Docket No. 50-298

APR 09 1986

Mr. J. M. Pilant, Technical
Staff Manager
Nuclear Power Group
Nebraska Public Power District
Post Office Box 499
Columbus, Nebraska 68601

Dear Mr. Pilant:

The Commission has issued the enclosed Amendment No. 97 to Facility Operating License No. DPR-46 for the Cooper Nuclear Station. This amendment is in response to your application dated April 22, 1985 (Change Number 15).

The amendment changes the Technical Specifications to incorporate a section describing the conditions for performing various special tests, and to outline in one place the conditions to be met for refueling.

A copy of the Safety Evaluation is also enclosed. The notice of issuance will be included in the Commission's Biweekly Federal Register notice.

Sincerely,

Original signed by

William O. Long, Project Manager
BWR Project Directorate #2
Division of BWR Licensing

Enclosures:
1. Amendment No. 97 to
License No. DPR-46
2. Safety Evaluation

cc w/enclosures:
See next page

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

NEBRASKA PUBLIC POWER DISTRICT

DOCKET NO. 50-298

COOPER NUCLEAR STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 97
License No. DPR-46

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

   A. The application for amendment by Nebraska Public Power District dated April 22, 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.

2. Accordingly, the licensee 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-46 is hereby amended to read as follows:

(2) Technical Specification

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 97 , 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 its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Daniel R. Muller, Director
BWR Project Directorate #2
Division of BWR Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 9, 1986

ATTACHMENT TO LICENSE AMENDMENT NO. 97

FACILITY OPERATING LICENSE NO. DPR-46

DOCKET NO. 50-298

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

Pages
ii
iii
iv
115
121
122
128
165
194
205a
206
209a
209b
215a
215d

2. Insert the following new pages.

216u
216v
216w
216x

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.5.A (cont'd.)	4.5.A (cont'd.)
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. Both LPCI subsystems shall be operable: (1) prior to reactor startup from a Cold Condition, except as specified in 3.22.B.1, or (2) when there is irradiated fuel in the vessel and when the reactor vessel pressure is greater than atmospheric pressure, except as specified in 3.5.A.4 and 3.5.A.5 below.	3. LPCI subsystem testing shall be as follows: a. Simulated Automatic Actuation Test — Once/Operating Cycle b. Pump Operability — Once/month c. Motor Operated Valve Operability — Once/month d. Pump Flow Rate — Once/3 months During single pump LPCI, each RHR pump shall deliver at least 7700 GPM but no more than 8400 GPM against a system head equivalent to a reactor vessel pressure of 20 psid above drywell pressure with water level below the jet pumps. At the same conditions, two pump LPCI flow shall be at least 15,000 GPM. e. Recirculation pump discharge valves shall be tested each refueling outage to verify full open to full closed in $20 \leq t \leq 26$ seconds.
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 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 operating the remaining active components of the LPCI subsystems, the containment cooling subsystem and both core spray systems shall be demonstrated to be operable immediately and the operable LPCI pumps daily thereafter.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.5.F (cont'd.)	4.5.F (cont'd.)

3. Any combination of inoperable components in the core and containment cooling systems shall not defeat the capability of the remaining operable components to fulfill the cooling functions.

4. When irradiated fuel is in the reactor vessel and the reactor is in the Cold Shutdown Condition, both core spray systems, the LPCI and containment cooling subsystems may be inoperable, provided no work is being done which has the potential for draining the reactor vessel. Refueling requirements are as specified in Specification 3.10.F.

5. With irradiated fuel in the reactor vessel, one control rod drive housing may be open while the suppression chamber is completely drained provided that:

   a. The reactor vessel head is removed.

   b. The spent fuel pool gates are open and the fuel pool water level is maintained at a level $\geq$ 33 feet.

   c. The condensate transfer system is operable and a minimum of 230,000 gallons of water is in the condensate storage tank.

   d. The automatic mode of the drywell sump pump is disabled.

   e. No maintainance is being conducted which will prevent filling the suppression chamber to a level above the core spray and LPCI suctions.

   f. With the exception of the suppression chamber water supply, both core spray systems and the LPCI system are operable.

   g. The control rod is withdrawn to the backseat.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENT
3.5.F (cont'd)	4.5.F (cont'd)
h. A special flange, capable of sealing a leaking control rod housing, is available for immediate use.	
i. The control rod housing is covered with the special flange following the removal of the control rod drive.	
j. No work is being performed in the vessel while the housing is open.	
G. Maintenance of Filled Discharge Pipe	G. Maintenance of Filled Discharge Pipe
Whenever core spray subsystems, LPCI subsystems, HPCI, or RCIC are required to be operable, the discharge piping from the pump discharge of these systems to the last block valve shall be filled.	The following surveillance requirements shall be adhered to, to assure that the discharge piping of the core spray subsystems, LPCI subsystems, HPCI and RCIC are filled:
	1. Whenever the Core Spray, LPCI, HPCI or RCIC systems are made operable, the discharge piping shall be vented from the high point of the system and water flow observed initially and on a monthly basis.
	2. The pressure switches which monitor the LPCI, core spray, HPCI and RCIC lines to ensure they are full shall be functionally tested and calibrated every three months.

Amendment No. 57, 80, 88

ment is available at all times. It is during refueling outages that major maintenance is performed and during such time that all low pressure core cooling systems may be out of service. Specification 3.5.F.4 provides that should this occur, no work will be performed on the primary system which could lead to draining the vessel. This work would include work on certain control rod drive components and recirculation system. Thus, the specification precludes the events which could require core cooling. Specification 3.5.F.5 recognizes that, concurrent with control rod drive maintenance during the refueling outage, it may be necessary to drain the suppression chamber for maintenance or for the inspection required by Specification 4.7.A.2.h. In this case, if excessive control rod housing leakage occurred, three levels of protection against loss of core cooling would exist. First, a special flange would be used to stop the leak. Second, sufficient inventory of water is maintained to provide, under worst case leak conditions, approximately 60 minutes of core cooling while attempts to secure the leak are made. This inventory includes water in the reactor well, spent fuel pool, and condensate storage tank. If a leak should occur, manually operated valves in the condensate transfer system can be opened to supply either the core spray system or the spent fuel pool. Third, sufficient inventory of water is maintained to permit the water which has drained from the vessel to fill the torus to a level above the core spray and LPCI suction strainers. These systems could then recycle the water to the vessel. Since the system cannot be pressurized during refueling, the potential need for core flooding only exists and the specified combination of the core spray or the LPCI system can provide this. This specification also provides for the highly unlikely case that both diesel generators are found to be inoperable. The reduction of rated power to 25% will provide a very stable operating condition. The allowable repair time of 24 hours will provide an opportunity to repair the diesel and thereby prevent the necessity of taking the plant down through the less stable shutdown condition. If the necessary repairs cannot be made in the allowed 24 hours, the plant will be shutdown in an orderly fashion. This will be accomplished while the two off-site sources of power required by Specification 3.9.A.1 are available.

G. Maintenance of Filled Discharge Pipe

If the discharge piping of the core spray, LPCI subsystem, HPCI, and RCIC are not filled, a water hammer can develop in this piping when the pump and/or pumps are started. If a water hammer were to occur at the time at which the system were required, the system would still perform its design functions. However, to minimize damage to the discharge piping and to ensure added margin in the operation of these systems, this Technical Specification requires the discharge lines to be filled whenever the system is in an operable condition.

H. Engineered Safeguards Compartments Cooling

The unit cooler in each pump compartment is capable of providing adequate ventilation flow and cooling. Engineering analyses indicate that the temperature rise in safequards compartments without adequate ventilation flow or cooling is such that continued operation of the safeguards equipment or associated auxiliary equipment cannot be assured.

Amendment No. 57

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7. (cont'd.)	4.7 (cont'd.)
B. Standby Gas Treatment System	B. Standby Gas Treatment System
1. Except as specified in 3.7.B.3 below, both standby gas treatment systems shall be operable at all times when secondary containment integrity is required.	1. At least once per operating cycle the following conditions shall be demonstrated.
2.a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows on HEPA filters and charcoal adsorber banks shall show $\geq$99% DOP removal and $\geq$99% halogenated hydrocarbon removal.	a. Pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches of water at the system design flow rate.
b. The results of laboratory carbon sample analysis shall show $\geq$99% radioactive methyl iodide removal at a velocity within 20 percent of actual system design, $\geq$1.75 mg/m^3 inlet methyl iodide concentration, $\geq$70% R.H. and $\leq$30°C.	b. Inlet heater input is capable of reducing R.H. from 100 to 70% R.H.
c. Fans shall be shown to operate within $\pm$10% design flow.	2.a. The tests and sample analysis of Specification 3.7.B.2 shall be performed at least once per year for standby service or after every 720 hours of system operation and following significant painting, fire or chemical release in any ventilation zone communicating with the system.
3. From and after the date that one standby gas treatment system is made or found to be inoperable for any reason, reactor operation is permissible only during the succeeding seven days unless such system is sooner made operable, provided that during such seven days all active components of the other standby gas treatment system, and its associated diesel generator, shall be operable. Fuel handling requirements are specified in Specification 3.10.E.	b. Cold DOP testing shall be performed after each complete or partial replacement of the HEPA filter bank or after any structural maintenance on the system housing.
	c. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of the charcoal adsorber bank or after any structural maintenance on the system housing.
	d. Each system shall be operated with the heaters on at least 10 hours every month.
	e. Test sealing of gaskets for housing doors downstream of the HEPA filters and charcoal adsorbers shall be performed at, and in conformance with, each test performed for compliance with Specification 4.7.B.2.a and Specification 3.7.B.2.a.
	3. System drains where present shall be inspected quarterly for adequate water level in loop-seals.

Amendment No. 58, 79, 80, 87, 88

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.9.A	4.9.A.2 (cont'd)
	During the monthly generator test the diesel generator starting air compressor shall be checked for operation and its ability to recharge air receivers. The operation of the diesel fuel oil transfer pumps and fuel oil day tank level switches shall be demonstrated, and the diesel starting time to reach rated voltage and frequency shall be logged.
	b. Once every 18 months the condition under which the diesel generator is required will be simulated and a test conducted to demonstrate that it will start and accept the emergency load within the specified time sequence. The results shall be logged.
	c. Specification 4.9.A.2.c deleted.
	d. Once a month the quantity of diesel fuel available shall be logged.
	e. Every three months and upon delivery a sample of diesel fuel shall be checked for quality. The quality shall be within the acceptable limits specified in Table 1 of ASTM D975-68 for Nos. 1D or 2D and logged.
	f. Each diesel generator shall be given an annual inspection in accordance with instructions based on the manufacturer's recommendations.
	3. Unit Batteries
	a. Every week the specific gravity, the voltage and temperature of the pilot

Amendment No. 43, 45, 88

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.10.B (Cont'd)	4.10 (Cont'd)
4. During spiral reload, SRM operability will be verified by using a portable external source every 12 hours until the required amount of fuel is loaded to maintain 3 cps. As an alternative to the above, two fuel assemblies will be loaded in different cells containing control blades around each SRM to obtain the required 3 cps. Until these two assemblies have been loaded, the 3 cps requirement is not necessary.	
C. Spent Fuel Pool Water Level Whenever irradiated fuel is stored in the spent fuel pool, the pool water level shall be maintained at or above 8½' above the top of the fuel.	C. Spent Fuel Pool Water Level When irradiated fuel is stored in the spent fuel pool, the water level shall be recorded daily.
D. Time Limitation Irradiated fuel shall not be handled in or above the reactor prior to 24 hours after reactor shutdown.	
E. Standby Gas Treatment System From and after the date that one standby gas treatment system is made or found to be inoperable for any reason, fuel handling is permissible only during the succeeding seven days unless such system is sooner made operable, provided that during such seven days all active components of the other standby gas treatment system, and its associated diesel generator, shall be operable. At least one diesel generator shall be operable during fuel handling operations. This one diesel shall be capable of supplying power to an operable Standby Gas Treatment System.	E. Standby Gas Treatment System When one standby gas treatment system becomes inoperable, the other standby gas treatment system shall be demonstrated to be operable immediately and daily thereafter. A demonstration of diesel generator operability is not required by this specification.
F. Core Standby Cooling Systems During a refueling outage, refueling operation may continue with one core spray system or the LPCI mode of RHR inoperable for a period of 30 days. Refueling is permitted with the suppression chamber drained provided an operable core spray system or subsystem of the LPCI mode of RHR is aligned to take a suction on the condensate storage tank containing at least 150,000 gallons (≥14 ft. indicated level).	

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.10 (Cont'd)	3.10 (Cont'd)
G. Control Room Air Treatment From and after the date that the control room air treatment system is made or found to be inoperable for any reason, refueling operations are permissible only during the succeeding seven days unless such circuit is sooner made operable. If these conditions cannot be met, refueling operations shall be terminated in an orderly manner.	H. Spent Fuel Cask Handling 1. Prior to fuel cask handling operations, the redundant crane including the rope, hooks, slings, shackles and other operating mechanisms will be inspected. The rope will be replaced if any of the following conditions exist: a. Twelve (12) randomly distributed broken wires in one lay or four (4) broken wires in one strand of one rope lay. b. Wear of one-third the original diameter of outside individual wire. c. Kinking, crushing, or any other damage resulting in distortion of the rope. d. Evidence of any type of heat damage. e. Reductions from nominal diameter of more than 1/16 inch for a rope diameter from 7/8" to 1 1/4" inclusive.
H. Spent Fuel Cask Handling 1. Fuel cask handling above the 931' level of the Reactor Building will be done in the RESTRICTED MODE only except as specified in 3.10.H.2. 2. Fuel cask handling in other than the RESTRICTED MODE will be permitted in emergency or equipment failure situations only to the extent necessary to get the cask to the closest acceptable stable location.	2. Prior to operations in the RESTRICTED MODE a. the controlled area limit switches will be tested; b. the "two-block" limit switches will be tested; c. the "inching hoist" controls will be tested.
3. Operation with a failed controlled area limit switch is permissible for 48 hours providing an operator is on the refueling floor to assure the crane is operated within the restricted zone painted on the floor.	3. The empty spent fuel cask will be lifted free of all support by a maximum of 1 foot and left hanging for 5 minutes prior to any series of fuel cask handling operations.
4. Spent fuel casks weighing in excess of 140,000 lbs. shall not be handled.	

Amendment No. 35, 61

3.10 BASES (Cont'd)

D. Time Limitation

The radiological consequences of a fuel handling accident are based upon the accident occurring at least 24 hours after reactor shutdown.

E. Standby Gas Treatment System

Only one of the two standby gas treatment systems is needed to clean up the reactor building atmosphere upon containment isolation. If one system is found to be inoperable, there is no immediate threat to the containment system performance and refueling operation may continue while repairs are being made. If neither system is operable, the plant is brought to a condition where the standby gas treatment system is not required.

F. Core Standby Cooling Systems

During refueling the system cannot be pressurized, so only the potential need for core flooding exists and the specified combination of the core spray or LPCI mode can provide this. A more detailed discussion is contained in the bases for 3.5.F.

G. Control Room Air Treatment

If the system is found to be inoperable, there is no immediate threat to the control room and refueling operation may continue for a limited period of time while repairs are being made. If the system cannot be repaired within seven days, refueling operations will be terminated.

H. Spent Fuel Cask Handling

The operation of the redundant crane in the Restricted Mode during fuel cask handling operations assures that the cask remains within the controlled area once it has been removed from its transport vehicle (i.e., once it is above the 931' elevation). Handling of the cask on the Refueling Floor in the Unrestricted Mode is allowed only in the case of equipment failures or emergency conditions when the cask is already suspended. The Unrestricted Mode of operation is allowed only to the extent necessary to get the cask to a suitable stationary position so the required repairs can be made. Operation with a failed controlled area microswitch will be allowed for a 48-hour period providing an Operator is on the floor in addition to the crane operator to assure that the cask handling is limited to the controlled area as marked on the floor. This will allow adequate time to make repairs but still will not restrict cask handling operations unduly.

4.10 BASES

A. Refueling Interlocks

Complete functional testing of all refueling interlocks before any refueling outage will provide positive indication that the interlocks operate in the situations for which they were designed. By loading each hoist with a weight equal to the fuel assembly, positioning the refueling platform and withdrawing control rods, the interlocks can be subjected to valid operational tests. Where redundancy is provided in the logic circuitry, tests can be performed to assure that each redundant logic element can independently perform its functions.

4.10 BASES (Cont'd)

B. Core Monitoring

Requiring the SRM's to be functionally tested prior to any core alteration assures that the SRM's will be operable at the start of that alteration. The daily response check (or 12-hour check for spiral reload) of the SRM's ensures their continued operability.

E. Standby Gas Treatment System

Only one of the two standby gas treatment systems is needed to clean up the reactor building atmosphere upon containment isolation. If one system is found to be inoperable, there is no immediate threat to the containment system performance and refueling operations may continue while repairs are being made. If neither system is operable, the plant is brought to a condition where the standby gas treatment system is not required.

H. Spent Fuel Cask Handling

The Surveillance Requirements specified assure that the redundant crane is adequately inspected in accordance with the accepted ANSI Standard (B.30.2.0) and manufacturer's recommendations to determine that the equipment is in satisfactory condition. The testing of the controlled area limit switches assures that the crane operation will be limited to the designated area in the Restricted Mode of operation. The test of the "two-block" limit switch assures the power to the hoisting motor will be interrupted before an actual "two-blocking" incident can occur. The test of the inching hoist assures that this mode of load control is available when required.

Requiring the lifting and holding of the cask for 5 minutes during the initial lift of each series of cask handling operations puts a load test on the entire crane lifting mechanism as well as the braking system.

Performing this test when the cask is being lifted initially from the cask car assures that the system is operable prior to lifting the load to an excessive height.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.12.A (cont'd)	4.12.A (cont'd)
3. From and after the date that the control room air treatment system is made or found to be inoperable for any reason, reactor operations are permissible only during the succeeeding seven days unless such circuit is sooner made operable. Refueling requirements are as specified in Specification 3.10.G.	2.d. Each circuit shall be operated at least 10 hours every month.
4. If these conditions cannot be met, reactor shutdown shall be initiated and the reactor shall be in cold shutdown within 24 hours.	3. At least once per operating cycle automatic initiation of the system shall be demonstrated.

3.12 BASES

A. Main Control Room Ventilation System

The control room ventilation system is designed to filter the control room atmosphere for intake air and/or for recirculation during control room isolation conditions. The system is designed to automatically start upon control room isolation and to maintain the control room pressure to the design positive pressure so that all leakage should be out leakage.

High efficiency particulate absolute (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of radioiodine to the control room. The in-place test results should indicate a system leak tightness of less than 1 percent bypass leakage for the charcoal adsorbers and a HEPA efficiency of at least 99 percent removal of DOP particulates. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 99 percent for expected accident conditions. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50. Operation of the fans significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers.

If the system is found to be inoperable, there is no immediate threat to the control room and reactor operation may continue for a limited period of time while repairs are being made. If the system cannot be repaired within seven days, the reactor is shutdown and brought to cold shutdown within 24 hours.

B. Reactor Building Closed Cooling Water System

The reactor building closed cooling water system has two pumps and one heat exchanger in each of two loops. Each loop is capable of supplying the cooling requirements of the essential services following design accident conditions with only one pump in either loop.

The system has additional flexibility provided by the capability of interconnection of the two loops and the backup water supply to the critical loop by the service water system. This flexibility and the need for only one pump in one loop to meet the design accident requirements justifies the 30 day repair time during normal operation and the reduced requirements during head-off operations requiring the availability of LPCI or the core spray systems.

C. Service Water System

The service water system consists of four vertical service water pumps located in the intake structure, and associated strainers, piping, valving and instrumentation. The pumps discharge to a common header from which independent piping supplies two Seismic Class I cooling water loops and one turbine building loop. Automatic valving is provided to shutoff all supply to the turbine building loop on drop in header pressure thus assuring supply to the Seismic Class I loops each of which feeds one diesel generator, two RHR service water booster pumps, one control room basement fan coil unit and one RBCCW

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.22 SPECIAL TESTS/EXCEPTIONS	4.22 SPECIAL TESTS/EXCEPTIONS
APPLICABILITY	APPLICABILITY
Applies to conditions of operation for performing various special tests.	Applies to the surveillance requirements for the performance of various special tests.
OBJECTIVE	OBJECTIVE
To assure that various special tests are safely conducted by providing limiting conditions for operation for their performance.	To verify that various special tests are safely conducted.
SPECIFICATIONS	SPECIFICATIONS
A. Shutdown Margin Demonstration	A. Shutdown Margin Demonstration
1. Reactor Mode Selector Switch The reactor mode selector switch may be placed in the Startup/Hot Standby position to allow more than one control rod to be withdrawn for the shutdown margin demonstration provided all the following requirements are met: a. Source range monitors are OPERABLE with at least two channels having an observed count rate equal to or greater than three counts per second with the corresponding detectors fully inserted. b. Rod worth minimizer is OPERABLE and is programmed for the shutdown margin demonstration, or a second licensed operator or other qualified employee shall verify that the operator at the reactor console is conforming with the shutdown margin demonstration procedure. c. The "rod-out-notch-override" control shall not be used during out-of-sequence movements of the control rods. d. No CORE ALTERATIONS are in progress. If the above requirements are not satisfied, immediately place the reactor mode selector switch in the Shutdown or Refuel position.	1. Within 6 hours prior to and at least once per 12 hours during the performance of a shutdown margin demonstration, verify that: a. The source range monitors are OPERABLE. b. The rod worth minimizer is OPERABLE or a second qualified operator is present and verifies compliance with the shutdown margin demonstration procedures. c. No core alterations are in progress.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.22 SPECIAL TESTS/EXCEPTIONS (CONT'D)	4.22 SPECIAL TESTS/EXCEPTIONS (CONT'D)
2. Rod Sequence Control System (RSCS) The sequence constraints imposed on control rod groups by the RSCS may be suspended by means of the individual rod position bypass switches or jumpers, provided that the rod worth minimizer is OPERABLE, for this and the following special tests. a. Control rod scram timing. b. Control rod friction measurements. c. Startup test program with thermal power less than 20% of rated thermal power. If the above requirement is not satisfied, the RSCS shall be operable.	2. When the constraints imposed on control rod groups by the RSCS are bypassed, verify: a. That the RWM is OPERABLE. b. Conformance with this specification and procedures by a second licensed operator or other qualified employee.
3. RHR System The RHR system may be aligned in the shutdown cooling mode with at least one shutdown cooling mode loop OPERABLE while performing the Shutdown Margin Demonstration.	
4. Containment Systems Primary containment is not required while performing the Shutdown Margin Demonstration when reactor water temperature is equal to or less than 212°F.	
B. Training Startup	B. Training Startup
1. LPCI Mode of RHR The LPCI mode is required to be operable with the exception that the RHR system may be aligned in the shutdown cooling mode rather than the LPCI mode while performing training startups at atmospheric pressure at power levels less than 1% of rated thermal power.	The reactor vessel shall be verified to be unpressurized and the thermal power verified to be less than 1% of rated thermal power at least once per hour during training startups.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.22 SPECIAL TESTS/EXCEPTIONS (CONT'D)	4.22 SPECIAL TESTS/EXCEPTIONS (CONT'D)
C. Physics Tests	C. Physics Tests
1. Primary Containment Primary containment integrity may be relaxed while performing "open vessel" physics tests at power levels not to exceed 5 MW (T). If this thermal power limit is exceeded, immediately place the reactor mode selector switch in the Shutdown position.	1. Thermal power shall be determined to be less than 5MW(T) of rated thermal power at least once per hour.
2. Recirculation Loops Recirculation loops need not be in operation for up to 24 hours while performing "open vessel" physics tests. If this time limit is exceeded, insert all control rods.	2. Verify at least once per hour that the recirculation loops have been out of service for less than 24 hours.
D. Startup Test Program	D. Startup Test Program
1. Oxygen Concentration During the startup test program, there is no requirement on oxygen concentration in the primary containment. This supersedes the provisions of Specification 3.7.A.5.a.	Verify at least once per hour that the recirculation loops have been out of service for less than 24 hours.
2. Recirculation Loops Recirculation loops need not be in operation for up to 24 hours while performing the startup test program. If this time limit is exceeded, insert all control rods.	

A. Shutdown Margin Demonstration

Performance of shutdown margin demonstrations requires additional restrictions in order to ensure that criticality does not occur. In order to perform the test it is necessary to bypass the sequence restraints on control rod movement. Additional surveillance requirements ensure that shutdown margin requirements and individual rod worths do not exceed values assumed in the safety analysis. Since power levels attained during the demonstration are kept below the level of significant heat addition, the residual heat removal system can remain aligned in the shutdown cooling mode.

B. Training Startup

Specification 3.22.B provides for the performance of training startups without realigning the residual heat removal system from the shutdown cooling mode to the LPCI mode. Power levels during training startups are kept below the level of significant heat addition.

This exception is made in order to minimize contaminated water discharge to the radioactive waste disposal system.

C. Physics Tests

An exception is made to primary containment integrity during initial core loading and while the low power test program is being conducted and ready access to the reactor vessel is required. There will be no pressure on the system at this time, thus greatly reducing the chances of a pipe break. The reactor may be taken critical during this period; however, restrictive operating procedures will be in effect again to minimize the probability of an accident occurring. Procedures and the rod worth minimizer would limit control worth such that a rod drop would not result in any fuel damage. In addition, in the unlikely event that an excursion did occur, the reactor building and standby gas treatment system, which shall be operational during this time, offer a sufficient barrier to keep off-site doses well below 10CFR100 limits.

D. Startup Test Program

Relief from the oxygen concentration specifications is necessary in order to provide access to the primary containment during the initial startup and testing phase of operation. Without this access the startup and test program could be restricted and delayed.

The recirculation flow exception permits reactor criticality under no-flow conditions and is required to perform certain startup and physics tests while at low thermal power levels.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 97 TO FACILITY OPERATING LICENSE NO. DPR-46

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

1.0 INTRODUCTION

By letter dated April 22, 1985 (Change No. 15) the Nebraska Public Power District (the licensee) requested an amendment to Facility Operating License No. DPR-46 for the Cooper Nuclear Station. The proposed amendment would change the Technical Specifications (TS) to incorporate a section describing the conditions for performing various special tests, and to outline in one place the conditions to be met for refueling.

2.0 DISCUSSION AND EVALUATION

A. Consolidation of Refueling Requirements: The current TS have requirements relating to refueling mode operation and special plant conditions located in scattered sections. The proposed amendment would consolidate those requirements (Limiting Conditions for Operation, Surveillance Requirements, and Bases) in TS Section 3.10 "Core Alterations" as follows: (1) Refueling mode requirements in 3.7.B.3 applicable to the standby gas treatment system would be relocated to 3.10.E. (2) Refueling mode requirements in 3.9.A.2 applicable to diesel generators would be relocated to 3.10.E. (3) Refueling mode requirements in 3.5.F applicable to core spray and containment cooling systems would be relocated to 3.10.F. (4) Refueling mode requirements in 3.12.A applicable to main control room ventilation would be relocated to 3.10.G. The present 3.10.E would become 3.10.H. These changes would constitute a reformatting only and would not add, delete or modify the present requirements. Consolidations would facilitate compliance. This change is therefore acceptable to the staff.

B. New TS Section 3.22 "Special Tests/Exceptions": The proposed amendment would add a new section for special tests and exceptions to specify conditions under which certain TS may be suspended. The new section would consist of four parts; (1) 3/4.22.A "Shutdown Margin Demonstration," (2) 3/4.22.B "Training Startup," (3) 3/4.22.C "Physics Tests," and (4) 3/4.22.D "Startup Test Program." The new section will contain existing specifications presently located in other sections and new specifications which suspend or relax existing specifications to be relocated to the new 3.22 include certain requirements related to training startups and LPCI mode of RHR presently in 3.5.F.7, and certain

requirements related to primary containment integrity during physics testing presently in 3.7.A.2. Relocation of these existing requirements will facilitate compliance and is acceptable. We concentrated our review on the proposed new specifications to determine the extent to which they would allow existing requirements to be relaxed or suspended. The significant effect of the new section would be to permit criticality with the rod sequence control system (RSCS) inoperable for purposes of demonstrating required shutdown margin and control rod operability. Additional surveillance requirements would be in effect during such tests. The new section would also permit natural circulation operation for up to 24 hours during startup testing.

The purpose of the RSCS is to restrict rod movement to sequences which preclude rod patterns having high rod worths. This limits the fuel to an enthalphy of less than 280 cal/gram in event of a rod drop accident (RDA). The rod worth minimizer (RWM) is a computer-based backup to the RSCS and performs the same function in a parallel or more restrictive manner. In order to perform certain tests it is necessary to violate the normal RSCS controlled rod sequences. For example, in the shutdown margin test, the analytically strongest rod is fully withdrawn, and a diagonally adjacent rod is then withdrawn to the extent necessary to demonstrate shutdown margin. This requires the the RSCS be made inoperable and the RWM be operable and programmed for the test. Conformance to test procedures would be verified by a second qualified employee. These actions are consistent with NUREG-0123 (Standard Technical Specifications for BWRs) which states that such tests are necessary and the special conditions under which the tests are conducted provide protection against high rod worth. This change is therefore acceptable.

Natural circulation operation for up to 24 hours during startup testing is also consistent with NUREG-0123. Such testing is routinely conducted during startup testing, is described in the FSAR, and poses no additional hazards. Accordingly, the proposed new section is 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, and change surveillance requirements. The amendment also relates to changes in recordkeeping, reporting, or administrative procedures or 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 previously 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 fourth in 10 CFR 51.22(c)(9) and (10).

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

We have 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.

Principal Contributors: W. Long and H. Richings

Dated: April 9, 1986