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

SACRAMENTO MUNICIPAL UTILITY DISTRICT

DOCKET NO. 50-312

RANCHO SECO NUCLEAR GENERATING STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 48
License No. DPR-54

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

   A. The application for amendment by Sacramento Municipal Utility District (the licensee) dated February 2, 1981, as revised July 16, 1982, 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, Facility Operating License No. DPR-54 is hereby amended by revising paragraph 2.C.(2) as follows and by changing the Technical Specifications as indicated in the attachment to this license amendment:

2.C.(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 46, 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

John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 21, 1983

ATTACHMENT TO LICENSE AMENDMENT NO. 46

FACILITY OPERATING LICENSE NO. DPR-54

DOCKET NO. 50-312

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages as indicated. 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.

Pages

3-41

3-41a (new page)

3-41b (new page)

3-42

3-42a

3-43

4-7b

4-7c (new page)

4-34

4-34a (new page)

Limiting Conditions for Operation

3.7 AUXILIARY ELECTRICAL SYSTEMS

Applicability

Applies to the availability of off-site and on-site electrical power for station operation and for operation of station auxiliaries.

Objective

To define those conditions of electrical power availability necessary to provide for safe reactor operation and to provide for continuing availability of engineered safety features in an unrestricted manner.

Specification

3.7.1 The reactor shall not be brought critical unless the following conditions are met:

A. All nuclear service buses, nuclear service switchgear, and nuclear service load shedding systems are operable.

B. Two 220 KV lines are in service.

C. One 6900 volt reactor coolant pump motors bus is energized.

D. Emergency diesel generators are operable and at least 35,000 gallons of fuel are in each storage tank.

E. Plant batteries are charged and in service.

F. Two out of three battery changers are operable for 125 volt DC buses "A" and "C", and "B" and "D".

G. Three out of four inverters are operable for 120 volt AC vital bus power.

H. Both startup transformers, No. 1 and No. 2, are in service.

I. The switchyard voltage is 214 KV or above.

3.7.2 The reactor shall not remain critical unless all of the following requirements are satisfied:

A. One 220 KV line shall be fully operational and capable of carrying nuclear service and auxiliary power except as specified in D below.

TABLE 3.7-1

VOLTAGE PROTECTION SYSTEM RELAY TRIP VALUES

	Trip Value	Time Delay
Undervoltage	(Note 1)	
a. Dropout	3771 ± 38V	12s ± 1.2s
b. 75 percent of 4160V	3120 ± 31V	1.9 ± 0.2s
c. Complete loss	0	1.5 ± 0.2s
Overvoltage	4580 ± 46V	3.0 ± 0.3s

Note 1 - The relay voltage values shown have been converted by the PT ratio (40:1) for review convenience.

TABLE 3.7-2

Functional Unit	Total Number of Channels	Channels to Trip	Minimum Channels OPERABLE	Action (Note 1)
Undervoltage	3/Bus	2/Bus	2	A
Overvoltage	3/Bus	2/Bus	2	A

Action Statements

Action A - With the number of OPERABLE channels one less than the total Number of Channels operation may proceed provided both of the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within one hour.

b. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing.

Note 1: The above table is not applicable when the plant is in cold shutdown.

B. Both startup transformers shall be in service except that one will be sufficient if during the time one startup transformer is inoperable, a diesel generator is started and run continuously.

C. Both diesel generators shall be operable except that from and after the date that one of the diesel generators is made or found to be inoperable for any reason, reactor operation is permissible for the succeeding 15 days provided that during such 15 days the operable diesel generator shall be load tested daily and both startup transformers are available. If the diesel is not returned to service at the end of 15 days, the other diesel will be started and run with at least minimum load continuously for an additional 15 days. If at the end of the second 15 days the diesel is not returned to service, the reactor shall be brought to the cold shutdown condition within an additional 24 hours.

D. If the plant is separated from the system while carrying its own auxiliaries, or if all 220 KV lines are lost, continued reactor operation is permissible provided that one emergency diesel generator shall be started and run continuously until a transmission line is restored.

E. The essential nuclear service electrical buses, switchgear, load shedding, and automatic diesel start systems shall be operable except as provided in C above and as required for surveillance testing.

F. Nuclear service batteries are charged and in service except that one nuclear service battery may be removed from service for not more than 24 hours.

G. Both nuclear service buses are operable except that one nuclear service bus may be removed from service for not more than 24 hours provided that all equipment on the other nuclear service bus is operable.

H. If the switchyard voltage is below 218 KV for less than 24 hours, no corrective action is required. After 24 hours, if the voltage has not increased above 218 KV, both diesel generators will be started, connected to the nuclear service buses, and the startup transformers removed from the nuclear service buses. Switchyard voltage above 218 KV will allow unrestricted plant operation.

3.7.3 If both diesel generators become inoperable, the unit shall be placed in the cold shutdown condition.

3.7.4 The pressurizer shall be OPERABLE with at least 126 kw of pressurizer heaters. With the pressurizer inoperable due to inoperable emergency power supplies to the pressurizer heater either restore the inoperable emergency power supply within 72 hours or be in at least HOT STANDBY within the next 6 hours and in HOT SHUTDOWN within the following 12 hours.

3.7.5 The voltage protection system trip setting shall be as stated in Table 3.7-1.

Limiting Conditions for Operation

3.7.6 Voltage Protection System Limiting Conditions

A. Startup and operation are not permitted unless the minimum requirements and action statements of Table 3.7-2 are met.

B. In the event the number of protective channels falls below that listed in Table 3.7-2, the plant will be brought to a hot shutdown within 48 hours.

Bases

The auxiliary electrical power systems are arranged so that no single failure can inactivate enough safety features equipment to jeopardize plant safety.

The normal source of power to the redundant nuclear service loads is by the two startup transformers connected to the 220-KV station switchyard. All of the normal power supplied to plant auxiliary loads is provided through the two unit auxiliary transformers connected to the generator bus. Emergency power for the nuclear service loads is obtained from two on-site diesel generators. Since the startup transformers are sized to carry full plant auxiliary loads, if plant auxiliaries' power is not available from the unit auxiliary transformer, it will be obtained from the startup transformers.

The five 220-KV transmission lines are not under the direct control of the Rancho Seco station. Therefore, all five cannot be assumed to be available at all times. However, extensive reliability and protective features are utilized so that the probability of losing more than one source of 220-KV power from faults is low. By requiring that two 220-KV lines are in service prior to startup, one circuit will be immediately available following a loss of the onsite alternating current diesel power supplies and the other offsite 220-KV line. If there is a loss of all 220-KV remote connections, power to the safety features will be supplied by the diesel generators.

The 35,000 gallons of fuel stored in each storage tank permit operation of the two diesel generators for seven days. It is considered unlikely not to be able to secure fuel oil from an outside source during this time under the worst of weather conditions.

The four 125 volt DC control panelboards are arranged so that loss of one bus will not preclude safe shutdown or operation of safety features systems. During periods when one plant battery is de-energized for test or maintenance, the associated 125 volt DC bus can be supplied from its battery charger.

Each redundant pair ("A" and "C", "B" and "D") of safety features actuation and reactor protection 125 volt DC buses has a standby battery charger in addition to the two bus battery chargers. Loss of power from one battery charger per pair of redundant DC buses has no significant consequence since a standby battery charger is available. In addition, each 125 volt DC bus can continue to receive power from its respective battery without interruption.

Sufficient redundancy is available with any three of the four 120 volt AC vital power buses in service such that reactor safety is assured. Every reasonable effort will be made to maintain all safety instrumentation in operation.

During periods of station operation under the condition of electrical system degradation, as described above in Specification 3.7.2, the operating action required is to start and run sufficient standby power supplies so as not to compromise the safety of the plant. As seen in Specification 3.7.2, a time limit is placed on operation during certain degraded conditions based on the reliability of the available power supply.

The requirement that 126 KW of pressurizer heaters and their associated controls being capable of being supplied with electrical power from an emergency bus provides assurance that these heaters can be energized during a loss of offsite power condition to maintain natural circulation at HOT SHUTDOWN.

The voltage protection system is designed to isolate the nuclear service buses from the startup transformers when the bus voltage exceeds the allowable operating limits of the equipment. The allowable operating range for the 4160 volt nuclear service buses is 3733 to 4626 volts and 397 to 521 volts for the 480 volt nuclear service buses. This corresponds to a switchyard voltage range of 214 to 244 KV. This range of switchyard voltage encompasses the normal operating range of 221 to 239 KV.

REFERENCE

FSAR, Section 8

TABLE 4.1-1 (Continued)
INSTRUMENT SURVEILLANCE REQUIREMENTS

	Channel Description	Check	Test	Calibrate	Remarks
42.	Reactor Building drain accumulation tank level	NA	NA	R	
43.	Incore neutron detectors	M(1)	NA	NA	(1) Check functioning, including functioning of computer read-out and/or recorder readout.
44.	Process and area radiation monitoring systems	W	M	Q	
45.	Emergency plant radiation instruments	M(1)	NA	R	(1) Battery check
46.	Environmental air monitors	M(1)	NA	R	(1) Check functioning
47.	Strong motion accelerometer	Q(1)	NA	R	(1) Battery check
48.	Auxiliary Feedwater Start Circuit				
	a. Phase Imbalance/Under-power RCP	S	M	R	
	b. Low Main Feedwater Pressure	NA	NA	R	
49.	Pressurizer Water Level	M	NA	R	
50.	Auxiliary Feedwater Flow Rate	M	NA	R	
51.	Reactor Coolant System Sub-cooling Margin Monitor	M	NA	R	
52.	EMOV Power Position Indicator (Primary Detector)	M	NA	R	
53.	EMOV Position Indicator (Backup Detector)	M	NA	R	
54.	EMOV Block Valve Position Indicator	M	NA	R	
55.	Safety Valve Position Indicator (Primary Detector) T/C	M	NA	R	
56.	Safety Valve Position Indicator (Backup Detector) Acoustic	M	NA	R	

Amendment No. 7, 31

TABLE 4.1-1 (Continued)

INSTRUMENT SURVEILLANCE REQUIREMENTS

Channel Description	Check	Test	Calibrate	Remarks
57. Voltage Protection	S(1)			(1) Compare voltmeter readings
a. Undervoltage		M	R	
b. Overvoltage		M	R	
c. Time Delay		M	R	

S = Each shift M = Monthly P = Prior to each startup if not done previous week

D = Daily Q = Quarterly R = Once during the refueling interval

W = Weekly SY= Semiannual

Surveillance Standards

4.6.3 Each diesel generator shall be given a thorough inspection at least biannually following the manufacturer's recommendations for this class of standby service.*

4.6.4 Batteries in the 125 volt DC systems shall be tested as follows:

A. The voltage and specific gravity of each pilot cell shall be measured and recorded weekly.

B. The specific gravity, level and voltage of each cell shall be measured and recorded every month.

C. Each time data are recorded, new data shall be compared with old to detect signs of deterioration.

D. During each refueling interval, the battery shall be subjected to a rated load or equivalent test. The battery voltage as a function of time shall be monitored to establish that the battery performs as expected.

*The biannual diesel generator inspection scheduled for late 1982 may be postponed until the 1983 refueling outage.

a LOCA. A decay heat removal system leakage of 0.63 gal/h will limit off-site exposures due to leakage to insignificant levels relative to those calculated for leakage directly from the Reactor Building in the design basis accident. The dose to the thyroid calculated as a result of this leakage is 0.76 rem for a 2 hour exposure at the site boundary.(1)

REFERENCES

(1) FSAR, paragraph 14.3.9.3.

4.6 EMERGENCY POWER SYSTEM PERIODIC TESTING

Applicability

Applies to the periodic testing and surveillance of the emergency power system.

Objective

To verify that the emergency power sources and equipment are operable and respond properly when required.

Specification

4.6.1 At intervals not to exceed one month, a test of the diesel generators will be performed to verify proper operation of these emergency power sources and associated equipment. This test will be performed to assure that:

A. Each diesel generator can be started from the control room.

B. Each diesel generator can be synchronized with its associated 4160 volt nuclear service bus.

4.6.2 During each refueling interval, a test of the diesel generators and emergency start circuits shall be performed to verify that these emergency power sources and associated equipment are operable by:

A. Simulating a loss of offsite power in conjunction with a safety features actuation signal, and:

1) Verifying de-energization of the nuclear services buses and operation of the load shedding circuitry.

2) Verifying the diesel starts from ambient condition on the auto-start signal and energizes the nuclear services buses, and by verifying proper operation of the automatic load sequencing circuitry. The diesel generators will be operated for at least 5 minutes in this condition.

3) Verifying that on diesel-generator trip, the load shedding circuitry operates properly and the diesel restarts on the auto-start signal, and by verifying proper operation of the automatic load sequencing circuitry. The diesel generator will be operated for at least 5 minutes in this condition.

B. Load testing the diesel generators to SFS capacity.