

UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO REQUEST FOR REEVALUATION OF REQUEST FOR RELIEF FROM FIRST 10-YEAR INSERVICE INSPECTION REQUIREMENTS

POWER AUTHORITY OF THE STATE OF NEW YORK

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

DOCKET NO. 50-333

1.0 INTRODUCTION

Technical Specification 4.6.F for the James A. FitzPatrick Nuclear Power Plant states that inservice examination of ASME Code Class 1, 2 and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda as required by 10 CFR 50.55a(g) except where specific written relief has been granted by the Commission.

We previously reviewed the first 10-year interval inservice inspection (ISI) program plan for the ritzPatrick facility and requests for relief from certain requirements of the applicable ASME Code and addenda. By letter dated January 31, 1984, we granted relief from examination requirements which we had determined to be impractical to perform at the FitzPatrick facility. We also denied relief in those cases where the necessary findings could not be made.

By letter dated March 15, 1985, the Power Authority of the State of New York (the licensee) requested clarification and reevaluation of the items denied in our January 31, 1984 letter. In reviewing its relief requests, the licensee found that some were no longer necessary due to capabilities or conditions that developed while the program was under review. Other requests were found to be too broad in scope and, in those cases, the licensee intends to submit relief requests for specific welds. Specifically, the licensee intends to submit relief requests for the following welds:

- Item B.1.1: Reactor Vessel Shell Beltline Region Welds: Code Category B-A.
- Item B.1.2: Reactor Vessel Shell Welds other than in Beltline: Code Category B-B.
- Item B.1.4: Reactor Vessel Nozzle Inner Radii: Code Category B-D.
- Item C2.1, C2.2, C2.5, Inaccessible Piping Welds: Code Categories C-F and C-G.

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In addition, by letter dated March 4, 1985, the licensee proposed a modified inservice inspection program plan to combine the inspection interval of the Class 2 and 3 components with that of the Class 1 components. PASNY has implemented an ISI program based on the 1974 Edition, Summer 1975 Addenda of Section XI of the ASME Boiler and Pressure Vessel Code. Inspection commenced during the Spring/Summer 1980 refueling outage. Prior to this time, inservice inspections at the Plant were performed in accordance with the 1970 Edition of Section XI. The 1970 edition has required inspection of only those components which are now considered Class 1, while the newer Code expanded the scope of inspection to include Class 2 and Class 3 components. Therefore, while the FitzPatrick initial 10-year interval for Class 1 components was completed on July 28, 1985, the actual interval for the Class 2 and 3 components is at its midpoint.

2.0 EVALUATION

2.1 Request for Combining ISI Programs for Class 1 and Classes 2 and 3

We have reviewed the licensee's letter dated March 4, 1985 which proposes to combine the Class 1, 2 and 3 components into one inspection interval to eliminate the inefficiencies inherent in maintaining what are effectively two separate inspection programs where each could require updating to a different code edition. The licensee proposed the following in lieu of completion of the Class 2 and Class 3 interval:

- a. Completion of 50% of the required inspections of Class 2 and 3 components, as determined by the current FitzPatrick ISI program, during the Reload 6/Cycle 7 refueling outage. This would result in 50% of the inspections performed in roughly half of a 10-year interval, which meets or exceeds the requirements of IWC-2412 and IWD-2410. (Note that the Reload 6/Cycle 7 refueling outage ended in May 1985 and these inspections have been completed).
- b. Pressure and hydrostatic tests of the Class 2 and 3 components required by IWC-5000 and IWD-5000 for the current interval would be performed during the Reload 7/Cycle 8 refueling outage (currently scheduled for early 1987). The additional time is required to prepare test procedures that conform to the requirements of FitzPatrick's original construction code, B31.1, 1967 edition.
- c. Commencing with the Reload 7/Cycle 8 refueling outage, all classes of components would be included in an ISI Program based on a single approved edition (and addenda) of Section XI of ASME Code.
- d. 100% of the inspections of Class 1 components, as required by Section XI of the ASME Code and the FitzPatrick ISI program, would

be completed by the end of the first 10-year interval. (Note that these inspections were completed during the Reload 6/Cycle 7 retueling outage). The inspections for the second 10-year interval will commence during the Reload 7/Cycle 8 refueling outage.

Based on our review of the above commitments by the licensee, we find that the number of inspections of Class 2 and 3 components already performed during the last refueling outage as well as those to be performed during the upcoming Reload 7/Cycle 8 refueling outage provide reasonable assurance of the structural integrity of components and supports. In addition, Regulation 10 CFR 50.55a(g)(4)(iv) allows Inservice Inspection programs to use portions of Code editions and addenda provided that all related requirements of the respective editions or addenda are met. We find that the proposed revised ISI program conforms to this regulation and, therefore, approve this request for relief.

2.2 Request for Relief Concerning Items B4.9, B5.4, B6.4; Integrally Welded Supports for Piping, Pump, and Valves; Code Category B-K-1.

Section XI of the ASME Code requires that the volumetric examinations performed during each inspection interval shall cover 25% of the integrally welded supports. The areas shall include the integrally welded external support attachments. This includes the welds to the pressure-retaining boundary and the base metal beneath the weld zone and along the support attachment member for a distance of two support thicknesses.

The licensee has requested relief from the volumetric examination of all Class 1 integrally-welded external support attachments for piping, pumps and valves on the basis that the physical design of integrally welded supports (tillet or partial penetration welds) does not permit meaningful volumetric examination. This fact has been recognized by Section XI of the ASME Code and the requirement for volumetric examination of integrally welded supports has been dropped from later Addenda of the Code (e.g., 1977 Edition, Summer 1978 Addenda).

Pursuant to 10 CFR 50.55a(g)(4)(iv), the licensee has elected to utilize the 1977 Edition, through Summer 1978 Addenda for the examination method for code category B-K-1. This code year and addenda requires that a surface examination be performed on support attachments for which the support base material design thickness is 5/8" and greater, and which conform to the configuration of integral attachments referenced in Figures IWB-2500-13 and IWB-2500-15. Accordingly, the licensee proposes to inspect those supports for which relief is requested by surface examination.

The above regulation accepting the use of the alternate ASME Code, 1977 Edition thru Addenda of Summer 1978, also states that all relevant requirements of the more recent edition must be met. Accordingly, the licensee must increase the frequency of examination of the subject welds from once per plant lifetime to once per inspection interval as per the 1977 Edition thru Summer 1978 Addenda.

Based on the above evaluation, we find that the licensee's proposed examinations of the subject welds conform to the regulations and provide reasonable assurance of the structural integrity of these welds. We, therefore, approve the licensee's request for relief with the provision that examination of the subject welds be conducted once per inspection interval.

2.3 Request for Relief Concerning Item B4-6: Branch Pipe Connection Exceeding Six Inch Diameter, and Including Residual Heat Removal (RHR) Weid #20-10-141, Code Category B-J.

Section XI of the ASME Code requires that volumetric weld examinations shall be performed during each inspection interval and shall cover all the area of 25% of the circumferential joints including the adjoining branch connection joints. In the case of pipe branch connections, the areas shall include the weld metal, the base metal for one pipe wall thickness beyond the edge of the weld on the main pipe run, and at least 2 inches of the base metal along the branch run, as per IWB-2500-9 with the acceptance standard of IWB-3514.

The licensee, in accordance with the requirements of Inspection and Enforcement Bulletin (IEB) 83-02 and Generic Letter 84-11, has performed ultrasonic examination on the welds listed below:

1.	12-03-2-5	4.	12-02-2-21	7.	12-02-2-73
2.	12-02-2-11	5.	12-02-2-62	8.	12-02-2-79
3.	12-02-2-16	6.	12-02-2-68	9.	20-10-141

The 12 inch welds are all located in the Reactor Water Recirculation System (#1-8); the 20 inch weld is located in the RHR System (#9).

The licensee has requested that the ultrasonic examinations performed on these branch pipe welds be accepted in lieu of the standard ASME Code volumetric examination.

The technique employed by the licensee was at least equivalent to the method referenced in Section XI in regard to examination angle(s), and exceeded the recommended Code requirement for instrument sensitivity. Furthermore, the more stringent requirements for personnel qualifications imposed by IEB 83-02 and administered by the Electric Power Research Institute have enhanced the inspection quality provided these welds.

We have previously accepted the licensee's examinations of the subject welds for conformance to IEB 83-02 and Generic Letter 84-11. Since the ultrasonic examination technique employed was at least as stringent as that required by the Code, we find that the examinations performed provide reasonable assurance of the structural integrity of the subject welds. We therefore approve the licensee's request for relief.

2.4 Request for Relief Concerning Item C2.1: Welds in Piping, and Fittings; Code Categories C-F and C-G.

Section XI of the ASME Code, 1974 Edition through Summer 1975 Addenda, requires the following for Code Categories C-F and C-G:

Category C-F: Pressure-Petaining Welds in Piping, Pumps, and Valves in Systems which Circulate Reactor Coolant

Volumetric weld examinations shall cover 100% of the welds. This examination shall be scheduled over the lifetime of the plant (four intervals with three periods within each interval).

Category C-G: Pressure-Retaining Welds in Piping, Pumps, and Valves in Systems which Circulate other than Reactor Coolant

Volumetric weld examination of 50% of the total number of welds shall be performed. The examination shall cover 100% of the weld. This examination shall be scheduled over the lifetime of the plant (four intervals with three periods within each interval).

For the equivalent categories in the 1977 Edition through Summer 1978 Addenda, the following is required:

Category C-F

Surface examinations shall be performed on piping welds of nominal wall thickness 1/2 inch or less and on branch connections. Examinations shall be performed each inspection interval. The welds selected for examination shall include 50% of the main steam system welds, and 25% of the welds in all other systems including Residual Heat Removal Systems (RHR), Emergency Core Cooling Systems (ECCS), and Containment Heat Removal System (CHRS).

Category C-G:

Surface examinations shall be performed on pump casing welds and valve body welds. The examination shall be performed from either the inside or outside surface of the components. The welds selected for examination shall be 100% of the welds in all components in each piping run examined under examination Category C-F. The frequency shall be each inspection interval.

The licensee has requested relief from the volumetric examination of Class 2 piping that is 0.5 inch nominal wall thickness or less, for

nominal pipe sizes over 4 inches. The licensee proposes to perform a surface examination on welds in Code Categories C-F and C-G in lieu of the volumetric examination, in accordance with Section XI, 1977 Code Edition through Summer 1978 Addenda.

Regulation 10 CFR 50.55a(g)(4)(iv) allows Inservice Inspection programs to use portions of Code editions and addenda provided that all related requirements of the respective editions or addenda are met. Tables IWC 2411-1 and IWC 2412-1 require that all inspections of components requiring examination be completed during each inspection interval.

Based on the above evaluation, we find that the inspections to the 1977 Code Edition through Summer 1978 Addenda provide reasonable assurance of the structural integrity of the welds. We, therefore, approve the licensee's request for relief with the provision that the required examinations of welds in the RHR, ECCS and CHRS must be completed each inspection interval.

3.0 SUMMARY CONCLUSION

We conclude based on the considerations discussed above, that relief granted from the examination and testing requirements, and the alternate methods proposed and evaluated, give reasonable assurance that the integrity of the piping, pressure boundary components, and support structures is maintained; that granting relief where Code requirements are impractical is authorized by law and will not endanger life or property, or the common defense and security, and is otherwise in the public interest considering the burden that result if they were imposed upon the facility. We further conclude that combining ten-year ISI programs of Class 1, and Class 2, and Class 3 components will give reasonable assurance that the inspection of components are in accordance with regulations in extent and frequency and are in the public interest.

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Dated: April 18, 1986