### ATTACHMENT I

# PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING SECOND LEVEL UNDERVOLTAGE RELAY SETPOINT

# (JPTS-89-034)

# **New York Power Authority**

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

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#### 3.2 BASES (cont'd)

The recirculation pump trip has been added at the service stion of ACRS as a means of limiting the consequences of the unlikely occurrence of a failure to scram during an thickpaired transient. The response of the plant to this postulated event falls within the envelope of study events given in General Electric Company Topical Report, NEDO-10349, dated March, 1971.

Accident monitoring instrumentation provides additional information which is helpful to the operator in assessing plant conditions following an accident by (1) providing information needed to permit the operators to take preplanned manual actions to accomplish safe plant shutdown; (2) determining whether systems are performing their intended functions; (3) providing information to the operators that will enable them to determine the potential for a breach of the barrier to radioactivity release and if a barrier has been breached; (4) furnishing data for deciding on the need to take unplanned action if an automatic or manually initiated safety system is not functioning properly or the plant is not responding properly to the safety systems in operation; and (5) allowing for early indication of the need to initiate action necessary to protect the public and for an estimate of the magnitude of any problem. This instrumentation has been upgraded to conform with the acceptance criteria of NUREG-0737 and NRC Generic Letter 83-36.

The Emergency Bus Undervoltage Trip System transfers the 4 ky emergency electrical buses to the Emergency Diesel Generators in the event an undervoltage condition is detected. The system has two levels of protection: (1) degraded voltage protection, and (2) loss-of-voltage protection. Degraded voltage protection prevents a sustained low voltage condition from damaging safety-related equipment. The degraded voltage protection has two time delays. A short time delay coincident with a loss-of-coolant accident (LOCA) and a longer time delay to allow normal plant evolutions without unnecessarily starting the Emergency Diesel Generators. The loss-of-voltage protection prevents a more severe voltage drop from causing a long term interruption of power. Time delays are included in the system to prevent inadvertent transfers due to spurious voltage decreases. Therefore, both the duration and severity of the voltage drop are sensed by the Emergency Bus Undervoltage Trip System.

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Amendment No. 196, 120, 130

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# TABLE 3.2-2 (Cont'd)

# INSTRUMENTATION THAT INITIATES CR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

ltem No.	Minimum No. of Operable Instrument Channels Per Trip System (1)	Trip Function	Trip Level Setting	Total Number of Instrument Channels Provided by Design for Both Trip Systems	Remarks
37	(1 per 4kV bus)	4kV Emergency Bus Undervoltage Relay (Degraded Voltage)	110.6 ± 1.2 secondary volts	2 Inst. Channels	1. Initiates both 4kV Emergency Bus Undervoltage Timers. (Degraded Voltage LOCA and non-LOCA)
					2. Notes 4 and 6.
38a	(1 per 4kV bus)	4kV Emergency Bus Undervoltage Timer (Degraded Voltage LOCA)	9.0 ± 1.0 sec.	2 Inst. Channels	1. Note 5.
38b	(1 per 4kV bus)	4kV Emergency Bus Undervoltage Timer (Degraded Voltage non-LO	45 ± 5.0 sec. CA)	2 Inst. Channels	1. Note 5.
39	(1 per 4kV bus)	4kV Emergency Bus Undervoltage Relay (Loss of Voltage)	85 ± 4.25 secondary volts	2 Inst. Channels	<ol> <li>Initiates 4kV Emergency Bus Undervoltage Loss of Voltage Timer.</li> <li>Notes 4 and 7.</li> </ol>
40	(1 per 4kV bus)	4kV Emergency Bus Undervoltage Timer (Loss of Voltage)	2.50 ± 0.05 sec.	2 Inst. Channels	1. Note 5.
41	2	Reactor Low Pressure	285 to 335 psig	4 Inst. Channels	Permissive for closing recirculation pump discharge valve.

Amendment No. 14, 48, 196, 120

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#### TABLE 3.2-2 (Cont'd)

# INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

#### NOTES FOR TABLE 3.2-2

- Whenever any ECCS subsystem is required by specification 3.5 to be operable, there shall be two operable trip systems. From and after the time it is found that the first column cannot be met for one of the trip systems, that trip system shall be placed in the tripped condition or the reactor shall be placed in the cold condition within 24 hours.
- 2. "Deleted"
- Refer to Technical Specification 3.5.A for limiting conditions for operation, failure of one (1) instrument channel disables one (1) pump.
- 4. Tripping of 2 out of 2 sensors is required for an undervoltage trip. With one operable sensor, operation may continue with the inoperable sensor in the tripped condition.
- 5. The 4kV Emergency Bus Undervoltage Timers (degraded voltage LOCA, degraded voltage non-LOCA, and loss-of-voltage) initiate the following: starts the Emergency Diesel-Generators; trips the normal/reserve tie breakers and trips all 4kV motor breakers (in conjunction with 75 percent Emergency Diesel-Generator voltages); initiates diesel-generator breaker close permissive (in conjunction with 90 percent Emergency Diesel-Generator voltages) and; initiates sequential starting of vital loads in conjunction with low-low-low reactor water level or high drywell pressure.
- 6. A secondary voltage of 110.6 volts corresponds to approximately 93% of 4160 volts on the bus.
- 7. A secondary voltage of 85 volts corresponds to approximately 71.5% of 4160 volts on the bus.

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# **TABLE 4.2-2**

# MINIMUM TEST AND CALIBRATION FREQUENCY FOR CORE AND CONTAINMENT COOLING SYSTEMS

Instrument Channel (8)		nstrument Functional Test	Calibration Frequency	Instrument Check(4)
1)	Reactor Water Level	(1)(5)	(15)	Once/day
2a) 2b)	Drywell Pressure (non-ATTS) Drywell Pressure (ATTS)	(1) (1)(5)	Once/3 months (15)	None Once/day
3a) 3b)	Reactor Pressure (non-ATTS) Reactor Pressure (ATTS)	(1) (1)(5)	Once/3 months (15)	None Once/day
4)	Auto Sequencing Timers	None	Once/operating cycle	None
5)	ADS - LPCI or CS Pump Disch.	(1)	Once/3 months	None
6)	Trip System Bus Power Monitors	(1)	None	None
8)	Core Spray Sparger d/p	(1)	Once/3 months	Once/day
9)	Steam Line High Flow (HPCI & RCIC)	(1)(5)	(15)	Once/day
10)	Steam Line/Area High Temp. (HPCI & RC	CIC) (1)(5)	(15)	Once/day
12)	HPCI & RCIC Steam Line Low Pressure	(1)(5)	(15)	Once/day
13)	HPCI & RCIC Suction Source Levels	(1)	Once/3 months	None
14)	4kV Emergency Bus Under-Voltage (Loss-of-Voltage, Degraded Voltage LOCA and non-LOCA) Relays and Timers	Once/operating cycle	Once/operating cycle	None
15)	HPCI & RCIC Exhaust Diaphragm Pressure High	(1)	Once/3 months	None
17)	LPCI/Cross Connect Valve Position	Once/operating cycle	None	None

NOTE: See listing of notes following Table 4.2-6 for the notes referred to herein.

Amendment No. 1/4, 4/8, 5/8, 8/9, 1/6, 1/20

### ATTACHMENT II

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# SAFETY EVALUATION FOR PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING SECOND LEVEL UNDERVOLTAGE RELAY SETPOINT

(JPTS-89-034)

New York Power Authority

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

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### 1. DESCRIPTION OF THE PROPOSED CHANGES

The proposed amendment to the James A. FitzPatrick Technical Specifications incorporates changes to Bases 3.2 and Tables 3.2-2 and 4.2-2 on pages 60, 70c, 71 and 78. The changes are as follows:

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- A. Setpoint Changes
  - Table 3.2-2 on page 70c Item 37: replace the present trip setting of "108 ± 1.5" with "110.6 ± 1.2."
  - 2. Table 3.2-2 on page 71 Note 6: replace

"A secondary voltage of 108 volts corresponds to approximately 90.8 % of 4160 volts on the bus."

with

"A secondary voltage of 110.6 volts corresponds to approximately 93 % of 4160 volts on the bus."

B. Deletion of Cycle 9 Operating Restrictions

Delete the "\*" and the associated footnote, "\*Modification approved for Cycle 9 only," from the following pages.

- 1. Bases 3.2 on page 60
- 2. Table 3.2-2 on page 70c Items 38a and 38b
- 3. Table 3.2-2 on page 71 Note 5
- 4. Table 4.2-2 on page 79 Item 14

#### II. PURPOSE OF THE PROPOSED CHANGES

#### A. Setpoint Changes

Amendment 120 (Reference 3) to the FitzPatrick Technical Specifications approved a second level emergency bus degraded voltage system which utilizes two separate time delays: one coincident with a LOCA signal and a second for normal operation. The supporting safety analyses were based on a Reserve Station Secondary Transformer (RSST) tap setting of 119 kV and demonstrated that the Class IE loads connected to the emergency buses would not be damaged during sustained degraded voltage conditions.

During the 1990 refueling outage, the Authority plans to implement improvements to the FitzPatrick plant AC distribution systems to reduce voltage transients produced during manual bus transfers. The RSST tap setting of 119 kV and the 4160 V/600 V load center transformer (LCT) tap setting of 3950 V are being changed to 116 kV and 4050 V, respectively.

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The new transformer tap combination increases the setpoint for the undervoltage relay (degraded voltage) to 110.6 secondary volts. No changes are required to the degraded voltage timers or to the loss of voltage system.

#### B. Deletion of Cycle 9 Operating Restrictions

NRC concerns on technical issues associated with the undervoltage protective system resulted in operating restrictions imposed by Amendment 120 for Cycle 9. These issues have been resolved (See References 4, 5, and 6). This amendment will delete the footnote on pages 60, 70c, 71 and 79 of the Technical Specifications which restricted plant operation to one cycle.

## III. IMPACT OF THE PROPOSED CHANGES

#### A. Setpoint Changes

Raising the degraded grid undervoltage relay setting from 108 V to 110.6 V has no impact on plant safety. The new transformer tap settings (RSST setting of 116 V and LCT setting of 4050 V) increase the 4.16 kV emergency bus operating voltage by 100 V which offsets the effect of raising the relay setpoint (90 V increase on the 4.16 kV side). Analyses demonstrate that safety related equipment fed from the emergency buses will not be adversely affected by a degraded voltage condition for up to 60 seconds. This change is associated with improvements to the AC distribution systems.

### B. Deletion of Cycle 9 Operating Restrictions

Deleting the "Operating Cycle 9" restrictions allows plant operation with a degraded grid undervoltage protection. This change is purely administrative in nature.

These changes do not impact the capability of the AC electrical distribution systems in performing their safety related functions during normal or post-accident operations. The FSAR and station operating procedures will be revised to reflect the setting change.

#### IV. EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATION

Operation of the James A. FitzPatrick Nuclear Power Plant in accordance with this proposed amendment would not involve a significant hazards consideration, as defined in 10 CFR 50.92, since the proposed changes would not:

 involve a significant increase in the probability or consequences of an accident previously evaluated. The proposed setpoint change does not alter the AC electrical distribution system's ability to meet normal or post-accident requirements. The Class IE equipment connected to the emergency bus are protected against sustained degraded voltage conditions. FSAR analyses described in Section 8.6.3 are unaffected by this change.

The proposed change to remove "Cycle 9" limitations is purely administrative in nature and can not increase the probability or consequences of the plant's accident analyses as documented in the FSAR or the NRC staff's SER.

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 create the possibility of a new or different kind of accident from those previously evaluated. The proposed revision to the degraded grid (second level) undervoltage relay setpoint does not introduce any new failure modes, nor does it allow plant operation in an unanalyzed configuration.

The administrative changes which extend the provisions of the degraded grid (second level) undervoltage technical specification beyond Cycle 9 are purely administrative, and, as such, can not create new or different kinds of accidents.

3. involve a significant reduction in the margin of safety. The margin between anticipated bus voltage and the degraded grid (second level) undervoltage protection relay setpoint is increased by 10 V with this proposed setpoint change. This provides an increase in the safety margin by reducing the potential for voltage transients during manual bus transfers.

The purely administrative change which removes the Cycle 9 restrictions on plant operations during degraded grid (second level) undervoltage conditions can not impact or affect the margin of safety.

#### V. IMPLEMENTATION OF THE PROPOSED CHANGES

Implementation of the proposed changes will not impact the ALARA Program at the FitzPatrick plant, nor will the changes impact the environment.

## VI. CONCLUSION

These changes, as proposed, do not constitute an unreviewed safety question as defined in 10 CFR 50.59. That is, they:

- a. will not increase the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report;
- will not increase the possibility for an accident or malfunction of a type different from any evaluated previously in the safety analysis report;
- c. will not reduce the margin of safety as defined in the basis for any technical specification; and
- d. involve no significant hazards consideration, as defined in 10 CFR 50.92.

## VII. REFERENCES

- 1. James A. FitzPatrick Nuclear Power Plant Updated Final Safety Analysis Report, Section 8.6.
- James A. FitzPatrick Nuclear Power Plant Safety Evaluation Report (SER), dated November 20, 1972 and Supplements.

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- NRC letter (JAF-88-358), D.E. LaBarge to J.C. Brons, dated November 18, 1988, transmits Amendment 120.
- NRC letter (JAF-89-192), D.E. LaBarge to J.C. Brons, dated June 1, 1989, transmits Amendment 131.
- NYPA letter (JPN-86-016), J.C. Brons to D.R. Muller, dated April 10, 1986, regarding Reserve Power to Emergency Buses.
- NYPA letter (JPN-86-037), J.C. Brons to D.R. Muller, dated August 5, 1986, regarding Reserve Power to Emergency Buses.
- James A. FitzPatrick Nuclear Power Plant Second Level Undervoltage Relay Set Point Change for Emergency Buses Safety Evaluation, JAF-SE-89-097, November 21, 1989.