCK NUMBER	DESCRIPTION/TITLE	APPLICABLE CATEGORY(S)/ ITEM NUMBER(S)
136	WC-32-XX1-01.292-SA155-KCF70-CL.1-CS-136	C-F-2/C5.51 C-F-2/C5.52
137	WC-B-3.0-17-SA540-GR.B23-CL.4-CS-137	USAR/3.6.2
140	WC-N-7.0-7.99-SA540-GR.B24-CL.3-CS-140	B-G-1/B6.40
141	WC-B-4.5-31.5-SA540-GR.B24-CL.4-CS-141	B-G-1/B6.180
144	WC-2.0-HPCI-02.000-SA240-TP304-SS-144	C-A/C1.20 C-B/C2.21
145	WC-31-XXX-02.24-SA351-CF8A-CCSS-145	B-J/B9.11
148	WC-10-080-00.594-SA106-GR.B-CS-148	USAR/3.6.2
152	WC-F-05-01.440-SA105-CL1500-CS-152	USAR/3.6.2
155	WC-S-7.0-58-SA540-GR.B24-CL.3-CS-155	B-G-1/B6.30
156	WC-02-160-00.344-SA312-TP304-SS-156	USAR/3.6.2
157	WC-03-80S-00.300-SA312-TP304-SS-157	USAR/3.6.2
159	WC-04-080-00.337-SA106-GR.B-CS-159	USAR/3.6.2
161	WC-E-04-080-04-080-LR-ST-SA234-WPB-CS-161	USAR/3.6.2
162	WC-04-080-00.337-SA234-WPB-CS-162	USAR/3.6.2
163	WC-04-080-00.337-SA105-CS-163	USAR/3.6.2
165	WC-R-10-080-08-080-C-SA234-WPB-CS-165	USAR/3.6.2
166	WC-03-040-00.216-SA105-CS-166	USAR/3.6.2
168	WC-28-MS-01.520-SA508-CL.1-CS-168	USAR/3.6.2
169	WC-NSE-04-160-SA508-CL.2-04-160-SA182-F316L-BI-169	B-F/B5.40
170	WC-NSE-06-160-SA508-CL.2-06-160-SA182-F316L-BI-170	B-F/B5.40
171	WC-NSE-14-160-SA508-CL.2-14-160-SA182-F316L-BI-171	B-F/B5.40
172	WC-00.875-RHR-00.750-SA240-TP304-SS-172	C-A/C1.10
173	WC-14-080-00.750-SA333-GR.6-CS-173	C-F-2/C5.51 USAR/3.6.2
175	WC-11-RPV-11-SA533-GR.B-CL.1-ASCL-175	B-A/B1.11 B-A/B1.12 B-A/B1.30 B-D/B3.90
176	WC-9-RPV-9-SA533-GR.B-CL.1-ASCL-176	B-A/B1.11 B-A/B1.12 B-A/B1.21 B-A/B1.40
177	WC-7-RPV-7-SA533-GR.B-CL.1-ASCL-177	B-A/B1.21 B-A/B1.22
178	WC-F-XX-33-SA533-GR.B-CL.1-ASCL-178	B-D/B3.90
179	WC-NSE-XXX-3-SA182-GR316-CL.XX-XXX-3-SA508-GR.XX-CL2-BI-179	B-D/B3.90 B-D/B3.100 B-F/B5.10
180	WC-F-06-00-.562-SA105-CL900-CS-180	USAR/3.6.2
181	WC-06-40S-00.280-SA312-TP304-SS-181	C-F-1/C5.11 C-F-1/C5.12 USAR/3.6.2
182	WC-24-STD-00.375-SA312-TP304-SS-182	C-F-1/C5.11
183	WC-12-STD-00.375-SA312-TP304-SS-183	C-F-1/C5.11

TABLE I Continued
WCGS CALIBRATION STANDARDS

BLOCK NUMBER	DESCRIPTION/TITLE	APPLICABLE CATEGORY(S)/ ITEM NUMBER(S)
184	WC-14-STD-00.375-SA312-TP304-SS-184	C-F-1/C5.11
189	WC-16-STD-00.375-SA312-TP304-SS-189	C-F-1/C5.11

CALIBRATION BLOCK IDENTIFICATION SYSTEM

1. Vessels

WC - XX - XXX - XX.XXX - SAXXX - GRXXX - CLXX - XX - XX
1 2 3 4 5 6 7 8 9

1: WC - Wolf Creek plant specific designation
2: Nominal Plate Thickness
3: Vessel from which obtained; use following abbreviations:
RHR - Residual Heat Removal Heat Exchanger
RPV - Reactor Pressure Vessel
SG - Steam Generator
PS - Pressurizer
HPCI - Boron Injection Tank
ACC - Accumulator Safety Injection Tank
MS - Main Steam
4: Measured thickness to nearest thousandth of an inch
5: Material SA designation
6: Material grade designation
7: Material class designation
8: Material - use abbreviations listed in II below
9: Unique number (101, 102, 103, etc.) as assigned to each calibration standard from the master list

II. Piping

WC - XX - XXX - XX XXX . SAXXX - GRXXX - CLXXX . XX - XX
1 2 3 4 5 6 7 8 9

1: WC - Wolf Creek plant specific designation
2: Nominal pipe size
3: Pipe schedule
4: Measured pipe wall thickness to the nearest thousandth of an inch (average of at least two measurements)
5: Pipe material SA designation
6: Pipe material grade designation
7: Pipe material class designation, if appropriate
8: Pipe material - use abbreviations as follows:
CS - Carbon or Alloy Steel
CSCL - Carbon Steel with Stainless Steel Cladding
CSS - Cast Stainless Steel
IN - Inconel
AL - Aluminum
SS - Stainless Steel
ASCL - Alloy Stainless Steel with Stainless Steel Cladding
9: Unique number (101, 102, 103, etc.) assigned to each calibration standard from the master list.

III Fittings

A. Elbow

WC	-	E	-	XX	-	XX	-	XX	-	XX	-	XX	-	XX	-	SAXXX	-	GRXXX	.	CLXXX	-	XX	-	XX
1		2		3		4		5		6		7		8		9		10		11		12		13

1: WC - Wolf Creek plant specific designation
2: "E" denotes elbow
3: Nominal pipe size of first (either) end
4: Pipe schedule or measured wall thickness of first end
5: Nominal pipe size of second (other) end
6: Pipe schedule or measured wall thickness of second end
7: "SR" if elbow is standard radius
"LR" if elbow is long radius
8: "ST" if elbow is standard tangent
"LT" if elbow is long tangent
9: Material SA designation
10: Material grade designation
11: Material class designation
12: Material I - use abbreviations listed in II above
13: Unique number (101, 102, 103, etc.) assigned to each calibration standard from the master list

B. Tees

WC	-	T	-	XX	-	XX	-	XX	-	XX	-	SAXXX	-	GRXXX	.	CLXXX	-	XX	-	XX
1		2		3		4		5		6		7		8		9		10		11

1: WC - Wolf Creek plant specific designation
2: "T" denotes use
3: Nominal pipe size of main tee portion
4: Pipe schedule / measured wall thickness of main tee portion
5: Nominal pipe size of branch part of tee
6: Pipe schedule of measured wall thickness of branch part of tee
7: Material SA designation
8: Material grade designation
9: Material class designation
10: Material - use abbreviations listed in II above
11: Unique number (101, 102, 103, etc.) assigned to each calibration standard from the master list

C: Reducers

WC - R - XX - XX - XX - XX - X - SAXXX - GRXXX . CLXXX - XX - XX
1 2 3 4 5 6 7 8 9 10 11 12

1: WC - Wolf Creek plant specific designation
2: "R" denotes reducer
3: Nominal pipe size of larger end
4: Pipe schedule or measured wall thickness of larger end
5: Nominal pipe size of smaller end
6: Pipe schedule or measured wall thickness of smaller end
7: "C" if reducer is concentric
"E" if reducer is eccentric
8: Material SA designation
9: Material grade designation
10: Material class designation
11: Material - use abbreviations listed in II above
12: Unique number (101, 102, 103, etc.) as assigned to each calibration standard from the master list

D. Flanges

WC - F - XX - XX - SAXXX - GRXXX . CLXXX - XX - XX
1 2 3 4 5 6 7 8 9

1: WC - Wolf Creek plant specific designation
2: "F" denotes flange
3: Nominal pipe size
4: Pipe schedule or measured wall thickness
5: Material SA designation
6: Material grade designation
7: Material class designation
8: Material - use abbreviations per II above
9: Unique number (101, 102, 103, etc.) as assigned to each Calibration Standard from the master list

E. Weldolets

WC - XXX - XX - XX.XXX - SAXXX . CLXXX - XX - XX
1 2 3 4 5 6 7 8

1: WC - Wolf Creek plant specific designation
2: Nominal size - third digit optional
3: Schedule
4: Measured wall thickness to nearest thousandth of an inch (average of at least two measurements)
5: Material SA designation
6: Material - use material listed in II above
7: Unique number (101, 102, 103, etc.) assigned to each calibration standard from the master list

IV. Bolting

WC - X - X - XX - SAXXX - GRXXX . CLXXX - XX - XX
1 2 3 4 5 6 7 8 9

1: WC - Wolf Creek plant specific designation
2: "N" if a nut
"B" if a bolt
"S" if a stud
3: Nominal diameter
4: Nominal length
5: Material SA designation
6: Material grade designation
7: Material class designation
8: Material - use abbreviations listed in II above
9: Unique number (101, 102, 103, etc.) as assigned to each calibration standard from master list

V. Bimettalics

WC -NSE - XXX - XXX - SAXXX - GRXXX . CLXXX - XX - XXX - SAXXX -
1 2 3 4 5 6 7 8 9 10
GRXXX . CLXXX - BI - XX
11 12 13 14

1 WC - Wolf Creek plant specific designation
2: NSE - To denote nozzle to safe end
3: Nominal pipe size of first (either) end
4: Pipe schedule or measured wall thickness of first end
5: Pipe material SA designation of first end
6: Pipe material grade designation, if appropriate
7: Pipe material class designation, if appropriate
8: Nominal pipe size of second (other) end
9: Pipe schedule or measured wall thickness of second end.
10: Pipe material SA designation of second end
11. Pipe material grade designation if appropriate
12: Pipe material class designation if appropriate
13: BI - To denote Bimetallic
14: Unique number (101, 102, 103, etc.) as assigned to each calibration standard from the master list

Request Item g.

Please verify that there are no additional relief requests, other than those submitted on August 30, 1995. If additional relief requests are required, the licensee should submit them for staff review.

Response Item g.

Relief Requests I2R-19 and I2R-20 are submitted in response to previous items. No additional relief requests are identified for submittal with the Second Interval Inservice Inspection Program Plan.

Approval Date: November 25, 1992

See Numeric Index for expiration and any reaffirmation dates.

Case N-509
Alternative Rules for the Selection and Examinaion of Class 1, 2, and 3 Integrally Welded Attachments Section XI, Division 1

Inquiry: What alternative requirements to those of IWB, IWC, and IWD may be used to select and examine integrally welded attachments?

Reply: It is the opinion of the Committee that the following rules may be used to select and examine integrally welded attachments:

(a) This Case is limited to Examination Categories B-H, B-K-1, C-C, D-A, D-B, and D-C.

(b) Class 1, 2, and 3 component supports shall be selected for examination in accordance with IWF of the 1989 Edition with the 1990 Addenda.

(c) Except for the selection of component supports for examination, all references to Section XI within this Case shall be from the edition and addenda specified in the Owner's Inservice Inspection Program.

1.0 SCOPE

These requirements apply to examination and sample selection of Class 1, 2, and 3 integrally welded attachments of vessels, piping, pumps, and valves listed in Table 2500-1 as follows:

(a) Table 2500-1, Examination Category B-K shall be used for Class 1 integrally welded attachments in Examination Categories B-H and B-K-1 of IWB.

(b) Table 2500-1, Examination Category C-C shall be used for Class 2 integrally welded attachments in Examination Category C-C of IWC.

(c) Table 2500-1, Examination Category D-A shall be used for Class 3 integrally welded attachments in Examination Categories D-A, D-B, and D-C of IWD.

1.1 Exemption Criteria

(a) The exemption criteria provided in IWB-1220, IWC-1220, and IWD-1220 may be applied to Class 1, 2, and 3 components respectively, with integrally welded attachments, required to be examined in accordance with Table 2500-1.

(b) Class 1, 2, and 3 integrally welded attachment examinations performed as a result of component support deformation cannot be credited under the requirements of IWB-2411 or IWB-2412, IWC-2411 or IWC-2412, and IWD-2411 or IWD-2412, respectively.

1.2 Inspection Schedule

Class 1, 2, or 3 integrally welded attachments selected for examination by sample selection criteria in accordance with Table 2500-1, Examination Categories B-K, C-C, and D-A, shall meet the requirements of IWB-2411 or IWB-2412, IWC-2411 or IWC-2412, or IWD-2411 or IWD-2412, repectively.

1.3 Additional and Successive Examinations

(a) Class 1, 2, and 3 additional and successive examination requirements of IWB-2430 and IWB-2420 for Class 1, IWC-2430 and IWC-2420 for Class 2 and 3 as applicable, shall be applied to integrally welded attachments whose examinations reveal flaws or relevant conditions that exceed the acceptance standards of IWB-3000, IWC-3000, and IWD-3000, respectively.

(b) When integrally welded attachments are examined as a result of identified component support deformation and the results of these examinations exceed the applicable acceptance standards listed above, additional or successive examinations shall be performed when determined necessary based on an evaluation by the Owner.

TABLE 2500-1
EXAMINATION CATEGORIES

EXAMINATION CATEGORY B-K, INTEGRAL ATTACHMENTS FOR CLASS 1 VESSELS, PIPING, PUMPS, AND VALVES						
Item No.	Parts Examined[1]	Examination Requirements/ Fig. No.	Examination Method	Acceptance Standard	Extent of Examination[2,3]	Frequency of Examination[6]
B10.10	Pressure Vessels Integrally Welded Attachments	IWB-2500-13, -14, and -15	Surface[7]	IWB-3516	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval[4]
B10.20	Piping Integrally Welded Attachments	IWB-2500-13, -14, and -15	Surface	IWB-3516	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval[5]
B10.30	Pumps Integrally Welded Attachments	IWB-2500-13, -14, and -15	Surface	IWB-3516	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval[5]
B10.40	Valves Integrally Welded Attachments	IWB-2500-13, -14, and -15	Surface	IWB-3516	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval[5]

NOTES:
(1) Examination is limited to those integrally welded attachments that meet the following conditions:
(a) the attachment is on the outside surface of the pressure retaining component;
(b) the attachment provides component support as defined in NF-1110; and
(c) the attachment weld joins the attachment either directly to the surface of the component or to an integrally cast or forged attachment to the component.
(2) The extent of the examination includes essentially 100% of the length of the attachment weld at each attachment subject to examination.
(3) Selected samples of integrally welded attachments shall be examined each inspection interval.
(4) In the case of multiple vessels of similar design, function and service, only one integrally welded attachment of only one of the multiple vessels shall be selected for examination.
(5) For piping, pumps, and valves, a sample of 10% of the welded attachments associated with the component supports selected for examination under the 1990 Addenda, IWF-2510 shall be examined.
(6) Examination is required whenever component support member deformation (e.g., broken, bent, or pulled out parts) is identified during operation, refueling, maintenance, examination, inservice inspection, or testing.
(7) For the configuration shown in Fig. IWB-2500-14, a volumetric examination of volume A-B-C-D from side (B-C) of the circumferential welds may be performed in lieu of the surface examination of surfaces A-D and B-C.

TABLE 2500-1 (CONT'D)
EXAMINATION CATEGORIES

EXAMINATION CATEGORY C-C, INTEGRAL ATTACHMENTS FOR CLASS 2 VESSELS, PIPING, PUMPS, AND VALVES						
Item No.	**Parts Examined[1]**	**Examination Requirements/ Fig. No.**	**Examination Method**	**Acceptance Standard**	**Extent of Examination[2,3]**	**Frequency of Examination[4]**
C3.10	**Pressure Vessels** Integrally Welded Attachments	IWC-2500-5	Surface	IWC-3512	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval[6]
C3.20	**Piping** Integrally Welded Attachments	IWC-2500-5	Surface	IWC-3512	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval[5]
C3.30	**Pumps** Integrally Welded Attachments	IWC-2500-5	Surface	IWC-3512	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval[5]
C3.40	**Valves** Integrally Welded Attachments	IWC-2500-5	Surface	IWC-3512	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval[5]

NOTES:
(1) Examination is limited to those integrally welded attachments that meet the following conditions:
  (a) the attachment is on the outside surface of the pressure retaining component;
  (b) the attachment provides component support as defined in NF-1110; and
  (c) The attachment weld joins the attachment either directly to the surface of the component or to an integrally cast or forged attachment to the component.
(2) The extent of the examination includes essentially 100% of the length of the attachment weld at each attachment subject to examination.
(3) Selected samples of integrally welded attachments shall be examined each inspection interval.
(4) In the case of multiple vessels of similar design, function and service, only one integrally welded attachment of only one of the multiple vessels shall be selected for examination.
(5) For piping, pumps, and valves, a sample of 10% of the welded attachments associated with the component supports selected for examination under the 1990 Addenda, IWF-2510 shall be examined.
(6) Examination is required whenever component support member deformation (e.g., broken, bent, or pulled out parts) is identified during operation, refueling, maintenance, examination, inservice inspection, or testing.

TABLE 2500-1 (CONT'D)
EXAMINATION CATEGORIES

EXAMINATION CATEGORY D-A, INTEGRAL ATTACHMENTS FOR CLASS 3 VESSELS, PIPING, PUMPS, AND VALVES						
Item No.	**Parts Examined[1]**	**Examination Requirements/ Fig. No.**	**Examination Method**	**Acceptance Standard**	**Extent of Examination[2,3]**	**Frequency of Examination[3,4]**
D1.10	**Pressure Vessels** Integrally Welded Attachments	IWD-2500-1	Visual, VT-1	IWD-3000	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval
D1.20	**Piping** Integrally Welded Attachments	IWD-2500-1	Visual, VT-1	IWD-3000	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval
D1.30	**Pumps** Integrally Welded Attachments	IWD-2500-1	Visual, VT-1	IWD-3000	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval
D1.40	**Valves** Integrally Welded Attachments	IWD-2500-1	Visual, VT-1	IWD-3000	100% of required areas of each welded attachment	Each identified occurrence and each inspection interval

NOTES:
(1) Examination is limited to those integrally welded attachments that meet the following conditions:
(a) the attachment is on the outside surface of the pressure retaining component;
(b) the attachment provides component support as defined in NF-1110; and
(c) the attachment weld joins the attachment either directly to the surface of the component or to an integrally cast or forged attachment to the component.
(2) The extent of the examination includes essentially 100% of the length of the attachment weld at each attachment subject to examination.
(3) Selected samples of integrally welded attachments shall be examined each inspection interval. All integrally welded attachments selected for examination shall be subject to corrosion, as determined by the Owner, such as the integrally welded attachments of the Service Water or Emergency Service Water systems. In the case of multiple vessels of similar design, function and service, the integrally welded attachments of only one of the multiple vessels shall be selected for examination. For integrally welded attachments of piping, pumps, and valves a 10% sample shall be selected for examination. This percentage sample shall be proportional to the total number of nonexempt integrally welded attachments connected to the piping, pumps, and valves, located within each system subject to these examinations.
(4) Examination is required whenever component support member deformation (e.g., broken, bent, or pulled out parts) is identified during operation, refueling, maintenance, examination, inservice inspection, or testing.