



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

February 3, 2009  
NOC-AE-08002366  
10CFR50.90  
10CFR50.48  
STI: 32404365

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2738

South Texas Project  
Units 1 & 2  
Docket Nos. STN 50-498, STN 50-499  
License Amendment Request for Deviation from Fire Protection Program Requirements

Pursuant to 10 CFR 50.90, STP Nuclear Operating Company (STPNOC) hereby requests a license amendment for deviation from South Texas Project (STP) Fire Protection Program requirements. Specifically, a deviation from certain technical requirements of Section III.G.2 of Appendix R to 10 CFR 50, as documented in the STP Fire Hazards Analysis Report, is requested regarding the use of operator manual actions in lieu of meeting circuit separation protection requirements.

This request provides the proposed change to the Operating Licenses, associated with the application, as Attachments 1 and 2 of the enclosure to this letter.

The STPNOC Plant Operations Review Committee has reviewed and concurred with the proposed change.

In accordance with 10 CFR 50.91(b), STPNOC is notifying the State of Texas of this request for license amendment by providing a copy of this letter and its attachments. A No Significant Hazards Consideration Determination is provided in the enclosure to this letter.

A006  
HRB

Upon approval of this request, the approved deviation will be documented in the Fire Hazards Analysis Report. See Attachment 3 to the enclosure of this letter. There are no other commitments in this request.

STPNOC requests that this license amendment request be approved by January 30, 2010 with a 60 day implementation period to provide time to revise STP licensing documents

If there are any questions regarding this amendment request, please contact Ken Taplett at (361) 972-8416 or me at (361) 972-7566.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on February 3, 2009



G. T. Powell  
Vice President,  
Engineering

Enclosure: Evaluation of the Proposed Change

cc:

(paper copy)

Regional Administrator, Region IV  
U. S. Nuclear Regulatory Commission  
612 East Lamar Blvd, Suite 400  
Arlington, Texas 76011-4125

Mohan C. Thadani  
Senior Project Manager  
U.S. Nuclear Regulatory Commission  
One White Flint North (MS 7 D1)  
11555 Rockville Pike  
Rockville, MD 20852

Senior Resident Inspector  
U. S. Nuclear Regulatory Commission  
P. O. Box 289, Mail Code: MN116  
Wadsworth, TX 77483

Richard A. Ratliff  
Bureau of Radiation Control  
Texas Department of State Health Services  
1100 West 49th Street  
Austin, TX 78756-3189

C. M. Canady  
City of Austin  
Electric Utility Department  
721 Barton Springs Road  
Austin, TX 78704

(electronic copy)

A. H. Gutterman, Esquire  
Morgan, Lewis & Bockius LLP

Mohan C. Thadani  
U. S. Nuclear Regulatory Commission

Kevin Howell  
Catherine Callaway  
Jim von Suskil  
NRG South Texas LP

Ed Alarcon  
J. J. Nesrsta  
R. K. Temple  
Kevin Pollo  
City Public Service

Jon C. Wood  
Cox Smith Matthews

C. Kirksey  
City of Austin

## Enclosure

### Evaluation of the Proposed Change

Subject: License Amendment Request for Deviation from Fire Protection Program Requirements

- 1.0 Summary Description
- 2.0 Detailed Description
- 3.0 Technical Evaluation
- 4.0 Regulatory Evaluation
- 5.0 Environmental Consideration
- 6.0 References

.....  
Attachment 1: Proposed Change to South Texas Project, Unit 1, Operating License No. NPF-76

Attachment 2: Proposed Change to South Texas Project, Unit 2, Operating License No. NPF-80

Attachment 3: Annotated Fire Hazards Analysis Report Page

## **Description of Change and Safety Evaluation**

### **1.0 Summary Description**

This evaluation supports a request to amend Operating Licenses NPF-76 and NPF-80 for the South Texas Project (STP), Units 1 and 2.

The proposed change would revise the Operating Licenses to deviate from certain STP Fire Protection Program (FPP) requirements. The reason for this amendment is to allow the performance of operator manual actions to achieve and maintain safe shutdown in the event of a fire in lieu of meeting circuit separation protection requirements of 10 CFR 50, Appendix R, Section III.G.2.

### **2.0 Detailed Description**

A review was completed to identify any post-fire operator manual actions relied upon to address fire-induced circuit failures in lieu of meeting the protection requirements of 10 CFR 50, Appendix R, Section III.G.2, fire protection of safe shutdown capability. Corrective action was initiated and compensatory measures were implemented for identified non-compliant operator manual actions consistent with NRC Enforcement Guidance Memorandum (EGM) 07-004 (Reference 6.1). Approval of this License Amendment Request will complete the corrective action for the non-compliant operator manual actions that are the subject of this submittal.

The STP FPP is described in the Fire Hazards Analysis Report (FHAR). Although STP is not an Appendix R plant, the FHAR states that STP will meet the requirements of 10 CFR 50, Appendix R, Section III.G.2 except for deviations from those requirements that have been approved by the NRC. STPNOC requests approval to deviate from these requirements, as specified below, to allow the performance of operator manual actions in lieu of meeting separation requirements to protect cables from fire damage that could prevent the operation or cause mal-operation of safe shutdown functions. The operator manual actions provide an equivalent level of protection and assure that the unit can be safely shutdown in the event of a fire.

The specific deviation from Section III.G.2 applies to Fire Area 31 only. This request is to allow the performance of operator manual actions to de-energize and manually open suction valve CV-MOV-0112C (Train C) to align the Refueling Water Storage Tank (RWST) to the suction of the charging pump and to de-energize and manually close the Volume Control Tank (VCT) outlet valve CV-MOV-0112B (Train B) to the suction of the charging pump. These actions will ensure that boron concentration is adequate upon entry into MODE 4 (hot shutdown) for achieving and maintaining safe shutdown following a fire in Fire Area 31.

Plant procedure addresses fires in areas of the plant that do not require alternative shutdown. For Fire Area 31, procedure directs operators to perform operator manual actions outside of the

control room to re-align charging pump suction from the VCT to the RWST. Specifically, operators are directed to de-energize and manually open valve CV-MOV-0112C to align the RWST to the suction of the charging pump and to de-energize and manually close the VCT outlet valve CV-MOV-0112B to the suction of the charging pump. The cables for the motor operators of valves CV-MOV-0112C and CV-MOV-0112B are located in Fire Area 31. Cables for the redundant train motor-operated valve from the RWST (CV-MOV-113B) and the redundant VCT outlet valve (CV-MOV-0113A) to the suction of the charging pump are also located in Fire Area 31. The redundant cables do not meet the methods for physical protection accepted by Section III.G.2 of Appendix R. The safe shutdown function met by the operator manual actions is the assurance that boron concentration is adequate for reactivity control upon entry into hot shutdown conditions. The FHAR currently does not credit the use of operator manual actions for a fire in Fire Area 31 as an approved deviation from the requirements of Section III.G.2 of Appendix R.

The annotated FHAR page affected by this proposed change is provided in Attachment 3.

Upon approval of this request, the approved deviation will be documented in the STP FHAR.

### **3.0 Technical Evaluation**

**Fire Area 31:** Fire Area 31 consists of Fire Zone Z047 which is the Train B cable spreading/power cable room and the cable room on elevation 60' of the electrical portion of the Mechanical/Electrical Auxiliary Building (MEAB). The cable spreading room is accessible through two entrances from Fire Area 4 and one from Fire Area 19, a stairwell. The cable room portion of Fire Zone Z047 is accessible from Fire Area 4.

Fire Area 31 is separated from other interior fire areas by 3-hour rated fire barriers with the exception of Fire Area 19 which is separated by a 1-1/2-hour rated boundary. The north exterior wall of the MEAB forms a portion of the area boundary. This wall is provided with 3-hour rated penetration seals from column A/20 to column E/20 which is within 50 feet of the Engineered Safety Features (ESF) auxiliary transformers. Currently, no penetrations exist in the balance of this exterior wall and no significant combustibles are present with 50 feet of the exterior to this portion of the wall. Doors and penetrations contained in fire barriers are constructed such that their ratings are compatible with that of the barrier. Ventilation duct penetrations in fire barriers are provided with 3-hour rated dampers installed in accordance with the manufacturer's instructions. Smoke and heat removal are accomplished with portable exhaust fans and flexible ductwork. Drains are provided for fire water removal.

Ionization detectors provide early warning for manual fire fighting. A ceiling mounted area coverage automatic wet pipe sprinkler system is installed throughout Fire Zone Z047 to aid in cooling and controlling the fire until manual suppression can be achieved.

The safe shutdown strategy in response to a fire in Fire Area 31 relies on charging pump<sup>1</sup> 1B(2B) for ensuring that the boron concentration is adequate upon entry into hot shutdown conditions.

Operator actions realign the suction of the charging pumps by providing a gravity drain from the RWST. The fire safe shutdown thermal-hydraulic analysis requires that these actions be performed within two hours of a reactor trip initiated in response to a fire.

Cables for each of the two charging pump suction motor-operated valves are routed through Fire Area 31 without meeting the train separation requirements of the STP FPP. The cable for CV-MOV-0112B and the redundant cable for CV-MOV-0113A have greater than 20 feet separation but intervening combustibles exist in the form of cabling in other trays between these redundant cables. The cable for CV-MOV-112C and the redundant cable for CV-MOV-113B have the same type of intervening combustibles but less than 20 feet of separation. There are no ignition sources in this fire area other than the cabling running throughout the area. This circuit cable separation does not meet the intent of III.G.2 separation.

### **Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire:**

NUREG-1852, "Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire," (Reference 6.2) provides criteria and associated technical bases for evaluating the feasibility and reliability of post-fire operator manual actions in nuclear power plants. The following provides the STP analysis of these criteria for justifying the operator manual actions specified in this request.

#### Criterion 1: Analysis Showing Adequate Time Available to Perform the Actions to Address Feasibility

Adequate time must be available to allow the actions to be diagnosed and executed in order to achieve and maintain hot shutdown following a single fire. The plant's thermal-hydraulic response must be analyzed to validate that the actions ensure that the safety functions can be performed.

The diagnosis for the actions to re-align the suction to the charging pump includes detection of the fire and an assessment whether the nature of the fire could challenge the achievement of safe shutdown capability. Once this assessment is made, the control room uses a procedure to direct the actions to be taken by safe shutdown operators at a location remote from the control room. Diagnostic instrumentation in the control room remains free from fire damage to ensure that the action was successful. The thermal-hydraulic analysis requires that the actions be performed within two hours following a diagnosis that the fire could jeopardize the achievement of safe shutdown.

---

<sup>1</sup> Charging pump 1B is in Unit 1 and charging pump 2B is in Unit 2.

A comprehensive Fire Detection, Control, and Alarm System is installed throughout the plant. The primary operation of this system is automatically governed by a series of local control panels located throughout the plant. The Fire Protection System control panels monitor the general plant area fire detectors and monitor and/or control all of the special hazard fire protection systems to ensure their continuous availability. Alarms are transmitted from the local panels to the fire protection data acquisition system in the main control room. The fire detectors for Fire Area 31 are served by this system.

The plant procedure provides the operator a table to readily determine the fire area that a detector is alarming. Ionization detection is provided in the zone through which the subject cables are routed in Fire Area 31 to provide early warning of a fire.

Upon detection of a fire, plant procedures direct the operator to assess whether the nature of the fire has reached the point of challenging the capability of systems and components in the fire area to support achieving fire safe shutdown. If the assessment determines that the fire has reached this point, plant procedures direct the performance of specific steps to ensure that the plant is placed in a hot standby condition that can transition to cold shutdown. Plant procedures specifically direct the actions (i.e., de-energize and manually open CV-MOV-0112C and de-energize and manually close CV-MOV-0112B) to be performed. The operator has two hours from the time it is determined that the safe shutdown function is challenged to perform these actions to close the valves.

Times to complete key steps toward achieving the required safe shutdown function are based upon a thermal-hydraulic analysis. The time to complete the operator manual actions for restoration of charging is two hours. A Fire Safe Shutdown Manual Action Study including walk downs demonstrates that these actions can be diagnosed and performed in 59 minutes which includes 5 minutes to re-position each valve.

Therefore, the analysis shows adequate time is available to perform the operator manual actions. The analysis demonstrates that the actions are feasible.

#### Criterion 2: Analysis Showing Adequate Time Available to Ensure Reliability

For feasible actions to be performed reliably, there should be adequate time available to account for uncertainties in estimates of the time available and in estimates of how long it takes to diagnose and execute the operator manual actions. Sources of uncertainty that were analyzed are discussed below.

The variations in fire and related plant conditions were analyzed. The fire analysis assumes that all systems and components in the fire area are lost due to fire. The nature of the fire progression and variability in fire detector response time and sensitivities would have insignificant impact on the performance of actions when compared to the relatively long period of time available to perform the action (i.e., two hours).

Factors that cannot be recreated in the walk down demonstrations were analyzed. These include problems with equipment such as locked doors, environmental effects that can not be easily simulated in a demonstration, uncertainty in the travel paths required by the safe shutdown operator, and variability in individual operator performance.

Procedure directs an operator to de-energize and manually open CV-MOV-112C and to de-energize and manually shut CV-MOV-112B from areas located outside of Fire Area 31. The areas where the valves are de-energized and manually operated do not require traversing Fire Area 31. Doors along the pathway are not expected to be locked.

Walk downs demonstrate that these actions can be diagnosed and performed in 59 minutes. The operator started at his normal watch station desk area in the MEAB. The walk through demonstration indicates there is a margin of 61 minutes to perform the actions. This is adequate time to account for the factors considered.

Therefore, the analysis shows that adequate time is available to ensure that the actions can be performed reliably.

### Criterion 3: Environmental Factors

Environmental conditions may affect an individual's mental or physical performance such that they may be degraded. The expected environmental conditions considered both the locations where the operator manual actions are performed and the access route to the area.

Fire Area 31 is separated from other interior fire areas by 3-hour rated fire barriers with the exception of Fire Area 19 which is separated by a 1-1/2 hour rated barrier. Doors and penetrations contained in fire barriers are constructed such that their ratings are compatible with that of the barrier. Ventilation duct penetrations in fire barriers are provided with 3-hour rated dampers.

The actions to de-energize and manually open CV-MOV-0112C and de-energize and manually close CV-MOV-0112B are performed in a readily accessible room (e.g., not locked) which can be reached without traversing through Fire Area 31. The location for de-energizing the valve motor-operators is in a non-radiologically controlled area. The location for manually re-positioning the valves is in a radiologically controlled area (RCA). The RCA is a low dose radiation area per current radiation protection surveys. The RCA is not contaminated, and hence protective clothing is not required. Radiation levels will remain within the limits of 10 CFR 20.

Smoke from a fire in Fire Area 31 should not propagate in a manner that impedes performance of manual actions. Fire Area 31 is the electrical portion of the MEAB and the manual actions to operate the valves are performed in the mechanical portion of the MEAB. The location to de-energize the valve motors is several rooms away in the electrical portion of the MEAB. Fire Area 31 has doors and the majority of smoke is expected to remain within this fire area.

Sufficient emergency lighting exists at the areas where the actions are performed and along the travel routes to the areas. The noise levels at the areas where the actions are performed should not impede the use of normal communications. The areas requiring manual actions have normal ambient temperatures and humidity.

The environmental conditions where the operator manual actions are performed and the access route to the area support the conclusions of the feasibility and reliability analyses. A fire in Fire Area 31 will not impact the manual operations or pathway to the locations of the valves and electrical breakers.

#### Criterion 4: Equipment Functionality and Accessibility

The equipment necessary to achieve and maintain post-fire hot shutdown is accessible, and not damaged or otherwise adversely affected by the fire and its effects.

The STP fire hazards analysis demonstrates that at least one path of safe shutdown equipment is maintained free from a fire in Fire Area 31 with the exception of cabling to charging pump suction motor-operated valves. The operator manual actions to de-energize and open CV-MOV-0112C and to de-energize and close CV-MOV-0112B are performed at locations remote from Fire Area 31.

The equipment to perform the actions remains functional and accessible during the fire to support the conclusions of the feasibility and reliability analyses.

#### Criterion 5: Available Indications

The system or component needs to include diagnostic indications relevant to the desired operator manual actions. These indications include those necessary to detect and diagnose the location of the fire.

Fire Area 31 is served by ionization detection to provide early warning of a fire. The detectors will provide alarms on local fire alarm panels and transmit from the local panels to the fire protection data acquisition system in the main control room.

Once the fire is detected and assessed to challenge the capability to support achieving fire safe shutdown, the operator is directed by plant procedure to perform the actions without further diagnosis of plant conditions. The fire safe shutdown analysis demonstrates that sufficient indication is protected from the effects of fire and exists in the control room to verify that the operator manual actions have the expected result. Extended range nuclear instrument channel 45 and source range nuclear instrument channel 31 remain available for reactivity indication.

Diagnostic instrumentation remains available to support the conclusions of the feasibility and reliability analyses.

#### Criterion 6: Communications

Equipment to support communications among personnel is required to ensure proper performance of operator manual actions. Communication equipment is needed to ensure that any activities requiring coordination are clearly understood and correctly accomplished.

The operator manual actions to de-energize and manually open CV-MOV-0112C and to de-energize and manually close CV-MOV-0112B are sequential actions directed from the control room to the operator at the local station. Communication for performing the operator manual actions is via radios. The radios are routinely carried by plant operators in the performance of their duties. Therefore, any degradation (e.g., weak batteries) would be readily detected during the shift and corrected. Equipment transmission and reception capabilities are adequate and will remain available to facilitate communications between the control room and the locations where the operator manual actions are performed. The operator manual actions are performed in rooms that are not high noise areas and are remote from Fire Area 31.

Communication equipment remains available to support the conclusions of the feasibility and reliability analyses.

#### Criterion 7: Portable Equipment

The use of portable equipment is not required to perform the operator manual actions or to support the feasibility and reliability analyses. Although portable exhaust fans and flexible ductwork are used to remove smoke and heat after the fire is extinguished in Fire Area 31, the performance of the manual actions can be accomplished without removal of the smoke and heat. If the removal of the smoke and heat is in progress before the manual actions outside of Fire Area 31 are accomplished, the pre-planned pathway for removal will not interfere with the performance of the manual actions.

#### Criterion 8: Personnel Protection Equipment

Personnel protection equipment, such as protective clothing and self-containing breathing apparatus, is not required to perform the operator manual actions or to gain access to the location where the actions are performed. Therefore, the conclusions of the feasibility and reliability analyses are supported.

#### Criterion 9: Procedures and Training

Written procedures should cover the operator manual actions that are required to be performed to achieve and maintain hot shutdown. The operator should receive training on these manual actions.

Fires in areas of the plant outside of the control room are addressed by procedure. The procedure includes steps for addressing a fire in Fire Area 31. The plant operations staff has been trained on the use of this plant procedure through the licensed operator re-qualification program. The operator manual actions are straightforward. Once the fire condition is diagnosed as challenging the ability to maintain a safe shutdown function, the actions are performed in sequence without further diagnosis.

Written procedures and training support the conclusions of the feasibility and reliability analyses.

#### Criterion 10: Staffing

Adequate numbers of qualified personnel should be on site at all times so that hot shutdown conditions can be achieved and maintained in the event of a fire. Individuals needed to perform the operator manual actions should not have collateral duties, such as fire fighting or control room operation, during the evolution of the fire.

Operations shift staffing is organized to specifically designate the safe shutdown watches. The safe shutdown watches are responsible to execute the safe shutdown fire response procedure steps, including those steps performed outside the control room. The safe shutdown watches are not assigned fire brigade fire fighting responsibilities. The safe shutdown watches remain qualified through the operator re-qualification program.

Plant staffing remains adequate to support the conclusions of the feasibility and reliability analyses.

#### Criterion 11: Demonstrations

A demonstration with at least one randomly selected but established crew should be performed to provide a degree of overall assurance that the operator manual actions can be performed within the analyzed time available.

The demonstration by a crew member, selected at random, indicates that the operator manual actions to de-energize and manually open CV-MOV-0112C and to de-energize and manually close CV-MOV-0112B can be performed in time to support the conclusions of the Fire Safe Shutdown Manual Action Study. There is adequate margin to account for factors that cannot be covered in the demonstration to assure that the actions can be reliably performed.

The STP fire response procedural strategy is constructed such that the procedure steps are performed prior to entering other Emergency Operating Procedures so that operators are not required to handle multiple procedures to achieve safe shutdown conditions in response to a fire. The actions are straightforward (e.g., conducive environmental conditions, no special equipment required) so that it is not necessary for all operating crews to demonstrate performance of the action. The actions were demonstrated by a crew member selected at random. The performance by the crew member was independently validated. Training and practice on safe shutdown fire

response procedures is done at a frequency consistent with that established in existing training programs on abnormal procedures in compliance with 10 CFR 50.120.

The operator manual actions have been adequately demonstrated that they can be performed within the time required to meet safe shutdown requirements to support the conclusions of the feasibility and reliability analyses.

### **Defense-in-depth analysis**

The concept of defense-in-depth, described in 10 CFR 50, Appendix R, is applied to fire protection in fire areas important to safety, with the following three objectives:

1. Prevent fires from starting;
2. Detect rapidly, control, and extinguish promptly those fires that do occur; and,
3. Provide protection of structures, systems and components (SSC) important to safety so that a fire that is not promptly extinguished by fire suppression activities will not prevent the safe shutdown of the plant.

### Fire Prevention

The objective of fire prevention is not affected by the use of an operator manual action. The area of the plant where the fire could occur that would require the manual actions to be performed has combustible loading allowances and limitations on hot work or other activities that are similar to other plant areas.

### Detect, Control and Extinguish Fires

This objective is also not affected by use of an operator manual action. Fire Area 31 consists of a single fire zone that is equipped with ionization detectors to provide early warning to facilitate manual fire fighting. Alarm annunciation is provided locally and in the control room. A ceiling mounted area coverage automatic wet pipe sprinkler system is installed through the fire zone to aid in cooling and controlling the fire until manual suppression can be achieved. In the event that fire did occur in Fire Area 31, fire suppression equipment (hose stations and fire extinguishers) are available to the fire brigade.

### Protect SSC so that Fires Will Not Prevent Safe Shutdown

Existing fire protection regulations rely on passive fire protection through fire barriers that, when operable, have a high level of reliability to prevent the damage to redundant trains required for safe shutdown. The redundant cables are not separated by a rated fire barrier. The redundant cables for the VCT outlet valves to the charging pump have greater than 20 foot separation but intervening combustibles exist in the form of cabling in other trays. The redundant cables for the

RWST valves have the same type of intervening combustibles but less than 20 feet of separation. There are no ignition sources in the fire area other than the cabling.

## **Conclusion**

The operator manual actions to de-energize and manually open CV-MOV-0112C and de-energize and manually close CV-MOV-0112B need to be performed within 2 hours to support the safe shutdown analysis. It has been demonstrated that the manual actions can be performed with sufficient time margin to account for uncertainties. The actions are straightforward and do not create any significant concerns. Analysis of specific criteria discussed above demonstrates that the operator manual actions are feasible and reliable.

Operator manual actions which meet the criteria of NUREG-1852, alone, do not necessarily ensure that adequate safety is provided to ensure that the intent of the regulation is met. However, STP does not rely solely on the proposed manual actions in Fire Area 31 to demonstrate that the ability to achieve and maintain safe shutdown in the event of a fire is not adversely affected. In Fire Area 31, there is moderate combustible loading between the redundant cables. Area-wide detection and area-wide suppression provides engineered defense-in-depth.

The proposed feasible and reliable manual actions in conjunction with the engineered defense-in-depth features provide an equivalent level of protection in lieu of fully meeting the III.G.2 circuit separation requirements. Therefore, the proposed change to the Fire Protection Program provides reasonable assurance that the plant can be safely shutdown in the event of a fire in Fire Area 31.

## **4.0 Regulatory Evaluation**

### **4.1 Applicable Regulatory Requirements/Criteria**

Section III.G.2 of Appendix R requires that cables whose fire damage could prevent the operation or cause mal-operation of safe shutdown functions be physically protected from fire damage by one of three methods. The use of operator manual actions to mitigate the effects of fire damage to these cables is not listed in the regulation as an acceptable method for satisfying this requirement.

The STPNOC License Condition 2.E specifies, "STPNOC shall implement and maintain in effect all provisions of the approved fire protection program as described in the ... Fire Hazards Analysis Report." The STP Fire Hazards Analysis Report (FHAR) provides an analysis of how the safe shutdown strategy for each fire area meets regulatory requirements.

STP was licensed after January 1, 1979 and is not required to meet Appendix R. The approved STP FPP was reviewed by the NRC and is documented in the STP FHAR.

Regarding the cable and train separation protection requirements of Section III.G.2 of Appendix R, the STP FHAR states:

- (a) Cable and active equipment and associated non-safety circuits of redundant trains are separated by fire barriers having a 3-hour rating where practical.
- (b) Where these 3-hour rated fire barriers have not been provided, STP has provided alternate protection as allowed by Appendix R, Section III.G.2.b and c.
  - (i) Section III.G.2.b allows for separation of redundant trains by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.
  - (ii) Section III.G.2.c allows for separation of redundant trains by a fire barrier having a 1-hour rating if fire detectors and an automatic fire suppression system are installed in the fire area.

Deviations from the requirements described in the FHAR were reviewed and approved by the NRC and are documented in the FHAR. The operator manual actions proposed in this amendment request have not been previously reviewed by the NRC.

Regulatory expectations with Appendix R, Section III.G.2 operator manual actions are provided in NRC Regulatory Issue Summary (RIS) 2006-10 (Reference 6.3) and Enforcement Guidance Memorandum 07-004. This license amendment request is a corrective action option for non-compliances involving operator manual actions.

NUREG-1852 provides the latest published technical guidance to assist in determining that operator manual actions are feasible and can be performed reliably in response to fire.

#### **4.2 Precedent**

NRC RIS 2006-10 discusses that operator manual actions in lieu of meeting circuit separation criteria have been previously approved as exemption requests for plants licensed to operate prior to January 1, 1979 (i.e., plants subjected to the requirements of 10 CFR 50, Appendix R). RIS 2006-10 goes on further to state that plants licensed to operate on or after January 1, 1979 (post-1979 licensees) are not required to meet the requirements of paragraph III.G.2 and use of manual operator actions are approved by a staff decision in an NRC Safety Evaluation Report, either as the result of original licensing or via a license amendment.

Amendment No. 186 to STP Unit 1 Facility Operating License No. NPF-76 and Amendment No. 173 to STP Unit 2 Facility Operating License No. NPF-80 (Reference 6.4) approved the use of operator manual actions in lieu of meeting protection requirements of circuit separation.

### 4.3 Significant Hazards Consideration

STPNOC has evaluated whether or not a significant hazards consideration is involved with the proposed amendments by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The design functions of structures, systems and component are not impacted by the proposed change. The proposed change involves operator manual actions in response to a fire and will not initiate an event. The proposed actions do not increase the probability of occurrence of a fire or any other accident previously evaluated.

The proposed actions are feasible and reliable and demonstrate that the unit can be safely shutdown in the event of a fire. No significant consequences result from the performance of the proposed actions.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The design functions of structures, systems and component are not impacted by the proposed amendment. The proposed change involves operator manual actions in response to a fire. They do not involve new failure mechanisms or malfunctions that can initiate a new accident.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

Adequate time is available to perform the proposed operator manual actions to account for uncertainties in estimates of the time available and in estimates of how long it takes to diagnose and execute the actions. The actions are straightforward and do not create any significant concerns. The actions have been verified that they can be performed through demonstration and they are proceduralized. The proposed actions are feasible and reliable and demonstrate that the unit can be safely shutdown in the event of a fire.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, STPNOC concludes that the proposed amendments do not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

#### **4.4 Conclusion**

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission’s regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

#### **5.0 Environmental Consideration**

STPNOC has reviewed the proposed amendment and determined that it does not involve (1) a significant hazards consideration, (2) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (3) a significant increase in the individual or cumulative occupational exposure. Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

#### **6.0 References**

- 6.1 Enforcement Guidance Memorandum 07-004, “Enforcement Discretion for Post-Fire Manual Actions Used as Compensatory Measures for Fire Induced Circuit Failures,” June 30, 2007 (ML071830345)
- 6.2 NUREG-1852, “Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire,” USNRC, October 2007 (ML073020676)
- 6.3 NRC Regulatory Issue Summary 2006-10: “Regulatory Expectations with Appendix R Paragraph III.G.2 Operator Manual Actions,” dated June 30, 2006 (ML061650389)
- 6.4 South Texas Project, Units 1 and 2 – Issuance of Amendments RE: Deviation from Fire Protection Program Requirements (TAC Nos. MD6694 and MD6695), dated September 16, 2008 (ML082280465 and ML082280472)

# Enclosure, Attachment 1

Proposed Change to

South Texas Project, Unit 1,

Operating License No. NPF-76

(One Page)

- (4) The facility has been granted a schedular exemption from Section 50.71 (e)(3)(i) of 10 CFR 50 to extend the date for submittal of the updated Final Safety Analysis Report to no later than one year after the date of issuance of a low power license for the South Texas Project, Unit 2. This exemption is effective until August 1990. The staff's environmental assessment was published on December 16, 1987 (52 FR 47805).

E. Fire Protection

STPNOC shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report through Amendment No. 55 and the Fire Hazards Analysis Report through Amendment No. ~~18xx~~, and submittals dated April 29, May 7, 8 and 29, June 11, 25 and 26, 1987, and as approved in the SER (NUREG-0781) dated April 1986 and its Supplements, subject to the following provision:

STPNOC may make changes to the approved fire protection program without prior approval of the Commission, only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

F. Physical Security

STPNOC shall fully implement and maintain in effect all provisions of the physical security, training and qualification, and safeguards contingency plans previously approved by the Commission and all amendments and revisions to such plans made pursuant to the authority under 10 CFR 50.90 and 10 CFR 50.54(p).

The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822), and the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "South Texas Project Electric Generating Station Security, Training and Qualification, and Safeguards Contingency Plan, Revision 2" submitted by letters dated May 17 and 18, 2006.

G. Not Used

H. Financial Protection

The Owners shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims.

Amendment No.

## Enclosure, Attachment 2

Proposed Change to

South Texas Project, Unit 2,

Operating License No. NPF-80

(One Page)

- (2) The facility was previously granted exemption from the criticality monitoring requirements of 10 CFR 70.24 (See Materials License No. SNM-1983 dated August 30, 1988 and Section III.E. of the SER dated August 30, 1988). The South Texas Project Unit 2 is hereby exempted from the criticality monitoring provisions of 10 CFR 70.24 as applied to fuel assemblies held under this license.
- (3) The facility requires a temporary exemption from the schedular requirements of the decommissioning planning rule, 10 CFR 50.33(k) and 10 CFR 50.75. The justification for this exemption is contained in Section 22.2 of Supplement 6 to the Safety Evaluation Report. The staff's environmental assessment was published on December 16, 1988 (53 FR 50604). Therefore, pursuant to 10 CFR 50.12(a)(1), 50.12(a)(2)(ii) and 50.12(a)(2)(v), the South Texas Project, Unit 2 is hereby granted a temporary exemption from the schedular requirements of 10CFR 50.33(k) and 10 CFR 50.75 and is required to submit the decommissioning plan for both South Texas Project, Units 1 and 2 on or before July 26, 1990.

E. Fire Protection

STPNOC shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report through Amendment No. 62 and the Fire Hazards Analysis Report through Amendment No. ~~18xx~~, and submittals dated April 29, May 7, 8 and 29, June 11, 25, and 26, 1987, and as approved in the SER (NUREG-0781) dated April 1986 and its Supplements, subject to the following provisions:

STPNOC may make changes to the approved fire protection program without prior approval of the Commission, only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

F. Physical Security

The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822), and the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contain Safeguards Information protected under 10 CFR 73.21, is entitled: "South Texas Project Electric Generating Station Security, Training and Qualification, and Safeguards Contingency Plan, Revision 2" submitted by letters dated May 17 and 18, 2006.

G. Not Used

Amendment No.

## **Enclosure, Attachment 3**

### **Annotated Fire Hazards Analysis Report Page**

**Page 3.2-159**

**Page 3.2-160**

**Page 3.2-160a**

## STP FHAR

Fire Area: 31

No changes on this page

Reference Figures: 3-14 through 3-18

Safe-shutdown Equipment or Cables: Yes

A. Area Description

Fire Area 31 consists of Fire Zone Z047 which is the Train B cable spreading/power cable room and the cable room on elevation 60' of the Electrical portion of the MEAB. The cable spreading room is accessible through two entrances from Fire Area 4 and one through Fire Area 19, a stairwell. The cable room portion of Fire Zone Z047 is accessible from Fire Area 4.

Fire Area 31 is separated from other interior fire areas by 3-hour rated fire barriers with the exception of Fire Area 19 which is separated by a 1-1/2-hour rated boundary. The north exterior wall of the MEAB forms a portion of the area boundary. This wall is provided with 3-hour rated penetration seals from column A/20 to column E/20 which is within 50' of the ESF auxiliary transformers. Currently, no penetrations exist in the balance of this exterior wall and no significant combustibles are present with 50' exterior to this portion of the wall.

Doors and penetrations contained in fire barriers are constructed such that their ratings are compatible with that of the barrier. Ventilation duct penetrations in fire barriers are provided with 3-hour rated dampers installed in accordance with the manufacturer's instructions. Smoke and heat removal are accomplished with portable exhaust fans and flexible ductwork. Drains are provided for fire water removal.

B. Equipment Summary and Protective Features

See fire zone table 31-1.

C. Protection Requirements

Ionization detectors are provided to provide early warning for manual fire fighting. A ceiling mounted area coverage automatic wet pipe sprinkler system is installed throughout Fire Zone Z047 to aid in cooling and controlling the fire until manual suppression can be achieved.

The sprinkler system is hydraulically designed to provide a density of 0.3 gpm/sq. ft. over any 3,000 sq. ft. of floor area.

## STP FHAR

D. Redundant Safe Shutdown Assessment

Mitigation of fire impacts on the following components will provide a safe-shutdown path per Appendix R requirements:

SSD

- Affected Safety Injection Valves
- Affected ESF Components
- Affected CVCS Valves

No changes on this page
-------------------------

SOE

- Affected CCW Valves

HLP

- Affected Pressurizer PORV and Block Valve

Specifics of the mitigation are listed in report No. 5A019MFP001 titled "Post Fire Operator Actions and Equipment Protection Requirements".

E. Conclusion

The consequences of a fire in Area 31 will be mitigated by manual compensating operator action. Safe shutdown of the plant can be achieved following a fire in this area.

F. Deviations from BTP APCSB 9.5-1 Appendix A and/or 10CFR50 Appendix R with Respective Justifications

## 1. Appendix A:D.1.j

Deviation

Exterior walls and/or ceilings are non-rated.

Justification

See FHAR 4.2, Comparison to Appendix A of APCSB 9.5-1, Section D.1.j.

## STP FHAR

## 2. Appendix A:F.3.b

Deviation

Three foot by eight foot aisle separation is not provided between all tray stacks in the cable spreading room.

Justification

See FHAR 4.2, Comparison to Appendix A of APCS 9.5-1, Section F.3.b.

**3. Appendix R, III.G.2**Deviation

**Operator manual actions are taken to de-energize and manually open charging pump suction valve CV-MOV-0112C (Train C) to align the charging pumps suction to the Refueling Water Storage Tank (RWST) and to de-energize and manually close the Volume Control Tank (VCT) outlet valve CV-MOV-0112B (Train B) to the charging pumps suction in lieu of meeting circuit protection separation requirements to ensure that boron concentration is adequate upon entry into MODE 4 (hot shutdown) for achieving and maintaining safe shutdown.**

Justification

**License Amendment No. xxx for Unit 1 and License Amendment No. xxx for Unit 2**