LIMITING CONDITION 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 shut down 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 CONDITION and all control rods are fully inserted and Specification 3.3.A is met.

SURVEILLANCE REQUIREMENT

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 will be verified by the performance of the following tests:

1. At least once per three months each pump loop shall be functionally tested by recirculating demineralized water to the test tank. Minimum pump flow rate of 26.2 gpm against a system head of 1150 psig shall be verified.

2. At least once during each OPERATING CYCLE:

a. Check that the setting of the system relief valves is $1350 < P < 1400$ psig.

4.4 BASES

Standby Liquid Control System

Experience with pump operability indicates that a test conducted once every three months, in combination with the tests during each operating cycle, is sufficient to maintain pump performance. The frequency of the pump operability test is based on Section XI of the ASME Code. 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 unnecessary more frequent testing of the entire system.

The details of the various tests are discussed in the Updated FSAR Subsection 9.3.4. The solution temperature and volume are checked at a frequency to assure a high reliability of operation of the system should it ever be required.

LIMITING CONDITION FOR OPERATION

3.5 CORE AND CONTAINMENT COOLING SYSTEMS

Applicability:

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

Objective:

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

Specification:

A. Core Spray and LPCI Subsystems

1. Both core spray subsystems 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 and 3.5.G.3 below.

SURVEILLANCE REQUIREMENT

4.5 CORE AND CONTAINMENT COOLING SYSTEMS

Applicability:

Applies to the Surveillance Requirements of the core and suppression pool cooling subsystems 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 subsystems under all conditions for which this cooling capability is an essential response to station abnormalities.

Specification:

A. Core Spray and LPCI Subsystems

1. Core Spray Subsystem Testing.

	Item	Frequency
a.	Simulated Automatic Actuation test.	Once/Operating Cycle
b.	Pump Operability	Once/3 months
c.	Motor-Operated Valve Operability	Once/3 months

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT	
	Item	Frequency
	d. Pump flow rate - Both loops shall deliver at least 3020 gpm against a system head corresponding to a reactor vessel pressure of 113 psig.	Once/3 months
2. From and after the date that one of the core spray subsystems 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 subsystem and active components of the LPCI subsystem and the diesel generators are OPERABLE.	2. When it is determined that one core spray subsystem is inoperable, the OPERABLE core spray subsystem, the LPCI subsystem and the diesel generators shall be demonstrated to be OPERABLE immediately. The OPERABLE core spray subsystem shall be demonstrated to be OPERABLE daily thereafter.	
3. The LPCI Subsystem 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, 3.5.A.5 and 3.5.G.3 below.	3. LPCI Subsystem Testing shall be as follows:	
	a. Simulated Automatic Actuation Test	Once/Operating Cycle
	b. Pump Operability	Once/3 months

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT	
	Item	Frequency
	c. Motor Operated Valve Operability	Once/3 months
	d. Pump Flow Rate	Once/3 months
	Three LPCI pumps shall deliver 14,400 gpm against a system head corresponding to a vessel pressure of 20 psig based on individual pump tests.	
4. From and after the date that one of the RHR (LPCI) pumps is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding thirty days provided that during such thirty days the remaining active components of the LPCI subsystem, the containment cooling subsystem, and all active components of both core spray subsystems and the diesel-generators are OPERABLE.	4. When it is determined that one of the RHR (LPCI) pumps is inoperable at a time when it is required to be OPERABLE, the remaining active components of the LPCI subsystem, the containment spray subsystem, both core spray subsystems and the diesel-generators shall be demonstrated to be OPERABLE immediately and the OPERABLE LPCI pump daily thereafter.	
5. From and after the date that two RHR pumps (LPCI mode) are made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 7 days unless at least one of the inoperable pumps is sooner made OPERABLE, provided that during such 7 days all active components of both core spray subsystems, the containment spray subsystem and the diesel-generators required for operation of such components are OPERABLE.	5. When it is determined that the LPCI subsystem is inoperable, both core spray subsystems, the containment spray subsystem and the diesel-generators required for operation of such components shall be demonstrated to be OPERABLE immediately and daily thereafter.	

LIMITING CONDITION FOR OPERATION

D. HPCI Subsystem

1. The HPCI Subsystem shall be OPERABLE whenever there is irradiated fuel in the reactor vessel, reactor pressure is greater than 150 psig, and prior to reactor startup from a COLD CONDITION, except as specified in 3.5.D.2 and 3.5.D.3 below.

SURVEILLANCE REQUIREMENT

D. HPCI Subsystem

1. HPCI Subsystem testing shall be performed as follows:

	Item	Frequency
a.	Simulated Automatic Actuation Test	Once/operating cycle
b.	Pump Operability	Once/3 months
c.	Motor Operated Valve Operability	Once/3 months
d.	At rated reactor pressure demonstrate ability to deliver rated flow at a discharge pressure greater than or equal to that pressure required to accomplish vessel injection if vessel pressure were as high as 1040 psig.	Once/3 months
e.	At reactor pressure of 150 ± 10 psig demonstrate ability to deliver rated flow at a discharge pressure greater than or equal to that pressure required to accomplish vessel injection.	Once/operating cycle

The HPCI pump shall deliver at least 3000 gpm for a system head corresponding to a reactor pressure of 1040 to 150 psig.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
2. From and after the date that the HPCI Subsystem is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding seven days unless such subsystem is sooner made OPERABLE, providing that during such seven days all active components of the ADS subsystem, the RCIC system, the LPCI subsystem and both core spray subsystems are OPERABLE.	2. When it is determined that the HPCI Subsystem is inoperable, the RCIC, the LPCI subsystem, both core spray subsystems, and the ADS subsystem actuation logic shall be demonstrated to be OPERABLE immediately. The RCIC system and ADS subsystem logic shall be demonstrated to be OPERABLE daily thereafter.
3. If the requirements of 3.5.D cannot be met, an orderly shutdown shall be initiated and the reactor shall be in a Cold Shutdown Condition within 24 hours.	
E. Reactor Core Isolation Cooling (RCIC) Subsystem	E. Reactor Core Isolation Cooling (RCIC) Subsystem
1. The RCIC Subsystem shall be OPERABLE whenever there is irradiated fuel in the reactor vessel, the reactor pressure is greater than 150 psig, and prior to reactor startup from a COLD CONDITION, except as specified in 3.5.E.2 below.	1. RCIC Subsystem testing shall be performed as follows:

	Item	Frequency
a.	Simulated Automatic Actuation Test	Once/operating cycle
b.	Pump Operability	Once/3 months
c.	Motor Operated Valve Operability	Once/3 months
d.	At rated reactor pressure demonstrate ability to deliver rated flow at a discharge pressure greater	Once/3 months

LIMITING CONDITION FOR OPERATION

J. River Water Supply System

1. Except as specified in 3.5.J.2 below, at least one pump in each river water supply system loop shall be OPERABLE whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F.

2. From and after the date that one river water supply system loop is made or found to be inoperable for any reason, reactor operation must be limited to seven days unless operability of that subsystem is restored within this period. During such seven days all active components of the other river water supply loop shall be OPERABLE.

3. If the requirements of 3.5.J.2 cannot be met, an orderly shutdown shall be initiated and the reactor shall be in a COLD SHUTDOWN condition within 24 hours.

SURVEILLANCE REQUIREMENT

J. River Water Supply System

1. River Water Supply System Testing:

	Item	Frequency
a.	Simulated automatic actuation Test.	Each refueling outage.
b.	Pump and motor operated valve operability.	Once/3 months
c.	Flow Rate Test	
	Each river water supply system pump shall deliver at least 6000 gpm at TDH of 46 ft. or more.	After major pump maintenance and once per 3 months. Daily when river elevation is less than 727 feet.
d.	Operating Pump Flow Rate Demonstration	
	Each Operating River Water Supply System Pump shall deliver at least 6000 gpm.	Daily

2. When one river water supply system loop becomes inoperable, the OPERABLE loop and the diesel-generators required for operation of such components shall be demonstrated to be OPERABLE immediately and daily thereafter.

Using the results developed in this reference, the repair period is found to be 1/2 the test interval. This assumes that the core spray subsystems and LPCI constitute a 1 out of 3 system; however, the combined effect of any of the two subsystems to limit excessive clad temperatures must also be considered. The test interval specified in Specification 4.5 is once every three months. This interval is based on Section XI of the ASME Code. Should a subsystem fail, a daily test is called for on the remaining systems to ensure that they will function.

Should one core spray subsystem become inoperable, the remaining core spray and the LPCI subsystem are available should the need for core cooling arise. To assure that the remaining core spray and LPCI subsystems and the diesel generators are available, they are demonstrated to be operable immediately. This demonstration includes a manual initiation of the pumps and associated valves and diesel generator.

Should the loss of one LPCI pump occur, a nearly full complement of core and containment spray equipment is available. The remaining three LPCI pumps and a core spray subsystem will perform the core cooling function. Because of the availability of the majority of the core cooling equipment, which will be demonstrated to be operable, a thirty day repair period is justified. If the LPCI subsystem is not available, at least

J. River Water Supply System

Four river water supply pumps in two loops of two pumps each are provided. Both loops discharge into the wet-pit sump of the RHR and emergency service water system. One river water supply pump is sufficient to supply water to an entire train of RHR and emergency service water pumps, which in turn provide sufficient service water for containment and component cooling after a loss-of-coolant accident. An additional pump is required to be operable in Specification 3.5.J.1 to provide a completely redundant river water supply for the other RHR and emergency service water train. Because of the almost continuous operation of the river water supply system during normal operation, two additional pumps, for a total of four, have been installed to provide flexibility in maintenance and operation as well as additional system reliability.

In the event that one river water supply system loop becomes inoperable, plant operation is restricted to seven days provided both pumps in the operable loop as well as the diesel-generator required to provide emergency power to such pumps are tested daily.

4.5 BASES

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 every three months to assure their operability. The test intervals are based upon Section XI of the ASME Code. A simulated automatic actuation test once each cycle combined with frequent tests of the pumps and injection valves is deemed to be adequate testing of these systems.

When components and subsystems are out-of-service, overall core and containment cooling reliability is maintained by demonstrating the operability of the remaining equipment. The degree of operability to be demonstrated depends on the nature of the reason for the out-of-service equipment. For routine out-of-service periods caused by preventative maintenance, etc., the pump and valve operability checks will be performed to demonstrate operability of the remaining components. However, if a failure due to a design deficiency caused the outage, then the demonstration of operability should be thorough enough to assure that a generic problem does not exist. For example, if an out-of-service period were caused by failure of a pump to deliver rated capacity due to a design deficiency, the other pumps of this type might be subjected to a flow rate test in addition to the operability checks.

Redundant operable components are subjected to increased testing during equipment out-of-service times. This adds further conservatism and increases assurance that adequate cooling is available should the need arise.

The RHR valve power bus is not instrumented. For this reason surveillance requirements require once per shift observation and verification of lights and instrumentation operability.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
3.7	4.7
E. Main Steam Isolation Valve Leakage Control System (MSIV-LCS)	E. Main Steam Isolation Valve Leakage Control System
1. The MSIV-LCS shall be OPERABLE whenever the reactor is critical or when the reactor temperature is above 212°F and fuel is in the reactor vessel, except as specified in 3.7.E.2 below.	1. MSIV-LCS Testing

	Item	Frequency
a.	Simulated Actuation Test	Once/Operating Cycle
b.	Blower Operability	Once/Month
c.	Motor-operated Valve Operability	Once/3 Months
d.	Heater Operability	Once/Month
e.	Blower Capacity	Once/Operating Cycle

2. From and after the date that one MSIV-LCS subsystem or one blower is made or found to be inoperable for any reason, continued reactor operation is permissible during the succeeding thirty days provided that during such thirty days all active components of the other MSIV-LCS subsystems are OPERABLE.	2. When it is determined that one MSIV-LCS subsystem or one blower is inoperable, the other MSIV-LCS subsystem or blower shall be demonstrated to be OPERABLE immediately. The OPERABLE MSIV-LCS subsystems shall be demonstrated to be OPERABLE weekly thereafter.
3. If the requirements of 3.7.E 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.	

3.7.E & 4.7.E BASES:

The MSIV-LCS system is provided to minimize the fission products which could bypass the standby gas treatment system after a LOCA. It is designed to be manually initiated after it has been determined that a LOCA has occurred and that the pressure between the MSIV's has decayed to less than 35 psig. The System is also inhibited from operating unless the inboard MSIV associated with the MSIV-LCS subsystem is closed and the reactor vessel pressure has decayed to less than 35 psig.

Checking the operability of the various components of the MSIV-LCS system monthly, and the motor-operated valve once every three months, assures that the MSIV-LCS system will be available in the remote possibility of a LOCA. An annual capacity test of the blowers and an annual initiation of the entire system assure that the MSIV-LCS system meets its design criteria. The testing frequency of the motor-operated valve is based on Section XI of the ASME Code. Allowance of thirty days to return a MSIV-LCS subsystem or blower to an operable status allows operational flexibility while maintaining protective capabilities.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT	
C. Emergency Service Water System	C. Emergency Service Water System	
1. Except as specified in 3.8.C.2 below, both emergency service water system loops shall be OPERABLE whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F.	1. Emergency Service Water Subsystem Testing	
	a. Simulated automatic actuation test.	each refueling outage
	b. Pump and motor operated valve operability	Once/3 months
	c. Flow Rate Test	
	Each emergency service water pump shall deliver at least that flow determined from Figure 4.8.C-1 for the existing river water temperature.	after major pump maintenance and once per 3 months, except weekly during periods of time the river water temperature exceeds 80°F.
2. From and after the date that one of the emergency service water system pumps or loops is made or found to be inoperable for any reason, reactor operation must be limited to seven days unless operability of that system is restored within this period. During such seven days all active components of the other Emergency Service Water System shall be OPERABLE, provided the requirements of 3.5.G are met.	2. When one emergency service water system pump or loop becomes inoperable, the OPERABLE pump and loop and diesel-generator required for operation of such components shall be demonstrated to be OPERABLE immediately and daily thereafter.	
3. If the requirements of 3.8.C cannot be met, an orderly shutdown shall be initiated and the reactor shall be in a COLD SHUTDOWN condition within 24 hours.		

The Emergency Service Water System has two loops one pump each. If one emergency service water system loop becomes inoperable, the other loop provides cooling to components sufficient to assure performance of the safety function after an accident. Continued plant operation with one loop inoperable is restricted to a seven-day period during which time the operable emergency service water loop and the diesel-generator providing emergency power to such loops are tested at an accelerated frequency of once a day.

The surveillance test intervals for the Emergency Service Water pumps and associated valves are based on Section XI of the ASME Code.

EVALUATION OF CHANGE WITH RESPECT TO 10 CFR 50.92

Summary

The requirements of 10 CFR 50.55a(g)(4)(ii) state that the inspection program for pumps and valves shall comply with Section XI of the edition of the ASME Boiler and Pressure Vessel Code incorporated into NRC regulations 12 months prior to the start of the 120-month inspection interval. The second 10-year Inservice Testing Program for Pumps and Valves began February 1985; however, the attached technical specification pages were not revised to reflect the use of the 1980 Edition (Winter 1981 Addendum) of Section XI of the ASME Code. Under the previously applicable Code (1974 Edition, Summer 1975 Addendum), Paragraph IWP-3400, "Frequency of Inservice Tests," a monthly test was required to be conducted on pumps and valves. The 1980 Edition requires quarterly tests of pumps and valves. Since the DAEC Inservice Testing Program now uses the later 1980 Code Edition, revision to the technical specifications is required.

In addition, a typographical error has been corrected which changes the word "continous" (sic) to "continuous."

In accordance with the requirements of 10 CFR 50.92, the enclosed application is judged to involve no significant hazards based upon the following information:

(1) Does the proposed license amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response:

The proposed license amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated. Revising the surveillance requirements for pumps and valves from once per month to once per three months may, however, present a very small increase in the probability of an accident previously evaluated in the UFSAR. The small increase in probability is acceptable as the testing program for the pumps and valves follows the requirements of ASME Section XI, Paragraph IWP-3400, "Frequency of Inservice Tests," and still meets General Design Criterion 37, "Testing of Emergency Core Cooling System," the guidance of the NRC Standard Technical Specifications (Specification 4.0.5), and the NRC Standard Review Plan 3.9.6, "Inservice Testing of Pumps and Valves," which states in part,

> The pump and valve test programs are acceptable if they meet the requirements for establishing reference values and the periodic testing schedule of IWP-3000 and IWV-3000, respectively, of Section XI of the ASME Code. The allowable ranges of inservice test quantities, corrective actions, and bearing temperature tests for pumps are established by IWP-3000 and IWP-4000. The pump test schedule in the plant technical specification is required to comply with these rules.

Based on the foregoing information, the proposed changes in the frequency for testing pumps and valves and correction of a typographical error are minor and clearly permissible under current regulations.

(2) Does the proposed license amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response:

The proposed license does not create the possibility of a new or different kind of accident from any accident previously evaluated as extension of the pump and valve surveillance frequency, to be in accordance with ASME Section XI Code requirements, continues to be enveloped by existing accident analyses described in Chapter 15 of the Duane Arnold Energy Center Updated Final Safety Analysis Report (UFSAR).

The correction of a typographical error does not create the possibility of a new or different kind of accident than any previously evaluated.

In summary, the proposed change request does not affect the conclusions reached in the existing accident analyses of UFSAR Chapter 15.

(3) Does the proposed amendment involve a significant reduction in a margin of safety?

Response:

The proposed amendment does not involve a significant reduction in the plant margin of safety; however, as explained in question 1 above, revising the surveillance requirements for the pumps and valves may present a small risk. The risk, if any, is acceptable as the testing requirements embodied in Paragraphs IWP-3000 and IWV-3000 of ASME Section XI of the Boiler and Pressure Vessel Code are met.

Correction of a typographical error does not involve a significant reduction in the plant margin of safety.

In the April 6, 1983 Federal Register, the NRC published examples of amendments that are not likely to involve a significant hazards concern. Examples i, vi and vii of that list state:

(i) A purely administrative change to technical specifications: for example, a change to achieve consistency throughout the technical specifications, correction of an error, or a change in nomenclature.

(vi) A change which either may result in some increase to the probability or consequences of a previously-analyzed accident or may reduce in some way a safety margin, but where the results of the change are clearly within all acceptable criteria with respect to the system or component specified in the Standard Review Plan: for example, a change resulting from the application of a small refinement of a previously used calculational model or design method.

(vii) A change to make a license conform to changes in the regulations, where the license change results in very minor changes to facility operations clearly in keeping with the regulations.

Although the proposed technical specification change request could be considered a relaxation of existing surveillance requirements, the no significant hazards evaluation conducted pursuant to 10 CFR 50.92 demonstrates the licensee clearly conforms to NRC Standard Review Plan 3.9.6 and the requirements of 10 CFR 50.55a and Section XI of the ASME Boiler and Pressure Vessel Code, 1980 Edition, Winter 1981 Addendum.