

January 30, 1986

Docket No. 50-255

Mr. Kenneth W. Berry
Director, Nuclear Licensing
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Dear Mr. Berry:

SUBJECT: AUXILIARY FEEDWATER SYSTEM - TECHNICAL SPECIFICATIONS

Docket	<u>DISTRIBUTION</u>
ABuslik	ELJordan
NRC & L PDRs	BGrimes
JPartlow	DVassallo
PBD #8 Rdg	ACRS (10)
LFMB	RAnand
TBarnhart (4)	FMiraglia
LJHarmon	WRegan
TWambach	ATHadani
WJones	PKreutzer
OELD	OPA

The Commission has issued the enclosed Amendment No. 96 to Provisional Operating License No. DPR-20 for the Palisades Plant. This amendment is in response to your application dated September 17, 1984 as supplemented by submittals dated May 31, June 21, and October 28, 1985.

This amendment revises the Technical Specifications for the Auxiliary Feedwater System to reflect modifications made to the System including the addition of a third auxiliary feedwater pump. These changes are in response to Generic Letter 83-37 and Item II.E.1.1 of NUREG-0737, Long Term Auxiliary Feedwater Evaluation.

The amendment incorporates the Technical Specifications you requested in your application as revised by the subsequent submittals except for the extension of the maximum period of inoperability of an auxiliary feedwater pump from 72 hours to 7 days. That request That request will be the subject of separate, future licensing action.

A copy of the related Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next bi-weekly Federal Register notice.

Sincerely,

/s/

Thomas V. Wambach, Project Manager
PWR Project Directorate #8
Division of PWR Licensing-B

Enclosures:

1. Amendment No. 96 to License No. DPR20
2. Safety Evaluation

cc w/enclosures:
See next page

*See previous white for concurrences

PBD#8*	BWR/FOB*	PBD#8 <i>EVW</i>	PBD#8*	OELD*
PKreutzer	RAnand	TWambach;ef	ATHadani	/
1/21/86	1/17/86	1/24/86	1/17/86	/ /86

8602130022 860130
PDR ADOCK 05000255
PDR

Docket No. 50-255

Mr. Kenneth W. Berry
Director, Nuclear Licensing
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Dear Mr. Berry:

SUBJECT: AUXILIARY FEEDWATER SYSTEM - TECHNICAL SPECIFICATIONS

Docket	<u>DISTRIBUTION</u>
ABuslik	ELJordan
NRC & L PDRs	BGrimes
JPartlow	DVassallo
PBD #8 kdg	ACRS (10)
LFMB	RAnand
TBarnhart (4)	FMiraglia
LJHarmon	WRegan
TWambach	ATHadani
WJones	PKreutzer
OELD	OPA

The Commission has issued the enclosed Amendment No. to Provisional Operating License No. DPR-20 for the Palisades Plant. This amendment is in response to your application dated September 17, 1984 as supplemented by submittals dated May 31, June 21, and October 28, 1985.

This amendment revises the Technical Specifications for the Auxiliary Feedwater System to reflect modifications made to the System including the addition of a third auxiliary feedwater pump. These changes are in response to Generic Letter 83-37 and Item II.E.1.1 of NUREG-0737, Long Term Auxiliary Feedwater Evaluation.

The amendment incorporates the Technical Specifications you requested in your application as revised by the subsequent submittals except for the extension of the maximum period of inoperability of an auxiliary feedwater pump from 72 hours to 7 days. That request That request will be the subject of separate, future correspondence.

A copy of the related Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next bi-weekly Federal Register notice.

Sincerely,

Thomas V. Wambach, Project Manager
PWR Project Directorate #8
Division of PWR Licensing-B

Enclosures:

1. Amendment No. to License No. DPR20
2. Safety Evaluation

cc w/enclosures:
See next page

*See previous white for concurrences

PBD#8*
PKreutzer
1/21/86

BWR/FOB*
RAnand
1/17/86

PBD#8
TWambach;ef
/ /86

PBD#8*
ATHadani
1/17/86

OELD
Mr. Wambach
1/24/86
[Signature]

Docket No. 50-255

Mr. Kenneth W. Berry
Director, Nuclear Licensing
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

Dear Mr. Berry:

SUBJECT: AUXILIARY FEEDWATER SYSTEM - TECHNICAL SPECIFICATIONS

	<u>DISTRIBUTION</u>
Docket	ELJordan
NRC & L PDRs	BGrimes
JPartlow	DVassallo
PBD #8 Rdg	ACRS (10)
LFMB	RAnand
TBarnhart (4)	FMiraglia
LJHarmon	WRagan
TWambach	ATHadani
WJones	PKreutzer
OELD	OPA

The Commission has issued the enclosed Amendment No. to Provisional Operating License No. DPR-20 for the Palisades Plant. This amendment is in response to your application dated September 17, 1984 as supplemented by submittals dated May 31, June 21, and October 28, 1985.

This amendment revises the Technical Specifications for the Auxiliary Feedwater System to reflect modifications made to the System including the addition of a third auxiliary feedwater pump. These changes are in response to Generic Letter 83-37 and Item II.E.1.1 of NUREG-0737, Long Term Auxiliary Feedwater Evaluation.

The amendment incorporates the Technical Specifications you requested in your application as revised by the subsequent submittals except for the extension of the maximum period of inoperability of an auxiliary feedwater pump from 72 hours to 7 days. That request would require additional justification as indicated in our accompanying safety evaluation.

A copy of the related Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's next bi-weekly Federal Register notice.

Sincerely,

Thomas V. Wambach, Project Manager
PWR Project Directorate #8
Division of PWR Licensing-B

Enclosures:

1. Amendment No. to License No. DPR20
2. Safety Evaluation

cc w/enclosures:
See next page

PBD#8 *ef*
PKreutzer
1/21/86

RajAnand
BWR/FOB
RAnand
1/17/86

PBD#8 *JVM*
TWambach;ef
1/17/86

AT
PBD#8
ATHadani
1/21/86

RO

~~*OP*~~

OELD *OP*
1/22/86
W 1/22/86

Mr. Kenneth W. Berry
Consumers Power Company

Palisades Plant

cc:

M. I. Miller, Esquire
Isham, Lincoln & Beale
51st Floor
Three First National Plaza
Chicago, Illinois 60602

Mr. Thomas A. McNish, Secretary
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Judd L. Bacon, Esquire
Consumers Power Company
212 West Michigan Avenue
Jackson, Michigan 49201

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Jerry Sarno
Township Supervisor
Covert Township
36197 M-140 Highway
Covert, Michigan 49043

Office of the Governor
Room 1 - Capitol Building
Lansing, Michigan 48913

Palisades Plant
ATTN: Mr. Joseph F. Firlit
Plant General Manager
27780 Blue Star Memorial Hwy.
Covert, Michigan 49043

Resident Inspector
c/o U.S. NRC
Palisades Plant
27782 Blue Star Memorial Hwy.
Covert, Michigan 49043

Nuclear Facilities and
Environmental Monitoring
Section Office
Division of Radiological
Health
P.O. Box 30035
Lansing, Michigan 48909



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

CONSUMERS POWER COMPANY

PALISADES PLANT

DOCKET NO. 50-255

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 96
License No. DPR20

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Consumers Power Company (the licensee) dated September 17, 1984 as revised by submittals dated May 31, June 21 and October 28, 1985, 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.

B602130024 B60130
PDR ADDCK 05000255
P PDR

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and Paragraph 3.B. of Provisional Operating License No. DPR-20 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 96, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Ashok C. Thadani, Director
PWR Project Directorate #8
Division of PWR Licensing-B

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 30, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 96

PROVISIONAL OPERATING LICENSE NO. DPR-20

DOCKET NO. 50-255

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are also provided to maintain document completeness.

Remove Pages

3-32
3-38

3-39
3-81a
3-81b
4-11a
4-39
4-45

Insert Pages

3-32
3-38
3-38a
3-39
3-81a
3-81b
4-11a
4-39
4-45

3.3 EMERGENCY CORE COOLING SYSTEM (Contd)

condition to provide for reduction of the decay heat from the fuel and consequent reduction of cooling requirements after a postulated loss-of-coolant accident. This will also permit improved access for repairs in some cases. After a limited time in hot shutdown, if the malfunction(s) is not corrected, the reactor will be placed in the cold shutdown condition utilizing normal shutdown and cooldown procedures. In the cold shutdown condition, release of fission products or damage of the fuel elements is not considered possible.

The plant operating procedures will require immediate action to effect repairs of an inoperable component and, therefore, in most cases, repairs will be completed in less than the specified allowable repair times. The limiting times to repair are intended to: (1) Assure that operability of the component will be restored promptly and yet, (2) allow sufficient time to effect repairs using safe and proper procedures.

The requirement for core cooling in case of a postulated loss-of-coolant accident while in the hot shutdown condition is significantly reduced below the requirements for a postulated loss-of-coolant accident during power operation. Putting the reactor in the hot shutdown condition reduces the consequences of a loss-of-coolant accident and also allows more free access to some of the engineered safeguards components in order to effect repairs.

Failure to complete repairs within 48 hours of going to the hot shutdown condition is considered indicative of a requirement for major maintenance and, therefore, in such a case, the reactor is to be put into the cold shutdown condition.

With respect to the core cooling function, there is functional redundancy over most of the range of break sizes.⁽²⁾

Adequate core cooling for the break spectrum up to and including the 42-inch double-ended break is assured with the minimum safety injection which is defined as follows: For the system of four passive safety injection tanks, the entire contents of one tank are assumed to be unavailable for emergency core cooling. In addition, of the two high-pressure safety injection pumps and the two low-pressure safety injection pumps, only one of each type is assumed to operate; and, also

3.5 STEAM AND FEEDWATER SYSTEMS

Applicability

Applies to the operating status of the steam and feedwater systems.

Objective

To define certain conditions of the steam and feedwater system necessary to assure adequate decay heat removal.

Specifications

- 3.5.1 The primary coolant shall not be heated above 325°F unless the following conditions are met:
- a. Both electric driven Auxiliary Feedwater Pumps and one fire protection pump shall be operable. The steam driven pump shall be operable prior to making the reactor critical.
 - b. The Auxiliary Feedwater System Instrumentation shall meet the minimum operability requirements addressed in Technical Specification 3.17.
 - c. All flow control valves associated with the Auxiliary Feedwater System shall be operable.
 - d. All valves, interlocks and piping associated with the above components required to function during accident conditions shall be operable.
 - e. A minimum of 100,000 gallons of water in the condensate storage and primary coolant system makeup tanks combined.
 - f. The main steam stop valves shall be operable and capable of closing in five seconds or less under no-flow conditions.
- 3.5.2 With the Primary Coolant System at a temperature greater than 325°F, the requirements of Specification 3.5.1 may be modified to permit the following conditions to exist. If the system is not restored to meet the requirements of Specification 3.5.1 within the time period specified below, refer to Specification 3.5.3.
- a. One auxiliary feedwater pump may be inoperable for a period of 72 hours.
 - b. Two auxiliary feedwater pumps may be placed in manual, for testing, for a period of 4 hours.

3.5 STEAM AND FEEDWATER SYSTEMS (Cont'd)

3.5.2 Continued

- c. The fire water makeup to the Auxiliary Feedwater Pump Suction (P-8A and P-8B) may be inoperable for a period of 7 days provided the pump service water makeup to P-8C, pump P-8C, and its corresponding flow control valves are operable.
- d. The service water makeup to the Auxiliary Feedwater Pump Suction (P-8C) may be inoperable for a period of 7 days provided the fire water makeup to P-8A and P-8B, pumps P-8A and P-8B and their corresponding flow control valves are operable.
- e. One flow control valve on each train may be inoperable for a period of 72 hours provided the corresponding redundant flow control valve and a pump in the other pipe train are operable.

3.5.3 With the Primary Coolant System at a temperature greater than 325°F and if the system does not satisfy the requirements of Specification 3.5.1 or the conditions of Specification 3.5.2 except as noted in Specification 3.5.4, the reactor shall be placed in hot standby within 6 hours, hot shutdown within the following 6 hours and in cold shutdown within the following 24 hours.

3.5.4 With all Auxiliary Feedwater Pumps inoperable, immediately initiate corrective action to restore at least one Auxiliary Feedwater Pump to OPERABLE status as soon as possible and reduce power within 24 hours to the lowest stable power level consistent with reliable Main Feedwater System operation.

3.5 STEAM AND FEEDWATER SYSTEMS (Cont'd)

Basis

The Steam and Power Conversion System is designed to receive steam from the NSSS and convert the steam thermal energy into electrical energy. A closed regenerative cycle condenses the steam from the main turbine and returns the condensate as heated feedwater to the steam generators. Normally, the capability to supply feedwater to the steam generators is provided by operation of the turbine-driven main feedwater pumps.

A reactor shutdown from power requires removal of core decay heat. Immediate decay heat removal requirements are normally satisfied by the steam bypass to the condenser, or by steam discharge to the atmosphere via the main steam safety valves or power operated relief valves.^(1,2) If the main feedwater pumps are not operating, any one auxiliary feedwater pump can supply sufficient feedwater for removal of decay heat from the Plant. The Plant is provided with two motor driven auxiliary feedwater pumps (P-8A, P-8C) and one turbine driven auxiliary feedwater pump (P-8B). The Auxiliary Feedwater System is designed so that an automatic start signal is generated to the auxiliary feedwater pumps upon low secondary side steam generator level. Upon low secondary side steam generator level, auxiliary feedwater pump P-8A would be the first auxiliary feedwater pump to receive an automatic start signal. If pump P-8A failed to start or establish flow within a specified period of time, auxiliary feedwater pump P-8C would receive an automatic start signal. If both pump P-8A and pump P-8C failed to start or establish flow within each pump's specified period of time, auxiliary feedwater pump P-8B would receive an automatic start signal. All three auxiliary feedwater pumps normally take suction from the condensate storage tank. The minimum amount of water in the condensate storage tank and primary coolant system makeup tanks combined is the amount needed for 8 hours of auxiliary feedwater pump operation. If the outage is more than 8 hours, Lake Michigan water can be used, by utilizing a fire pump to supply water to the auxiliary feedwater pumps P-8A and P-8B, or by utilizing a service water pump to supply water to auxiliary feedwater pump P-8C.

Three fire pumps are provided, one motor driven and two diesel driven, each capable of delivering 1500 gpm at 125 psig. Three service water pumps are provided, all of which are motor driven, each capable of delivering 8000 gpm at 60 psig.

A closure time of 5 seconds for the main steam stop valves is considered adequate and was selected as being consistent with expected response time for instrumentation as detailed in the steam line break incident analysis.⁽³⁾

REFERENCES

- (1) FSAR, Section 4.3.4
- (2) FSAR, Section 14.13.1
- (3) FSAR, Section 14.14

Table 3.17.4 (Cont'd)

<u>No.</u>	<u>Functional Unit</u>	<u>Minimum Operable Channels</u>	<u>Minimum Degree of Redundancy</u>	<u>Permissible Bypass Conditions</u>
8.	Pressurizer Water Level (LI-0102)	2	1	Not required in Cold or Refueling Shutdown
9.	Pressurizer Code Safety Relief Valves Position Indication (Acoustic Monitor or Temperature Indication)	1 per valve	None	Not required below 325°F
10.	Power Operated Relief Valves (Acoustic Monitor or Temperature Indication)	1 per valve	None	Not required when PORV isolation valve is closed and its indication system is operable
11.	PORV Isolation Valves Position Indication	1 per valve	None	Not required when reactor is depressurized and vented through a vent \geq 1.3 sq.in.
12.	Subcooling Margin Monitor	1	None	Not required below 515°F
13.	Auxiliary Feed Flow Rate Indication	1 per flow ^(h) Control Valve	None	Not required below 325°F
14.	Auxiliary Feedwater Actuation System Sensor Channels	2 per steam generator ^(e)	1	Not required below 325°F
15.	Auxiliary Feedwater Actuation System Actuation Channels	2 ^(f)	1	Not required below 325°F
16.	Excure Detector	1 ^(g)	None	None

(e) Auxiliary Feedwater System Actuation System Sensor Channels contain pump auto initiation circuitry. If two sensor channels for one steam generator are inoperable, one of the steam generator low level bistable modules in one of the inoperable channels must be in the tripped condition.

(f) With one Auxiliary Feedwater Actuation System Actuation Channel inoperable, in lieu of the requirement of 3.17.2, provide a second licensed operator in the control room within 2 hours. With both inoperable, in lieu of following the requirements of 3.17.2, start and maintain in operation the turbine driven auxiliary feed pump.

Table 3.17.4 (Cont'd)

- (g) Calculate the Quadrant Power Tilt using the excore readings at least once per 12 hours when the excore detectors deviation alarms are operable.
- (h) With two flow rate indicators inoperable for a given control valve, the control valve shall be considered inoperable and the requirements of 3.5.2(e) apply.

Table 4.1.3 (Cont'd)

<u>Channel Description</u>	<u>Surveillance Function</u>	<u>Frequency</u>	<u>Surveillance Method</u>
15. Auxiliary Feed Pump Flow Indication	a. Calibrate	R	a. Known Differential Pressure Applied to Sensors
16. Auxiliary Feed Pump Start	a. Test	M (3)(5)	a. Switch
	b. Calibrate	R	b. Known Differential Pressure Applied to Sensors
17. Power Operated Relief Valves and Pressurizer Code Safety Relief Valves Position Indication	a. Temperature	a. Calibrate	a. Known Resistance Substitute for RTD
		b. Check	b. Comparison of Channels
	b. Acoustic Monitor	a. Calibrate	a. Inject Calibrated Test Signal
18. Subcooling Margin Monitor	a. Check	S	a. Comparison of Channels
	b. Calibrate	R	b. Known Resistance Substituted for RTD Coincident With Known Pressure Input (4)

(3) Test method to be alternated to include starting auxiliary feedwater pump from the control room hand switch, from the breaker (or alternate steam supply) and from the pump test-key switch in a three month period.

(4) In conjunction with Item 4(b), Table 4.1.1.

(5) It is not necessary to perform the specified testing during the cold shutdown condition.

4.6 SAFETY INJECTION AND CONTAINMENT SPRAY SYSTEMS TESTS

Applicability

Applies to the safety injection system, the containment spray system, chemical injection system and the containment cooling system tests.

Objective

To verify that the subject systems will respond promptly and perform their intended functions, if required.

Specifications

4.6.1 Safety Injection System

- a. System tests shall be performed at each reactor refueling interval. A test safety injection signal will be applied to initiate operation of the system. The safety injection and shutdown cooling system pump motors may be de-energized for this test.
- b. The system test will be considered satisfactory if control board indication and visual observations indicate that all components have received the safety injection signal in the proper sequence and timing (i.e., the appropriate pump breakers shall have opened and closed, and all valves shall have completed their travel).
- c. All high pressure safety injection pumps except those otherwise required to be operable shall be demonstrated inoperable at least once per 12 hours whenever the temperature of one or more of the PCS cold legs is $< 250^{\circ}\text{F}$ by verifying that the control system fuses and their fuse holders for the HPSI pumps (P66A, P66B) have been removed from the circuit.

4.6.2 Containment Spray System

- a. System tests shall be performed at each reactor refueling interval. The test shall be performed with the isolation valves in the spray supply lines at the containment blocked closed. Operation of the system is initiated by tripping the normal actuation instrumentation.
- b. At least every five years the spray nozzles shall be verified to be open.
- c. The test will be considered satisfactory if visual observations indicate all components have operated satisfactorily.

4.6.3 Pumps

- a. The safety injection pumps, shutdown cooling pumps, and containment spray pumps shall be started at intervals not to exceed three months. Alternate manual starting between control room console and the local breaker shall be practiced in the test program.

4.9 AUXILIARY FEEDWATER SYSTEM

Applicability

Applies to periodic testing requirements of the turbine-driven and motor-driven Auxiliary Feedwater Pumps.

Objective

To verify the operability of the Auxiliary Feedwater System and its ability to respond properly when required.

Specifications

Demonstrate the operability of each auxiliary feedwater pump:

- a. At least once per 31 days:
 1. The operability of each motor-driven pump shall be confirmed as required by Specification 4.3.c. and Table 4.1.3 Item 16a.
 2. The operability of the steam-driven pump shall be confirmed as required by Specification 4.3.c. and Table 4.1.3 Item 16a. The provisions of Specification 3.0.4 are not applicable for entry into Hot Standby.
 3. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
- b. At least once per 18 months by:
 1. Verifying that each Automatic Valve (CV-0736A, CV-0737A, CV-0727 and CV-0749) actuates to its correct position (or that specified flow is established) upon receipt of a simulated auxiliary feedwater pump start signal.
 2. Verifying that each pump starts automatically upon receipt of an auxiliary feedwater actuation test signal.

BASIS

The periodic testing of Section 4.9.a will verify auxiliary feedwater pump operability by recirculating water to the condensate tank and monitoring pump performance as specified in Section 4.3.c.

The operability testing of Section 4.9.b will verify auto initiation of the auxiliary feedwater system by simulating a low steam generator level and observation of pump start. To automatically start the "C" pump requires placing the "A" pump in manual. To automatically start the "B" pump requires placing the "A & C" pumps in manual. These tests may be performed during plant operations. Operability of the flow control valves (CV-0736A, CV-0737A, CV-0727 and CV-0749) will be verified through simulation of an auxiliary feedwater pump start signal and observing auxiliary feedwater system flow as monitored by installed instrumentation.

REFERENCE

FSAR, Section 9.7



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 96 TO PROVISIONAL OPERATING LICENSE NO. DPR-20

CONSUMERS POWER COMPANY

PALISADES PLANT

DOCKET NO. 50-255

1.0 INTRODUCTION

By letter dated September 17, 1984 as revised by submittals dated May 31, June 21 and October 28, 1985, the Consumers Power Company (CPC) submitted a request for changes to the Palisades Plant Technical Specifications for the Auxiliary Feedwater System. This application was in response to Generic Letter 83-37 and Item II.E.1.1 of NUREG-0737, Long Term Auxiliary Feedwater Evaluation.

The amendment incorporates revisions complying with the applicable NRC guidelines as represented in the Standard Technical Specifications that were enclosed with Generic Letter 83-37 within the constraints of the existing plant design and construction. These revisions also reflect the modifications made to increase the reliability of the system, such as the addition of a third pump.

2.0 EVALUATION

Specifically, these technical specifications were requested to be revised to (1) include the utilization of a spare high-pressure safety injection (HPSI) pump as a third auxiliary feedwater (AFW) pump; (2) extend the maximum period of inoperability of an AFW pump P-8A or P-8B from 72 hours to 7 days; (3) extend the limiting condition for operation (LCO) for the time period from 72 hours to 7 days to restore secondary suction source to the AFW pumps; (4) delete reference to HPSI pump P66C which is now referred to as third AFW pump P-8C; and (5) add 31 days surveillance requirement on lock open valves. The following sections of the technical specifications are affected by these proposed changes: Sections 3.3, 3.5.1a through f, 3.5.2a through e, 3.5.3, 3.5.4, 3.5 Basis, Table 3.17.4, 4.6.1.c, Table 4.1.3 and 4.9.

We have reviewed the licensee's proposed technical specification change request and supporting basis concerning the AFW system. The results of this review are reported below:

2.1 Specification 3.3 - Basis

Specification 3.3 deals with the emergency core cooling systems. Although only two HPSI pumps are required by the technical specification, the basis for the technical specification mentions that the plant had an installed spare pump.

8602130025 860130
PDR ADDCK 05000255
PDR
P

In upgrading the AFW system, that pump was converted to act as a third AFW pump. Therefore, the basis has been changed for this specification to delete the reference to a third HPSI pump. The staff finds this acceptable.

2.2 Specification 3.5

The existing plant technical specification 3.5.1.a refers to the operability of two AFW pumps. In order to incorporate the required AFW system reliability upgrades from NUREG-0737, Item II.E.1.1, the design modification adapted the existing spare HPSI pump P66C for AFW service. This modification was completed during the 1983-1984 refueling outage. The proposed technical specification change is requested to bring the plant technical specification into conformance with the actual as-built plant design. Based on our review of the AFW system design and on the increased system reliability with this added requirement for a third pump, the staff finds the proposed change to the technical specification to be acceptable.

Specifications 3.5.1.b and 3.5.1.c are being added to give specific operability requirements for AFW instrumentation and flow control valves and the staff finds these additional requirements acceptable.

The licensee also requested to extend the maximum period of inoperability of the motor-driven AFW pump (P-8A) and the turbine-driven AFW pump (P-8B) from 72 hours to 7 days in Specification 3.5.2. By letter dated June 21, 1985, the licensee submitted calculations to support a 7-day LCO for the steam-driven AFW pump (P-8B). This requested change is not being made with this amendment and will be the subject of separate, future licensing action.

The current technical specification 3.5.2.b has an LCO time period of 72 hours to restore the alternate fire water suction to the AFW pumps P-8A and P-8B. With the additional independent secondary suction source to the third AFW pump P-8C, the licensee has requested that the LCO time period be extended from 72 hours to 7 days to restore secondary suction sources to the AFW pumps in Specification 3.5.2.c and d.

All three AFW pumps normally take suction from a seismic category I condensate storage tank. The AFW system has two secondary sources to the AFW pumps. Lake Michigan water can be used by utilizing a fire pump to supply water to the AFW pumps P-8A and P-8B or by utilizing a service water pump to supply water to third AFW pump P-8C. The specification precludes simultaneous outage of both the alternate suction sources to the AFW system, and the staff finds this acceptable.

A new specification 3.5.2.b allows two AFW pumps' controls to be placed in manual for a period of 4 hours to allow for testing of the third pump. The staff finds this desirable since the testing is needed to ensure reliability of the system. This addition is acceptable.

Another new specification, 3.5.2.e, specifies the time limit and conditions under which a flow control valve can be inoperable. This is necessary since the new specification 3.5.1 requires these flow control valves to be operable. The time allowances of 72 hours prior to a requirement to shut down are consistent with the operability requirements of the Standard Technical Specifications and the staff finds this specification acceptable.

Specification 3.5.3 is changed slightly to allow 6 hours to reach hot standby instead of the present 1 hour but reduces the time from hot shutdown to cold shutdown from 30 hours to 24 hours. This is consistent with Standard Technical Specifications and the overall time at risk is virtually unchanged. The staff finds this change acceptable.

The Basis section for Specification 3.5 has been completely rewritten to better describe the modified system and the new Technical Specifications.

2.3 Specification 3.17 - Table 3.17.4

Specification 3.17 gives the operability requirements for instrumentation and Table 3.17.4 identifies the specific instrumentation functional units, the minimum number of operable channels, the minimum degree of redundancy, the permissible bypass conditions, and any specific notes pertaining to particular instruments. The instrumentation for the AFW that has been included in Table 3.17.4 consists of the flow rate channels, the AFW actuation system sensor channels and the AFW system actuation channels. There are two flow rate channels in each of the four AFW lines and an associated flow control valve in each line. A minimum of one channel for each flow control valve is required or the valve must be considered inoperable and Specification 3.5.2(e) applies. Specification 3.5.2(e) allows a flow control valve to be inoperable for up to 72 hours provided the redundant flow control valve and pump in the other train are operable. There are four AFW actuation sensors for each steam generator that provide input to a 2 out of 4 coincidence logic module to both actuation channels either of which will start the AFW. A minimum of two sensors are required by the specification. However, a note on the Table specifies that if two sensors on one steam generator are inoperable, i.e., the minimum condition allowed, one of the inoperable sensor's low level bistable must be tripped. This applies one trip to the 2 out of 4 logic module in the actuation channel which means only one of the two operable channels must trip to get system actuation. This maintains 1 out of 2 redundancy and is acceptable.

The only change to the actuation channel specification is that previously, with only two pumps, the requirement was for one channel per pump. Now, with three pumps, the specification requires two channels, either of which can start all three pumps. The staff finds these instrument channel requirements provide adequate redundancy and are acceptable.

2.4 Specification 4.1 - Table 4.1.3

Table 4.1.3 specifies the surveillance test requirements for miscellaneous instrumentation and controls including the AFW flow indication channels and the pump starting controls. The flow channels are required to be calibrated at each refueling outage as are the steam generator water level channels. Each pump start must be tested monthly with the test method to be alternated to include starting from the control room hand switch from the breaker (or alternate steam supply for the steam driven pump) and from the pump test key switch in a 3-month period. The staff finds this testing sufficient and acceptable.

2.5 Specification 4.6.1.C

In Specification 4.6.1.C, the licensee deleted reference to HPSI pump P66C which is now referred to as third AFW pump P-8C. The staff finds the proposed change to specification 4.6.1.C to be acceptable.

2.6 Specification 4.9

Per recommendation from the NUREG-0737, Item II.E.1.1 review, the licensee has added a technical specification change to assure that each non-automatic valve in the flow path that is not locked, sealed or otherwise secured in position is in the correct position by performing a monthly inspection of such valves. The staff finds this change to be acceptable.

In response to the staff recommendation that the licensee should propose modification to the technical specification to provide a flow test, the licensee's proposed Specification 4.9 also requires monthly testing of all three pumps and on a quarterly basis that the test include a test that flows water through the flow paths and flow control valves to the steam generators which not only verifies operability of the pumps and valves but also the integrity of the flow path. Testing of automatic starting of the pumps and automatic positioning of the valves is required every 18 months. This testing is consistent with the Standard Technical Specifications being issued for plants currently being licensed and which were sent as guidance to all licensees with Generic Letter 83-37. The staff, therefore, finds Specification 4.9 acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of facility components located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. 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 perviously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

4.0 CONCLUSION

Except for the requested change in allowable outage time for two of the AFW pumps, 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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: January 30, 1986

Principal Contributors:

R. Anand

A. Buslik

T. Wambach