ATTACHMENT 1

PROPOSED REVISION TO DPR-29

Revised Pages: 3.5/4.5-2
3.5/4.5-3
3.5/4.5-4
3.5/4.5-11
3.9/4.9-3

0284K

e.	Core spray header Δp instrumentation	
	check	Once/day
	calibrate	Once/3 months
	test	Once/3 months
f.	Logic system functional test	Each refueling outage

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 only during the succeeding 7 days unless such subsystem is sooner made operable provided that during such 7 days all active components of the other core spray subsystem and the LPCI mode of the RHR system and the diesel generators required for operation of such components if no external source of power were available shall be operable.

2. When it is determined that one core spray subsystem is inoperable, the operable core spray subsystem and the LPCI mode of the RHR system shall be demonstrated to be operable immediately. The operable core spray subsystem shall be demonstrated to be operable daily thereafter.

3. The LPCI mode of the RHR system shall be operable whenever irradiated fuel is in the reactor vessel and prior to reactor startup from a cold condition.

3. LPCI mode of the RHR system testing shall be as specified in Specifications 4.5.A.1.a, b, c, d, and f, except that three RHR pumps shall deliver at least 14500 gpm against a system head corresponding to a reactor vessel pressure of 20 psig.

4. From and after the date that one of the RHR pumps is made or found to be inoperable for any reason continued reactor operation is permissible only during the succeeding 30 days unless such pump is sooner made operable, provided that during such 30 days the remaining active components of the LPCI mode of the RHR, containment cooling mode of the RHR, all active components of both core spray subsystems, and the diesel generators required for operation of such components if no external source of power were available shall be operable.

4. When is is determined that one of the RHR pumps is inoperable, the remaining active components of the LPCI mode of the RHR, containment cooling mode of the RHR, and both core spray subsystems shall be demonstrated to be operable immediately and the operable RHR pumps daily thereafter.

5. From and after that date that the LPCI mode of the RHR system is made or found to be inoperable for any reason,

5. When it is determined that the LPCI mode of the RHR system is inoperable, both core spray subsystems and the

continued reactor operation is permissible only during the succeeding 7 days unless it is sooner made operable, provided that during such 7 days all active components of both core spray subsystems, the containment cooling mode of the RHR (including two RHR pumps), and the diesel generators required for operation of such components if no external source of power were available shall be operable.

6. If the requirements of Specification 3.5.A cannot be met, an orderly shutdown of the reactor shall be initiated, and the reactor shall be in the cold shutdown condition within 24 hours.

B. Containment Cooling Mode of the RHR System

1.a Both loops of the containment cooling mode of the RHR system, as defined in the bases for Specification 3.5.B, shall be operable whenever irradiated fuel is in the reactor vessel and prior to reactor startup from a cold condition.

1.b From the effective date of this amendment until July 1, 1982, the "A" loop of the containment cooling mode of the RHR system for each reactor may share the Unit 2 "A" and "B" RHR service water pumps using cross tie line 1/2-10124-16"-D. Consequently, the requirements of Specifications 3.5.B.2 and 3.5.B.3 will impose the corresponding surveillance testing of equipment associated with both reactors if the shared RHR service water pump or pumps, or the cross tie line, are made or found to be inoperable.

2. From and after the date that one of the RHR service water pumps is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 30 days unless such pump is sooner mode operable, provided that during such 30 days all other active components of the containment cooling mode of the RHR system are operable.

containment cooling mode of the RHR shall be demonstrated to be operable immediately and daily thereafter.

B. Containment Cooling Mode of the RHR system

Surveillance of the containment cooling mode of the RHR system shall be performed as follows:

1. RHR service water subsystem testing:

	Item	Frequency
a.	Pump and valve operability	Once/3 months
b.	Flow rate test- each RHR service water pump shall deliver at least 3500 gpm against a pressure of 198 psig	After pump maintenance and every 3 months
c.	A logic system functional test.	Each refueling outage.

2. When it is determined that one RHR service water pump is inoperable, the remaining components of that loop and the other containment cooling loop of the RHR system shall be demonstrated to be operable immediately and daily thereafter.

3. From and after the date that one loop of the containment cooling mode of the RHR system is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 7 days unless such subsystem is sooner made operable, provided that all active components of the other loop of the containment cooling mode of the RHR system, both core spray subsystems, and both diesel generators required for operation of such components if no external source of power were available, shall be operable.

3. When one loop of the containment cooling mode of the RHR system becomes inoperable, the operable loop shall be demonstrated to be operable immediately, and daily thereafter.

4. Containment cooling spray loops are required to be operable when the reactor water temperature is greater than 212°F and prior to reactor startup from a cold condition. Continued reactor operation is permitted provided that a maximum of one drywell spray loop may be inoperable for 30 days when the reactor water temperature is greater than 212°F.

4. During each 5-year period, an air test shall be performed on the drywell spray headers and nozzles and a water spray test performed on the torus spray header and nozzles.

5. If the requirements of 3.5.B cannot be met, an orderly shutdown shall be initiated, and the reactor shall be in a cold shutdown condition within 24 hours.

C. HPCI Subsystem

C. HPCI Subsystem

Surveillance of HPCI subsystem shall be performed as follows:

1. The HPCI subsystem shall be operable whenever the reactor pressure is greater than 90 psig, irradiated fuel is in the reactor vessel, and prior to reactor startup from a cold condition.

1. HPCI subsystem testing shall be as specified in Specification 4.5.A.1.a.b, c, and d, except that the HPCI pump shall deliver at least 5000 gpm against a system head corresponding to a reactor vessel pressure of 1150 psig to 150 psig, and a logic system functional test shall be performed during each refueling outage.

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 7 days unless such subsystem is sooner made operable.

2. When it is determined that the HPCI subsystem is inoperable, the LPCI mode of the RHR system, both core spray subsystems, the automatic pressure relief subsystem, and the RCIC system shall be demonstrated to be

3.5 LIMITING CONDITION FOR OPERATION BASES

A. Core Spray and LPCI Mode of the RHR System

This specification assures that adequate emergency cooling capability is available whenever irradiated fuel is in the reactor vessel.

Based on the loss-of-coolant analytical methods described in General Electric Topical Report NEDO-20566 and the specific analysis in Reference 1, core cooling systems provide sufficient cooling to the core to dissipate the energy associated with the loss-of-coolant accident, to limit calculated fuel cladding temperature to less than 2200°F, to assure that core geometry remains intact, to limit cladding metal-water reaction to less than 1% and to limit the calculated local metal-water reaction to less than 17%.

The limiting conditions of operation in Specifications 3.5.A.1 through 3.5.A.6 specify the combinations of operable subsystems to assure the availability of the minimum cooling systems noted above. No single failure of ECCS equipment occurring during a loss-of-coolant accident under these limiting conditions of operation will result in inadequate cooling of the reactor core.

Core spray distribution has been shown, in full-scale tests of systems similar in design to that of Quad-Cities 1 and 2, to exceed the minimum requirements by at least 25%. In addition, cooling effectiveness has been demonstrated at less than half the rated flow in simulated fuel assemblies with heater rods to duplicate the decay heat characteristics of irradiated fuel. The accident analysis is additional conservative in that no credit is taken for spray cooling of the reactor core before the internal pressure has fallen to 90 psig.

The LPCI mode of the RHR system is designed to provide emergency cooling to the core by flooding the in event of a loss-of-coolant accident. This system functions in combination with the core spray system to prevent excessive fuel cladding temperature. The LPCI mode of the RHR system in combination with the core spray subsystem provides adequate cooling for break areas of approximately 0.2ft ^{2}up to and including 4.18 ft ^{2}the latter being the double-ended recirculation line break with the equalizer line between the recirculation loops closed without assistance from the high-pressure emergency core cooling subsystems.

The allowable repair times are established so that the average risk rate for repair would be no greater than the basic risk rate. The method and concept are described in Reference 3. Using the results developed in this reference, the repair period is found to be less than half the test interval. This assumes that the core spray subsystems and LPCI constitute a one-out-of-two system; however, the combined effect of the two systems to limit excessive cladding temperature must also be considered. The test interval specified in Specification 4.5 was 3 months. Therefore, an allowable repair period which maintains the basic risk considering single failures should be less than 30 days, and this specifications is within this period. For multiple failures, a shorter interval is specified; to improve the assurance that the remaining systems will function, a daily test is called for. Although it is recognized that the information given in Reference 1 provides a quantitative method to estimate allowable repair times, the lack of operating data to support the analytical approach prevents complete acceptance of this method at this time. Therefore, the times stated in the specific items were established with due regard to judgment.

Should one core spray subsystem become inoperable, the remaining core spray subsystem and the entire LPCI mode of the RHR system are available should the need for core cooling arise. To assure that the remaining core spray and the LPCI mode of the RHR system are available, they are demonstrated to be operable immediately. This demonstration includes a manual initiation of the pumps and associated valves. Based on judgments of the reliability of the remaining systems, i.e., the core spray and LPCI, a 7-day repair period was obtained.

unless an additional line is sooner placed in service, providing both the Unit and Unit 1/2 emergency diesel generators are operable.

2. From and after the date the incoming power is not available from any line, continued reactor operation is permissible providing both the Unit and Unit 1/2 emergency diesel generators are operating, all core and containment cooling systems are operable, reactor power level is reduced to 40% of rated, and the NRC is notified within 24 hours of the situation, the precautions to be taken during this period, and the plans for prompt restoration of incoming power.

3. From and after the date that one of the two 125/250-volt battery systems is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 3 days unless such battery system is sooner made operable.

D. Diesel Fuel

There shall be a minimum of 10,000 gallons of diesel fuel supply on site for each diesel generator.

D. Diesel Fuel

Once a month the quantity of diesel fuel available shall be logged.

Once a month a sample of diesel fuel shall be checked for quality.

E. Diesel-Generator Operability

1. Whenever the reactor is in the Startup/Hot Standby or Run mode and the unit or shared diesel generators and/or their respective associated buses are made or found to be inoperable for any reason, except as specified in Specification 3.9.E.2 below, continued reactor operation is permissible only during the succeeding 7 days provided that all of the low-pressure core cooling and all loops of the containment cooling mode of the RHR system associated with the operable diesel generator shall be operable,and two offsite lines are availalbe. If this requirement cannot be met, an orderly shutdown shall be initiated and the

E. Diesel-Generator Operability

1. When it is determined that either the unit or shared diesel generator is inoperable, all low-pressure core cooling systems and all loops of the containment cooling mode of the RHR system associated with the operable diesel generator shall be demonstrated to be operable immediately and daily thereafter.

2. During each refueling outage, a simulated loss of off-site power in conjunction with an ECCS initiation signal test shall be performed on the 4160 volt emergency bus by:

ATTACHMENT 2

PROPOSED REVISION TO DPR-30

Revised Pages: 3.5/4.5-2
3.5/4.5-3
3.5/4.5-4
3.5/4.5-11
3.9/4.9-3

0284K

e.	Core spray header Δp instrumentation	
	check	Once/day
	calibrate	Once/3 months
	test	Once/3 months
f.	Logic system functional test	Each refueling outage

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 only during the succeeding 7 days unless such subsystem is sooner made operable provided that during such 7 days all active components of the other core spray subsystem and the LPCI mode of the RHR system and the diesel generators required for operation of such components if no external source of power were available shall be operable.

2. When it is determined that one core spray subsystem is inoperable the operable core spray subsystem and the LPCI mode of the RHR system shall be demonstrated to be operable immediately. The operable core spray subsystem shall be demonstrated to be operable daily thereafter.

3. The LPCI mode of the RHR system shall be operable whenever irradiated fuel is in the reactor vessel and prior to reactor startup from a cold condition.

3. LPCI mode of the RHR system testing shall be as specified in Specifications 4.5.A.1.a, b, c, d, and f, except that three RHR pumps shall deliver at least 14500 gpm against a system head corresponding to a reactor vessel pressure of 20 psig.

4. From and after the date that one of the RHR pumps is made or found to be inoperable for any reason continued reactor operation is permissible only during the succeeding 30 days unless such pump is sooner made operable, provided that during such 30 days the remaining active components of the LPCI mode of the RHR, containment cooling mode of the RHR, all active components of both core spray subsystems, and the diesel generators required for operation of such components if no external source of power were available shall be operable.

4. When is is determined that one of the RHR pumps is inoperable. The remaining active components of the LPCI mode of the RHR containment cooling mode of the RHR and both core spray subsystems shall be demonstrated to be operable immediately and the operable RHR pumps daily thereafter.

5. From and after that date that the LPCI mode of the RHR system is made or found to be inoperable for any reason,

5. When it is determined that the LPCI mode of the RHR system is inoperable, both core spray subsystems and the

continued reactor operation is permissible only during the succeeding 7 days unless it is sooner made operable, provided that during such 7 days all active components of both core spray subsystems, the containment cooling mode of the RHR (including two RHR pumps), and the diesel generators required for operation of such components if no external source of power were available shall be operable.

6. If the requirements of Specification 3.5.A cannot be met, an orderly shutdown of the reactor shall be initiated, and the reactor shall be in the cold shutdown condition within 24 hours.

B. Containment Cooling Mode of the RHR System

1.a Both loops of the containment cooling mode of the RHR system, as defined in the bases for Specification 3.5.B, shall be operable whenever irradiated fuel is in the reactor vessel and prior to reactor startup from a cold condition.

1.b From the effective date of this amendment until July 1, 1982, the "A" loop of the containment cooling mode of the RHR system for each reactor may share the Unit 2 "A" and "B" RHR service water pumps using cross tie line 1/2-10124-16"-D. Consequently, the requirements of Specifications 3.5.B.2 and 3.5.B.3 will impose the corresponding surveillance testing of equipment associated with both reactors if the shared RHR service water pump or pumps, or the cross tie line, are made or found to be inoperable.

2. From and after the date that one of the RHR service water pumps is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 30 days unless such pump is sooner mode operable, provided that during such 30 days all other active components of the containment cooling mode of the RHR system are operable.

containment cooling mode of the RHR shall be demonstrated to be operable immediately and daily thereafter.

B. Containment Cooling Mode of the RHR system

Surveillance of the containment cooling mode of the RHR system shall be performed as follows:

1. RHR service water subsystem testing:

	Item	Frequency
a.	Pump and valve operability	Once/3 months
b.	Flow rate test-each RHR service water pump shall deliver at least 3500 gpm against a pressure of 198 psig	After pump maintenance and every 3 months
c.	A logic system functional test.	Each refueling outage.

2. When it is determined that one RHR service water pump is inoperable, the remaining components of that loop and the other containment cooling loop of the RHR system shall be demonstrated to be operable immediately and daily thereafter.

3. From and after the date that one loop of the containment cooling mode of the RHR system is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 7 days unless such subsystem is sooner made operable, provided that all active components of the other loop of the containment cooling mode of the RHR system, both core spray subsystems, and both diesel generators required for operation of such components if no external source of power were available, shall be operable. During the time period from April 17, 1978 through April 30, 1978 while the 2A Containment Cooling Loop of the RHR System is made inoperable for heat exchanger repair, continued reactor operation is permissible beyond the above 7-day limitation, unless such loop is sooner made operable, provided that during the time the 7-day limit is exceeded, a visual inspection is performed daily to assure that proper valve alignment and system integrity is maintained in the "B" RHR loop.	3. When one loop of the containment cooling mode of the RHR system becomes inoperable, the operable loop shall be demonstrated to be operable immediately and daily thereafter.
4. Containment cooling spray loops are required to be operable when the reactor water temperature is greater than 212°F and prior to reactor startup from a cold condition. Continued reactor operation is permitted provided that a maximum of one drywell spray loop may be inoperable for 30 days when the reactor water temperature is greater than 212°F.	4. During each 5-year period, an air test shall be performed on the drywell spray headers and nozzles and a water spray test performed on the torus spray header and nozzles.
5. If the requirements of 3.5.B cannot be met, an orderly shutdown shall be initiated, and the reactor shall be in a cold shutdown condition within 24 hours.	

3.5 LIMITING CONDITIONS FOR OPERATION BASES

A. Core Spray and LPCI Mode of the RHR System

This specification assures that adequate emergency cooling capability is available.

Based on the loss-of-coolant analyses included in References 1 and 2 and in accordance with 10 CFR 50.46 and Appendix K, core cooling systems provide sufficient cooling to the core to dissipate the energy associated with the loss-of-coolant accident, to limit the calculated peak cladding temperature to less than 2200°F, to assure that core geometry remains intact to limit the corewide cladding metal-water reaction to less than 1% and to limit the calculated local metal-water reaction to less than 17%.

The allowable repair times are established so that the average risk rate for repair would be no greater than the basic risk rate. The method and concept are described in Reference 3. Using the results developed in this reference, the repair period is found to be less than half the test interval. This assumes that the core spray subsystems and LPCI constitute a one-out-of-two system; however, the combined effect of the two systems to limit excessive cladding temperature must also be considered. The test interval specified in Specification 4.5 was 3 months. Therefore, an allowable repair period which maintains the basic risk considering single failures should be less than 30 days, and this specification is within this period. For multiple failures, a shorter interval is specified; to improve the assurance that the remaining systems will function, a daily test is called for. Although it is recognized that the information given in Reference 3 provides a quantitative method to estimate allowable repair times, the lack of operating data to support the analytical approach prevents complete acceptance of this method at this time. Therefore, the times stated in the specific items were established with due regard to judgment.

Should one core spray subsystem become inoperable, the remaining core spray subsystem and the entire LPCI mode of the RHR system are available should the need for core cooling arise. To assure that the remaining core spray and the LPCI mode of the RHR system are available, they are demonstrated to be operable immediately. This demonstration includes a manual initiation of the pumps and associated valves. Based on judgments of the reliability of the remaining systems, i.e., the core spray and LPCI, a 7-day repair period was obtained.

Should the loss of one RHR pump occur, a nearly full complement of core and containment cooling equipment is available. Three RHR pumps in conjunction with the 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 30-day repair period is justified. If the LPCI mode of the RHR system is not available, at least two RHR pumps must be available to fulfill the containment cooling function. The 7-day repair period is set on this basis.

B. RHR Service Water

The containment cooling mode of the RHR system is provided to remove heat energy from the containment in the event of a loss-of-coolant accident. For the flow specified, the containment long-term pressure is limited to less than 8 psig and is therefore more than ample to provide the required heat removal capability (reference SAR Section 5.2.3.2).

The Containment Cooling mode of the RHR5 System consists of two loops. Each loop consists of 1 Heat Exchanger, 2 RHR Pumps, and the associated valves, piping, electrical equipment, and instrumentation. The "B" loop on each unit contains 2 RHR Service Water Pumps. During the period from November 24, 1981, to July 1, 1982, the "A" loop on each unit may utilize the "A" and "B" RHR Service Water Pumps from Unit 2 via a cross-tie line. After July 1, 1982, each "A" loop will contain 2 RHR Service Water Pumps. Either set of equipment is capable of performing the containment cooling function. Loss of one RHR service water pump does not seriously jeopardize the containment cooling capability, as any one of the remaining three pumps can satisfy the cooling requirements. Since there is some redundancy left, a 30-day repair period is adequate. Loss of one loop of the containment cooling mode of the RHR system leaves one remaining system to perform the containment cooling function. The operable system is demonstrated to be operable each day when the above condition occurs.

unless an additional line is sooner placed in service, providing both the Unit and Unit 1/2 emergency diesel generators are operable.

2. From and after the date the incoming power is not available from any line, continued reactor operation is permissible providing both the Unit and Unit 1/2 emergency diesel generators are operating, all core and containment cooling systems are operable, reactor power level is reduced to 40% of rated, and the NRC is notified within 24 hours of the situation, the precautions to be taken during this period, and the plans for prompt restoration of incoming power.

3. From and after the date that one of the two 125/250-volt battery systems is made or found to be inoperable for any reason, continued reactor operation is permissible only during the succeeding 3 days unless such battery system is sooner made operable.

D. Diesel Fuel

There shall be a minimum of 10,000 gallons of diesel fuel supply on site for each diesel generator.

E. Diesel-Generator Operability

1. Whenever the reactor is in the Startup/Hot Standby or Run mode and the unit or shared diesel generators and/or their respective associated buses are made or found to be inoperable for any reason, except as specified in Specification 3.9.E.2 below, continued reactor operation is permissible only during the succeeding 7 days provided that all of the low-pressure core cooling and all loops of the containment cooling mode of the RHR system associated with the operable diesel generator shall be operable,and two offsite lines are availalbe. If this requirement cannot be met, an orderly shutdown shall be initiated and the

D. Diesel Fuel

Once a month the quantity of diesel fuel available shall be logged.

Once a month a sample of diesel fuel shall be checked for quality.

E. Diesel-Generator Operability

1. When it is determined that either the unit or shared diesel generator is inoperable, all low-pressure core cooling systems and all loops of the containment cooling mode of the RHR system associated with the operable diesel generator shall be demonstrated to be operable immediately and daily thereafter.

2. During each refueling outage, a simulated loss of off-site power in conjunction with an ECCS initiation signal test shall be performed on the 4160 volt emergency bus by:

ATTACHMENT 3

EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATION

Description of Amendment Request

Section 3.5 was amended to delete the requirement for both initial and subsequent daily operability testing of the diesel generators when ECCS equipment on a diesel generator is inoperable.

Basis for Proposed No Significant Hazards Consideration Determination

The NRC Staff in Generic Letter 84-15 indicated that requirements for testing diesel generators when ECCS equipment is inoperable results in excessive testing and increased degradation of the diesel engines. The Staff encouraged that licensees request these testing requirements be deleted. The amendments submitted for Quad Cities Units 1 and 2 delete the testing requirements when the Core Spray System or LPCI or Containment Cooling Modes of RHR System are inoperable. This amendment complies with the Staff's position. Furthermore, Commonwealth Edison has extended the guidance in Generic Letter 84-15 to also apply when a diesel generator is found to be inoprable i.e. We have deleted the initial and subsequent daily testing of the operable diesel generator.

The Commission has provided standards for determining whether a significant hazards consideration exists [10 CFR 50.92(c)]. A proposed amendment involves no significant hazards consideration if operation of the facility in accordance with the change would not:

(1) Involve a significant increase in the probability consequences of an accident previously evaluated: or

(2) Create the possibility of a new or different kind of accident from any accident previously evaluated: or

(3) Involve a significant reduction in a margin of safety.

With regards to the first standard, the proposed change eliminates unnecessary diesel generator testing which could only contribute to accelerated wear, in turn, may degrade diesel generator reliability and availability. Therefore, the change does not involve a significant increase in the probability or consequences of an accident previously analyzed.

As for the second standard, the change would not create the possibility of a new or different kind of accident from any previously evaluated as no physical change will be required at the facility - only a reduction in the frequency of testing.

Finally, the proposed change would not involve a significant reduction in a margin of safety because demonstration of diesel generator operability will be maintained and yet with the elimination of unnecessary testing the overall performance of the diesel generator would be maintained if not improved.

Therefore, since the application for amendment involves a proposed change that meets the standards provided in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists, Commonwealth Edison has made a proposed determination that the application involves no significant hazards consideration.

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