June 1, 1989

Docket No. 50-331

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Mr. Lee Liu
Chairman of the Board and
Chief Executive Officer
Iowa Electric Light and Power Company
Post Office Box 351
Cedar Rapids, Iowa 52406

Dear Mr. Liu:

SUBJECT: AMENDMENT NO. 160 TO FACILITY OPERATING LICENSE NO. DPR-49 (TAC NO. 63374)

The Commission has issued the enclosed Amendment No. 160 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center (DAEC). This amendment consists of changes to the Technical Specifications in response to your application dated October 13, 1986.

The amendment revises the surveillance test frequency of certain pumps and valves to conform with the Standard Technical Specifications for Boiling Water Reactors and with the current DAEC Inservice Test (IST) Program, which is based on Section XI of the 1980 Edition of the ASME Boiler and Pressure Vessel Code. In addition, minor editorial changes are made.

A copy of the related Safety Evaluation is also enclosed. Notice of issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

/s/

James R. Hall, Project Manager
Project Directorate III-3
Division of Reactor Projects - III,
IV, V & Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 160 to License No. DPR-49
2. Safety Evaluation

cc w/enclosures:
See next page

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Date:	5/22/89	5/23/89	5/22/89	5/24/89	5/24/89	DFO 1/1

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

IOWA ELECTRIC LIGHT AND POWER COMPANY
CENTRAL IOWA POWER COOPERATIVE
CORN BELT POWER COOPERATIVE

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 160
License No. DPR-49

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Iowa Electric Light and Power Company, et al., dated October 13, 1986 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

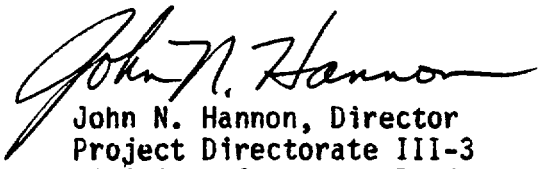
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 160, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of the date of issuance and shall be implemented within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



John N. Hannon, Director
Project Directorate III-3
Division of Reactor Projects - III, IV, V and Special Projects
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical Specifications

Date of Issuance: June 1, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 160.

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Pages
3.4-1
3.4-7
3.5-1
3.5-2
3.5-3
3.5-6
3.5-7
3.5-12
3.5-16
3.5-25
3.5-27
3.7-19a
3.7-49a
3.8-6
3.8-13 (convenience)
3.8-14

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
3.4 STANDBY LIQUID CONTROL SYSTEM	4.4 STANDBY LIQUID CONTROL SYSTEM
Applicability:	Applicability:
Applies to the operating status of the Standby Liquid Control System.	Applies to the surveillance requirements of the Standby Liquid Control System.
Objective:	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.	To verify the operability of the Standby Liquid Control System.
Specification:	Specification:
A. Normal System Availability	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.	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.

*Intent Change Only (definition of operating cycle).

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.

* Intent Change Only (definition of operating cycle).

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
3.5 CORE AND CONTAINMENT COOLING SYSTEMS	4.5 CORE AND CONTAINMENT COOLING SYSTEMS
Applicability:	Applicability:
Applies to the operational status of the core and suppression pool cooling subsystems.	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:	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.	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:	Specification:
A. Core Spray and LPCI Subsystems	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.	1. Core Spray Subsystem Testing.

	Item	Frequency
a.	Simulated Automatic Actuation test.	Annual
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 and the LPCI subsystem 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	Annual
	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 and both core spray subsystems 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 and the containment spray subsystem shall be demonstrated to be OPERABLE immediately and daily thereafter.	

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
D. HPCI Subsystem	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.	1. HPCI Subsystem testing shall be performed as follows:

Item	Frequency
a. Simulated Automatic Actuation Test	Annual
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.

* Intent Change Only (definition of operating cycle).

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 (and restart)	Annual
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	SURVEILLANCE REQUIREMENT
J. River Water Supply System	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.	1. River Water Supply System Testing: a. Simulated automatic actuation test. — Once/operating cycle 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. 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 and its associated diesel generator required for operation of such components shall be OPERABLE.	2. When one river water supply system loop becomes inoperable, the OPERABLE loop shall be demonstrated to be OPERABLE immediately and daily thereafter.
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.	

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 3 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 are available, they are demonstrated to be operable. This demonstration includes a manual initiation of the pumps and associated valves. The diesel generator monthly surveillance test assures diesel generator availability.

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 are tested daily. The diesel generator monthly surveillance test assures diesel generator availability.

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 per operating 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.	

* Intent Change Only (definition of operating cycle).

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 valves once every 3 months, assures that the MSIV-LCS system will be available in the remote possibility of a LOCA. Performance of a capacity test of the blowers and initiation of the entire system once per operating cycle assures that the MSIV-LCS system meets its design criteria. The testing frequency of the motor-operated valves 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. — Once/operating cycle
	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 shall be demonstrated to be OPERABLE immediately and daily thereafter. In addition, the requirements of 4.5.G.1 shall be met.
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.	

maintained. During the monthly test for quality of the diesel fuel oil, a viscosity test and water and sediment test will be performed as described in ASTM D975-77 (reference LDR-80-111). The quality of the diesel fuel oil will be acceptable if the results of the tests are within the limiting requirements for diesel fuel oils shown on Table 1 of ASTM D975-77.

Although the station batteries will deteriorate with time, utility experience indicates there is almost no possibility of precipitous failure. The type of surveillance described in this specification is that which has been demonstrated over the years to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure.

The rated load discharge test provides adequate indication and assurance that the batteries have the specified ampere hour capacity. The rate of discharge during this test shall be in accordance with the manufacturer's discharge characteristic curves. The results of these tests will be logged and compared with the manufacturer's recommendations of acceptability.

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 is tested immediately and daily thereafter. The diesel-generator providing emergency power to the operable loop is tested within eight (8) hours and daily thereafter.

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

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 160 TO FACILITY OPERATING LICENSE NO. DPR-49

IOWA ELECTRIC LIGHT AND POWER COMPANY
CENTRAL IOWA POWER COOPERATIVE
CORN BELT POWER COOPERATIVE

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By letter dated October 13, 1986, the Iowa Electric Light and Power Company (IELP) submitted proposed changes to the Duane Arnold Energy Center (DAEC) Technical Specifications (TS). These changes would revise the surveillance test frequencies of certain pumps and valves to conform to the Standard Technical Specifications (STS) for Boiling Water Reactors and the current DAEC Inservice Testing (IST) Program. Other minor editorial changes were also proposed.

2.0 EVALUATION

The DAEC TS's specify surveillance frequencies for certain pumps and valves whose function is required for safe operation and/or shutdown of the plant. These frequencies were established based on conservative assumptions and performance data to provide assurance of operability of individual components (consistent with the plant's IST program), as well as to provide assurance of system availability (consistent with the assumptions in the DAEC Final Safety Analysis Report). The proposed changes to the DAEC TS's would extend the surveillance intervals for certain components.

10 CFR 50.55a(g)(4)(ii) requires that the DAEC IST program conform to the appropriate Edition of Section XI of the ASME Code. For the DAEC, this would be the 1980 Edition (Winter 1981 Addendum), which specifies a quarterly surveillance frequency for individual pumps and valves (as opposed to the monthly frequency specified in earlier editions of the Code). In addition, the STS require operability tests for most components and systems at frequencies specified by the applicable edition of the ASME Code.

The changes to the surveillance frequencies specified by the STS and the ASME Code were based, in part, on concerns for accelerated component aging due to excessive testing. Each of the proposed changes to the DAEC TS's is evaluated below with respect to individual component and overall system availability concerns.

A. Standby Liquid Control System (TS's 3.4.A.1, 4.4.A.1, 4.4.A.2, 4.4 Bases)

The proposed change to TS 4.4.A.1 would extend from monthly to quarterly the surveillance interval for functionally testing each Standby Liquid Control (SLC) system pump loop. This surveillance requirement essentially checks the operability of each of two redundant positive displacement pumps; as such, extension of the surveillance interval is consistent with the revised ASME Code (1980 Edition) and the DAEC IST program.

Overall availability of the SLC system is assured through all of the surveillance requirements of Section 4.4, as well as the fact that a single pump is capable of meeting the system design requirements. These additional surveillances include: at least once per operating cycle, the system is manually initiated, including actuation of the explosive valves to inject demineralized water into the reactor vessel. An explosive charge similar to those installed in the valves is detonated to demonstrate proper function. Minimum flow through the sodium pentaborate storage tank discharge line is also demonstrated once per cycle. Based on these additional system surveillance requirements and on the redundant features of the SLC system, the staff finds that extending the interval of pump loop tests from monthly to quarterly will not significantly impact the availability of the SLC system. Therefore, the proposed changes to TS 4.4.A.1 and the associated bases are acceptable.

In addition, the terms "OPERABLE", "COLD SHUTDOWN", and "OPERATING CYCLE" in sections 3.4.A.1 and 4.4.A.2 are capitalized, as these are defined terms. These changes are editorial in nature and reflect standard usage and are therefore acceptable.

B. Core and Containment Cooling Systems (TS's 4.5.A.1, 4.5.A.3, 4.5.D.1, 4.5.E.1, 3.5 Bases, 4.5 Bases)

The proposed changes to the above sections of the DAEC TS's would extend from monthly to quarterly the required surveillances of pumps and motor operated valves of the Core Spray, Low Pressure Coolant

Injection (LPCI), High Pressure Coolant Injection (HPCI), and Reactor Core Isolation Cooling (RCIC) systems. These tests are explicitly intended to confirm individual component operability; therefore, the proposed changes are consistent with the revised requirements of the 1980 Edition of the ASME Code.

Each of these systems is also subjected to a quarterly flow test at representative reactor vessel pressures (113 psig for Core Spray, 20 psig for LPCI, 1040 psig for HPCI and RCIC), and an annual simulated automatic actuation test. In addition, once per operating cycle, flow tests are performed for HPCI and RCIC to demonstrate system operability at low reactor vessel pressure (150 psig).

Based on the additional surveillance requirements and the redundant design of these systems (i.e., loss of a single component will not result in exceeding the design basis), extending the test intervals for these pumps and valves from monthly to quarterly will not significantly impact the availability of the respective systems. Therefore, the proposed changes to TS's 4.5.A.1, 4.5.A.3, 4.5.D.1, 4.5.E.1 and the associated bases are acceptable.

C. River Water Supply and Emergency Service Water Systems (TS's 4.5.J.1.c, 4.8.C.1.c, 4.5.J Bases and 4.8 Bases)

The proposed changes to TS's 4.5.J.1.c and 4.8.C.1.c would extend the surveillance intervals from monthly to quarterly for the River Water Supply (RWS) and Emergency Service Water (ESW) system flow tests. The surveillance requirement for the RWS system pump flow rate test specifies that each pump shall deliver rated flow at the required discharge head. Each pump shall be tested after major maintenance and monthly (or quarterly as proposed), and daily when the river level is below a specified value.

Additional surveillances performed on the RWS system include quarterly operability tests of pumps and valves, daily demonstrations of rated flow through operating pumps, and simulated automatic system actuation tests once per operating cycle. The RWS system is composed of two independent trains of two pumps each which provide cooling water under normal and emergency conditions. Each of the four RWS pumps is capable of supplying sufficient flow to meet post-LOCA cooling requirements.

Based on the redundancy of the RWS system, and the additional surveillance requirements, particularly the daily demonstration of flow through the operating pumps, extension of the surveillance interval from monthly to quarterly for pump flow rate tests at rated conditions is acceptable.

The surveillance requirement for the ESW system flow rate test specifies that each pump shall deliver an established flow for a given river water temperature (i.e, greater flow is required for

higher river water temperatures to meet the system design cooling requirements). Each pump is tested after major maintenance, monthly (or quarterly as proposed) and weekly when the river temperature is over 80°F.

Additionally, ESW system pump and valve operability is tested quarterly and simulated automatic system actuation tests are performed once per operating cycle. The ESW system is composed of two redundant trains, each with a single pump. One train is sufficient to meet the minimum system design cooling requirements.

Based on the redundancy of the ESW system and the additional surveillance requirements, extension of the pump flow rate test surveillance interval from monthly to quarterly is acceptable. The proposed changes to the associated TS bases for the RWS and ESW systems, including the correction of a typographical error, are also acceptable.

D. Main Steam Isolation Valve-Leakage Control System (TS's 3.7.E.2, 3.7.E.3, 4.7.E.1.c, 3.7.E Bases and 4.7.E Bases)

The proposed change to TS 4.7.E.1.c would extend from monthly to quarterly the surveillance interval for the motor operated valves of the Main Steam Isolation Valve Leakage Control System (MSIV-LCS). These tests are explicitly intended to confirm the operability of these valves; therefore, the proposed change is consistent with the revised requirement of the 1980 Edition of the ASME Code.

Additional surveillances are performed on the MSIV-LCS, including monthly operability tests on the system heaters and blowers. A system simulated actuation test and a blower capacity test are performed once per operating cycle. The MSIV-LCS also has redundancy; system design requirements can be met with one component or subsystem out of service.

Based on the additional surveillance requirements and the redundancy of the MSIV-LCS, extending the surveillance interval for these valves from monthly to quarterly will not significantly impact system availability. Therefore, the proposed changes to TS 4.7.E.1.c and the associated bases are acceptable.

In addition, the term "OPERABLE" in TS 3.7.E.2 is capitalized, and the term "CONDITION" in TS 3.7.E.3 is reduced to lower-case, consistent with standard usage. These changes are editorial in nature and are therefore acceptable.

In summary, the staff finds that extending the specified surveillance intervals from monthly to quarterly is consistent with the requirements of the Standard Technical Specifications for Boiling Water Reactors, the 1980 Edition of the ASME Code and the applicable sections of 10 CFR 50.55a(g). These changes will result in an appropriate test interval for assuring component operability and will not significantly impact system availability, based on additional surveillances and system redundancy. Therefore, the staff finds that the proposed changes are acceptable.

3.0 ENVIRONMENTAL CONSIDERATIONS

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

4.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations, and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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