Entergy

Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

Mike Bellamy
Site Vice President

April 14, 2003

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

SUBJECT: Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
Docket 50-293
License No. DPR-35

Response to NRC Request for Additional Information
Related to Technical Specification Changes to Post-Accident
Monitoring Instrumentation Requirements

REFERENCES:

1. Entergy letter to the NRC, 2.02.072, Request for Amendment to the Technical Specifications - Changes to Post-Accident Monitoring Instrumentation Requirements, dated August 19, 2002
2. Entergy letter to the NRC, 2.03.019, Request for Amendment to the Technical Specifications – Changes to Post-Accident Monitoring Instrumentation Requirements, dated February 14, 2003.
3. Entergy letter to the NRC, 2.03.034, Response to NRC Request for Additional Information Related to Technical Specification Changes to Post-Accident Monitoring Instrumentation Requirements, dated March 27, 2003.

LETTER NUMBER: 2.03.044

Dear Sir or Madam:

Discussions with the NRC on April 10, 2003 indicated that additional information was needed to complete their review of the proposed License Amendment submittal (Reference 1). Attached is the additional information requested.

This response does not change the no significant hazard conclusions previously submitted in Reference 1.

Should you have any questions or comments concerning this submittal, please contact Bryan Ford at (508) 830-8403.

A001

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 14th day of April 2003.

Sincerely,

Robert M. Bellamy

BSF/dd

Attachments: 1. Response to NRC Request for Additional Information (5 pages)
2. Proposed Technical Specification and Bases Changes (Mark-up) (22 pages)

cc: Mr. Travis Tate, Project Manager
Office of Nuclear Reactor Regulation
Mail Stop: 0-8B-1
U.S. Nuclear Regulatory Commission
1 White Flint North
11555 Rockville Pike
Rockville, MD 20852

U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406

Senior Resident Inspector
Pilgrim Nuclear Power Station

Mr. Robert Walker
Radiation Control Program
Commonwealth of Massachusetts
Exec Offices of Health & Human Services
174 Portland Street
Boston, MA 02114

Mr. Steve McGrail, Director
Mass. Emergency Management Agency
400 Worcester Road
P.O. Box 1496
Framingham, MA 01702

ATTACHMENT 1

Response to NRC Request for Additional Information
Changes to Post-Accident Monitoring Instrumentation Requirements

Clarification 1

The title of this Specification is being changed to Post-Accident Monitoring Instrumentation in all locations including the Table of Contents and Table headings. As discussed in the original submittal this change in the title is an editorial change.

Clarification 2

The Table column headings on Table 3.2.F are being editorially changed:

Current Column Heading	Proposed Column Heading
Minimum # of Operable Instrument Channels (pages 3/4.2-25 and 3/4.2-27)	Minimum # of Operable Instrument Channels
Minimum # of Channels (page 3/4.2-26)	Minimum # of Operable Instrument Channels
Parameter (pages 3/4.2-25, 3/4.2-26 and 3/4.2-27)	Function

The Table column headings on Table 4.2.F are being editorially changed:

Current Column Heading	Proposed Column Heading
Instrument Channel (pages 3/4.2-37 and 3/4.2-38)	Function

Clarification 3

In the current Specification 3.7.A.7.c, the requirements discuss 2 required H_2 analyzers. These 2 H_2 analyzers are described as 2 required Containment H_2 Analyzer instrument channels in the proposed Specification.

Clarification 4

1. The Parameter called Suppression Chamber Air Temperature on current Table 3.2.F is part of the function covered under the Instrument Channel called Suppression Chamber Temperature on current Table 4.2.F and is proposed to be removed from the Technical Specifications via Proposed Change 2.I as the Suppression Chamber Air Temperature Function.
2. The Parameter called Suppression Chamber Water Temperature on current Table 3.2.F is part of the function covered under the Instrument Channel called Suppression Chamber Temperature on current Table 4.2.F and is proposed to be maintained in the Technical Specifications as the Suppression Chamber Water Temperature Function. TRU-5021-1A and TRU-5022-1B are currently required for this function and as identified in the submittal and associated Bases are being maintained as required for the proposed Function. The table comparing the current Technical Specification instrumentation requirements for each Function to the proposed instrumentation requirements has been revised to reflect these instruments in the current Technical Specification instrumentation requirements column.

3. The instrumentation identified as an LPRM in the Type Indication and Range column for Neutron Monitoring on current Table 3.2.F is discussed as an APRM in the original submittal. The table comparing the current Technical Specification instrumentation requirements for each Function to the proposed instrumentation requirements has been revised to reflect the LPRM designator instead of APRM in the current Technical Specification instrumentation requirements column.

4. The Parameter called Drywell/Torus Diff. Pressure on current Table 3.2.F is the same function covered under the Instrument Channel called Drywell/Torus Differential Pressure on current Table 4.2. F and is proposed to be removed from the Technical Specifications via Proposed Change 2.I as the Drywell/Torus Differential Pressure Function.

5. The name for the Parameter/Instrument Channel called Drywell Pressure Torus Pressure on current Tables 3.2.F and 4.2.F is changed to the Suppression Chamber Bottom Pressure Function in the proposed Technical Specifications. Drywell Pressure monitoring requirements are covered via Functions 8 and 9 in the proposed Technical Specifications. The table comparing the current Technical Specification instrumentation requirements for each Function to the proposed instrumentation requirements has been revised to reflect the current Drywell Pressure instrument in the current Technical Specification instrumentation requirements column for the Drywell Pressure (Wide Range) Function.

6. The Parameter called Safety/Relief Valve Position on current Table 3.2.F is the same function covered under the Instrument Channel called Safety/Relief Valve Position Indicator (Primary/Secondary) on current Table 4.2. F and is proposed to be removed from the Technical Specifications via Proposed Change 2.I as the Safety/Relief Valve Position.

7. The Parameter called Safety Valve Position Indicator on current Table 3.2.F is the same function covered under the Instrument Channel called Safety Valve Position Indicator (Primary/Secondary) on current Table 4.2. F and is proposed to be removed from the Technical Specifications via Proposed Change 2.I as the Safety Valve Position Indicator.

8. The name for the Parameter/Instrument Channel called Torus Water Level (Wide Range) on current Tables 3.2.F and 4.2.F is changed to the Suppression Chamber Water Level Function in the proposed Technical Specifications. The instruments currently required by Table 3.2.F for this function are being maintained as required for the proposed Function as identified in the original submittal and associated Bases. The table comparing the current Technical Specification instrumentation requirements for each Function to the proposed instrumentation requirements has been revised to reflect these instruments in the current Technical Specification instrumentation requirements column. Suppression Chamber Water Level instruments were identified in the current Technical Specifications associated with the Suppression Chamber Water Level and Torus Water Level (Wide Range) parameters on Table 3.2.F. The Regulatory Guide 1.97 instruments required for this function are those previously associated with the Torus Water Level (Wide Range) parameter on Table 3.2.F.

9. The Parameter called Containment Pressure, (High Range) on current Table 3.2.F is part of the function covered under the Instrument Channel called Containment Pressure on current Table 4.2.F and maintained in the proposed Technical Specification as the Drywell Pressure (Wide Range) Function. This proposed Function along with the proposed Drywell Pressure (Narrow Range) Function addresses the instruments necessary to be in the Technical Specifications as Regulatory Guide 1.97, Type A or Category 1, non-Type A, instruments needed to monitor Drywell Pressure. Drywell pressure instruments were identified in the current Technical Specifications associated with the Drywell Pressure, Drywell Pressure Torus Pressure, Containment Pressure, (High Range), and Containment Pressure, (Low Range) Parameters on Table 3.2.F. The table comparing the current Technical Specification instrumentation requirements for each Function to the proposed

instrumentation requirements has been revised to reflect these instruments in the current Technical Specification instrumentation requirements column. The Regulatory Guide 1.97 instruments required for this function are those previously associated with the Containment Pressure, (High Range) parameter on Table 3.2.F.

10. The Parameter called Containment Pressure, (Low Range) on current Table 3.2.F is part of the function covered under the Instrument Channel called Containment Pressure on current Table 4.2.F and maintained in the Technical Specification as the Drywell Pressure (Narrow Range) Function.
11. The Parameter called Containment High Radiation (Drywell) on current Table 3.2.F is the same function covered under the Instrument Channel called Containment High Radiation on current Table 4.2.F and maintained in the Technical Specifications as the Drywell High Radiation Function.
12. The Parameter called Reactor Building Vent on current Table 3.2.F is the same function covered under the Instrument Channel called Reactor Building Vent Radiation Monitor on current Table 4.2. F and is proposed to be removed from the Technical Specifications via Proposed Change 2.I as the Reactor Building Vent Function.
13. The Parameter called Main Stack Vent on current Table 3.2.F is the same function covered under the Instrument Channel called Main Stack Vent Radiation Monitor on current Table 4.2. F and is proposed to be removed from the Technical Specifications via Proposed Change 2.I as the Main Stack Vent Function.
14. The Parameter called Turbine Building Vent on current Table 3.2.F is the same function covered under the Instrument Channel called Turbine Building Vent Radiation Monitor on current Table 4.2. F and is proposed to be removed from the Technical Specifications via Proposed Change 2.I as the Turbine Building Vent Function.

The following is a revision to the table included in the original submittal comparing the current Technical Specification instrumentation requirements for each Function to the proposed instrumentation requirements with the changes discussed above.

	Function	**Current TS Instruments**	**Regulatory Guide 1.97 Instruments**
1.	Reactor Water Level	640-29A 640-29B	LI-263-100A LI-263-100B LI-263-106A LI-263-106B LI-1001-650A LI-1001-650B LR-1001-604A LR-1001-604B
2.	Reactor Pressure	640-25A 640-25B	PI-263-49A PI-263-49B PR-1001-600A PR-1001-600B
3.	Drywell Temperature	TRU-9044 TI-9019	TRU-9044 TI-9019

	Function	Current TS Instruments	Regulatory Guide 1.97 Instruments
4.	Neutron Monitoring	LPRM IRM SRM	APRM SRM
5.	Suppression Chamber Water Temperature	TI-5021-2A TI-5022-2B TRU-5021-1A TRU-5022-1B	TI 5021-02A TI 5022-02B TRU-5021-01A TRU-5022-01B
6.	Suppression Chamber Bottom Pressure	PID-5067A PID-5067B	PI-1001-69A PI-1001-69B PR-1001-69
7.	Suppression Chamber Water Level	LI-1001 604A LI-1001 604B LR-1001-604A LR-1001-604B LR-5038 LR-5049	LI-1001 604A LI-1001 604B LR-1001-604A LR-1001-604B
8.	Drywell Pressure (Wide Range)	PI-1001-600A PR-1001-600A PI-1001-600B PR-1001-600B PID-5067A TRU-9044 TRU-9045	PI-1001-600A PR-1001-600A PI-1001-600B PR-1001-600B
9.	Drywell Pressure (Narrow Range)	PI-1001-601A PR-1001-600A PI-1001-601B PR-1001-600B	PI-1001-601A PR-1001-600A PI-1001-601B PR-1001-600B
10.	Drywell High Radiation	RIT-1001-606A RIT-1001-606B RR-1001-606A RR-1001 606B	RIT-1001-606A RIT-1001-606B RR-1001-606A RR-1001 606B
11.	Containment H_2 Analyzer	AR-1001-612A AR-1001-612B	AR-1001-612A AR-1001-612B AI-1-5184A AI-1-5184B

Clarification 5

By letter dated March 27, 2003, Entergy responded to an NRC question concerning the applicable calibration frequency for the proposed Suppression Chamber Water Level Function. In this response Entergy mistakenly changed the proposed frequency to 6 months from 24

months. The instruments currently required by Table 3.2.F for the Torus Water Level (Wide Range) parameter are the instruments being maintained for the proposed Suppression Chamber Water Level Function. Current Table 4.2.F identifies a channel calibration frequency of each refueling outage for these instruments which is an effective 24 month frequency. The markups are modified to reflect this 24 month frequency.

Clarification 6

Revised Technical Specification mark-up pages are attached to ensure clarity of the requested changes.

ATTACHMENT 2

PROPOSED TECHNICAL SPECIFICATION
AND BASES CHANGES (MARK-UP)
(22 Pages)

TABLE OF CONTENTS

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
3.2 PROTECTIVE INSTRUMENTATION (Cont)	4.2 PROTECTIVE INSTRUMENTATION (Cont)
E. Drywell Leak Detection The limiting conditions of operation for the instrumentation that monitors drywell leak detection are given in Section 3.6.C.	E. Drywell Leak Detection Instrumentation shall be functionally tested, calibrated and checked as indicated in Section 4.6.C.
F. Surveillance Information Readouts The limiting conditions for the instrumentation that provides surveillance information readouts are given in Table 3.2.F.	F. Surveillance Information Readouts Instrumentation shall be calibrated and checked as indicated in Table 4.2.F.

Insert 3/4.2-3A

INSERT 3/4.2-3A

F. Post-Accident Monitoring Instrumentation

During the RUN MODE and the STARTUP MODE the limiting conditions for the instrumentation that provides post-accident monitoring are given in Table 3.2.F.

F. Post-Accident Monitoring Instrumentation

Instrumentation shall be calibrated and checked as indicated in Table 4.2.F.

PNPS

TABLE 3.2.F

SURVEILLANCE INSTRUMENTATION

Minimum # of Operable Instrument Channels	Instrument #	Parameter	Type Indication and Range	Notes
2	640-29A & B	Reactor Water Level	Indicator 0-60"	(1) (2) (3)
2	640-25A & B	Reactor Pressure	Indicator 0-1200 psig	(1) (2) (3)
2	TRU-9044 TRU-9045	Drywell Pressure	Recorder 0-80 psia	(1) (2) (3)
2	TRU-9044 TI-9019	Drywell Temperature	Recorder, Indicator 0-400°F	(1) (2) (3)
2	TRU-9045 TI-9018	Suppression Chamber Air Temperature	Recorder, Indicator 0-400°F	(1) (2) (3)
2	LR-5038 LR-5049	Suppression Chamber Water Level	Recorder -7 to +7 inches	(1) (2) (3)
1	NA	Neutron Monitoring	SRM, IRM, LPRM 0 to 100% power	(1) (2) (3) (4)

Insert 3/4.2-25A

INSERT 3/4.2-25A

PNPS

TABLE 3.2.F

Post-Accident Monitoring Instrumentation

	Function	Minimum # of Operable Instrument Channels	Notes
1.	Reactor Water Level	2	(1) (2)
2.	Reactor Pressure	2	(1) (2)
3.	Drywell Temperature	2	(1) (2)
4.	Neutron Monitoring	2	(1) (2)
5.	Suppression Chamber Water Temperature	2	(1) (2)
6.	Suppression Chamber Bottom Pressure	2	(1) (2)
7	Suppression Chamber Water Level	2	(1) (2)
8.	Drywell Pressure (Wide Range)	2	(1) (2)
9.	Drywell Pressure (Narrow Range)	2	(1) (2)
10.	Drywell High Radiation	2	(1) (3)
11.	Containment H_2 Analyzer	2	(1) (4)

PNPS

TABLE 3.2.F (Cont)

Insert 3/4.2-26A

SURVEILLANCE INSTRUMENTATION

Minimum # of Channels	Operable Instrument Instrument #	Parameter	Type Indication and Range	Notes
2	TI-5021-2A TRU-5021-1A	Suppression Chamber Water Temperature	Indicator/ Multipoint Recorder 30-230°F (Bulk)	(1) (2) (3) (4)
	TI-5022-2B TRU-5022-1B	Suppression Chamber Water Temperature	Indicator/ Multipoint Recorder 30-230°F (Bulk)	(1) (2) (3) (4)
1	PID-5021	Drywell/Torus Diff. Pressure	Indicator -.25 - +3.0 psig	(1) (2) (3) (4)
1	PID-5067A PID-5067B	Drywell Pressure Torus Pressure	Indicator -.25 - +3.0 psig Indicator - 1.0 - +2.0 psig	(1) (2) (3) (4)
1/Valve	(a)Primary or (b) Backup	Safety/Relief Valve Position	(a) Acoustic monitor (b) Thermocouple	(5)
1/Valve	(a)Primary or (b) Backup	Safety Valve Position Indicator	(a) Acoustic monitor (b) Thermocouple	(5)
1/Valve	See Note (6)	Tail Pipe Temperature Indication	Thermocouple	(6)
2	LI-1001-604A LR-1001-604A LI-1001-604B LR-1001-604B	Torus Water Level (Wide Range) Torus Water Level (Wide Range)	Indicator/Multipoint Recorder 0-300" H_2O Indicator/Multipoint Recorder 0-300" H_2O	(1) (2) (3) (4) (1) (2) (3) (4)

INSERT 3/4.2-26A

Notes for Table 3.2.F

(1) With less than the minimum number of instrument channels, restore the inoperable channel(s) within 30 days. If the inoperable channel(s) are not restored, prepare and submit a special report to the Commission within 14 days of the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the channels to operable status.

(2) With the instrument channel(s) providing no indication to the control room, restore the indication to the control room within 7 days. If the indication is not restored, an orderly shutdown shall be initiated and the reactor shall be in the Hot Shutdown Condition within 12 hours.

(3) With the instrument channel(s) providing no indication to the control room, restore the indication to the control room within 7 days. If the indication is not restored, prepare and submit a special report to the Commission within 14 days of the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the channels to operable status.

(4) With the instrument channel providing no indication to the control room, restore the indication to the control room within 72 hours. If the indication is not restored, an orderly shutdown shall be initiated and the reactor shall be in the Hot Shutdown Condition within 12 hours.

Insert 3/4.2-27A

PNPS
TABLE 3.2.F (Cont)

SURVEILLANCE INSTRUMENTATION

Minimum # of Operable Instrument Channels	Instrument #	Parameter	Type Indication and Range	Notes
2	(PI 1001-600A (PR 1001-600A ((PI 1001-600B (PR 1001-600B	Containment Pressure, (High Range)	Indicator/Multipoint Recorder 0-225 psig	(4) (1) (2) (3)
2	(PI 1001-601A (PR 1001-600A ((PI 1001-601B (PR 1001-600B	Containment Pressure, (Low Range)	Indicator/Multipoint Recorder -5 to 5 psig	(4) (1) (2) (3)
2	(RIT 1001-606A (RIT 1001-606B (RR 1001-606A (RR 1001-606B	Containment High Radiation (Drywell)	Monitor/Multipoint Recorder 1 to 1×10^7 R/hr	(4) (7)
1	RI 1001-609 RR 1001-608	Reactor Building Vent	Indicator/Multipoint Recorder 10^{-1} to 10^4 R/hr	(4) (7)
1	RI 1001-608 RR 1001-608	Main Stack Vent	Indicator/Multipoint Recorder 10^{-1} to 10^4 R/hr	(4) (7)
1	RI 1001-610 RR 1001-608	Turbine Building Vent	Indicator/Multipoint Recorder 10^{-1} to 10^4 R/hr	(4) (7)

INSERT 3/4.2-27A

This page is intentionally left blank

Insert 3/4.2-28A

NOTES FOR TABLE 3.2.F

(1) With less than the minimum number of instrument channels, restore the inoperable channel(s) within 30 days.

(2) With the instrument channel(s) providing no indication to the control room, restore the indication to the control room within seven days.

(3) If the requirements of notes (1) or (2) cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown Condition within 24 hours.

(4) These surveillance instruments are considered to be redundant to each other.

(5) At a minimum, the primary or back-up* parameter indicators shall be operable for each valve when the valves are required to be operable. With both primar and backup* instrument channels inoperable either return one (1) channel to operable status within 31 days or be in a shutdown mode within 24 hours.

The following instruments are associated with the safety/relief and safety valves:

Valve	Primary Acoustic Monitor	Secondary Tail Pipe Temperature Thermocouple
203-3A	ZT-203-3A	TE6271 *
203-3B	ZT-203-3B	TE6272 *
203-3C	ZT-203-3C	TE6273 *
203-3D	ZT-203-3D	TE6276 *
203-4A	ZT-203-4A	TE6274-B
203-4B	ZT-203-4B	TE6275-B

* See Note (6)

(6) At a minimum, for thermocouples providing SRV tail pipe temperature, one of the dual thermocouples will be operable for each SRV when the valves are required to be operable. If a thermocouple becomes inoperable, it shall be returned to an operable condition within 31 days or the reactor shall be placed in a shutdown mode within 24 hours.

(7) With less than the minimum number of operable instrument channels, restore the inoperable channels to operable status within 7 days or prepare and submit a special report to the Commission within 14 days of the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the channels to operable status.

INSERT 3/4.2-28A

This page is intentionally left blank

Insert 3/4.2-37A

PNPS

TABLE 4.2.F

MINIMUM TEST AND CALIBRATION FREQUENCY FOR SURVEILLANCE INSTRUMENTATION

Instrument Channel	Calibration Frequency	Instrument Check
1) Reactor Water Level	Each Refueling Outage	Each Shift
2) Reactor Pressure	Each Refueling Outage	Each Shift
3) Drywell Pressure	Each Refueling Outage	Each Shift
4) Drywell Temperature	Once/6 Months	Each Shift
5) Suppression Chamber Temperature	Once/6 Months	Each Shift
6) Suppression Chamber Water Level	Once/6 Months	Each Shift
7) NA		
8) Neutron Monitoring	(2)	Each Shift
9) Drywell/Torus Differential Pressure	Once/6 Months	Each Shift
10) Drywell Pressure Torus Pressure	Once/6 Months Once/6 Months	Each Shift
11) Safety/Relief Valve Position Indicator (Primary/Secondary)	Each refueling outage	Once each day
12) Safety Valve Position Indicator (Primary/ Secondary)	Each refueling outage	Once each day

INSERT 3/4.2-37A

PNPS

TABLE 4.2.F

MINIMUM TEST AND CALIBRATION FREQUENCY FOR

Post-Accident Monitoring Instrumentation

	Function	Calibration Frequency	Instrument Check
1.	Reactor Water Level	Once/24 Months	Once/31 Days
2.	Reactor Pressure	Once/24 Months	Once/31 Days
3.	Drywell Temperature	Once/6 Months	Once/31 Days
4.	Neutron Monitoring	Once/24 Months	Once/31 Days
5	Suppression Chamber Water Temperature	Once/6 Months	Once/31 Days
6.	Suppression Chamber Bottom Pressure	Once/6 Months	Once/31 Days
7.	Suppression Chamber Water Level	Once/24 Months	Once/31 Days
8.	Drywell Pressure (Wide Range)	Once/24 Months	Once/31 Days
9.	Drywell Pressure (Narrow Range)	Once/24 Months	Once/31 Days
10.	Drywell High Radiation	Once/24 Months	Once/31 Days
11.	Containment H_2 Analyzer	Once/6 Months	Once/31 Days

TABLE 4.2.F (Cont)

MINIMUM TEST AND CALIBRATION FREQUENCY FOR SURVEILLANCE INSTRUMENTATION

	Instrument Channel	Calibration Frequency	Instrument Check
13)	Torus Water Level (Wide Range)	Each refueling outage	Once every 30 days
14)	Containment Pressure	Each refueling outage	Once every 30 days
15)	Containment High Radiation	Once/Operating Cycle	Once every 30 days
16)	Reactor Building Vent Radiation Monitor	Once/Operating Cycle	Once every 30 days
17)	Main Stack Vent Radiation Monitor	Once/Operating Cycle	Once every 30 days
18)	Turbine Building Vent Radiation Monitor	Once/Operating Cycle	Once every 30 days

Insert 3/4.2-38A

INSERT 3/4.2-38A

This page is intentionally left blank

NOTES FOR TABLES 4.2.A THROUGH 4.2.G

1. Initially once per month until exposure hours (M as defined on Figure 4.1.1) is 2.0×10^5; thereafter, according to Figure 4.1.1 with an interval not less than one month nor more than three months.

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

3. Deleted.

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 and high drywell pressure are not included on Table 4.2.A since they are tested on Tables 4.1.1 and 4.1.2.

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

7. Calibration of analog trip units will be performed concurrent with functional testing. The functional test will consist of injecting a simulated electrical signal into the measurement channel. Calibration of associated analog transmitters will be performed each refueling outage.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7 CONTAINMENT SYSTEMS (Cont)	4.7 CONTAINMENT SYSTEMS (Cont)
A. Primary Containment (Cont)	A. Primary Containment (Cont)
7. Containment Atmosphere Dilution	7. Containment Atmosphere Dilution
a. Within the 24-hour period after placing the reactor in the Run Mode the Post-LOCA Containment Atmosphere Dilution System must be operable and capable of supplying nitrogen to the containment for atmosphere dilution. If this specification cannot be met, the system must be restored to an operable condition within 30 days or the reactor must be at least in Hot Shutdown within 12 hours.	a. The post-LOCA containment atmosphere dilution system shall be functionally tested once per operating cycle.
b. Within the 24-hour period after placing the reactor in the Run Mode, the Nitrogen Storage Tank shall contain a minimum of 1500 gallons of liquid N_2. If this specification cannot be met the minimum volume will be restored within 30 days or the reactor must be in at least Hot Shutdown within 12 hours.	b. The level in the liquid N_2 storage tank shall be recorded weekly.
c. There are 2 H_2 analyzers available to serve the drywell. With only 1 H_2 analyzer operable, reactor operation is allowed for up to 7 days. If the inoperable analyzer is not made fully operable within 7 days, the reactor shall be in a least Hot Shutdown within the next 12 hours.	c. Deleted. ~~The H_2 analyzers shall be tested for operability once per month and shall be calibrated once per 6 months.~~
	d. Once per month each manual or power operated valve in the CAD system flow path not locked, sealed or otherwise secured in position shall be observed and recorded to be in its correct position.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7 CONTAINMENT SYSTEMS (Cont.)	4.7 CONTAINMENT SYSTEMS (Cont.)
A. Primary Containment (Cont.) With no ~~H_2~~ analyzer operable, reactor operation is allowed ~~for~~ up to 48 hours. If one of the inoperable analyzers ~~is~~ not made fully operable within 48 hours, the reactor shall be in at least Hot Shutdown within the next 12 hours.	
B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System	B. Standby Gas Treatment System and Control Room High Efficiency Air Filtration System
1. Standby Gas Treatment System	1. Standby Gas Treatment System
a. Except as specified in 3.7.B.1.c or 3.7.B.1.e below, both trains of the standby gas treatment shall be operable when in the Run, Startup, and Hot Shutdown MODES, during movement of irradiated fuel assemblies in the secondary containment, and during movement of new fuel over the spent fuel pool, and during **CORE ALTERATIONS**, and during operations with a potential for draining the reactor vessel (OPDRVs), or the reactor shall be in cold shutdown within the next 36 hours.	a. 1. At least once per operating cycle, it shall be demonstrated that pressure drop across the combined high efficiency filters and charcoal adsorber banks is less than 8 inches of water at 4000 cfm.
b. 1. The results of the in-place cold DOP tests on HEPA filters shall show ≥99% DOP removal. The results of halogenated hydrocarbon tests on charcoal adsorber banks shall show ≥99.9% halogenated hydrocarbon removal.	2. At least once per operating cycle, demonstrate that the inlet heaters on each train are operable and are capable of an output of at least 20 kW.
	3. The tests and analysis of Specification 3.7.B.1.b. shall be performed at least once per operating cycle or following painting, fire or chemical release in any ventilation zone communicating with the system while the system is operating that could contaminate the HEPA filters or charcoal adsorbers.
	4. At least once per operating cycle, automatic initiation of

BASES:

3.2 PROTECTIVE INSTRUMENTATION (Cont)

Trip settings of ≤ 100 mr/hr 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 none of the activity released during the refueling accident leaves the Reactor Building via the normal ventilation path but rather all the activity is processed by the standby gas treatment system.

For most parameters monitored, as listed in Table 3.2.F, there are two (2) channels of instrumentation. By comparing readings between these two (2) channels, a near continuous surveillance of instrument performance is available. Meaningful deviation in comparative readings of these instruments will initiate an early recalibration, thereby maintaining the quality of the instrument readings.

The Safety - ~~Safety/Relief~~ Valve position indication instrumentation provides the operator with information on selected ~~plant parameters~~ to monitor and assess these variables during and following an accident.

Insert B3/4.2-5A

In response to NUREG-0737, modifications were made to the ADS logic to extend automatic ADS operation to a class of transients that involve slowly uncovering the core without depressurizing the vessel or pressurizing the drywell. These transients were analyzed assuming no high pressure injection systems (feedwater, HPCI or RCIC) are available. Only ADS is considered available to depressurize the vessel, permitting operation of LPCI. The transients generally involve pipe breaks outside containment. Automatic ADS would not occur on low water level because high drywell pressure would not be present and ADS logic has a high drywell pressure permissive. The modification added a timer to the ADS logic which bypasses the high drywell pressure permissive, and a manual inhibit switch which allows the operator to inhibit automatic ADS initiation for events where automatic initiation is not desirable.

An analysis was performed to determine an upper time limit on the bypass timer. The goal was to ensure ADS is automatically initiated in time to prevent peak clad temperature (PCT) from exceeding 1500°F for a limiting break, which was determined to be a Reactor Water Cleanup line break. The analysis concluded that there are 18 minutes between the low water level initiation of the timer and the heatup of the cladding to the limit. Since the logic includes a 2 minute delay already, the bypass timer upper limit can not be more than 16 minutes, which provides a conservative margin for PCT and allows sufficient time for operator intervention if required. A minimum time delay is incorporated to allow RPV water level to recover, resetting the timer and preventing depressurization. The choice of a timer setting of 11 minutes places the setting in the middle and provides maximum tolerance from either limit. (Reference: GE Report "Bypass Timer Calculation for the ADS/ECCS Modification for Pilgrim Station" December 16, 1986).

INSERT B3/4.2-5A

The following are the instruments which meet the quality requirements of Regulatory Guide 1.97 and can be credited to meet the operability requirements of Specification 3/4.2.F. Two channels of indication in the control room from the below list must be available to meet the Specification requirements.

	Specification 3/4.2.F Function	Regulatory Guide 1.97 Instruments
1.	Reactor Water Level	LI 263-100A, LI 263-106A, LR 1001-604A LI 263-100B, LI 263-106B, LR 1001-604B LI 1001-650A, LI 1001-650B
2.	Reactor Pressure	PI 263-49A, PR-1001-600A PI 263-49B, PR-1001-600B
3.	Drywell Temperature	TRU-9044, TI-9019
4.	Neutron Monitoring	APRM, SRM
5.	Suppression Chamber Water Temperature	TI 5021-02A, TRU-5021-01A TI 5022-02B, TRU-5022-01B
6.	Suppression Chamber Bottom Pressure	PI 1001-69A, PI 1001-69B PR 1001-69
7.	Suppression Chamber Water Level	LI 1001-604A, LR 1001-604A LI 1001-604B, LR 1001-604B
8.	Drywell Pressure (Wide Range)	PI-1001-600A, PR-1001-600A PI-1001-600B, PR-1001-600B
9.	Drywell Pressure (Narrow Range)	PI-1001-601A, PR-1001-600A PI-1001-601B, PR-1001-600B
10.	Drywell High Radiation	RIT-1001-606A, RR 1001-606A RIT-1001-606B, RR 1001-606B
11.	Containment H_2 Analyzer	AI-1-5184A, AR 1001-612A AI-1-5184B, AR 1001-612B

BASES:

3/4.7 CONTAINMENT SYSTEMS (Cont)

A. Primary Containment (Cont)

wetwell pressure differential to keep the suppression chamber downcomer legs clear of water significantly reduced suppression chamber post LOCA hydrodynamic loads. A pressure of 1.17 psid is required to sufficiently clear the water legs of the downcomers without bubbling nitrogen into the suppression chamber at the 3.00 ft. downcomer submergence which corresponds to approximately 84,000 ft.^{3} of water. Maximum downcomer submergence is 3.25 ft. at operating suppression chamber water level. The above pressure differential and submergence number are used in the Pilgrim I Plant Unique Analysis.

Post LOCA Atmosphere Dilution

In order to ensure that the containment atmosphere remains inerted, i.e. the oxygen-hydrogen mixture below the flammable limit, the capability to inject nitrogen into the containment after a LOCA is provided. A minimum of 1500 gallons of liquid N_2 in the storage tank assures that a three-day supply of N_2 for post-LOCA containment inerting is available. Since the inerting makeup system is continually functioning, no periodic testing of the system is required.

The Post-LOCA Containment Atmospheric Dilution (CAD) System is designed to meet the requirements of AEC Regulatory Guides 1.3, 1.7 and 1.29, ASME Section III, Class 2 (except for code stamping) and seismic Class I as defined in the PNPS FSAR.

In summary, the limiting criteria are:

1. Maintain hydrogen concentration in the containment during post-LOCA conditions to less than 4%.

2. Limit the buildup in the containment pressure due to nitrogen addition to less than 28 psig.

3. To limit the offsite dose due to containment venting (for pressure control) to less than 300 Rem to the thyroid.

By maintaining at least a 3-day supply of N_2 on site there will be sufficient time after the occurrence of a LOCA for obtaining additional nitrogen supply from local commercial sources.(1) The system design contains sufficient redundancy to ensure its reliability. Thus, it is sufficient to test the ~~operability of the whole system once per operating cycle.~~ The H_2 analyzers will provide redundancy for the drywell i.e., ~~there are two H_2~~ analyzers for the Unit. By permitting reactor ~~operation~~ for 7 days with one of the two H_2 analyzers ~~inoperable, redundancy~~ of analyzing capability will be maintained ~~while not~~ imposing an immediate interruption in plant operation. Monthly

(1) As listed in Pilgrim Nuclear Power Station Procedure No. 5.4.6 "Post Accident Venting".

BASES:

3/4.7 CONTAINMENT SYSTEMS (Cont)

testing of the analyzers using H_2 will be adequate to ensure the system's readiness because of the design. Since the analyzers are normally not in operation there will be little deterioration due to use. In order to determine H_2 concentration, the analyzers must be warmed up 6 hours prior to putting into service. This time frame is acceptable for accident conditions because a 4% H_2 level will not be reached in the drywell until 16 hours following the accident. Due to nitrogen addition, the pressure in the containment after a LOCA will increase with time. Under the worst expected conditions the containment pressure will reach 28 psig in approximately 45 days. If and when that pressure is reached, venting from the containment shall be manually initiated per the requirements of 10CFR50.44. The venting path will be through the Standby Gas Treatment system in order to minimize the off site dose.

B.1 Standby Gas Treatment System

The Standby Gas Treatment System is designed to filter and exhaust the reactor building atmosphere to the stack during secondary containment isolation conditions. Upon containment isolation, both standby gas treatment fans are designed to start to bring the reactor building pressure negative so that all leakage should be in leakage. After a preset time delay, the standby fan automatically shuts down so the reactor building pressure is maintained approximately 1/4 inch of water negative. Should one system fail to start, the redundant system is designed to start automatically. Each of the two trains has 100% capacity.

High Efficiency Particulate Air (HEPA) filters are installed before and after the charcoal adsorbers to minimize potential release of particulates to the environment and to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment. The in-place test results should indicate a system leak tightness of less than 1 percent bypass leakage for the charcoal adsorbers and a HEPA filter efficiency of at least 99 percent removal of cold DOP particulates. The laboratory carbon sample test results should indicate a methyl iodide removal efficiency of at least 95 percent for expected accident conditions. The specified efficiencies for the charcoal and particulate filters is sufficient to preclude exceeding 10CFR100 guidelines for the accidents analyzed. The analysis of the loss of coolant accident assumed a charcoal adsorber efficiency of 95% and TID 14844 fission product source terms, hence, installing two banks of adsorbers and filters in each train provides adequate margin. A 20 kW heater maintains relative humidity below 70% in order to ensure the efficient removal of methyl iodide on the impregnated charcoal adsorbers. Considering the relative simplicity of the heating circuit, the test frequency of once/operating cycle is adequate to demonstrate operability.

Air flow through the filters and charcoal adsorbers for 15 minutes each month assures operability of the system. Since the system heaters are automatically controlled, the air flowing through the filters and adsorbers will be $\leq$70% relative humidity and will have the desired drying effect.