Attachment I to JPN-98-011

REVISED TECHNICAL SPECIFICATION PAGES

LOGIC SYSTEM FUNCTIONAL TEST FREQUENCY

(JPTS-96-013)

New York Power Authority

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

LIST OF PAGE CHANGES

LOGIC SYSTEM FUNCTIONAL TEST FREQUENCY (JPTS-96-013)

Revise Appendix A as follows:

Remove Page	Insert Page
2	2
79	79
81	81

Revise Appendix B as follows:

Remove Page	Insert Page
38	38

1.0 (cont'd)

C. Cold Condition - Reactor coolant temperature $\leq$212°F.

D. Hot Standby Condition - Hot Standby condition means operation with coolant temperature >212°F, the Mode Switch in Start-up/Hot Standby and reactor pressure <1,040 psig.

E. Immediate - Immediate means that the required action will be initiated as soon as practicable considering the safe operation of the unit and the importance of the required action.

F. Instrumentation

1. Functional Test - A functional test is the manual operation or initiation of a system, subsystem, or component to verify that it functions within design tolerances (e.g., the manual start of a core spray pump to verify that it runs and that it pumps the required volume of water).

2. Instrument Channel Calibration - An instrument channel calibration means the adjustment of an instrument signal output so that it corresponds, within acceptable range, and accuracy, to a known value(s) of the parameter which the instrument monitors. Calibration shall encompass the entire instrument channel including actuation, alarm or trip.

3. Instrument Channel - An instrument channel means an arrangement of a sensor and auxiliary equipment required to generate and transmit to a trip system a single trip signal related to the plant parameter monitored by that instrument channel.

4. Instrument Check - An instrument check is a qualitative determination of acceptable operability by observation of instrument behavior during operation. This determination shall include, where possible, comparison of the instrument with other independent instruments measuring the same variable.

5. Instrument Channel Functional Test - An instrument channel functional test means the injection of a simulated signal into the instrument primary sensor where possible to verify the proper instrument channel response, alarm and/or initiating action.

6. Primary Containment Isolation Actuation Instrumentation Response Time for Main Steam Line isolation is the time interval which begins when the monitored parameter exceeds the isolation actuation set point at the channel sensor and ends when the Main Steam Isolation Valve solenoids are de-energized (16A-K14, K16, K51, & K52 pilot solenoid relay contacts open). The response time may be measured in one continuous step or in overlapping segments, with verification that all components are tested.

7. Logic System Functional Test - A logic system functional test shall be a test of all required logic components (i.e., all required relays and contacts, trip units, solid state logic elements, etc.) of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify operability. The logic system functional test may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.

8. Protective Action - An action initiated by the Protection System when limiting safety system setting is reached. A protective action can be at a channel or system level.

TABLE 4.2-1 (Cont'd)

PRIMARY CONTAINMENT ISOLATION SYSTEM INSTRUMENTATION
TEST AND CALIBRATION REQUIREMENTS

Logic System Functional Test (Notes 7 & 9)		Frequency
1)	Main Steam Line Isolation Valves Main Steam Line Drain Valves Reactor Water Sample Valves	R
2)	RHR - Isolation Valve Control Shutdown Cooling Valves	R
3)	Reactor Water Cleanup Isolation	R
4)	Drywell Isolation Valves TIP Withdrawal Atmospheric Control Valves	R
5)	Standby Gas Treatment System Reactor Building Isolation	R
6)	HPCI Subsystem Auto Isolation	R
7)	RCIC Subsystem Auto Isolation	R

NOTE: See notes following Table 4.2-5.

TABLE 4.2-2 (Cont'd)

CORE AND CONTAINMENT COOLING SYSTEM INSTRUMENTATION TEST AND CALIBRATION REQUIREMENTS

	Logic System Functional Test	Frequency
1)	Core Spray Subsystem	SA (Notes 7 & 9)
2)	Low Pressure Coolant Injection Subsystem	SA (Notes 7 & 9)
3)	Containment Cooling Subsystem	R
4)	HPCI Subsystem	R (Notes 7 & 9)
5)	ADS Subsystem	SA (Notes 7 & 9)

NOTE: See notes following Table 4.2-5.

TABLE 3.10-2

MINIMUM TEST AND CALIBRATION FREQUENCY FOR RADIATION MONITORING SYSTEMS[a]

Instrument Channels	Instrument Check[b]	Instrument Channel Functional Test[i]	Instrument Channel Calibration	Logic System Function Test[f][h]
Main Stack Exhaust Monitors and Recorders	Daily	Quarterly	Quarterly	--
Refuel Area Exhaust Monitors and Recorders	Daily	Quarterly	Quarterly	--
Reactor Building Area Exhaust Monitors, Recorders, and Isolation	Daily	Quarterly	Quarterly	Once per 24 Months
Turbine Building Exhaust Monitors and Recorders	Daily	Quarterly	Quarterly	--
Radwaste Building Exhaust Monitors and Recorders	Daily	Quarterly	Quarterly	--
SJAE Radiation Monitors/Offgas Line Isolation	Daily	Quarterly	Quarterly	Once per 24 Months
Main Control Room Ventilation Monitor	Daily	Quarterly	Quarterly	--
Mechanical Vacuum Pump Isolation[g]	--	--	--	Once per 24 Months
Liquid Radwaste Discharge Monitor/ Isolation[c][d][e][f]	Daily When Discharging	Quarterly	Quarterly	Once per 24 Months
Liquid Radwaste Discharge Flow Rate Measuring Devices[d]	Daily	Quarterly	Once per 18 Months	--
Liquid Radwaste Discharge Radioactivity Recorder [d]	Daily	Quarterly	Once per 18 Months	--
Normal Service Water Effluent	Daily	Quarterly	Quarterly	--
SBGTS Actuation	--	--	--	Once per 24 Months

Attachment II to JPN-98-011

SAFETY EVALUATION

LOGIC SYSTEM FUNCTIONAL TEST FREQUENCY

(JPTS-96-013)

New York Power Authority

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

I. DESCRIPTION

This section provides a description of the proposed changes to the Technical Specifications (TS). Minor changes in format, such as type font, margins or hyphenation, are not described in this submittal. The proposed changes to the TS will extend the Logic System Functional Test (LSFT) interval from semiannually to once per 24 months (30 months with allowable grace period). The changes apply to the following instrumentation groups:

- Primary Containment Isolation System (Table 4.2-1)
- Core and Containment Cooling Systems (Table 4.2-2)
- Radiation Monitoring Systems (Appendix B, Table 3.10-2)

The LSFT definition is revised to bring it into agreement with the industry standard contained in Boiling Water Reactor (BWR) Standard Technical Specifications (STS) (Reference 1). The specific changes are as follows:

1. **Definition 1.0.F.7, page 2**

   Revise LSFT definition to read as follows:

   "Logic System Functional Test - A logic system functional test shall be a test of all required logic components (i.e., all required relays and contacts, trip units, solid state logic elements, etc.) of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify operability. The logic system functional test may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested."

2. **Table 4.2-1, Primary Containment Isolation System Instrumentation Test and Calibration Requirements, page 79**

   Change LSFT frequency from "SA" (semiannually) to "R" (Once/24 months) for the following isolation functions:

   1) Main Steam Line Isolation Valves
      Main Steam Line Drain Valves
      Reactor Water Sample Valves

   2) RHR - Isolation Valve Control
      Shutdown Cooling Valves

   3) Reactor Water Cleanup Isolation

   4) Drywell Isolation Valves
      TIP Withdrawal
      Atmospheric Control Valves

   5) Standby Gas Treatment System
      Reactor Building Isolation

   6) HPCI Subsystem Auto Isolation

   7) RCIC Subsystem Auto Isolation

3. **Table 4.2-2, Core and Containment Cooling System Instrumentation Test and Calibration Requirements, page 81**

   Change LSFT frequency from "SA" (semiannually) to "R" (Once/24 months) for the following subsystems:

   3) Containment Cooling Subsystem

   4) HPCI Subsystem

4. **Appendix B, Table 3.10-2, Minimum Test and Calibration Frequency for Radiation Monitoring Systems, Page 38**

   Change LSFT frequency from "Semiannually" to "Once per 24 months" for the following instrument channels:

   - Reactor Building Area Exhaust Monitors, Recorders, and Isolation
   - SJAE Radiation Monitors/Offgas Line Isolation
   - Liquid Radwaste Discharge Monitor/Isolation
   - SBGTS Actuation

II. PURPOSE OF THE PROPOSED CHANGE

1. **Revised LSFT Definition**

   The revised LSFT definition is consistent with the requirements of BWR STS (Reference 1). The revised definition (1) eliminates the requirement to test the actuated device as part of the LSFT, and (2) clarifies the definition by stating that "The test may be performed as a series of sequential, overlapping or total system steps such that the entire logic system is tested," and the test will be performed "as close to the sensor as practicable."

2. **Change in the LSFT Frequency**

   The proposed change in the LSFT frequency from semiannually to 24 months reduces the potential for inadvertent safety system actuation and plant transients, and reduces the unavailability due to testing for the applicable safety systems as discussed in Section III - Safety Implications of the Proposed Changes.

III. SAFETY IMPLICATIONS OF THE PROPOSED CHANGE

The proposed change to the LSFT definition adopts wording consistent with the definition contained in the Improved BWR STS. The elimination of the requirement to test the actuated device as part of the LSFT is consistent with STS, as the operability of these devices is verified on a more frequent basis by other TS surveillance requirements. The change clarifies the existing LSFT requirement by stating that the test may be performed as a series of sequential, overlapping, or total system steps such that the entire logic system is tested. This clarifies the LSFT requirement without changing its intent.

Changing the performance interval of the LSFTs from semiannually to 24 months enhances plant safety and reduces the unavailability due to testing for the applicable safety systems for the following reasons:

A. Certain LSFT procedures require the installation of jumpers and the lifting of leads to perform verification of relay and contact operability. These factors increase the potential for inadvertent safety system actuation and plant transients that may result from personnel error or equipment malfunction. Inadvertent scrams impose unnecessary cycles on reactor equipment and unnecessary demands on plant safety systems. Scrams are also potential initiators of accident sequences. Changing the LSFT interval from semiannually to 24 months will reduce the potential for plant transients by reducing the number of times the tests must be performed. Although the current performance frequency of LSFT is not expected to be a major factor in component wear, it is prudent to maintain the number of trip actuations at a low level in order to reduce any potential incremental wear.

B. Results of a FitzPatrick Surveillance Extension Report (Reference 2) show that safety system reliability is not dominated by the reliability of the logic systems, but by that of the mechanical components, (e.g., pumps and valves), which are tested on a more frequent basis. The results contained in the Reference 2 report demonstrate that there is no significant change in the logic system unavailability due to equipment failure by changing the test interval from semiannually to 24 months. This conclusion is based on the following factors:

1. Logic circuit unavailability is influenced predominantly by relay coil failure and testing rates. Unavailability due to contact failures is less significant. Testing of plant safety system instrumentation and controls through methods other than LSFT (e.g., functional test), as required by the FitzPatrick TS, demonstrates relay coil operability but not necessarily operability of all associated contact configurations. LSFT relay coil testing is therefore somewhat redundant to these other tests, offering little extra benefit while increasing logic circuit unavailability and the potential for plant transients due to testing. The principal benefits of LSFT are end-to-end contact operability verification. The worth of any such added benefit of higher frequency testing is completely outweighed by the consequent increase in unavailability due to testing.

2. The largest contributor to circuit unavailability is the amount of time a circuit is out-of-service due to testing. A 24 month LSFT interval minimizes the amount of time a circuit is unavailable due to testing.

The above considerations together with the use of highly reliable components have aided FitzPatrick in achieving a very high LSFT success rate. LSFT results, where possible and applicable, have been reviewed for a period of approximately 22.5 years. Reviews covering shorter time periods were due principally to components being replaced, thus, reducing the availability of historical data.

<u>Isolation Instrumentation on Table 4.2-1 (Page 79)</u>

There were 11 test failures due to failure of the components that receive the actuation signals. The failures did not involve the logic systems that were being tested, therefore, zero logic failures were identified. As per Generic Letter 91-04 (Reference 3), the Reference 2 report confirms that the effect on safety of extending LSFT performance interval to once per 24 months is insignificant and is supported by plant historical and maintenance data. The Authority has concluded that the isolation instrumentation LSFTs can be extended to once per 24 months without any adverse consequence to safety, reliability, or availability. Drift was not addressed for the Isolation Instrumentation since no analog or digital (numerical) setpoints are addressed in these LSFTs.

Core and Containment Cooling System Instrumentation on Table 4.2-2 (Page 81)

The report (Reference 2) concluded that the LSFT period for the Core Spray Subsystem (Item 1), the Low Pressure Coolant Injection (LPCI) Subsystem (Item 2), and the Automatic Depressurization (ADS) Subsystem (Item 5) could be extended to once per 24 months, regarding logic testing only, without any significant effect on safety and reliability. However, the results of drift studies, related to timers, for the ADS, Core Spray, and LPCI systems show that the LSFTs for these systems can not be extended from semiannually to once per 24 months. The drift studies conclude that the timer setting for the sequencing timers associated with these systems could potentially exceed design requirements.

There were four test failures associated with the Containment Cooling Subsystem (Item 3) and the High Pressure Coolant Injection (HPCI) Subsystem (Item 4). The failures were due to failure of the components that receive the actuation signals. The failures did not involve the logic systems that were being tested, therefore, zero logic failures were identified. As per Generic Letter 91-04, the Reference 2 report confirms that the effect on safety of extending LSFT performance interval to once per 24 months is insignificant and is supported by plant historical and maintenance data. The Authority has concluded that the Containment Cooling and HPCI LSFTs can be extended to once per 24 months without any adverse consequence to safety, reliability, or availability. Drift was not addressed for the Containment Cooling and HPCI Subsystems since no analog or digital (numerical) setpoints are addressed in these LSFTs.

Radiation Monitoring Systems Instrumentation on Appendix B Table 3.10-2 (Page 38)

There were four test failures associated with the Reactor Building Area Exhaust Monitors, recorders, and Isolation LSFT and the Standby Gas Treatment System (SBGTS) Actuation LSFT. The failures were due to failure of the components that receive the actuation signals. The failures did not involve the logic systems that were being tested, therefore, zero logic failures were identified. Drift was not addressed since no analog or digital (numerical) setpoints are addressed in these LSFTs.

There were two test failures associated with the Liquid Radwaste Discharge Monitor/Isolation LSFT. The failures were due to failure of the components that receive the actuation signals. The failures did not involve the logic systems that were being tested, therefore, zero logic failures were identified. Drift was not addressed since the radiation monitor included in this LSFT is calibrated quarterly.

There were 44 satisfactory tests and 2 logic system test failures identified over a 22.5 year period regarding the Steam Jet Air Ejector (SJAE) Radiation Monitors/Offgas Line Isolation LSFT. Both Failures involved a Category II/III timer (i.e., 17RTM-157). The first test failure involved the controller time adjustment being set too high. As a corrective action, the controller was manually adjusted to actuate in less time. This controller is only adjusted to actuate before an upper limit is reached, thus, the failure was not accounted for as requiring further investigation of similar parts or further consideration in the Reference 2 report. The second test failed when a circuit fuse blew upon 17RTM-157 initiation. The Reference 2 report concluded that this failure was a isolated occurrence with no generic implications. Drift data associated with 17RTM-157 has been analyzed in a drift study contained in Reference 2. The results show that the LSFT can be extended from semiannually to once per 24 months as long as the field setting for timer 17RTM-157 is lowered.

As per Generic Letter 91-04, the Reference 2 report confirms that the effect on safety of extending LSFT performance interval from semiannually to once per 24 months is insignificant and is supported by plant historical and maintenance data. The Authority has concluded that the Radiation Monitoring System Instrumentation LSFTs can be extended to once per 24 months without any adverse consequence to safety, reliability, or availability.

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 only significant change proposed by this application involves the extension of the surveillance test interval for the LSFTs required by the TS. The other changes involve editorial, format, and clarification changes, which by their nature are of no safety significance.

   Extending the LSFT interval from semiannually to once per 24 months does not involve plant physical changes, change any TS setpoints, or introduce any new mode of plant operation. Therefore, the change does not degrade the performance of any safety system assumed to function in the accident analysis, and therefore, will not increase the consequences of an accident.

   Extending the LSFT interval from semiannually to 24 months results in no significant change in the logic system unavailability due to equipment failure. The reliability of safety systems subject to the LSFT are dominated by that of the mechanical components, and the logic system circuit relay coils which are subject to the more frequent functional test requirements. These factors are confirmed by the availability record of the affected safety system based on the past surveillance test history. Furthermore, the longer test intervals reduce the unavailability due to testing for the applicable safety system while the plant is operating. For these reasons, there is not a significant increase in the probability of an accident.

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

   The proposed changes do not introduce any new accident initiators or failure mechanisms since the changes do not introduce any new modes of plant operation, make any physical changes, or change any TS setpoints. The changes reduce the probability of accidents initiated by test-induced plant transients by reducing the number of times the tests must be performed.

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

   The proposed changes do not alter the manner in which safety limits, limiting safety system settings, or limiting conditions for operation are determined. In several aspects, the proposed changes may actually enhance the margin of safety by reducing the potential for test-induced plant transients, reducing the unavailability due to test of the applicable safety system, and reducing any potential incremental logic system component wear. For these reasons, the changes do not involve a significant reduction in the margin of safety.

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 only significant change proposed by this application involves extending the LSFT interval from semiannually to once per 24 months. The other changes involve editorial, format, and clarification changes, which by their nature are of no safety significance. The change extending the interval of the LSFT does not involve plant physical changes, change any TS setpoints, or introduce any new mode of plant operation. 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.

Changing the LSFT interval from semiannually to once per 24 months does not involve plant physical changes, change any TS setpoints, or introduce any new mode of plant operation. The other changes involve editorial, format, and clarification changes, which by their nature are of no safety significance. Therefore, there is no significant increase in individual or cumulative occupational radiation exposure.

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 51.21 relative to requiring a specific environmental assessment by the Commission.

VI. CONCLUSION

This proposed change to the James A. FitzPatrick TS will extend the LSFT interval from semiannually to once per 24 months. Additionally, the LSFT definition is revised to bring it into agreement with the industry standard contained in the NUREG STS. Based on the discussions above, the identified LSFT surveillance requirements can be safely changed from semiannually to once per 24 months. The assumptions in the FitzPatrick licensing basis are not invalidated by performing the identified LSFT surveillances at an interval of once per 24 months (30 months with allowable grace period).

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. NUREG-1433, "Standard Technical Specifications for General Electric Boiling Water Reactors (BWR/4)", Revision 1, dated April 1995

2. JAF-RPT-MULTI-02903, "Surveillance Extension Report(S) for Logic System Functional Testing," Revision 0, dated February 13, 1998

3. Generic Letter 91-04, Regarding Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle

Attachment III to JPN-98-011

MARKED-UP TECHNICAL SPECIFICATION PAGES

LOGIC SYSTEM FUNCTIONAL TEST FREQUENCY

(JPTS-96-013)

NOTE 1: Deletions are shown in ~~strikeout~~, and additions are in **bold**.

NOTE 2: Previous amendment revision bars are shown and will be deleted.

New York Power Authority

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

1.0 (cont'd)

C. Cold Condition - Reactor coolant temperature $\leq 212°F$.

D. Hot Standby Condition - Hot Standby condition means operation with coolant temperature $>212°F$, the Mode Switch in Start-up/Hot Standby and reactor pressure $<1,040$ psig.

E. Immediate - immediate means that the required action will be initiated as soon as practicable considering the safe operation of the unit and the importance of the required action.

F. Instrumentation

1. Functional Test - A functional test is the manual operation or initiation of a system, subsystem, or component to verify that it functions within design tolerances (e.g., the manual start of a core spray pump to verify that it runs and that it pumps the required volume of water).

2. Instrument Channel Calibration - An instrument channel calibration means the adjustment of an instrument signal output so that it corresponds, within acceptable range, and accuracy, to a known value(s) of the parameter which the instrument monitors. Calibration shall encompass the entire instrument channel including actuation, alarm or trip.

3. Instrument Channel - An instrument channel means an arrangement of a sensor and auxiliary equipment required to generate and transmit to a trip system a single trip signal related to the plant parameter monitored by that instrument channel.

4. Instrument Check - An instrument check is a qualitative determination of acceptable operability by observation of instrument behavior during operation. This determination shall include, where possible, comparison of the instrument with other independent instruments measuring the same variable.

5. Instrument Channel Functional Test - An instrument channel functional test means the injection of a simulated signal into the instrument primary sensor where possible to verify the proper instrument channel response, alarm and/or initiating action.

6. Primary Containment Isolation Actuation Instrumentation Response Time for Main Steam Line isolation is the time interval which begins when the monitored parameter exceeds the isolation actuation set point at the channel sensor and ends when the Main Steam Isolation Valve solenoids are de-energized (16A-K14, K16, K51, & K52 pilot solenoid relay contacts open). The response time may be measured in one continuous step or in overlapping segments, with verification that all components are tested.

7. ~~Logic System Function Test - A logic system functional test means a test of relays and contacts of a logic circuit from sensor to activated device to ensure components are operable per design intent. Where practicable, action will go to completion: i.e., pumps will be started and valves operated.~~ **Insert A**

8. Protective Action - An action initiated by the Protection System when limiting safety system setting is reached. A protective action can be at a channel or system level.

Attachment III to JPN-98-011
MARKED-UP TECHNICAL SPECIFICATION PAGES

Insert A:

"Logic System Functional Test - A logic system functional test shall be a test of all required logic components (i.e., all required relays and contacts, trip units, solid state logic elements, etc.) of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify operability. The logic system functional test may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested."

TABLE 4.2-1 (Cont'd)

PRIMARY CONTAINMENT ISOLATION SYSTEM INSTRUMENTATION
TEST AND CALIBRATION REQUIREMENTS

Logic System Functional Test (Notes 7 & 9)		Frequency
1)	Main Steam Line Isolation Valves Main Steam Line Drain Valves Reactor Water Sample Valves	~~SA~~ R
2)	RHR - Isolation Valve Control Shutdown Cooling Valves	~~SA~~ R
3)	Reactor Water Cleanup Isolation	~~SA~~ R
4)	Drywell Isolation Valves TIP Withdrawal Atmospheric Control Valves	~~SA~~ R
5)	Standby Gas Treatment System Reactor Building Isolation	~~SA~~ R
6)	HPCI Subsystem Auto Isolation	~~SA~~ R
7)	RCIC Subsystem Auto Isolation	~~SA~~ R

NOTE: See notes following Table 4.2-5.

TABLE 4.2-2 (Cont'd)

CORE AND CONTAINMENT COOLING SYSTEM INSTRUMENTATION
TEST AND CALIBRATION REQUIREMENTS

	Logic System Functional Test	Frequency
1)	Core Spray Subsystem	SA (Notes 7 & 9)
2)	Low Pressure Coolant Injection Subsystem	SA (Notes 7 & 9)
3)	Containment Cooling Subsystem	~~SA~~ R
4)	HPCI Subsystem	~~SA~~ R (Notes 7 & 9)
5)	ADS Subsystem	SA (Notes 7 & 9)

NOTE: See notes following Table 4.2-5.

TABLE 3.10-2

MINIMUM TEST AND CALIBRATION FREQUENCY FOR RADIATION MONITORING SYSTEMS[a]

Instrument Channels	Instrument Check[b]	Instrument Channel Functional Test[i]	Instrument Channel Calibration	Logic System Function Test[f][h]
Main Stack Exhaust Monitors and Recorders	Daily	Quarterly	Quarterly	- -
Refuel Area Exhaust Monitors and Recorders	Daily	Quarterly	Quarterly	- -
Reactor Building Area Exhaust Monitors, Recorders, and Isolation	Daily	Quarterly	Quarterly	~~Semiannually~~ **Once per 24 Months**
Turbine Building Exhaust Monitors and Recorders	Daily	Quarterly	Quarterly	- -
Radwaste Building Exhaust Monitors and Recorders	Daily	Quarterly	Quarterly	- -
SJAE Radiation Monitors/Offgas Line Isolation	Daily	Quarterly	Quarterly	~~Semiannually~~ **Once per 24 Months**
Main Control Room Ventilation Monitor	Daily	Quarterly	Quarterly	- -
Mechanical Vacuum Pump Isolation[g]	- -	- -	- -	Once per 24 Months
Liquid Radwaste Discharge Monitor/ Isolation[c][d][e][f]	Daily When Discharging	Quarterly	Quarterly	~~Semiannually~~ **Once per 24 Months**
Liquid Radwaste Discharge Flow Rate Measuring Devices[d]	Daily	Quarterly	Once per 18 Months	- -
Liquid Radwaste Discharge Radioactivity Recorder[d]	Daily	Quarterly	Once per 18 Months	- -
Normal Service Water Effluent	Daily	Quarterly	Quarterly	- -
SBGTS Actuation	- -	- -	- -	~~Semiannually~~ **Once per 24 Months**

Attachment IV to JPN-98-011

LIST OF COMMITMENTS

Commitment No.	Description	Due Date
JPN-98-011-01	Lower field setting for timer 17RTM-157.	Prior to implementation.