

ENCLOSURE 2

MFN 13-088

GEH Safety Communications Presentation

Non-Proprietary Information-Class I (Public)

IMPORTANT NOTICE

Enclosure 2 is a non-proprietary version of the GEH Safety Communications Presentation from Enclosure 1, which has the proprietary information removed. Portions that have been removed are indicated by open and closed double brackets as shown here [[]].

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GEH Safety Communications (SC) 09-01 R0, 09-03 R1, 11-07 R0, 12-20 R0 Related to Acoustic Load (AC) & Annulus Pressurization (AP) Load Background

GE-Hitachi Nuclear Energy Americas, LLC (GEH)

November 6, 2013



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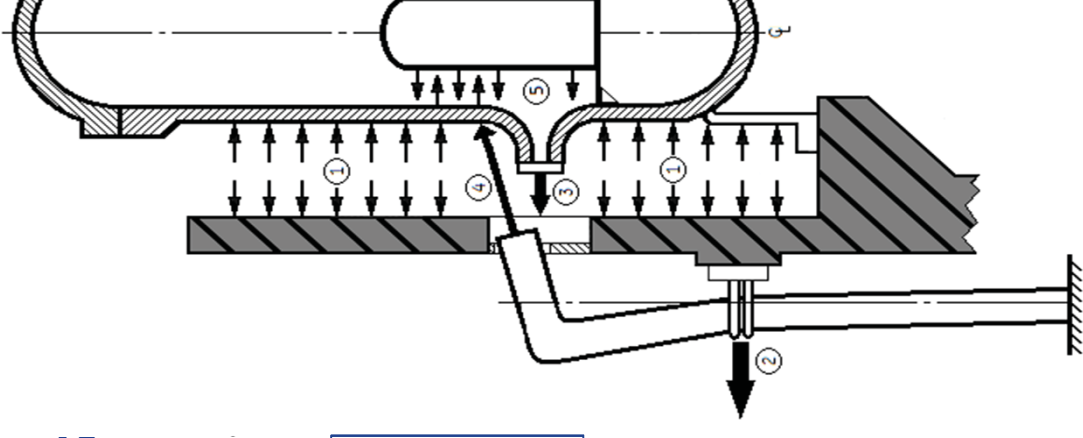
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Design Basis AC and AP Loads

Two asymmetric pressure changes for two different annulus regions as a result of the break at nozzles

Collectively referred to as "AP Loads" (NEDO-24548)

- (1) Annulus Pressurization
- (2) Pipe Whip Restraint loads
- (3) Jet Reaction loads
- (4) Jet Impingement Loads
- (5) Acoustic Depressurization (AC Loads, NEDO-24048)



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SC 09-01 Background

SC 09-01: Annulus Pressurization Loads Evaluation

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- Potentially Reportable Condition (PRC) 08-34 as part of GEH Part 21 Program opened in September 2008
- The issue does not create a Substantial Safety Concern, thus was closed as “Not Reportable”
- SC 09-01 Rev.0 issued in June 2009
- Applicability: Plant-specific (“New Loads” Plant)



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SC 09-01 BWROG AP Loads Report

- BWROG sponsored study to address plant design basis
 - Leverage AP Loads analysis results from recent plant performance projects to quantify impact
 - Recommend scope for future analyses
- 5 projects reviewed (EPU, MELLLA, FFWTR)
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- BWROG Report NEDC-33637P issued in May 2013



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SC 09-03 R1 Background

SC 09-03: Shroud Screening Criteria Reports

- AC and AP loads may have not been considered in shroud screening criteria reports and GEH shroud repair evaluations
- Allowable flaw lengths for shroud welds provided in shroud screening criteria reports may be non-conservative for affected plants that have no GEH shroud repair
- PRC 08-18 as part of GEH Part 21 Program opened in June 2008
- The issue does not create a Substantial Safety Concern, thus was closed as “Not Reportable”
- SC 09-03 Rev.1 issued in June 2013
- Applicability: Plant-specific



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SC 09-03 R1 – Allowable Flaw Length Change



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SC 11-07 Background

SC 11-07: Impact of Inertial Loading and Potential New Load Combination From Recirculation Suction Line Break Acoustic Loads

- Question arose during reviews of SC 09-03 (AC load) and SC 09-01 (AP load) – is there an overlap or interaction between two loads on core shroud?
- PRC 10-43 for AC direct loading as part of GEH Part 21 Program opened in May 2010
- Scope expanded to AC secondary/inertial loading (indirect) on other structures (PRCs 11-20 and 11-26 opened in March and April 2011)

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- The issue does not create a Substantial Safety Concern, thus was closed as “Not Reportable”
- SC 11-07 Rev.0 issued in June 2013
- Applicability: None (AC+AP and AC inertial load are NOT BWR design basis)
- The new load evaluation is pending an approval by BWROG



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SC 11-07 Part 21 Evaluation/Conclusion

-]] are pending an approval by BWROG to develop a generic solution
- Proposed Ad Hoc for finite opening break approved by BWROG General Meeting in October 2013
- BWROG Ad Hoc Meeting being planned in November 2013



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SC 12-20 Background

SC 12-20: Error in Method of Characteristics Boundary Conditions Affecting Acoustic Loads Analyses

- TRACG break flow used as boundary condition into Method of Characteristics (MOC) code for acoustic load due to recirculation suction line break. A factor of 2.0 missing from MOC program, causing acoustic load on jet pump and shroud under-prediction
- PRC 12-39 as part of GEH Part 21 Program opened in June 2012
- The issue does not create a Substantial Safety Concern, thus was closed as “Not Reportable”
- SC 12-20 Rev.0 issued in June 2013
- Applicability: Plant-specific



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SC 12-20 Issue – Break Flow Model



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SC 12-20 Affected Components & Analyses

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GEH Future Actions for Resolving SCs Related to AC and AP Loads

GE-Hitachi Nuclear Energy Americas, LLC (GEH)
November 6, 2013



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GEH Future Actions

Path Forward:

- **Finite Opening Break vs. Instantaneous Break**
- **Discussion of Potential Resolution**
- **High Level Flow Chart**



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Finite Opening Break vs. Instantaneous Break

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“No substantial safety hazard” determination for PRC closure was based on use of finite break opening (realistic assumption) for AC-related SCs



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**Finite Opening
Break (has been
used for AP design
calculation in
MFN 178-78 &
NEDO-24548)**



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AC Finite Opening vs. Instantaneous Breaks



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Potential Resolution Path

Development of technical basis for reduction in AC & AP loads using a finite break opening time

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Potential Resolution Path–Key Parameters

Key Items to Be Considered:

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Potential Resolution Path - Key Results Comparison

- Key Results Comparison (Dynamic Response on Components, Piping, etc.)

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Potential Resolution Path - High Level Flow Chart



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