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P LANT **P** ROCEDURES **M** ANUAL

**SOUTH TEXAS
PROJECT**

PLANT GENERAL PROCEDURES

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HOUSTON LIGHTING AND POWER COMPANY
SOUTH TEXAS PROJECT
ELECTRIC GENERATING STATION
PLANT PROCEDURES MANUAL



STATION PROCEDURE

NON SAFETY-RELATED (Q)

Fire Protection

OPGP03-ZF-0001

Rev. 6

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APPROVED:

Al Parley
T. D. Simich
PLANT MANAGER

3/20/93
3/27/93
DATE APPROVED

4-5-93
DATE EFFECTIVE

Procedure Use Control: **AVAILABLE**

1.0 Purpose and Scope

- 1.1 This procedure describes the STPEGS Fire Protection Program which includes establishing fire prevention and fire protection measures that emphasize plant personnel safety and protection of the public health and safety.
- 1.2 The Fire Protection Program complies with the requirements of 10 CFR 50, Appendix R and Branch Technical Position APCSB 9.5-1 except where deviations have been identified in the Fire Hazards Analysis Report (FHAR) Sections 4.1 and 4.2 or the Updated Final Safety Analysis Report (UFSAR) Sections 9.5.1.6 and 13.2.3.

2.0 Definitions

- 2.1 APPROVED: Tested and accepted for a specific purpose or application by a nationally recognized testing laboratory (e.g. Underwriter's Laboratory or Factory Mutual).
- 2.2 DEFENSE IN DEPTH: A design and operating philosophy intended to provide multiple levels of protection from potential fire hazards.
- 2.3 FIRE BARRIER: Those components of construction (walls and floors and their supports including beams, joists, and columns; penetration seals or closures; fire doors and fire dampers) that are rated by approved laboratories in hours of resistance to fire or are described in the FHAR or UFSAR and approved by the NRC.

- 2.4 NON-COMBUSTIBLE: (a) Material which in the form in which it is used and under the conditions anticipated will not ignite, burn, support combustion, or release flammable vapors when subjected to heat or fire. (b) Material having a structural base of non-combustible material as defined in (a), with a surface coating not over 1/8" thick that has a flame spread rating of < 50 when measured per ASTM E-84 "Test of Surface Burning Characteristics of Building Material".

3.0 Responsibilities

- 3.1 The Plant Manager is responsible for the administration of the Fire Protection Program.
- 3.2 The Manager, Nuclear Training Department is responsible for developing, scheduling, and presenting fire protection training in accordance with commitments identified in the UFSAR and FHAR.
- 3.3 The Fire Protection Training Technical Advisory Council is responsible for the content of fire protection training.
- 3.4 The Fire Protection Coordinator is assigned responsibility for development and administration of the Fire Protection Program including administrative controls, preplans, and fire protection system test procedures.
- 3.5 The Fire Brigade Leader is responsible for directing fire fighting activities to protect lives and to minimize damage to property including safe shutdown equipment/systems.
- 3.6 The Fire Brigade is responsible for responding, at the direction of the Shift Supervisor, to control and extinguish fires which occur at the plant.
- 3.7 Shift personnel not assigned to the Fire Brigade shall provide support as necessary to secure power, replace SCBA air cylinders, operate systems/equipment, provide guidance for protection from radiological hazards, and/or provide additional operations and safe shutdown expertise.
- 3.8 Personnel given unescorted access to STPEGS are responsible for complying with the fire prevention/protection guidance provided in the administrative controls procedures described in section 6.0 of this procedures.
- 3.9 Personnel not fulfilling duties as STPEGS Fire Protection Staff personnel or those described in 3.5, 3.6, or 3.7 above shall immediately evacuate any plant or site area involved in fire which is beyond their capability to control. (PR 89-0046)

3.10 Only the responsible Shift Supervisor, or his designee, or the Fire Brigade Leader may grant access to an area involved in a fire emergency for personnel who are not members of the NPOD Fire Protection Staff or personnel not fulfilling duties described in 3.5, 3.6, or 3.7 above. (PR 89-0046)

3.10.1 The Group Vice President Nuclear, Vice President Nuclear Generation, and the Plant Manager or Duty Plant Manager are granted unrestricted access to an area involved in a fire emergency to assess the situation as they deem necessary.

4.0 Personnel Qualifications

- 4.1 The Fire Protection Coordinator, or a person(s) available to him for consultation, shall be a graduate of an accredited engineering, engineering technology, or fire science curriculum and shall have a minimum of six years of applicable experience, three of which shall have been in charge of fire protection. Combinations of education and experience deemed satisfactory by SFPE for full membership shall be considered equivalent for the purposes of this procedure.
- 4.2 Fire Brigade members shall be trained in accordance with procedure IP-8.14, (Fire Protection Training Program) and meet the requirements of OPGP03-ZF-0011 (STPEGS Fire Brigade).
- 4.3 The Fire Brigade Leaders and at least two members on each shift shall have been given training on plant systems with emphasis on safety-related and safe shutdown systems.
- 4.4 Personnel given unescorted access to the power block shall receive fire protection training in accordance with IP-8.22 (General Employee Training Program).

5.0 Fire Protection Systems

- 5.1 Plant fire detection instrumentation, consisting of smoke detectors, heat detectors, optical flame detectors, and manual pull stations, alarms locally and in the Control Room.
- 5.2 The fire protection water supply system consists of two 300,000 gallon tanks connected to an underground ring main via three 2500 gpm diesel driven fire pumps.
- 5.3 Water Spray and sprinkler systems are provided in several areas of the plant. Generally these systems provide protection for cable spread rooms, areas/equipment containing charcoal or combustible oils, and offices.
- 5.4 Halon systems are provided for document storage facilities, computer rooms, and the relay rooms.

- 5.5 Hose stations are provided throughout the plant.
- 5.6 Yard hydrants and hose houses are located at intervals along a figure eight underground ring main which circles both units.
- 5.7 Fire barriers are utilized to separate and protect redundant trains of safe shutdown equipment from damage by a single fire and to provide property protection as deemed necessary by management.

6.0 Administrative Controls

- 6.1 Controls have been established to ensure acceptable performance of fire protection systems and personnel.
 - 6.1.1 Acceptable performance of personnel and equipment will provide defense-in-depth from fire through efforts to prevent fires from occurring, early detection and suppression of fires that do occur, and maintenance of separation to ensure safe shutdown capability even if early detection and suppression do not occur.
 - 6.1.2 These controls shall be described in approved procedures.
- 6.2 Fire Protection procedures shall be developed in accordance with the following clarifications:
 - 6.2.1 Program administrative procedures and test procedures which apply to systems or activities required to protect areas, identified in the FHAR and OPGP03-ZF-0018 (Fire Protection System Operability Requirements) as containing safety-related or safe shutdown equipment, shall be classified as Non Safety-Related (Q).
 - 6.2.2 Other inspection and test procedures performed as good business practices may be classified, reviewed, and approved as Non Safety-Related (Non Q) procedures.
- 6.3 Administrative controls for fire prevention that have been included in plant procedures can be summarized as follows:
 - 6.3.1 The procedures within the PEP03 section of the Plant Procedures Manual govern tests and inspections which provide assurance of the acceptable performance of fire protection systems and equipment.
 - 6.3.1.1 Procedure numbers PEP03-FP-0001 to PEP03-FP-0100 provide instructions for testing and inspections of fire protections systems which are provided for property protection purposes and for testing and inspections which are deemed desirable based on good business practices.

- 6.3.1.2 Procedure numbers PEP03-FP-0101 to PEP03-FP-0200 provide instructions for testing and inspections of fire protections systems provided to protect safe shutdown capability and shall be implemented in a manner similar to Technical Specifications surveillance procedures.
- 6.3.2 OPGP03-ZF-0002, (Fire Brigade Drills) provides instructions for drill scenario development and implementation, and criteria for drill critiques.
- 6.3.3 OPGP03-ZF-0003, (Breaching of Fire Barriers) provides controls for assuring the integrity of fire barriers.
- 6.3.4 OPGP03-ZF-0004, (Control of Transient Fire Loads) provides controls for common combustibles including:
- a. Guidance for the storage and handling of ordinary combustibles such as filter media, ion exchange resins, wood, and other combustible supplies.
 - b. Prohibition of bulk storage of combustible materials inside of or adjacent to safety-related buildings or systems unless suitable protection is documented.
 - c. Guidance for the handling and removal of waste, debris, oily rags, and other combustibles resulting from work activities in plant areas.
- 6.3.5 OPGP03-ZF-0005, (Use of Flammable Liquids and Gases) provides guidance and controls for combustible and flammable liquids and gases including storage, transfer, and use. This procedure includes provisions for controlling storage of materials and for compensatory measures if deemed necessary.
- 6.3.6 OPGP03-ZF-0006, (Control of Ignition Sources) provides controls for use of potential ignition sources such as cutting, welding, and grinding. These controls include a prohibition of the use of flame or combustion generated smoke for leak testing purposes, a permit system, and provisions for compensatory measures, including trained fire watches if necessary. This procedure also addresses the use of open fires in outside areas to ensure that compliance with environmental regulations and commitments is maintained.
- 6.3.7 OPGP03-ZF-0007, (Control of Solvents, Paints, and Painting Processes) provides guidance for personnel involved in the use of paints and certain solvents to ensure fire safety, to protect HVAC charcoal filters from harmful fumes, and to protect smoke detectors from fume particulates.

- 6.3.8 OPGP03-ZF-0008, (Use of Fire Protection Equipment) provides general guidance for utilizing fire protection equipment including fire prevention equipment, fire extinguishers and other manual suppression equipment, and manual actuation of automatic systems.
- 6.3.9 OPGP03-ZF-0009, (Smoking Control Program) provides guidance on the use and disposal of smoking materials.
- 6.3.10 OPGP03-ZF-0011, (STPEGS Fire Brigade) describes the structure, duties and physical requirements of the Fire Brigade and outlines the support functions and equipment necessary to ensure an effective response.
- 6.3.11 OPGP03-ZF-0012, (Fire Fighting) describes the actions to be taken in the event of a fire at STPEGS.
- 6.3.12 OPGP03-ZF-0013, (Fire Watch Program) and IP-8.14, (Fire Protection Training Program) describe the qualifications and duties of, and documentation requirements for fire watch assignments.
- 6.3.13 OPGP03-ZF-0014, (Fire Prevention Surveys) provides guidance on fire prevention inspection techniques, inspection frequency, and documentation.
- 6.3.14 OPGP03-ZF-0015, (Preparation and Approval of Fire Preplans) provides instructions for development of fire preplans. These instructions cover format, content, and review and approval of preplans.
- 6.3.15 OPGP03-ZF-0017, (Fire Protection Unanticipated Impairments) helps ensure that compensatory actions required by OPGP03-ZF-0018 are met when applicable fire protection systems are removed from service.
- 6.3.16 OPGP03-ZF-0018, (Fire Protection System Operability Requirements) describes the minimum operability requirements for fire protection systems required to protect safe shutdown equipment as discussed in the FHAR. This procedure also includes the compensatory measures required if such systems must be removed from service.

7.0 Quality Assurance

- 7.1 The Fire Protection Program, as it relates to protecting safety-related and safe shutdown equipment is covered by the Operations Quality Assurance Plan (OQAP). Application of the OQAP to fire protection systems is described in IP-4.3Q (Quality Assurance Program for Fire Protection and Related Systems).

8.0 Fire Brigade

- 8.1 The STPEGS Shift Fire Brigades shall consist of a minimum of 5 persons from the Operations shift crew.
- 8.2 Shift Fire Brigades shall meet with the Fire Protection Coordinator or designee at least once per quarter to discuss changes in the fire protection system design, the Fire Protection Program, preplans, and other topics deemed necessary by the Fire Protection Coordinator.
 - 8.2.1 The Fire Protection Coordinator or designee shall record and maintain meeting minutes.
 - 8.2.2 Minutes of quarterly meetings shall be maintained for a minimum of one year.
- 8.3 The Fire Protection Coordinator shall ensure that protective equipment is provided in sufficient quantities to equip each of the 5 required Fire Brigade members. This equipment shall include the following:
 - 8.3.1 Turnout gear including coats, pants, boots, gloves, helmets and breathing apparatus.
 - 8.3.2 Portable lights and communications equipment.
 - 8.3.3 Portable extinguishers and ventilation equipment.

9.0 References

- 9.1 South Texas Project Electric Generating Station Updated Final Safety Analysis Report; Amendment 47 pages 9.5-25 through 9.5-29 and Amendment 51 pages 13.2-8 through 13.8-10
- 9.2 South Texas Project Electric Generating Station Fire Hazards Analysis Report; Amendment 7
- 9.3 ST-P2-HS-736, "Proposed Change to FSAR Chapter 9.5.1"
- 9.4 OPGP03-ZF-0002 (Fire Brigade Drills), Rev. 2
- 9.5 OPGP03-ZF-0003 (Breaching of Fire Barriers), Rev. 6
- 9.6 OPGP03-ZF-0004 (Control of Transient Fire Loads), Rev. 1
- 9.7 OPGP03-ZF-0005 (Use of Flammable Liquids and Gases), Rev. 4
- 9.8 OPGP03-ZF-0006 (Control of Ignition Sources), Rev. 3

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- 9.9 OPGP03-ZF-0007 (Control of Solvents, Paints and Painting Processes), Rev. 2
- 9.10 OPGP03-ZF-0008 (Use of Fire Protection Equipment), Rev. 1
- 9.11 OPGP03-ZF-0009 (Smoking Control Program), Rev. 1
- 9.12 OPGP03-ZF-0011 (STPEGS Fire Brigade), Rev. 3
- 9.13 OPGP03-ZF-0012 (Fire Fighting), Rev. 3
- 9.14 OPGP03-ZF-0013 (Fire Watch Program), Rev. 3
- 9.15 OPGP03-ZF-0014 (Fire Prevention Program), Rev. 4
- 9.16 OPGP03-ZF-0015 (Preparation and Approval of Fire Preplans), Rev. 6
- 9.17 OPGP03-ZF-0017 (Fire Protection Unanticipated Impairments), Rev. 2
- 9.18 OPGP03-ZF-0018 (Fire Protection System Operability Requirements), Rev. 6
- 9.19 IP-8.14 (Fire Protection Training Program), Rev. 3
- 9.20 IP-8.22 (General Employee Training Program), Rev. 4
- 9.21 IP-4.3Q (Quality Assurance Program for Fire Protection and Related Systems), Rev. 3

10. Documentation

None

11.0 Supporting Documents

None