



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 229 TO FACILITY OPERATING LICENSE NO. DPR-59

POWER AUTHORITY OF THE STATE OF NEW YORK

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

DOCKET NO. 50-333

1.0 INTRODUCTION

By letter dated April 12, 1995, the Power Authority of the State of New York (the licensee) submitted a request for changes to the James A. FitzPatrick Nuclear Power Plant (FitzPatrick) Technical Specifications (TSs). The requested changes would extend the surveillance test intervals for the nuclear steam supply system (NSSS) to support 24-month operating cycles.

Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate 24-Month Fuel Cycle," dated April 2, 1991, provides generic guidance to support the development of TS revisions to allow a 24-month fuel cycle and includes requirements to evaluate the effect on safety for an increase in surveillance intervals to accommodate a 24-month cycle.

The specific surveillances that were requested to be revised by this application are:

1. Page 86a, Item 19, Table 4.2-8, "Minimum Test and Calibration Frequency for Accident Monitoring Instrumentation," change the instrument functional test surveillance frequency of the safety/relief valve position indicator from "once/operating cycle" to "once/24 months."
2. Page 119, Specification 4.5.D.1, change the Automatic Depressurization System (ADS) surveillances that are performed "during each operating cycle" to "at least once every 24 months." In addition, parts a and b of this specification are further clarified by changing "initiation" to "actuation" to better conform to the definition of "Simulated Automatic Actuation" in Section 1.0. The revised specification reads:

"Surveillance of the Automatic Depressurization System shall be performed every 24 months as follows:

- a. A simulated automatic actuation which opens all pilot valves.
- b. A simulated automatic actuation which is inhibited by the override switches."

3. Page 142a, Specification 4.6.E.1, change the safety/relief valve bench check from "once per operating cycle" to "every 24 months." In the second sentence, change test frequency for all valves from "every two operating cycles.*" to "every 48 months." The revised specification reads:

"At least 5 of the 11 safety/relief valves shall be bench checked or replaced with bench checked valves every 24 months. All valves shall be tested every 48 months."

4. Page 143, Specification 4.6.E.2, change the safety/relief valve disassembly and inspection from "once/operating cycle.*" to "every 24 months." The revised specification reads:

"At least one safety/relief valve shall be disassembled and inspected every 24 months."

5. Page 143, Specification 4.6.E.4, change test frequency to manually open each safety/relief valve from "each operating cycle" to "every 24 months." The revised specification reads:

"This test shall be performed at least once every 24 months while in the RUN mode and within the first 12 hours after steam pressure and flow are adequate to perform this test."

In addition, the asterisk and footnote from pages 142a and 143 are deleted since the conditions for surveillance test extension have expired.

6. Bases Page 152, Section 4.6, change bench testing requirements (third paragraph) from "once per operating cycle so that all valves are tested every two operating cycles" to "every 24 months so that all valves are tested every 48 months." The revised bases reads:

"Experiences in safety/relief valve testing have shown that failure or deterioration of safety relief valves can be adequately detected if at least 5 of the 11 valves are bench tested every 24 months so that all valves are tested every 48 months."

2.0 EVALUATION

FitzPatrick has eleven safety/relief valves (SRVs) which are located on the main steam lines within the drywell between the reactor vessel and the inboard main steam isolation valves. Seven of these valves are automatic depressurization system (ADS) valves. Each SRV is equipped with two acoustical detectors or accelerometers (primary indication), one of which is maintained in service. Each valve is also equipped with a backup thermocouple detector (secondary indication). The acoustic detectors monitor noise level

and provide control room alarm upon indication of an open SRV. The thermocouples provide continuous monitoring and recording of SRV discharge temperature to detect valve leakage.

2.1 ADS Surveillance Testing

Technical Specification 4.5.D.1 requires a once per cycle surveillance testing of the ADS. This surveillance test includes a simulated automatic actuation to open all pilot valves and a simulated automatic actuation which is inhibited by the override switches. The existing on-line testing provides adequate assurance of valve operability. The safety relief valve monitor instrument check, performed on a monthly basis, demonstrates the ability of SRV tailpipe acoustic system to detect leaking or partially open SRVs by recording noise levels from each SRV accelerometer.

Another consideration for surveillance interval extension is the past performance of the SRVs. Occurrence reports were reviewed which indicated that SRV setpoint drift is a concern. However, the licensee requested, by letter dated December 20, 1989, and supplemented by letter dated March 2, 1994, to incorporate a single nominal SRV setting of 1110 psig and a 3% setpoint tolerance for the SRVs. This request was approved in Amendment No. 217, dated September 28, 1994. The analyses performed to support this TS change demonstrated the adequacy of plant piping and containment structures for the SRV setpoint and tolerance change. In addition, the licensee has reconfirmed a General Electric Company analysis, dated November 1991, which supported the SRV setpoint tolerance change. It was determined that SRV drift with a 3% tolerance would be acceptable for (i.e., bounded by) a 24- to 30-month interval.

The licensee has also assessed potential SRV drift over a 60 month period since proposed Specification 4.6.E.1 allows a maximum test frequency of 60 months. It was concluded that SRV drift, as measured by surveillance data, is not dependent on the time between surveillance intervals. Therefore, there is reasonable assurance that the SRVs will not drift excessively during a potential maximum 60-month period between surveillances. It should be noted that the NRC staff has approved similar SRV surveillance test extensions for both Limerick Units 1 and 2 and Peach Bottom Units 2 and 3, as discussed in the NRC's safety evaluations for these plants dated August 20, 1992, and August 19, 1992, respectively.

The licensee is also participating in the Boiling Water Reactors Owners' Group (BWROG) SRV setpoint drift program. Recommendations from this program are evaluated in reference to the FitzPatrick plant SRVs.

The licensee stated that the ADS surveillance frequency can be safely extended because past performance indicates, aside from the setpoint drift concerns, the SRVs have been mechanically reliable; and, on-line testing provides assurance of valve operability with leaking or partially open SRVs being detected by the acoustic monitor and associated alarms. The NRC staff agrees and the proposed TS changes is therefore acceptable.

2.2 SRV Position Indicator Functional Test, Item 19, Table 4.2-8.

Table 4.2-8 requires a once per operating cycle functional test of the safety/relief valve position indicators (accelerometers and thermocouples). The performance of this test requires drywell access. Therefore, it cannot be performed during power operation.

Test results from the previous four refueling outages were reviewed to determine system reliability. No failures of the functional test criteria were noted. Out of 88 accelerometer readings, there were only three instances where the accelerometers failed to register. One of the failures resulted from a maintenance activity, not equipment degradation. In none of the cases were both the primary (in service) and backup (out of service) accelerometers simultaneously inoperable. Therefore, operators have had the ability to detect SRV leakage or actuation. In addition, on-line monthly instrument checks, as required by TS Table 4.2-8, demonstrate the operability of the safety relief valve tailpipe acoustic system by measuring noise levels from each SRV.

The licensee stated that this functional test can be safely extended because the monthly surveillance of the SRV accelerometers and thermocouples ensures their operability; and, a review of past performance of the acoustic monitors and thermocouples indicates they have been reliable. The NRC staff agrees and the proposed TS changes is therefore acceptable.

2.3 Bench testing, inspection/disassembly, and manual operation testing of SRVs, Specifications 4.6.E.1, 4.6.E.2, and 4.6.E.4.

Specification 4.6.E.1 requires that 5 out of 11 SRVs be bench checked or replaced with bench checked valves once per operating cycle. It also requires that all valves be tested every two operating cycles. The purpose of this requirement is to verify that SRV setpoints are within a specified tolerance.

Specification 4.6.E.2 requires the disassembly and inspection of at least one SRV once each operating cycle. The purpose of this requirement is to identify early degradation of the valves. Surveillances 4.6.E.1 and 4.6.E.2 must be performed when the reactor is in cold shutdown with the drywell de-inerted.

Specification 4.6.E.4 requires the manual operation of each SRV to observe a greater than or equal to 10 percent closure of the turbine bypass valves. The manual operation of the valves also satisfies inservice testing exercise requirements.

In the specifications above, the monthly testing requirements serve to provide a redundant and early means of detecting SRV degradation. As discussed previously, the licensee has received approval, in Amendment No. 217, for SRV TS changes to increase the maximum permissible setpoint drift to $\pm 3\%$. The supporting evaluations for this amendment indicate that SRV setpoint drift is not expected to be a concern over a 24- to 30-month interval since the historical drift data was typically within the new tolerances of $\pm 3\%$.

It should be noted that the most recent occurrence of setpoint drift, as reported in Licensee Event Report (LER) 95-001, "Reactor Safety Relief Valve Setpoint Drift," dated February 4, 1995, was reported under the provision of 10 CFR 50.73(a)(2)(i)(B) as an operation of the plant in a condition prohibited by the TSs that were in effect during the past cycle (i.e., previous to Amendment No. 217). The remote actuation of the ADS functions would not have been effected by this event. The new specifications allow continuous operation with two SRVs inoperable and a setpoint drift of $\pm 3\%$. An analysis by the licensee has shown that continuous operation of the plant would be acceptable with two SRVs inoperable and nine SRVs actuating at 1195 psig. The analysis further confirmed that the setpoint drift of nine SRVs to the 1195 psig limit would not adversely affect the following:

- HPCI system
- RCIC system
- Primary Containment Integrity system
- Fuel Thermal Limits
- ECCS/LOCA performance

The licensee continues to subject all SRVs, rather than 5 out of 11 as specified in the TSs, to testing, refurbishment, and recertification once each operating cycle. The NRC staff agrees and the proposed TS changes are therefore acceptable.

2.4 Administrative Changes

The Bases change to TS Section 4.6, consistent with GL 91-04, clarifies the bench testing frequency of 24-months and does not impact any SRV safety limits.

The asterisk and footnote for these specifications on TS pages 142a and 143 are deleted as an administrative change since the conditions have expired. This one-time extension of SRV bench checking requirements is no longer valid. No safety limits are impacted by this administrative change.

The NRC staff agrees with the licensee's safety evaluation and the proposed TS changes are therefore acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the New York State official was notified of the proposed issuance of the amendment. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types,

of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (60 FR 24916). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: C. E. Carpenter

Date: October 13, 1995

October 13, 1995

Mr. William J. Cahill, Jr.
Chief Nuclear Officer
Power Authority of the State
of New York
123 Main Street
White Plains, NY 10601

SUBJECT: ISSUANCE OF AMENDMENT FOR JAMES A. FITZPATRICK NUCLEAR POWER PLANT (TAC NO. M92039)

Dear Mr. Cahill:

The Commission has issued the enclosed Amendment No. 229 to Facility Operating License No. DPR-59 for the James A. FitzPatrick Nuclear Power Plant. The amendment consists of changes to the Technical Specifications (TSs) in response to your application transmitted by letter dated April 12, 1995.

The amendment extends the surveillance test intervals for the nuclear steam supply system to support 24-month operating cycles. Surveillance test interval extensions that are justified will be denoted as being performed "every 24 months" or "at least once per 24 months" consistent with the guidance provided in Reference 1. Other surveillances currently performed "once each operating cycle," "at least once during each operating cycle," "each refueling," or similar notation, that are not being extended at this time will be denoted as being performed "at least once per 18 months." The NRC staff has determined that the proposed TS changes follow the guidance of Generic Letter 91-04, and are therefore acceptable.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly Federal Register notice.

Sincerely,

Original signed by:

C. E. Carpenter, Jr., Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-333

Enclosures: 1. Amendment No. 229 to DPR-59
2. Safety Evaluation

cc w/encls: See next page

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