

RANCHO SECO UNIT 1  
TECHNICAL SPECIFICATIONS

Limiting Conditions for Operation

3.14 FIRE SUPPRESSION

3.14.1 Instrumentation

Specification

3.14.1.1 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.14-1 shall be OPERABLE.

3.14.1.2 With the number of instruments OPERABLE less than required by the minimum instruments OPERABLE requirement of Table 3.14-1.

a. Within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect the containment at least once per 8 hours or monitor the containment air temperature at least once per hour.

b. Restore the inoperable instrument(s) to OPERABLE status within fourteen (14) days; or

c. In lieu of any other report required by Specification 6.9, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.4.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the instrument(s) to OPERABLE status.

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3.14.2 Water System

Specification

3.14.2.1 The FIRE SUPPRESSION WATER SYSTEM shall be OPERABLE with:

a. Two high pressure pumps each with a capacity of 2000 gal/min with their discharge aligned to the fire suppression header.

b. Two separate water supplies containing a minimum of 2,000,000 gallons each.

c. An OPERABLE flow path capable of taking suction from the circulating water system and the Site Reservoir or the Folsom South Canal and transferring the water through distribution piping with OPERABLE sectionalizing control or isolation valves to the yard hydrant curb valves, the last valve ahead of the water flow alarm device on each sprinkler or hose standpipe, and the last valve ahead of the deluge valve on each deluge or spray system required to be OPERABLE per Specifications 3.14.3.1 and 3.14.5.

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- 3.14.2.2 With one pump and/or one water supply inoperable, restore the inoperable equipment to OPERABLE status within 7 days or, in lieu of any other report required by Specification 6.9.5.E, prepare and submit a Special Report to the Commission pursuant to Specification 6.9 within the next 30 days outlining the plans and procedures to be used to restore the inoperable equipment to OPERABLE status or to provide an alternate backup pump or supply. | 68
- 3.14.2.3 With no FIRE SUPPRESSION WATER SYSTEM OPERABLE:
- a. Establish a backup FIRE SUPPRESSION WATER SYSTEM within 24 hours.
  - b. In lieu of any other report required by Specification 6.9, submit a Special Report in accordance with Specification 6.9.5.E.
    - 1) By telephone within 24 hours.
    - 2) Confirmed by telegraph, mailgram or facsimile transmission no later than the first working day following the event, and
  - c. In writing within 14 days following the event, outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status. | 68

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TABLE 3.14-1

FIRE DETECTION INSTRUMENTS FOR SAFETY SYSTEMS

Zone	Instrument Location	Minimum Operable
11	Battery Room, Mezzanine Level	4
12	West DC Control Room, Mezzanine Level	2
13	West 480 VAC Room, Mezzanine Level	2
14	West Cable Tray Area	2
15	East Cable Tray Area	2
16	East 480 VAC Room, Mezzanine Level	2
17	East DC Control Room, Mezzanine Level	2
36	West Battery Room, Grade Level	4
37	West 4160 VAC Room	2
38	East 4160 Room	2
39	East Battery Room	4
40	North Diesel Room	2
41	South Diesel Room	2
44	Reactor Coolant Pumps A and B	1
44	Reactor Coolant Pumps C and D	1
45	Electrical Penetration Area, Grade Level	2
47	North -20' Level, Auxiliary Building	2
48	-47' Level, Auxiliary Building	2

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3.14.3 Spray and Sprinkler Systems

Specification

3.14.3.1 The spray and/or sprinkler systems located in the following areas shall be OPERABLE:

- a. Control Room (Zone 3)
- b. Controlled Area, Mezzanine Level (Zone 20)
- c. Main Lube Oil Area, Grade Level (Zone 32)
- d. Grade Level (Zone 34)
- e. North Diesel Room (Zone 40)
- f. South Diesel Room (Zone 41)
- g. West Controlled Area, Grade Level (Zone 42)
- h. East Controlled Area, Grade Level (Zone 43)
- i. South and East -20' Level (Zone 46)

3.14.3.2 With one or more of the above, items a through f, required spray and/or sprinkler systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components required to safely shut down and cool down the plant could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.4.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

3.14.4 CO<sub>2</sub> System

Specification

3.14.4.1 The CO<sub>2</sub> systems located in the following areas shall be OPERABLE with a minimum capacity of 66% and a minimum pressure of 275 psig in the storage tank.

- a. Zone 12 West DC Control Room Mezzanine Level
- b. Zone 13 West 480 VAC Room Mezzanine Level
- c. Zone 14 West Cable Tray Area
- d. Zone 15 East Cable Tray Area
- e. Zone 16 East 480 VAC Room Mezzanine Level
- f. Zone 17 East DC Control Room Mezzanine Level
- g. Zone 36 West Battery Room Grade Level

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3.14.4.1 (Continued)

- h. Zone 37 West 4160 VAC Room
- i. Zone 38 East 4160 VAC Room
- j. Zone 39 East Battery Room
- k. Zone 40 North Diesel Room
- l. Zone 41 South Diesel Room

3.14.4.2 With one or more of the above required CO<sub>2</sub> systems inoperable, with one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components required to safety shut down and cool down the plant could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.5.E within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

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3.14.5 Fire Hose Stations

Specification

3.14.5.1 The fire hose stations in the following locations shall be OPERABLE.

- a. All stations in the Auxiliary Building
- b. Hydrant #2
- c. Hydrant #3
- d. Hydrant at coordinates N59+17; E30+20
- e. Hydrant at coordinates N59+17; E32+20

3.14.5.2 With one or more of the fire hose stations above inoperable, route an additional equivalent size fire hose to the unprotected area(s) from an OPERABLE hose station within 1 hour if the inoperable fire hose is the primary means of fire suppression; otherwise, route the additional hose within 24 hours. Restore the fire hose station to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.5.E within the next 30 days outlining the action taken, the cause of the inoperability, and plans and schedule for restoring the station to OPERABLE status.

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3.14.6 Fire Barrier Penetration Fire Seals

Specification

- 3.14.6.1 With one or more of the above required fire barrier penetrations non-functional, within one hour either, establish a continuous fire watch on at least one side of the affected penetration, or verify the OPERABILITY of fire detectors on at least one side of the non-functional fire barrier and establish an hourly fire watch patrol.

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Bases

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is returned to service.

The OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety related equipment is located. The fire suppression system consists of the water system, spray and/or sprinklers, CO<sub>2</sub>, and fire hose stations. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety related equipment and is a major element in the facility fire protection program.

In the event that portions of the fire suppression systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the affected equipment can be restored to service.

In the event that the fire suppression water system becomes inoperable, immediate corrective measures must be taken since this system provides the major fire suppression capability of the plant. The requirement for a twenty-four (24) hour report to the Commission provides for prompt evaluation of the acceptability of the corrective measures to provide adequate fire suppression capability for the continued protection of the nuclear plant.

The functional integrity of the fire barrier penetration seals ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire rapidly involving several areas of the facility prior to detection and extinguishment. The fire barrier penetration seals are a passive element in the facility fire protection program and are subject to periodic inspections.

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Bases (Continued)

During periods of time when the seals are not functional, an hourly fire watch is required to be maintained in the vicinity of the affected seal until the seal is restored to functional status.

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Surveillance Standards

4.18 FIRE SUPPRESSION SYSTEM SURVEILLANCE

4.18.1 Instrumentation

4.18.1.1 Except for fire detection instruments inaccessible during power operation, each of the fire detection instruments in Table 3.14-1 shall be demonstrated OPERABLE at least semi-annually by a CHANNEL TEST. Fire detectors which are not accessible during plant operation shall be demonstrated OPERABLE by the performance of a CHANNEL FUNCTIONAL TEST during each COLD SHUTDOWN exceeding 72 hours unless performed in the previous 6 months.

4.18.1.2 The circuitry associated with the sprinkler water flow detector alarms in Section 3.14.3.1 shall be demonstrated OPERABLE at least semi-annually.

4.18.1.3 Circuits associated with detector alarms, between the instrument and the control room shall be demonstrated OPERABLE at least once per 31 days.

The fire suppression water system shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying the contained water supply volume.
- b. At least once per 31 days on a STAGGERED TEST BASIS by starting each electric motor driven pump and operating it for at least 15 minutes on recirculation flow.
- c. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position as indicated by position instrumentation.
- d. At least once per 6 months by performance of a system flush to each test fixture.
- e. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.
- f. At least once per 18 months by performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence, and:
  1. Verifying that each automatic valve in the flow path actuates to its correct position,
  2. Verifying that each pump develops at least 2000 gpm at a minimum pressure of 125 psig.
  3. Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel, and



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4.18.1.3 (Continued)

4. Verifying that each fire suppression pump starts (sequentially) to maintain the fire suppression water system pressure greater than or equal to 80 psig.
- g. At least once per 3 years by performing a flow test of the system in accordance with Chapter 5, Section 11 of the Fire Protection Handbook, 14th Edition, published by the National Fire Protection Association.

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Surveillance Standards

- 4.18.2 h. The fire pump diesel engine shall be demonstrated OPERABLE:
1. At least once per 31 days by verifying:
    - a. The fuel storage tank contains at least 250 gallons of fuel, and
    - b. The diesel starts from ambient conditions and operates for at least 30 minutes on recirculation flow. 68
  2. At least once per 92 days by verifying that a sample of diesel from the fuel storage tank, obtained in accordance with ASTM-D270-65, is within the acceptable limits specified in Table 1 of ASTM-D975-74 with respect to viscosity, water content and sediment. 68
  3. At least once per 18 months, by subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service. 68
- i. The fire pump diesel starting 24-volt battery bank and charger shall be demonstrated OPERABLE:
1. At least once per 7 days by verifying that:
    - a) The electrolyte level of each battery is above the plates, and
    - b) The overall battery voltage is greater than or equal to 24 volts.
  2. At least once per 92 days by verifying that the specific gravity is appropriate for continued service of the battery. 68
  3. At least once per 18 months by verifying that:
    - a) The batteries, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration, and
    - b) The battery-to-battery and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material.

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- 4.18.3 The spray and/or sprinkler systems specified in Section 3.14.3.1 shall be demonstrated to be OPERABLE:
- a. Annually by cycling each testable valve through one complete cycle.
  - b. Once per 18 months:
    1. By performing a system functional test which includes simulated automatic actuation of the system and verifying that the automatic valves in the flow path actuate to their correct positions; and
    2. By inspection of spray and/or sprinkler headers to verify their integrity; and
    3. By inspection of each nozzle and/or sprinkler to verify no blockage.
- 4.18.4 The CO<sub>2</sub> system shall be demonstrated OPERABLE:
- a. Once per 7 days by verifying the CO<sub>2</sub> storage tank level and performance.
  - b. Once per 18 months by verifying the system electro manual pilot valves and associated ventilation dampers actuate automatically and manually to a simulated actuation signal. A flow test shall be made to verify flow from each nozzle.
- 4.18.5 Each fire hose station shall be verified to be OPERABLE:
- a. Once per 31 days by visual inspection of the station to assure all equipment is available.
  - b. Once per 18 months inspect and replace all gaskets in the couplings that are degraded.
  - c. Once per three (3) years, partially open hose station valves to verify valve operability and no valve blockage.
  - d. Once per three (3) years by removing and replacing all hose with equivalent NFPA tested and approved hose.
- 4.18.6 Each of the above required fire barrier penetrations shall be verified to be functional:
- a. At least once per 18 months by a visual inspection.
  - b. Prior to returning a fire barrier penetration to functional status following repairs or maintenance by performance of a visual inspection of the affected fire barrier penetration(s).