SAIC-84/1654

INSERVICE INSPECTION PROGRAM
SECOND INTERVAL TECHNICAL EVALUATION REPORT

TURKEY POINT UNITS 3 AND 4

Submitted to

U.S. Nuclear Regulatory Commission
Contract No. NRC-03-83-096

Submitted by

Science Applications International Corporation
Idaho Falls, Idaho 83402

September 1985

CONTENTS

INSERVICE INSPECTION PROGRAM
SECOND INTERVAL TECHNICAL EVALUATION REPORT

Turkey Point Units 3 and 4

INTRODUCTION

This report evaluates requests for relief from Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (the Code) by the licensee, Florida Power and Light Co. (FPL), for the Turkey Point Nuclear Generation Station Units 3 and 4. For Unit 3, the ISI program and relief requests evaluated in this report cover the second inspection interval starting February 22, 1984, and for Unit 4, the interval starting April 15, 1984. The requests are based on the 1980 Edition of Section XI, with addenda through the Winter of 1981, as specified in the applicable revision of 10 CFR 50.55a.

The rest of this introduction summarizes (a) the scope of this report, (b) the previous review of relief requests by Science Applications International Corporation (SAIC),[1] and (c) the history of Turkey Point 3 and 4 since the earlier review.[2-13]

The current revision to 10 CFR 50.55a requires that Inservice Inspection (ISI) programs be updated each 120 months to meet the requirements of newer versions of Section XI. Specifically, each program is to meet the requirements (to the extent practical) of the edition and addenda of the Code incorporated in the regulation by reference in paragraph (b) 12 months before the start of the current 120-month interval.

The regulation recognizes that the requirements of the later editions and addenda of the Code might not be practical to implement because of limitations of design, geometry, and materials of construction of components and systems. It, therefore, permits exceptions to impractical examination or testing requirements to be evaluated. Relief from these requirements can be granted provided the health and safety of the public are not endangered, giving due consideration to the burden placed on the licensee if the requirements were imposed. This report only evaluates requests for relief dealing with inservice examinations of components and with system pressure tests. Inservice test programs for pumps and valves (IST programs) are being evaluated separately.

Finally, Section XI of the Code provides for certain components and systems to be exempted from its requirements. In some instances, these exemptions are not acceptable to the Nuclear Regulatory Commission (NRC) or are only acceptable with restrictions. As appropriate, these instances are also discussed in this report.

In its previous Technical Evaluation Report, dated September 10, 1982,[1] SAIC evaluated relief requests for Turkey Point Units 3 and 4 covering the first 120-month interval. On November 18, 1982, Florida Power and Light submitted two new requests for relief,[2] which NRC granted on February 14, 1983.[3] On April 26, 1983, the NRC issued its formal Safety Evaluation Report.[4] For Turkey Point Unit 3, the ISI program and relief requests evaluated in the SAIC report covered the last 40 months of the first interval, from August 14, 1979, to December 14, 1982. For Unit 4, they covered the last 80 months of the interval, from January 7, 1977, to September 7, 1983.

On October 3, 1983, Florida Power and Light submitted a request to conduct pressure tests to the 1980 Edition of the Code with Addenda through Winter 81 and also asked to extend the inspection interval.[5] Florida Power and Light corrected this request in an October 21, 1983, letter.[6] These requests were followed by a further schedule exemption request on March 1, 1984.[7] Also on March 1, 1984, the NRC granted the request to update to the newer Code but denied the licensee's interval change request and established the second 10 year interval as starting on February 22, 1984, for Unit 3 and April 15, 1984, for Unit 4.[8]

On March 30, 1984, Florida Power and Light submitted its ISI program (dated March 26, 1984) and relief requests for the second inspection interval,[9] and on April 2, 1984, submitted a proposed license amendment.[10] In response to an informal request for additional information from the NRC, dated May 4, 1984,[11] the licensee submitted revised relief requests. A second request (this time formal) for additional information from the NRC dated August 17, 1984,[12] resulted in Florida Power and Light submitting a second revised package of relief requests on November 20, 1984.[13] The submittal also included, pursuant to the terms of 10 CFR 50.55a(g)(5)(iv), five requests not previously submitted for relief from the 1974 Edition of Section XI with Addenda through the Summer of 1975, which was applicable during the first inspection interval. These first interval relief requests are evaluated separately in an addendum to the previous SAIC report. Since that submittal, Florida Power and Light submitted additional information on two relief requests on February 4, 1985.[14] On May 31, 1985,[16] the licensee made some revision to one relief request that had been previously granted by NRC on February 13, 1985.[15]

The relief requests for the second inspection interval from Reference 13 are evaluated in this report. Initially, 11 relief requests were submitted with the second interval program. Since then, 1 relief request has been withdrawn and 1 is being withheld pending review of actual conditions encountered during examination. In addition, 1 relief request was beyond the scope of this evaluation, 1 item was separated into a new relief request, and items were withdrawn from multiple item relief requests in two instances. Thus, a total of 9 relief requests are evaluated in this report.

I. CLASS 1 COMPONENTS

A. Reactor Vessel

1. Relief Request 1, Reactor Vessel Shell-to-Flange Weld, Category B-A, Item B1.30

Code Requirement

Essentially 100% of the length of the shell-to-flange weld shall be volumetrically examined in accordance with Figure IWB-2500-4 during each inspection interval. The examination may be performed during the first and third inspection periods in conjunction with the nozzle examinations of Examination Category B-D (Program B). At least 50% of shell-to-flange welds shall be examined by the end of the first inspection period, and the remainder by the end of the third inspection period. If the examinations are conducted from the flange face, the remaining examination required to be conducted from the vessel wall may be performed at or near the end of each inspection interval.

Code Relief Request

Relief is requested from the Code volume not achieved during ultrasonic examination of welds 3-WR-18 and 4-WR-18.

Proposed Alternative Examination

None proposed other than the required periodic system leakage tests per Category B-P, Table IWB-2500-1 and inservice hydrostatic test per Category B-P, Table IWB-2500-1.

Licensee's Basis for Requesting Relief

Configuration prohibits 100% ultrasonic coverage of the required Code examination volume. Some areas received no coverage during the examination performed from the upper shell side. Some areas did not receive 0-degree, 45-degree transverse, or 60-degree transverse weld coverage due to the geometric configuration of the flange radius located just above the weld. The percentages of coverage limitation are

Search Unit Angle	Limits % of Weld
0	60
45	25
60	20
45t	60
60t	60

Total weld length = 488.51 inches

Examinations performed from the shell side of the weld essentially provided 100% coverage of the weld and 1/2 t of base material on the shell side.

The extent of examination volume achieved ultrasonically and the alternative system pressure tests provide assurance of an acceptable level of quality and safety.

Evaluation

The licensee has examined most of the weld and heat-affected area. This appears to be the best examination possible using current ultrasonic methods. The licensee has not been able to examine the entire 1/2 t area of the base material on the shell side for welds 3-WR-18 and 4-WR-18. The licensee has agreed, however, to supplement the ultrasonic examination with periodic system leakage tests and inservice hydrostatic tests, which would provide initial evidence of seepage from a through-wall perforation. The extent of the ultrasonic examination and the required system pressure tests should adequately indicate the welds' integrity.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the examinations discussed above will provide the necessary assurance of structural reliability. Therefore, the following are recommended:

(a) Relief should be granted from the Code volume not achieved during ultrasonic examination of welds 3-WR-18 and 4-WR-18 for this interval.

(b) The licensee should continue to perform the best-effort examination of the welds.

(c) The licensee should also perform the required pressure tests as proposed.

References

References 9 and 13.

2. Relief Request 12, Reactor Vessel Head-to-Flange Weld, Category B-A, Item B1.40

Code Requirement

Essentially 100% of the length of the head-to-flange weld shall be volumetrically and surface examined in accordance with Figure IWB-2500-5 during each inspection interval. If partial examinations are conducted from the flange face, the remaining volumetric examinations required to be conducted from the vessel wall may be performed at or near the end of each inspection interval.

Code Relief Request

Relief is requested from the Code volume not achieved during ultrasonic examination. The affected areas are 16 inches of circumferential welds 3-WH-12 and 4-WH-12.

Proposed Alternative Examination

None proposed other than the required periodic system leakage tests per Category B-P, Table IWB-2500-1 and inservice hydrostatic test per Category B-P, Table IWB-2500-1.

Licensee's Basis for Requesting Relief

Configuration and permanent attachments prohibit 100% ultrasonic examination coverage of the required Code examination volume. A welded arrow located above stud hole No. 1 limits 7 inches of circumferential scanning of the closure head weld. No examination was achieved from the flange surface due to the configuration. Each of three welded lugs located 120 degrees apart, between stud holes 10/11, 29/30, and 48/49 limits 3 inches of circumferential scanning of the closure head. Therefore, a combined length of 16 inches of weld cannot be achieved. The extent of examination volume achieved ultrasonically and the alternative system pressure tests provide assurance of an acceptable level of quality and safety.

Evaluation

For welds 3-WH-12 and 4-WH-12, accessibility is physically limited by a welded arrow, welded lugs, and weld configuration. The total area that could not be examined is small, however, and the licensee has agreed to supplement the ultrasonic examination with periodic system leakage tests and inservice hydrostatic tests, which would provide initial evidence of seepage from a through-wall perforation. The extent of the ultrasonic examination and the required systempressure tests should adequately indicate the welds' integrity.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the examinations discussed above will provide the necessary assurance of structural reliability. Therefore, the following are recommended:

(a) Relief should be granted from the Code volume not achieved during ultrasonic examination of welds 3-WH-12 and 4-WH-12.

(b) The licensee should continue to perform the best-effort examination of the welds.

(c) The licensee should also perform the required pressure tests as proposed.

References

References 9 and 13.

3. Relief Request 1, Reactor Vessel Nozzle-to-Vessel Welds, Category B-D, Item B3.90

Code Requirement

All nozzle-to-vessel welds in the reactor vessel shall be volumetrically examined in accordance with Figure IWB-2500-7(a) through (d) during each inspection interval. Nozzles with full penetration welds to vessel shell (or head) and integrally cast nozzles are included, but manways and handholes either welded to or integrally cast in the vessel are excluded. At least 25% but not more than 50% (credited) of the nozzles shall be examined by the end of the first inspection period and the remainder by the end of the third inspection period of each inspection interval. If the examinations are conducted from inside the component and the nozzle weld is examined by straight beam ultrasonic method from the nozzle bore, the remaining examinations required to be conducted from the shell may be performed at or near the end of each inspection interval.

Code Relief Request

Relief is requested from the Code volume not achieved during mechanized ultrasonic examination of welds 3-DO-A, -B, and -C, and 4-DO-A, -B, and -C.

Proposed Alternative Examination

None proposed other than the required periodic system leakage tests per Category B-P, Table IWB-2500-1 and the inservice hydrostatic tests per Category B-P, Table IWB-2500-1.

Licensee's Basis for Requesting Relief

Configuration prohibits 100% ultrasonic examination coverage of the required Code examination volume. When performing computerized ultrasonic examinations of the nozzle-to-shell welds from the vessel wall, several areas were described as having limited examination scans. These limitations were restricted to the last several scans of the nozzle-to-shell examination and were due to the physical limitations imposed by the adjacent nozzles. The limitations all occurred in the vicinity of the 90- or 180-degree nozzle azimuth relative to nozzle orientation. The percentage of weld volume not examined is

Examination Area	Examination Type	Limits % of Weld
Outlet nozzle welds	Parallel scans	12
Outlet nozzle welds	Transverse scans	42

The extent of examination volume achieved ultrasonically and the alternative system pressure tests provide assurance of an acceptable level of quality and safety.

Evaluation

The physical limitations imposed by the adjacent nozzles preclude completing the full volume of the Code-required examination. The licensee has, however, completed a best-effort ultrasonic examination on these nozzles and proposes to perform visual examinations during system pressure tests, which would provide initial evidence of seepage from a through-wall perforation. This examination plus the required system pressure tests should provide adequate information on the structural integrity of the nozzles.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examinations discussed above will provide the necessary added assurance of structural reliability. Therefore, the following are recommended:

(a) Relief should be granted from the Code volume not achieved during ultrasonic examination of welds 3-DO-A, -B, and -C and 4-DO-A, -B, and -C for this interval.

(b) The licensee should continue to perform the best effort examination of the welds.

(c) The licensee should also perform the required pressure tests as proposed.

References

References 9 and 13.

B. Pressurizer

No relief requests.

C. Heat Exchangers and Steam Generators

1. Relief Request 3, Heat Exchanger Head Welds, Category B-B, Item B2.51

Code Requirement

The head weld(s) on the primary side shall be volumetrically examined in accordance with Figures IWB-2500-1 and IWB-2500-20(f) over essentially 100% of their length during each successive inspection interval.

Code Relief Request

Relief is requested from the Code volume that is required in the performance of the ultrasonic examination on regenerative heat exchangers PTP-3 and PTP-4. Three welds on each heat exchanger are affected: RGX-(I)-1, RGX-(II)-1, and RGX-(III)-1.

Proposed Alternative Examination

In lieu of the volumetric examination, perform visual (VT-2 and VT-3) examinations during system pressure tests. During each refueling outage the following will be performed:

(1) Perform a visual examination (VT-3) at the beginning of the refueling outage for leakage and boric acid cumulation.

(2) Prior to return to operation, a visual examination (VT-2) will be performed during the system leakage test.

Perform a visual examination (VT-2) during the system hydrostatic pressure test at or near the end of the inspection interval.

Licensee's Basis for Requesting Relief

Configuration, limited accessibility, high radiation levels, and supports prohibit 100% ultrasonic examination coverage of the required Code examination volume. The limitations and justification for each weld from Code examination are discussed below.

The amount of associated effort and supporting work to comply with the Code requirements is not justified for the following reasons:

To perform these examinations, large expenditures of man-hours and man-rem are required with essentially no compensating increase in plant safety, coupled by the increase in radiation levels from 11-2-82 to 10-9-83. Additional areas contributing to the justification are as follows (surveys were taken on Turkey Point 3, verification was made against Turkey Point 4, and determined that the surveys in this relief were identical to Unit 4):

Florida Power & Light Company performed examinations on both Units 3 and 4 heat exchangers during the first and second inspection periods. The regenerative heat exchanger component design arrangement and accessibility are not normally conducive to meaningful examination because of design configuration.

Additional temporary shielding must be installed for any examination, except for the visual method. As a consequence, this would reduce the access to the component for examination due to existing space conditions.

The component has to be uninsulated for examination. Typically, surfaces also have to be conditioned resulting in additional man-rem and creating significant cleanliness problems.

The alternative examinations and system pressure tests provide assurance of an acceptable level of quality and safety.

Evaluation

The external ultrasonic examination of this weld in each shell of the heat exchanger was limited because of weld configuration, a support, and a letdown nozzle. The 2-inch letdown nozzle precludes scanning 7 inches of the weld from the shell side. The support limits scanning a different 7 inches from the cap side. The weld configuration also creates some limitation from the cap side along the entire length of the weld. The radiation fields in all shells are increasing as indicated by radiation surveys taken about

a year apart. As of October 1983, the radiation fields ranged from 3 to 10 rem/hr. The licensee's proposed visual examinations to substitute for the limited ultrasonic examination are reasonable in view of the limited accessibility and high radiation fields.

The Code is not specific on the requirements for examining primary side head-to-shell welds in heat exchangers since Item B2.50 only deals with welds in the head. For consistency with other requirements, such as Item B2.11 in the pressurizer, it is SAIC's position that such welds should be normally examined. Therefore, welds RGX-(I)-1, RGX-(II)-1, and RGX-(III)-1 should be included in the relief request. The licensee concurred and amended the relief request subsequent to NRC's previous granting of relief in Reference 15. Relief from ultrasonic examination of these welds is also appropriate.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examinations discussed above will provide the necessary added assurance of structural reliability. Therefore, the following is recommended:

(a) Relief should be granted from the ultrasonic examination of welds RGX-(I)-1, RGX-(II)-1, and RGX-(III)-1.

(b) The proposed visual examinations should be performed.

References

References 9, 13, 15, and 16.

2. Relief Request 3, Heat Exchanger Tubesheet-to-Shell Welds, Category B-B, Item B2.61

Code Requirement

The tubesheet-to-shell weld(s) on the primary side shall be volumetrically examined in accordance with Figures IWB-2500-6 and IWB-2500-20(h) over essentially 100% of their length during each successive inspection interval.

Code Relief Request

Relief is requested from Code volume that is required in the performance of the ultrasonic examination on regenerative heat exchangers PTP-3 and PTP-4. Three welds on each heat exchanger are affected: RGX-(I)-2, RGX-(II)-2, and RGX-(III)-2.

Proposed Alternative Examination

In lieu of the volumetric examination, perform visual (VT-2 and VT-3) examinations during system pressure tests. During each refueling outage the following will be performed:

(1) Perform a visual examination (VT-3) at the beginning of the refueling outage for leakage and boric acid cumulation.

(2) Prior to return to operation, a visual examination (VT-2) will be performed during the system leakage test.

Perform a visual examination (VT-2) during the system hydrostatic pressure test at or near the end of the inspection interval.

Licensee's Basis for Requesting Relief

Configuration, limited accessibility, high radiation levels, and supports prohibit 100% ultrasonic examination coverage of the required Code examination volume. The limitations and justification for each weld from Code examination are discussed below.

The amount of associated effort and supporting work to comply with the Code requirements is not justified for the following reasons:

To perform these examinations, large expenditures of man-hours and man-rem are required with essentially no compensating increase in plant safety, coupled by the increase in radiation levels from 11-2-82 to 10-9-83. Additional areas contributing to the justification are as follows (surveys were taken on Turkey Point 3, verification was made against Turkey Point 4, and determined that the surveys in this relief were identical to Unit 4):

Florida Power & Light Company performed examinations on both Units 3 and 4 heat exchangers during the first and second inspection periods. The regenerative heat exchanger component design arrangement and accessibility are not normally conducive to meaningful examination because of design configuration.

Additional temporary shielding must be installed for any examination, except for the visual method. As a consequence, this would reduce the access to the component for examination due to existing space conditions.

The component has to be uninsulated for examination. Typically, surfaces also have to be conditioned resulting in additional man-rem and creating significant cleanliness problems.

The alternative examinations and system pressure tests provide assurance of an acceptable level of quality and safety.

Evaluation

The external ultrasonic examination of this weld in each shell of the heat exchanger was limited because of a clamp and a letdown nozzle. The 2-inch letdown nozzle precludes scanning 25-1/4 inches of the weld from one side. The clamp limits scanning from the other side. The radiation fields in all shells are increasing as indicated by radiation surveys taken about a year apart. As of October 1983, the radiation fields ranged from 3 to 10 rem/hr. The licensee's proposed visual examinations to substitute for the limited ultrasonic examination are reasonable in view of the limited accessibility and high radiation fields.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examinations discussed above will provide the necessary added assurance of structural reliability. Therefore, the following is recommended:

(a) Relief should be granted from the ultrasonic examination of welds RGX-(I)-2, RGX-(II)-2, and RGX-(III)-2.

(b) The proposed visual examinations should be performed.

Thus, we concur with the previous granting of this relief by NRC in Reference 15.

References

References 9, 13, 15, and 16.

3. Relief Request 3, Nozzle-to-Vessel Welds and Nozzle Inside Radius Sections in Heat Exchangers, Category B-D, Items B3.150 and B3.160

Code Requirement

All nozzle-to-vessel welds and inside radius sections on the primary side of heat exchangers shall be volumetrically examined in accordance with Figures IWB-2500-7(a) through (d) during each inspection interval. Nozzles with full penetration welds to vessel shell (or head) and integrally cast nozzles are included, but manways and handholes either welded to or integrally cast in the vessel are excluded. At least 25% but not more than 50% (credited) of the nozzles shall be examined by the end of the first inspection period and the remainder by the end of the third inspection period of each inspection interval.

Code Relief Request

Relief is requested from the Code volume that is required in the performance of the ultrasonic examination on six welds each on regenerative heat exchangers PTP-3 and PTP-4: RGX-(I)-9, RGX-(I)-11, RGX-(II)-9, RGX-(II)-11, RGX-(III)-9, and RGX-(III)-11.

Proposed Alternative Examination

In lieu of the volumetric examination, perform visual (VT-2 and VT-3) examinations during system pressure tests.

(1) During each refueling outage the following will be performed:

(a) Perform a visual examination (VT-3) at the beginning of the refueling outage for leakage and boric acid cumulation.

(b) Prior to return to operation a visual examination (VT-2) will be performed during the system leakage test.

(2) Perform a visual examination (VT-2) during the system hydrostatic pressure test at or near the end of the inspection interval.

Licensee's Basis for Requesting Relief

Configuration, limited accessibility, high radiation levels, and supports prohibit 100% ultrasonic examination coverage of the required Code examination volume. The limitations and justification for each weld from Code examination are discussed below.

The amount of associated effort and supporting work to comply with the Code requirements is not justified for the following reasons:

To perform these examinations, large expenditures of man-hours and man-rem are required with essentially no compensating increase in plant safety, coupled by the increase in radi- ation levels from 11-2-82 to 10-9-83. Additional areas contibuting to the justification are as follows (surveys were taken on Turkey Point 3, verification was made against Turkey Point 4, and determined that the surveys in this relief were identical to Unit 4):

Florida Power & Light Company performed examinations on both Units 3 and 4 heat exchangers during the first and second inspection periods. The regenerative heat exchanger component design arrangement and accessibility are not normally conducive to meaningful examination because of design configuration.

Additional temporary shielding must be installed for any examination, except for the visual method. As a consequence, this would reduce the access to the component for examination due to existing space conditions.

The component has to be uninsulated for examination. Typically, surfaces also have to be conditioned resulting in additional man-rem and creating significant cleanliness problems.

The alternate examinations and system pressure tests provide assurance of an acceptable level of quality and safety.

Evaluation

The ultrasonic examination of welds 9 and 11 in each shell of the heat exchanger was not possible due to weld configuration which causes poor reflections. The radiation fields in all shells are increasing, as indicated by radiation surveys taken about a year apart. As of October 1983, the radiation fields ranged from 3 to 10 rem/hr. The licensee's proposed visual examinations are reasonable in view of the limited accessibility and high radiation fields.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examinations discussed above will provide the necessary added assurance of structural reliability. Therefore, the following is recommended:

(a) Relief should be granted from the ultrasonic examination of welds 9 and 11 in each shell.

(b) The proposed visual examinations should be performed.

Thus, we concur with the previous granting of this relief by NRC in Reference 15.

References

References 9, 13, 15, and 16.

4. Relief Request 3, Integrally Welded Attachments in Heat Exchangers, Category B-H, Item B8.40

Code Requirement

The attachment weld joining the heat exchanger support to the pressure-retaining membrane of the heat exchanger where the support base material design thickness is 5/8 in. or greater shall be surface or volumetrically examined in accordance with Figures IWB-2500-13, -14, and -15 during each inspection interval. Weld buildups on nozzles that serve as supports are excluded. The examination includes essentially 100% of the length of the weld to the heat exchanger, as applicable. One hundred percent of the welding of each lug on the vessel is included in the examination. In case of multiple vessels of similar design, size, and service, the examination is limited to the attachment welds of one vessel.

Code Relief Request

Relief is requested from Code volume and surface area that are required in the performance of the ultrasonic and surface examination on regenerative heat exchangers PTP-3 and PTP-4. In the RGX-(-)-LUG series, one weld on one shell of each heat exchanger is affected.

Proposed Alternative Examination

In lieu of the volumetric and surface examinations, perform visual (VT-2 and VT-3) examinations during system pressure tests. During each refueling outage the following will be performed:

(a) Perform a visual examination (VT-3) at the beginning of the refueling outage for leakage and boric acid cumulation.

(b) Prior to return to operation, a visual examination (VT-2) will be performed during the system leakage test.

Perform a visual examination (VT-2) during the system hydrostatic pressure test at or near the end of the inspection interval.

Licensee's Basis for Requesting Relief

Configuration, limited accessibility, high radiation levels, and supports prohibit 100% ultrasonic and surface examination coverage of the required Code examination volume and surface area. The limitations and justification for each weld from Code examination is discussed below.

The amount of associated effort and supporting work to comply with the Code requirements is not justified for the following reasons:

To perform these examinations, large expenditures of man-hours and man-rem are required with essentially no compensating increase in plant safety, coupled by the increase in radiation levels from 11-2-82 to 10-9-83. Additional areas contributing to the justification are as follows (surveys were taken on Turkey Point 3, verification was made against Turkey Point 4, and determined that the surveys in this relief were identical to Unit 4):

Florida Power & Light Company performed examinations on both Units 3 and 4 heat exchangers during the first and second inspection periods. The regenerative heat exchanger component design arrangement and accessibility are not normally conducive to meaningful examination because of design configuration.

Additional temporary shielding must be installed for any examination, except for the visual method. As a consequence, this would reduce the access to the component for examination due to existing space conditions.

The component has to be uninsulated for examination. Typically, surfaces also have to be conditioned resulting in additional man-rem and creating significant cleanliness problems.

The alternative examinations and system pressure tests provide assurance of an acceptable level of quality and safety.

Evaluation

The Code requires the surface and ultrasonic examination of the attachment weld in one shell of each heat exchanger. The radiation fields in all shells are increasing, as indicated by

radiation surveys taken about a year apart. As of October 1983, the radiation fields ranged from 3 to 10 rem/hr. The licensee's proposed visual examinations to replace the Code-required examinations are reasonable in view of the high radiation fields.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examinations discussed above will provide the necessary added assurance of structural reliability. Therefore, the following is recommended:

(a) Relief should be granted from the Code-required examinations of the attachment weld in one shell.

(b) The proposed visual examinations should be performed.

Thus, we concur with the previous granting of this relief by NRC in Reference 15.

References

References 9, 13, 15, and 16.

D. Piping Pressure Boundary

1. Relief Request 10, Reactor Coolant and Auxiliary Cooling System Welds, Category B-J, Items B9.11 and B9.31

Code Requirement

For circumferential welds in nominal pipe size 4 in. and greater, surface plus volumetric examinations shall be performed in accordance with Figure IWB-2500-8 over essentially 100% of the weld length during each inspection interval.

For welds in branch pipe connections greater than 4 in., surface plus volumetric examinations shall be performed in accordance with Figures IWB-2500-9, -10, and -11 over essentially 100% of the weld length during each inspection interval. The examinations shall include the following:

(a) All terminal ends in each pipe or branch run connected to vessels,

(b) All terminal ends and joints in each pipe or branch run connected to other components where the stress levels exceed the following limits under loads associated with specific seismic events and operational conditions:

(1) primary plus secondary stress intensity range of $2.4S_m$ for ferritic steel and austenitic steel,

(2) cumulative usage factor U of 0.4,

(c) All dissimilar metal welds between combinations of

(1) carbon or low alloy steels to high alloy steels,
(2) carbon or low alloy steels to high nickel alloys, and
(3) high alloy steels to high nickel alloys,

(d) Additional piping welds so that the total number of circumferential butt welds (or branch connection socket welds) selected for examination equals 25% of the circumferential butt welds (or branch connections or socket welds) in the reactor coolant piping system. This total does not include welds excluded by IWB-1220. These additional welds may be located in one loop (one loop is currently defined for both PWR and BWR plants in the 1980 edition).

For welds in carbon or low alloy steel, only those welds showing reportable preservice transverse indications need be examined for transverse reflectors. The initially selected welds shall be reexamined during each inspection interval.

Code Relief Request

Relief is requested from Code volume not achieved during manual ultrasonic examinations. The affected areas are 6 inches of circumferential weld 12"-RC-3, 5 inches of circumferential weld 14"-AC-4, and a 4 x 3 inch area of branch connection weld 12"/10"-RC.

Proposed Alternative Examination

None proposed other than required periodic system leakage tests per Category B-P, Table IWB-2500-1 and inservice hydrostatic test per Category B-P, Table IWB-2500-1.

Licensee's Basis for Requesting Relief

Configuration, permanent attachments, and/or structural interferences prohibit 100% ultrasonic examination coverage of the Code-required examination volume. For weld 12"-RC-3, examination is limited by welded plate at 180 degrees. For weld 14"-AC-4, examination is limited by proximity of adjacent pipe run at 270 degrees. For weld 12"/10"-RC, examination is limited by the location of thermocouple at 100 degrees.

The extent of examination volume achieved ultrasonically and the alternative system pressure tests provide assurance of an acceptable level of quality and safety.

Evaluation

Physical impediments preclude the 100% examination of portions of these three welds, but the areas are limited to a small percentage of the total weld volume. The extent of the examination and the required system pressure tests should ensure adequate integrity.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examinations discussed above will provide the necessary added assurance of structural reliability. Therefore, the following are recommended:

(a) Relief should be granted from the Code volume not achieved during ultrasonic examination of welds 12"-RC-3 (6"), 14"-AC-4 (5"), and 12"/10"-RC (a 4 x 3 inch area).

(b) The licensee should continue to perform the best-effort examination of the welds.

(c) The licensee should also perform the required pressure tests as proposed.

References

References 9 and 13.

2. Relief Request 3, Interstage Piping Welds in Regenerative Heat Exchangers, Category B-J, Item B9.21

Code Requirement

For circumferential welds in nominal pipe size less than 4 in., surface examinations shall be performed in accordance with Figure IWB-2500-8 over essentially 100% of the weld length during each inspection interval. Examinations shall include the following:

(a) All terminal ends in each pipe or branch run connected to vessels;

(b) All terminal ends and joints in each pipe or branch run connected to other components where the stress levels exceed the following limits under loads associated with specific seismic events and operational conditions:

(1) primary plus secondary stress intensity range of $2.4S_m$ for ferritic steel and austenitic steel,
(2) cumulative usage factor U of 0.4,

(c) All dissimilar metal welds between combinations of

(1) carbon or low alloy steels to high alloy steels,
(2) carbon or low alloy steels to high nickel alloys, and
(3) high alloy steels to high nickel alloys,

(d) Additional piping welds so that the total number of circumferential butt welds (or branch connection or socket welds) selected for examination equals 25% of the circumferential butt welds (or branch connection or socket welds) in the reactor coolant piping system. This total does not include welds excluded by IWB-1220. These additional welds may be located in one loop (one loop is currently defined for both PWR and BWR plants in the 1980 Edition).

Code Relief Request

Relief is requested from the surface area that is required in the performance of the surface examination on regenerative heat exchangers PTP-3 and PTP-4. Six welds in each heat exchanger are affected: RGX-(I)-5, RGX-(I)-7, RGX-(II)-5, RGX-(II)-7, RGX-(III)-5, and RGX-(III)-7.

Proposed Alternative Examination

In lieu of the surface examination, perform visual (VT-2 and VT-3) examinations during system pressure tests. During each refueling outage the following will be performed:

(a) Perform a visual examination (VT-3) at the beginning of the refueling outage for leakage and boric acid cumulation.

(b) Prior to return to operation, a visual examination (VT-2) will be performed during the system leakage test.

Perform a visual examination (VT-2) during the system hydrostatic pressure test at or near the end of the inspection interval.

Licensee's Basis for Requesting Relief

Configuration, limited accessibility, high radiation levels, and supports prohibit surface examination coverage of the required Code surface area. The limitations and justification for each weld from Code examination is discussed below.

The amount of associated effort and supporting work to comply with the Code requirements is not justified for the following reasons:

To perform these examinations, large expenditures of man-hours and man-rem are required with essentially no compensating increase in plant safety, coupled by the increase in radiation levels from 11-2-82 to 10-9-83. Additional areas contributing to the justification are as follows (surveys were taken on Turkey Point 3, verification was made against Turkey Point 4, and determined that the surveys in this relief were identical to Unit 4):

Florida Power & Light Company performed examinations on both Units 3 and 4 heat exchangers during the first and second inspection periods. The regenerative heat exchanger component design arrangement and accessibility are not normally conducive to meaningful examination because of design configuration.

Additional temporary shielding must be installed for any examination, except for the visual method. As a consequence, this would reduce the access to the component for examination due to existing space conditions.

The component has to be uninsulated for examination. Typically, surfaces also have to be conditioned resulting in additional man-rem and creating significant cleanliness problems.

The alternative examinations and system pressure tests provide assurance of an acceptable level of quality and safety.

Evaluation

The licensee apparently was able to perform the required examinations during the first interval. However, the radiation fields in all shells are increasing, as indicated by radiation surveys taken about a year apart. In shell III of the heat exchanger, the levels had doubled within that year. As of October 1983, the radiation fields ranged from 3 to 10 rem/hr. Performing the required examinations in such fields would not be practical in terms of exposure. The licensee's proposed visual examinations are reasonable.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examinations discussed above will provide the necessary added assurance of structural reliability. Therefore, the following is recommended:

(a) Relief should be granted from the Code required examination of the interstage piping welds in the heat exchangers.

(b) The proposed visual examinations should be performed.

Thus, we concur in the previous granting of this relief by NRC in Reference 15.

References

References 9, 13, 15, and 16.

E. Pump Pressure Boundary

1. Relief Request 9, Integrally Welded Supports for Reactor Coolant Pumps, Category B-K-1, Item B10.20

Code Requirement

As applicable, 100% volumetric or surface examinations per IWB-2500-13, -14, and -15 are required for all integrally welded attachments of pumps required to be examined by Examination Category B-J. Attachments whose attachment base material design thickness is 5/8 in. and greater are included.

Code Relief Request

Relief is requested from Code volumetric or surface examination of inaccessible weld and adjacent areas of the pump support members not achieved during the inspection interval. The affected welds are

3-RCP-A-L1, 2, and 3	4-RCP-A-L1, 2, and 3
3-RCP-B-L1, 2, and 3	4-RCP-B-L1, 2, and 3
3-RCP-C-L1, 2, and 3	4-RCP-C-L1, 2, and 3

Proposed Alternative Examination

Perform surface examinations per the ISI schedule. Perform VT-3 examination to extent practical on areas inaccessible for surface examination per surface ISI schedule. Upon disassembly of a pump from the pad, conduct a surface examination on the inaccessible area.

Licensee's Basis for Requesting Relief

Configuration of the integrally welded supports as welded to the pump body and structural interfaces prohibit meaningful or conclusive ultrasonic or radiographic Code examination. Further, 100% surface examination coverage is not achievable due to inaccessibility of portions of the weld. The alternate examinations and tests provide assurance of an acceptable level of quality and safety.

Evaluation

Because of the design and configuration, examinations on these welds do not generally yield meaningful or conclusive ultrasonic or radiographic results. The licensee thus attempted a surface examination but was unable to perform the required 100% surface examination without removing the pump from the pad. The proposed alternative of performing the surface examination on the inaccessible area when the pump is disassembled from the pad should adequately indicate weld integrity, as long as the examination performed shows no weld deterioration. But if indications of weld flaw are found when the accessible areas are examined, then the pump should be removed from the pad and a full surface examination performed.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the welds discussed above, the Code requirements are impractical. It is further concluded that the alternative examinations discussed above will provide the necessary added assurance of structural reliability. Therefore, the following is recommended:

(a) Relief should be granted from the volumetric examination and from the Code volume not achieved during surface examination of welds 3-RCP-A-L1, 2, and 3; 4-RCP-A-L1, 2, and 3; 3-RCP-B-L1, 2, and 3; 4-RCP-B-L1, 2, and 3; 3-RCP-C-L1, 2, and 3; and 4-RCP-C- L1, 2, and 3.

(b) If flaw indications are found during examination of the accessible surface area, the pump should be removed from its pad and a 100% surface examination performed.

(c) If no indications are found, the licensee should conduct a surface examination on the inaccessible areas only when the pump is disassembled from the pad as proposed.

References

References 9 and 13.

2. Relief Requests 6 and 7, Pump Casing Welds and Pump Casings, Categories B-L-1 and B-L-2, Items B12.10 and B12.20

Code Requirement

Item B12.10: Essentially 100% of the pressure-retaining welds in at least one pump in each group of pumps performing similar functions in the system (e.g., recirculating coolant pumps) shall be volumetrically examined in accordance with IWB-2500-16 during each inspection interval. A supplementary surface examination may be performed as required in IWB-3518.1(d). The examinations may be performed at or near the end of the interval.

Item B12.20: The internal surfaces of at least one pump in each group of pumps performing similar functions in the system (e.g., recirculating coolant pumps) shall be visually examined (VT-3) during each inspection interval. Examination may be performed on the same pump selected for volumetric examination of welds. The examinations may be performed at or near the end of the inspection interval.

Code Relief Request

Relief is requested from Code volumetric (or supplementary surface) examinations of the reactor coolant pump casing welds and from the visual examinations of internal surfaces of pumps during the inspection interval. These include the following pumps (including applicable casing welds per pump):

3-RCP-A	4-RCP-A
3-RCP-B	4-RCP-B
3-RCP-C	4-RCP-C

Proposed Alternative Examination

Hydrostatic tests as required by ASME Section XI and 100% visual examination of the external surfaces only of one pump casing weld to the extent and frequency of Examination Category B-L-1.

Licensee's Basis for Requesting Relief

Volumetric (ultrasonic) examination is not feasible due to the material construction of the pump casing. Configuration of the pump design requires disassembly of the pump (including internal parts) to perform radiographic examination. Supplementary surface examination is not practical due to the porous nature of the natural construction based on examination conducted on one

pump (PTP-3), during the first interval. Visual examination is not practical since it requires total disassembly of the pump. The limitations and justification for Code relief are discussed below.

(1) State-of-the-art ultrasonic techniques have not been developed to meet the Code requirements. In the event that an ultrasonic examination technique is developed that meets the Code requirements, the intent of the Code will be followed. Florida Power & Light Company has representation on the ASME Code committees and keeps abreast of state-of-the-art developments in all aspects of nondestructive examination methods in the industry.

(2) Radiographic examination is not possible without the complete disassembly of the pump. To perform this examination, large expenditures of man-hours and man-rem are required with essentially no compensating increase in plant safety. Based on actual data compiled from the radiographic examination of the Turkey Point Unit No. 3 reactor coolant pump casing welds and visual examination of the internal boundary surface on one pump, in excess of 5900 man-hours and 46 man-rem exposure was expended in the disassembly, examinations, and reassembly of the pump.

(3) There is a very low probability, based upon industry experience, to disassembling pump(s) for maintenance purposes. There is no requirement by the pump manufacturer (Westinghouse) to disassemble the pump(s) as part of normal maintenance or inspection. Accordingly, Florida Power & Light Company's procedures do not require disassembly of the pump(s) for maintenance or inspection purposes. There are no reported failures within the pump casings with these model pump(s). It's noteworthy to mention that removal of the pump impeller does not provide access to the casing internal surfaces which would still prohibit the inspection (visual and volumetric) of the pump to Code requirements.

(4) Florida Power & Light Company feels that adequate safety margins are inherent in the basic pump design. The structural integrity afforded by the existing pump casing material will not significantly degrade over its lifetime. The reactor coolant pump casing material, cast stainless steel (ASTM A351-CF8M), is widely used in the nuclear industry and has performed extremely well. The presence of some delta ferrite (typically 5% or more) substantially increases resistance to intergranular corrosion and stress corrosion cracking. The delta ferrite also results in improved resistance to pitting corrosion.

(5) Florida Power & Light Company feels that the satisfactory inspection results achieved in February 1982 (see (2) above), coupled with the same inspections conducted by three other utility companies and employing the same manufacturer's model pumps, provide additional assurance as to the pump's casing integrity.

(6) Manufacturer's shop radiographs, ASME Section III.

(7) The alternate examination and tests provide assurance of an acceptable level of quality and safety.

Evaluation

The reactor coolant pumps at Turkey Point are constructed of thick-wall cast stainless steel material, making a volumetric examination using ultrasonics meaningless. Because of the internal design of the pumps, removing the motor and impeller would not provide access to the internal surface necessary for performing both radiographic and visual examinations.

Radiographic examinations (MINAC) have been performed on other pumps with similar designs and materials and with approximately the same age and accumulated operating time at Ginna, Point Beach, and Robinson, as well as Turkey Point. The data obtained from these examinations indicate no failures or reportable service-induced flaws in the pressure boundary material of the pumps.

At this time, disassembly of pumps solely for making these visual and volumetric examinations does not appear warranted in view of the radiation exposure and lack of a viable examination technique. But an examination should be done by the most feasible means if a pump at Turkey Point requires disassembly for maintenance. At this stage of technology development, the proposed 100% visual examination of the external surface and of the casing welds during the inspection interval is the most appropriate. The inspection intervals considered in this report end in January 1994. Since the examination technology is only currently being actively developed, it is reasonable to give relief for the present inspection interval. Any decisions on relief requests for future intervals should be deferred until then and be based on developments in ultrasonic and radiographic technology and on industry experience.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the examinations discussed above, the Code requirements are impractical. It is further concluded that the alternative

examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following are recommended:

(a) Relief should be granted from the visual and volumetric examination of the pump casing welds and pump casings for the current inspection interval.

(b) The licensee should conduct the proposed 100% visual examination of the external surface of the casing welds during the interval.

(c) The licensee should conduct the Code examinations by the most feasible means, on the first such pump disassembled for maintenance during this interval.

References

References 2, 3, 9, and 13.

F. Valve Pressure Boundary

1. Relief Request 8, Valve Body Exceeding 4 In. Nominal Pipe Size, Category B-M-2, Item B12.50

Code Requirement

The internal surface of at least one valve in each group of valves with the same construction design (e.g., globe, gate, or check valve) and manufacturing method that perform similar functions in the system (e.g., containment isolation and system overpressure protection) shall be visually examined (VT-3) during each inspection interval. Examination may be performed on the same valve selected for volumetric examination of welds. The examinations may be performed at or near the end of the inspection interval.

Code Relief Request

Relief is requested from the visual examinations of internal surfaces of valves during the inspection interval.

Proposed Alternative Examination

In addition to the required periodic inservice testing per subarticles IWV-3400 and/or IWV-3520 and/or periodic system leakage test per Category B-P, Table IWB-2500-1, perform the required VT-3 examinations, in accordance with the sampling criteria of Table IWB-2500-1, Category B-M-2, in the event the components are disassembled for maintenance or repair.

Licensee's Basis for Requesting Relief

Disassembly of these valves for the sole purpose of performing a VT-3 visual examination is not practical. The process of disassembling these components will result in considerable exposure of personnel to radiation and significantly increase the risk of component damage or failure without providing a compensating increase in the level of quality and safety.

Evaluation

The Code-required visual examination specified is to determine whether unanticipated severe degradation of the body is occurring due to phenomena such as erosion or corrosion. However, the disassembly of large valves to the degree necessary to inspect the internal pressure-retaining surfaces (bodies) is a major effort in terms of exposure of personnel. To do this disassembly solely to perform a visual examination of the internal body is impractical. The licensee has proposed to examine valves disassembled for maintenance. Indeed, during the first interval, 3 of 13 valves in 1 of 3 valve groups in Unit 3 and 3 of 13 valves in 2 of 3 valve groups in Unit 4 have been disassembled for maintenance. No recordable indications were found. Continuing this policy of examining the valves when disassembled for maintenance should be adequate to determine the overall condition of Class 1 valves.

Conclusions and Recommendations

Based upon the above evaluation, it is concluded that for the valves discussed above, the Code requirements are impractical. It is further concluded that the alternative proposed examination discussed above will provide necessary added assurance of structural reliability. Therefore, the following are recommeded:

(a) Relief should be granted from the Code requirement to visually examine the internal surfaces of Class 1 valves.

(b) Any valves disassembled for maintenance should be Code examined as proposed.

References

References 9, 13, and 14.

II. CLASS 2 COMPONENTS

A. Pressure Vessels

No relief requests.

B. Piping

1. Relief Request 11, Pressure Retaining Welds in Containment Spray System Piping, Category C-F, Items C5.10, C5.11, and C5.12

Code Requirement

The surfaces of 100% of each circumferential weld (C5.11) 1/2 in. or less nominal wall thickness shall be examined in accordance with IWC-2500-7 during each inspection interval. The welds selected for examination shall include:

(a) all welds at locations where the stresses under the loadings resulting from Normal and Upset plant conditions as calculated by the sum of Equations (9) and (10) in NC-3652 exceed the specified value;

(b) all welds at terminal ends [see (e) below] of piping or branch runs;

(c) all dissimilar metal welds;

(d) additional welds, at structural discontinuities [see (f) below], such that the total number of welds selected for examination includes the following percentages of circumferential piping welds:

(1) none of the welds exempted by IWC-1220,
(2) none of the welds in residual heat removal and emergency core cooling systems,
(3) 10% of the main steam system welds 8 in. nominal pipe size and smaller,
(4) 25% of the welds in all other systems.

(e) terminal ends are the extremities of piping runs that connect to structures, components (such as vessels, pumps, valves), or pipe anchors, each of which act as rigid restraints or provide at least two degrees of restraint to piping thermal expansion;

(f) structural discontinuities include pipe weld joints to vessel nozzles, valve bodies, pump casings, pipe fittings (such as elbows, tees, reducers, flanges, etc. conforming to ANSI B16.9), and pipe branch connections and fittings;

For longitudinal welds (C5.12), 2.5 t at the intersecting circumferential weld shall be surface examined. For welds in carbon or low alloy steels, only those welds showing reportable preservice transverse indications need to be examined for transverse reflectors. The welds initially selected for examination shall be reexamined over the service lifetime of the piping component.

Code Relief Request

Relief is requested from performing the Code-required examinations on the pressure retaining welds in the containment spray system piping.

Proposed Alternative Examination

(1) At least once every five years, the piping is tested by performing an air or smoke flow test through each spray header to demonstrate an open flow path. (Reference: ASME Section XI, IWC-5222(d)).

(2) In the event that the containment spray system is operated or in the case of a significant seismic event, Florida Power & Light will reevaluate this relief request to determine if additional nondestructive examination is warranted.

Licensee's Basis for Requesting Relief

(1) The containment spray piping is not required to operate during normal system operation;

(2) Following initial inspection and testing, the containment spray piping downstream of the second isolation valve outside containment is subject to no pressure transients and no temperature transients other than ambient containment building/auxiliary building pressure and temperature; thus, there is no mechanism for failure;

(3) ASME Section XI, Table IWC-2500-1, Examination Category C-H, note 1, exempts open-ended portions of systems from VT-2 tests.

Evaluation

10 CFR 50.55a(b)(2)(iv)(A), as adopted in 44 FR 57912, states the following:

(iv) Pressure-retaining welds in ASME Code Class 2, piping (applies to Tables IWC-2520 or IWC-2520-L, Category C-F). (A) Appropriate Code Class 2 piping welds in Residual Heat Removal Systems, Emergency Core Cooling Systems, and Containment Heat Removal Systems shall be examined. The extent of examination for these systems shall be determined by the requirements of paragraph IWC-1220, Table IWC-2520, Categories C-F and C-G, and paragraph IWC-2411 in the 1974 Edition, Summer 1975 Addenda, of Section XI of the ASME Code.

Clearly, the intent of the Regulation is that a representative sample of welds in these systems be examined and relief should not be granted from examining the welds in the containment spray system piping.

Conclusions and Recommendations

Based on the above evaluation, it is concluded that for the examinations discussed above, the Code requirements are not impractical and relief is not justified. Therefore, it is recommended that relief not be granted and the licensee be required to perform the Code-required examinations.

References

References 9 and 14.

C. Pumps

No relief requests.

D. Valves

No relief requests.

III. CLASS 3 COMPONENTS

No relief requests.

IV. PRESSURE TESTS

No relief requests.

V. GENERAL

No relief requests.

REFERENCES

1. Science Applications, Inc., Turkey Point Nuclear Generating Station, Units 3 and 4, Inservice Inspection, Technical Evaluation Report, SAI Report No. 186-028-18, September 10, 1982.

2. R. E. Uhrig (FPL) to D. G. Eisenhut (NRC), L-82-514, Inservice Inspection Relief Request RR 6/7 on Reactor Coolant Pumps, November 18, 1982.

3. S. A. Varga (NRC) to R. E. Uhrig (FPL), February 14, 1983. (Grants relief to RR 6/7.)

4. S. A. Varga (NRC) to R. E. Uhrig (FPL), April 26, 1983. (Transmits SER.)

5. R. E. Uhrig (FPL) to D. G. Eisenhut (NRC), L-83-524, Request to Update to Later Endorsed Code Requirements, October 3, 1983.

6. J. W. Williams, Jr. (FPL) to D. G. Eisenhut (NRC), L-83-524, Request to Update to Later Endorsed Code Requirements, October 21, 1983 (corrected letter).

7. J. W. Williams, Jr. (FPL) to D. G. Eisenhut (NRC), L-84-56, Inservice Inspection Exemption Request, March 1, 1984.

8. S. A. Varga (NRC) to J. W. Williams, Jr. (FPL), Inservice Inspection Program, Turkey Point Plant Units 3 and 4, Request to Update Code Requirements and Extend Ten-Year Interval, March 1, 1984.

9. Florida Power and Light, Inservice Inspection Second Ten-Year Summary Program for Turkey Point Plant Units 3/4, Document No. CIS-84-001 (Rev. 0), March 26, 1984.

10. J. W. Williams, Jr. (FPL) to D. G. Eisenhut (NRC), L-84-90, Proposed License Amendment, April 2, 1984.

11. Informal request for additional information from NRC to FPL, May 4, 1984.

12. Request for additional information of August 17, 1984.

13. J. W. Williams, Jr. (FPL) to S. A. Varga (NRC), L-84-341, Inservice Inspection Second Ten-Year Summary Program, November 20, 1984. (Response to RAI.)

14. J. W. Williams, Jr. (FPL) to S. A. Varga (NRC), L-85-57, Inservice Inspection Second Ten-Year Summary Program, February 4, 1985. (Additional information on relief requests 8 and 11.)

15. S. A. Varga (NRC) to J. W. Williams, Jr. (FPL), Relief of Inservice Examination of the Regenerative Heat Exchangers, February 13, 1985.

16. J. W. Williams, Jr. (FPL) to S. A. Varga (NRC), LA-85-218, Second Inspection Interval Inservice Inspection, May 31, 1985.