

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

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