MITSUBISHI HEAVY INDUSTRIES, LTD.
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TOKYO, JAPAN

February 17, 2009

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Attention: Mr. Jeffrey A. Ciocco

Docket No. 52-021
MHI Ref: UAP-HF-09052

Subject: MHI's Revised Response to US-APWR DCD RAI No. 111-932 Revision 0

Reference: 1) "Request for Additional Information No. 111-932 Revision 0, SRP Section: 06.02.01.02, Application Section: MUAP-07031 Report" dated December 3, 2008.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document entitled "Response to Request for Additional Information No. 111-932 Revision 0."

Enclosed is the modified response to a RAI contained within Reference 1. This response is the revision for one of the responses transmitted on January 16th 2009.

As indicated in the enclosed materials, this document contains information that MHI considers proprietary, and therefore should be withheld from public disclosure pursuant to 10 C.F.R. § 2.390 (a)(4) as trade secrets and commercial or financial information which is privileged or confidential. A non-proprietary version of the document is also being submitted with the information identified as proprietary redacted and replaced by the designation "[ ]".

This letter includes a copy of the proprietary version (Enclosure 2), a copy of the non-proprietary version (Enclosure 3), and the Affidavit of Yoshiki Ogata (Enclosure 1) which identifies the reasons MHI respectfully requests that all materials designated as "Proprietary" in Enclosure 2 be withheld from public disclosure pursuant to 10 C.F.R. § 2.390 (a)(4).

Please contact Dr. C. Keith Paulson, Senior Technical Manager, Mitsubishi Nuclear Energy Systems, Inc. if the NRC has questions concerning any aspect of the submittals. His contact information is below.

Sincerely,

Y. Ogata

Yoshiki Ogata
General Manager- APWR Promoting Department
Mitsubishi Heavy Industries, LTD.

D081
NRO

Enclosures:

1 - Affidavit of Yoshiki Ogata

2 - Response to Request for Additional Information No. 111-932 Revision 0 (proprietary)

3 - Response to Request for Additional Information No. 111-932 Revision 0 (non-proprietary)

CC: J. A. Ciocco
C. K. Paulson

Contact Information
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ENCLOSURE 1

Docket No. 52-021
MHI Ref: UAP-HF-09052

MITSUBISHI HEAVY INDUSTRIES, LTD.

AFFIDAVIT

I, Yoshiki Ogata, state as follows:

1. I am General Manager, APWR Promoting Department, of Mitsubishi Heavy Industries, LTD ("MHI"), and have been delegated the function of reviewing MHI's US-APWR documentation to determine whether it contains information that should be withheld from public disclosure pursuant to 10 C.F.R. § 2.390 (a)(4) as trade secrets and commercial or financial information which is privileged or confidential.

2. In accordance with my responsibilities, I have reviewed the enclosed document entitled "Response to Request for Additional Information No. 111-932 Revision 0" dated February 2009, and have determined that portions of the document contain proprietary information that should be withheld from public disclosure. Those pages containing proprietary information are identified with the label "Proprietary" on the top of the page and the proprietary information has been bracketed with an open and closed bracket as shown here "[ ]". The first page of the document indicates that all information identified as "Proprietary" should be withheld from public disclosure pursuant to 10 C.F.R. § 2.390 (a)(4).

3. The information identified as proprietary in the enclosed document has in the past been, and will continue to be, held in confidence by MHI and its disclosure outside the company is limited to regulatory bodies, customers and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and is always subject to suitable measures to protect it from unauthorized use or disclosure.

4. The basis for holding the referenced information confidential is that it describes the unique design of the safety analysis and the general arrangement related to the US-APWR specific design, developed by MHI and not used in the exact form by any of MHI's competitors. This information was developed at significant cost to MHI, since it required the performance of research and development and the performance of detailed hardware design and software development extending over several years.

5. The referenced information is being furnished to the Nuclear Regulatory Commission ("NRC") in confidence and solely for the purpose of information to the NRC staff.

6. The referenced information is not available in public sources and could not be gathered readily from other publicly available information. Other than through the provisions in paragraph 3 above, MHI knows of no way the information could be lawfully acquired by organizations or individuals outside of MHI.

7. Public disclosure of the referenced information would assist competitors of MH in their design of new nuclear power plants without incurring the costs or risks associated with the design and testing of the subject systems. Therefore, disclosure of the information

contained in the referenced document would have the following negative impacts on the competitive position of MH in the U.S. nuclear plant market:

A. Loss of competitive advantage due to the costs associated with development of the unique plant design of the safety analysis and the general arrangement. Providing public access to such information permits competitors to duplicate or mimic the methodology without incurring the associated costs.

B. Loss of competitive advantage of the US-APWR created by benefits of enhanced plant safety, and reduced operation and maintenance costs. .

I declare under penalty of perjury that the foregoing affidavit and the matters stated therein are true and correct to the best of my knowledge, information and belief.

Executed on this 17th day of February, 2009.

Y. Ogata

Yoshiki Ogata,
General Manager- APWR Promoting Department
Mitsubishi Heavy Industries, LTD.

Enclosure 3

UAP-HF-09052
Docket Number 52-021

Response to Request for Additional Information
No. 111-932 Revision 0

February 2009
(Non-Proprietary)

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

2/17/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No.52-021

RAI NO.:	**NO.111-932 REVISION 0**
SRP SECTION:	**06.02.01.02 – Subcompartment Analysis**
APPLICATION SECTION:	**MUAP-07031 Report**
DATE OF RAI ISSUE:	**12/3/2008**

QUESTION NO. : 06.02.01.02-2

MUAP-07031 report: Although sensitivity of the results to time step variation in the cases presented was small, many variables impact correct time step selection. Please, include in the DCD additional justification and/or discussion regarding the selection of the time steps for the specific limiting cases presented in the DCD.

ANSWER:

The sensitivity analyses were performed to confirm that the appropriate time step was selected for the US-APWR subcompartment analyses. The time step selection of the base cases (presented in MUAP-07031) and the sensitivity analyses are shown in Table 1. The limiting time steps for the sensitivity analyses are a half of those for the base cases.

The results of the sensitivity analysis compared with the base case for each subcompartment analysis are shown in Figure 1 to 3. The impact of the time step selection to the result is sufficiently small. It was confirmed that the appropriate time step was selected for US-APWR subcompartment analyses.

The base case results for each subcompartment will be revised with the following modifications.

- Modification of mass and energy release evaluation for secondary system break corresponding to RAI-06.02.01.02-7 and 06.02.01.02-11
- Minor change of mass and energy release evaluation analyses (M-REALP5) for primary system breaks
- Modification of incorrect setting for GOTHIC analysis option
- Modification of GOTHIC nodalization scheme for SG compartment

- Modification of geometric and hydraulic parameters for nodes and vent paths of SG compartment and pressurizer compartment with considering the thermal insulator for the components and piping

~~The modified results of the base cases and the sensitivity analysis in the time step selection for each modified case will be provided by 18th February.~~
Time step sensitivity analysis results including above modifications for reactor cavity compartment, SG compartment and pressurizer compartment are shown in Figure 4 to 6. The results of the sensitivity analysis on the time step for additional subcompartments (such as regenerative heat exchanger compartment, regenerative heat exchanger valve compartment and letdown heat exchanger compartment) are shown in Figure 7 to 9. The impact of the time step selection on the result of each case is sufficiently small.

Table 1 time step selection for subcompartment analysis

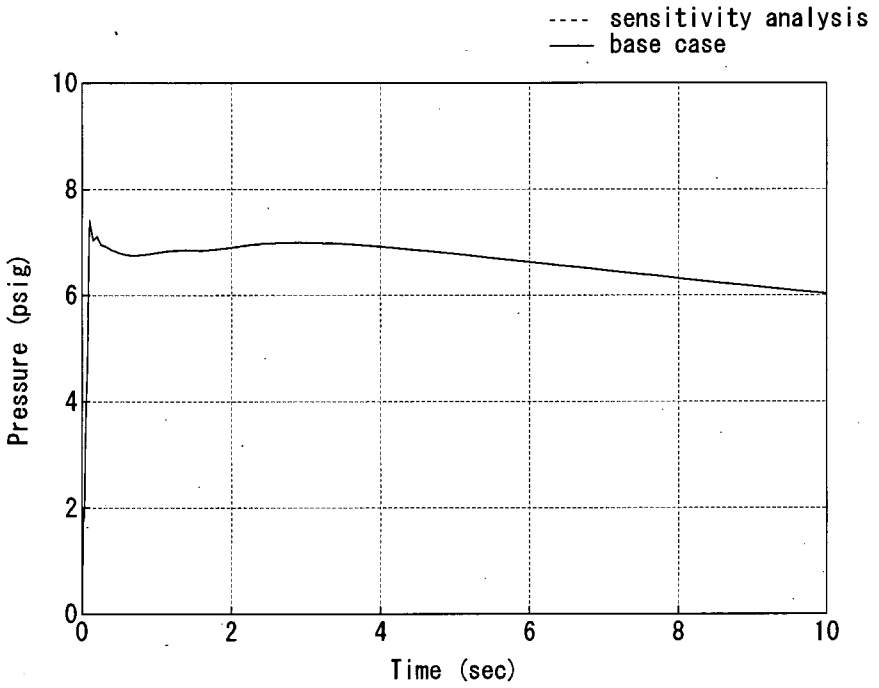

Figure 1 Time step sensitivity analysis for reactor cavity compartment

Pressure transient at peak pressure node (V50)

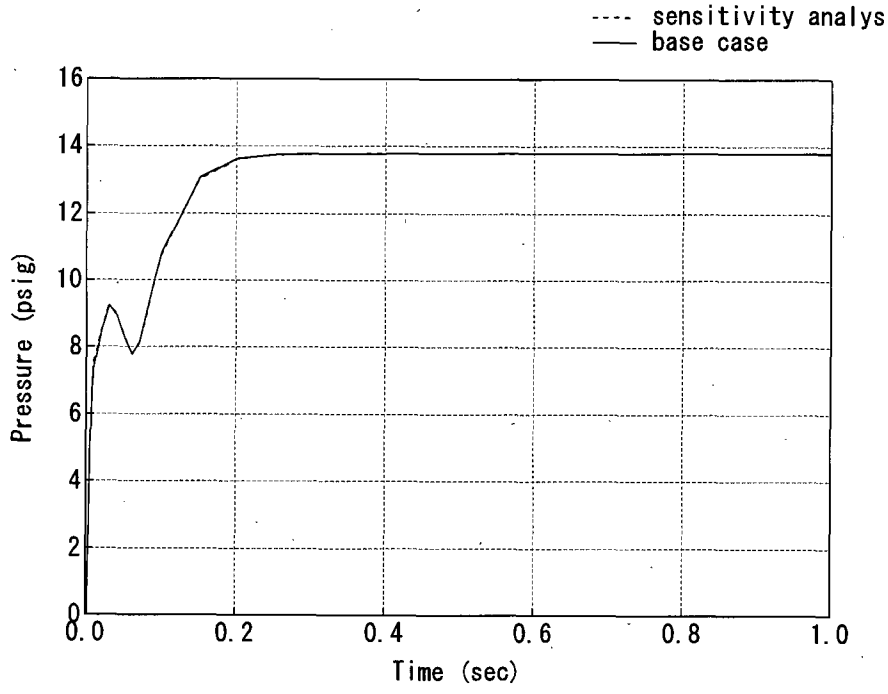

Figure 2 Time step sensitivity analysis for SG compartment

Pressure transient at peak pressure node (V55)

(Feedwater line break, Full power operating condition)

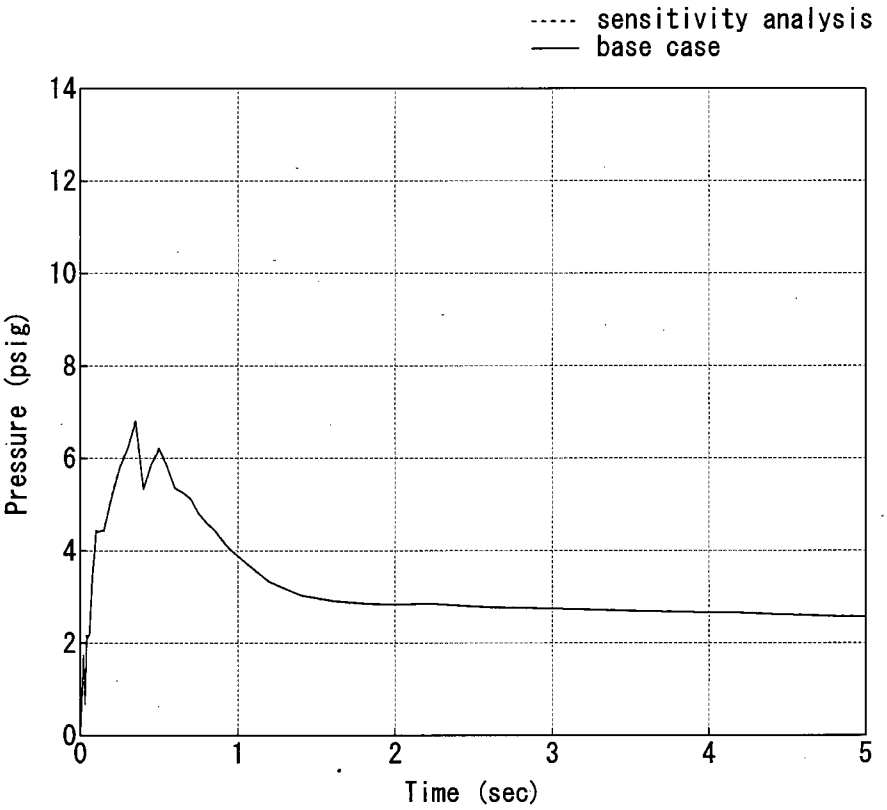

Figure 3 Time step sensitivity analysis for Pressurizer compartment

Pressure transient at peak pressure node (V3)

(Pressurizer spray line break)

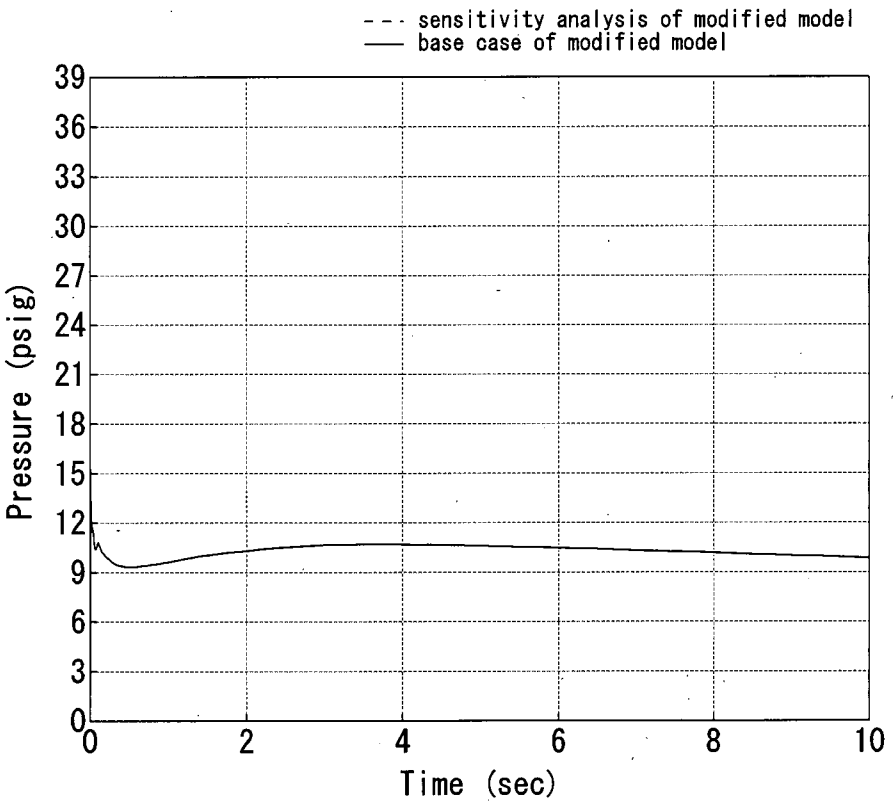

Figure 4 Time step sensitivity analysis result of modified model for reactor cavity compartment

Pressure transient at peak pressure node (V50)

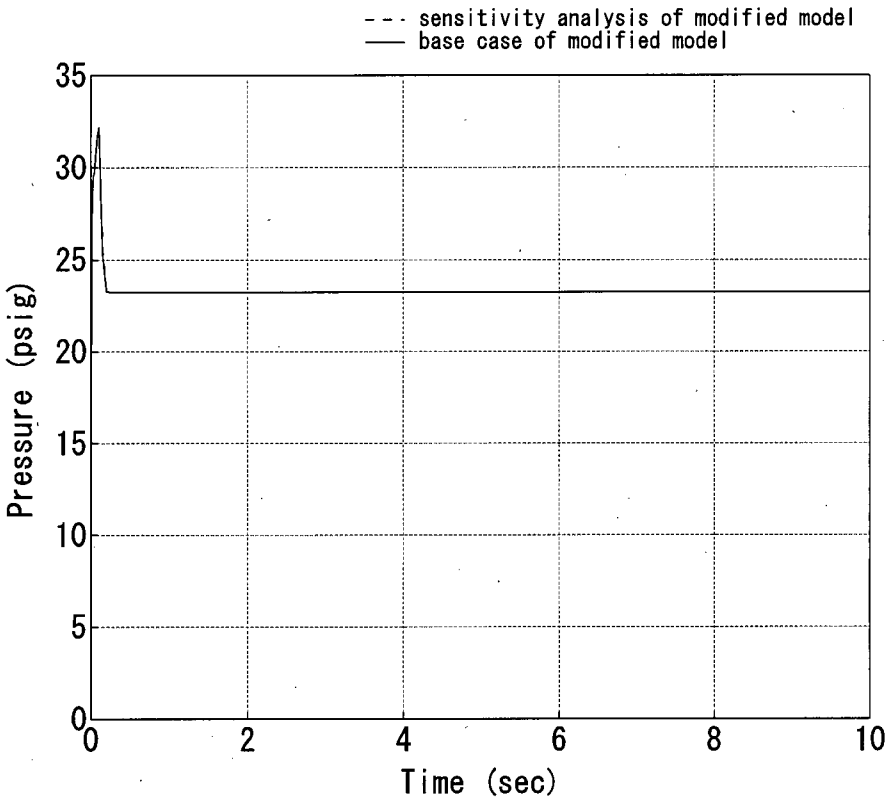

Figure 5 Time step sensitivity analysis result of modified model for SG compartment

Pressure transient at peak pressure node (V76)

(Feedwater line break, (Just after hot shutdown condition)

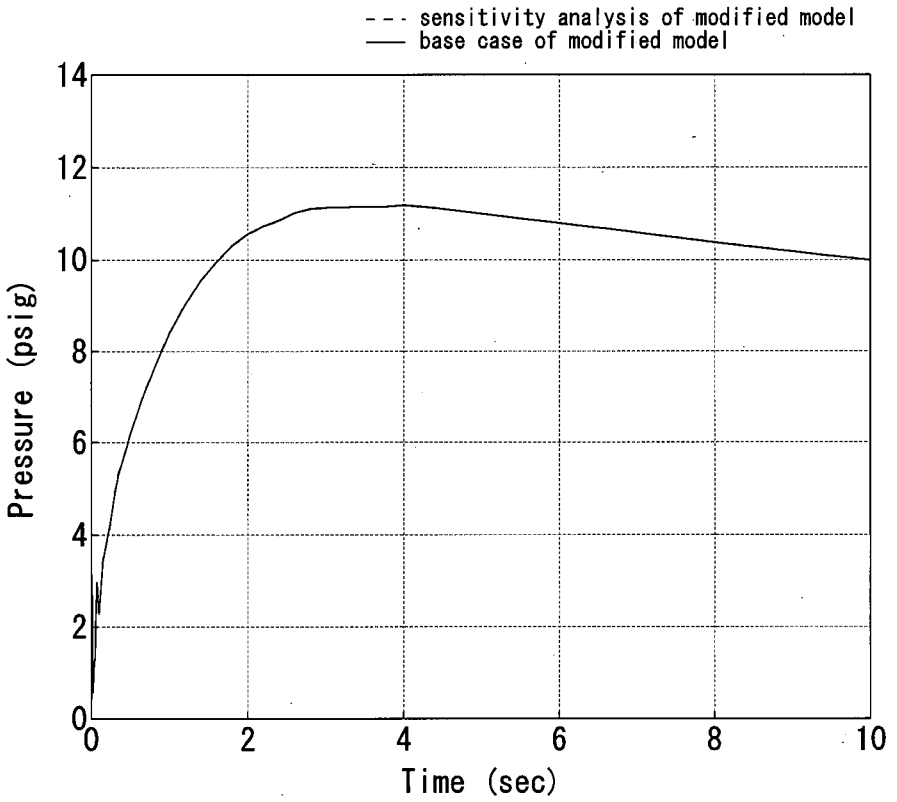

Figure 6 Time step sensitivity analysis result of modified model for pressurizer compartment

Pressure transient at peak pressure node (V27)

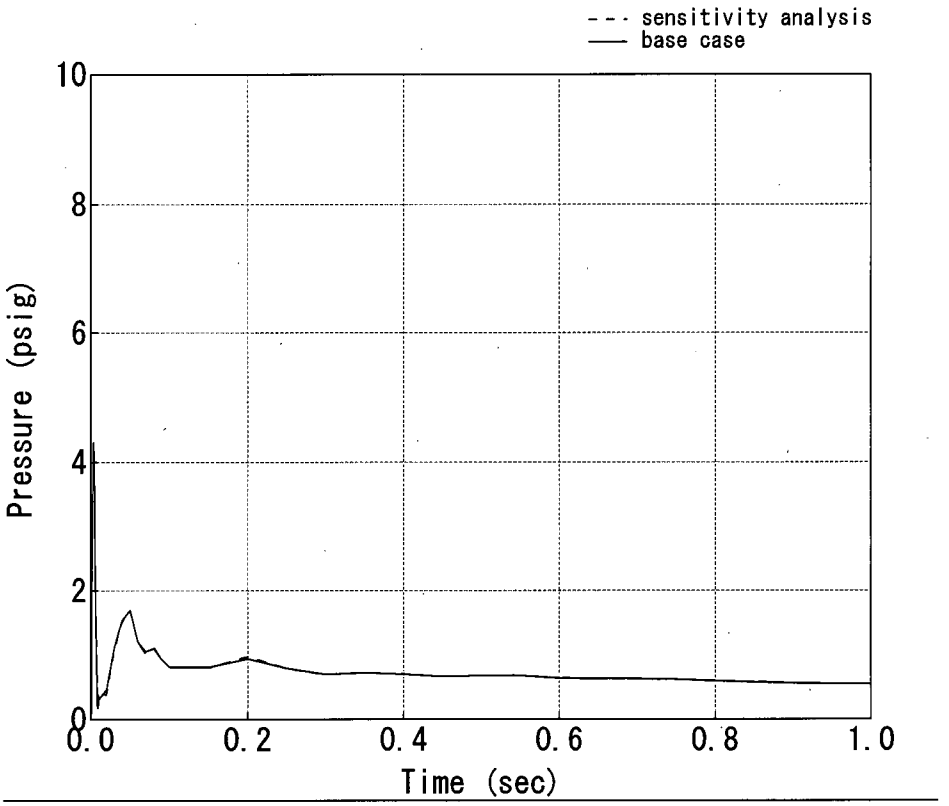

Figure 7 Result of the sensitivity analysis on the time step for regenerative heat exchanger compartment

Pressure transient at peak pressure node (V6)

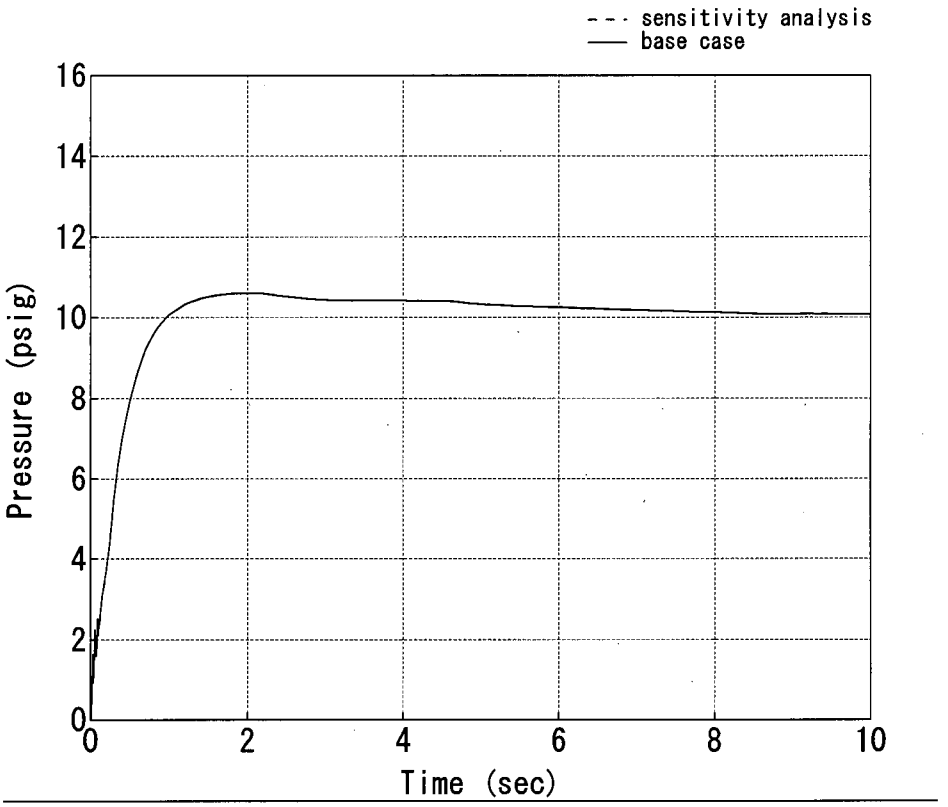

Figure8 Result of the sensitivity analysis on the time step for regenerative heat exchanger valve compartment

Pressure transient at peak pressure node (V25)

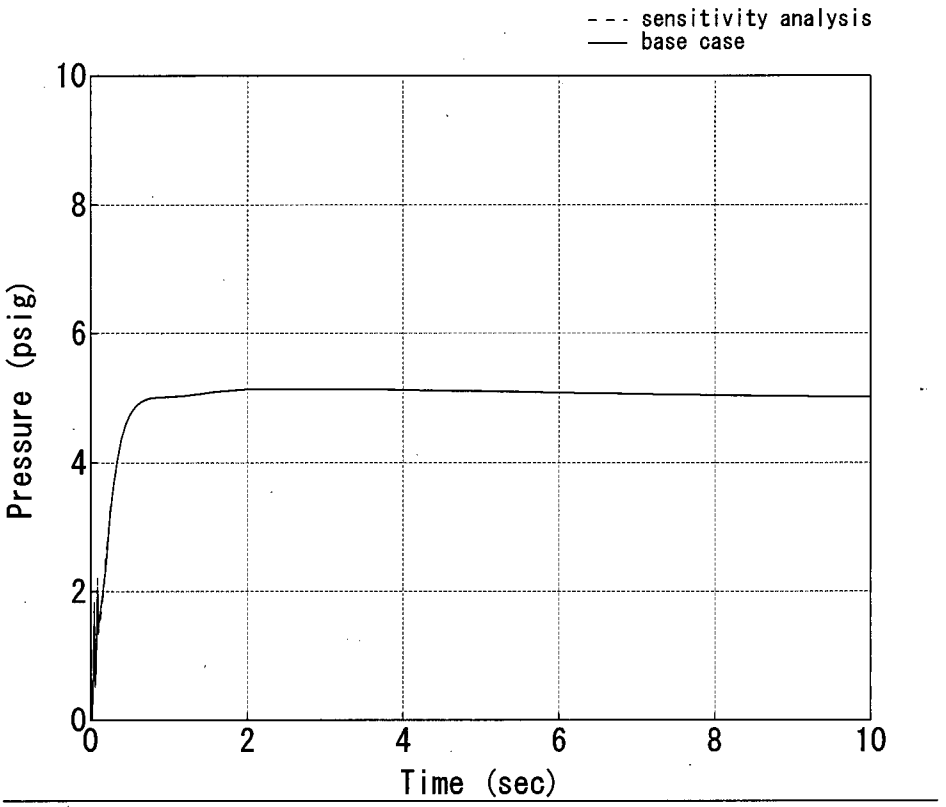

Figure 9 Result of the sensitivity analysis on the time step for letdown heat exchanger compartment

Pressure transient at peak pressure node (V2)

Impact on DCD

There is no impact on the DCD.

Impact on COLA

There is no impact on the COLA.

Impact on PRA

There is no impact on the PRA.