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

CONSUMERS POWER COMPANY

DOCKET NO. 50-155

BIG ROCK POINT PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 14
License No. DPR-6

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

   A. The applications for amendment by the Consumers Power Company (the licensee) dated May 30, 1975 (as supplemented by letter dated June 30, 1975), September 10, 1975 (as supplemented by letter dated May 25, 1977), May 26, 1976, April 21, 1977 and May 18, 1977, comply 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.

Our review of the remaining portions of your May 30, 1975 application will be the subject of a later action.

Copies of our Safety Evaluation and Notice of Issuance also are enclosed.

Sincerely,

Don K. Davis, Acting Chief
Operating Reactors Branch #2
Division of Operating Reactors

Enclosures:
1. Amendment No. 14 to DPR-6
2. Safety Evaluation
3. Notice

cc w/enclosures:
See next page

ATTACHMENT TO LICENSE AMENDMENT NO. 14

FACILITY OPERATING LICENSE NO. DPR-6

DOCKET NO. 50-155

Replace the following pages of the Technical Specifications contained in Appendix A of the above-indicated license with the attached pages bearing the same numbers, except as otherwise indicated. The changed areas on the revised pages are reflected by a marginal line.

Remove	Insert
4-3	4-3
	4-3a (new)
4-7	4-7
4-9	4-9
6-7	6-7
6-10	6-10
6-13	6-13

(i) Operating Requirements

1. The average rate of vessel temperature change during normal heatup or cooldown should not exceed 100°F/h when averaged over a one-hour period.

2. Control rod withdrawal during power operation shall be such that the average rate-of-change of reactor power is less than 50 MW_t per minute when power is less than 120 MW_t, less than 20 MW_t per minute when power is between 120 MW_t and 200 MW_t, and 10 MW_t per minute when power is between 200 MW_t and 240 MW_t.

3. Reactor vessel pressure shall be limited in accordance with Figure 4.1.

4. The reactor shall not be made critical, with the exception of physics testing, at temperatures below the criticality limit shown on Figure 4.1.

4.1.2 Primary Coolant Recirculation System

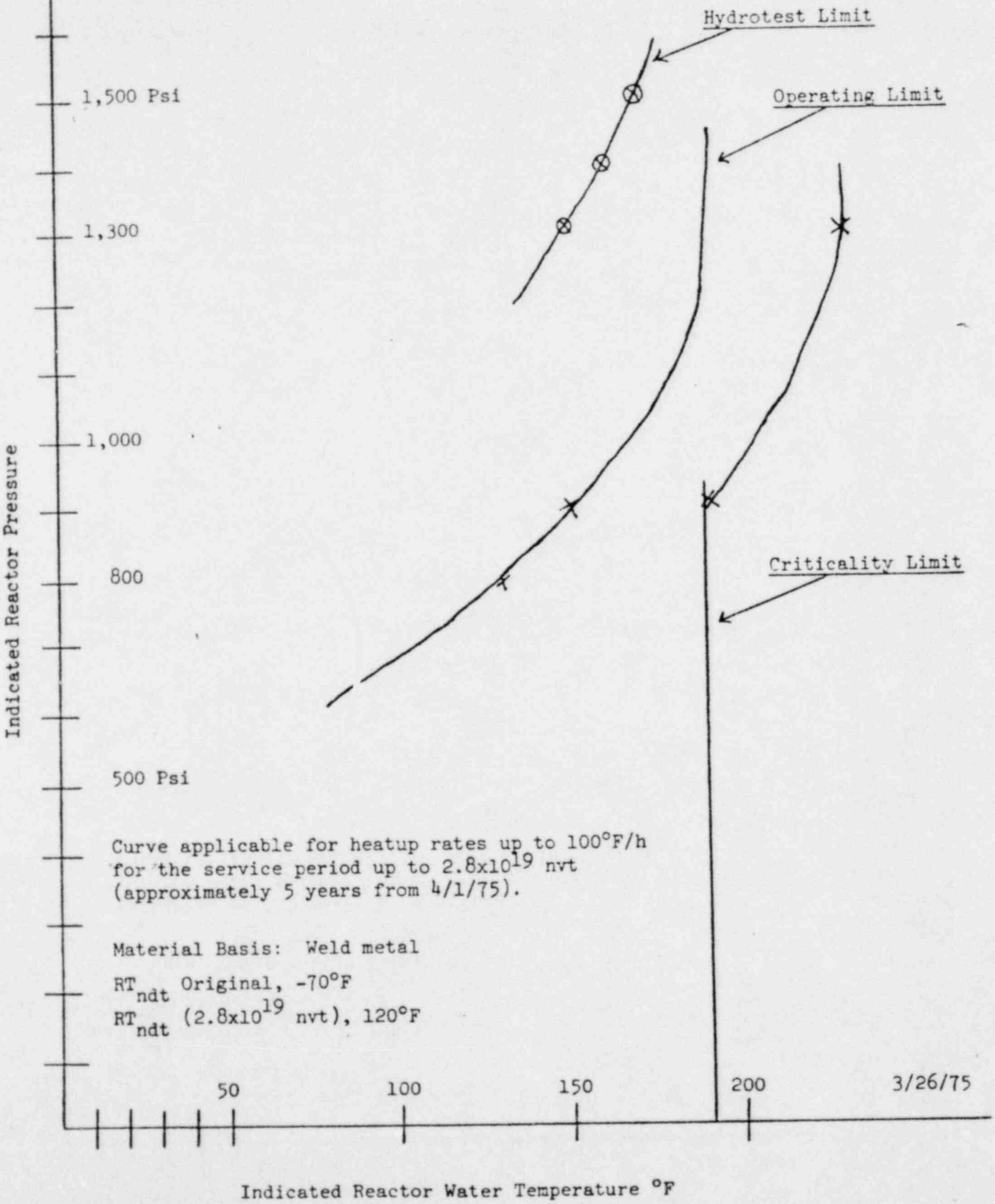
The primary coolant recirculation system shall consist of the reactor vessel, the steam drum, the reactor recirculation pumps, the interconnecting piping and valves, and the safety relief valves.

(a) Design Features Shall Be as Follows:

Number of Recirculation Loops	2
Number of Recirculation Pumps per Loop	1
Approximate Internal Volume of System Excluding Reactor Core and Internals to Isolation Valves, Cubic Feet	3830
Approximate Volume of Coolant in System During 157 Mwt Operation, Cubic Feet	2689
Steam Drum:	
Length, Overall, Feet	40
Inside Diameter, Inches	78
Wall Thickness, Excluding Cladding, Inches	4-3/8
Cladding Thickness, Minimum, Inches	5/32
Design Pressure, Psia	1700
Design Temperature, °F	650

FIGURE 4-1
Big Rock Point - Reactor Vessel

Criticality, Cooldown, Heatup and Hydrotest Limitations



4.1.2 (Contd.)

Conductivity	(Micromho/cm)
Maximum	5
Maximum transient*	10
pH (Lower and Upper limits)	4.0 and 10.0
Chloride Ion (Ppm)	1.0
Equilibrium Halogen Radioactivity (uc/ml)	35
Boron (Ppm)	100

(c) Leakage Limits

1. If the primary coolant system leakage exceeds 1 gpm and the source of leakage is not identified, the reactor shall be placed in the hot shutdown condition within 12 hours, and cooldown to a cold shutdown condition shall be initiated within 24 hours.

2. If leakage from the primary coolant system exceeds 10 gpm, the reactor shall be placed in the hot shutdown condition within 12 hours, and cooldown to a cold shutdown condition shall be initiated within 24 hours.

3. The high energy line sections identified in Table 9-3b shall be maintained free of visually observable through-wall leaks.

   (a) If a leak is detected by the surveillance program of Table 9-3b, efforts to identify the source of the leak shall be started immediately.

   (b) If the source of leakage cannot be identified within eight hours of detection or if the leak is found to be from a break in the sections identified in Table 9-3b, the reactor shall be in a cold shutdown within 48 hours.

4.1.3 Primary System Shielding

Reactor shielding is ordinary concrete with a density of approximately 150 lb/ft^3. Thickness varies in plan and elevation to suit structural requirements. The shielding thickness directly opposite the core shall be approximately 9 feet, 6 inches. The control rod drive room, which is directly beneath the reactor, has ordinary concrete walls which shall be approximately 4 feet thick. A removable shield plug of a thickness 4 feet, 6-1/2 inches, consisting of 4 feet, 4 inches of concrete and 2-1/2 inches of lead, shall close the opening above the top of the reactor.

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*Conductivity is expected to increase temporarily after startups from cold shutdown. The maximum transient value here stated is the maximum permissible and applies only to the period subsequent to a cold shutdown between criticality and 24 hours after reaching 20% rated power.

The steam drum, risers and downcomers are primarily shielded by ordinary concrete walls which shall vary in thickness from 4 feet, 9 inches near the bottom to 3 feet, 3 inches at the top. A large section, 12 feet by 42 feet, of the steam drum enclosure wall serves as a blowout panel and shall contain high density, loose aggregate to a thickness of approximately 4 feet, 9 inches. This provides the shielding equivalent to 4 feet, 9 inches of ordinary concrete.

The reactor shielding shall be cooled by a water-filled jacket at the inside face. The cooling water system shall be designed to remove 60,000 BTu per hour with the inlet water temperature at 68°F. Cooling water shall be supplied from the closed loop reactor cooling water system. The jacket shall be a carbon steel, annular tank divided into eight segments, with water entering the bottom and leaving at the top. Provisions are made to convert to air cooling.

4.2.2 Main Condenser

(a) Design Features Shall Be as Follows:

Type	Radial Flow Surface Condenser With Deaerating Hot Well
Condenser Surface Area, Square Feet	27,500
Design Condensing Pressure, Inches Hg Absolute	1.5
Condensing Capacity, Pounds per Hour @ 1.5 Inches Hg Absolute	460,000
Condensing Capacity During Full Load Rejection, Pounds per Hour	948,000
Air Ejector Capacity	10 Cubic Feet per Minute of Air Plus 1.1 Pounds per Hour of Hydrogen Plus 8.3 Pounds per Hour of Oxygen

(b) Operating Requirements

(1) The following condenser pressure trips shall be operative during reactor power operations:

Annunciate, Inches Hg Absolute	5.0 ± 0.5
Turbine Trip and Bypass Valve Closure, Inches Hg Absolute	10.0 ± 0.5

(2) The following condenser pressure trip shall be operable during reactor power operations when steam drum pressure is at least 500 psig or higher:

Reactor Scram, Inches Hg Absolute 8.0 ± 0.5

4.2.3 Turbine Bypass Control System

(a) Design Features Shall Be as Follows:

Flow Capacity at 1015 Psia, Pounds per Hour	739,000
Flow Capacity at 1465 Psia, Pounds per Hour	963,000
Maximum Speed, Full Valve Stroke, Seconds	Approximately 0.2

6.1.3 (Contd.)

(c) With the mode switch in the "shutdown" position, both the scram circuit and the control rod withdrawal circuit are open. The ventilating duct circuit power supply is transferred to a point which provides penetration closure protection through signals from "high containment sphere pressure" and "low water level in reactor vessel." This permits normal ventilation in the containment sphere during shutdown when the control rods are held in the full-in position. None of the reactor safety system signals are bypassed since there is no need to withdraw control rods.

(d) With the mode switch in the refuel position and the crane positioned over the reactor vessel, crane operation is prevented if any one rod is withdrawn from full-in position.

(e) High condenser pressure reactor trip is automatically bypassed any time steam drum pressure is below a set point maximum of 500 psig.

6.1.4 Related Systems

6.3.2 Refueling Operation Controls

Interlocks shall be provided to prevent all motion with any of the refueling cranes (namely, jib cranes, transfer cask winch) which are positioned over the reactor vessel whenever any control rod is not fully inserted in the core and the mode selector switch is in the "refuel" position.

6.3.3 Operating Requirements

(a) All reactor refueling safety system sensors and trip devices shall be functionally tested at each major refueling shutdown and shall be maintained in the specified condition during all refueling operations.

(b) The refueling operation controls including position interlocks shall be functionally tested at each major refueling shutdown.

6.4 PLANT MONITORING SYSTEMS

The plant monitoring systems include the process radiation monitoring systems and the area monitoring system.

6.4.1 Process Radiation Monitoring Systems

The process radiation monitoring systems consist of the air ejector off-gas monitoring system including the fuel rupture detection system; stack-gas monitoring system, the emergency condenser vent monitor, and process liquid monitor system.

(a) Air Ejector Off-Gas Monitoring Systems

Continuous monitoring of the air ejector off-gas radioactivity shall be provided by either two ion chamber type systems or two single-channel gamma scintillation spectrometer systems designed to detect noble gas fission products indicative of a fuel element rupture. One system (either ion chamber or scintillation detector) will always be in service with an identical system as an operational spare. The sampling system shall be designed to hold up the gas sample to allow time for the decay of Nitrogen-16 and other short-lived activation gases. The off-gas monitoring channels shall be calibrated so that the indicated and recorded count rate output of the channel in service, combined with the off-gas flow, permit

6.4.2 (Cont'd)

(b) Two of these nineteen area monitors shall be located in the vicinity of the fuel storage areas to provide gamma monitoring of the fuel storage areas and refueling operations. Local alarms shall be provided for these monitors, and alarm settings shall be in accordance with the provisions of 10 CFR 70.

However, notwithstanding the requirements of Section 70.24(a)(1), alarm settings may be raised above 20 mR/hr as long as the overall detection criterion in Section 70.24(a)(1) is satisfied and the requirements specified in paragraph 6.4.3(e) below are met.

(c) At least five environmental film monitoring stations shall be provided for determining the integrated gamma dose rate in the site environs. These stations shall be placed on an arc of about 1,350 meters from the stack.

6.4.3 Operating Requirements

(a) At least one of the two air ejector off-gas monitoring systems shall be in service during power operation and set to initiate closure of the off-gas isolation valve as described below. Alarms normally shall be set to annunciate in the control room if the off-gas radioactivity reaches a level that corresponds to a stack release of 0.1 curie per second. At stack releases above 0.1 curie per second, the alarm shall be set approximately a factor of two above the expected off-gas release rate but in no event above that level corresponding to a stack release of $\frac{0.47}{\bar{E}}$ curie per second where $\bar{E}$ is the average gamma energy per disintegration (MEV/dis). If the limit of $\frac{0.47}{\bar{E}}$ curie per second is exceeded, reactor power shall be immediately reduced such as to meet the limits. The monitors shall be set to initiate closure of the off-gas isolation valve (after a time adjustable from 0 to 15 minutes) if the off-gas radioactivity reaches a level that would correspond to a stack release rate of ten curies per second. Off-gas samples shall be taken monthly during power operation and analyzed for calibration of the off-gas radiation monitors. The automatic closure function of the monitors shall be tested monthly during power operation.

(b) The stack-gas monitoring system shall normally be in service. Adequate spare parts shall be on hand to allow necessary repairs to be made promptly. The alarm normally shall be set to annunciate in the control room at a level that corresponds to a stack release rate of 0.1 curie per second. At stack release rates above 0.1 curie per second, the alarm shall be set approximately a factor of two above the expected stack release rate, but in no event above $\frac{0.47}{\bar{E}}$ curies per second.

The calibration of the system shall be checked at least monthly. The particulate filter and iodine filter shall be analyzed at least weekly.

Conductivity	(Micromho/cm)
Maximum	5
Maximum transient*	10
pH (Lower and Upper limits)	4.0 and 10.0
Chloride Ion (Ppm)	1.0
Equilibrium Halogen Radioactivity (uc/ml)	35
Boron (Ppm)	100

(c) Leakage Limits

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