TABLE 3.1-1 (Cont'd)

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENT

Minimum No. of Operable Instrument Channels per Trip System (1)	Trip Function	Trip Level Setting	Modes in Which Function Must Be Operable			Total Number of Instrument Channels Provided by Design for Both Trip Systems	Action (1)
			Refuel (6)	Startup	Run		
2	APRM Downscale	≥2.5 indicated on scale (9)			X	6 Instrument Channels	A or B
2	High Reactor Pressure	≤ 1045 psig	X(8)	X	X	4 Instrument Channels	A
2	High Drywell Pressure	≤2.7 psig	X(7)	X(7)	X	4 Instrument Channels	A
2	Reactor Low Water Level	≥12.5 in. indicated level (≥ 177 in. above the top of active fuel)	X	X	X	4 Instrument Channels	A
2	High Water Level in Scram Discharge Volume	≤36 gal	X(2)	X	X	4 Instrument Channels	A
2	Main Steam Line High Radiation	≤3 x normal full power background	X	X	X	4 Instrument Channels	A
4	Main Steam Line Isolation Valve Closure	≤10% valve closure	X(3)(5)	X(3)(5)	X(5)	8 Instrument Channels	A

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TABLE 3.1-1 (Cont'd)

REACTOR PROTECTION SYSTEM (SCRAM) INSTRUMENTATION REQUIREMENT

Minimum No. of Operable Instrument Channels per Trip System (1)	Trip Function	Trip Level Setting	Modes in Which Function Must Be Operable			Total Number of Instrument Channels Provided by Design for Both Trip Systems	Action (1)
			Refuel (6)	Startup	Run		
2	Turbine Control Valve Fast Closure	500<P<850 psig Control oil pressure between fast closure solenoid and disc dump valve			X(4)	4 Instrument Channels	A or C

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$12.5 in Indicated Level ($\geq$177 in. above the top of active fuel)	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 ($\geq$ 126.5 in. above the top of active fuel)	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. Deleted

4. Deleted

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.

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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	$\geq$-38 in. indicated level ($\geq$126.5 in. above the top of active fuel)	4 HPCI & RCIC Inst. Channels	Initiates HPCI, RCIC & SGTS.
2	2	Reactor Low-Low-Low Water level	$\geq$ -146.5 in. indicated level ($\geq$ 18 in. above the top of active fuel)	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	$\leq$+58 in. indicated level ($\leq$222.5 in. above the top of active fuel)	2 Inst. Channels	Trips HPCI and RCIC Turbines.
4	1	Reactor Low Level (inside shroud)	$\geq$ +352 in. above vessel zero($\geq$ 0 in. above the top of active fuel)	2 Inst. Channels	Prevents inadvertant operation of containment spray during accident condition.

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 inadvertent operation of containment spray during accident condition.
6	1	Confirmatory Low Level	$\geq$ 12.5 in. indicated level ($\geq$ 177 in. above the top of active fuel)	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

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 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

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

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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)	Indicator 0 - +60 (164.5 to 224.5 in. above the top of active fuel)	5	(13) (2)
	Reactor Level (Note 4)	Recorder 0 - +60 (164.5 to 224.5 in. above the top of active fuel)		
1	Reactor Level	Indicator -150 - +60 (14.5 to 224.5 in. above the top of active fuel)	2	(2)
2	Reactor Pressure (Note 5)	Indicator 0-1200 psig	5	(1) (2)
	Reactor Pressure (Note 6)	Recorder 0-1200 psig		
1	Drywell Pressure (Narrow Range)	(Narrow Range) Indicator Recorder 10 - 19 psia	2	(2)
	Drywell Pressure (Wide Range)	(Wide Range) Indicator Recorder 0 - 100 psia		

TABLE 3.2-6 (Cont'd)

SURVEILLANCE INSTRUMENTATION

Minimum No. of Operable Instrument Channels	Instrument	Type Indication and Range	No. of Channels Provided by Design	Action
2	Drywell Temperature	Indicator 50 - 250° F	4	(1) (2)
	Drywell Temperature	Recorder 50 - 350° F		
2	Suppression Chamber Temperature	Indicator 50 - 250° F	4	(1) (2)
	Suppression Chamber Temperature	Recorder 50 - 350° F		

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 Position 00 to 48	1	(7)
2	Source Range Monitors	Indicator Recorder 1 to 10^6 cps	4	(8)
3	Intermediate Range Monitor	Indicator Recorder 10^{-4} to 40% Rated Power	8	(8) (9)
2	Average Power Range 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)
1	Safety/Relief Valve Position Indicator (Note 10)	Indicator Open/Closed	2	(12) (11)

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.

NOTES FOR TABLE 3.2-6 (CONTINUED)

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.

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 channel 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.

10. Each Safety Relief Valve is equipped with two acoustical detectors of which one is in service and a backup thermocouple detector.

11. From and after the date that none of the acoustical detectors is operable but the thermocouple is operable, continued operation is permissible until the next outage in which a primary containment entry is made. Both acoustical detectors shall be made operable prior to restart.

12. In the event that both primary and secondary indications of this parameter for any one valve are disabled and neither indication can be restored in forty-eight (48) hours, an orderly shutdown shall be initiated and the reactor shall be in a Hot Shutdown condition in twelve (12) hours and in a Cold Shutdown within the next twenty-four (24) hours.

13. 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 permissable during the succeeding 7 days unless the minimum number specified is made operable sooner.

TABLE 3.2-7

INSTRUMENTATION THAT INITIATES RECIRCULATION PUMP TRIP

Minumum Number of Operable Instrument Channels per Trip System (1)	Instrument	Trip Level Setting	Total Number of Instrument Channels Provided by Design for Both Channels	Action
1	Reactor High Pressure	$\geq$ 1120 psig	4	(2)
1	Reactor Low-Low Water Level	$\geq$ -38 in. indicated level ($\geq$126.5 in. above the top of active fuel	4	(2)

Notes for Table 3.2-7

1. Whenever the reactor is in the run mode, there shall be one operable trip sytem for each parameter for each operating recirculation pump. From and after the time it is found that this cannot be met, the indicated action shall be taken.

2. Reduce power and place the Mode Selector Switch in a Mode other than the Run Mode within 24 hours.

ATTACHMENT I

PROPOSED TECHNICAL SPECIFICATIONS CHANGES

RELATED TO

REACTOR VESSEL - COMMON

REFERENCE LEVEL

POWER AUTHORITY OF THE STATE OF NEW YORK
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
DOCKET NO. 50-333

ATTACHMENT II

SAFETY EVALUATION

RELATED TO

REACTOR VESSEL - COMMON

REFERENCE LEVEL

POWER AUTHORITY OF THE STATE OF NEW YORK
JAMES A. FITZPATRICK NUCLEAR POWER PLANT
DOCKET NO. 50-333

Section I - Description of Modification

The proposed changes to the James A. FitzPatrick Nuclear Power Plant (JAFNPP) Operating License, Appendix A (Technical Specifications) incorporate additional information concerning reactor vessel water level in Tables 3.1-1, 3.2-2, 3.2-6 and 3.2-7 of the Technical Specifications (pages 41a, 64, 65, 66, 67, 71, 76 and 77). Where indicated reactor vessel water levels are given in these tables, a notation has been added to give the equivalent water level above the top of active fuel. These changes are proposed in response to Reference (c).

Section II - Purpose of the Modification

The proposed changes provides additional information concerning reactor vessel water level in Tables 3.1-1, 3.2-2, 3.2-6 and 3.2-7 of the Technical Specifications (pages 41a, 64, 65, 66, 67, 71, 76 and 77). Where indicated reactor vessel water levels are given in these tables, a notation has been added to give the equivalent water level above the top of active fuel. This amendment, if approved, will fulfill the commitment for Technical Specification changes made in Reference (d).

Section III - Impact of the Change

These changes to the Technical Specifications provide reactor vessel water level measurements from a common reference point (the top of active fuel). These changes also assure that the Technical Specifications contain the same reactor vessel water levels as provided by the control room instrumentation.

Section IV - Implementation of the Modification

The modification as proposed will not impact the Fire Protection or ALARA Programs at JAFNPP.

Section V - Conclusion

The incorporation of these modifications: a) will not change the probability nor the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report; b) will not increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report; and c) will not reduce the margin of safety as defined in the basis for any Techical Specification; and d) does not constitute an unreviewed safety question.

Section VI - References

(a) JAF FSAR

(b) JAF SER

(c) Letter, T. A. Ippolito (NRC) to G. T. Berry (PASNY), dated October 19, 1981, concerning NUREG-0737 Item II.K.3.27 - Common Reference Level.

(d) Letter, J. P. Bayne (PASNY) to T. A. Ippolito (NRC), dated November 25, 1981, concerning NUREG-0737 Item II.K.3.27 - Common Reference Level.