Attachment B

Revised Technical Specification Pages

1. At least one door in each access opening is closed.

2. The standby gas treatment system is operable.

3. All automatic ventilation system isolation valves are operable or secured in the isolated position.

O. Operating Cycle - Interval between the end of one refueling outage and the end of the next subsequent refueling outage.

P. Refueling Frequencies

1. Refueling Outage - Refueling outage is the period of time between the shutdown of the unit prior to a refueling and the startup of the plant after that refueling. For the purpose of designating frequency of testing and surveillance, a refueling outage shall mean a regularly scheduled outage; however, where such outages occur within 8 months of the completion of the previous refueling outage, the required surveillance testing need not be performed until the next regularly scheduled outage.

2. Refueling Interval - Refueling interval applies only to ASME Code, Section XI IWP and IWV surveillance tests. For the purpose of designating frequency of these code tests, a refueling interval shall mean at least once every 24 months.

Q. Alteration of the Reactor Core - The act of moving any component in the region above the core support plate, below the upper grid and within the shroud. Normal control rod movement with the control rod drive hydraulic system is not defined as a core alteration. Normal movement of in-core instrumentation is not defined as a core alteration.

R. Reactor Vessel Pressure - Unless otherwise indicated, reactor vessel pressures listed in the Technical Specifications are those measured by the reactor vessel steam space detectors.

S. Thermal Parameters

1. Minimum Critical Power Ratio (MCPR) - the value of critical power ratio associated with the most limiting assembly in the reactor core. Critical Power Ratio (CPR) is the ratio of that power in a fuel assembly, which is calculated to cause some point in the assembly to experience boiling transition, to the actual assembly operating power.

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

3. Total Peaking Factor - The ratio of the fuel rod surface heat flux to the heat flux of an average rod in an identical geometry fuel assembly operating at the core average bundle power.

1.0 DEFINITIONS (Continued)

U. Surveillance Frequency - Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the specified surveillance interval.

The Surveillance Frequency establishes the limit for which the specified time interval for Surveillance Requirements may be extended. It permits an allowable extension of the normal surveillance interval to facilitate surveillance schedule and consideration of plant operating conditions that may not be suitable for conducting the surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. It is not intended that this provision be used repeatedly as a convenience to extend surveillance intervals beyond that specified for surveillances that are not performed during refueling outages. The limitation of Definition "U" is based on engineering judgment and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the Surveillance Requirements. This provision is sufficient to ensure that the reliability ensured through surveillance activities is not significantly degraded beyond that obtained from the specified surveillance interval.

V. Surveillance interval - The surveillance interval is the calendar time between surveillance tests, checks, calibrations, and examinations to be performed upon an instrument or component when it is required to be operable. These tests may be waived when the instrument, component, or system is not required to be operable, but the instrument, component, or system shall be tested prior to being declared operable. The operating cycle interval is 18 months and the 25% tolerance given in Definition "U" is applicable. The refueling interval is 24 months and the 25% tolerance specified in definition "U" is applicable.

W. Fire Suppression Water System - A fire suppression water system shall consist of: a water source(s); gravity tank(s) or pump(s); and distribution piping with associated sectionalizing control or isolation valves. Such valves shall include hydrant post indicator valves and the first valve ahead of the water flow alarm device on each sprinkler, hose standpipe or spray system riser.

X. Staggered Test Basis - A staggered test basis shall consist of: (a) a test schedule for n systems, subsystems, trains, or other designated components obtained by dividing the specified test interval into n equal subintervals; (b) the testing of one system, subsystem, train or other designated components at the beginning of each subinterval.

Y. Source Check - A source check shall be the qualitative assessment of channel response when the channel sensor is exposed to a radioactive source.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
E. Reactivity Anomalies The reactivity equivalent of the difference between the actual critical rod configuration and the expected configuration during power operation shall not exceed 1% ΔK. If this limit is exceeded, the reactor will be shut down until the cause has been determined and corrective actions have been taken if such actions are appropriate.	E. Reactivity Anomalies During the startup test program and startups following refueling outages, the critical rod configurations will be compared to the expected configurations at selected operating conditions. These comparisons will be used as base data for reactivity monitoring during subsequent power operation throughout the fuel cycle. At specific power operating conditions, the critical rod configuration will be compared to the configuration expected based upon appropriately corrected past data. This comparison will be made at least every full power month.
F. If Specifications 3.3.A through D above cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown condition within 24 hours. Specifications 3.3.A through D above do not apply when there is no fuel in the reactor vessel.	
G. Scram Discharge Volume 1. The scram discharge volume drain & vent valves shall be operable whenever more than one operable control rod is withdrawn. 2. If any of the scram discharge volume drain or vent valves are made or found inoperable an orderly shutdown shall be initiated and the reactor shall be in Cold Shutdown within 24 hours.	G. Scram Discharge Volume 1. Scram discharge volume drain and vent valves; a. Verified open at least once per month. b. Test as specified in 3.13. These valves may be closed intermittently for testing under administrative control. 2. During each refueling interval verify the scram discharge volume drain and vent valves; a) Close within 30 seconds after receipt of a reactor scram signal and b) Open when the scram is reset.

LIMITING CONDITIONS FOR OPERATION

3.4 STANDBY LIQUID CONTROL SYSTEM

Applicability:

Applies to the operating status of the Standby Liquid Control System.

Objective:

To assure the availability of a system with the capability to shutdown the reactor and maintain the shutdown condition without the use of control rods.

Specification:

A. Normal System Availability

1. During periods when fuel is in the reactor and prior to startup from a cold condition, the Standby Liquid Control System shall be operable, except as specified in 3.4.B below. This system need not be operable when the reactor is in the Cold Shutdown Condition, all operable control rods are fully inserted and Specification 3.3.A is met.

SURVEILLANCE REQUIREMENTS

4.4 STANDBY LIQUID CONTROL SYSTEM

Applicability:

Applies to the surveillance requirements of the Standby Liquid Control System.

Objective:

To verify the operability of the Standby Liquid Control System.

Specification:

A. Normal System Availability

The operability of the Standby Liquid Control System shall be verified by the performance of the following tests:

1. when tested as specified in 3.13 verify that each pump delivers at least 39 GPM against a system head of 1275 psig.

2. As required below:

   a. Once each refueling interval while testing as specified in 3.13 verify the system relief valve set point of 1425 psig ± 43 psig.

LIMITING CONDITIONS FOR OPERATION

3.4 STANDBY LIQUID CONTROL SYSTEM

B. Operation with Inoperable Components:

1. From and after the date that a redundant component is made or found to be inoperable, Specification 3.4.A.1 shall be considered fulfilled and continued operation permitted provided that the component is returned to an operable condition within seven days.

SURVEILLANCE REQUIREMENTS

4.4 STANDBY LIQUID CONTROL SYSTEM

b. At least once during each refueling interval, while testing as specified in 3.13, manually initiate one of the Standby Liquid Control System loops and pump demineralized water into the reactor vessel.

This test checks explosion of the charge associated with the tested loop, proper operation of the valves, and pump capacity. The replacement charges to be installed will be selected from the same manufactured batch as the tested charge.

c. When testing to satisfy requirement 4.4.A.2.b, both systems, including both explosive valves, shall be tested in the course of two refueling intervals.

B. Surveillance with Inoperable Components

1. When a component is found to be inoperable, its redundant component shall be demonstrated to be operable immediately and daily thereafter until the inoperable component is repaired.

CASES:

3.4 & 4.4 STANDBY LIQUID CONTROL SYSTEM

A. The requirements for SLC capability to shutdown the reactor are identified via the station Nuclear Safety Operational Analysis (Appendix G to the FSAR, Special Event 45). If no more than one operable control rod is withdrawn, the basic shutdown reactivity requirement for the core is satisfied and the Standby Liquid Control system is not required. Thus, the basic reactivity requirement for the core is the primary determinant of when the standby liquid control system is required. The design objective of the standby liquid control system is to provide the capability of bringing the reactor from full power to a cold, xenon-free shutdown condition assuming that none of the withdrawn control rods can be inserted. To meet this objective, the Standby Liquid Control system is designed to inject a quantity of boron that produces a minimum concentration equivalent to 675 ppm of natural boron in the reactor core. The 675 ppm equivalent concentration in the reactor core is required to bring the reactor from full power to at least a three percent Δk subcritical condition, considering the hot to cold reactivity difference, xenon poisoning etc. The system will inject this boron solution in less than 125 minutes. The maximum time requirement for inserting the boron solution was selected to override the rate of reactivity insertion caused by cooldown of the reactor following the xenon poison peak.

The Standby Liquid Control system is also required to meet 10CFR50.62 (Requirements for Reduction of Risk from Anticipated Transients Without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants). The Standby Liquid Control system must have the equivalent control capacity (injection rate) of 86 gpm at 13 percent by wt. natural sodium pentaborate for a 251" diameter reactor pressure vessel in order to satisfy 10CFR50.62 requirements. This equivalency requirement is fulfilled by a combination of concentration, B^{10} enrichment and flow rate of sodium pentaborate solution. A minimum 8.42% concentration and 54.5% enrichment of B^{10} isotope at a 39 GPM pump flow rate satisfies the ATWS Rule (10CFR50.62) equivalency requirement.

Because the concentration/volume curve has been revised to reflect the increased B^{10} isotopic enrichment, an additional requirement has been added to evaluate the solution's capability to meet the original design shutdown criteria whenever the B^{10} enrichment requirement is not met.

Testing the pumps and valves in accordance with ASME B&PV Code Section XI (Articles IWP and IWV, except where specific relief is granted) adequately assesses component operational readiness. The only practical time to fully test the liquid control system is during a refueling outage. Various components of the system are individually tested periodically, thus making more frequent testing of the entire system unnecessary.

BASES:

3.4 & 4.4 STANDBY LIQUID CONTROL SYSTEM (Cont'd)

B. Only one of the two standby liquid control pumping loops is needed for operating the system. One inoperable pumping circuit does not immediately threaten the shutdown capability, and reactor operation can continue while the circuit is being repaired. Assurance that the remaining system will perform its intended function and that the long term average availability of the system is not reduced is obtained for a one out of two system by an allowable equipment out of service time of one third of the normal surveillance frequency. This method determines an equipment out of service time of ten days. Additional conservatism is introduced by reducing the allowable out of service time to seven days, and by increased testing of the operable redundant component.

C. The quantity of B^{10} stored in the Standby Liquid Control System Storage Tank is sufficient to bring the concentration of B^{10} in the reactor to the point where the reactor will be shutdown and to provide a minimum 25 percent margin beyond the amount needed to shutdown the reactor to allow for possible imperfect mixing of the chemical solution in the reactor water.

Level indication and alarm indicate whether the solution volume has changed, which might indicate a possible solution concentration change. Test intervals for level monitoring have been established in consideration of these factors. Temperature and liquid level alarms for the system are annunciated in the control room.

The solution shall be kept at least 10°F above the maximum saturation temperature to guard against boron precipitation. Minimum solution temperature is 48°F. This is 10°F above the saturation temperature for the maximum allowed sodium pentaborate concentration of 9.22 Wt. Percent.

Each parameter (concentration, pump flow rate, and enrichment) is tested at an interval consistent with the potential for that parameter to vary and also to assure proper equipment performance. Enrichment testing is required when material is received and when chemical addition occurs since change cannot occur by any process other than the addition of new chemicals to the Standby Liquid Control solution tank.

LIMITING CONDITION FOR OPERATION

3.5 CORE AND CONTAINMENT COOLING SYSTEMS

Applicability

Applies to the operational status of the core and suppression pool cooling systems.

Objective

To assure the operability of the core and suppression pool cooling systems under all conditions for which this cooling capability is an essential response to station abnormalities.

Specification

A. Core Spray and LPCI Systems

1. Both core spray systems shall be operable whenever irradiated fuel is in the vessel and prior to reactor startup from a Cold Condition, except as specified in 3.5.A.2 below.

SURVEILLANCE REQUIREMENT

4.5 CORE AND CONTAINMENT COOLING SYSTEMS

Applicability

Applies to the Surveillance Requirements of the core and suppression pool cooling systems which are required when the corresponding Limiting Condition for operation is in effect.

Objective

To verify the operability of the core and suppression pool cooling systems under all conditions for which this cooling capability is an essential response to station abnormalities.

Specification

A. Core Spray and LPCI Systems

1. Core Spray System Testing.

	Item	Frequency
a.	Simulated Automatic Actuation test.	Once/Operating Cycle
b.	Pump Operability	When tested as specified in 3.13 verify that each core spray pump delivers at least 3300 GPM against a system head corresponding to a reactor vessel pressure of 104 psig
c.	Motor Operated Valve Operability	As specified in 3.13
d.	Core Spray Header Δp Instrumentation	

LIMITING CONDITION FOR OPERATION

3.5.A Core Spray and LPCI Systems (cont'd)

2. From and after the date that one of the core spray systems is made or found to be inoperable for any reason, continued reactor operation is permissible during the succeeding seven days, provided that during such seven days all active components of the other core spray system and active components of the LPCI system and the diesel generators are operable.

3. The LPCI system shall be operable whenever irradiated fuel is in the reactor vessel, and prior to reactor startup from a Cold Condition, except as specified in 3.5.A.4 and 3.5.F.5.

4. From and after the date that the LPCI system is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding seven days unless it is sooner made operable, provided that during such seven days the containment cooling system (including 2 LPCI pumps) and active components of both core spray systems, and the diesel generators required for operation of such components if no external source of power were available shall be operable.

5. If the requirements of 3.5.A cannot be met, an orderly shutdown of the reactor shall be initiated and the reactor shall be in the Cold Shutdown Condition within 24 hours

SURVEILLANCE REQUIREMENT

4.5.A Core Spray and LPCI Systems (cont'd)

Check	Once/day
Calibrate	Once/3 months
Test Step	Once/3 months

2. This section intentionally left blank

3. LPCI system Testing shall be as follows:

a. Simulated Automatic Actuation Test	Once/Operating Cycle
b. Pump Operability	When tested as specified in 3.13 verify that each LPCI pump delivers 4800 GPM at a head across the pump of at least 380 ft
c. Motor Operated valve operability	As specified in 3.13

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
3.5.B Containment Cooling System	4.5.B Containment Cooling System
1. Except as specified in 3.5.B.2 and 3.5.F.3 below, both containment cooling system loops shall be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F, and prior to reactor startup from a Cold Condition.	1. Containment Cooling system Testing shall be as follows:
2. From and after the date that one containment cooling system loop is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 72 hours unless such system loop is sooner made operable, provided that the other containment cooling system loop, including its associated diesel generator, is operable.	a. Pump Operability — When tested as specified in 3.13 verify that each RBCCW pump delivers 1700 GPM at 70 ft TDH and each SSW pump delivers 2700 GPM at 55 ft TDH b. Valve Operability — As specified in 3.13 c. Air test on drywell and torus headers and nozzles — Once/5 years
3. If the requirements of 3.5.B cannot be met, an orderly shutdown shall be initiated and the reactor shall be in a Cold Shutdown Condition within 24 hours.	

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
C. HPCI System	C. HPCI System
1. The HPCI system shall be operable whenever there is irradiated fuel in the reactor vessel, reactor pressure is greater than 150 psig, and reactor coolant temperature is greater than 365°F; except as specified in 3.5.C.2 below.	1. HPCI system testing shall be performed as follows:
2. From and after the date that the HPCI system is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding seven days unless such system is sooner made operable, providing that during such seven days all active components of the ADS system, the RCIC system, the LPCI system and both core spray systems are operable.	a. Simulated Automatic Actuation Test — Once/operating cycle b. Pump Operability — When tested as specified in 3.13 verify that the HPCI pump delivers at least 4250 GPM for a system head corresponding to a reactor pressure of 1000 psig c. Motor Operated Valve Operability — As specified in 3.13 d. Flow Rate at 150 psig — Once/operating cycle verify that the HPCI pump delivers at least 4250 GPM for a system head corresponding to a reactor pressure of 150 psig
3. If the requirements of 3.5.C cannot be met, an orderly shutdown shall be initiated and the reactor pressure shall be reduced to or below 150 psig within 24 hours.	The HPCI pump shall deliver at least 4250 gpm for a system head corresponding to a reactor pressure of 1000 to 150 psig.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
3.5.D Reactor Core Isolation Cooling (RCIC) System	4.5.D Reactor Core Isolation Cooling (RCIC) System
1. The RCIC system shall be operable whenever there is irradiated fuel in the reactor vessel, reactor pressure is greater than 150 psig, and reactor coolant temperature is greater than 365°F; except as specified in 3.5.D.2 below.	1. RCIC system testing shall be performed as follows:
2. From and after the date that the RCICS is made or found to be inoperable for any reason, continued reactor power operation is permissible only during the succeeding seven days provided that during such seven days the HPCIS is operable.	a. Simulated Automatic Actuation Test — Once/operating cycle
3. If the requirements of 3.5.D cannot be met, an orderly shutdown shall be initiated and the reactor pressure shall be reduced to or below 150 psig within 24 hours.	b. Pump Operability — When tested as specified in 3.13 verify that the RCIC pump delivers at least 400 GPM at a system head corresponding to a reactor pressure of 1000 psig
	c. Motor Operated Valve Operability — As specified in 3.13
	d. Flow Rate at 150 psig — Once/operating cycle verify that the RCIC pump delivers at least 400 GPM at a system head corresponding to a reactor pressure of 150 psig
	The RCIC pump shall deliver at least 400 gpm for a system head corresponding to a reactor pressure of 1000 to 150 psig.

BASES:

3.5.B Containment Cooling System

The containment cooling system for Pilgrim 1 consists of two independent loops each of which to be an operable loop requires one LPCI pump, two RBCCW pumps, and two SSW pumps to be operable. There are installed spares for margin above the design conditions. Each system has the capability to perform its function; i.e., removing 64 x 10^6 Btu/hr (Ref. Amendment 18), even with some system degradation. If one loop is out-of-service, reactor operation is permitted for 72 hours.

With components or systems out-of-service, overall core and containment cooling reliability is maintained by the operability of the remaining cooling equipment.

Since some of the SSW and RBCCW pumps are required for normal operation, capacity testing of individual pumps by direct flow measurement is impractical. Pump operability will be demonstrated during normal system operation and/or when system conditions allow capacity and performance testing in accordance with 3.13.

BASES:

4.5 Core and Containment Cooling Systems Surveillance Frequencies

The testing interval for the core and containment cooling systems is based on industry practice, quantitative reliability analysis, judgment and practicality. The core cooling systems have not been designed to be fully testable during operation. For example, in the case of the HPCI, automatic initiation during power operation would result in pumping cold water into the reactor vessel which is not desirable. Complete ADS testing during power operation causes an undesirable loss-of-coolant inventory. To increase the availability of the core and containment cooling systems, the components which make up the system; i.e., instrumentation, pumps, valves, etc., are tested frequently. The pumps and motor operated valves are tested in accordance with ASME B&PV Code, Section XI (IWP and IWV, except where specific relief is granted) to assure their operability. The frequency and methods of testing are described in the PNPS IST program. The PNPS IST Program is used to assess the operational readiness of pumps and valves that are safety-related or important to safety. When components are tested and found inoperable the impact on system operability is determined, and corrective action or Limiting Conditions of Operation are initiated. A simulated automatic actuation test once each cycle combined with code inservice testing of the pumps and valves is deemed to be adequate testing of these systems.

The surveillance requirements provide adequate assurance that the core and containment cooling systems will be operable when required.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.6.D Safety and Relief Valves	4.6.D Safety and Relief Valves
1. During reactor power operating conditions and prior to reactor startup from a Cold Condition, or whenever reactor coolant pressure is greater than 104 psig and temperature greater than 340°F, both safety valves and the safety modes of all relief valves shall be operable. The nominal setpoint for the relief/safety valves shall be selected between 1095 and 1145 psig. All relief/safety valves shall be set at this nominal setpoint ± 11 psi. The safety valves shall be set at 1240 psig ± 13 psi.	1. Testing of safety and relief/safety valves shall be in accordance with 3.13.
2. If Specification 3.6.D.1 is not met, an orderly shutdown shall be initiated and the reactor coolant pressure shall be below 104 psig within 24 hours. Note: Technical Specifications 3.6.D.2 - 3.6.D.5 apply only when two Stage Target Rock SRVs are installed.	2. At least one of the relief/safety valves shall be disassembled and inspected each refueling outage.
3. If the temperature of any safety relief discharge pipe exceeds 212°F during normal reactor power operation for a period of greater than 24 hours, an engineering evaluation shall be performed justifying continued operation for the corresponding temperature increases.	3. Whenever the safety relief valves are required to be operable, the discharge pipe temperature of each safety relief valve shall be logged daily.
	4. Instrumentation shall be calibrated and checked as indicated in Table 4.2.F.

LIMITING CONDITIONS FOR OPERATION

3.7.A Primary Containment (Con't)

Primary Containment Isolation Valves

2.b. In the event any automatic Primary Containment Isolation Valve becomes inoperable, at least one containment isolation valve in each line having an inoperable valve shall be deactivated in the isolated condition. (This requirement may be satisfied by deactivating the inoperable valve in the isolated condition. Deactivation means to electrically or pneumatically disarm, or otherwise secure the valve.)*

*Isolation valves closed to satisfy these requirements may be reopened on an intermittent basis under ORC approved administrative controls.

SURVEILLANCE REQUIREMENTS

4.7.A Primary Containment (Con't)

Primary Containment Isolation Valves

2.b.1 The primary containment isolation valves surveillance shall be performed as follows:

a. At least once per operating cycle the operable primary containment isolation valves that are power operated and automatically initiated shall be tested for simulated automatic initiation and closure times.

b. Test primary containment isolation valves:

1. Verify power operated primary containment isolation valve operability as specified in 3.13.

2. Verify main steam isolation valve operability as specified in 3.13.

c. At least twice per week the main steam line power operated isolation valves shall be exercised by partial closure and subsequent reopening.

d. Verify reactor coolant system instrument line flow check valve operability as specified in 3.13.

2.b.2 Whenever a primary containment automatic isolation valve, is inoperable, the position of the isolated valve in each line having an inoperable valve shall be recorded daily.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7 Primary Containment	4.7 Primary Containment
3. Pressure Suppression Chamber - Reactor Building Vacuum Breakers	3 Pressure Suppression Chamber - Reactor Building Vacuum Breakers
a. Except as specified in 3.7.A.3.b below, two pressure suppression chamber - reactor building vacuum breakers shall be operable at all times when primary containment integrity as required. The setpoint of the differential pressure instrumentation which actuates the pressure suppression chamber - reactor building breakers shall be 0.5 psig.	a. Verify operability of the pressure suppression chamber-reactor building vacuum breakers as specified in 3.13.
b. From and after the date that one of the pressure suppression chamber - reactor building vacuum breakers is made or found to be inoperable for any reason, reactor operation is permissible only during the succeeding seven days unless such vacuum breaker is sooner made operable, provided that the repair procedure does not violate primary containment integrity.	b. Check the associated instrumentation including set points for proper operation every three months.
4. Drywell-Pressure Suppression Chamber Vacuum Breakers	4. Drywell-Pressure Suppression Chamber Vacuum Breakers
a. When primary containment is required, all drywell-pressure suppression chamber vacuum breakers shall be operable except during testing and as stated in Specifications 3.7.A.4.b, c and d, below. Drywell-pressure suppression chamber vacuum breakers shall be considered operable if:	a. Periodic Operability Tests
1) The valve is demonstrated to open with the applied force of the installed test actuator as indicated by the position switches and remote position indicating lights.	(1) Once each month each drywell-pressure suppression chamber vacuum breaker shall be exercised and the operability of the valve and installed position indicators and alarms verified.
2) The valve shall return by gravity when released after being opened by remote or manual means, to within 3/32" of the fully closed position.	(2) A drywell to suppression chamber differential pressure decay rate test shall be conducted at least every 3 months.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7 Primary Containment	4.7 Primary Containment
3) Neither of the two position alarm systems which annunciate on Panel C-7 and Panel 905 when any vacuum breaker opening exceeds 3/32" are in alarm.	
b. Any drywell-suppression chamber vacuum breaker may be non-fully closed as determined by the position switches provided that the drywell to suppression chamber differential decay rate is demonstrated to be not greater than 25% of the differential pressure decay rate for the maximum allowable bypass area of $0.2ft^2$.	b. During each refueling interval:
	(1) Each vacuum breaker shall be tested to determine that the disc opens freely to the touch and returns to the closed position by gravity with no indication of binding.
	(2) Vacuum breaker position switches and installed alarm systems shall be calibrated and functionally tested.
c. Reactor operation may continue provided that no more than 2 of the drywell-pressure suppression chamber vacuum breakers are determined to be inoperable provided that they are secured or known to be in the closed position.	(3) At least 25% of the vacuum breakers shall be visually inspected such that all vacuum breakers shall have been inspected following every fourth refueling interval. If deficiencies are found, all vacuum breakers shall be visually inspected and deficiencies corrected.
d. If a failure of one of the two installed position alarm systems occurs for one or more vacuum breakers, reactor operation may continue provided that a differential pressure decay rate test is initiated immediately and performed every 15 days thereafter until the failure is corrected. The test shall meet the requirements of Specification 3.7.A.4.b.	(4) A drywell to suppression chamber leak rate test shall demonstrate that the differential pressure decay rate does not exceed the rate which would occur through a 1 inch orifice without the addition of air or nitrogen.
5. Oxygen Concentration	5. Oxygen Concentration
a. The primary containment atmosphere shall be reduced to less than 4% oxygen by volume with nitrogen gas during reactor power operation with reactor coolant pressure above 100 psig, except as specified in 3.7.A.5.b.	The primary containment oxygen concentration shall be measured and recorded at least twice weekly.

LIMITING CONDITIONS FOR OPERATION

3.13 INSERVICE CODE TESTING

APPLICABILITY:

Applies to ASME Code Class 1, 2 and 3 or equivalent pumps and valves.

OBJECTIVE:

To assure the operational readiness of ASME Code Class 1, 2, and 3 (Safety Related) or equivalent (important to safety) pumps and valves.

SPECIFICATION:

A. INSERVICE CODE TESTING OF PUMPS AND VALVES

1. Based on the Facility Commercial Operation Date, Inservice Code Testing of safety and safety-related pumps and valves shall be performed in accordance with the ASME Boiler and Pressure Vessel Code, Section XI "Rules for Inservice Inspection of Nuclear Power Plant Components" Subsections IWP and IWV as required by 10CFR50.55a(g), except where specific relief has been granted by the NRC pursuant to 10CFR50.55a(g)(6)(i).

SURVEILLANCE REQUIREMENTS

4.13 INSERVICE CODE TESTING

APPLICABILITY:

Applies to the periodic testing requirements of ASME Code Class 1, 2 and 3 or equivalent pumps and valves.

OBJECTIVE:

To assess the operational readiness of safety and safety-related pumps and valves by performance of inservice tests.

SPECIFICATION:

A. INSERVICE CODE TESTING OF PUMPS AND VALVES

1. Inservice Code Testing activities shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10CFR50.55a(g), with the exemptions and alternate testing that have been approved by the NRC pursuant to 10CFR50.55a(g)(6)(i). These exemptions and alternate testing are included in the PNPS Inservice Testing Program.

2. Test Frequencies for Code Terminology when performing Inservice Test activities.

Code Terminology	Frequencies
Weekly	7 Days
Monthly	31 Days
Quarterly or 3 Mths	92 Days
Semiannually/6 Mths	184 Days
9 Months	276 Days
Yearly/Annually	366 Days
Biannual/2 Yrs	732 Days

3. The provisions in Definitions (1.0) for REFUELING INTERVAL, SURVEILLANCE FREQUENCY, and SURVEILLANCE INTERVAL are applicable to Code testing and

LIMITING CONDITIONS FOR OPERATION

3.13 INSERVICE CODE TESTING

SURVEILLANCE REQUIREMENTS

4.13 INSERVICE CODE TESTING

to the above frequencies for performing Code testing activities.

4. Performance of Code testing shall be in addition to other specified Surveillance Requirements.

5. Nothing in the ASME Boiler and Pressure Vessel Code shall supersede the requirements of Technical Specifications.

BASES:

3.13 and 4.13 Inservice Code Testing

The Limiting Conditions for Operation establishes the requirement that inservice testing of ASME Code Class 1, 2, and 3 pumps and valves shall be performed in accordance with the periodically updated edition of Section XI of the ASME Boiler and Pressure Vessel Code and Addenda as required by 10CFR50, Section 50.55a(g). These requirements apply except when relief has been requested pursuant to 10CFR50.55a(g)(6)(i) and granted by the NRC. The NRC may grant relief pursuant to 10CFR50.55a(a)(3)(i), 10CFR50.55a(3)(ii) or 10CFR50.55a(g)(6)(i).

The detailed procedures for testing of pumps and valves are documented in the PNPS Inservice Testing Program.

This specification includes a clarification of the frequencies for performing the testing activities required by Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda. This clarification is provided to ensure consistency in Surveillance Frequencies throughout the Technical Specifications and to remove any ambiguities relative to the frequencies for performing the required inservice testing activities.

Under the terms of this Specification, the more restrictive requirements of the Technical Specifications take precedence over the ASME Boiler and Pressure Vessel Code and applicable Addenda. For example:

- Technical Specifications require components to be declared operable prior to entry into an operational mode. The ASME B&PV Code provision which allows pumps and valves to be tested up to one week after return to normal operation is superseded (and not allowed) by the more restrictive requirements of Technical Specifications.

- The allowance for a valve to be incapable of performing its specified function for up to 24 hours before being declared inoperable is superseded (and not allowed) by the more restrictive Technical Specification definition of operability which does not allow a grace period.

Attachment C

Marked-up Technical Specification Pages

1. At least one door in each access opening is closed.

2. T. standby gas treatment system is operable.

3. All automatic ventilation system isolation valves are operable or secured in the isolated position.

O. Operating Cycle - Interval between the end of one refueling outage and the end of the next subsequent refueling outage.

P. Refueling Frequencies

1. Refueling Outage - Refueling outage is the period of time between the shutdown of the unit prior to a refueling and the startup of the plant after that refueling. For the purpose of designating frequency of testing and surveillance, a refueling outage shall mean a regularly scheduled outage; however, where such outages occur within 8 months of the completion of the previous refueling outage, the required surveillance testing need not be performed until the next regularly scheduled outage.

Q. Alteration of the Reactor Core - The act of moving any component in the region above the core support plate, below the upper grid and within the shroud. Normal control rod movement with the control rod drive hydraulic system is not defined as a core alteration. Normal movement of in-core instrumentation is not defined as a core alteration.

R. Reactor Vessel Pressure - Unless otherwise indicated, reactor vessel pressures listed in the Technical Specifications are those measured by the reactor vessel steam space detectors.

S. Thermal Parameters

1. Minimum Critical Power Ratio (MCPR) - the value of critical power ratio associated with the most limiting assembly in the reactor core. Critical Power Ratio (CPR) is the ratio of that power in a fuel assembly, which is calculated to cause some point in the assembly to experience boiling transition, to the actual assembly operating power.

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

3. Total Peaking Factor - The ratio of the fuel rod surface heat flux to the heat flux of an average rod in an identical geometry fuel assembly operating at the core average bundle power.

2. Refueling Interval - Refueling Interval applies only to ASME Code, Section XI IWP and IWV surveillance tests. For the purpose of designating frequency of these code tests, a refueling interval shall mean at least once every 24 months.

U. Surveillance Frequency - Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the specified surveillance interval.

The Surveillance Frequency establishes the limit for which the specified time interval for Surveillance Requirements may be extended. It permits an allowable extension of the normal surveillance interval to facilitate surveillance schedule and consideration of plant operating conditions that may not be suitable for conducting the surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. It is not intended that this provision be used repeatedly as a convenience to extend surveillance intervals beyond that specified for surveillances that are not performed during refueling outages. The limitation of Definition "U" is based on engineering judgment and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the Surveillance Requirements. This provision is sufficient to ensure that the reliability ensured through surveillance activities is not significantly degraded beyond that obtained from the specified surveillance interval.

V. Surveillance Interval - The surveillance interval is the calendar time between surveillance tests, checks, calibrations, and examinations to be performed upon an instrument or component when it is required to be operable. These tests may be waived when the instrument, component, or system is not required to be operable, but the instrument, component, or system shall be tested prior to being declared operable. The operating cycle interval is 18 months and the 25% tolerance given in Definition "U" is applicable. THE REFUELING INTERVAL IS 24 MONTHS AND THE 25% TOLERANCE GIVEN IN DEFINITION "U" IS APPLICABLE

W. Fire Suppression Water System - A fire suppression water system shall consist of: a water source(s); gravity tank(s) or pump(s); and distribution piping with associated sectionalizing control or isolation valves. Such valves shall include hydrant post indicator valves and the first valve ahead of the water flow alarm device on each sprinkler, hose standpipe or spray system riser.

X. Staggered Test Basis - A staggered test basis shall consist of: (a) a test schedule for n systems, subsystems, trains, or other designated components obtained by dividing the specified test interval into n equal subintervals; (b) the testing of one system, subsystem, train or other designated components at the beginning of each subinterval.

Y. Source Check - A source check shall be the qualitative assessment of channel response when the channel sensor is exposed to a radioactive source.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
E. Reactivity Anomalies The reactivity equivalent of the difference between the actual critical rod configuration and the expected configuration during power operation shall not exceed 1% ΔK. If this limit is exceeded, the reactor will be shut down until the cause has been determined and corrective actions have been taken if such actions are appropriate.	E. Reactivity Anomalies During the startup test program and startups following refueling outages, the critical rod configurations will be compared to the expected configurations at selected operating conditions. These comparisons will be used as base data for reactivity monitoring during subsequent power operation throughout the fuel cycle. At specific power operating conditions, the critical rod configuration will be compared to the configuration expected based upon appropriately corrected past data. This comparison will be made at least every full power month.
F. If Specifications 3.3.A through D above cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown condition within 24 hours. Specifications 3.3.A through D above do not apply when there is no fuel in the reactor vessel.	
G. Scram Discharge Volume 1. The scram discharge volume drain & vent valves shall be operable whenever more than one operable control rod is withdrawn. 2. If any of the scram discharge volume drain or vent valves are made or found inoperable an orderly shutdown shall be initiated and the reactor shall be in Cold Shutdown within 24 hours.	F. Scram Discharge Volume 1. ~~The~~ scram discharge volume drain and vent valves; ~~shall be verified open at least once per month. Each valve shall be cycled quarterly. These valves may be closed intermittently for testing under administrative control~~ 2. During each refueling ~~outage~~ INTERVAL verify the scram discharge volume drain and vent valves; a) Close within 30 seconds after receipt of a reactor scram signal and b) Open when the scram is reset. a) VERIFIED OPEN AT LEAST ONCE PER MONTH. b) TEST AS SPECIFIED IN 3.13 THESE VALVES MAY BE CLOSED INTERMITTENTLY FOR TESTING UNDER ADMINISTRATIVE CONTROL

LIMITING CONDITIONS FOR OPERATION

3.4 STANDBY LIQUID CONTROL SYSTEM

Applicability:

Applies to the operating status of the Standby Liquid Control System.

Objective:

To assure the availability of a system with the capability to shutdown the reactor and maintain the shutdown condition without the use of control rods.

Specification:

A. Normal System Availability

1. During periods when fuel is in the reactor and prior to startup from a cold condition, the Standby Liquid Control System shall be operable, except as specified in 3.4.B below. This system need not be operable when the reactor is in the Cold Shutdown Condition, all operable control rods are fully inserted and Specification 3.3.A is met.

when tested as specified in 3.13 verify that each pump delivers at least 39 GPM against a system head of 1275 psig

a. Once each refueling interval while testing as specified in 3.13 verify the system relief valve set point at 1425 psig ± 43 psig.

SURVEILLANCE REQUIREMENTS

4.4 STANDBY LIQUID CONTROL SYSTEM

Applicability:

Applies to the surveillance requirements of the Standby Liquid Control System.

Objective:

To verify the operability of the Standby Liquid Control System.

Specification:

A. Normal System Availability

The operability of the Standby Liquid Control System shall be verified by the performance of the following tests:

1. ~~At least once per month each pump loop shall be functionally tested by recirculating demineralized water to the test tank.~~ As required below:

2. ~~At least once during each operating cycle:~~

   a. ~~Check that the system relief valves trip full open at pressures less than 1800 psig, and reseat on a falling pressure greater than 1275 psig.~~

   b. ~~Manually initiate the system, except explosive valves. Pump boron solution through the recirculation path and back to the Standby Liquid Control Solution Tank. Check that each pump flow rate meets or exceeds 39 GPM against a system head of 1275 psig.~~

LIMITING CONDITIONS FOR OPERATION

3.4 STANDBY LIQUID CONTROL SYSTEM

At least once during each refueling interval, while testing as specified in 3.13,

SURVEILLANCE REQUIREMENTS

4.4 STANDBY LIQUID CONTROL SYSTEM

to [illegible] Manually initiate one of the Standby Liquid Control System loops and pump demineralized water into the reactor vessel.

This test checks explosion of the charge associated with the tested loop, proper operation of the valves, and pump ~~operability~~ capacity. The replacement charges to be installed will be selected from the same manufactured batch as the tested charge.

when testing to satisfy requirement 4.4.A.2.b,

C.2. Both systems, including both explosive valves, shall be tested in the course of ~~two operating cycles~~. Refueling Intervals

B. Operation with Inoperable Components:

1. From and after the date that a redundant component is made or found to be inoperable, Specification 3.4.A.1 shall be considered fulfilled and continued operation permitted provided that the component is returned to an operable condition within seven days.

B. Surveillance with Inoperable Components:

1. When a component is found to be inoperable, its redundant component shall be demonstrated to be operable immediately and daily thereafter until the inoperable component is repaired.

BASES:

3.4 & 4.4 STANDBY LIQUID CONTROL SYSTEM

A. The requirements for SLC capability to shutdown the reactor are identified via the station Nuclear Safety Operational Analysis (Appendix G to the FSAR, Special Event 45). If no more than one operable control rod is withdrawn, the basic shutdown reactivity requirement for the core is satisfied and the Standby Liquid Control system is not required. Thus, the basic reactivity requirement for the core is the primary determinant of when the standby liquid control system is required. The design objective of the standby liquid control system is to provide the capability of bringing the reactor from full power to a cold, xenon-free shutdown condition assuming that none of the withdrawn control rods can be inserted. To meet this objective, the Standby Liquid Control system is designed to inject a quantity of boron that produces a minimum concentration equivalent to 675 ppm of natural boron in the reactor core. The 675 ppm equivalent concentration in the reactor core is required to bring the reactor from full power to at least a three percent Δk subcritical condition, considering the hot to cold reactivity difference, xenon poisoning etc. The system will inject this boron solution in less than 125 minutes. The maximum time requirement for inserting the boron solution was selected to override the rate of reactivity insertion caused by cooldown of the reactor following the xenon poison peak.

The Standby Liquid Control system is also required to meet 10CFR50.62 (Requirements for Reduction of Risk from Anticipated Transients Without Scram (ATWS) Events for Light-Water-Cooled Nuclear Power Plants). The Standby Liquid Control system must have the equivalent control capacity (injection rate) of 86 gpm at 13 percent by wt. natural sodium pentaborate for a 251" diameter reactor pressure vessel in order to satisfy 10CFR50.62 requirements. This equivalency requirement is fulfilled by a combination of concentration, B^{10} enrichment and flow rate of sodium pentaborate solution. A minimum 8.42% concentration and 54.5% enrichment of B^{10} isotope at a 39 GPM pump flow rate satisfies the ATWS Rule (10CFR50.62) equivalency requirement.

Because the concentration/volume curve has been revised to reflect the increased B^{10} isotopic enrichment, an additional requirement has been added to evaluate the solution's capability to meet the original design shutdown criteria whenever the B^{10} enrichment requirement is not met.

~~Experience with pump operability indicates that the monthly test, in combination with the tests during each operating cycle, is sufficient to maintain pump performance.~~ The only practical time to fully test the liquid control system is during a refueling outage. Various components of the system are individually tested periodically, thus making more frequent testing of the entire system unnecessary.

TESTING THE PUMPS AND VALVES IN ACCORDANCE WITH ASME BOILER AND PRESSURE VESSEL CODE SECTION XI ARTICLES IWP AND IWV (EXCEPT WHERE SPECIFIC RELIEF IS REQUIRED).

ADEQUATELY ASSURES COMPONENT OPERATIONAL READINESS.

3.4 & 4.4 STANDBY LIQUID CONTROL SYSTEM (Cont'd)

The minimum limitation on the relief valve setting is intended to prevent the loss of sodium pentaborate solution via the lifting of a relief valve at too low a pressure. The upper limit on the relief valve settings provides system protection from overpressure.

B. Only one of the two standby liquid control pumping loops is needed for operating the system. One inoperable pumping circuit does not immediately threaten the shutdown capability, and reactor operation can continue while the circuit is being repaired. Assurance that the remaining system will perform its intended function and that the long term average availability of the system is not reduced is obtained for a one out of two system by an allowable equipment out of service time of one third of the normal surveillance frequency. This method determines an equipment out of service time of ten days. Additional conservatism is introduced by reducing the allowable out of service time to seven days, and by increased testing of the operable redundant component.

C. The quantity of B^{10} stored in the Standby Liquid Control System Storage Tank is sufficient to bring the concentration of B^{10} in the reactor to the point where the reactor will be shutdown and to provide a minimum 25 percent margin beyond the amount needed to shutdown the reactor to allow for possible imperfect mixing of the chemical solution in the reactor water.

Level indication and alarm indicate whether the solution volume has changed, which might indicate a possible solution concentration change. Test intervals for level monitoring have been established in consideration of these factors. Temperature and liquid level alarms for the system are annunciated in the control room.

The solution shall be kept at least 10°F above the maximum saturation temperature to guard against boron precipitation. Minimum solution temperature is 48°F. This is 10°F above the saturation temperature for the maximum allowed sodium pentaborate concentration of 9.22 Wt. Percent.

Each parameter (concentration, pump flow rate, and enrichment) is tested at an interval consistent with the potential for that parameter to vary and also to assure proper equipment performance. Enrichment testing is required when material is received and when chemical addition occurs since change cannot occur by any process other than the addition of new chemicals to the Standby Liquid Control solution tank.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT

3.5 CORE AND CONTAINMENT COOLING SYSTEMS

Applicability

Applies to the operational status of the core and suppression pool cooling systems.

Objective

To assure the operability of the core and suppression pool cooling systems under all conditions for which this cooling capability is an essential response to station abnormalities.

Specification

A. Core Spray and LPCI Systems

1. Both core spray systems shall be operable whenever irradiated fuel is in the vessel and prior to reactor startup from a Cold Condition, except as specified in 3.5.A.2 below.

4.5 CORE AND CONTAINMENT COOLING SYSTEMS

Applicability

Applies to the Surveillance Requirements of the core and suppression pool cooling systems which are required when the corresponding Limiting Condition for operation is in effect.

Objective

To verify the operability of the core and suppression pool cooling systems under all conditions for which this cooling capability is an essential response to station abnormalities.

Specification

A. Core Spray and LPCI Systems

1. Core Spray System Testing.

Item	Frequency
a. Simulated Automatic Actuation test.	Once/Operating Cycle
b. Pump Operability	~~Once/month~~
c. Motor Operated Valve Operability	~~Once/month~~ AS SPECIFIED IN 3.13
~~d. Pump flow rate~~	~~Once/3 months~~
~~Each pump shall deliver at least 3300 gpm against a system head corresponding to a reactor vessel pressure of 104 psig.~~	
d e. Core Spray Header Δp Instrumentation	

WHEN TESTED AS SPECIFIED IN 3.13 VERIFY THAT EACH LOW SPRAY PUMP DELIVERS AT LEAST 3300 GPM AGAINST A SYSTEM HEAD CORRESPONDING TO A REACTOR VESSEL PRESSURE OF 104 PSIG

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
3.5.A Core Spray and LPCI Systems (cont'd)	4.5.A Core Spray and LPCI Systems (cont'd)

Check	Once/day
Calibrate	Once/3 months
Test Step	Once/3 months

2. From and after the date that one of the core spray systems is made or found to be inoperable for any reason, continued reactor operation is permissible during the succeeding seven days, provided that during such seven days all active components of the other core spray system and active components of the LPCI system and the diesel generators are operable.

2. This section intentionally left blank

3. The LPCI system shall be operable whenever irradiated fuel is in the reactor vessel, and prior to reactor startup from a Cold Condition, except as specified in 3.5.A.4 and 3.5.A.5.

3. LPCI system Testing shall be as follows:

a. Simulated Automatic Actuation Test	Once/Operating Cycle
b. Pump Operability	~~Once/month~~
c. Motor Operated valve operability	~~Once/Month~~ AS SPECIFIED IN 3.13
d. ~~Pump Flow~~	~~Once/3 months~~

~~For LPCI pump shall pump 4800 gpm at a head across the pump of at least 380 ft.~~

WHEN TESTED AS SPECIFIED IN 3.13 VERIFY THAT EACH LPCI PUMP DELIVERS 4800 GPM AT A HEAD ACROSS THE PUMP OF AT LEAST 380 FT.

4. From and after the date that the LPCI system is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding seven days unless it is sooner made operable, provided that during such seven days the containment cooling system (including 2 LPCI pumps) and active components of both core spray systems, and the diesel generators required for operation of such components if no external source of power were available shall be operable.

5. If the requirements of 3.5.A cannot be met, an orderly shutdown of the reactor shall be initiated and the reactor shall be in the Cold Shutdown Condition within 24 hours.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
3.5.B Containment Cooling System	4.5.B Containment Cooling System
1. Except as specified in 3.5.B.2 and 3.5.F.3 below, both containment cooling system loops shall be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F, and prior to reactor startup from a Cold Condition.	1. Containment Cooling system Testing shall be as follows:
2. From and after the date that one containment cooling system loop is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 72 hours unless such system loop is sooner made operable, provided that the other containment cooling system loop, including its associated diesel generator, is operable.	a. ~~Pump & Valve Operability~~ — ~~Once/3 months~~ b. ~~Pump Capacity Test Each RBCCW pump shall deliver 1700 gpm at 70 ft. TDH. Each SSWS pump shall deliver 2700 gpm at 55 ft. TDH.~~ — ~~After pump maintenance and every 3 months~~ c. Air test on drywell and torus headers and nozzles — Once/5 years
3. If the requirements of 3.5.B cannot be met, an orderly shutdown shall be initiated and the reactor shall be in a Cold Shutdown Condition within 24 hours.	a. Pump Operability — when tested as specified in 3.13 verify that each RBCCW pump delivers 1700 GPM at 70 ft TDH and each SSW pump delivers 2700 GPM at 55 ft TDH b. Valve Operability — As specified in 3.13

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT

C. HPCI System

1. The HPCI system shall be operable whenever there is irradiated fuel in the reactor vessel, reactor pressure is greater than 150 psig, and reactor coolant temperature is greater than 365°F; except as specified in 3.5.C.2 below.

2. From and after the date that the HPCI system is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding seven days unless such system is sooner made operable, providing that during such seven days all active components of the ADS system, the RCIC system, the LPCI system and both core spray systems are operable.

3. If the requirements of 3.5.C cannot be met, an orderly shutdown shall be initiated and the reactor pressure shall be reduced to or below 150 psig within 24 hours.

C. HPCI System

1. HPCI system testing shall be performed as follows:

a. Simulated Automatic Actuation Test	Once/operating cycle
b. Pump Operability	~~Once/month~~
c. Motor Operated Valve Operability	~~Once/month~~ As specified in 3.13
~~d. Flow Rate at 1000 psig~~	~~Once/3 months~~
d e. Flow Rate at 150 psig	~~Once/operating cycle~~

The HPCI pump shall deliver at least 4250 gpm for a system head corresponding to a reactor pressure of 1000 to 150 psig.

When tested as specified in 3.13 verify that the HPCI pump delivers at least 4250 GPM for a system head corresponding to a reactor pressure of 1000 psig

Once/operating cycle verify that the HPCI pump delivers at least 4250 GPM for a system head corresponding to a reactor pressure of 150 psig

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT

3.5.D Reactor Core Isolation Cooling (RCIC) System

1. The RCIC system shall be operable whenever there is irradiated fuel in the reactor vessel, reactor pressure is greater than 150 psig, and reactor coolant temperature is greater than 365°F; except as specified in 3.5.D.2 below.

2. From and after the date that the RCICS is made or found to be inoperable for any reason, continued reactor power operation is permissible only during the succeeding seven days provided that during such seven days the HPCIS is operable.

3. If the requirements of 3.5.D cannot be met, an orderly shutdown shall be initiated and the reactor pressure shall be reduced to or below 150 psig within 24 hours.

4.5.D Reactor Core Isolation Cooling (RCIC) System

1. RCIC system testing shall be performed as follows:

a.	Simulated Automatic Actuation Test	Once/operating cycle
b.	Pump Operability	~~Once/month~~
c.	Motor Operated Valve Operability	~~Once/month~~ As specified in 3.13
~~d.~~	~~Flow Rate at 1000 psig~~	~~Once/3 months~~
d e.	Flow Rate at 150 psig	~~Once/operating cycle~~

The RCIC pump shall deliver at least 400 gpm for a system head corresponding to a reactor pressure of 1000 to 150 psig.

When tested as specified in 3.13 verify that the RCIC pump delivers at least 400 GPM at a system head corresponding to a reactor pressure of 1000 psig.

Once/operating cycle verify that the RCIC pump delivers at least 400 GPM at a system head corresponding to a reactor pressure of 150 psig

BASES:

3.5.B Containment Cooling System

The containment cooling system for Pilgrim 1 consists of two independent loops each of which to be an operable loop requires one LPCI pump, two RBCCW pumps and two SSW pumps to be operable. There are installed spares for margin above the design conditions. Each system has the capability to perform its function; i.e., removing 64 x 10^6 Btu/hr (Ref. Amendment 18), even with some system degradation. If one loop is out-of-service, reactor operation is permitted for 72 hours.

With components or systems out-of-service, overall core and containment cooling reliability is maintained by the operability of the remaining cooling equipment.

Since some of the SSW and RBCCW pumps are required for normal operation, capacity testing of individual pumps by direct flow measurement is impractical. The pump capacity test is a comparison of measured pump performance parameters to shop performance tests combined with a comparison to the performance of the previously tested pump. These pumps are rotated during operation and performance testing will be integrated with this or performed during refueling when pumps can be flow tested individually. Tests during normal operation will be performed by measuring the shutoff head. Then the pump under test will be placed in service and one of the previously operating pumps secured. Total flow indication for the system will be compared for the two cases. Where this is not feasible due to changing system conditions, the pump discharge pressure will be measured and its power requirement will be used to establish flow at that pressure.

Pump operability will be demonstrated during normal system operation and/or when system conditions allow capacity and performance testing in accordance with 3.13

BASES:

4.5 Core and Containment Cooling Systems Surveillance Frequencies

The testing interval for the core and containment cooling systems is based on industry practice, quantitative reliability analysis, judgment and practicality. The core cooling systems have not been designed to be fully testable during operation. For example, in the case of the HPCI, automatic initiation during power operation would result in pumping cold water into the reactor vessel which is not desirable. Complete ADS testing during power operation causes an undesirable loss-of-coolant inventory. To increase the availability of the core and containment cooling systems, the components which make up the system; i.e., instrumentation, pumps, valves, etc., are tested frequently. The pumps and motor operated injection valves are also tested each month to assure their operability. A simulated automatic actuation test once each cycle combined with monthly tests of the pumps and injection valves is deemed to be adequate testing of these systems.

The surveillance requirements provide adequate assurance that the core and containment cooling systems will be operable when required.

The pumps and motor operated valves are tested in accordance with ASME B&PV Code, Section XI (IWP and IWV, except where specific relief is granted) to assure their operability. The frequency and methods of testing are described in the PNPS IST program. The PNPS IST Program is used to assess the operational readiness of pumps and valves which are safety related or important to safety. When components are tested and found inoperable the impact on system operability is determined, and corrective action or Limiting Conditions of Operation are initiated. A simulated automatic actuation test once each cycle combined with code inservice testing of the pumps and valves is deemed to be adequate testing of these systems.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.6.D Safety and Relief Valves	4.6.D Safety and Relief Valves
1. During reactor power operating conditions and prior to reactor startup from a Cold Condition, or whenever reactor coolant pressure is greater than 104 psig and temperature greater than 340°F, both safety valves and the safety modes of all relief valves shall be operable. The nominal setpoint for the relief/safety valves shall be selected between 1095 and 1115 psig. All relief/safety valves shall be set at this nominal setpoint ± 11 psi. The safety valves shall be set at 1240 psig ± 13 psi.	1. ~~At least one safety valve and two relief/safety valves shall be checked or replaced with bench checked valves once per operating cycle. All valves will be tested every two cycles.~~
2. If Specification 3.6.D.1 is not met, an orderly shutdown shall be initiated and the reactor coolant pressure shall be below 104 psig within 24 hours. Note: Technical Specifications 3.6.D.2 - 3.6.D.5 apply only when two Stage Target Rock SRVs are installed.	2. At least one of the relief/safety valves shall be disassembled and inspected each refueling outage.
3. If the temperature of any safety relief discharge pipe exceeds 212°F during normal reactor power operation for a period of greater than 24 hours, an engineering evaluation shall be performed justifying continued operation for the corresponding temperature increases.	3. Whenever the safety relief valves are required to be operable, the discharge pipe temperature of each safety relief valve shall be logged daily.
	4. Instrumentation shall be calibrated and checked as indicated in Table 4.2.F.
	5. ~~Notwithstanding the above, as a minimum, safety relief valves that have been in service shall be tested in the as-found condition during both Cycle 6 and Cycle 7.~~

Testing of safety and relief/safety valves shall be in accordance with 3.13

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.A Primary Containment (Con't)	4.7.A Primary Containment (Con't)
Primary Containment Isolation Valves	Primary Containment Isolation Valves
2.b. In the event any automatic Primary Containment Isolation Valve becomes inoperable, at least one containment isolation valve in each line having an inoperable valve shall be deactivated in the isolated condition. (This requirement may be satisfied by deactivating the inoperable valve in the isolated condition. Deactivation means to electrically or pneumatically disarm, or otherwise secure the valve.)*	2.b.1 The primary containment isolation valves surveillance shall be performed as follows: a. At least once per operating cycle the operable primary containment isolation valves that are power operated and automatically initiated shall be tested for simulated automatic initiation and closure times. b. ~~At least once per quarter~~ TEST PRIMARY CONTAINMENT ISOLATION VALVES: 1. ~~All normally open power operated primary containment isolation valves (except for the main steam line power operated isolation valves) shall be fully closed and reopened.~~ VERIFY POWER OPERATED PRIMARY CONTAINMENT ISOLATION VALVES OPERABILITY AS SPECIFIED IN 3.13. 2. ~~Trip the main steam isolation valves individually and verify closure time.~~ VERIFY MAIN STEAM ISOLATION VALVE OPERABILITY AS SPECIFIED IN 3.13. c. At least twice per week the main steam line power operated isolation valves shall be exercised by partial closure and subsequent reopening. d. ~~At least once per operating cycle the operability of the reactor coolant system instrument line flow check valves shall be verified.~~ VERIFY REACTOR COOLANT SYSTEM INSTRUMENT LINE FLOW CHECK VALVE OPERABILITY AS SPECIFIED IN 3.13.
	2.b.2 Whenever a primary containment automatic isolation valve, is inoperable, the position of the isolated valve in each line having an inoperable valve shall be recorded daily.

*Isolation valves closed to satisfy these requirements may be reopened on an intermittent basis under ORC approved administrative controls.

3.7 Primary Containment

3. Pressure Suppression Chamber - Reactor Building Vacuum Breakers

a. Except as specified in 3.7.A.3.b below, two pressure suppression chamber - reactor building vacuum breakers shall be operable at all times when primary containment integrity as required. The setpoint of the differential pressure instrumentation which actuates the pressure suppression chamber - reactor building breakers shall be 0.5 psig.

b. From and after the date that one of the pressure suppression chamber - reactor building vacuum breakers is made or found to be inoperable for any reason, reactor operation is permissible only during the succeeding seven days unless such vacuum breaker is sooner made operable, provided that the repair procedure does not violate primary containment integrity.

4. Drywell-Pressure Suppression Chamber Vacuum Breakers

a. When primary containment is required, all drywell-pressure suppression chamber vacuum breakers shall be operable except during testing and as stated in Specifications 3.7.A.4.b, c and d, below. Drywell-pressure suppression chamber vacuum breakers shall be considered operable if:

(1) The valve is demonstrated to open with the applied force of the installed test actuator as indicated by the position switches and remote position indicating lights.

(2) The valve shall return by gravity when released after being opened by remote or manual means, to within 3/32" of the fully closed position.

(3) Neither of the two position alarm systems which annunciate on Panel C-7 and Panel 905 when any vacuum breaker opening exceeds 3/32", are in alarm.

4.7 Primary Containment

3. Pressure Suppression Chamber - Reactor Building Vacuum Breakers

a. ~~The pressure suppression chamber - reactor building vacuum breakers and associated instrumentation including set point shall be checked for proper operation every three months.~~
Verify operability of the pressure suppression chamber - reactor building vacuum breakers as specified in 3.13.

b. Check the associated instrumentation including set points for proper operation every three months

4. Drywell-Pressure Suppression Chamber Vacuum Breakers

a. Periodic Operability Tests

(1) Once each month each drywell-pressure suppression chamber vacuum breaker shall be exercised and the operability of the valve and installed position indicators and alarms verified.

(2) A drywell to suppression chamber differential pressure decay rate test shall be conducted at least every 3 months.

3.7 Primary Containment

b. Any drywell-suppression chamber vacuum breaker may be non-fully closed as determined by the position switches provided that the drywell to suppression chamber differential decay rate is demonstrated to be not greater than 25% of the differential pressure decay rate for the maximum allowable bypass area of 0.2ft^2.

c. Reactor operation may continue provided that no more than 2 of the drywell-pressure suppression chamber vacuum breakers are determined to be inoperable provided that they are secured or known to be in the closed position.

d. If a failure of one of the two installed position alarm systems occurs for one or more vacuum breakers, reactor operation may continue provided that a differential pressure decay rate test is initiated immediately and performed every 15 days thereafter until the failure is corrected. The test shall meet the requirements of Specification 3.7.A.4.b.

5. Oxygen Concentration

a. The primary containment atmosphere shall be reduced to less than 4% oxygen by volume with nitrogen gas during reactor power operation with reactor coolant pressure above 100 psig, except as specified in 3.7.A.5.b.

4.7 Primary Containment

b. During each refueling ~~outage~~ interval:

(1) Each vacuum breaker shall be tested to determine that the disc opens freely to the touch and returns to the closed position by gravity with no indication of binding.

(2) Vacuum breaker position switches and installed alarm systems shall be calibrated and functionally tested.

(3) At least 25% of the vacuum breakers shall be visually inspected such that all vacuum breakers shall have been inspected following every fourth refueling ~~outage~~ interval. If deficiencies are found, all vacuum breakers shall be visually inspected and deficiencies corrected.

(4) A drywell to suppression chamber leak rate test shall demonstrate that the differential pressure decay rate does not exceed the rate which would occur through a 1 inch orifice without the addition of air or nitrogen.

5. Oxygen Concentration

The primary containment oxygen concentration shall be measured and recorded at least twice weekly.