



# Pre-licensing Meeting for License Amendment Request to Revise the Fire Protection Program at the South Texas Project

*October 11, 2012*



# Agenda

- Introductions
- Purpose
- Background
- Fire Protection Program Change
- Bases of Change
- Additional Information to be Developed
- Summary
- Questions



## South Texas Project (STP) Representatives

- Mike Murray – Manager, Regulatory Affairs
- Ken Taplett – Licensing Engineer
- Frank Cox – Fire Safe Shutdown Engineer
- Charles Albury – Thermal-Hydraulic Analysis Supervisor
- Donald Rohan – Operations Procedure Writer
  - Responsible for plant off-normal procedures in response to fire
  - Previously licensed as a Senior Reactor Operator



# Purpose

Describe the STP Nuclear Operating Company proposal to revise the South Texas Project, Units 1 and 2, Fire Protection Program



# Background

- The change involves revising the STP Licensing Basis for meeting the alternative shutdown capability.
- STP is required by their licensing basis to meet the requirements of 10 CFR 50, Appendix R, Section III.L, *Alternative and dedicated shutdown capability*.
- STP is currently relying on compensatory measures to meet their licensing basis.
- STP recently withdrew a license amendment request because insufficient information was provided to the NRC staff to approve the amendment request.



# Fire Protection Program Change

- In order to meet the regulatory requirements of Appendix R, Section III.L, the proposed amendment request:
  - Credits the performance of operator actions in the control room, in addition to tripping the reactor, prior to evacuation due to a fire.
  - Credit the automatic trip of the main turbine in response to a reactor trip.



# Bases of Change

- Regulatory Guide 1.189, *Fire Protection for Nuclear Power Plants*, usually credits a reactor trip prior to control room evacuation.

In order to credit additional control room actions:

- The licensee must demonstrate the actions can be performed
  - The licensee should ensure that such actions cannot be negated by subsequent spurious actuation signals resulting from the postulated fire.
  - The licensee should consider one spurious actuation to occur before control of the plant is achieved through the alternative or dedicated shutdown system.
- Both (1) the loss of offsite power and (2) maintaining offsite power scenarios should be considered.
  - Automatic functions of circuits in the control room fire should not be credited if the function would mitigate the consequences.



## Bases for Change (continued)

- The feasibility and reliability of the additional operator actions have been demonstrated.
- A single spurious actuation analysis demonstrates that no single spurious actuation could negate a control room action in manner that Appendix R, Section III.L requirements are not met.
- The automatic turbine trip analysis provides reasonable assurance that the turbine will trip when actuated by a reactor trip and would not subsequently be negated by a fire-induce circuit failure.





## Bases for Change (continued)

- Defense-in-Depth Analysis addresses the following:
  - Fire Prevention Measures
  - Capability to detect, control and extinguish fires
  - Protection of structures, systems and components so that fires will not prevent safe shutdown
  - Safety margin analyses
    - Analysis for those actions with small time margins shows the plant can achieve safe shutdown conditions when considering instrument uncertainties.
    - Analysis to justify plant safe shutdown is achievable in event all the requested actions are not completed.



# Additional Information to be Developed

Address the following scenario:

- Spurious actuation of pressurizer power-operated relief valve (PORV), and
- Pressurizer PORV block valve cannot be closed due to fire-induced circuit failure, and
- No actions credited in the control room other than manual reactor trip and automatic turbine trip, and
- Loss of offsite power.



# Additional Information to be Developed

- Scenario will address the following:
  - Ability to maintain and/or restore natural circulation
  - Impact on sub-cooling margin
  - Impact on fuel integrity



## Additional Information to be Developed

- Address the impact on reactor vessel water level for a spuriously opened steam generator PORV.
- Address the impact of a control room fire on the initiation of safety injection.



# Summary

- License Amendment Request will be resubmitted
  - Request approval of same operator actions and automatic turbine trip as the previously withdrawn request.
  - Bases for approval are the actions can be performed and that the actions cannot be negated by subsequent spurious actuation signals resulting from the postulated fire.
  - Automatic turbine trip relies on success of reactor trip.
  - Sufficient defense-in-depth/safety margin exists to demonstrate safe shutdown conditions can be achieved based on analyses previously performed and additional information to be developed.



# Questions?