

**Enclosure 6**

**APP-GW-GLY-091 Revision 0  
MCR Heat Up – Closed Session ACRS Presentation  
Non-Proprietary**

**(11 pages including cover page)**

This is the Non-Proprietary version of the document.



# Main Control Room Heat Up

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## Reason for the Change

### Background:

- The **AP1000** main control room (MCR) air temperature must remain at or below the defined limits during operation of the main control room emergency habitability system (VES)

### Problem Statement:

- Throughout the design evolution of the MCR, the size and quantity of equipment have increased, raising the total MCR heat load. These increases result in a MCR temperature response exceeding the current licensing basis limit and equipment qualification conditions
- A new more limiting transient where non-safety power is provided to non-safety equipment but VBS is NOT available was identified

## Description of change

### **Two stage automatic load shed**

- This automatic operation is proposed to maintain the required MCR environmental conditions
  - Only select non-safety loads are de-energized, with no impact to the minimum inventory of displays / controls provided by the primary dedicated safety panel
  - No impact to the plant controls and indication of plant parameters at operator workstations
  - Load shed circuitry is safety related

### **Additional Surveillance Requirements**

- Limit initial conditions for adjacent rooms in the updated MCR Heat Up analysis
- Limit moisture content for air in the VES storage tanks

### **Human Factors Considerations**

- Analysis supports unlimited operator stay time at a WBGT Index of 90°F
  - Acceptance criterion is from NUREG-0700
  - Same limit is met for post-72 hour ancillary fan operation



# Controls and Displays Normally Available

a,c

# Controls and Displays Available after Stage 1 Load Shed



a,c

# Controls and Displays Available after Stage 2 Load Shed

a,c



# Comparison of Remaining Equipment to Required Equipment

a,c



## Summary of Analysis Required to Support Change

- Updated GOTHIC Model
  - MCR Model was refined to show greater resolution
  - Heat loads distributed to reflect as-designed layout
- Surveillance requirements verify assumptions are bounded
- Extended Post-72 hour model based on described VBS operation

# Summary of Analysis Required to Support Change

a,c

