Attachment I to JPN-88-024

PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING REACTOR WATER CLEANUP SYSTEM CONTAINMENT ISOLATION VALVES

(JPTS-88-005)

New York Power Authority

JAMES A. FITZPATRICK NUCLEAR POWER PLANT
Docket No. 50-333
DPR-59

JAFNPP

Table 3.7-1 (Cont'd)

PROCESS PIPELINE PENETRATING PRIMARY CONTAINMENT

(Numbers in parentheses are keyed to numbers on following pages. signal codes are listed on following pages)

Line Isolated	Drywell Penetration	Valve Type (6)	Power to Open (5) (6)	Group	Location Ref. to Drywell	Power to Close (5) (6)	Isolation Signal	Closing Time (7)	Normal Status	Remarks and Exceptions
Standby Liquid Control	X-42	Check	--	A	Outside	Process	Rev. flow	Not applicable	Closed	
Standby Liquid Control	X-42	Check	--	A	Inside	Process	Rev. flow	Not applicable	Closed	
Reactor Water Clean-up from Reactor	X-14	MO Gate	Ac	A	Inside	Ac	A,J,RM,F	20 Sec	Open	
Reactor Water Clean-up from Reactor	X-14	MO Gate	Dc	A	Outside	Dc	A,V,Y,J,RM,F	20 Sec	Open	
Reactor Water Clean-up (Warm-up)	X-14	MO Gate	Dc	A	Outside	Dc	A,V,Y,J,RM,F	10 Sec	Closed	
Reactor Water Clean-up Return	X-9A	MO Gate	Ac	A	Outside	Ac	A,F,J,RM	20 Sec	Open	
RCIC - Turbine Steam Supply	X-10	MO Gate	Ac	A	Inside	Ac	K,RM	15 Sec	Open	) Opens on Sig B,) Line Break Sig K) overrides to close valves
RCIC - Turbine Steam Supply	X-10	MO Gate	Dc	A	Outside	Dc	K,RM	15 Sec	Open	
RCIC - Turbine Exhaust	X-212	Check	Fwd flow	B	Outside	Process	Rev. flow	--	Closed	
RCIC - Minimum Pump Flow	X-210A	MO Globe	Dc	B	Outside	Dc	K,RM	5 Sec	Closed	
RCIC - Pump Discharge	X-9A	MO Gate	Dc	B	Outside	Dc	RM	Not applicable	Closed	
RHR to Radwaste	X-225A	MO Gate	Ac	B	Outside	Ac	A,F,RM	24 Sec	Closed	
RHR to Radwaste	X-225A	MO Gate	Dc	B	Outside	Dc	A,F,RM	24 Sec	Closed	
RCIC - Vacuum Pump Discharge	X-226	Check	Fwd flow	B	Outside	Process	Rev. flow	--	Closed	
RCIC - Pump Suction	X-224	MO Gate	Dc	B	Outside	Dc	RM	Not applicable	Closed	
RCIC - Pump Suction	X-224	MO Gate	Dc	B	Outside	Dc	RM	Not applicable	Closed	

Amendment No. ~~40~~, ~~48~~

Attachment II

NEW YORK POWER AUTHORITY
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
DPR-59

Safety Evaluation for Technical
Specification Changes Regarding Reactor Water Cleanup
System Containment Isolation Valves
(JPTS-88-005)

I. DESCRIPTION OF THE PROPOSED CHANGES

The following changes to Table 3.7-1 are proposed:

[a] On page 200, Table 3.7-1, isolation signal F is added in the "Isolation Signal" column for three table entries:

- "Reactor Water Cleanup from Reactor," penetration X-14, location relative to drywell - Inside, (valve 12MOV-15).
- "Reactor Water Cleanup from Reactor," penetration X-14, location relative to drywell - Outside, (valve 12MOV-18).
- "Reactor Water Cleanup (Warm-up)," penetration X-14, location relative to drywell - Outside, (valve 12MOV-80).

[b] On page 200, Table 3.7-1, the line isolated identified as "Reactor Water Clean-up Return," drywell penetration X-9A, is revised as follows:

- Valve type is changed from "Check" to "MO Gate"
- Power to open is change from "-" to "Ac"
- Power to close is changed from "process" to "Ac"
- Isolation signal is changed from "Rev. Flow" to "A, F, J, RM"
- Closing time is changed from "Not Applicable" to "20 Sec"

The remaining columns for this entry are unchanged.

[c] In Table 3.7-1, page 200, the "Closing Time" for two table entries is changed from "30 Sec" to "20 Sec":

- Reactor Water Clean-up from Reactor, penetration X-14, Inside Containment, (12MOV-15) and
- Reactor Water Clean-up from Reactor, penetration X-14, Outside Containment (12MOV-18).

[d] In Table 3.7-1, page 200, the "Line Isolated" for the table entry associated with motor-operated gate valve 12MOV-80, (penetration X-14, outside containment) is changed from "Reactor Water from Reactor Warm-up" to "Reactor Water Clean-up (Warm-up)."

[e] In Table 3.7-1, page 200, the "Isolation Signal" column associated with one valve is revised to add an isolation signal:

- Isolation signal Y is added to the table entry associated with "Reactor Water Clean-up from Reactor," penetration X-14, outside containment, valve (12MOV-18).

II. PURPOSE OF THE PROPOSED CHANGES

This proposed change revises Table 3.7-1, "Process Pipeline Penetrating Primary Containment" of the James A. FitzPatrick Technical Specifications to reflect two plant modifications associated with the Reactor Water Cleanup (RWCU) System containment isolation valves. Both modifications will be completed during the 1988 refueling outage which is currently scheduled to begin in August 1988.

The Authority completed a comprehensive review of containment isolation dependability in response to NUREG-0737 Item II.E.4.2 - Containment Isolation Dependability. A report summarizing the results of this review was transmitted to the NRC as an attachment to Reference 1. In that report, the Authority committed to install each of the modifications associated with changes [a] and [b] discussed in this safety evaluation.

Changes [c], [d] and [e] update and correct Table 3.7-1 entries associated with RWCU. These corrections are not directly related to the modifications for changes [a] and [b].

Change [a] - Additional Isolation Signal

The first modification involves the addition of containment isolation signal F to three existing RWCU containment isolation valves (12MOV-15, 12MOV-18 and 12MOV-80). Isolation signal F is defined as "High drywell pressure" on page 206 ("Notes for Table 3.7-1, Isolation Signal Codes") of the FitzPatrick Technical Specifications.

Position 1 of NUREG-0737, Item II.E.4.2 (Reference 5) states:

"Containment isolation system designs shall comply with the recommendations of Standard Review Plan Section 6.2.4 (i.e., that there be diversity in the parameters sensed for the initiation of containment isolation."

These three valves currently actuate on PCRVICS (Primary Containment and Reactor Vessel Isolation Control System) signals reactor vessel low water level and, RWCU line break - high space temperature (isolation signal codes A and J, respectively). The two signals alone are not diverse because high RWCU space temperature will not detect a RCS (Reactor Coolant System) break inside the drywell; it can only sense a break within the RWCU equipment area.

The addition of the high drywell pressure signal will increase the diversity in the physical parameters sensed for the initiation of containment isolation as recommended in Section 6.2.4 of the Standard Review Plan (Reference 4). Two PCRVICS signals (A and F) will detect a break inside the drywell. PCRVICS signals A and J will sense an RWCU system break.

Change [b] - Additional Containment Isolation Valve

The second modification involves the addition of an isolation valve (12MOV-069) outside containment in the RWCU system. The addition of this valve will bring the RWCU system into compliance with General Design Criteria 55 of Appendix A to 10 CFR 50, "Reactor coolant pressure boundary penetrating primary containment."

This motor-operated valve will be installed in the RWCU return line to the feedwater system. The valve will be located in the Reactor Building between the RCIC (Reactor Coolant Isolation Cooling) discharge thermal sleeve and an existing manual valve, 12RWC-63. (See FSAR Figure 4.9-1, Sheet 1.)

The RWCU return line is currently isolated by a single check valve (12RWC-62, penetration X-9A). The new motor-operated valve will also function to isolate this line, and comply with GDC 55.

Valve position indication will be provided in the main control room and on the Emergency Plant and Information Computer (EPIC) system. A remote-manual switch will be installed in the main control room. The valve will fail in the "as-is" position upon loss of actuation power. Electric power will be supplied from a safety-related motor control center. The valve and its associated control circuitry have been classified as nuclear safety related and are qualified to Seismic Class I, QA category I, electrical class IE, and appropriate environmental conditions.

Three isolation signals will be supplied to this new containment isolation valve: low reactor water level; RWCU line break - high space temperature; and, high drywell pressure (containment isolation signals A, J and F respectively). These isolation signals are existing plant signals and no new instrumentation is required. One additional isolation signal (RM) is also provided. This indicates the capability for remote manual actuation of the valve. These three signals will conform

to the NUREG-0737 diversity requirements described in change [a] above.

Changes [c], [d] and [e]

These three changes are not directly related to the modification associated with changes [a] or [b]. They are included in this proposal because the changes are associated with RWCU containment isolation valves.

Change [c] reduces the maximum allowable closure time for the containment isolation valves associated with the RWCU supply lines (i.e. from the reactor) from 30 seconds to 20 seconds. This change is necessary to reflect assumptions in the FitzPatrick environmental qualification analyses.

Change [d] clarifies the name of this line. The new name more accurately reflects the purpose of this line. The existing name could have been misinterpreted to mean one of the primary RWCU suction lines. This small line was designed to warm the RWCU system using reactor water.

Change [e] adds an isolation signal to one RWCU valve table entry to accurately reflect FitzPatrick's original design. Signal Y (Standby Liquid Control System actuated) is added to the table entry for valve 12MOV-18. Signal Y is not a PCRVICS signal; it is included in the FitzPatrick Technical Specifications "for information only." (See footnote on page 206.)

III. IMPACT OF THE PROPOSED CHANGES

Primary Containment and Reactor Vessel Isolation Control System

The Primary Containment and Reactor Vessel Isolation Control System is described in Section 7.3 of the updated FSAR (Reference 6). Section 7.3.2 of the FSAR defines the safety design bases -

> "To prevent the release of radioactive materials to the environs the PCRVICS initiates timely isolation of penetrations through the primary containment structure whenever the values of monitored variables exceed preselected operational limits."

Three of the six containment isolation signals involved in this change are PCRVICS signals: A, J and F. The remaining three (V, Y and RM) signals protect equipment or facilitate remote manual operation.

Isolation signal A (reactor vessel low water level) is indicative of either a loss of feedwater or a loss of coolant. Isolation signal F (high drywell pressure) could indicate a

breach of the RCS inside the drywell. Isolation signal J (RWCU system equipment room high temperature) detects a RWCU system line break.

When both of these modifications are installed, all RWCU containment isolation valves will actuate on the same PCRVICS signals : A, F and J. These signals are diverse and redundant and, necessary and sufficient to assure dependable isolation of the RWCU system.

RWCU System Classification

Reference 1 defined the criteria used to classify a system as essential or nonessential. Essential systems are:

> "...those systems which are required for, or could be of direct aid in mitigating the consequences of a postulated accident. Systems designated in the FSAR (Final Safety Analysis Report) as Engineered Safeguard, Nuclear Safety or Special Safety Systems are essential since they have post-accident functions and are required for accident mitigation."

RWCU lines are nonessential because operation of the RWCU system is unnecessary in the event of an accident.

Change [a]

As a result of the installation of this modification, the FitzPatrick plant will conform to the NRC staff's guidance (References 4 and 5). This modification provides additional assurance that the isolation valve will perform its design function. A motor-operated valve provides an indication of valve position which is not usually available with simple check valves.

The probability of a spurious closure of these valves is increased by the addition of another isolation signal. However, RWCU isolation (unintentional or otherwise) is not an accident or transient initiating event.

Change [b]

The addition of a motor-operated containment isolation valve on the RWCU return line in place of a check valve will increase the probability that the system will be isolated from the RCS (Reactor Coolant System) in the event of an accident. A motor-operated valve also provides valve position indication not available with a check valve.

The potential effects of spurious system isolation have been evaluated. No negative effects are postulated since RWCU

isolation (unintentional or otherwise) is not an accident or transient initiating event.

The valve has been considered in a seismic analysis of the associated piping. This analysis confirms that the seismic qualification of this piping is unchanged by the addition of this new valve.

Changes [c], [d] and [e]

Change [c] reflects changes made to the plant to reduce the environmental effects of a RWCU line break. Faster valve closing time reduces the quantity of reactor coolant lost through the break. Consequently, the maximum temperature, humidity and radiation levels around the break are also reduced. Equipment that would not be qualified to withstand the environmental conditions after a RWCU line break (with a 30 second valve closure time) is qualified if the valve closes in 20 seconds or less. A faster closing valve will also help to increase the minimum reactor water level during this accident.

Change [d] is purely an administrative change. It will have no affect on plant operations.

Change [e] adds information that was inadvertently omitted when Table 3.7-1 was originally prepared. This signal is being added to make Table 3.7-1 complete and consistent. The Authority's record's indicate that isolation signal Y was installed on this RWCU valve as part of the original FitzPatrick design.

Non-PCRVICS signals are included in this table only for information. Signal Y is not a PCRVICS signal. The primary purpose of this signal is to protect the RWCU system from damage and assure SLC system effectiveness. Signal Y (SLC system actuated) isolates the RWCU in the event boron had to be injected to shutdown the reactor. This helps assures the effectiveness of boron should injection be necessary.

The PCRVICS isolation signals supplied to these valves (A - low reactor level, J - RWCU line break, and F - high drywell pressure) provide the safety functions of these containment isolation valves.

IV. EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATION

Operation of the FitzPatrick Plant in accordance with the proposed Amendment would not involve a significant hazards consideration as stated in 10 CFR 50.92 since it would not:

1. involve a significant increase in the probability or consequences of an accident previously evaluated. No accidents as analyzed in the FSAR are adversely affected by these changes. RWCU isolation is not an accident or transient initiating event. In the event of an accident, RWCU serves no mitigating functions. As a nonessential system, it is isolated from the RCS. These modifications will improve the system's capability to reliably isolate in the event of an accident, thereby reducing the probability of severe accident.

2. create the possibility of a new or different kind of accident from any accident previously evaluated. The intentional or unintentional isolation of the Reactor Water Cleanup system can not initiate an accident or transient. The new RWCU isolation valve duplicates the function of an existing valve. Neither the addition of this new isolation valve, or the addition of a new isolation signal will create a new or different accident.

3. involve a significant reduction in a margin of safety. These modifications increase the margin of safety by improving containment isolation dependability. The new isolation signal increases the redundancy and diversity of physical parameters sensed to isolate containment in the event of an accident. The new valve increases the likelihood that the line will be isolated in the event of an accident. Spurious isolation of the Reactor Water Cleanup System is inconsequential since the system has been classified as nonessential and is not required to mitigate the effects of an accident.

In the April 6, 1983 FEDERAL REGISTER (48FR14870), the NRC published examples of license Amendments that are not likely to involve significant hazards considerations. Example number (vii) of that list is applicable to these proposed changes and states:

> "A change to make a license conform to changes in regulations, where the license results in very minor changes to facility operations clearly in keeping with the regulations."

Both of the plant modifications associated with these technical specification changes will improve the level and extent of compliance with the NRC's requirements and guidance.

V. IMPLEMENTATION OF THE PROPOSED CHANGE

Implementation of the proposed changes will not impact the ALARA or Fire Protection Programs at FitzPatrick, nor will the changes impact the environment.

VI. CONCLUSION

The changes, as proposed, does not constitute an unreviewed safety question as defined in 10 CFR 50.59, that is it:

a. will not change the probability nor the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report;

b. will not increase the possibility of an accident or malfunction of a different type than any previously evaluated in the Safety Analysis Report;

c. will not reduce the margin of safety as defined in the basis for any technical specification;

d. does not constitute an unreviewed safety question; and

e. involves no significant hazards consideration, as defined in 10 CFR 50.92.

VII. REFERENCES AND NOTES

1. NYPA letter, J. P. Bayne to T. A. Ippolitto, dated January 7, 1982 (JPN-82-005) regarding containment isolation dependability, NUREG-0737, Item II.E.4.2. Includes containment isolation study - response to NRC NUREG-0737 Item II.E.4.2.

2. NYPA letter, J. C. Brons to the NRC, dated January 3, 1987 (JPN-87-004) regarding revised installation schedule for new Reactor Water Cleanup system containment isolation valve.

3. Appendix A to 10 CFR 50, General Design Criteria 55, "Reactor coolant pressure boundary penetrating primary containment."

4. NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants - LWR Edition, Section 6.2.4, "Containment Isolation System."

5. NUREG-0737, "Clarification of TMI Action Plan Requirements," published November 1980. Item II.E.4.2, "Containment Isolation Dependability."

6. James A. FitzPatrick Nuclear Power Plant Updated Final Safety Analysis Report (FSAR) Sections: 4.9, "Reactor Coolant System Design Criteria"; 5.2, "Containment Design Criteria"; 8, "Electrical Design Criteria"). Tables: 5.2-2, "Primary Containment System and Associated Isolation Valves"; 7.3-1, "Process Piping Penetrating Primary Containment." Figure 4.9-1, "Reactor Water Cleanup System - Piping and Instrumentation Diagram, Sheet 1 of 2."

7. James A. FitzPatrick Nuclear Power Plant Safety Evaluation Report (SER).

8. NYPA, James A. FitzPatrick Nuclear Power Plant, Nuclear Safety Evaluation JAF-SE-87-133, "RWCU Containment Isolation Provision Upgrade."

9. NYPA, James A. FitzPatrick Nuclear Power Plant, Modification Package F1-87-068.

10. NYPA, James A. FitzPatrick Nuclear Power Plant, Modification Package F1-85-092.