PROPOSED TECHNICAL SPECIFICATION CHANGES

CONSUMERS POWER COMPANY

PALISADES PLANT

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3.6.4 Two independent containment hydrogen recombiners shall be operable when the reactor is at power or at hot standby. With one hydrogen recombiner system inoperable, restore the inoperable system to operable status within 30 days or be in at least hot shutdown within the next 12 hours.

g. During reactor vessel head removal and while refueling operations are being performed in the reactor, the refueling boron concentration shall be maintained in the primary coolant system and shall be checked by sampling on each shift.

h. Direct communication between personnel in the control room and at the refueling machine shall be available whenever changes in core geometry are taking place.

3.8.2 If any of the conditions in 3.8.1 are not met, all refueling operations shall cease immediately, work shall be initiated to satisfy the required conditions and no operations that may change the reactivity of the core shall be made.

3.8.3 Refueling operation shall not be initiated before the reactor core has decayed for a minimum of 48 hours if the reactor has been operated at power levels in excess of 2% rated power.

3.8.4 The ventilation system and charcoal filter in the fuel storage building shall be operating whenever irradiated fuel which has decayed less than 30 days is being handled by either of the following operations:

a. Refueling operation with the equipment door open, or

b. Fuel handling in the fuel storage building.

If both fans are unavailable, any fuel in transition or crane operation shall be completed and further fuel movements or crane operations with loads in excess of 1300 pounds over the spent fuel storage pool shall be terminated until one fan is returned to service.

3.8.5 When spent fuel which has decayed less than one year is placed in the tilt pit storage racks, the bulk water temperature in the tilt pit storage area must be monitored continuously to assure that the water temperature does not exceed 150°F. Monitoring will continue for 24 hours after any addition of fuel to the main pool or the tilt pit or when a failure of the spent fuel pool cooling system occurs.

Basis

The equipment and general procedures to be utilized during refueling are discussed in the FSAR. Detailed instructions, the above specifications, and the design of the fuel handling equipment incorporating built-in interlocks and safety features provide assurance that no incident could occur during the refueling operations that would result in a hazard to public health and safety.(1) Whenever changes are not being made in core geometry, one flux monitor is sufficient. This permits maintenance of the instrumentation. Continuous monitoring of radiation levels and neutron flux provides immediate indication of an unsafe condition. The shutdown cooling pump is used to maintain a uniform boron concentration.

The shutdown margin as indicated will keep the core subcritical, even if all control rods were withdrawn from the core. During refueling, the reactor refueling cavity is filled with approximately 250,000 gallons of borated water. The boron concentration of this water (1720 ppm boron) is sufficient to maintain the reactor subcritical by approximately 5% $\Delta\rho$ in the cold condition with all rods withdrawn.(2) Periodic checks of refueling water boron concentration insure the proper shutdown margin. Communication requirements allow the control room operator to inform the refueling machine operator of any impending unsafe condition detected from the main control board indicators during fuel movement.

In addition to the above engineered safety features, interlocks are utilized during refueling to insure safe handling. An excess weight interlock is provided on the lifting hoist to prevent movement of more than one fuel assembly at a time. In addition, interlocks on the auxiliary building crane will prevent the trolley from being moved over storage racks containing spent fuel, except as necessary for the handling of fuel.(3) The restriction of not moving fuel in the reactor for a period of 48 hours after the power has been removed from the core takes advantage of the decay of the short half-life fission products and allows any failed fuel to purge itself of fission gases, thus reducing the consequences of a fuel handling accident.

The charcoal filter installed in the fuel handling building exhaust will handle the full (approximately 10,000) cfm capacity of the normal ventilation flow with both exhaust fans operating.(4) The normal mode of operation will require that the ventilation supply fan and one exhaust fan be manually tripped following a radioactivity release with a resulting flow of 7300 cfm through the filter. Any radioactivity which should inadvertently, during a refueling operation, pass through the normally opened equipment door would be handled by the charcoal filter in the fuel handling building. The several radiation monitors installed in the containment building and the fuel handling building will give adequate warning to the refueling crew if radioactivity is released. The efficiency of the installed charcoal filters is at least 90% for inorganic species and 70% for organic species with rated flows.(5) The offsite thyroid dose in the fuel handling accidents analyzed will be less than 15 Rem using these efficiencies should an irradiated fuel bundle be damaged in handling.(5) The fuel handling accident analysis assures that the charcoal adsorbers will perform to remove a minimum of 70% and 90% (organic and inorganic, respectively) iodine activity. Following a period of 30 days, the I-131 will have decayed by a factor of 10 and adsorption by charcoal will no longer be required. Valve alignment check sheets are completed to protect against sources of unborated water or draining of the system.

References

(1)FSAR, Section 9.11.

(2)FSAR, Section 3.3.2.

(3)FSAR, Amendment No 17, Item 13.0.

(4)FSAR, Amendment No 17, Item 9.0.

(5)FSAR, Appendix J.

3.13 CONTAINMENT BUILDING AND FUEL STORAGE BUILDING CRANES

Applicability

Applies to the use of cranes over the primary coolant system and the spent fuel storage pool.

Objective

To specify restrictions on the use of the overhead cranes in the Containment Building and the Fuel Storage Building.

Specifications

a. The containment polar crane shall not be used to transport loads over the primary coolant system if the temperature of the coolant or steam in the pressurizer exceeds 225°F.

b. The fuel storage building crane shall not be used to move material past the fuel storage pool unless the crane interlocks are operable or they are bypassed and the crane is under administrative control of a supervisor.

c. The fuel storage building ventilation shall be operating and discharging through the HEPA and charcoal adsorbers during crane operation with loads in excess of 1300 pounds over the fuel storage pool when irradiated fuel which has decayed less than 30 days is in the spent fuel storage pool.

Basis

Loads are not to be allowed over the pressurized primary coolant system to preclude dropping objects which could rupture the boundary of the primary coolant system allowing loss of coolant and overheating of the core.(1)

The fuel storage building crane is provided with a system of trolley and bridge electrical interlocks that will normally prevent the trolley from moving over the storage pool.(2) This minimizes the possibility of dropping an object on the irradiated fuel stored in the pool and resulting in the release of radioactive products. The interlocks may be bypassed under strict administrative control to allow required movement of fuel and material over and to the east of the pool. The crane can be used over the equipment hatches located in the north and south ends of the Fuel Storage Building without the interlocks operable since a load, even if dropped, could not fall into the storage pool.

References

(1)FSAR, Question 2.3.

(2)FSAR, Amendment No 17, Item 13.

3.14 CONTROL ROOM VENTILATION

Applicability

This specification applies to the control room ventilation system.

Objective

The operability of the control room ventilation system ensures that (1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system, and (2) the control room will remain habitable for Operations personnel during and following all credible accidents.

Specifications

a. If the control room air temperature reaches 120°F, immediate action shall be taken to reduce this temperature or to place the reactor in a hot shutdown condition.

b. The control room ventilation system, consisting of two fans and a filter system, shall be operable. With both fans inoperable or the filter system inoperable, restore the system to operable status within 3-1/2 days or be in cold shutdown within the next 36 hours.

Basis

The reactor protective system and the engineered safeguards system were designed for and the instrumentation was tested at 120°F. Therefore, if the temperature of the control room exceeds 120°F, the reactor will be shut down and the condition corrected to preclude failure of components in an untested environment. The control room ventilation systems are independent except for the charcoal filter and associated equipment. The charcoal filter system is designed to provide filtered makeup air to the control room following a design base accident and is not used during normal operation.

3.15 REACTOR PRIMARY SHIELD COOLING SYSTEM

Applicability

Applies to the shield cooling system.

Objective

To assure the concrete in the reactor cavity does not overheat and develop excessive thermal stress.

Specification

One shield cooling pump and cooling coil shall be in operation whenever cooling is required to maintain the temperature of the concrete below approximately 165°F.

Basis

The shield cooling system is used to maintain the concrete temperature below 165°F, thus preventing weakening of the structure through loss of moisture. The structure must remain intact during a DBA to preclude damage to the reactor building sump and the plugging of the suction lines to the engineered safeguards pumps. One pump and cooling coil is more than adequate to remove the 120,000 Btu/hr heat load at rated power operation.(1)

Reference

(1)FSAR, Section 9.2.1.

TABLE 4.1.3

Minimum Frequencies for Checks, Calibrations and Testing of Miscellaneous Instrumentation and Controls (Contd)

Channel Description	Surveillance Function	Frequency	Surveillance Method
8. Control Rod Drive System Interlocks	a. Test	R	a. Verify proper operation of all rod drive control system interlocks, using simulated signals where necessary.
	b. Test	P	b. Same as 8(a) above, if not done within three months.
9. Flux- T Power Comparator	a. Calibrate	R	a. Use simulated signals.
	b. Test	M	b. Internal test signal.
10. Calorimetric Instrumentation	a. Calibrate(2)	R	a. Known differential pressure applied to feedwater flow sensors.
11. Containment Building Humidity Detectors	a. Test	R	a. Expose sensor to high humidity atmosphere.
12. Interlocks - Isolation Valves on Shutdown Cooling Line	a. Calibrate	R	a. Known pressure applied to sensor.
13. Service Water Break Detector in Containment	a. Test	R	a. Known differential pressure applied to Sensors.

(1)During the 1978 refueling outage, Item 2.c will only be performed on 7 rods (1 per bank). The secondary rod position surveillance (Item 3.c) will be performed in entirety. Additionally, a 20" rod position check (comparing primary indication to secondary indication) will be conducted on each rod. If the primary and secondary indications vary more than 2" from each other, corrective action will be taken to restore the proper tolerances.

(2)The 1981 surveillance function may be deferred until the end of the 1981 refueling outage.

4.2 EQUIPMENT AND SAMPLING TESTS

Applicability

Applies to plant equipment and conditions related to safety.

Objective

To specify the minimum frequency and type of surveillance to be applied to critical plant equipment and conditions.

Specifications

Equipment and sampling tests shall be conducted as specified in Tables 4.2.1, 4.2.2 and 4.2.3.

Basis

Sampling and Equipment Testing

The equipment testing and system sampling frequencies specified in Tables 4.2.1, 4.2.2 and 4.2.3 are considered adequate, based upon experience, to maintain the status of the equipment and systems so as to assure safe operation. Thus, those systems where changes might occur relatively rapidly are sampled frequently and those static systems not subject to changes are sampled less frequently.

Table 4.2.2

Minimum Frequencies for Equipment Tests

		Test	Frequency	FSAR Section Reference
1.	Control Rods	Drop Times of All Full-Length Rods	Each Refueling Shutdown	7.4.1.3
2.	Control Rods	Partial Movement of All Rods (Minimum of 6 In)	Every Two Weeks	7.4.1.3
3.	Pressurizer Safety Valves	Set Point	One Each Refueling Shutdown	7.3.7
4.	Main Steam Safety Valves	Set Point	Five Each Refueling Shutdown	4.3.4
5.	Refueling System Interlocks	Functioning	Prior to Refueling Operations	9.11.3
6.	Service Water System Valve Actuation (SIS-CHP)	Functioning	Each Refueling Operation	9.1.2
7.	Fire Protection Pumps and Power Supply	Functioning	Monthly	9.6.2
8.	Primary System Leakage	Evaluate	Daily	4 Amend 15, Ques 4.3.7
9.	Diesel Fuel Supply	Fuel Inventory	Daily	8.4.1
10.	Critical Headers Service Water System	150 Psig Hydrostatic Test	Every Five Years	9.1.2

Table 4.2.2 (Contd)

Minimum Frequencies for Equipment Tests

11. Hydrogen Recombiners

Each hydrogen recombiner unit shall be demonstrated operable:

a. At least once per 6 months by verifying during a recombiner unit functional test that the minimum heater sheath temperature increases to ≥ 700°F* within 90 minutes and is maintained for at least 2 hours.

b. At least once per refueling cycle by:

1. Verifying that each of the electrical buses providing recombiner unit power is aligned to receive power from separate diesel generators.

2. Performing a channel calibration of all recombiner instrumentation and control circuits.

3. Verifying through a visual examination that there is no evidence of abnormal conditions within the recombiners (ie, loose wiring or structural connections, deposits of foreign materials, etc).

4. Verifying during a recombiner unit functional test that the heater sheath temperature increases to ≥ 1200°F* within 180 minutes and that the system operates for at least 4 hours.

5. Verifying the integrity of all heater electrical circuits by performing a continuity and resistance to ground test immediately following the above required functional test. The resistance to ground for any heater element shall be ≥ 1000 ohms.

*As measured by installed or portable temperature measuring instruments.

Table 4.2.2 (Contd)

Minimum Frequencies for Equipment Tests

12. Iodine Removal System

The Iodine Removal System shall be demonstrated operable:

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed or otherwise secured in position, is in its correct position.

b. At least once per 6 months by:

   1. Verifying that tanks T-102 and T-103 contain the minimum required volumes.

   2. Verifying the concentration of hydrazine in T-102 and sodium hydroxide in T-103.

c. At least once per refueling cycle, during shutdown, by verifying that each automatic valve in the flow path actuates to its correct position.

Table 4.2.3

HEPA FILTER AND CHARCOAL ADSORBER SYSTEMS

Control Room Ventilation and Isolation System (Rated flow: 765 cfm) Fuel Storage Area HEPA/Charcoal Exhaust System (Rated flow: 10,000 cfm, two fans or 7300 cfm, one fan).

The filters in each of the above systems shall be demonstrated operable:

a. At least once per 31 days by initiating, from the Control Room, flow through the HEPA filter and charcoal adsorbers and verifying that the system operates for at least 15 minutes.

b. At least once per refueling cycle or (1) after any structural maintenance on the HEPA filter or charcoal adsorber housings, or (2) following major painting, fire or organic chemical release in any ventilation zone communicating with the system by:

   1. Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b. of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978 except that the Fuel Storage Area shall have a methy iodide limit of 94% instead of 99%, or replacing with charcoal adsorbers meeting the specifications of Regulatory Guide 1.52, Position C.6.a, Revision 2, March 1978.

   2. Verifying that the HEPA filter bank removes greater than or equal to 99% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the system at its rated flow ± 20%.

   3. Verifying that the charcoal absorber removes greater than or equal to 99% of a hydrogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the system at its rated flow ± 20%.

Table 4.2.3 (Contd)

HEPA FILTER AND CHARCOAL ADSORBER SYSTEMS

c. At least once per refueling cycle by:

1. Verifying that the pressure drop across the combined HEPA filter and charcoal adsorber bank is less than (6) inches Water Gauge while operating the system.

2. Verifying that on a containment high-pressure and high-radiation test signal, the system automatically switches into a recirculating mode of operation with flow through the HEPA filter and charcoal adsorber bank. (Control Room ventilation only.)

3. Verifying that the system maintains the Control Room at a positive-pressure of greater than or equal to 0.10 inch WG relative to the viewing gallery (dPIC 1834) during system operation. (Control Room ventilation only.)

4. Verifying that with the ventilation system exhausting through the HEPA/Charcoal Filters at its rated flow ± 20%, the bypass flow through damper 1893 is less than 1% of total flow. (Fuel Storage Area only.)