3.14 FIRE PROTECTION SYSTEMS

Applicability: Applies to the availability of fire protection systems in nuclear safety related areas.

Objective: To define those conditions of fire protection availability.

Specification:

1. FIRE DETECTION INSTRUMENTATION

   a. As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.14-1 shall be OPERABLE, whenever equipment in that fire detection zone is required to be OPERABLE.

   b. If Specification 3.14.1.a cannot be met because one or more of the fire detection instrument(s) shown in Table 3.14-1 is inoperable:

      (1) 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.

      (2) Restore the inoperable zone(s) to OPERABLE status within 14 days, or prepare and submit a Report to the Commission pursuant to Specification 6.9.2.b.

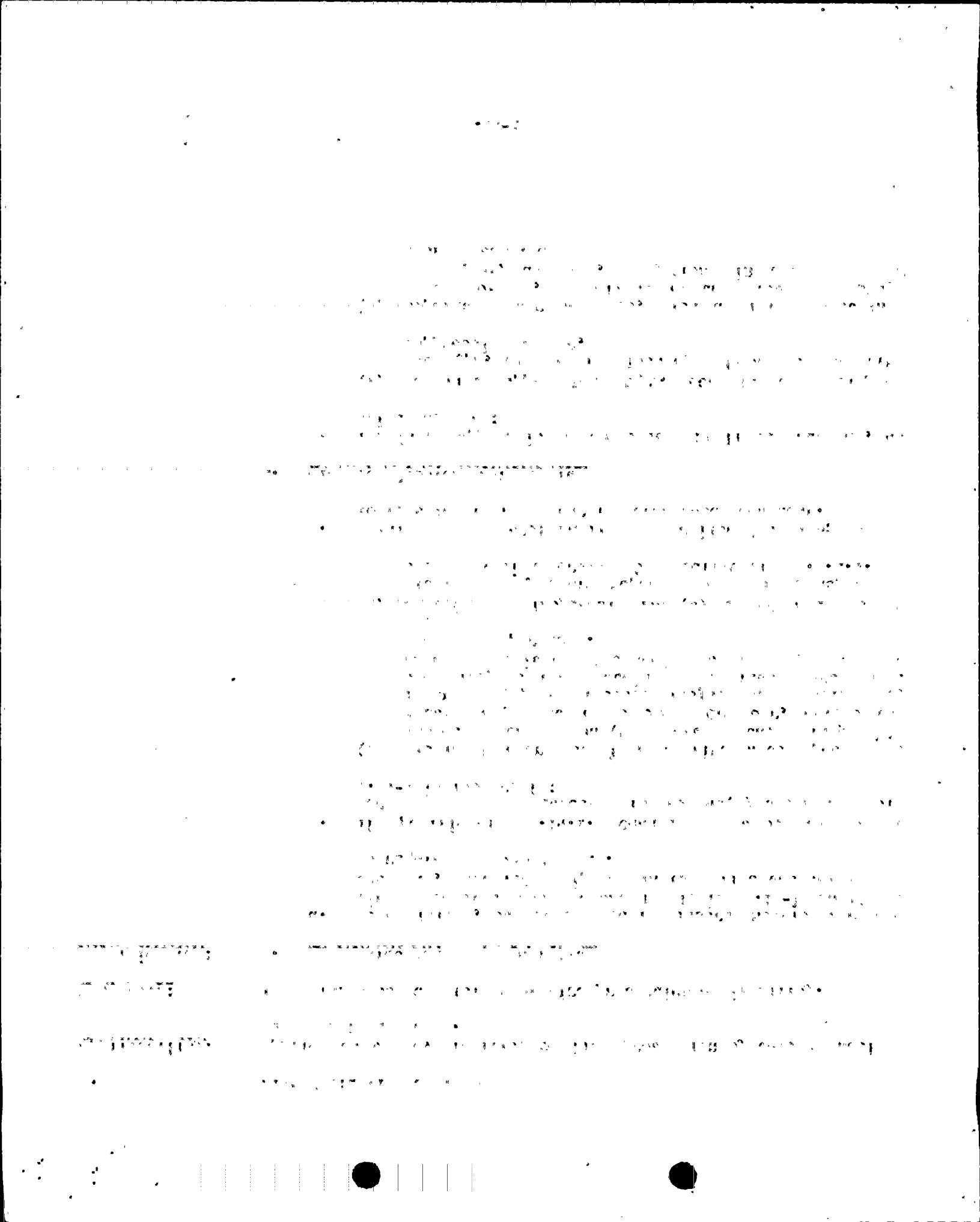
   c. A fire watch patrol shall be established to inspect the 18 foot level of the turbine area once each hour.

2. FIRE SUPPRESSION WATER SYSTEM

   a. The fire suppression water system shall be OPERABLE, at all times with:

      (1) Two fire suppression pumps, each with a capacity of 2000 gpm, with their discharge aligned to the fire suppression header,

      (2) Separate water supplies, with a minimum contained volume of 30,000 gallons in the elevated storage tank (EST) and 150,000 gallons in the raw water storage tank, and



(3) An OPERABLE flow path capable of taking suction from the raw water storage tank and transferring the water through distribution piping with OPERABLE sectionalizing control or isolation valves to the yard hydrants and the last root valve ahead of each sprinkler or hose standpipe.

b. (1) If Specification 3.14.2.a cannot be met because one pump and/or one water supply is inoperable, restore the inoperable equipment to OPERABLE status within 7 days or, prepare and submit a Report to the Commission pursuant to Specification 6.9.2.b.

(2) With one water supply below the minimum specified limit for one day, connect the spool piece to make the screen wash pump available for fire water supply.

c. With the fire suppression water system otherwise inoperable:

1. Establish a backup fire suppression water system within 24 hours, and

2. Submit a Report in accordance with Specification 6.9.2.a:

3. SPRAY AND/OR SPRINKLER SYSTEMS

a. The following spray and/or sprinkler systems shall be OPERABLE, whenever equipment in the spray/sprinkler protected area is required to be OPERABLE.

1. Unit 3 - 4160 V Switchgear Room louver spray

2. Unit 4 - 4160 V Switchgear Room louver spray

3. Emergency Diesel Generator Building water curtain

4. Control Point Guard House sprinkler system

b. If Specification 3.14.3.a cannot be met because one or more of the above required spray and/or sprinkler systems is inoperable, establish a fire watch patrol with backup fire suppression equipment for the unprotected area(s) within 1 hour; restore the system to OPERABLE status within 14 days or, prepare and submit a Report to the Commission pursuant to Specification 6.9.2.b.

4. FIRE HOSE STATIONS

a. Fire hose stations in the vicinity of safety related equipment shall be operable at all times when the safety related equipment in their area of protection is required to be operable; or within eight (8) hours, an equivalent capacity fire hose shall be run from an equivalent water source to the inoperable location.

5. FIRE BARRIER PENETRATIONS

a. All fire barrier penetrations (including cable penetration barriers, fire doors and fire dampers), in fire zone boundaries, protecting safety related areas shall be functional at all times.

b. If Specification 3.14.6.a cannot be met because one or more of the above required fire barrier penetrations is 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 non-functional fire barrier and establish a hourly fire watch patrol. Restore the non-functional fire barrier penetration(s) to functional status within 7 days or, prepare and submit a Report to the Commission pursuant to Specification 6.9.2.b.

TABLE 3.14-1

FIRE DETECTION INSTRUMENTS

INSTRUMENT LOCATION	MINIMUM INSTRUMENTS OPERABLE* HEAT	FLAME	SMOKE
Unit 3: 4160 V Swgr. and 480 V LC Rooms	0	0	8
Unit 4: 4160 V Swgr. and 480 V LC Rooms	0	0	8
Unit 3: Elec. Penetrations (Inside Containment)	0	0	8
Unit 4: Elec. Penetrations (Inside Containment)	0	0	5
Control Room	0	0	7
Control Bldg. - El. 30' and "B" MCCs	2	0	12
Auxiliary Bldg. - El. 18'	0	0	18
Auxiliary Bldg. - El. 10'	0	0	8
Unit 3: Elec. Penetration Rooms - 3W and 3S	0	0	8
Unit 4: Elec. Penetration Rooms - 4N and 4W	0	0	7
Inverter and New Battery Rooms	2	0	3
Emergency Diesel Generator Building	2	2	2

*The fire detection instruments located within the Containment are not required to be OPERABLE during the performance of Type A Containment Leakage Rate Tests.

4.15 FIRE PROTECTION SYSTE

Applicability: Applies to the surveillance of the Fire Protection Systems.

Objective: To verify the operability of the Fire Protection Systems.

Specifications:

1. FIRE DETECTION SYSTEM

   a. The Fire Detection System shall be demonstrated operable by:

	TEST	INTERVAL
1.	Channel functional 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 24 hours unless performed in the previous 6 months).	Semi-annual
2.	Test NFPA Code 72D Class A supervised circuits associated with the detector alarms	Semi-annual

2. FIRE PROTECTION WATER SYSTEM

   a. The Fire Protection Water System shall be demonstrated operable by:

	TEST	INTERVAL
1.	Verify water supply volume(s)	Daily
2.	Simulate automatic actuation of pumps on recirculation flow	Monthly
3.	Verify that each valve, (manual, power operated or automatic) in the flow path is in its correct position	Monthly
4.	System flush	Annually
5.	Cycle each testable valve	Annually
6.	System functional test, which includes simulated automatic actuation of the system throughout its operating sequence, and:	18 Months
	a. Verify that each pump develops at least 94% rated flow and 93% system head.	
	b. Cycle each valve which is not testable during plant operation.	

c. Verify that each pump starts sequentially to maintain the Fire Protection Water System pressure $\geq$ 125 psig.

7. System flow test equivalent with Chapter 5, Section 11 of the Fire Protection Handbook, 14th Edition, published by the National Fire Protection Association. 3 Years

3. SPRAY AND/OR SPRINKLER SYSTEMS

a. The spray and/or sprinkler system shall be demonstrated OPERABLE:

1. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

2. At least once per 18 months:

a. By a visual inspection of the spray headers to verify their integrity, and

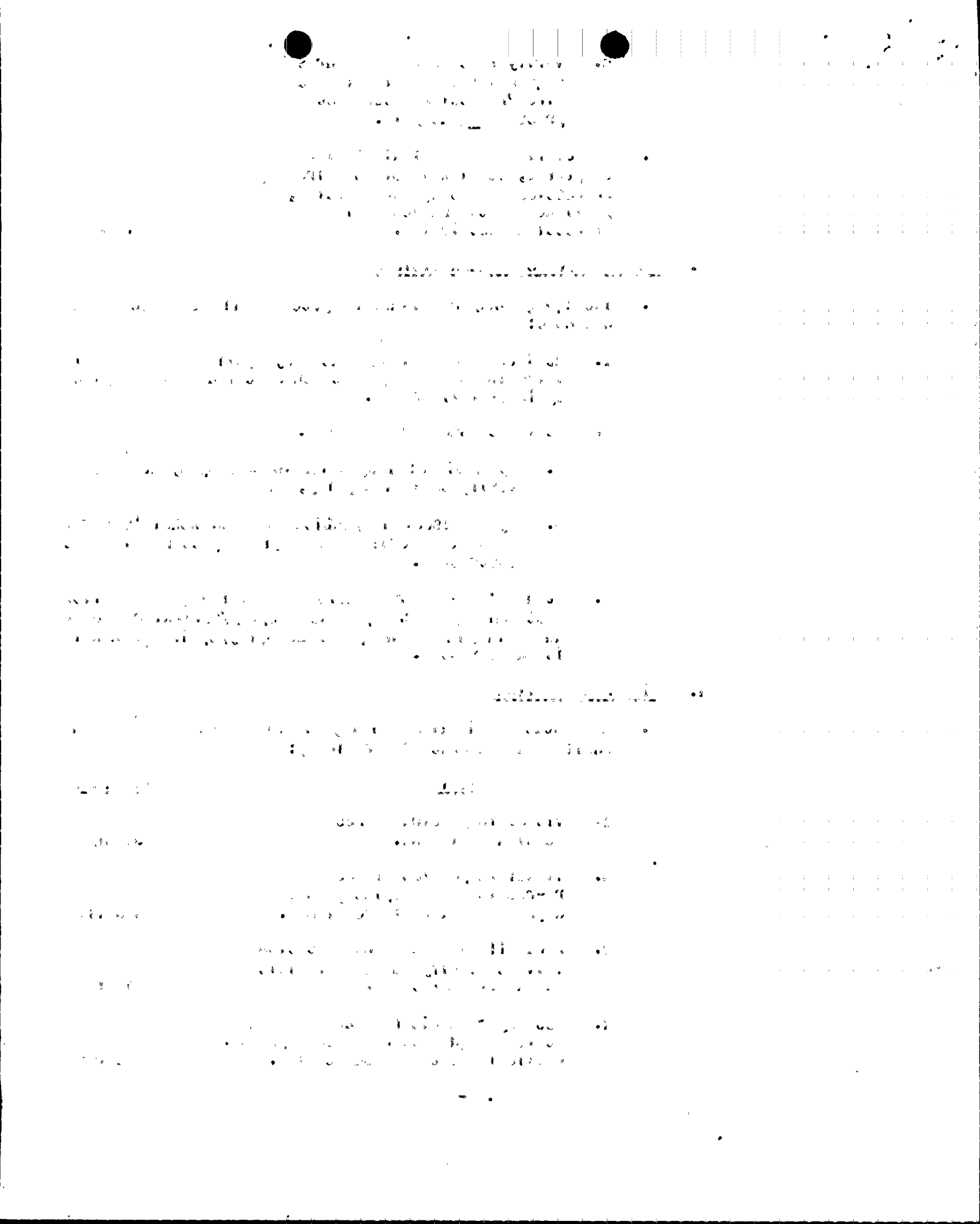
b. By a visual inspection of each nozzle's spray area to verify the spray pattern is not obstructed.

3. At least once per 3 years by performing an air flow test through each open head spray/sprinkler header and verifying each open head spray/sprinkler nozzle is unobstructed.

4. FIRE HOSE STATIONS

a. Hose stations in the vicinity of safety related equipment shall be demonstrated operable by:

	TEST	INTERVAL
1.	Visual inspection of hose station equipment.	Monthly
2.	Visual inspection of hose, re-racking, and replacement of degraded gaskets in couplings.	Annually
3.	Partially open each hose station valve to verify valve operability and no flow blockage.	3 Years
4.	Hose hydrostatic test at a pressure at least equal to the system pressure available at that hose station.	3 Years



5. FIRE BARRIER PENETRATIONS

a. The fire barrier penetrations shall be verified to be functional:

1. At least once per 18 months by a visual inspection.

2. 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).

[illegible]

[illegible]
[illegible]

[illegible]

[illegible]
[illegible]
[illegible]
[illegible]

d. An individual qualified in radiation protection procedures shall be on site when fuel is in the reactor.

e. ALL CORE ALTERATIONS shall be directly supervised by either a licensed Senior Reactor Operator or Senior Reactor Operator Limited to Fuel Handling who has no other concurrent responsibilities during this operation.

f. A site Fire Brigade of at least 5 members shall be maintained onsite at all times*. The Fire Brigade shall not include 2 members of the minimum shift crew necessary for safe shutdown of the unit and any personnel required for other essential functions during a fire emergency.

6.3 FACILITY STAFF QUALIFICATIONS

6.3.1 Each member of the facility staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions.

6.3.2 HEALTH PHYSICS SUPERVISOR QUALIFICATIONS

6.3.2.1 The Health Physics Supervisor at the time of appointment to the position, shall, except as indicated below, meet the following:

1. He shall have a bachelor's degree or equivalent in a science or engineering subject, including some formal training in radiation protection.

2. He shall have five years of professional experience in applied radiation protection; where a master's degree in a related field is equivalent to one year experience and a doctor's degree in a related field is equivalent to two years of experience.

3. Of his five years of experience, three years shall be in applied radiation protection work in a nuclear facility dealing with radiological problems similar to those encountered at Turkey Point Plant.

6.3.2.2 When the Health Physics Supervisor does not meet the above requirements, compensatory action shall be taken which the Plant Nuclear Safety Committee determines and the NRC Office of Nuclear Reactor Regulation concurs that the action meets the intent of Specification 6.3.2.1.

6.4 TRAINING

6.4.1 A retraining and replacement training program for the facility staff shall be maintained under the direction of the Training Supervisor and shall meet or exceed the requirements and recommendations of Section 5.5, ANSI N18.1-1971 and Appendix A to 10 CFR Part 55.

*Fire Brigade composition may be less than the minimum requirements for a period of time not to exceed 2 hours in order to accomodate unexpected absence of Fire Brigade members provided immediate action is taken to restore the Fire Brigade to within the minimum requirements.

6.4.2 A training program for the Fire Brigade shall be maintained under the direction of the Fire Protection Administrator and shall meet or exceed the requirements of 10 CFR 50.48 and 10 CFR 50 - Appendix R.

6.5 REVIEW AND AUDIT

6.5.1 Plant Nuclear Safety Committee (PNSC)

6.5.1.1 FUNCTION

The PNSC shall function to advise the Plant Superintendent - Nuclear on all matters related to nuclear safety.

6.5.1.2 COMPOSITION

The Plant Nuclear Safety Committee shall be composed of the:

1. Chairman: Plant Superintendent - Nuclear
2. Vice Chairman: Operations Superintendent
3. Technical Department Supervisor
4. Assistant Superintendent - Nuclear Maintenance
5. Instrument and Control Supervisor
6. Health Physics Supervisor
7. Reactor Supervisor

6.5.1.3 ALTERNATES

Alternate members shall be appointed in writing by the PNSC Chairman to serve on a temporary basis; however, no more than two alternates shall participate in PNSC activities at any one time.

6.5.1.4 MEETING FREQUENCY

The PNSC shall meet at least once per calendar month and as convened by the PNSC Chairman.

B3:14 BASES FOR FIRE PROTECTION SYSTEMS

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 restored to OPERABILITY.

The OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinquish 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, fire hose stations, and yard fire hydrants. 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 inoperable equipment is restored to service.

In the event 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 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 penetrations 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 penetrations are a passive element in the facility fire protection program and are subject to periodic inspections.

Fire barrier penetrations, including cable penetration barriers, fire doors and dampers are considered functional when the visually observed condition is the same as the as-designed condition. For those fire barrier penetrations that are not in the as-designed condition, an evaluation shall be performed to show that the modification has not degraded the fire rating of the fire barrier penetration.

During periods of time when a barrier is not functional, the fire detectors on at least one side of the affected barrier must be verified OPERABLE and a hourly fire watch patrol established, until the barrier is restored to functional status.