



**Consumers
Power
Company**

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July 25, 1979

Director, Nuclear Reactor Regulation
Att Mr Dennis L Ziemann, Chief
Operating Reactors Branch No 2
US Nuclear Regulatory Commission
Washington, DC 20555

DOCKET 50-155 - LICENSE DPR-6 - BIG ROCK
POINT PLANT - INSERVICE INSPECTION PROGRAM:
REVISION OF ASME CODE BASIS

Consumers Power Company letter dated December 22, 1978 submitted a description of the proposed inservice inspection (ISI) program for Big Rock Point and requests for relief from specific requirements of Section XI of the ASME Boiler and Pressure Vessel Code. It was noted that a composite version of Section XI of the ASME Code was used as the basis for the proposed program rather than the 1974 Edition with Addenda through Summer 1975 (74S75) referenced in 10 CFR 50.55a. In a telephone conversation on April 16, 1979, members of the NRC Staff informed Consumers Power Company that our relief requests could not be approved unless the code version referenced in 10 CFR 50.55a was used as a basis. Consumers Power Company reported in a subsequent telephone conversation (April 23, 1979) that a brief review showed differences between our composite code and the referenced code to be minor; Consumers Power Company agreed to submit a comparison of code requirements as applicable to Big Rock Point demonstrating that our code basis was equivalent to that referenced in 10 CFR 50.55a.

A proposed change to 10 CFR 50.55a was published subsequent to our December submittal (January 18, 1979, 44 Federal Register 3719). This proposed change would reference the 1977 Edition of Section XI of the ASME Code with Addenda through Summer 1978 (77S78). Consumers Power Company anticipates that the proposed change will be approved in time to require use of the 77S78 code for our Midland facility; to maintain consistency within corporate ISI activities, we have elected to change our code basis for Big Rock Point to 77S78 with specific modifications as described in Attachment 1 to this letter.

The comparison of requirements between the currently referenced code (74S75) and the composite code discussed in our December 22, 1978 submittal, which Consumers Power Company agreed to provide, is also attached (Attachment 2). As a result of the change in code basis discussed above, Attachment 3 provides a comparison between 74S75 and 77S78 codes. Each of these tabulations demonstrates that the proposed code basis (either the composite discussed in our December 22, 1978

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letter or the 77S78 code discussed herein) is equivalent to or more restrictive than the referenced code considering the modifications to each which would result from approval of our pending relief requests. Accordingly, Consumers Power Company concludes that use of either proposed code is consistent with the requirements of 10 CFR 50.55a.

Review of the relief requests transmitted by our December 22, 1978 letter indicates no changes are necessary as a result of the code basis change discussed above. Consumers Power Company requests approval of these relief requests and the related Technical Specifications change request submitted July 27, 1978.

David A Bixel (Signed)

David A Bixel
Nuclear Licensing Administrator

CC JGKepler, USNRC

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ATTACHMENT 1

PROPOSED SECTION XI CODE
APPLICABLE TO THE BIG ROCK POINT
INSERVICE INSPECTION UPDATE

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APPLICABLE EDITIONS AND ADDENDA OF ASME BOILER AND
PRESSURE VESSEL CODE - SECTION XI

Code of Federal Regulations, Title 10, Part 50, Paragraph 50.55a (10 CFR 50.55a) specifies use of the ASME Boiler and Pressure Vessel Code, Section XI for controlling inservice inspection (ISI) at nuclear power plants. Paragraph 10 CFR 50.55a currently specifies use of the 1974 Edition of this code with Addenda through Summer 1975.

Requirements of 10 CFR 50.55a also specify periodic updating of ISI programs, and permit the NRC to grant relief from specific code requirements. Pursuant to these requirements, Consumers Power Company submitted a proposed update and requests for relief for Big Rock Point 1ST by letter dated December 22, 1978.

Consumers Power Company has elected to change the ASME code basis from that cited in our December 22, 1978 update submittal. The ASME code version to be used is the 1977 Edition with Addenda through Summer 1978 (77S78). For certain components, requirements of the 1974 Edition and Addenda through Summer 1975 (74S75) supersede 77S78 requirements; these substitutions are detailed in Table I-1. Consumers Power Company also has elected to adopt Subsection IWF of the Winter, 1978 Addenda to specify requirements for component supports; Subsection IWF is understood to be a compilation of other code requirements technically equivalent to 77S78. Adoption of Subsection IWF necessitates deletion of certain requirements from 77S78 which are now incorporated in Subsection IWF; these deletions are tabulated in Table I-2.

Consumers Power Company has compared the requirements of the composite code discussed above to the requirements of 74S75 including consideration of our pending relief requests. The results of this tabulation are reported in Attachment 3. From this comparison, Consumers Power Company concludes that the proposed code basis is equivalent to or more restrictive than the code referenced in 10 CFR 50.55a.

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TABLE I-1

APPLICABLE ASME SECTION XI CODE
EDITIONS AND ADDENDA

Applicable Require-
ments from 1974 Ed
W/Addenda Thru S/75

Superseded Requirements from
1977 Ed W/Addenda thru S/78

Subject

Comments

Table IWB-2500
Examination Category B-J
and
Table IWB-2600
Item Number 4.5

Table IWB-2500-1
Examination Category B-J

Pressure Retaining
Welds in Piping

The examination require-
ments figure numbers,
examination method &
acceptance standards
at S/78 will be applied
to the S/75 Areas sub-
ject to examination &
extent and frequency at
examination except that
S/75 requirements for
Examination Method will
be applied to the 6
outlet Reactor Vessel
Nozzle to pipe welds
(these welds will be
100% volumetrically
examined but will not
be surface examined).

IWC-1220

IWC-1220

Components exempt
from examination.

S/75 requirements will be
applied to (last 2 pipe
welds only).

IWC-2411

IWC-2410

Inspection Program
Nondestructive
Examination

S/75 requirements will be
applied to Class 2 pipe
welds only.

Table IWC-2520
Examination Categories
C-F & C-G

Table IWC-2500-1
Examination Category
C-F

Pressure Retaining
Welds in Piping

The examination require-
ment Figure Numbers,
Examination Method &
Acceptance Standards at
S/78 will be applied to
the S/75 Areas Subject to
Examination, and Extent
of Examination.

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TABLE I-2

Winter 1978 Requirements Which Supercede
Summer 1978 Requirements to Permit The
Application of Subsection IWF

IWA-1100(a)	Scope
IWA-1300	Components Subject to Inspection
IWA-2110 (b)	Definition of a Component
IWA-2400 (e)	Inspection Intervals for Component Supports
IWA-3100 (a)	Evaluation
IWA-4110	Repair Procedures Scope
IWA-7530	Replacements Pressure Inspection
IWB-1100	Scope
IWB-1210	Examination Requirements
Table IWB-2500-1 Examination Category B-H	Integral Attachments for Vessels
Table IWB-2500-1 Examination Category B-K-1	Integral Attachments for Piping, Pumps Pumps and Valves
Table IWB-2500-1 Examination Category B-K-2	Component Supports for Piping, Pump and Valves
Figure IWB-2500-13	Integral Attachment Weld
Figure IWB-2500-14	Support Circumferential Weld Joint
Figure IWB-2500-15	Integral Attachment
Table IWB-3410-1	Acceptance Standard
IWB-3516	Standards for examination Categories B-H Integral Attachments for Vessels and B-K-1, Integral Attachments for Piping Valves and Pumps
IWB-3522	Standard for Examination Category B-K-2, Support Components for Piping, Valves and Preps
IWC-1100	Scope
IWC-1210	Examination Requirements
IWC-1220(c)	Components Exempt for Examination
Table IWC-2500-1 Examination Categories C-C and C-E	Integral Attachments for Vessels, Piping, Pumps and Valves
Figure IWC-2520-5	Integrally Welded Attachments
IWD-1100	Scope
IWD-1210	Examination Requirements
Table IWD-2500-1	Test and Examination Categories

Attachment 2

COMPARISON OF THE CURRENT REGULATION
(50.55a) REQUIRING 74S75 EDITION OF
SECTION XI AND THE SUBMITTED
COMPOSITE CODE (74S75 + 77W77)

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COMPOSITE CODE SUBMITTED REQUIREMENT
74575/77477 + PROPOSED IWf

50.5%a REQUIREMENT 74575

COMPONENT IDENTIFICATION

REACTOR VESSEL

Longitudinal and Circumferential Weld in Core Region.

Bl.1, B-A Volumetric.
10% length each Longitudinal.
5% length each Circumferential.

None - Relief Requests on B-A welds due to inaccessibility.

a) Longitudinal & Circumferential welds.
b) Seam and meridional welds in the heads.

Bl.2, B-B Volumetric.
10% length of each Longitudinal and Meridional.
5% length of each Circumferential.

Same as above.

Vessel-to-Flange.
Head-to-Flange.

Bl.3, B-C Volumetric.
100% each weld.

Bl.1, B-A Volumetric.
Required: Same as '74 Category B-A.

Nozzle-to-Vessel.
Nozzle-Inside-Radius.

Bl.4, B-D Volumetric.
100% of all Nozzles.

Bl.4, B-D Volumetric.
Required: '77
1st Interval - All nozzles.
Remaining Intervals - 100% nozzle at terminal ends.

None.

Vessel Penetrations - CRD & Instrument.

Bl.5, B-E Visual (Hydro).
25% of each group of comparable site and function.

None.

Nozzle-to-Safe Ends

Bl.6, B-F Volumetric and surface.
All welds.

Bl.6, B-F Volumetric & surface.
Required: '77
1st Interval - All welds.
Remaining Intervals - All welds.

None.

Closure Studs - In place.

Bl.7, B-G-1 Volumetric.
100% of studs.

Bl.8, B-G-1 Volumetric and Surface.
Required: '77 100% nuts and studs.

Surface exam also required.

Closure Studs and Nuts, removed.

Bl.8, B-G-1 Volumetric and surface.
All Studs and Nuts.

Bl.7, B-G-1 Surface.
Bl.8, B-G-1 Volumetric and surface.
All Studs and Nuts.
Required: '77

None.

Ligaments

Bl.9, B-G-1 Volumetric.
100% Ligaments.

Bl.9, B-G-1 Volumetric.
Required: '77 100%.

None.

Closure Washers

Bl.10, B-G-1 Visual.
100% washers.

Bl.10, B-G-1 Visual.
Required: '77 100%

None.

Pressure Retaining Bolting.

Bl.11, B-G-2 Visual.
100% bolting.

Bl.11, B-G-2 VT-1.
Required: '74 100%.

None.

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COMPONENT IDENTIFICATION

50.55a REQUIREMENT 74S75

COMPOSITE CODE SUBMITTED REQUIREMENT
74S75/77W77 + PROPOSED IWFRESULTANT CHANGE
TO 50.55a

Integrally-Welded Vessel Supports	B1.12, B-N Volumetric. 10% of the Vessel Skirt. 100% of Lug Attachments.	B1.12, B-N Volumetric. Required: '77 <u>1st & 2nd Intervals</u> - 100% of the Skirt. 100% of Lug Welds.	None (No Vessel Skirt)
Closure Head Cladding.	B1.13, B-1-1 VT and Surface or Volumetric. 100% or patch areas.	No requirement.	Requirement is deleted from 77W77 Code.
Vessel Cladding.	B1.14, B-I-1 Visual.	No requirement-included in B-N-1 inspection.	None.
Vessel Interior.	B1.15, B-N-1, Visual. Three year examination intervals.	B1.15, B-N-1 VT-3. Required: '74	None.
Interior Attachments. Core Support Structures.	B1.16, B-N-2 Visual. 100% Attachments.	B1.16, B-N-2 VT-3. Required: '74.	None.
Core Support Structures.	B1.17, B-N-3 Visual. Not applicable to BWR's.	Not applicable to BWR'S.	None.
CRD Housings.	B1.18, B-0 Volumetric. 100% of welds in. 10% of peripheral housings.	B1.18, B-0 Volumetric. Required: '77	None.
Exempted Components	B1.19, B-P Hydro IWA-5000; IWB-5000	B1.19, B-P VT-2, VT-4. Required: '77 Hydro and Leak Test	None.
<u>HEAT EXCHANGERS & STEAM GENERATORS</u>			
Longitudinal and circumferential Welds	B3.1, B-B Volumetric. 10% length of each Longitudinal Weld. 5% length of each circumferential Weld.	B3.1, B-B Volumetric. Required: '74	None.
Primary Side - Nozzle-to-Head Welds Inside Radius Sections	B3.2, B-D Volumetric. 100% of all nozzles.	B3.2, B-D Volumetric. Required: '77 <u>1st Interval</u> - 100% of all nozzles. <u>Remaining Intervals</u> - 100% of all Nozzles.	None.

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POOR ORIGINAL

RESULTANT CHANGE
TO 50.55a

COMPOSITE CODE SUBMITTED REQUIREMENT
T4S75/77W77 + PROPOSED IWF

COMPONENT IDENTIFICATION	50.55a REQUIREMENT T4S75	COMPOSITE CODE SUBMITTED REQUIREMENT T4S75/77W77 + PROPOSED IWF	RESULTANT CHANGE TO 50.55a
Nozzle-to-Safe End Welds.	B3.3, B-F Volumetric and surface. 100% of all welds.	B3.3, B-F Volumetric and surface. Required: '77 100% of all welds.	None.
Pressure Retaining Bolting, In Place.	B3.4, B-G-1 Volumetric. 100% Bolting.	B3.5, B-G-1 Volumetric and surface. Required: '77 100% of Bolting.	None. (Surface Inspection Requirement Added).
Pressure Retaining Bolting Removed.	B3.5, B-G-1 Volumetric and surface. 100% Bolts, Nuts, Studs.	B3.5, B-G-1 Volumetric and surface. See above.	None.
Pressure Retaining Bolting.	B3.6, B-G-1 Visual. 100% Bolting.	B3.6, B-G-1 VT-1 Required: '77 100% of Bolting.	None.
Integrally - Welded Vessel Supports	B3.7, B-H Volumetric. 10% of skirt weld-to-Vessel. 100% lug welds.	B3.7, B-H Volumetric Required: '77 1st & 2nd Intervals - 100% of skirt Weld-to-Vessel. 100% lug welds.	None.
Vessel Cladding	B3.8, B-I-2 Visual. 100% Patch areas.	Not included in '77 table 2600-1.	None.
Exempted Components.	B3.9, B-P Hydro. IWA-5000; IWB-5000	B3.9, B-P Hydro and Leak Test.	None.
Pressure-Retaining Bolting.	B3.10, B-G-2 Visual. 100% of Bolting.	B3.10, B-G-2 VT-1. Required: '77 100% of Bolting.	None.
PIPING PRESSURE BOUNDARY			
Safe-End-to-Pipe	B4.1, B-F Volumetric and surface. 100% of the welds.	B4.1, B-F Volumetric and surface. Required: '77 100% of the Welds.	None.
Pressure Retaining Bolting, In Place.	B4.2, B-G-1 Volumetric 100% of Bolting > 2".	B4.2, B-G-1 Volumetric and surface. Required: '77 100% of bolting > 2".	None.
Pressure Retaining Bolting, Removed.	B4.3, B-G-1 Volumetric & surface. 100% of Bolting > 2".	B4.3, B-G-1 B4.2, B-G-1 Volumetric & surface. Same as above.	None.

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COMPOSITE CODE SUBMITTED REQUIREMENT
74ST5/77W71 + PROPOSED IWF

50.55a REQUIREMENT 74ST5

RESULTARY CHANGE
TO 50.55a

COMPONENT IDENTIFICATION	50.55a REQUIREMENT 74ST5	COMPOSITE CODE SUBMITTED REQUIREMENT 74ST5/77W71 + PROPOSED IWF	RESULTARY CHANGE TO 50.55a
Pressure Retaining Bolting	B4.4, B-G-2 Visual. 100% of Bolting > 2".	B4.3, B4.12, B-G-2 VT-1 100% of Bolting > 2".	None
Circumferential and Longitudinal Pipe Welds	B4.5, B-J Volumetric. 25% of each circumferential weld and adjoining 1 ft of longitudinal weld	B4.4, B-J Volumetric and surface. Welds > 4 in diameter. Required: '74	None.
Branch Pipe Connection > 6"	B4.6, B-J Volumetric. 25% Branch Pipe Connections.	B4.5, B-J surface welds < 4" diameter Required: '74	None.
Branch Pipe Connections < 6"	B4.7, B-J Surface. 25% of Welds.	B4.6, B-J Surface. Required: '74 25% of B.C.	None.
Internally Welded Supports	B4.9, B-K-1 Volumetric. 25% of Supports.	B4.8, B-J Surface. Required: '74 B-J.	None.
Support Components	B4.10, B-K-2 Visual. 100% of supports.	B4.4, B-K-1 Volumetric. Required: '74 25% of supports.	None.
Exempted components	B4.11, B-P Hydro IWA-5000; IWB-5000	B4.10, B-K-2 VT-3 Required: '74	None.
Pressure Retaining Bolting	'S75, B4.4, B-G-1 Visual. 100% of Bolts.	B4.11, B-P Hydro (VT-2) Required: 'W77	None.
PUMP PRESSURE BOUNDARY			
Pressure Retaining Bolt, and Welds, In Place.	B5.1, B-G-1 Volumetric 100% of Bolting > 2".	B4.3, B-G-1 VT-1 Required: '77 100% of Bolts.	None.
Pressure Retaining Bolt No - moved.	B5.2, B-G-1 Volumetric & surface. 100% bolting > 2".	B5.2, B-G-1 Volumetric & surface. Required: '77 100% Bolting > 2".	None.
Pressure Retaining Bolting	B5.3, B-G-1 Visual. 100% bolting > 2"	B5.2, B-G-1 Volumetric & surface. Required: '77 100% bolting > 2".	None.

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RESULTANT CHANGE
TO 50.55a

COMPOSITE CODE SUBMITTED REQUIREMENT
74S75/77W77 + PROPOSED IMP

50.55a REQUIREMENT 74S75

COMPONENT IDENTIFICATION

Integrally-Welded Supports

B5.4, B-K-1 Volumetric,
25% of Supports.

B5.4, B-K-1 Volumetric.
25%

None.

Support Components

B5.5, B-K-2 Visual
100% Supports.

B5.5, B-K-2 VT-1
100% Supports
Required: '74

None.

Pump Casing Welds

B5.6, B-L-1 Volumetric.
100% Weld of one Pump of same function.

B5.6, B-L-1 Volumetric.
Required: '77

None.

Pump Casings

B5.7, B-L-2 Visual
One Pump in each group same pump selected
for B-L-1.

B5.7, B-L-2 VT-3
Required: '74

None.

Exempted Components

B5.3, B-P Hydro
IWA-5000, IWB-5000

B5.3, B-P VT-2
Required: 'W77 (Hydro)

None.

Pressure Retaining Bolting

B5.9, B-G-2 Visual
100% Bolting < 2"

B5.9, B-G-2 VT-1
100% Bolting < 2"
Required: '74

None.

VALVE PRESSURE BOUNDARY

Pressure Retaining Bolting
In-Place

B6.1, B-G-1 Volumetric
100% Bolting > 2".

B6.2, B-G-1 Volumetric & surface.
Required: '77
100% Bolting > 2".

None.

Pressure Retaining Bolting -
Removed.

B6.2, B-G-1 Volumetric & surface.
100% Bolting > 2".

B6.2, B-G-1 Volumetric & surface.
Required: '77
100% Bolting > 2".

None.

Pressure Retaining Bolting

B6.2, B-G-1 Visual
100% Bolting > 2".

B6.3, B-G-1 VT-1
Required: '77
100% Bolting > 2".

None.

Integrally Welded Supports

B6.4, B-K-1 Volumetric
25% of Supports.

B6.4, B-K-1 Volumetric.
Required: '77
25% of supports.

None.

Support Components

B6.5, B-K-2 Visual
100% Supports.

B6.5, B-K-2 VT-1
Required: '74

None.

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COMPONENT IDENTIFICATION50.55a REQUIREMENT 74875COMPOSITE CODE SUBMITTED REQUIREMENT74875/77W77 + PROPOSED IWFRESULTANT CHANGETO 50.55a

Valve Body Welds

B6.6, B-M-1 Volumetric.
100% of Welds in one valve of a group.B6.6, B-M-1 Volumetric
Required: '77
100% of welds in one valve of a group.

None.

Valve Bodies

B6.7, B-M-2 Visual
Internals of one valve of a group-same
valve as inspected for B-M-1 > 1/4".B6.7, B-M-2 VT-3
Required: '74

None.

Exempted Components

B6.8, B-P Hydro and leak test IWA-5000;
IWB-5000.B6.8, B-P VT-2
Required: '77 Hydro and leak test.

None.

Pressure Retaining Bolting

B6.9, B-G-2 Visual
100% Bolting < 2".B6.9, B-G-2 VT-1
100% Bolting < 2".

None.

PRESSURE VESSELS

Circumferential Butt Welds

C1.1, C-A Volumetric.
20% of Each weld.C1.1, C-A Volumetric
Required: '74 (includes tubesheet-
to shell welds)

None.

Nozzle-to-Vessel Welds

C1.2, C-B Volumetric.
100% of Weld.C1.2, C-B: 1/2 inch or less.
Surface
C1.3, C-B: Over 1/2 inch surface &
volumetric Required: '74.

None.

Integrally Welded Supports

C1.3, C-C Surface
100% of WeldC1.4, C-C surface.
Required: '74.

None.

Pressure-Retaining Bolting

C1.4, C-D Visual And Surface of Volumetric
VT-100%
NDE-10%C1.5, C-D > 2" Dia & Volumetric
Required: '74

None.

Support Components

C1.6, C-E-2 Visual
100% of supports.C1.6, C-E-2 VT-3
Required: '74 VT-4
100% of Supports

Pressure Retaining Components

IWA-5000; IWC-5000.

C1.7, C-H VT-2
Required: '77
One leak test/period, one hydro/intervalAddition of leak test
once per period.

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COMPONENT IDENTIFICATION

50.55a REQUIREMENT 74875

COMPOSITE CODE SUBMITTED REQUIREMENT
74875/77W77 + PROPOSED IWFRESULTANT CHANGE
TO 50.55a

PIPING

Welds	a) Circumferential Butt C2.1, C-F, C-G Volumetric b) Longitudinal Weld Joints C.2, C-F, C-G Volumetric c) Branch Pipe-to-Pipe C2.3, C-F, C-G Volumetric C-F: 100% of welded Joints C-G: 50% of Welded Joints	a) Piping Welds $\frac{1}{2}$ " or less nom. thick. C2.1, C-F Surface. b) Piping Welds - over $\frac{1}{2}$ " Nom thick. C2.2, C-F Surface and Volumetric c) Branch Connection. C2.3, C-F Surface Required: '74 100% of welds	None
Pressure Retaining Bolting	B2.4, C-D Visual and surface or volumetric VT, 100% NDT, 10% >1".	C2.6, C-D Volumetric Required: '74 10% of Bolts.	None.
Integrally Welded Supports	C2.5, C-E-1 Surface 100% of Welds	C2.4, C-E-1 Surface Required: '74	None.
Support Components	C2.6, C-E-2 Visual all supports	C2.5, C-E-2 VT-3 Required: '74 VT-4 All Supports	None.
Pressure Retaining Components	IWA-5000; IWC-5000	C2.7, C-H VT-2 Required: '77 Leak test once/ period Hydro once/interval.	Leak Test required once per period.
PUMPS			
Pump Casing Welds	C3.1, C-F: C-G Volumetric C-F; 100% of Welds C-G: 50% of welds	C3.1, C-G Surface 50% of welds Required: '74	None.
Pressure Retaining Bolting	C3.2, C-D Visual and Surface or Volumetric >1" VT 100% - NDT 10%	C3.2, C-D Volumetric 2" 10% of Bolts Required: '74	None.
Integrally Welded Supports	C3.3, C-E-1 Surface 100% of Supports	C3.3, C-E-1 Surface Required: '74	None.
Support Components	C3.4, C-E-2 Visual All supports	C3.4, C-E-2 VT-3 VT-4 Required: '74	None.
Pressure Retaining Components	IWA-5000; IWC-5000	C3.5, C-H VT-2 Required: '77 (Hydro) Leak test once/period Hydro test once/interval	Leak Test required once per period.

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COMPONENT IDENTIFICATION

50.55a REQUIREMENT 74875

COMPOSITE CODE SUBMITTED REQUIREMENT
74875/77W77 + PROPOSED IWFRESULTANT CHANGE
TO 50.55a

VALVES

Valve Body Welds

C4.1, C-F, C-G Surface
C-F: 100% of welds
C-G: 50% of weldsC4.1, C-G Surface
Required: '74
50% of welds

None.

Pressure-Retaining Bolting

4.2 C-D Visual and surface or volumetric
>1"
VT-100%
NDT-10%C4.2, C-D, Volumetric
>2" Required: '74
10% of Bolts

None.

Integrally Welded Supports

C4.3, C-E-1 Surface
100% of SupportsC4.3, C-E-1 Surface
Required: '74

None.

Support Components

C4.4, C-E-2 Visual
All SupportsC4.4, C-E-2 VT-3 VT-4
Required: '74

None.

Pressure Retaining Components

IWA-5000; IWD-5000

C4.5, C-H VT-2
Leak Test once/period
Hydro once/intervalLeak test required once
per period.

IWD-2400 INSPECTION SCHEDULE

IWD-2410 INSPECTION PROGRAM

- a) Inservice examinations may be performed during system operation plant outages.
- b) 100% of the components shall have been tested and examined in accordance with IWA-5000, IWD-5000, and IWD-2600 by the expiration of each inspection interval.
- c) In addition, 100% of the components shall have been examined in accordance with IWA-5240 and IWD-2600 while in operation or during system inservice testing, by the expiration of every one-third of each inspection interval.

Code use in update is the same as code use required by S/78 addenda. Table IWD-2500-1 is in effect.

None.

IWD-2600 EXAMINATION REQUIREMENTS

Components in systems or portions of systems shall be subjected to the following examination:

- a) Visual examination shall be conducted for evidence of component leakages (other than controlled or collected leakages), structural distress, or corrosion when the system is undergoing either a system inservice test, component functional test (i.e., valves and pumps) or a system pressure test.
- b) In the case of buried components (eg underground piping), valves shall be provided to permit isolation of the buried portions of piping

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COMPONENT IDENTIFICATION50.55a REQUIREMENT 74575COMPOSITE CODE SUBMITTED REQUIREMENT
74575/77W77 + PROPOSED IWFRESULTANT CHANGE
TO 50.55a

IWD-2600 EXAMINATION REQUIREMENTS (CONT'D)

- b) of piping for the purpose of conducting a system pressure test in lieu of the visual examination. A loss of system pressure during the test shall constitute evidence of component leakage.
- c) Supports (restraints) and hangers for components exceeding four-inch nominal pipe size whose structural integrity is relied upon to withstand design loads when the system function is required shall be visually examined to detect any loss of support capability, and evidence of inadequate restraint.

(See note on preceeding page)

None.

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POOR ORIGINAL

Attachment 3

COMPARISON OF THE CURRENT REGULATION
(50.55 a) REQUIRING 74875 EDITION
OF SECTION XI AND THE PROPOSED UPDATE
EDITION 77S78 + IWF (W78)

569239

COMPONENT IDENTIFICATION	50.55a REQUIREMENT 74S75	COMPOSITE CODE PROPOSED REQUIREMENT 77S78 + IWF (W78)	RESULTANT CHANGE TO 50.55a
<u>REACTOR VESSEL</u>			
Longitudinal and Circumferential Weld In Core Region	B1.1, B-A Volumetric 10% length each Longitudinal 5% length each Circumferential	<u>PER INTERVAL</u> B1.11, B1.12, B-A Volumetric <u>1st Interval</u> - 100% of all welds. <u>Remaining Intervals</u> - 100% of one beltline weld.	None- Relief requested on B-A welds due to inaccessi- bility.
Longitudinal and Circumferential Welds Seam and Meridional Welds in the Heads	B1.2, B-B Volumetric. 10% length of each Longitudinal & Meridional 5% length of each circumferential.	B1.11, B1.2, B-A Volumetric B1.21, B1.22, B-A Volumetric Same as above.	For accessible welds, 77S78 is more conservative since 100% of the welds are examined instead of only 40%.
Vessel-to-Flange Head-to-Flange	B1.3, B-C Volumetric 100% each weld	B1.30, B1.40, B-A Volumetric 100% each weld	None
Nozzle-to-Vessel Nozzle Inside Radius	B1.4, B-D Volumetric 100% of all nozzles	B3.9, B3.100 B-D Volumetric All nozzles - at least 25% but no more than 50% done by the end of the 1st period.	None.
Vessel Penetrations - CRD & Instrument	B1.5, B-E Visual (Hydro) 25% of each group of comparable site and function.	B4.12, B4.13, B4.14, B-E VT-2 Same required as '74.	None
Nozzle-to-Safe Ends	B1.6, B-F Volumetric & surface. All Welds.	B5.10, B-E Volumetric & Surface All welds.	None.
Closure Studs - in Place	B1.7, B-G-1 Volumetric 100% of studs	B6.20, B-G-1 Volumetric All studs	None.
Closure Studs and Nuts, Removed	B1.8, B-G-1 Volumetric and surface. All studs and nuts.	B6.10, B-G-1 Surface B6.30, B-G-1 Volumetric and surface. All studs and nuts.	None.
Ligaments	B1.9, B-G-1 Volumetric 100% Ligaments	B6.40, B-G-1 Volumetric. 100% Ligaments	None.
Closure Washers	B1.10, B-G-1 Visual 100% Washers	B6.50, B-G-1 VT-1 100% washers	None.
Pressure Retaining Bolting	B1.11, B-G-2 Visual 100% Bolting	B7.10, B-G-2, VT-1 100% Bolting.	None.

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POOR ORIGINAL

COMPONENT IDENTIFICATION

50.55a REQUIREMENT 74875

COMPOSITE CODE PROPOSED REQUIREMENT
77S78 + IWF (W78)RESULTANT CHANGE
TO 50.55a

Integrally - Welded Vessel Supports	B1.12, B-H Volumetric 10% of the vessel skirt 100% of lug attachments	B8.10, B-H Volumetric or surface. 1st & 2nd Interval: 100% of welds to vessels.	None. No vessel skirt.
Closure Head Cladding	B1.13, B-I-1 VT and surface or volumetric 100% of patch areas	No requirement	Delete requirements for surface or volumetric.
Vessel Cladding	B1.14, B-I-1 Visual	No requirement, included in B-N-1 inspection.	None.
Vessel Interior	B1.15, B-N-1 Visual Three year exam intervals	B13.10, B-N-1 VT-3 Three Year inspection intervals	None.
Interior Attachments Core Support Structures	B1.16, B-N-2 Visual 100% Attachments	Per interval B13.20, B-N-2 VT-1 all welds B13.21, B-N-2 VT-1 All surfaces	None.
Core Support Structures	B1.17, B-N-3, Visual Not Applicable to BWR's.	B13.30, B-N-3, VT-3 Not applicable to BWR's.	None.
CRD Housings	B1.18, B-O Volumetric 100% of welds in 10% of peripheral housings	B14.10, B-O Volumetric or surface Same as '74 Category B-O.	None.
Unempted Components	B1.19, B-P Hydro IWA-5000; IWB-5000	B15.10, B-P Leak test each outage. B15.11, B-P Hydro test each interval.	None.
<u>HEAT EXCHANGERS & STEAM GENERATORS</u>			
Longitudinal and circumferential Welds	B3.1, B-B Volumetric 10% length of each longitudinal Weld 5% length of each Circumferential Weld	B2.51, B2.52, B-B Volumetric. <u>1st interval</u> - 100% of all welds. <u>Remaining Intervals</u> - 1 circumferential weld 1 ft of one longitudinal Weld.	77S78 requires inspection of 100% of all welds.
Primary Side- Nozzle-to-Head Welds Inside Radius Sections	B3.2, B-D Volumetric 100% of all nozzles.	B3.150, B3.160, B-D Volumetric 100% of nozzles.	None.
Nozzle-to-Safe End Welds	B3.3, B-F Volumetric & surface. 100% of all Welds.	Per interval B5.40, B-F volumetric & surface all welds 100% of all welds.	None.

POOR ORIGINAL

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<u>COMPONENT IDENTIFICATION</u>	<u>50.55a REQUIREMENT 74S75</u>	<u>COMPOSITE CODE PROPOSED REQUIREMENT 77S78 + IWF (W78)</u>	<u>RESULTANT CHANGE TO 50.55a</u>
Pressure Retaining Bolting, In Place.	B3.4, B-G-1 Volumetric 100% Bolting	B6.120, B-C-1 Volumetric 100% Bolts and studs	None.
Pressure Retaining Bolting Removed	B3.5, B-G-1 Volumetric & Surface 100% Bolts, Nuts, Studs.	B6.130, B-G-1 Volumetric & surface. 100% Bolting.	None.
Pressure Retaining Bolting	B3.6, B-G-1 Visual 100% Bolting	B6.230, B-G-1 VT-1 100% of Bolting	None.
Integrally - Welded Vessel Supports	B3.7, B-H Volumetric 10% of Skirt Weld - to Vessel 100% lug welds	B8.40, B-H volumetric or surface 100% weld in one heat exchanger support; 100% lug welds - 1st & 2nd Intervals.	Increases inspection length of skirt welds.
Vessel Cladding	E3.8, B-I-2 Visual 100% Patch Areas	Not included in S/78 IWB-2500-1	Cladding is not accessible.
Exempted Components	B3.9, B-P Hydro IWA-5000; IWB-5000.	B15.40, B-P Leak Test each outage B15.41, B-P Hydro each interval.	None.
Pressure Retaining Bolting	B3.10, B-G-2 Visual 100% of Bolting	B7.40, B-G-2, VT-1 All Bolts, studs, Nuts.	None.
<u>PIPING PRESSURE BOUNDARY</u>			
Safe End-to-Pipe	B4.1, B-F Volumetric and Surface. 100% of the welds.	B5.50, B-F Volumetric & surface. 100% of the welds.	None.
Pressure Retaining Bolting, In- Place.	B4.2, B-G-1 Volumetric 100% of Bolting >2"	B6.150, B-G-1, Volumetric. 100% of Bolting >2".	None
Pressure Retaining Bolting, Removed	B4.3, B-G-1 Volumetric & surface. 100% of Bolting >2".	B6.160, B-G-1 Volumetric & Surface. 100% of Bolting >2"	None.
Pressure Retaining Bolting	B4.4, B-G-2, Visual 100% of Bolting <2".	B7.50, B-G-2, VT-1 100% of Bolting <2".	None.
Circumferential & Longitudinal Pipe Welds	B4.5, B-J Volumetric 25% of each circumferential Weld and adjoining lft of longitudinal weld	B9.11, B9.12, B-J Volumetric & surface B9.21, B9.22, B-J surface >4" Dia. Extent and frequency of examination shall follow guideline of '74 code: 25% of each circumferential weld, etc.	None.

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COMPONENT IDENTIFICATION	50.55a REQUIREMENT 74875	COMPOSITE CODE PROPOSED REQUIREMENT 77878 + IWF (W78)	RESULTANT CHANGE TO 50.55a
Branch Pipe Connection >6" Branch Pipe Connection <6"	B4.6, B-J Volumetric 25% Branch Pipe Connections B4.7, B-J surface 25% of weld	B9.31, B-J, Surface & Volumetric >2". B9.32, B-J Surface <2". Scope as per '74 Rule for branch connections 25% of all welds.	Volumetric Inspection required for branch connections over 2".
Socket Welds	B4.8, B-J Surface 25% of Welds.	B9.40, B-J Surface Extent and frequency of exams per guidelines of '74 - 25% of Welds.	None.
Integrally Welded Supports	B4.9, B-K-1 Volumetric 25% of Supports.	B10.10, B-K-1 Volumetric or surface. <u>1st and 2nd Intervals</u> -100% of piping supports in systems requiring examination under B-J.	Increases amount of inspection
Support Components	B4.10, B-K-2 Visual 100% of Supports	Section IWF - W78 F-1, F-A, B, C VT-3 F-2, F-A, B, C VT-3 F-3, F-A, B, C VT-3 F-4, F-C VT-4 100% of all supports each interval	Section IWF defines limits of examination.
Exempted Components	B4.11, B-P Hydro IWA-5000; IWB-5000	B15.50, B-P Leak Test each outage. B15.51, B-P Hydro B6.170, B-G-1 VT-1 100%	None.
Pressure Retaining Bolts and Studs - In Place	B5.1, B-G-1 Volumetric 100% Bolting >2".	B6.180, B-G-1 Volumetric 100% bolting >2".	None.
Pressure Retaining Bolting - Removed	B5.2, B-G-1 Vol & Surface 100% Bolting >2".	B6.190 B-G-1, Volumetric & surface 100% of Bolting >2".	None.
Pressure Retaining Bolting	B5.3, B-G-1 Visual 100% bolting >2".	B6.200, B-G-1 VT-1 100% Bolting >2".	None.
Integrally - Welded Supports	B5.4, B-K-1 Volumetric 25% of Supports.	B10.20, B-K-1, Volumetric or surface <u>1st and 2nd Interval</u> - 100% of all supports.	Increases amount of inspection
Support Components	B5.5, B-K-2, Visual 100% Supports	IWF W78 VT-3,4 100% of Supports	None.
Pump Casing Welds	B5.6, B-L-1 Volumetric 100% Weld of one Pump of same function.	100% weld of one Pump of same function.	None.

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POOR ORIGINAL

COMPONENT IDENTIFICATION

50.55a REQUIREMENT 74S75

COMPOSITE CODE PROPOSED REQUIREMENT
77S78 + IWF (W78)

RESULTANT CHANGE
TO 50.55a

Pump Casings	B5.7, B-L-2 Visual one Pump in each group same pump selected for B-L-1.	B12.50, B-L-2 VT-1 Internal surfaces one pump in each group-same pump selected for B-L-1	None.
Exempted Components	B5.8, B-P Hydro IWA-5000; IWB-5000	B15.60, B-P Leak test each outage B15.61, E-D Hydro each interval.	Increases amount of inspection.
Pressure Retaining Bolting	B5.9, B-G-2 Visual 100% Bolting < 2".	B7.60, B-G-2 VT-2 100% Bolting < 2".	None.
<u>VALVE PRESSURE BOUNDARY</u>			
Pressure Retaining Bolting-In Place	B6.1, B-G-1 Volumetric 100% Bolting > 2".	B6.210, B-G-1 Volumetric 100% Bolting > 2".	None.
Pressure Retaining Bolting-Removed	B6.2, B-G-1 Volumetric & surface. 100% Bolting > 2"	B6.220, B-G-1 Volumetric & surface 100% Bolting > 2".	None.
Pressure Retaining Bolting	B6.2, B-G-1 Visual 100% Bolting > 2".	B6.230, B-G-1 VT-1 100% Bolting > 2".	None.
Integrally Welded Supports	B6.4, B-K-1 Volumetric 25% of Supports	B10.30, B-K-1 Volumetric & surface. <u>1st & 2nd Interval</u> - 100% of all supports.	None.
Support Components	B6.5, B-K-2 Visual 100% Supports	IWF W78 VT-3,4 100% of Supports	None.
Valve Body Welds	B6.6, B-M-1 Volumetric 100% of welds in one valve of a group.	B12.30, B-M-1 Volumetric & surface 100% of welds in one valve of a group	None.
Valve Bodies	B6.7, B-M-2 Visual Internals of one valve of a group - same valve as inspected for B-M-1 > 4".	B12.40, B-M-2, VT-1 Internal surfaces of one valve of a group - same valve as picked for B-M-1 > 4".	None.
Exempted Components	B6.6, B-P Hydro IWA-5000; IWB-5000	B15.70, B-P Leak test each refueling outage B15.71 B-P hydro once each interval.	None.
Pressure Retaining Bolting	B6.9, B-G-2 Visual 100% Bolting < 2".	B7.7, B-G-2 VT-1 100% Bolting < 2".	None.

POOR ORIGINAL

569244

COMPONENT IDENTIFICATION

50.55a REQUIREMENT 74S75

COMPOSITE CODE PROPOSED REQUIREMENT
77S78 + IWP (W78)RESULTANT CHANGE
TO 50.55aPRESSURE VESSELS

Circumferential Butt Welds	C1.1, C-A Volumetric 20% of each weld.	C1.10 Shell C1.20 Head C1.30 Tube-sheet-to-Shell 100% of welds.	} C-A Vol. Increases extent of examination to 100% of weld.
Nozzle-to-Vessel Welds	C1.2, C-B Volumetric 100% of weld	C2.10, C-B < 1/2" Nom thickness-surface C2.20, C-B > 1/2" nom thickr surface & Volumetric 100% of all nozzle welds.	
Integrally Welded Supports	C1.3, C-C Surface 100% of weld	C3.10, C-C surface 100% of weld of each support	None.
Pressure Retaining Bolting	C1.4, C-D Visual and surface or volumetric VT-100% NDE-10%	C4.10, C-D > 2" dia volumetric 100% of Bolting	NDE Examination increases to 100% of bolting.
Support Components	None	IWF 'W78 VT-3, VT-4 100% of supports	Component support inspection requirement added.
Pressure Retaining Components	IWC-5000	C7.10, C-H VT-2 once/period C7.11, C-H VT-2 once/interval	Leak test required each period.

PIPING

Welds	a) Circumferential Butt C2.1, C-F, C-G Volumetric b) Longitudinal weld joints C2.2, C-F, C-G Volumetric. c) Branch Pipe-to-Pipe C2.3, C-F, C-G volumetric C-F 100% of welded joints C-G: 50% of welded joints.	a) Circumferential and longitudinal welds < 1/2". C5.11 C5.12 C-F surface b) Circumferential and longitudinal welds > 1/2" C5.21 C5.22 C-F surface & volumetric. c) Circumferential and long welds pipe branch connections C5.31, C5.32, sur. extent and frequency of examination in per guidelines of '74 Code.	Examination method depend on pipe thickness.
Pressure Retaining Bolting	C2.4, C-D Visual and surface or volumetric VT 100% NDE 10% > 1".	C4.20, C-D volumetric 100% of bolts and studs.	None.
Integrally Welded Supports	C2.5, C-E-1 surface 100% of welds	C3.40, C-E surface 100% of weld of each support.	None.
Support Components	C2.6, C-E-2 visual All supports	IWF 'W78 VT-3, VT-4 All supports	None.

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POOR ORIGINAL

COMPONENT IDENTIFICATION

50.55a REQUIREMENT 74875

COMPOSITE CODE PROPOSED REQUIREMENT
77878 + IWF (W78)RESULTANT CHANGE
TO 50.55a

Pressure Retaining Components	None IWA-5000; IWC-5000	C7.20, C-H VT-2 Leak test once/period C7.21, C-H VT-2 hydro once/interval	Leak test required every period.
<u>PUMPS</u>			
Pump Casing Welds	C3.1 C-F: C-G Volumetric C-F: 100% of welds C-G: 50% of welds	C6.10 C-G surface 100% of welds	None.
Pressure Retaining Bolting	C3.2, C-D Visual and surface or volumetric >1" VT 100% NDT 10%	C4.30, C-D volumetric 100% of Bolting.	NDE Examination increases to 100% of bolting.
Integrally Welded Support	C3.3, C-E-1 Surface 100% of supports	C3.70, C-E surface 100% of welds	None.
Support Components	C3.4, C-E-2 Visual All Supports	IWF W78 VT-3, VT-4 All Supports	None.
Pressure Retaining Components	None IWA-5000; IWC-5000	C7.30, C-H VT-2 leak test once / period C7.31, C-H VT-2 hydro test once/ interval	Leak Test required each period.
<u>VALVES</u>			
Valve Body Welds	C4.1, C-F, C-G surface C-F: 100% of welds C-G: 50% of welds	C6.20, C-G surface 100% of welds	None.
Pressure Retaining Bolting	C4.2, C-D visual and surface or volumetric >1" VT-100% NDT-10%	C4.40, C-D volumetric 100% of bolting	NDE Examination increases to 100% of bolting.
Integrally Welded Supports	C4.3, C-E-1 Surface 100% of supports	C3.100, C-E surface 100% of supports	None.
Support Components	C4.4, C-E-2 Visual All Supports	IWF W78 VT-3, VT-4 All Supports	None.
Pressure Retaining Components	None IWA-5000; IWC-5000	C7.40, C-H VT-2 leak test once/period C7.41 C-H VT-2 hydro once/interval	NDE Examination increases to 100% of bolting.

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POOR ORIGINAL

COMPONENT IDENTIFICATION

50.55a REQUIREMENT 74S75

COMPOSITE CODE PROPOSED REQUIREMENT
77S78 + IWF (W78)

RESULTANT CHANGE
TO 50.55a

IWD-2400 INSPECTION SCHEDULE

IWD-2410 INSPECTION PROGRAM

- a) Inservice examinations may be performed during system operation plant outages.
- b) 100% of the components shall have been tested and examined in accordance with IWA-5000, IWD-5000, and IWD-2600 by the expiration of each inspection interval.
- c) In addition, 100% of the components shall have been examined in accordance with IWA-5240 and IWD-2600 while in operation or during system inservice testing by the expiration of every one third of each inspection interval.

IWD-2600 EXAMINATION REQUIREMENTS

Components in systems¹ or portions of systems shall be subjected to the following examination:

- a) Visual examination shall be conducted for evidence of component leakages (other than controlled or collected leakages), structural distress, or corrosion when the system is undergoing either a system inservice test, component functional test (i.e. valves and pumps) or a system pressure test.
- b) In the case of buried components (eg underground piping), valves shall be provided to permit isolation of the buried portions of piping for the purpose of conducting a system pressure test in lieu of the visual examination. A loss of system pressure during the test shall constitute evidence of component leakage.
- c) Supports (restraints) and hangers for components exceeding four-inch nominal pipe size whose structural integrity is relied upon to withstand design loads when the system function is required shall be visually examined to detect any loss of support capability, and evidence of inadequate restraint.

PRESSURE RETAINING COMPONENTS

Table IWD-2500-1
Test and Examination Categories

Components Subject to Test and Examination	Frequency of Examination	None
Pressure retaining components within the boundary of systems or portions of systems required to operate in support of normal plant safety functions of shutting down and maintaining the reactor in the cold shutdown condition.	<ul style="list-style-type: none"> a) A visual examination (VT-2) shall be performed under the operating conditions as a system inservice test (IWD-5221) during each inspection period. b) A visual examination (VT-2) shall be performed under the conditions of a system hydrostatic test (IWD-5223) at or near the end of each inspection interval, or during the same period of each inspection interval of inspection Program B. 	None
Pressure retaining components within the boundary of systems or portions of systems required to operate in support of the post-accident safety functions of emergency core cooling containment heat removal and atmosphere clean up, and long term residual heat removal from the reactor.	<ul style="list-style-type: none"> a) A visual examination (VT-2) shall be performed under the operating conditions of a system functional test (IWD-5222) at least once, at or near the end of each inspection period coinciding with a system functional test. b) A visual examination (VT-2) shall be performed under the conditions of a system hydrostatic test (IWD-5223) at or near the end of each inspection interval, or during the same period of each inspection interval of inspection Program B. 	
Pressure retaining piping, pumps and valves within the boundary of systems or portions of systems required to operate in support of residual heat removal from spent fuel storage pool.	<ul style="list-style-type: none"> a) A visual examination (VT-2) shall be performed under operating conditions, as a system inservice test (IWD-5221) during each inspection period, as a minimum once. b) A visual examination (VT-2) shall be performed under the conditions of a system hydrostatic test (IWD-5223) at or near the end of each inspection interval, or during the same period of each inspection interval of inspection Program B. 	

Restraints

Requirements of IWF-W78 - VT-3,
VT-4 All Supports

None

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