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MFN 06-433 Supplement 1

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U.S. Nuclear Regulatory Commission
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Subject: **Response to Portion of NRC Request for Additional Information
Letter No. 79 - Containment Systems - RAI Number 6.2-135 S01**

Enclosure 1 contains GEH's response to the subject NRC RAI originally transmitted via the Reference 1 letter and supplemented by an NRC request for clarification.

If you have any questions or require additional information, please contact me.

Sincerely,



James C. Kinsey
Project Manager, ESBWR Licensing

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Reference:

1. MFN 06-393, Letter from U.S. Nuclear Regulatory Commission to David Hines, *Request for Additional Information Letter No. 79 Related to ESBWR Design Certification Application*, October 11, 2006

Enclosure:

1. MFN 06-433 Supplement 1 - Response to Portion of NRC Request for Additional Information Letter No. 79 - Related to ESBWR Design Certification Application - Containment Systems - RAI Number 6.2-135 S01

cc: AE Cabbage USNRC (with enclosures)
BE Brown GEH/Wilmington (with enclosures)
GB Stramback GEH/San Jose (with enclosures)
eDRF 0000-0070-2780

Enclosure 1

MFN 06-433 Supplement 1

Response to Portion of NRC Request for

Additional Information Letter No. 79

Related to ESBWR Design Certification Application

Containment Systems

RAI Number 6.2-135 S01

NRC RAI 6.2-135:

DCD Tier 2, Revision 1, Section 6.2.4.3.1.1, "Influent Lines," discusses the Standby Liquid Control System Line. It seems to say that the outboard CIVs are a check valve in series with two parallel squib valves. However, Table 6.2-32 indicates that the only outboard CIV is a simple check valve. GDC 55 specifically prohibits the use of a simple check valve outside containment as a CIV.

Provide justification for this design or bring the design into compliance with GDC 55.

GEH Response:

The description of the Standby Liquid Control system compliance with GDC 55 is contained in Tier 2, Revision 1, Subsection 6.2.4.3.1.1 and Table 6.2-13, and is correct as written.

Table 6.2-32 will be modified accordingly to add the two parallel squib valves in each influent line, as shown in the following markup.

NRC RAI 6.2-135 S01:

RAI 6.2-135 addressed a discrepancy between the DCD text and tables. In GE's response, MFN 06-433, GE stated, "Table 6.2-32 will be modified accordingly to add the two parallel squib valves in each influent line, as shown in the following markup." Specifically, they were to revise DCD, Tier 2, Table 6.2-32 to show that there was a check valve in series with two parallel squib valves, as the CIVs outside containment for the Standby Liquid Control System influent lines.

Staff reviewed DCD, Tier 2, Revision 3, Table 6.2-32, and it appears that this proposed revision was not incorporated. Revise Table 6.2-32 as proposed in the original response to RAI 6.2-135.

GEH Response:

DCD Tier 2, Table 6.2-13 and Table 6.2-32 will be revised to include the two parallel squib valves.

DCD Impact:

DCD Tier 2, Table 6.2-13 and Table 6.2-32 will be revised as shown in the attached markup.

ESBWR

26A6642AT Rev. 04

Design Control Document/Tier 2

Table 6.2-13

Reactor Coolant Pressure Boundary Influent Lines Penetrating Drywell

| Influent Line | Inside Drywell | Outside Drywell |
|---|---|--|
| 1 Feedwater | CV or equivalent | (1) CV/POV combination (1) POV |
| 2 IC Condensate | (1) NMOV or equivalent (1) NOV or equivalent | None (closed loop outside containment) |
| 3 Standby liquid control | CV or equivalent | (1) CV or equivalent (2) SQUIB (parallel) |
| 4 IC Purge Line | (1) CV (1) NOV or equivalent | None (closed loop outside containment) |
| CV = Check valve or equivalent process flow isolated valve POV = Power-operated valve NOV = Nitrogen-operated valve SQUIB = Squib-activated valve, normally closed with solid metal isolation barrier NMOV = Nitrogen motor operated valve or equivalent with fail as-is actuator | | |

Table 6.2-32a

Containment Isolation Valve Information for the Standby Liquid Control System

| Penetration Identification | C41-MPEN-0001 | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| | F005A | F004A | F003A | F003C |
| Valve No. | F005A | F004A | F003A | F003C |
| Applicable Basis | GDC 55 | GDC 55 | GDC 55 | GDC 55 |
| Tier 2 Figure | 9.3-1 | 9.3-1 | 9.3-1 | 9.3-1 |
| ESF | Yes | Yes | Yes | Yes |
| Fluid | Boron/Water | Boron/Water | Boron/Water | Boron/Water |
| Line Size | 80 mm | 80 mm | 80 mm | 80 mm |
| Type C Leakage Test | Yes | Yes | Yes | Yes |
| Pipe Length from Cont. to Outboard Isolation Valve | COL holder to provide |
| Leakage Through Packing(a) | N/A | (a1) | (a1) | (a1) |
| Leakage Past Seat(b) | (b5) | (b5) | (b5) | (b5) |
| Location | Inboard | Outboard | Outboard | Outboard |
| Valve Type | CK, GB, AF | CK, GB, AF | GT* | GT* |
| Operator(c) | N/A | N/A | N/A** | N/A** |
| Normal Position | Closed | Closed | Closed | Closed |
| Shutdown Position | Closed | Closed | Closed | Closed |
| Post-Acc Position | Operable | Operable | Open | Open |
| Power Fail Position | N/A | N/A | As is | As is |
| Cont. Iso. Signal(d) | Q | Q | N/A** | N/A** |
| Primary Actuation | Flow | Flow | N/A** | N/A** |
| Secondary Actuation | N/A | N/A | N/A** | N/A** |
| Closure Time (sec) | N/A | N/A | N/A** | N/A** |
| Power Source | N/A | N/A | N/A** | N/A** |

* The disk/inlet-fitting cap is hermetically sealed and when valve is actuated, the cap is sheared to permanently open the flow path.

**Not relevant to the valve isolation function.

Note: For explanation of codes, see legend on Table 6.2-15.

Table 6.2-32b
Containment Isolation Valve Information for the Standby Liquid Control System

| Penetration Identification | C41-MPEN-0002 | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| | F005B | F004B | F003B | F003D |
| Valve No. | F005B | F004B | F003B | F003D |
| Applicable Basis | GDC 55 | GDC 55 | GDC 55 | GDC 55 |
| Tier 2 Figure | 9.3-1 | 9.3-1 | 9.3-1 | 9.3-1 |
| ESF | Yes | Yes | Yes | Yes |
| Fluid | Boron/Water | Boron/Water | Boron/Water | Boron/Water |
| Line Size | 80 mm | 80 mm | 80 mm | 80 mm |
| Type C Leakage Test | Yes | Yes | Yes | Yes |
| Pipe Length from Cont. to Outboard Isolation Valve | COL holder to provide |
| Leakage Through Packing(a) | N/A | (a1) | (a1) | (a1) |
| Leakage Past Seat(b) | (b5) | (b5) | (b5) | (b5) |
| Location | Inboard | Outboard | Outboard | Outboard |
| Valve Type | CK, GB, AF | CK, GB, AF | GT* | GT* |
| Operator(c) | N/A | N/A | N/A** | N/A** |
| Normal Position | Closed | Closed | Closed | Closed |
| Shutdown Position | Closed | Closed | Closed | Closed |
| Post-Acc Position | Operable | Operable | Open | Open |
| Power Fail Position | N/A | N/A | As is | As is |
| Cont. Iso. Signal(d) | Q | Q | N/A** | N/A** |
| Primary Actuation | Flow | Flow | N/A** | N/A** |
| Secondary Actuation | N/A | N/A | N/A** | N/A** |
| Closure Time (sec) | N/A | N/A | N/A** | N/A** |
| Power Source | N/A | N/A | N/A** | N/A** |

* The disk/inlet-fitting cap is hermetically sealed and when valve is actuated, the cap is sheared to permanently open the flow path.

**Not relevant to the valve isolation function.

Note: For explanation of codes, see legend on Table 6.2-15.