INSERVICE INSPECTION
EXAMINATION REPORT

YANKEE ATOMIC ELECTRIC COMPANY
YANKEE NUCLEAR POWER STATION

MARCH 31, 1984 THROUGH JUNE 9, 1984

PREFACE

This summary report covers the inservice inspection of Yankee Nuclear Power Station during the period March 31, 1984 through June 9, 1984.

Included in this report is the NIS-1 form as required by the provisions of ASME Section XI.

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FORM NIS-1 OWNERS' DATA REPORT FOR INSERVICE INSPECTIONS

As required by the Provisions of the ASME Code Rules

1. Owner Yankee Atomic Electric Co., 1671 Worcester Road, Framingham, Ma. 01701
(Name and Address of Owner)

2. Plant Yankee Nuclear Power Station, Rowe, Massachusetts 01367
(Name and Address of Plant)

3. Plant Unit Yankee Rowe 4. Owner Certificate of Authorization (if required) DPR-3

5. Commercial Service Date 7/1/61 6. National Board Number for Unit Reactor #NB-23964

7. Components Inspected

Component or Appurtenance	Manufacturer or Installer	Manufacturer or Installer Serial No.	State or Province No.	National Board No.
Reactor Vessel	B&W	610-0011	N/A	23964
Steam Generator	W	N/A	N/A	404E(Z)1
Piping	S&W	N/A	N/A	N/A
Pressurizer	B&W	610-0011	N/A	2397 4E 22

Note: Supplemental sheets in form of lists, sketches, or drawings may be used provided (1) size is 8½ in. x 11 in., (2) information in items 1 through 6 on this data report is included on each sheet, and (3) each sheet is numbered and the number of sheets is recorded at the top of this form.

This form (E00029) may be obtained from the Order Dept., ASME, 345 E. 47th St., New York, N.Y. 10017

FORM NIS-1 (back)

8. Examination Dates 3/31/84 to 6/9/84 9. Inspection Interval from 12/1/74 to 12/1/84

10. Abstract of Examinations. Include a list of examinations and a statement concerning status of work required for current interval. Page 3 of 28

11. Abstract of Conditions Noted Page 6 of 28

12. Abstract of Corrective Measures Recommended and Taken Page 7 of 28

We certify that the statements made in this report are correct and the examinations and corrective measures taken conform to the rules of the ASME Code, Section XI.

Date 9/5 19 84 Signed YANKEE ATOMIC By W M St Laurent
Owner

Certificate of Authorization No. (if applicable) DOR-3 Expiration Date 11/4/97
USNRC Facility License No.

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and/or the State or Province of Massachusetts and employed by HSBI & I Co. of Connecticut have inspected the components described in this Owners' Data Report during the period 3/31/84 to 6/9/84, and state that to the best of my knowledge and belief, the Owner has performed examinations and taken corrective measures described in this Owners' Data Report in accordance with the requirements of the ASME Code, Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations and corrective measures described in this Owners' Data Report. Furthermore, neither the Inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

Date 9/6 1984

R. L. Lane Commissions Mass. 1182
Inspector's Signature National Board, State, Province and No.

10. Abstract of Examinations (Safety Class 1)

ASME Code Category	No.	Components Examined	Method
B-A		Closure Head Flange Circulation Weld	UT
		Vessel to Flange Weld	UT
B-B	(2)	Welds Steam Generator #3	UT
	(3)	Pressurizer Nozzles	UT
B-D	(4)	Outlet Nozzles	UT,VT
	(4)	Inlet Nozzles	UT,VT
	(4)	Outlet Nozzles to Reducer	UT,VT
	(4)	Inlet Nozzles to Reducer	UT,VT
B-E	(1)	Feed/Bleed Heat Exchanger Nozzle	VT
B-F	(1)	Pressurizer Safe End Weld	PE,UT
B-G-1	(52)	Rx Head Studs, Nuts, and Washers	VT,MT,UT
		Flange Ligaments	UT
B-G-2	(2)	Safety Valves SV-181/182 Bolting	VT
	(20)	Studs/Nuts Main Coolant Check Valve #316	UT,VT
	(16)	Stator Cap Bolts, #2 Main Coolant Pump	UT,MT,VT
	(12)	Studs/Nuts Pressurizer Primary Manway	UT,VT
	(40)	Studs, #2 Steam Generator Primary Manway	UT,MT,VT
	(38)	Studs, #3 Steam Generator Primary Manway	UT,MT,VT
	(40)	Studs, #4 Steam Generator Primary Manway	UT,MT,VT
B-H	(4)	Welded Supports Feed/Bleed Heat Exchangers	PE
B-J	(34)	Satety Class 1 Pipe Welds	UT,PE,VT
B-K-1	(3)	Integrally Welded Pump Supports	PE
B-K-2	(5)	Nonwelded Supports	VT
B-M-2	(1)	Main Coolant Check Valve #316 Internals	VT
B-N-1		Interior of Reactor Vessel	vT
B-N-3		Upper Core Support Barrel	VT
		Lower Core Support Barrel O.D.	VT
		Flow Baffle Assembly, Spacer Blocks, and Source Vanes	VT
		Shroud Tubes from I.D. of Lower Core Support Barrel	VT
		Bolting Upper Core Support Plate to Baffle Assembly	VT
		Shroud Tube Tie-Plate Bolting	VT
		Lower Core Support Barrel I.D.	VT

ASME Code Category	No.	Components Examined	Method
		Core Barrel Lateral Support Pads	VT
		Thermal Shield Surface, Spacer Pins, Seam Clamps, and Support Lugs	VT
B-O		Control Rod Drive Housings	PT
B-P		System Leakage Test Conducted on all Safety Class 1 Systems	VT

10. Abstract of Examinations (Safety Classes 2 and 3)

ASME Code Category	No.	Components Examined	Method
C-A	(1)	Weld Low Pressure Surge Tank Heat Exchanger	UT
C-B	(1)	Nozzle Low Pressure Surge Tank Heat Exchanger	PE
CC-CE	(2)	Welded Supports #3 Steam Generator	PE
	(1)	Mechanical Support #1 Steam Generator	VT
	(3)	Charging Pump Supports	VT
	(2)	Nonwelded Supports #3 Steam Generator	VT
	(30)	Nonwelded Supports Shutdown Cooling System	VT
	(1)	Welded Support Shutdown Cooling System	PE
	(15)	Nonwelded Supports, Main Steam Line	VT
	(17)	Nonwelded Supports, Feedwater Line	VT
	(1)	Vapor Container Heating, Welded Support	VT
	(1)	Low Pressure Surge Tank SV Discharge Support	VT
C-F	(14)	Shutdown Cooling System Piping Welds	PE
	(11)	Safety Injection System Piping Welds	PE
	(5)	Feedwater System Piping Welds	MT,VT
	(10)	Main Steam System Piping Welds	UT,MT,VT
C-H	(9)	Safety Class 2 System Leakage Tests	VT
	(13)	Safety Class 2 System Hydrostatic Tests	VT
D-A	(5)	Safety Class 3 System Leakage Tests	VT
	(3)	Safety Class 3 System Hydrostatic Tests	VT

11. Abstract of Conditions Noted

B-D	Ultrasonic inner radius examination of pressurizer nozzles PRZN-2, 5, and 6 revealed 1 recordable indication on nozzle PRZN-2.
	Ultrasonic examination of RPV outlet nozzle FF (I.D.) revealed 1 reportable indication in the weld region.
B-F	An unacceptable linear indication was identified by visual testing on the pressurizer drain line weld PRZ-SE-2.
B-G-1	Examination of 52 reactor head studs revealed a degraded condition of two threads on reactor stud #4.
B-G-2	Inspection of 16 bolts on #2 main coolant pump stator cap identified a break in the plating on 1 bolt.
B-J	Examination of main coolant piping weld MC-1-4 identified an unacceptable linear indication.
B-K-2	Inspection of main coolant pump support CRM-H-12 identified one bolt/nut having lack of thread engagement.
B-N-3	Visual inspection of the flow baffle assembly (lower core barrel I.D.) revealed a reportable condition - cracked tack weld.
CC-CE	Visual examination identified a total of 15 supports with discontinuities on the Shutdown Cooling System.
	Visual examination identified a total of 4 supports with discontinuities on the main steam line.
	Visual examination identified a total of 4 supports with discontinuities on the Feedwater System.
C-F	Ultrasonic examination of main steam line welds MS-1-15 and MS-2-11 identified two recordable indications.
	Examination of 4 nonnuclear safety main steam line welds identified a nonservice-induced discontinuity (LAP).

12. Abstract of Corrective Measures Recommended and Taken

B-D The ultrasonic indication recorded on PRZN-2 was subsequently evaluated in accordance with IWB-3514.5 and determined to be a geometric reflector.

The indication found in RPV outlet nozzle FF was evaluated and determined to be acceptable. The evaluation of this indication is contained in Attachments A and B to this report.

A reinspection will be conducted on nozzle FF during the next refueling to assure no changes have taken place.

B-F The linear indication identified on weld PRZN-SE-2 was subsequently removed by light buffing and re-examined as satisfactory.

B-G-1 The two degraded threads on reactor stud #4 were subsequently evaluated by engineering and found to be acceptable for continued service.

B-G-2 The bolt on #3 main coolant pump stator cap which had a break in the plating was replaced in kind.

B-J The indication on main coolant piping weld MC-1-4 was subsequently removed by light buffing and re-examined satisfactory.

B-K-2 The lack of thread engagement condition identified on main coolant pump support CRM-H-12 was subsequently corrected and re-examined as satisfactory.

B-N-3 The indication identified on the flow baffle assembly was subsequently evaluated and deemed inconsequential to the structure.

CC-CE The 15 supports on the Shutdown Cooling System identified as having discontinuities were subsequently corrected and re-examined as satisfactory.

The 4 supports on the main steam line identified as having discontinuities were subsequently corrected and re-examined as satisfactory.

The 4 supports on the Feedwater System identified as having discontinuities were subsequently corrected and re-examined as satisfactory.

C-F The ultrasonic indications recorded on main steam line welds MS-1-5 and MS-2-11 were subsequently evaluated in accordance with IWB-3514.5 and determined to be geometric reflectors.

The discontinuity on #2 nonnuclear safety main steam line weld was subsequently determined to be nonservice-induced and accepted as is.

1.0 INTRODUCTION

This report covers the inservice inspection of Yankee Nuclear Power Station during the period of March 31, 1984 to June 9, 1984.

The examinations performed are those of the third period of the second interval.

The required ten-year reactor pressure vessel examinations were performed this refueling. A summary of the examinations performed and conditions noted are included as part of this report along with attachments.

With the exception of several hydrostatic pressure tests, the examinations performed this refueling complete the required inspections for the third period of the second interval.

2.0 NONDESTRUCTIVE EXAMINATION PROCEDURES

Nondestructive examinations were performed in accordance with the procedures contained in the Yankee Atomic Electric Company Engineering Guidelines, Book III, "Inservice Inspection NDE Procedures", and Nuclear Energy Services examination procedures.

The examination procedures were reviewed and approved by personnel certified to Level III per SNT-TC-1A, 1975 Edition, and the authorized Nuclear Inservice Inspector.

These procedures conform to the requirements of the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components", 1977 Edition, Summer 1978 Addenda.

The following procedures were used during the 1984 inservice inspections:

1.	YA-PE-2	Rev. 3	"Liquid Penetrant Examination"
2.	YA-MP-111	Rev. 0	"Procedure for Magnetic Particle Examination"
3.	YA-VT-11	Rev. 1	"Visual Examination Procedure"
4.	YA-RT-111	Rev. 0	"Radiographic Examination"
5.	OP-4200	Rev. 10	"Main Coolant System Leak Inspection"
6.	YA-UT-1	Rev. 2	"Ultrasonic Examination, General Requirements"
7.	YA-UT-7	Rev. 2	"Ultrasonic Examination of Bolting"
8.	YA-UT-8	Rev. 1	"Ultrasonic Examination of Reactor Closure Nuts"
9.	YA-UT-9	Rev. 2	"Ultrasonic Examination of Piping - Ferritic Welds"
10.	YA-UT-10	Rev. 4	"Ultrasonic Examination of Piping - Austenitic Welds"
11.	YA-UT-13	Rev. 1	"Ultrasonic Examination of Vessel Nozzles - Inner Radius"
12.	YA-UT-14	Rev. 2	"Ultrasonic Examination of Piping - Base Metal and HAZ"
13.	YA-UT-22	Rev. 0	"Ultrasonic Examination of Vessels - Circumferential, Longitudinal, Meridional, and Flange Welds"
14.	YA-UT-44	Rev. 0	"Ultrasonic Examination of Vessels - Nozzle to Vessel Welds"
15.	YA-UT-116	Rev. 0	Ultrasonic Examination of Full Penetration Welds"
16.	YA-UT-6	Rev. 2	"Ultrasonic Examination of Flange Ligaments"

17.	83A0314	Rev. 0	"Automated UT Examination for RPV Nozzle Welds from Nozzle Bore"
18.	83A0313	Rev. 0	"UT Examination of RPV Closure Head to Flange Weld"
19.	83A0312	Rev. 0	"UT Examination of RPV Upper Shell to Flange Weld from the Flange Mating Surface"
20.	83A0311	Rev. 0	"Operation of NES Mini-Scanner System"
21.	83A0317	Rev. 0	"Visual Examination Procedure"
22.	83A0318	Rev. 0	"Visual Examination Scan Plan"

The following technique sheet was used to perform the subject examination:

Technique Sheet No.	Rev.	Subject
YA-UT-3, TS-1	1	Flange to Vessel Weld From Flange Face

3.0 EVALUATION OF DATA

All inservice examinations were performed, evaluated, and reviewed by personnel certified to Level II in accordance with SNT-TC-1A, 1975 Edition and ASME Section XI, 1977 Edition, Summer 1978 Addenda.

The examination methods, volumes, and evaluation of indications were in accordance with ASME Boiler and Pressure Vessel Code, Section XI, 1977 Edition, Summer 1978 Addenda, except for Class 1 piping ultrasonic calibration. This was conducted in accordance with Article III-2000 of Appendix III, ASME Section XI, Summer 1976 Addenda, as required per Plant Technical Specifications.

Summaries of the examinations that were performed are contained in Section 4.0 of this report. The detailed examination data along with the calibration records, procedures, personnel, and equipment certifications are maintained at the plant site.

Attached is a summary of the examination methods, volumes, and the results and evaluation of test data thereof, including any corrective measures taken.

4.0 SUMMARY REPORT

The following is a summary of all the examinations performed, the conditions noted and corrective measures taken during the 1984 inservice inspections, with the exception of the ten-year RPV examination that is included as part of this report.

CODE CATEGORY B-B PRESSURE RETAINING WELDS IN VESSELS OTHER THAN REACTOR VESSELS

Ultrasonic examination was performed on two welds on steam generator #3. The longitudinal shell to barrel weld SG-3-8 and the longitudinal barrel to transitional piece SG-3-9 were inspected with no recordable indications.

CODE CATEGORY B-D FULL PENETRATION WELDS OF NOZZLES IN VESSELS

Ultrasonic examination was performed on 3 pressurizer nozzle welds. Nozzle welds PRZN-2, 3, and 6 were examined with no recordable indications. A nozzle inner radius examination was also performed on all 3 nozzles. Only one indication was recorded, on nozzle PRZN-2, which was subsequently evaluated and determined to be a geometric reflector in accordance with IWB-3514.5.

Ultrasonic examination was performed on eight (8) RPV outlet and inlet nozzle I.D.s. Outlet nozzle FF revealed one reportable indication. This was subsequently evaluated and determined to be acceptable (see Attachments A and B).

CODE CATEGORY B-E PRESSURE RETAINING PARTIAL PENETRATION WELDS IN VESSELS

No. 1 feed and bleed heat exchanger nozzle FB-1-3 was visually examined during the Main Coolant System leakage inspection (OP-4200). No leakage was noted.

CODE CATEGORY B-F PRESSURE RETAINING DISSIMILAR METAL WELDS

An ultrasonic and liquid penetrant examination was performed on pressurizer safe end weld PRZ-SE-1. No indications were recorded. During the examination of PRZ-SE-1, a visual inspection of weld PRZ-SE-2 identified two linear indications.

The areas were lightly buffed and re-examined with liquid penetrant which revealed the indications had been removed. A liquid penetrant examination was also performed on the weld adjacent to PRZ-SE-2. This examination resulted in no unacceptable indications.

CODE CATEGORY B-G-1 PRESSURE RETAINING BOLTING LARGER THAN 2" IN DIAMETER

Fifty-two (52) reactor head closure studs, nuts, and washers (Set No. L-43) including 2 reduced diameter studs #1-638-1 and #1-674-1 were inspected. A visual examination of the washers and a visual, magnetic particle, and ultrasonic examination of the nuts resulted in no recordable indications.

A visual and ultrasonic examination was performed on all 52 studs. During the visual examination of stud #4, two threads were found to be degraded. An engineering evaluation was conducted which determined that the stud was still acceptable for use. The subsequent ultrasonic examination did not reveal any indications.

CODE CATEGORY B-G-2 PRESSURE RETAINING BOLTING 2" AND SMALLER IN DIAMETER

A base line visual examination was performed on 16 new bolts and nuts prior to installation on pressurizer safety valves SV-181 and 182. This inspection resulted in no unacceptable indications noted.

A base line visual examination was also conducted on 6 new bolts installed on PR-MOV-191. No unacceptable indications were noted.

The following bolting/studs and nuts were inspected per I&E Bulletin 83-02, "Bolting in RCPB Closure Connections Greater Than Six Inches":

A visual and ultrasonic examination was performed on 20 studs and nuts from #3 main coolant loop check valve #316. No unacceptable indications were noted.

A visual, magnetic particle and ultrasonic examination was performed on 16 bolts removed from #2 main coolant pump stator cap. A linear indication was noted on one bolt which was determined to be a break in the plating. A new bolt was installed in its place, prior to which a visual, magnetic particle, and ultrasonic examination was performed on it, with no unacceptable indications noted.

Twelve (12) pressurizer primary manway studs were visually and ultrasonically inspected with no unacceptable indications noted.

A visual, ultrasonic, and magnetic particle examination was conducted on 40 studs from steam generator #2 primary manways, 38 studs from steam generator #3 primary manways, and 40 studs from steam generator #4 primary manways. These examinations resulted in no unacceptable indications.

CODE CATEGORY B-H VESSEL SUPPORTS

Feed and bleed heat exchanger integrally welded supports BL-H-6, 8, and 10 were liquid penetrant inspected with no unacceptable indications noted.

CODE CATEGORY B-J PRESSURE RETAINING WELDS IN PIPING

The following Main Coolant System piping welds were inspected as follows:

Weld No.	
MC-1-10	Liquid penetrant examination performed - no unacceptable indications noted.
MC-1-13	Ultrasonic and liquid penetrant examination performed - no unacceptable indications noted.
MC-1-16	Liquid penetrant examination performed - no unacceptable indications noted.

Weld No.	
MC-1-17	Liquid penetrant examination performed - no unacceptable indications noted.
MC-1-15	Liquid penetrant examination performed - no unacceptable indications noted.
MC-2-15	Liquid penetrant examination performed - no unacceptable indications noted.
MC-2-10	Liquid penetrant examination performed - no unacceptable indications noted.
MCB-2-5	Liquid penetrant and ultrasonic examination performed - no unacceptable indications noted.
MCB-4BR-2	Liquid penetrant and ultrasonic examination performed - no unacceptable indications noted.
MC-1-4	Liquid penetrant examination was performed which identified several unacceptable linear indications. The areas were subsequently buffed and re-examined which verified the indications had been removed. An additional weld was examined in accordance with IWB-2430, which identified no unacceptable indications.
MC-2-3	Liquid penetrant examination performed - no unacceptable indications noted.
Safety Valve 182 Weld	Ultrasonic and liquid penetrant base line examination performed - no unacceptable indications noted.
PRS-206-23	Liquid penetrant base line examination - no unacceptable indications noted.
PRS-206-26	Liquid penetrant base line examination - no unacceptable indications noted.
PRS-206-29	Liquid penetrant examination - no unacceptable indications noted.
PRS-206-39	Visual and liquid penetrant examination - no unacceptable indications noted.
PRS-43	Liquid penetrant examination - no unacceptable indications noted.
PRS-52	Liquid penetrant examination - no unacceptable indications noted.
PRS-50	Liquid penetrant examination - no unacceptable indications noted.

Weld No.

PRS-206-24A	Liquid penetrant base line examination - no unacceptable indications noted.
PRS-206-24B	Liquid penetrant base line examination - no unacceptable indications noted.
PRS-206-22A	Liquid penetrant base line examination - no unacceptable indications noted.
PRS-206-22B	Liquid penetrant base line examination - no unacceptable indications noted.
PRS-206-40	Liquid penetrant examination - no unacceptable indications noted.

Pressurizer safety valve discharge header weld caps #1 and #2 - liquid penetrant examination - no unacceptable indications noted.

SAFETY INJECTION PIPING INSPECTIONS

Weld No.

SI-3-7	Ultrasonic and liquid penetrant examination performed - no unacceptable indications noted.
SI-3-7A	Ultrasonic and liquid penetrant examination performed - no unacceptable indications noted.
SI-3-8	Ultrasonic and liquid penetrant examination performed - no unacceptable indications noted.
SI-4-1	Ultrasonic and liquid penetrant examination performed - no unacceptable indications noted.
SI-147	Liquid penetrant examination performed - no unacceptable indications noted.
SI-153	Ultrasonic examination performed - no unacceptable indications noted.
SI-156	Ultrasonic examination performed - no unacceptable indications noted.
SI-137	Liquid penetrant examination performed - no unacceptable indications noted.

CODE CATEGORY B-K-1 SUPPORT MEMBERS FOR PIPING, PUMPS, AND VALVES

A liquid penetrant examination was performed on 3 main coolant pump integrally welded supports, CRM-H-5, CRM-H-12, and CRM-H-26. No unacceptable indications were identified.

CODE CATEGORY B-K-2 COMPONENT SUPPORTS FOR PIPING PUMPS AND VALVES

A visual examination (VT-3 and VT-4) was performed on the following component supports:

MCB1-H-1	CRM-H-26
CRM-H-5	SDC-H-1
CRM-H-12	BL-H-1

Only one discontinuity was noted. CRM-H-12 was rejected due to a nonservice-induced condition (lack of thread engagement), which was subsequently corrected and re-examined as satisfactory.

CODE CATEGORY B-M-2 PUMP CASINGS AND VALVE BODIES

Main Coolant System loop #3, check valve 316, was disassembled and a visual inspection was performed on the internals. This resulted in no unacceptable indications.

CODE CATEGORY B-P ALL PRESSURE RETAINING COMPONENTS

A system hydrostatic pressure test was conducted on all repaired/replaced sections of the Main Coolant System prior to startup.

Plant Procedure OP-4200, Rev. 10, "Main Coolant System Leak Inspection or ISI Pressure Test", was performed at 2040 psi at 514°F for two hours. The areas inspected were uninsulated. The visual inspection (VT-2) was acceptable.

In conjunction with the above test, the remaining portions of the Reactor Coolant System was subjected to the required system leakage tests.

No serious degradation was noted during the inspection other than normal packing leaks which were corrected at the time of the inspection.

SAFETY CLASS 2 COMPONENTS

CODE CATEGORY C-A PRESSURE RETAINING WELDS IN PRESSURE VESSELS

An ultrasonic examination was performed on the low pressure surge tank heat exchanger head circumferential weld (LPST-Hx-H-1). No recordable indications were observed.

CODE CATEGORY C-B PRESSURE RETAINING NOZZLE WELDS IN VESSELS

The low pressure surge tank heat exchanger nozzles to shell welds #1 and #2 (LPST-Hx-N1 and 2) were subjected to a liquid penetrant examination. No unacceptable indications were recorded.

An ultrasonic inner radius examination was attempted on #3 steam generator main steam outlet nozzle SG-3-S01. Due to physical limitations of the component, no relevant data could be obtained, therefore the examination was deleted.

CODE CATEGORY CC-CE

Due to access limitations, a "best effort" liquid penetrant examination was performed on #3 steam generator integrally welded supports (SG-3-E and SG-3-W). No unacceptable indications were identified.

Mechanical support SG-1-236 was functionally tested (VT-4) after removal from steam generator #1. Functional acceptability was verified as satisfactory.

Component supports for charging pumps P-15-1, 2, and 3 and steam generator #3 supports SG-3-SE and SG-3-SW were subjected to a visual examination (VT-3) and found to be acceptable.

The following Shutdown Cooling System support members were subjected to visual examinations with results as follows:

Support No.	
CRT-H-66	Subjected to a VT-3/VT-4 visual examination. VT-3 identified a nonservice-related discontinuity (lack of thread engagement) which was subsequently corrected and re-examined as satisfactory.
CRT-H-59	Subjected to a VT-3/VT-4 visual examination. VT-3 identified a nonservice-related discontinuity (lack of thread engagement) which was subsequently corrected and re-examined as satisfactory. VT-4 identified an incorrect support setting. This was evaluated by Engineering and found to be acceptable as is. An additional examination was performed per IWC-2430 and found acceptable.
SDC-H-1	Subjected to a VT-3/VT-4 visual examination and found acceptable.
PRCL-H-43	Subjected to a VT-3/VT-4 visual examination. VT-3 identified an unacceptable condition (loose nuts). This condition was corrected and re-examined as satisfactory. An additional examination was performed per IWC-2430 and found to be acceptable.
PRCL-H-53	Subjected to a VT-3/VT-4 visual examination. VT-3 identified a nonservice-induced unacceptable condition (lack of thread engagement). This condition was corrected and subsequently re-examined and found to be acceptable.
CRT-H-71	Subjected to a VT-3/VT-4 visual examination and found to be acceptable.
CRT-H-62	Subjected to a VT-3/VT-4 visual examination. VT-3 identified a nonservice-induced unacceptable condition (lack of thread engagement) which was subsequently corrected and re-examined as satisfactory.

Support No.

PRCL-H-54 Subjected to a VT-3/VT-4 visual examination. This was an additional examination as required by IWC-2430(a). This examination resulted in an unacceptable VT-3/VT-4 condition. In accordance with IWC-2430(b) the remaining number of supports within the system were subjected to applicable VT-3/VT-4 examinations with results as follow:

PRCL-H-60 - Subjected to VT-3/VT-4 examination. VT-3 identified an unacceptable condition (missing bolt). Subsequently corrected and re-examined as satisfactory.

PRCL-H-57 - Subjected to VT-3/VT-4 examination. VT-3 identified an unacceptable condition (loose nuts). VT-4 identified incorrect support settings. Both conditions were subsequently corrected and reinspected as satisfactory.

PRCL-H-58 - Subjected to a VT-3/VT-4 visual examination. VT-4 identified an incorrect support setting which was subsequently corrected and re-examined as satisfactory.

PRCL-H-61 - Subjected to a VT-3/VT-4 visual examination. VT-3 identified a nonservice related unacceptable condition (lack of thread engagement) which was subsequently corrected and re-examined as satisfactory.

PRCL-S-55 - Subjected to a VT-3 visual examination and found acceptable.

PRCL-H-51 - Subjected to a VT-3/VT-4 visual examination and found acceptable.

PRCL-H-44 - Subjected to a VT-3/VT-4 visual examination. VT-3 identified an unacceptable nonservice-induced condition (lack of thread engagement). VT-4 identified an incorrect support setting. Both items were subsequently corrected and reinspected as satisfactory.

PRCL-H-64 - Subjected to a VT-3/VT-4 visual examination and found acceptable.

PRCL-S-51 - Subjected to a VT-3 visual examination and found acceptable.

PRCL-S-51B/S-52 - Subjected to a VT-3 visual examination which identified an unacceptable condition (loose nuts). Subsequently corrected and re-examined as satisfactory.

Support No.

CRT-H-65 - Subjected to a VT-3/VT-4 visual examination. VT-3 identified an unacceptable nonservice-induced condition (lack of thread engagement) which was subsequently corrected and re-examined as satisfactory.

CRT-H-67 - Subjected to a VT-3/VT-4 visual examination and found acceptable.

CRT-H-68 - Subjected to a VT-3/VT-4 visual examination and found acceptable.

CRT-H-69 - Subjected to a VT-3/VT-4 visual examination and found acceptable.

CRT-H-70 - Subjected to a VT-3/VT-4 visual examination and found acceptable.

PRCL-H-40 - Subjected to a VT-3/VT-4 visual examination and found acceptable.

PRCL-H-42 - Subjected to a VT-3/VT-4 visual examination. VT-3 identified an unacceptable condition (loose bracket) which was subsequently corrected and re-examined as satisfactory.

PRCL-H-45 - Subjected to a VT-3/VT-4 visual examination. VT-4 identified an incorrect support setting which was subsequently corrected and re-examined as satisfactory.

PRCL-H-52 - Subjected to a VT-3/VT-4 visual examination and found acceptable.

PRCL-H-56 - Subjected to a VT-3/VT-4 visual examination and found acceptable.

PRCL-H-63 - Subjected to a VT-3/VT-4 visual examination. VT-4 identified an unacceptable support setting which could not be adjusted. A new support was replaced in kind. A base line VT-3/VT-4 was conducted and found acceptable.

PRCL-S-51A- Subjected to a VT-3 visual examination and found acceptable.

PRCL-H-41 - Subjected to a VT-3/VT-4 visual examination. VT-4 identified an incorrect support setting which was subsequently corrected and re-examined as satisfactory.

A reinspection will be conducted on selected supports on the Shutdown Cooling System next refueling to assure no excessive movement has occurred.

The following main steam line supports were visually examined as follows:

Support No.	
SHP-H-83	Subjected to a VT-3/VT-4 visual examination and found to be acceptable.
SHP-H-81	Subjected to a VT-3/VT-4 visual examination and found to be acceptable.
SHP-H-91	Subjected to a VT-3/VT-4 visual examination. VT-3 identified an unacceptable condition (loose bolts) which was subsequently corrected and re-examined as satisfactory. In accordance with ASME IWC-2430 an additional examination was conducted and found to be acceptable.
SHP-H-3	Subjected to a VT-3/VT-4 visual examination. VT-3 identified an unacceptable condition (lack of thread engagement) which was determined not to be inservice-induced. This condition was corrected and subsequently re-examined as satisfactory.
SHP-H-65	Subjected to a VT-3/VT-4 visual examination and found acceptable.
SHP-H-74	Subjected to a VT-3/VT-4 visual examination. VT-3 identified a nonservice-induced unacceptable condition (lack of thread engagement) which was subsequently corrected and re-examined as satisfactory.
SHP-H-71	Subjected to a VT-3/VT-4 visual examination. VT-3 identified a nonservice-induced unacceptable condition (loose bolt) which was subsequently corrected and re-examined as satisfactory.
SHP-RH-3	Subjected to a VT-3 visual examination and found acceptable.
SHP-H-66	Subjected to a VT-3/VT-4 visual examination and found acceptable.
SHP-H-92	Subjected to a VT-3/VT-4 visual examination and found acceptable.
SHP-H-91R	Subjected to a VT-3 visual examination and found acceptable.
SHP-H-81R	Subjected to a VT-3 visual examination and found acceptable.
SHP-H-65R	Subjected to a VT-3 visual examination which identified an unacceptable nonservice-induced condition (lack of thread engagement). Subsequently corrected and re-examined as satisfactory.
SHP-H-71R	Subjected to a VT-3 visual examination and found acceptable.
SHP-H-75	Subjected to a VT-3 visual examination and found acceptable.

The following Feedwater System supports were visually examined as follows:

Support No.	
WCBD-H-12	Subjected to a VT-3 visual examination and found acceptable.
WCBD-H-139	Subjected to a VT-3/VT-4 visual examination. VT-3 identified an unacceptable condition (loose nuts) which was subsequently corrected and re-examined as satisfactory. In accordance with IWC-2430, an additional examination was conducted and found acceptable.
WCBD-H-130-1	Subjected to a VT-3 visual examination and found acceptable.
WCBD-H-3	Subjected to a VT-3/VT-4 visual examination and found acceptable.
WCBD-H-138	Subjected to a VT-3/VT-4 visual examination. VT-3 identified a nonservice-induced unacceptable condition (improper support installment) which was subsequently corrected and re-examined as satisfactory.
WCBD-RH-131	Subjected to a VT-3 visual examination and found acceptable.
WCBD-RH-122	Subjected to a VT-3 visual examination and found acceptable.
WCBD-RH-119	Subjected to a VT-3 visual examination and found acceptable.
WCBD-H-114	Subjected to a VT-3/VT-4 visual examination and found acceptable.
WCBD-H-6	Subjected to a VT-3/VT-4 visual examination and found acceptable.
WCBD-RH-117	Subjected to a VT-3 visual examination which identified an unacceptable condition (loose nuts) which was subsequently corrected and re-examined as satisfactory. An additional examination was performed in accordance with IWC-2430 and found to be acceptable.
WCBD-H-8	Subjected to a VT-3/VT-4 visual examination and found acceptable.
WCBD-H-126	Subjected to a VT-3 visual examination. VT-3 examination identified a nonservice induced unacceptable condition (lack of thread engagement) which was subsequently corrected and reinspected satisfactory.
WCBD-H-129	Subjected to a VT-3 visual examination and found acceptable.
WCBD-H-134-1	Subjected to a VT-3 visual examination and found acceptable.
WCBD-H-134-4	Subjected to a VT-3 visual examination and found acceptable.
WCBD-H-120-4	Subjected to a VT-3 visual examination and found acceptable.

OTHER CC-CE SUPPORTS

VC Heating A-1	Subjected to a VT-1 visual examination and found acceptable.
Penetration #4-6" BRL (EDCR 83-10)	Subjected to a base line VT-3 visual examination and found acceptable.

CODE CATEGORY C-F PRESSURE RETAINING WELDS IN PIPING

The following Shutdown Cooling System piping welds were subject to liquid penetrant examination with no unacceptable indications noted:

SDC-L-15	SDC-4-6
SDC-3-16	SDC-4-21
SDC-3-19	SDC-4-24
SDC-3-22	SDC-4-27
SDC-3-25	SDC-3L-21
SDC-3L-26	SDC-4-39
	SDC-3L-22

The following Safety Injection System piping welds were liquid penetrant examined with no unacceptable indications noted:

SI-003	SI-093
SI-006	SI-096
SI-009	SI-117
SI-018	SI-120
SI-019	SI-126
SI-027	

Pressurizer piping weld PR-2-26 was liquid penetrant examined with no unacceptable indications noted.

The following Feedwater System piping welds were subjected to magnetic particle examination with no unacceptable indications noted:

FW-4-15	FW-4-18
FW-4-17	94-8D

No. 3 feedwater nozzle to pipe weld (MT and VT).

MAIN STEAM SYSTEM PIPING WELDS

MS-4-20	Subjected to a ultrasonic, magnetic particle, and visual examination with no unacceptable indications noted.
MS-1-15	Subjected to an ultrasonic, magnetic particle, and visual examination. One indication was recorded during the ultrasonic examination which was subsequently evaluated as a geometric reflector.
MS-2-6	Subjected to an ultrasonic, magnetic particle, and visual examination - no indications noted.

MS-2-7	Subjected to an ultrasonic, magnetic particle, and visual examination - no indications noted.
MS-2-11	Subjected to an ultrasonic, magnetic particle, and visual examination. One indication was recorded during the ultrasonic examination which was subsequently plotted and evaluated as being a geometric reflector in accordance with IWB-3514.5.
MS-2-12	Subjected to an ultrasonic, magnetic particle, and visual examination - no indications noted.

In accordance with the Integrated Safety Assessment Systematic Evaluation Program for Yankee Nuclear Power Station - NUREG 0825 (3-5.6). The first weld downstream of the non-return valves (all four loops) was magnetic particle and visually examined.

Only one indication was noted. During the magnetic particle examination of loop #2, a lap-like indication was revealed. Subsequently, an area of the indication was blended out to verify in fact it was a processing-related discontinuity. This indication was evaluated and determined to be nons vice-induced and accepted as is.

CODE CATEGORY C-H ALL PRESSURE RETAINING COMPONENTS

The following systems were subjected to system leakage tests:

1. Safety Injection System
2. Low Pressure Surge Tank Cooling
3. Shutdown Cooling
4. Service Water System
5. Vapor Container Heating System
6. Main Coolant Drain System
7. Charging and Volume Control System
8. Purification System
9. Chemical Shutdown System

No serious degradation or leakage was noted other than packing leaks which were subsequently corrected.

The following system hydrostatic tests were conducted after modification or repair to safety class systems. Testing was performed in accordance with IWA/IWC-5000; no serious degradation or leakage was identified:

System	Test Pressure	Duration	Procedure
Main Coolant Vent System	2200 psi	10 min	OP-2000.136
Low Pressure Safety Injection Header	787 psi	10 min	OP-2000.130
Charging and Volume Control	52 psi	10 min	OP-2000.130
Vapor Container Drain Header	190 psi	10 min	OP-2000.112.4
Pressure Control and Relief System	300 psi	10 min	OP-2000.123
Feedwater System	1214 psi	10 min	OP-2000.126
Bleed Line	3000 psi	10 min	OP-2000.127
Post Accident Hydrogen Vent System	102 psi	10 min	OP-2000.128/129
Valve Stem Leakoff	375 psi	10 min	OP-2000.132
Low Pressure Surge Tank	94 psi	10 min	OP-2000.134
Main Steam System	1035 psi	10 min	OP-2000.135
EBFP Steam Inlet	1170 psi	10 min	OP-2000.137

An Appendix "J" test was conducted on modifications to the low pressure surge tank safety valve discharge header. The test was conducted at 32 psi. Reference plant Procedure OP-2000.133. The test was conducted and found acceptable.

SAFETY CLASS 3

CODE CATEGORY D-A PRESSURE RETAINING COMPONENTS

Portions of the following systems were subjected to either inservice or system leakage tests and found acceptable:

1. Emergency Boiler Feedwater System
2. Main Coolant Vent System
3. Spent Fuel Pit Cooling
4. Primary Pump Seal Water
5. Service Water

System hydrostatic tests were conducted on the following systems after repair or modification and found acceptable:

	System	Test Pressure	Duration	Procedure
1.	Emergency Boiler Feed Pump Steam Inlet	188 psi	10 min	OP-2000.137
2.	Primary Pump Seal Water	345/414 psi	15 min	OP-2000.124
3.	Demineralized Water/Service Water Crosstie	165 psi	10 min	OP-2000.125

ADDITIONAL EXAMINATIONS

In addition to the code-required examinations, the following inspections were conducted:

A visual examination was performed on the reactor head underside to monitor the known flaws. This inspection revealed that no change has occurred.

A visual inspection was also performed on the cladding of #3 steam generator hot leg and cold leg. The visual inspection resulted in no unacceptable indications noted.

The pressurizer internals were subjected to a visual inspection. This inspection concluded that no change has occurred since the last visual inspection.

5.0 SAFETY VALVE TESTING

The following safety valves were subjected to testing and found to be acceptable:

SV-215A	Low Pressure Surge Tank Safety
SV-409A	Main Steam Safety
SV-409B	Main Steam Safety
SV-409C	Main Steam Safety
SV-409D	Main Steam Safety
SV-409E	Main Steam Safety
SV-409F	Main Steam Safety
SV-409G	Main Steam Safety
SV-409H	Main Steam Safety
SV-409I	Main Steam Safety
SV-409L	Main Steam Safety
PRSV-181	Pressure Code Safety Relief Valve
PRSV-182	Pressure Code Safety Relief Valve replaced this refueling. During plant operation, valve setpoint was found to be out of tolerance. See LER 84-11.

6.0 CONCLUSIONS

With the exception of several hydrostatic pressure tests (which will be completed within this second interval), the examinations performed during this outage complete the inservice inspection requirements of the Yankee Nuclear Station Technical Specifications for the third period of the second interval.

ATTACHMENT A

Procedure No. S3A0314
Subject: RPV WELDS
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Plant/Unit YANKEE ROWE
Cal.Data Pkg. 0314-1

EVALUATION SHEET FOR RECORDABLE INDICATIONS

Supplement C

A. Zone number N/A Evaluation Proc. No. 80A5535

B. Raster No. FE.P.01A Weld number RPV-FF-1

C. Indication number R2/3

D. Applicable ASME Code Standards used for evaluation:
Section XI SUMMER 1978 Article IWB-3500

E. Size of indication:
Length SEE BELOW Depth 1.48 TO CLOSEST POINT
Width SEE BELOW Plate thickness (t) 9.75" nom

F. Characterization of Flaw Indication per Para. IWA-3320
1. Type of Flaw: SUBSURFACE PLANAR
2. Sketch of indication:
CIRC DEPTH of C5 x AX CORRECTION FACTOR 14.51 x.57 = 8.27
CIRC DEPTH of C1 x AX CORRECTION FACTOR 2.27 x.81 = 1.84
6.43
6.43" / 5.35SD = 1.2"/SD

3. Flaw characteristic calculations:
$a = \frac{1.2 \Delta SD}{2} = .6 \times .7 = .42$ $\frac{a}{t} = .11$ $\frac{a}{t} = 4.3\%$
$\ell = 20.28° \times \frac{[(1.48)^2 + 19.12]\pi}{360°} = 3.9"$

G. Comparison of pertinent evaluation standard (Para. IWB 3512.1) to actual flaw size. ALLOWS 2.6% WITH AN $\frac{a}{t}$ OF .10

☐ Acceptable ☒ Reportable SEE ATTACHED SHEET

Prepared By: [signature] Approval [signature] SNT-TC-1A Level III

NES NUCLEAR ENERGY SERVICES, INC.

FORM 028-120/1 8/83

Cluster No. FFIPCIIH Indication No. R2/3

THIS COULD HAVE BEEN SIZED AS A LAMINAR INDICATION IN ACCORDANCE WITH FIG. IWB 2500-7 (c) AND TABLE IWB-3512-2. THIS WOULD PUT IT WELL WITHIN ACCEPTABLE LIMITS.

THE a WOULD BE REDUCED TO .18 WITH A REALISTIC SIZING CRITERIA USING BEAM SPREAD.

$\frac{a}{\ell} = \frac{.18}{3.9} = .05$ $\frac{a}{t} = \frac{.18}{9.75} = 1.85\%$

THIS WOULD BE ALLOWABLE.