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James Knubel
Senior Vice President and
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February 3, 2000
JPN-00-002

U. S. Nuclear Regulatory Commission
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SUBJECT: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
**Request for Technical Specification Change Regarding Automatic
Transient Without Scram Recirculation Pump Trip/Alternate Rod
Insertion Setpoint Change (JPTS-99-008)**

Dear Sir:


This application for an amendment to the James A. FitzPatrick TS proposes a change to Table 3.2-7. Specifically, the proposed TS change revises the reactor water level setpoint for the Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) function. The associated Bases section is also reworded to reflect the revised setpoint. The proposed TS change is expected to reduce the probability of unnecessary plant cooldown following events that result in an automatic reactor scram therefore reducing the number of thermal transients the Reactor Pressure Vessel is subjected to and the resulting challenges to plant operators. This proposed amendment is being requested to support modification installation work scheduled during the October 2000 refuel outage.

The signed original of the Application for Amendment to the Operating License is enclosed for filing. Attachment I contains the proposed new TS pages and Attachment II is the Safety Evaluation for the proposed changes. A markup of the affected TS pages is included as Attachment III.

A copy of this application and the associated attachments are being provided to the designated New York State official in accordance with 10 CFR 50.91.

There are no new commitments made by the Authority in this letter. If you have any questions, please contact Ms. C. D. Faison.

Very truly yours,


J. Knubel
Senior Vice President and
Chief Nuclear Officer

A001

att: as stated

cc: Regional Administrator
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BEFORE THE UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of)
NEW YORK POWER AUTHORITY) Docket No. 50-333
James A. FitzPatrick Nuclear Power Plant)


APPLICATION FOR AMENDMENT TO OPERATING LICENSE

The New York Power Authority requests an amendment to the Technical Specifications (TS) contained in Appendix A and B to Facility Operating License DPR-59 for the James A. FitzPatrick Nuclear Power Plant. This application is filed in accordance with Section 10 CFR 50.90 of the Nuclear Regulatory Commission's regulations.

This application for an amendment to the James A. FitzPatrick TS proposes a change to Table 3.2-7. Specifically, the proposed TS change revises the reactor water level setpoint for the Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) function. The associated Bases section is also reworded to reflect the revised setpoint. The proposed TS change is expected to reduce the probability of unnecessary plant cooldown following events that result in an automatic reactor scram therefore reducing the number of thermal transients the Reactor Pressure Vessel is subjected to and the resulting challenges to plant operators. This proposed amendment is being requested to support modification installation work scheduled during the October 2000 refuel outage.

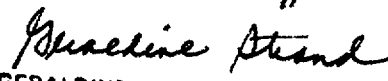
The signed original of the Application for Amendment to the Operating License is enclosed for filing. Attachment I contains the proposed new TS pages and Attachment II is the Safety Evaluation for the proposed changes. A markup of the affected TS pages is included as Attachment III.

New York Power Authority


J. Knubel
Senior Vice President and
Chief Nuclear Officer

STATE OF NEW YORK
COUNTY OF WESTCHESTER

Subscribed and sworn to before me
this 3rd day of February, 2000.


GERALDINE STRAND
Notary Public, State of New York
No. 4991272
Qualified in Westchester County
Commission Expires Jan. 27, 2002

Attachment I to JPN-00-002

REVISED TECHNICAL SPECIFICATION PAGES

ATWS RPT/ARI SETPOINT CHANGE

(JPTS-99-008)

New York Power Authority
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
Docket No. 50-333
DPR-59

3.2 BASES (cont'd)

initiates the HPCI and RCIC systems. The reactor water level instrumentation is set to trip the recirculation pumps when the reactor water level is 105.4 in. above the top of active fuel. The low-low-low reactor water level instrumentation is set to trip when the water level is 18 in. above the top of active fuel. This trip activates the remainder of the ECCS subsystems, closes the main steam isolation valves, main steam line drain valves and reactor water sample line isolation valves, and starts the emergency diesel generators. These trip level settings were chosen to be high enough to prevent spurious actuation but low enough to initiate ECCS operation and primary system isolation so that post-accident cooling can be accomplished and the guidelines of 10 CFR 100 will not be exceeded. For large breaks up to the complete circumferential break of a 24 in. recirculation line and with the trip setting given above, ECCS initiation and primary system isolation are initiated in time to meet the above criteria. Reference paragraph 6.5.3.1 of the updated FSAR.

The high drywell pressure instrumentation is a diverse signal for malfunctions to the water level instrumentation and in addition to initiating ECCS, it causes isolation of Groups B and C isolation valves. For the breaks discussed above, this instrumentation will generally initiate ECCS operation before the low-low-low water level instrumentation; thus the results given above are applicable here also. Details of the isolation valve closure group are given in Section 7.3 of the updated FSAR. The water level instrumentation initiates protection for the full spectrum of loss-of-coolant accidents.

Venturis are provided in the main steam lines as a means of measuring steam flow and also limiting the loss of mass inventory from the vessel during a steam line break accident. The primary function of the instrumentation is to detect a break in the main steam line. For the worst case accident, main steam line break outside the drywell, a trip setting of 140 percent of rated steam flow in conjunction with the flow limiters and main steam line valve closure, limits the mass inventory loss such that fuel is not uncovered, fuel temperature peak at approximately 1,000°F and release of radioactivity to the environs is below 10 CFR 100 guidelines. Reference Section 14.6.5 of the updated FSAR.

The main steam line high temperature isolation function utilizes 16 sensors (instrument channels), with 4 sensors located at each of 4 different areas in the vicinity of the main steam lines. The 4 instrument channels associated with each of the 4 areas are arranged in a 1-out-of-2-taken-twice logic. Thus a main steam line break in any of the 4 areas will effect closure of all 8 main steam line isolation valves.

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TABLE 3.2-7

ATWS RECIRCULATION PUMP TRIP INSTRUMENTATION REQUIREMENTS

Minimum Number of Operable Instrument Channels Per Trip System (Notes 1 & 2)	Trip Function	Trip Level Setting	Applicable Modes
2	Reactor Pressure - High	≤ 1120 psig, or ≤ 1155 psig (Note 3)	Run
2	Reactor Water Level - Low Low	≥ 105.4 in. above TAF	Run

Attachment II to JPN-00-002

SAFETY EVALUATION
ATWS RPT/ARI SETPOINT CHANGE
(JPTS-99-008)

New York Power Authority
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
Docket No. 50-333
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**SAFETY EVALUATION
ATWS RPT / ARI SETPOINT CHANGE**

I. DESCRIPTION

This proposed change to the James A. FitzPatrick Technical Specifications (TS) revises the reactor water level setpoint for the Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) function and Alternate Rod Injection (ARI) function. The associated Bases section is also reworded to reflect the revised setpoint. The proposed TS change is expected to reduce the probability of unnecessary plant cooldown following events that result in an automatic reactor scram therefore reducing the number of thermal transients the Reactor Pressure Vessel is subjected to and the resulting challenges to plant operators. The specific changes are as follows:

1. TS Bases, Section 3.2, Page 55, 56

Replace:

"The low-low reactor water level instrumentation is set to trip when the reactor water level is 126.5 in. above the top of active fuel. This trip initiates the HPCI and RCIC systems and trips the recirculation pumps."

With:

"The low-low reactor water level instrumentation is set to trip when the reactor water level is 126.5 in. above the top of active fuel. This trip initiates the HPCI and RCIC systems. The reactor water level instrumentation is set to trip the recirculation pumps when the reactor water level is 105.4 in. above the top of active fuel."

2. TS LCO, Table 3.2-7, Page 76a

ATWS Recirculation Pump Trip Instrumentation Requirements

Replace:

Reactor Water Level - Low Low \geq 126.5 in.
above TAF

With:

Reactor Water Level - Low Low \geq 105.4 in.
above TAF

**SAFETY EVALUATION
ATWS RPT / ARI SETPOINT CHANGE**

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II. PURPOSE OF THE PROPOSED CHANGE

The Authority desires to change the reactor water level setpoint associated with the initiation of the ATWS-RPT function to reduce the challenges to plant equipment and personnel associated with unnecessary plant cooldowns following reactor scrams. The proposed TS change is expected to reduce the probability of unnecessary plant cooldown following events that result in an automatic reactor scram therefore reducing the number of thermal transients the Reactor Pressure Vessel is subjected to and the resulting challenges to plant operators.

III. SAFETY IMPLICATIONS OF THE PROPOSED CHANGE

The design of the James A. FitzPatrick Nuclear Power Plant (JAFNPP) includes diverse instrumentation and equipment to detect and mitigate the consequences of an ATWS event. Specifically, pressure in excess of the normal Reactor Protection System (RPS) pressure setpoint, or reactor water level below that of the normal RPS level setpoint will initiate the RPT function.

The low-low reactor water level instrumentation mitigates the consequences of an ATWS event by tripping the Reactor Water Recirculation (RWR) pumps and therefore decreases forced circulation through the reactor core. The reduction in reactor core flow reduces core power due to the net reduction in moderator density.

The low-low reactor water level instrumentation also initiates the Alternate Rod Insertion (ARI) system. The ARI system provides an alternate means of inserting control rods by depressurizing the scram pilot air header in the event of a failure in the Reactor Protection System or Control Rod Drive System.

During abnormal operational transients such as a turbine trips or load rejections, the recirculation pumps will remain in service following the reactor scram, although they will runback to their minimum speed. A reactor water level transient following the reactor scram is common, due to the rapid reduction in power and core voiding with the resultant shrink of the reactor coolant. This momentary level reduction is quickly restored by the response of the feedwater system. However, if the level reduction transient is sufficient to reach the low-low reactor water level setpoint, the ATWS-RPT instrumentation will initiate a trip of the recirculation pumps.

**SAFETY EVALUATION
ATWS RPT / ARI SETPOINT CHANGE**

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Post scram recovery requiring restart of tripped recirculation pumps is often complicated by the rapid cooldown of the water in the idle recirculation loops. JAFNPP TS 4.6.6 prohibits idle recirculation loop startup if the temperature difference between the idle loops and the reactor coolant system exceeds 50°F, or if the temperature difference between the reactor coolant system and reactor vessel bottom head drain line exceeds 145°F. As there is no convenient means to heat an idle recirculation loop, a cooldown of the entire Nuclear Steam Supply System is required to < 140°F.

In addition to the potential for plant challenges due to operating mode changes, the cooldown introduces an unnecessary thermal cycle on the entire plant. JAFNPP TS Table 6.10-1 specifies limits on the allowable number of transient conditions for the Reactor Pressure Vessel.

As long as the reactor water level recovers quickly, the trip of the recirculation pumps by the ATWS-RPT instrumentation is not required.

FitzPatrick specific analyses were performed by General Electric Company with NRC approved methods for postulated ATWS events (Reference 1). The specific events evaluated include the Main Steamline Isolation Valve closure event, Inadvertent Opening of a Relief Valve, and the Loss of Feedwater. For these events, the following acceptance criteria were established:

Peak Reactor Pressure (maximum 1 SRV out of service)	< 1500 psig
Peak Suppression Pool Temperature	< 190°F
Fuel Remains Cooled	Coolant Level > TAF

The analyses demonstrate that all criteria were adequately met with the proposed TS change implemented, further ensuring no increase in the consequences of the postulated events.

**SAFETY EVALUATION
ATWS RPT / ARI SETPOINT CHANGE**

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 defined in 10 CFR 50.92, since it would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed TS change deals only with an instrumentation setpoint which initiates the ATWS-RPT/ARI function. The system is intended to provide a mitigation function during a postulated ATWS event and does not provide any other plant control function. However, if the ATWS-RPT/ARI system were to fail, the result would be a trip of the recirculation pumps, or reactor scram, both of which are currently evaluated. The design of the system includes a one-out-of-two-twice logic, which ensures that a single failure in the system cannot cause or inhibit the ATWS-RPT/ARI function. Therefore, the probability of an inadvertent recirculation pump trip or inadvertent reactor scram is not changed from the event as currently described in the JAFNPP UFSAR.

FitzPatrick specific analyses were performed by General Electric Company with NRC approved methods for postulated ATWS events (Reference 1). The specific events evaluated include the Main Steamline Isolation Valve closure event, Inadvertent Opening of a Relief Valve, and the Loss of Feedwater. For these events, the following acceptance criteria were established:

Peak Reactor Pressure (maximum 1 SRV out of service)	< 1500 psig
Peak Suppression Pool Temperature	< 190°F
Fuel Remains Cooled	Coolant Level > TAF

The analyses demonstrate that all criteria were adequately met with the proposed TS change implemented, further ensuring no increase in the consequences of the postulated events.

The basis for changing the ARI initiation setpoint on reactor level to be consistent with that proposed for the ATWS RPT is documented in Reference 2. The ARI initiation point is not specified in the Technical Specification.

**SAFETY EVALUATION
ATWS RPT / ARI SETPOINT CHANGE**

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2. Create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed TS change deals only with a reactor water level instrumentation setpoint, which initiates the ATWS-RPT/ARI function. The existing level transmitters and wiring will be used, and new analog trip units will be incorporated which are identical to existing low-low reactor water level trip units currently shared with HPCI and RCIC initiation. These new analog trip units are of a different design (General Electric) than those used in the Reactor Protection System (Rosemount) and therefore, the diversity requirement of 10 CFR 50.62 (c) (3) remain satisfied. This allows the HPCI and RCIC setpoints to remain the same while only lowering the ATWS-RPT/ARI setpoint. The sensing, logic and actuation of the ATWS-RPT/ARI design is not modified. This includes the use of the existing one-out-of-two-twice logic, which ensures that a single failure in the circuit will not cause or inhibit the ATWS-RPT/ARI function. There are no new signals required as input, and the trip function is accomplished with the existing RPT breakers and existing scram pilot air header solenoid valves. The system does not provide input to any other plant function. The plant will not operate in any new mode nor are there any new operational requirements as a result of the proposed change. Therefore, it is not considered possible for the ATWS-RPT/ARI system to fail in any new or different way from those events currently evaluated in the JAFNPP UFSAR.

3. Involve a significant reduction in a margin of safety.

The ATWS-RPT/ARI function protects the fuel, reactor and containment from failure during a postulated ATWS event. The fuel cladding barrier is protected via adequate cooling, provided by ensuring that the core remains covered throughout the entire event. The reactor coolant system boundary is protected by ensuring compliance with the ASME emergency class pressure limit of 120% of design pressure. The containment is protected by ensuring the suppression pool temperature limits are met.

FitzPatrick specific ATWS analyses were performed by postulating events that challenge each of these limits (Reference 1). With the proposed TS change considered, each of these limits were met without a need for any reduction in the margin of safety established in the JAFNPP UFSAR for the primary fission product barriers.

**SAFETY EVALUATION
ATWS RPT / ARI SETPOINT CHANGE**

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V. IMPLEMENTATION OF THE PROPOSED CHANGE

This amendment request meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) as follows:

- (i) The amendment involves no significant hazards consideration.

As described in section IV of this evaluation, the proposed change involves no significant hazards consideration.

- (ii) There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed TS change involves a reactor water level instrumentation setpoint which is used to initiate a mitigation function during an ATWS event. The sensors, logic, and actuation devices are not changed. New analog trip units are added which are identical to the trip units shared by the HPCI and RCIC initiation instrumentation. The ATWS-RPT/ARI function does not involve the installation of any new equipment, or the modification of any equipment that may affect the types or amounts of effluents that may be released offsite. Therefore, there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

- (iii) There is no significant increase in individual or cumulative occupational radiation exposure.

The proposed TS changes do not involve physical plant changes which could increase the consequence of any postulated event, nor do they introduce any new mode of plant operation which could change radiation levels within the plant during normal operation or following any abnormal event. There are no new operational requirements as a result of implementing the proposed TS change which would cause individuals to be exposed to any new plant radiation areas or to existing areas for any additional time. Therefore, there is no significant increase in individual or cumulative occupational radiation exposure as a result of implementing the proposed TS changes.

Based on the above, the Authority concludes that the proposed changes meet the criteria specified in 10 CFR 51.22 for a categorical exclusion from the requirements of 10 CFR 50.21 relative to requiring a specific environmental assessment by the Commission.

**SAFETY EVALUATION
ATWS RPT / ARI SETPOINT CHANGE**

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VI. CONCLUSION

The proposed changes will not alter assumptions relative to the mitigation of an accident or transient event, and will not adversely affect normal plant operation and testing. The proposed changes are consistent with the current safety analysis assumptions. As such, no question of safety exists.

The Plant Operating Review Committee (PORC) and Safety Review Committee (SRC) have reviewed this proposed change to the TS and have concluded that it does not involve an unreviewed safety question or a significant hazards consideration and will not endanger the health and safety of the public.

VII. REFERENCES

1. "James A. FitzPatrick Nuclear Power Plant, Anticipated Transient Without Scram (ATWS) Analysis, for Recirculation Pump Trip (RPT) Setpoint Changes", General Electric Company, NEDC-32616P, July 18, 1996. **Previously Docketed with NRC.**
2. JAF-ICD-NBI-03998, Rev. 0 - ATWS Alternate Rod Insertion Setpoint

Attachment III to JPN-00-002

MARKUP OF TECHNICAL SPECIFICATION PAGE CHANGES

ATWS RPT/ARI SETPOINT CHANGE

(JPTS-99-008)

New York Power Authority
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
Docket No. 50-333
DPR-59

The reactor water level instrumentation is set to trip the recirculation pumps when the reactor water level is 105.4 in. above the top of active fuel.

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3.2 BASES (cont'd)

initiates the HPCI and RCIC systems, and trips the recirculation pumps. The low-low-low reactor water level instrumentation is set to trip when the water level is 18 in. above the top of active fuel. This trip activates the remainder of the ECCS subsystems, closes the main steam isolation valves, main steam line drain valves and reactor water sample line isolation valves, and starts the emergency diesel generators. These trip level settings were chosen to be high enough to prevent spurious actuation but low enough to initiate ECCS operation and primary system isolation so that post-accident cooling can be accomplished and the guidelines of 10 CFR 100 will not be exceeded. For large breaks up to the complete circumferential break of a 24 in. recirculation line and with the trip setting given above, ECCS initiation and primary system isolation are initiated in time to meet the above criteria. Reference paragraph 6.5.3.1 of the updated FSAR.

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TABLE 3.2-7

ATWS RECIRCULATION PUMP TRIP INSTRUMENTATION REQUIREMENTS

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1
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