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US Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555-0001

Subject: GEH Proposed Resolution of Item # 10 – Gas Accumulation Locations – of NRC Suggested U.S. Advanced Boiling Water Reactor Design Changes - Supplemental Response

References:

1) Letter from Jerald G. Head, GEH, to USNRC, Subject: GEH Proposed Resolution of Item # 10 – Gas Accumulation Locations - of NRC Suggested U.S. Advanced Boiling Water Reactor Design Changes – Supplemental Response, September 21, 2015 (MFN 15-051, Supplement 1).

In Reference 1, GEH had supplied supplemental information to address the subject item. In a public teleconference held between the NRC and GEH on June 14, 2018, additional information, in the form of a proposed COL action item, was discussed that would provide additional clarity needed by the staff.

Please find attached GEH's supplemental information to our Item # 10 response transmitted in Reference 1. Enclosure 1 contains the updated DCD markups associated with this supplemental response.

Sincerely,

Jerald G. Head
Senior Vice President, Regulatory Affairs

Enclosures:

1) GEH Supplemental Response to Item # 10 – Gas Accumulation Locations

cc: Adrian Muniz, NRC
Michael A. Arcaro, GEH
James A. Beard, GEH
David H. Hinds, GEH
Douglas McDonald, GEH
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# Enclosure 1

# M180128

# GEH Supplemental Response to Item # 10 – Gas Accumulation Locations

# ABWR DCD DRAFT Revision 7 Markups

### 5.4.14.2 Description

The use and the location of rigid-type supports, variable or constant spring-type supports, snubbers, and anchors or guides are to be determined by flexibility and seismic/dynamic stress analyses. Component support elements are manufacturer standard items. Direct weldment to thin wall pipe is to be avoided where possible.

### 5.4.14.3 Safety Evaluation

The flexibility and seismic/dynamic analyses to be performed for the design of adequate component support systems include all temporary and transient loading conditions expected by each component. Provisions are to be made to provide spring-type supports for the initial dead weight loading due to hydrostatic testing of steam systems to prevent damage to this type support.

### 5.4.14.4 Inspection and Testing

After completion of the installation of a support system, all hangers and snubbers are to be visually examined to assure that they are in correct adjustment to their cold setting position. Upon hot startup operations (Subsection 3.9.2.1.2), thermal growth will be observed to confirm that spring-type hangers will function properly between their hot and cold setting positions. Final adjustment capability is provided on all hangers and snubbers. Weld inspections and standards are to be in accordance with ASME Code Section III. Welder qualifications and welding procedures are in accordance with ASME Code Section IX and NF-4300 of ASME Code Section III.

## 5.4.15 COL License Information

### 5.4.15.1 Testing of Main Steam Isolation Valves

COL applicants will test the steam isolation valves in actual operating conditions (6.87 MPaG, 286°C).

### 5.4.15.2 Analysis of Non-Design Basis Loss of AC Coping Capability

#### 5.4.15.2.1 Analysis to Demonstrate the Facility Has 8 Hour Non-Design SBO Capability

COL applicants shall provide the analyses for the as-built facility to demonstrate that the facility has the 8-hour non-design basis SBO capability discussed in Subsection 5.4.6. These analyses will utilize realistic, best-estimate assumptions and analysis methods. The analyses will consider

- ability of required equipment to survive high temperature conditions in the region of the Reactor Building housing the RCIC equipment.

These evaluations will be documented in an RCIC Eight Hour Station Blackout Capability report.

#### 5.4.15.2.2 Analysis to Demonstrate That the DC Batteries and SRV/ADS Pneumatics Have Sufficient Capacity

COL applicants shall provide the analyses for the as-built facility to demonstrate that the DC batteries and SRV/ADS pneumatics have sufficient capacity to open and maintain open SRVs necessary to depressurize the reactor coolant system (RCS) following RCIC failure due to battery failure (at about 8 hours) so that the ACIWA can inject to the core.

### 5.4.15.3 ACIWA Flow Reduction

The COL applicant shall perform an analysis to determine if a flow reduction device is required as specified in Subsection 5.4.7.1.1.10.3.

### 5.4.15.4 RIP Installation and Verification During Maintenance

The COL applicant shall develop procedures to ensure appropriate installation and verification of motor bottom cover, as well as visual monitoring of the potential leakage during impeller-shaft and maintenance plug removal have been considered. In addition, the COL applicant shall develop a contingency plan (e.g., close personnel access hatch, safety injection) which assures that core and spent fuel cooling can be provided in the event that a loss of coolant occurs during RIP maintenance.

### 5.4.15.5 Program for Surveillance and Venting of Accumulated Gases

The COL applicant shall develop periodic (monthly) surveillance procedures to ensure the Main Steam Equalizing Valve and the Main Steam Drain Valve are opened for short durations to vent any potential accumulation of hydrogen in the main steam vent and equalizing lines.

## 5.4.16 References

5.4-1 "Design and Performance of General Electric Boiling Water Reactor Main Steamline Isolation Valves", General Electric Co., Atomic Power Equipment Department, March 1969 (APED-5750).

The COL applicant shall perform an analysis of the ECCS pump suction piping configuration to determine potential gas accumulation locations and gas intrusion mechanisms.

In addition, the COL applicant shall address the potential for gas accumulation in ECCS on a programmatic basis that includes verification of adequate vents and other design features to prevent or mitigate gas accumulation in the pump suction line.