JANUARY 2 3 1980

Docket No. 50-333

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Mr. George T. Berry
General Manager and Chief
Engineer
Power Authority of the State
of New York
10 Columbus Circle
New York, New York 10019

Dear Mr. Berry:

The Commission has issued the enclosed Amendment No. 48 to Facility License No. DPR-59 for the James A. FitzPatrick Nuclear Power Plant. This amendment consists of administrative changes to the Technical Specifications in response to your request dated September 13, 1979.

The modifications to the Technical Specifications revise and add specifications for several instrumentation requirements as previously approved by Amendment No. 8, 14 and 40. In addition, errors and inconsistencies in the existing Technical Specifications have been rectified.

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level, and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact statement, negative declaration or environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Since the amendment applies only to administrative details, it does not involve significant new safety information of a type not considered by a previous Commission safety review of the facility. It does not involve a significant increase in the probability or consequences of an accident, does not involve a significant decrease in a safety margin, and therefore does not involve a significant hazards consideration. We have also concluded that there is reasonable assurance that the health and safety of the public will not be endangered by this action.

A copy of the Notice of Issuance is also enclosed.

CP

Sincerely,
Original signed by
T. A. Ippolito

8002120088 60

~~Thomas A. Ippolito, Chief~~
Operating Reactors Branch #3
Division of Operating Reactors

Enclosures and ccs: See page 2

SEE NEXT PAGE FOR CONCURRENCES

OFFICE				
SURNAME				
DATE				

OFFICE	ORB #3	ORB #3	AD:ORB	RSP	OELD	ORB #3
SURNAME	SSheppard	PPolk:mjf	WGammill	PCheck	Goddard	TIppolito
DATE	1/11/80	1/11/80	1/15/80	1/15/80	1/18/80	1/15/80

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Enclosures:
1. Amendment No. 48 to License No. DPR-59
2. Notice

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U. S. Environmental Protection Agency
Region II Office
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26 Federal Plaza
New York, New York 10007

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

POWER AUTHORITY OF THE STATE OF NEW YORK

DOCKET NO. 50-333

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 48
License No. DPR-59

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Power Authority of the State of New York (the licensee) dated September 13, 1979, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-59 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 48, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

8002120094

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito, Chief
Operating Reactors Branch #3
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 23, 1980

ATTACHMENT TO LICENSE AMENDMENT NO. 48

FACILITY OPERATING LICENSE NO. DPR-59

DOCKET NO. 50-333

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages.

Remove	Insert
6	6
56	56
57	57
59	59
64	64
65	65
66	66
67	67
68	68
69	69
70	70
--	70a
--	70b
--	70c
--	70d
71	71
76	76
76a	76a
--	76b
79	79
84	84
85	85
137	137
165	165
198	198
199	199
200	200
201	201
202	202
203	203
204	204
205	205
206	206
209	209
239	239

surveillance tests, checks, calibrations, and examinations shall be performed within the specified surveillance intervals. These intervals may be adjusted ± 25 percent. The interval as pertaining to instrument and electric surveillance shall never exceed one operating cycle. In cases where the elasped interval has exceeded 100 percent of the specified interval, the next surveillance interval shall commence at the end of the original specified interval.

U. Thermal Parameters

1. Minimum critical power ratio (MCPR)-Ratio of that power in a fuel assembly which is calculated to cause some point in that fuel assembly to experience boiling transition to the actual assembly operating power as calculated by application of the GEXL correlation (Reference NEDE-10958).

2. Fraction of Limiting Power Density - The ratio of the linear heat generation rate (LHGR) existing at a given location to the design LHGR for that bundle type. Design LHGR's are 18.5 KW/ft for 7x7 bundles and 13.4 KW/ft for 8x8 and 8x8R bundles.

3. Maximum Fraction of Limiting Power Density - The Maximum Fraction of Limiting Power Density (MFLPD) is the highest value existing in the core of the Fraction of Limiting Power Density (FLPD).

4. Transition Boiling - Transition boiling means the boiling region between nucleate and film boiling. Transition boiling is the region in which both nucleate and film boiling occur intermittently with neither type being completely stable.

V. Electrically Disarmed Control Rod

To disarm a rod drive electrically, the four amphenol type plug connectors are removed from the drive insert and withdrawal solenoids rendering the rod incapable of withdrawal. This procedure is equivalent to valving out the drive and is preferred. Electrical disarming does not eliminate position indication.

W. High Pressure Water Fire Protection System

The High Pressure Water Fire Protection System consists of: a water source and pumps; and distribution system piping with associated post indicator vavles (isolation valves). Such valves include the yard hydrant curb valves and the first valve ahead of the water flow alarm device on each sprinkler or water spray subsystem.

X. Staggered Test Basis

A Staggered Test Basis shall consist of:

a. A test schedule for a systems, subsystems, trains or other designeated components obtained by dividing the specified test interval into n equal subintervals.

b. The testing of one system, subsystem, train or other designated component at the beginning of each subinterval.

steam line isolation valves, main steam drain valves, recirc. sample valves (Group 1), initiates the HPCI and RCIC 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 the active fuel. This trip activates the remainder of the ECCS subsystems, 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 10CFR100 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 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 3 isolation valves. For the breaks discussed above, this instrumentation will generally initiate CSCS operation before the low-low-low water level instrumentation; thus the results given above are applicable here also. See Specification 3.7 for isolation valve closure group. 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 10CFR100 guidelines. Reference Section 14.6.5 FSAR.

High radiation monitors in the main steam line tunnel have been provided to detect gross fuel failure as in the control rod drop accident. With the established setting of 3 times normal background, and main steam line isolation valve closure, fission product release is limited so that 10CFR100 guidelines are not exceeded for this accident. Reference Section 14.6.2 FSAR.

Pressure instrumentation is provided to close the main steam isolation valves in the run mode when the main steam line pressure drops below 825 psig. The reactor pressure vessel thermal transient due to an inadvertent opening of the turbine bypass valves when not in the run mode is less severe than the loss of feedwater analyzed in Section 14.5 of the FSAR, therefore, closure of the main steam isolation valves for thermal transient protection when not in the run mode is not required.

The HPCI high flow and temperature instrumentation are provided to detect a break in the HPCI steam piping. Tripping of this instrumentation results in actuation of HPCI isolation valves. Tripping logic for the high flow is a 1 out of 2 logic.

The trip settings of $\leq$300 percent of design flow for this high flow of 40°F above maximum ambient for high temperature are such that uncovering the core is prevented and fission product release is within limits.

The RCIC high flow and temperature instrumentation are arranged the same as that for the HPCI. The trip setting of $\leq$300 percent for high flow and 40°F above maximum ambient for temperature are based on the same criteria as the HPCI.

The reactor water cleanup system high flow temperature instrumentation are arranged similar to that for the HPCI. The trip settings are such that uncovering the core is prevented and fission product release is within limits.

The instrumentation which initiates ECCS action is arranged in a dual bus system. As for other vital instrumentation arranged in this fashion, the specification preserves the effectiveness of the systen even during periods when maintenance or testing is being performed. An exception to this is when logic functional testing is being performed.

The control rod block functions are provided to prevent excessive control rod withdrawal so that MCPR does not dethe specification are adequate to assure the above criteria are met. The specification preserves the effectiveness of the system during periods of maintenance, testing, or calibration, and also minimizes the risk of inadvertent operation; i.e, only one instrument channel out of service.

Two air ejector offgas monitors are provided and when their trip point is reached, cause an isolation of the air ejector offgas line. Isolation is initiated when both instruments reach their high trip point or one has an upscale trip and the other a downscale trip. There is a 15 min. delay before the air ejector offgas isolation valve is closed. This delay is accounted for by the 30 min. holdup time of the offgas before it is released to the stack. Both instruments are required for trip but the instruments are so designed that any instrument failure gives a downscale trip. The trip settings of the instruments are set so that the instantaneous stack release rate limit given in Environmental Technical Specification 2.3.B is not exceeded.

Four radiation monitors are provided which initiate isolation of the reactor building and operating of the Standby Gas Treatment System. The monitors are located as follows: two in the reactor building ventilation exhaust duct and two in refuel floor ventilation exhaust duct. Each pair is considered a separate system. The trip logic consists of any upscale trip on a single monitor or a downscale trip on both monitors in a pair to cause the desired action.

Trip settings of 2.7×10^5 cpm for the monitors in the refueling area ventilation exhaust ducts are based upon initiating normal ventilation isolation and Standby Gas Treatment System operation so that most of the activity released during the refueling accident is processed by the Standby Gas Treatment system.

Flow integrators are used to record the integrated flow of liquid from the drywell sumps. The alarm unit in each integrator is set to annunciate before the values specified in Specification 3.6.D are exceeded.

For each parameter monitored, as listed in Table 3.2-6, by comparing the reading of each channel to the reading on redundant or related instrument channel a near continuous surveillance of instrument performance is available. Any deviation in readings will initiate any early recalibration thereby maintaining the quality of the instrument readings.

TABLE 3.2-1

INSTRUMENTATION THAT INITIATES PRIMARY CONTAINMENT ISOLATION

Minimum Number of Operable Instrument Channels per Trip System (1)	Instrument	Trip Level Setting	Total Number of Instrument Channels Provided by Design for Both Trip Systems	Action (2)
2 (6)	Reactor Low Water Level	$\geq$ 12.5 Indicated Level (3)	4 Inst. Channels	A
1	Reactor High Pressure (Shutdown Cooling Isolation)	$\leq$ 75 psig	2 Inst. Channels	D
2	Reactor Low-Low Water Level	$\geq$ -38 in. indicated level (4)	4 Inst. Channels	A
2 (6)	High Drywell Pressure	$\leq$ 2.7 psig	4 Inst. Channels	A
2	High Radiation Main Steam Line Tunnel	$\leq$ 3 x Normal Rated Full Power Background	4 Inst. Channels	B
2	Low Pressure Main Steam Line	$\geq$ 825 psig (7)	4 Inst. Channels	B
2	High Flow Main Steam Line	$\leq$ 140% of Rated Steam Flow	4 Inst. Channels	B
2	Main Steam Line Leak Detection High Temperature	$\leq$ 40° F above max ambient	4 Inst. Channels	B
3	Reactor Cleanup System Equipment Area High Temperature	$\leq$ 40° F above max ambient	6 Inst. Channels	C
2	Low Condenser Vacuum closes MSIV's	$\geq$ 8" Hg. Vac (8)	4 Inst. Channels	B

TABLE 3.2-1 (Cont'd)

INSTRUMENTATION THAT INITIATES PRIMARY CONTAINMENT ISOLATION

NOTES FOR TABLE 3.2-1

1. Whenever Primary Containment integrity is required by Section 3.7, there shall be two operable or tripped trip systems for each function.

2. 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 tripped or the appropriate action listed below shall be taken.

   A. Initiate an orderly shutdown and have the reactor in cold shutdown condition in 24 hours.

   B. Initiate an orderly load reduction and have main steam lines isolated within eight hours.

   C. Isolate Reactor Water Cleanup System.

   D. Isolate shutdown cooling.

3. Instrument set point corresponds to 177 in. above top of active fuel.

4. Instrument set point corresponds to 126.5 in. above top of active fuel.

5. Two required for each steam line.

6. These signals also start SBGTS and initiate secondary containment isolation.

7. Only required in run mode (interlocked with Mode Switch).

8. Bypassed when reactor pressure is less than 1005 psig and turbine stop valves are closed.

TABLE 3.2-2

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Item 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
1	2	Reactor Low-Low Water Level	≥ -38 in. indicated level	4 HPCI & RCIC Inst. Channels	Initiates HPCI, RCIC & SGTS.
2	2	Reactor Low-Low-Low Water level	≥ -146.5 in. indicated level	4 Core Spray & RHR Instrument Channels	Initiates Core Spray, LPCI, and Emergency Diesel Generators.
				4 ADS Instrument Channels	Initiates ADS in conjunction with confirmatory low level, High Drywell Pressure, 120 second time delay and LPCI or Core Spray pump discharge pressure interlock.
3	2	Reactor High Water Level	≤ +58 in, indicated level	2 Inst. Channels	Trips HPCI and RCIC Turbines.
4	1	Reactor Low Level (inside shroud)	≥ +352 in. above vessel zero	2 Inst. Channels	Prevents inadvertent operation of containment spray during accident condition.

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TABLE 3.2-2 (Cont'd)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Item 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
5	2	Containment High Pressure	$1 < P < 2.7$ psig	4 Inst. Channels	Prevents indavertent operation of containment spray during accident condition.
6	1	Confirmatory Low Level	$\geq$ 12.5 in. indicated level	2 Inst. Channels	ADS Permissive.
7	2	High Drywell Pressure	$\leq$ 2.7 psig	4 HPCI Inst. Channels	Initiates Core Spray LPCI, HPCI & SGTS.
				4 RHR & Core Spray Inst. Channels	Initiates starting of Diesel Generators
8	2	Reactor Low Pressure	$\geq$ 450 psig	4 Inst. Channels	Permissive for opening Core Spray and LPCI Admission valves.

TABLE 3.2-2 (Cont'd)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Item 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
9	1	Reactor Low Pressure	$50 \leq P \leq 75$ psig	2 Inst. Channels	In conjunction with PCIS signal permits closure of RHR (LPCI) injection valves.
10					
11	2	High Drywell Pressure	$\leq$ 2.7 psig	4 Inst. Channels	Initiates ADS in conjunction with Low-Low-Low Reactor Water Level, 120 second time delay and LPCI or Core Spray pump discharge pressure interlock.
12	1 (See Note 3)	Core Spray Pump Start Timer (each loop)	11 $\pm$ 0.6 sec	1 Inst. Channel	Initates starting of core spray pumps. (each loop)

TABLE 3.2-2 (Cont'd)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Item 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
13	1 (See Note 3)	RHR Pump Start Timer			
		1st Pump (A Loop)	1.0 + 0.5 (-) 0 sec.	1 Inst. Channel	Starts 1st Pump (A Loop)
		1st Pump (B Loop)	1.0 + 0.5 (-) 0 sec.	1 Inst. Channel	Starts 1st Pump (B Loop)
		2nd Pump (A Loop)	6.0 ± 0.5 sec.	1 Inst. Channel	Starts 2nd Pump (A Loop)
		2nd Pump (B Loop)	6.0 ± 0.5 sec.	1 Inst. Channel	Starts 2nd Pump (B Loop)
14	1	Auto Blowdown Timer	120 sec ± 5 sec	2 Inst. Channels	Initiates ABS, in conjunction with Low-Low-Low Reactor Water Level, High Drywell Pressure, and LPCI or Core Spray Pump discharge pressure interlock.
15	2	RHR (LPCI) Pump Discharge Pressure Interlock	125 psig ± 20 psig	4 Inst. Channels	Defers ADS actuation pending confirmation of low pressure core cooling system operation.

TABLE 3.2-2 (Cont'd)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Item 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
16	2	Core Spray Pump Discharge Pressure Interlock	100 psig ± 10 psig	4 Inst. Channels	Defers ADS actuation pending confirmation of low pressure core cooling system operat'
17	1	RHR (LPCI) Trip System bus power monitor	Loss of Voltage	2 Inst. Channels	Monitors availability of power to logic systems.
18	1	Core Spray Trip System bus power monitor	Loss of Voltage	2 Inst. Channels	Monitor availability of power -o logic systems.
19	1	ADS Trip System bus power monitor	Loss of Voltage	2 Inst. Channels	Monitors availability of power to logic systems.
20	1	HPCI Trip System bus power monitor	Loss of Voltage	2 Inst. Channels	Monitors availability of power to logic systems.
21	1	RCIC Trip System bus power monitor	Loss of Voltage	2 Inst. Channels	Monitors availability of power to logic systems.

TABLE 3.2-2 (Cont'd)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Item 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
22					
23					
24					
25	1	Core Spray Sparger to Reactor Pressure vessel d/p	$\leq$ 0.5 psid	2 Inst. Channels	Alarm to detect core spray sparger pipe break.
26	2	Condensate storage Tank Low Level	$\geq$ 59.5 in. above tank bottom (=15,600 gal avail)	2 Inst. Channels	Provides interlock to HPCI suction valves.
27	2	Suppression Chamber High Level	$\leq$ 6 in. above normal level	2 Inst. Channels	Transfers HPCI pump suction to suppression chamber.
28	1	RCIC Turbine Steam Line High Flow	$\leq$ 282 in. H_2O psid	2 Inst. Channels	Close Isolation Valves in RCIC Subsystem

Amendment No. 48

TABLE 3.2-2 (Cont'd)

INSTRUMENTATION THAT INITIATIONS OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

Item 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
29	1	RCIC Steam Line/ Area Temperature	$\leq$ 40^0 F Above max. ambient	2 Inst. Channels	Close Isolation valves in RCIC Subsystem
30	1	RCIC Steam Line Low Pressure	100 > P > 50 psig	2 Inst. Channels	Close Isolation valves in RCIC Subsystem
31	1	HPCI Turbine Steam Line High Flow	$\leq$ 230 in. H_2O psid	2 Inst. Channels	Close Isolation Valves in HPCI Subsystem
32	1	RCIC Turbine High Exhaust Diaphragm Pressure	$\leq$ 10 psig	2 Inst. Channels	Close Isolation Valves in RCIC Subsystem
33	1	HPCI Turbine High Exhaust Diaphragm pressure	$\leq$ 10 psig	2 Inst. Channels	Close Isolation Valves in HPCI Subsystem
34	1	LPCI Cross-Connect Position	NA	1 Inst. Channels	Initiates annunciation when valve is not closed
35	1	HPCI Steam Line Low Pressure	100 > P > 50 psig	2 Inst. Channel	Close Isolation Valve in HPCI Subsystem
36	1	HPCI Steam Line/ Area Temperature	$\leq$ 40^0 F. above max. ambient	2 Inst. Channels	Close Isolation Valve in HPCI Subsystem

TABLE 3.2-2 (Cont'd)

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONATINMENT

COOLING SYSTEMS

Item 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					
38					
39	(1 per 4kV bus)	4kV Emergency Bus Undervoltage Relay	85 ± 4.25 secondary volts	2 Inst. Channels	Initiates 4 KV Emergency Bus Undervoltage Timer
40	(1 per 4kV bus)	4kV Emergency Bus Undervoltage Timer	2.50 ± 0.05 sec.	2 Inst. Channels	Trip open all closed pump motor breakers. Initiates start of emergency diesel generators In conjunction with 90% E[illegible] Voltage initiates Diesel breaker close permissive and trip normal reserve tie breaker Initiates sequential starting of vital load in conjunction with Low-Low-Low reactor water level or high drywell pressure.
	2	Reactor Low Pressure	285 to 335 psig	4 Inst. Channels	Permissive for closing recirculation pump discharge valve.

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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

1. Whenever any ECCS subsystem is required by specification 3.5 to be operable, there shall be two operable trip sytems. 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. Instrument set point corresponds to 18 in. above the top of active fuel.

3. Refer to Technical Specification 3.5.A for limiting conditions for operation, failure of one (1) instrument channel disables one (1) pump.

TABLE 3.2-6

SURVEILLANCE INSTRUMENTATION

Minimum No. of Operable Instrument Channels	Instrument	Type Indication and Range	No. of Channels Provided by Design	Action
2	(Reactor Level ((Note 3) ((Reactor Level ((Note 4)	Indicator) 0 - +60)) Recorder) 0 - +60)	5	(1)(2)
1	Reactor Level	Indicator -150 - +60	2	(2)
2	(Reactor Pressure ((Note 5) ((Reactor Pressure ((Note 6)	Indicator) 0-1200 psig)) Recorder) 0-1200 psig)	5	(1)(2)
1	(Drywell Pressure ((Narrow Range) ((((Drywell Pressure ((Wide Range) ((	(Narrow Range) Indicator) Recorder) 10 - 19 psia)) (Wide Range)) Indicator) Recorder) 0 - 100 psia)	2	(2)
2	(Drywell Temperature (((Drywell Temperature	Indicator) 50 - 250^{o}F)) Recorder) 50 - 350^{o}F)	4	(1)(2)
2	(Suppression Chamber (Temperature ((Suppression Chamber (Temperature	Indicator) 50 - 250^{o}F)) Recorder) 50 - 350^{o}F)	4	(1)(2)

TABLE 3.2-6

SURVEILLANCE INSTRUMENTATION

Minimum No. of Operable Instrument Channels	Instrument	Type Indication and Range	No. of Channels Provided by Design	Action
1	(Suppression Chamber (Water Level ((Wide Range) ((Suppression Chamber (Water Level ((Narrow Range)	Indicator) Recorder) -72 to +72 inches)) Indicator) Recorder) -6 to +6 inches)	2	(2)
N/A	Control Rod Position Indication	Indicator Postion 00 to 48	1	(7)
2	Source Range Monitors	Indicator Recorder 1 to 10^{0} cps	4	(8)
3	Intermediate Range Monitor	Indicator Recorder 10^{-4} to 40% Rated Power	8	(8)(9)
2	Average Power Rnage Monitors	Indicator Recorder 0-125% Rated Power	6	(8)(9)
1	Drywell-Suppression Chamber Differential Pressure	Recorder 0 to 5 psi Computer 0 to 5 psi	2	(2)

NOTES FOR TABLE 3.2-6

1. From and after the date that the minimum number of operable instrument channels is one less than the minimum number specified for each parameter, continued operation is permissible during the succeeding 30 days unless the minimum number specified is made operable sooner.

2. In the event that all indications of this parameter is disabled and such indication cannot be restored in six (6) hours, an orderly shutdown shall be initiated and the reactor shall be in a Hot Shutdown condition in six (6) hours and a Cold Shutdown condition in the following eighteen (18) hours.

NOTES FOR TABLE 3.2-6 (CONTINUED)

3. Three (3) indicators from level instrument channel A, B, & C. Channel A or B are utilized for feedwater control, reactor water high and low level alarms, recirculation pump runback. High level trip of main turbine and feedwater pump turbine utilizes channels A, B, & C.

4. One (1) recorder utilized the same level instrument channel as selected for feedwater control.

5. Three (3) indicators from reactor pressure instrument channel A, B, & C. Channel A or B are utilized for feedwater control and reactor pressure high alarm.

6. One (1) recorder. Utilizes the same reactor pressure instrument channel as selected for feedwater control.

7. The position of each of the 137 control rods is monitored by the Rod Position Information System. For control rods in which the position is unknown, refer to Paragraph 3.3.A.

8. Neutron monitoring operability requirements are specified by Table 3.1-1 and Paragraph 3.3.B.4.

9. A minimum of 3 IRM or 2 APRM channels respectively must be operable (or tripped) in each safety system.

TABLE 4.2-2

MINIMUM TEST AND CALIBRATION FREQUENCY FOR CORE AND CONTAINMENT COOLING SYSTEMS

	Instrument Channel	Instrument Functional Test	Calibration Frequency	Instrument Check
1)	Reactor Water Level	(1)	Once/3 months	Once/day
2)	Drywell Pressure	(1)	Once/3 months	None
3)	Reactor Pressure	(1)	Once/3 months	None
4)	Auto Sequencing Timers	NA	Once/operating cycle	None
5)	ADS - LPCI or CS Pump Disch. Pressure Interlock	(1)	Once/3 months	None
6)	Trip System Bus Power Monitors	(1)	N/A	None
8)	Core Spray Sparger d/p	(1)	Once/6 months	Once/day
9)	Steam Line High Flow (HPCI & RCIC)	(1)	Once/3 months	None
10)	Steam Line/Area High Temp.(HPCI & RCIC)	(1)	Once/operating cycle	Once/day
12)	HPCI & RCIC Steam Line Low Pressure	(1)	Once/3 months	None
13)	HPCI Suction Source Levels	(1)	Once/3 months	None
14)	4KV Emergency Power Under-Voltage 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	NA	NA

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

TABLE 4.2-6

MINIMUM TEST AND CALIBRATION FREQUENCY FOR SURVEILLANCE INSTRUMENTATION

	INSTRUMENT CHANNEL	CALIBRATION FREQUENCY	INSTRUMENT CHECK
1.)	Reactor Water Level	Once/6 months	Once Each Shift
2.)	Reactor Pressure	Once/6 months	Once Each Shift
3.)	Drywell Pressure	Once/6 months	Once Each Shift
4.)	Drywell Temperature	Once/6 months	Once Each Shift
5.)	Suppression Chamber Temperature	Once/6 months	Once Each Shift
6.)	Suppression Chamber Water Level	Once/6 months	Once Each Shift
7.)	Control Rod Position Indication	N/A	Once Each Shift
8.)	Neutron Monitoring (APRM)	Five/week	Once Each Shift
9.)	Neutron Monitoring (IRM and SRM)	Note 10	Note 10
10.)	Drywell-Suppression Chamber Differential Pressure	Once/6 months	Once Each Shift

1. Initially once every month until acceptable failure rate data are available; thereafter, a request may be made to the AEC to change the test frequency. The compliation of instrument failure rate data may include data obtained from other boiling water reactors for which the same design instrument operate in an environment similar to that of JAFNPP.

2. Functional tests, calibrations and instrument checks are not required when these instruments are not required to be operable or the tripped. Functional tests shall be performed before each startup with a required frequency not to exceed once per week. Calibrations shall be performed prior to each startup or prior to preplanned shutdowns with a required frequency not to exceed once per week. Instrument checks shall be performed at least once per day during these periods when the instruments are required to be operable.

3. This instrumentation is excepted from the functional test definition. The functional test will consist of injecting a simulated electrical signal into the measurement channel.

   These instrument channels will be calibrated using sinulated electrical signals once every three months.

4. Simulated automatic actuation shall be performed once each operating cycle. Where possible, all logic system functional tests will be performed using the test jacks.

5. Reactor low water level, high drywell pressure and high radiation main steam line tunnel are not included on Table 4.2-1 since they are tested on Table 4.1-2.

6. The logic system functional tests shall include a calibration or time delay relays and timers necessary for proper functioning of the trip systems.

7. At least one (1) Main Stack Dilution Fan is required to be in operation in order to isokineticaly samply the Main Stack.

8. Uses same instrumentation as Main Steam Line High Radiation. See Table 4.1-2.

9. See Technical Specification 1.0.F.4, Definitions, for meaning of term, "Instrument Check".

10. Calibration and instrument check surveillance for SRM and IRM Instruments are as specified in Table 4.1-1, 4.1-2, 4.2-3.

3. The pump in an idle reactor recirculating loop shall not be started unless the coolant in that loop is within 50°F of the reactor coolant temperature in the reactor vessel.

B. Pressurization Temperature

1. The reactor vessel head bolting studs shall not be under tension unless the temperatures of the vessel flange and the head flange are 90°F.

2. Pressurization temperature during hydrostatic testing shall be in accordance with Figure 3.6-1.

3. Prior to starting the pump in an idle recirculation loop, the temperature of the coolant in that loop shall be compared to the temperature of the reactor coolant in the reactor vessel.

4. Recirculation loop Temperature millivolt transmitter/recorder shall be checked daily and calibrated once/operating cycle.

B. Pressurization Temperature

1. When the reactor vessel head bolting studs are tightened or loosened the reactor vessel flange and head flange temperature shall be recorded.

2. Neutron flux monitors and samples shall be installed in the reactor vessel adjacent to the vessel wall at the core midplane level. The monitor and sample program shall, in the main, conform to 1972 Draft revision, ASTM E185. The monitor shall be installed during the 1978 refueling outage and shall be removed and tested during the next subsequent refueling outage to experimentally verify the calculated values of integrated neutron flux that are used to determine RTNDT.

The capsule withdrawal schedule shall be in accordance with the following:

3.7 LIMITING CONDITIONS FOR OPERATION

3.7 CONTAINMENT SYSTEMS

Applicability:

Applies to the operating status of the primary and secondary containment systems.

Objective:

To assure the integrity of the primary and secondary containment systems.

Specification:

A. Primary Containment

1. The volume and temperature of the water in the pressure suppression chamber shall at all times, except as specified in Specification 3.5.F.2 be maintained within the following limits:

   a. Maximum vent submergence level of 53 inches.

   b. Minimum vent submergence level of 51.5 inches.
   The suppression chamber water level may be outside the above limits for a maximum of four (4) hours during required operability testing of HPCI, RCIC, RHR, CS, and the Suppression Chamber - Drywell Vaccum System.

   c. Maximum water temperature

      (1) During normal power operation maximum water temperature shall be 95F.

4.7 SURVEILLANCE REQUIREMNTS

4.7 CONTAINMENT SYSTEMS

Applicability:

Applies to the primary and secondary containment integrity.

Objective:

To verify the integrity of the primary, and secondary containment systems.

Specification:

A. Primary Containment

1. The pressure suppression chamber water level and temperature shall be checked once per day. The accessible interior surfaces of the drywell and above the water line of the pressure suppression chamber shall be inspected at each refueling outage for evidence of deterioration. Whenever there is indication of relief valve operation or testing which adds heat to the suppression pool, the pool temperature shall be continually monitored and also observed and logged every 5 minutes until the heat addition is terminated. Whenever there is indication of relief valve operation with the temperature of the suppression pool reaching 160^{o}F or more and the primary coolant system pressure greater than 200 psig, an external visual examination of the suppression chamber shall be conducted before resuming power operation.

TABLE 3.7-1

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 Open (5)(6)	Isolation Signal	Closing Time (7)	Normal Status	Remarks and Exceptions
Main Steam Line	X-7A,B,C,D	AO Globe	Air & ac,dc	A	Inside	Air & Spring	B,C,D,P,E	Note (1)	Open	
Main Steam Line	X-7A,B,C,D	AO Globe	Air & ac,dc	A	Outside	Air & Spring	B,C,D,P,E	Note (1)	Open	
Main Steam Line Drain	X-8	MO Gate	Ac	A	Inside	Ac	B,C,D,P,E	15 sec	Closed	
Main Steam Line Drain	X-8	MO Gate	Dc	A	Outside	Dc	B,C,D,P,E	15 sec	Closed	
From Reactor Feedwater	X-9A,B	Check	-	A	Outside	Process	Rev. flow	Not applicable	Open	
From Reactor Feedwater	X-9A,B	Check	-	A	Inside	Process	Rev. flow	Not applicable	Open	
Reactor Water Sample	X-41	AO Globe	Air & ac	A	Inside	Spring	B,C,D,P,E	Not applicable	Open	
Reactor Water Sample	X-41	AO Globe	Air & ac	A	Outside	Spring	B,C,D,P,E	Not applicable	Open	
Control Rod Hydraulic Return	X-36	Check	-	A	Inside	Process	Rev. flow	Not applicable)		
Control Rod Hydraulic Return	X-36	Check	-	A	Outside	Process	Rev. flow	Not applicable)	Opens on Rod movement and closed at all other times	Note (4)
Control Rod Drive Exhaust	X-38	SO Valves	Air & ac	A	Outside	Spring	Note (4)	Not applicable)		
Control Rod Drive Exhaust	X-38	SO Valves	Air & ac	A	Outside	Spring	Note (4)	Not applicable)		
Control Rod Drive Inlet	X-37	SO Valves	Air & ac	A	Outside	Spring	Note (4)	Not applicable)		
Control Rod Drive Inlet	X-37	SO Valves	Air & ac	A	Outside	Spring	Note (4)	Not applicable)		

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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
Mini-purge to recirc pump	X-31AC X-31BC	Check	Process	C	Outside	Process	Rev. flow	Not applicable	Open	
Mini-purge to recirc pump	X-31AC X-31BC	Check	Process	C	Inside	Process	Rev. flow	Not applicable	Open	
RHR Reactor shut-down Cooling supply	X-12	MO Gate	Dc	A	Outside	Dc	A,U,F,RM	38 Sec	Closed	
RHR Reactor Shut-down Cooling supply	X-12	MO Gate	Ac	A	Inside	Ac	A,U,F,RM	38 Sec	Closed	
RHR to Suppression Spray Header	X-211A,B	MO Globe	Ac	B	Outside	Ac	G,S,RM	10 Sec	Closed	Throttling Type Valve Note (2)
RHR - Containment Spray	X-39A,B,	MO Gate	Ac	B	Outside	Ac	G,S,RM	10 Sec	Closed	Note (2)
RHR - Containment Spray	X-39A,B,	MO Gate	Ac	B	Outside	Ac	G,S,RM	10 Sec	Closed	Note (2)
RHR - Reactor Head Spray	X-17	MO Gate	Ac	A	Inside	Ac	A,U,F,RM	20 Sec	Closed	
RHR - Reactor Head Spray	X-17	MO Gate	Dc	A	Outside	Dc	A,U,F,RM	20 Sec	Closed	
RHR to Suppression Pool	X-210A,B,	MO Globe	Ac	B	Outside	Ac	G,RM	70 Sec	Closed	Throttling Type Valve Note (2)
RHR - LPCI to Reactor	X-13A,B,	MO Gate	Ac	A	Outside	Ac	RM,	120 Sec	Closed	Note (10)
RHR - LPCI to Reactor	X-13A,B	MO Globe	Ac	A	Outside	Ac	RM,	90 Sec	Open	Throttling Type Valve Note (10)
RHR - LPCI to Reactor	X-13A,B,	AO Check	-	A	Inside	Process	Ref. flow	Not applicable	Closed	Testable check valve (3,16)
RHR pump suction from suppression pool	X-225A,B,	MO Gate	Ac	B	Outside	Ac	RM	Not applicable	Open	

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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	30 Sec	Open	
Reactor Water Clean up from Reactor	X-14	MO Gate	Dc	A	Outside	Dc	A,V,J,RM	30 Sec	Open	
Reactor Water from Reactor Warm-up	X-14	MO Gate	Dc	A	Outside	Dc	A,V,Y,J,RM	10 Sec	Closed	
Reactor Water Cleanup Return	X-9A	Check	-	A	Outside	Process	Rev. flow	Not applicable	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,R,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	

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
Core Spray Minimum Pump Flow	X-210A,B	MO Gate	Ac	B	Outside	Ac	RM	Not applicable	Closed	
Core Spray to Reactor	X-16A,B,	MO Gate	Ac	A	Outside	Ac	RM	Not applicable	Open	Note (10)
Core Spray to Reactor	X-16A,B	MO Gate	Ac	A	Outside	Ac	RM	Not applicable	Closed	Note (10)
Core Spray to Reactor	X-16A,B	AO Check	(3)	A	Inside	Note (3)	Rev. flow	Not applicable	Closed	Testable Check Valve Note (3,16)
Core Spray Test to Suppression Pool	X-210A,B	MO Globe	Ac	B	Outside	Ac	G,RM	45 Sec	Closed	
Core Spray Pump Suction	X-227A,B	MO Gate	Ac	B	Outside	Ac	RM	Not applicable	Open	
Drywell Equipment Drain Sump Discharge	X-19	MO Plug	Ac	B	Inside	Ac	A,F,RM	30 Sec	Open	
Drywell Equipment Drain Sump Discharge	X-19	AO Plug	Air/Ac	B	Outside	Spring	A,F,RM	Not applicable	Closed (17)	
Drywell Floor Drain Sump Discharge	X-18	MO Plug	Ac	B	Inside	Ac	A,F,RM	30 Sec	Open	
Drywell Floor Drain Sump Discharge	X-18	AO Plug	Air/Ac	B	Outside	Spring	A,F,RM	Not applicable	Open	
Traveling Incore Probe	X-35A,B,C,D	Explosive Shear	Dc	A	Outside	Dc	RM	Not applicable	Open	One valve on each line
Traveling Incore Probe	X-35A,B,C,D	SO Ball	Ac	A	Outside	Ac	A,F,RM	Not applicable	Open	One valve on each line Note (14)
Traveling Incore Probe Purge	X-35B	Check	Fwd Flow	A	Outside	Process	Rev. flow	Not applicable	Closed	
HPCI - Turbine Steam Supply	X-11	MO Gate	Ac	A	Inside	Ac	L,RM	20 Sec	Open)	Signal "G" opens valve. Signal "L" overrides and closes valve.
HPCI - Turbine Steam Supply	X-11	MO Gate	Dc	A	Outside	Dc	L,RM	20 Sec	Closed)	

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
HPCI - Turbine Exhaust	X-214	Check	Fwd Flow	B	Outside	Process	Rev. flow	Not applicable	Open	Closes on Rev. flow or low exhaust pressure
HPCI - Turbine Exhaust	X-214	Check	Fwd Flow	B	Outside	Process	Rev. flow	Not applicable	Open	
HPCI Pump Suction	X-226	MO Gate	Dc	B	Outside	Dc	L,RM	60 Sec	Closed	
HPCI - Pump Discharge	X-9B	MO Gate	Dc	B	Outside	Dc	RM	Not applicable	Closed	
HPCI - Turbine Exhaust Drain	X-222	Stop Check	Fwd Flow	B	Outside	Process	Rev. flow	Not applicable	Closed	
HPCI - Minimum Pump Flow	X-210B	Check	Fwd Flow	B	Outside	Process	Rev. flow	Not applicable	Closed	
HPCI - Minimum Pump Flow	X-210B	MO Globe	Dc	B	Outside	Dc	L,RM	10 Sec	Closed	
DRYWELL ATMOSPHERIC CONTROL AND SERVICES										
Service Air to Drywell	X-21	Check	Process	C	Inside	Process	Rev. flow	Not applicable	Closed	
Service Air to Drywell	X-21	Hand Gate	Hand	C	Outside	Hand	-	Not applicable	Closed	
Instrument Air to Drywell	X-22	Check	Process	C	Inside	Process	Rev. flow	Not applicable	Open	
Instrument Air to Drywell	X-22	Hand Gate	Hand	C	Outside	Hand	-	Not applicable	Open	
Breathing Air to Drywell	X-61	Check	Process	C	Inside	Process	Rev. flow	Not applicable	Closed	
Breathing Air to Drywell	X-61	Hand Gate	Hand	C	Outside	Hand	-	Not applicable	Closed	
Drywell Purge Inlet	X-25,X-71	AO Butterfly	Air/Ac	B	Outside	Spring	F,A,Z,RM	5 Sec	Closed	
Drywell Purge Inlet	X-25,X-71	AO Butterfly	Air/Ac	B	Outside	Spring	F,A,Z,RM	5 Sec	Closed	
Drywell Main Exhaust	X-26A,B	AO BUtterfly	Air/Ac	B	Outside	Spring	F,A,Z,RM	5 Sec	Closed	

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
Drywell Main Exhaust	X-26A,B	AO Butterfly	Air/Ac	B	Outside	Spring	F,A,Z,RM	5 Sec	Closed	
Drywell Exhaust Valve Bypass	X-26A,B	MO Butterfly	Ac	B	Outside	Ac	F,A,Z,RM	5 Sec	Closed	
Suppression Chamber Exhaust Valve Bypass	X-205	MO Butterfly	Ac	B	Outside	Ac	F,A,Z,RM	5 Sec	Closed	
Suppression Chamber Purge Inlet	X-220	MO Butterfly	Air/Ac	B	Outside	Spring	F,A,Z,RM	5 Sec	Closed	
Suppression Chamber Purge Inlet	X-220	AO Butterfly	Air/Ac	B	Outside	Spring	F,A,Z,RM	5 Sec	Closed	
Suppression Chamber Main Exhaust	X-205	AO Butterfly	Air/Ac	B	Outside	Spring	F,A,Z,RM	5 Sec	Closed	
Suppression Chamber Main Exhaust	X-205	AO Butterfly	Air/Ac	B	Outside	Spring	F,A,Z,RM	5 Sec	Closed	
Containment Atmosphere Sampling Lines	X-26A,X-59	SO Valve	Dc	B	Outside	Spring	F,A,Z,RM	Not applicable	Open	
Containment Atmosphere Sampling Lines	X-26A,X-59	SO Valve	Ac	B	Outside	Spring	F,A,Z,RM	Not applicable	Open	
Suppression Chamber Atmosphere Sampling Lines	X-203A	SO Valve	Ac	B	Outside Spring		F,A,Z,RM	Not applicable	Open	
Suppression Chamber Atmosphere Sampling Lines	X-203A	SO Valve	Dc	B	Outside	Spring	F,A,Z,RM	Not applicable	Open	
Containment/Suppression Chamber Atmosphere Sampling Return	X-203B	SO Valve	Ac	B	Outside	Ac	F,A,Z,RM	Not applicable	Open	
Containment/Suppression Chamber Atmosphere Sampling Return	X-203B	SO Valve	Dc	B	Outside	Ac	F,A,Z,RM	Not applicable	Open	

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
Vacuum Breaker Reactor Building to Suppression Chamber	X-202A	AO Butterfly	Air/Dc	B	Outside	Spring	RM	Not applicable	Closed)	Valve opens when suppression chamber pressure is 0.5 psi below reactor building pressure.
Vacuum Breaker Reactor Building to Suppression Chamber	X-202B	Vacuum Breaker	Vacuum	B	Outside Suppression Chamber	Suppression chamber Pressure	Rev. flow	Not applicable	Closed)	
Reactor Building Closed Cooling Water In	X-23, X-24, X-63, X-67	Check	Fwd Flow	C	Outside	Process	Rev. flow	Not applicable	Open	
Reactor Building Closed Cooling Water Out	X-68, X-66, X-64, X-62	Hand Globe	Hand	C	Outside	Hand	-	Not applicable	Open	
Emergency Service Water to Drywell	X-24, X-23 X-63, X-67	Check	Fwd Flow	C	Outside	Process	Rev. flow	Not applicable	Closed	
Instrument Sensing Steam Flow	X-30A	Hand Globe	Hand	A	Outside	Hand	-	Not applicable	Open	Typical all Class A Instrument Lines
Instrument Sensing Steam Flow	X-30A	Flow Check	Spring	A	Outside	Process	Excess Flow	Not applicable	Open	Typical all Class A Instrument Lines
Instrument Sensing Drywell Pressure	X-50C	Hand Globe	Hand	B	Outside	Hand	-	Not applicable	Open	Typical all Class B Instrument Lines
Torus Pressure Sensing	X-218	AO Valve	Air/Dc	B	Outside	Spring	F,A,Z,RM	Not applicable	Open	
Torus Pressure Sensing	X-218	AO Valve	Air/Dc	B	Outside	Spring	F,A,Z,RM	Not applicable	Open	
Drywell Pressure Sensing	X-45	AO Valve	Air/Dc	B	Outside	Spring	F,A,Z,RM	Not applicable	Open	
Drywell Pressure Sensing	X-45	AO Valve	Air/Dc	B	Outside	Spring	F,A,Z,RM	Not applicable	Open	

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NOTES FOR TABLE 3.7-1

ISOLATION SIGNAL CODES

Signal	Description
A*	Reactor vessel low water level - (A scram occurs at this level also. This is the higher of the two isolation low water level signals)
B*	Reactor vessel low water level - (This is the lower of the two low water level signals. Main steam line isolation occurs at this level).
C*	High radiation - main steam line
D*	Line break - main steam line (steam line high steam flow)
E*	Line break - main steam line (steam line high temperature)
F*	High drywell pressure
G	Reactor vessel low water level or high drywell pressure (Emergency Core Cooling Systems are started)
H	
J*	Line break in Reactor Water Cleanup System - high space temperature
K*	Line break in RCIC System steam line to turbine (high steam line space temperature, high steam flow, low steam line pressure, or high turbine exhaust pressure)
L*	Line break in HPCI System steam line to turbine (high steam line space temperature, high steam flow, low steam line pressure, or high turbine exhaust pressure)
M	
P*	Low main steam line pressure at inlet to main turbine (RUN mode only)
S	Low drywell pressure
T	Low reactor pressure permissive to open core spray and RHR-LPCI valves

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These are the isolation functions of the Primary Containment and Reactor Vessel Isolation Control System; other functions are given for information only.

NOTES FOR TABLE 3.7.1 (CONT'D)

9.

10. Coincident signals "G" and "T" open valves. Special interlocks permit testing these valves by manual switch except when automatic signals are present.

11. Normal status position of valve (open or closed) is the position during normal power operation of the reactor (see "Normal Status" column).

12. The specified closure rates are as required for containment isolation only.

13. Minimum closing time is based on valve and line size.

14. Signal "A" or "F" causes automatic withdrawals of TIP probe. When probe is withdrawn, the valve automatically closes by mechanical action.

15. Reactor building ventilation exhaust high radiation signal "Z" is generated by two trip untis. This required one unit at high trip or both units at down scale (instrument failure) trip, in order to initiate isolation.

16. Leak testing shall be accomplished in accordance with section 4.7.A.2.d.

17. The valve opens during pump out of the drywell equipment sump. Automatic isolation signals A and F override an open signal that might be present for sump pump out.

3.11 (cont'd)

B. Crescent Area Ventilation

Crescent area ventilation and cooling equipment shall be operable on a continuous basis whenever specification 3.5.A, 3.5.B, and 3.5.C are required to be satisfied.

1. From and after the date that more than one unit cooler serving ECCS components in the same compartment are made or found to be inoperable, all ECCS components in that compartment shall be considered to be inoperable for purposes of specification 3.5.A, 3.5.C, and 3.5.D.

C. Battery Room Ventilation

Battery room ventilation shall be operable on a continuous basis whenever specification 3.9.E is required to be satisfied.

1. From and after the date that one of the battery room ventilation systems is made or found to be inoperable, its associated battery shall be considered to be inoperable for purposes of specification 3.9.E.

4.11 (cont'd)

B. Crescent Area Ventilation

Unit coolers serving ECCS components will be checked for operability during surveillance testing of the associated pumps as per specification 4.5.A, 4.5.B, and 4.5.C.

1. When it is determined that two unit coolers serving ECCS components in the same compartment are made or found inoperable, reactor operation may continue for 7 days unless one is made operable earlier.

2. Temperature indicator controllers shall be calibrated once/operating cycle.

3. If 3.11.B.1 cannot be met, the reactor shall be placed in a cold condition within 24 hours.

C. Battery Room Ventilation

Battery room ventilation equipment shall be checked for operability once/week.

1. When it is determined that one battery room ventilation system is inoperable, the remaining ventilation system shall be checked for operability and daily thereafter.

2. Temperature transmitters and differential pressure switches shall be calibrated once/operating cycle.

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-333

POWER AUTHORITY OF THE STATE OF NEW YORK

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 48 to Facility Operating License No. DPR-59, issued to Power Authority of the State of New York, which revised Technical Specifications for operation of the James A. FitzPatrick Nuclear Power Plant (the facility) located in Oswego County, New York. The amendment is effective as of its date of issuance.

The amendment revises the Technical Specifications to revise and add specifications for several instrumentation requirements as previously approved by Amendments Nos. 8, 14 and 40. In addition, errors and inconsistencies in the existing Technical Specifications have been rectified.

The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR Section 51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated September 13, 1979, (2) Amendment No. 48 to License No. DPR-59, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Oswego County Office Building, 46 E. Bridge Street, Oswego, New York 13126. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland this 23rd day of January 1980.

FOR THE NUCLEAR REGULATORY COMMISSION

T. A. Ippolito

Thomas A. Ippolito, Chief
Operating Reactors Branch #3
Division of Operating Reactors