MITSUBISHI HEAVY INDUSTRIES, LTD.
16-5, KONAN 2-CHOME, MINATO-KU
TOKYO, JAPAN

January 19, 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-09015

Subject: MHI's Responses to US-APWR DCD RAI No.92-1237 Revision 0

References: 1) "Request for Additional Information No. 92-1237 Revision 0, SRP Section: 19 – Probabilistic Risk Assessment and Severe Accident Evaluation," dated November 5, 2008.
2) Letter MHI Ref: UAP-HF-08275 from Y. Ogata (MHI) to the U.S. NRC, "MHI's Responses to US-APWR DCD RAI No. 92-1237," dated December 5, 2008.

With this letter, Mitsubishi Heavy Industries, Ltd. ("MHI") transmits to the U.S. Nuclear Regulatory Commission ("NRC") a document as listed in Enclosures.

Enclosed are the second responses to the RAIs contained within Reference 1. In the initial responses submitted with Reference 2, MHI committed to submit responses to #19-158 and #19-165 by 19th of January 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. Second Responses to Request for Additional Information No. 92-1237 Revision 0 (proprietary version)

3. Second Responses to Request for Additional Information No. 92-1237 Revision 0 (non-proprietary version)

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

Contact Information
C. Keith Paulson, Senior Technical Manager
Mitsubishi Nuclear Energy Systems, Inc.
300 Oxford Drive, Suite 301
Monroeville, PA 15146
E-mail: ck_paulson@mnes-us.com
Telephone: (412) 373-6466

ENCLOSURE 1

Docket No. 52-021
MHI Ref: UAP-HF-09015

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 "Responses to Request for Additional Information No. 92-1237 Revision 0" dated 5 November 2008, 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 and methodology developed by MHI for performing the design of the US-APWR reactor.

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 MHI in their design of new nuclear power plants without incurring the costs or risks associated with the design 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 MHI in the U.S. nuclear plant market:

    A. Loss of competitive advantage due to the costs associated with development of methodology related to the analysis.

B. Loss of competitive advantage of the US-APWR created by benefits of modeling information.

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 19th day of January 2009.

Y. Ogata

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

Docket No. 52-021
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Enclosure 3

UAP-HF-09015
Docket Number 52-021

Second Responses to Request for Additional Information
No. 92-1237 Revision 0

January 2009
(Proprietary Information Excluded)

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

1/19/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No.52-021

RAI NO.: NO. 19-1237 REVISION 0

SRP SECTION: 19 – Probabilistic Risk Assessment and Severe Accident Evaluation

APPLICATION SECTION: 19

DATE OF RAI ISSUE: 11/5/2008

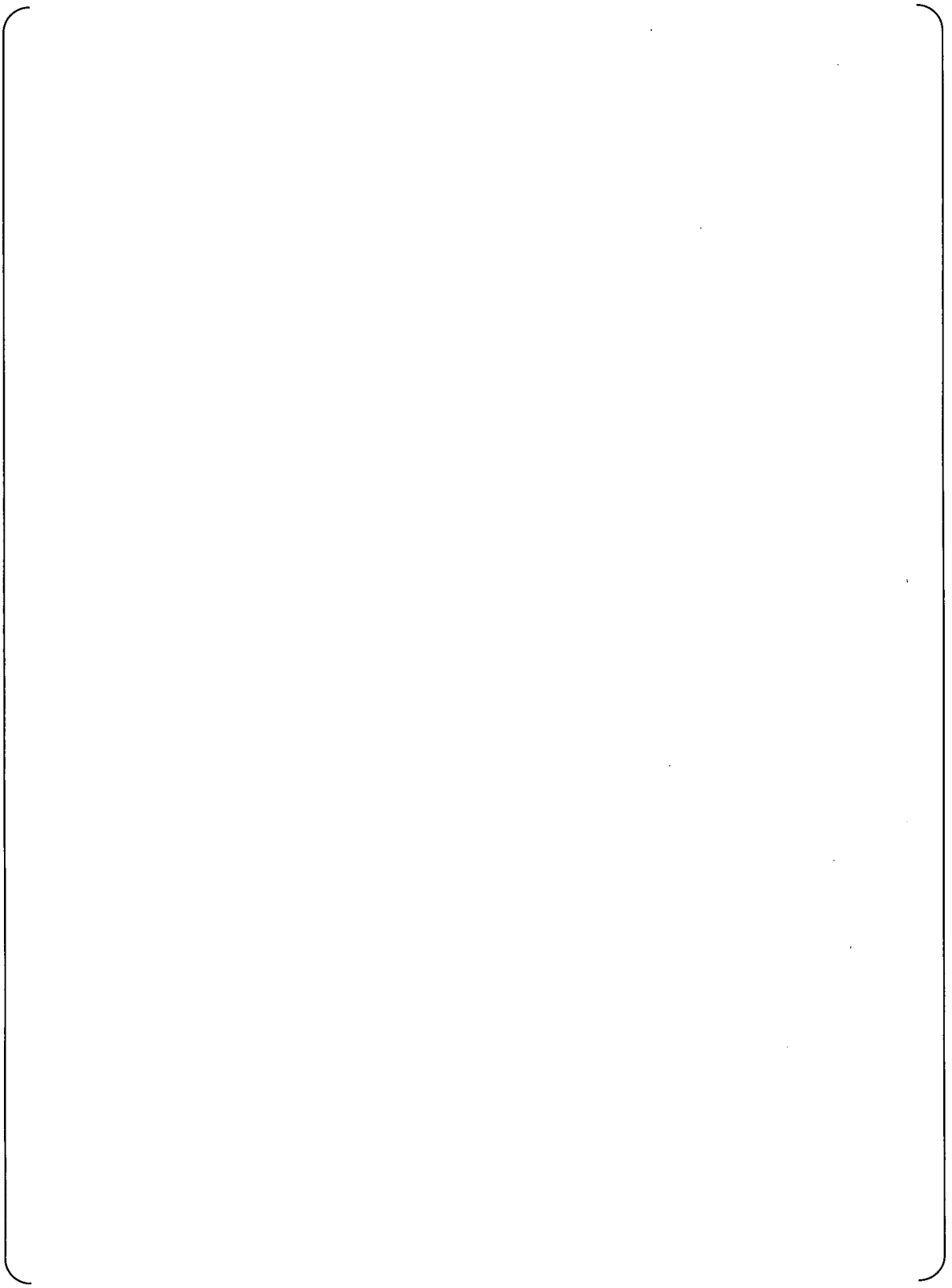
QUESTION NO.: 19-158

The hydrogen combustion evaluation in PRA Section 15.3.3.5 notes that deflagration to detonation transition is not expected when the hydrogen concentration does not exceed 10%.

(a) Please provide specific citations of experimental or analytical results in support of this statement.

(b) If some of the glow plug igniters were to become inoperable, please explain whether situations would arise where pressure waves may arise locally, propagate, and/or cause structural failures. Also, please explain how many igniters would be needed to fail for this to occur. Please provide the results of any sensitivity studies that have been performed to assess such situations.

ANSWER:



Impact on DCD

There is no impact on DCD from this RAI.

Impact on COLA

There is no impact on COLA from this RAI.

Impact on PRA

There is no impact on PRA from this RAI.

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

1/19/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No.52-021

RAI NO.: **NO. 19-1237 REVISION 0**

SRP SECTION: **19 – Probabilistic Risk Assessment and Severe Accident Evaluation**

APPLICATION SECTION: **19**

DATE OF RAI ISSUE: **11/5/2008**

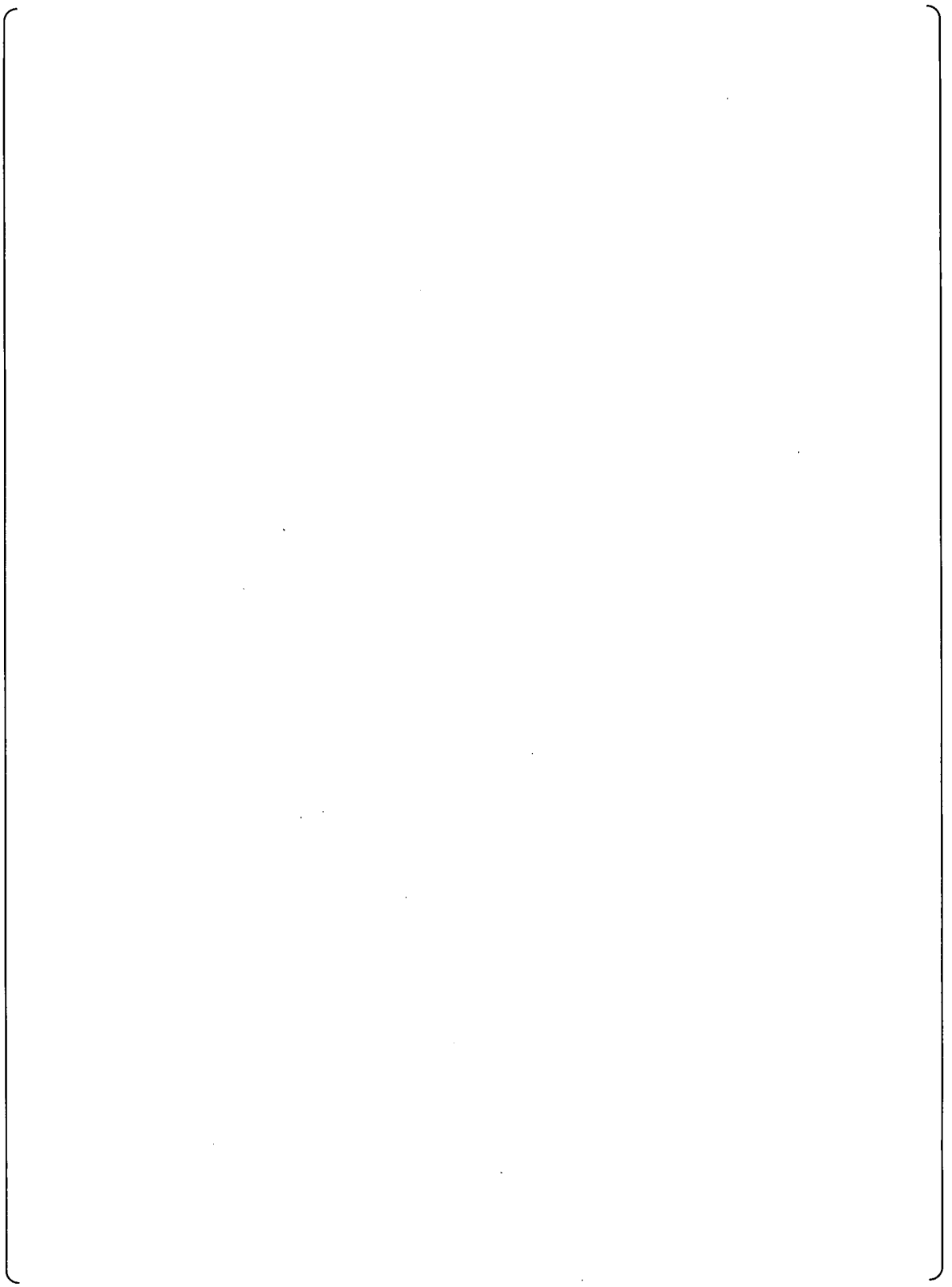
QUESTION NO.: 19-165

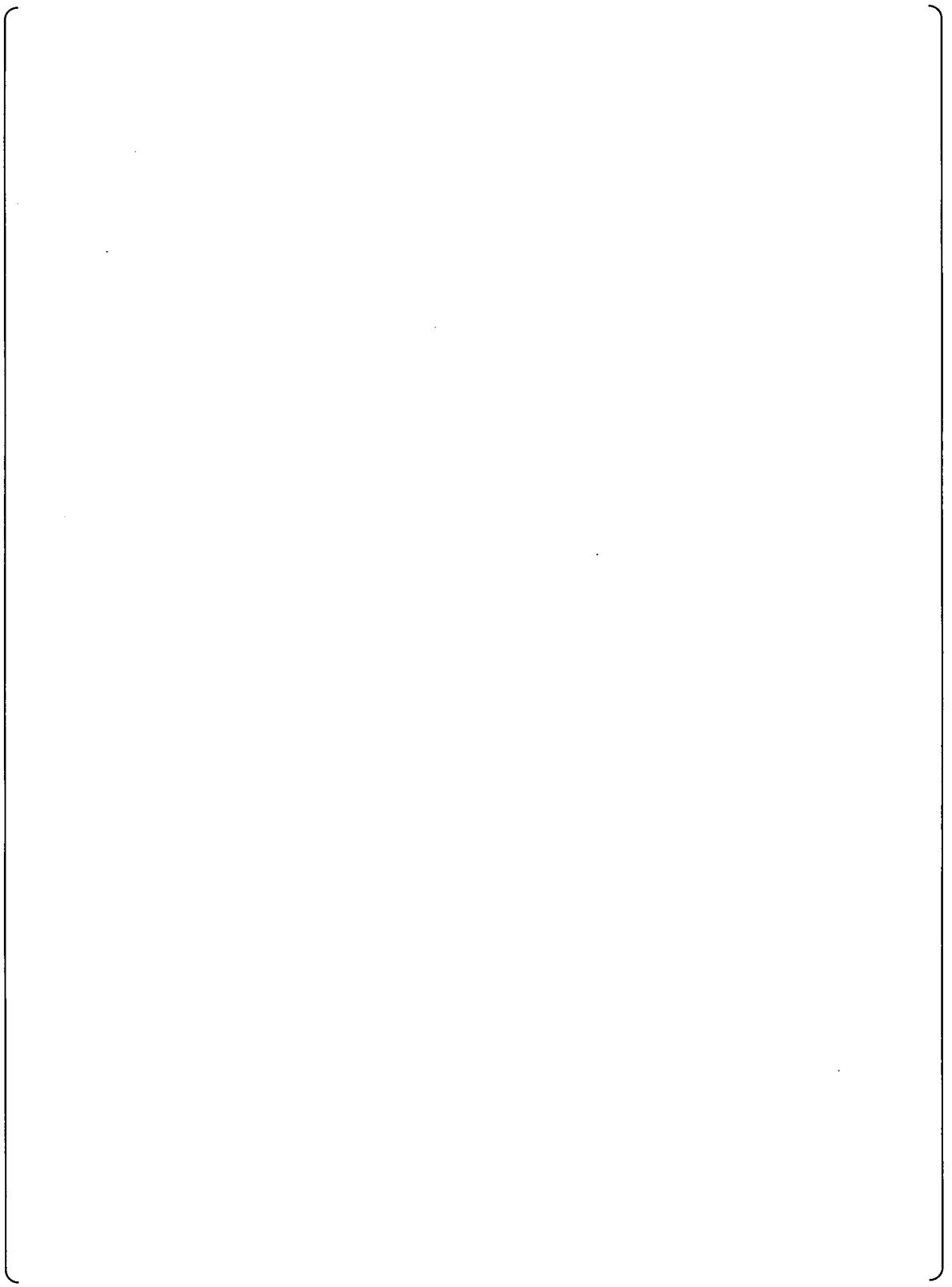
Please provide a list of various analysis cases that have been considered for ex-vessel steam explosions. Please include the following information for each case:

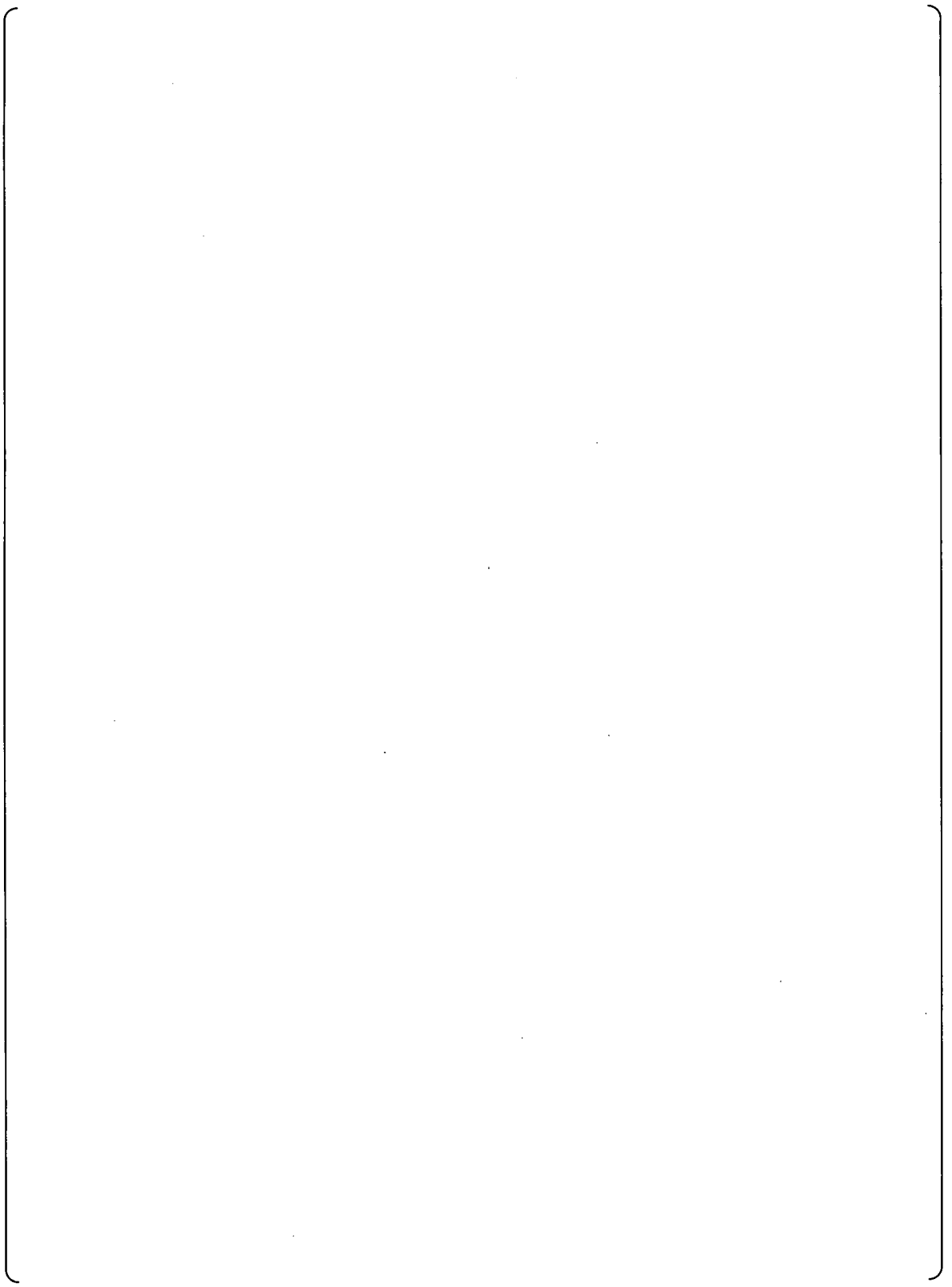
- Debris pour composition
- Lower head hole size
- Pour temperature
- Pour velocity
- Cavity water temperature
- Cavity water depth
- Location of RV failure (middle or at the side)

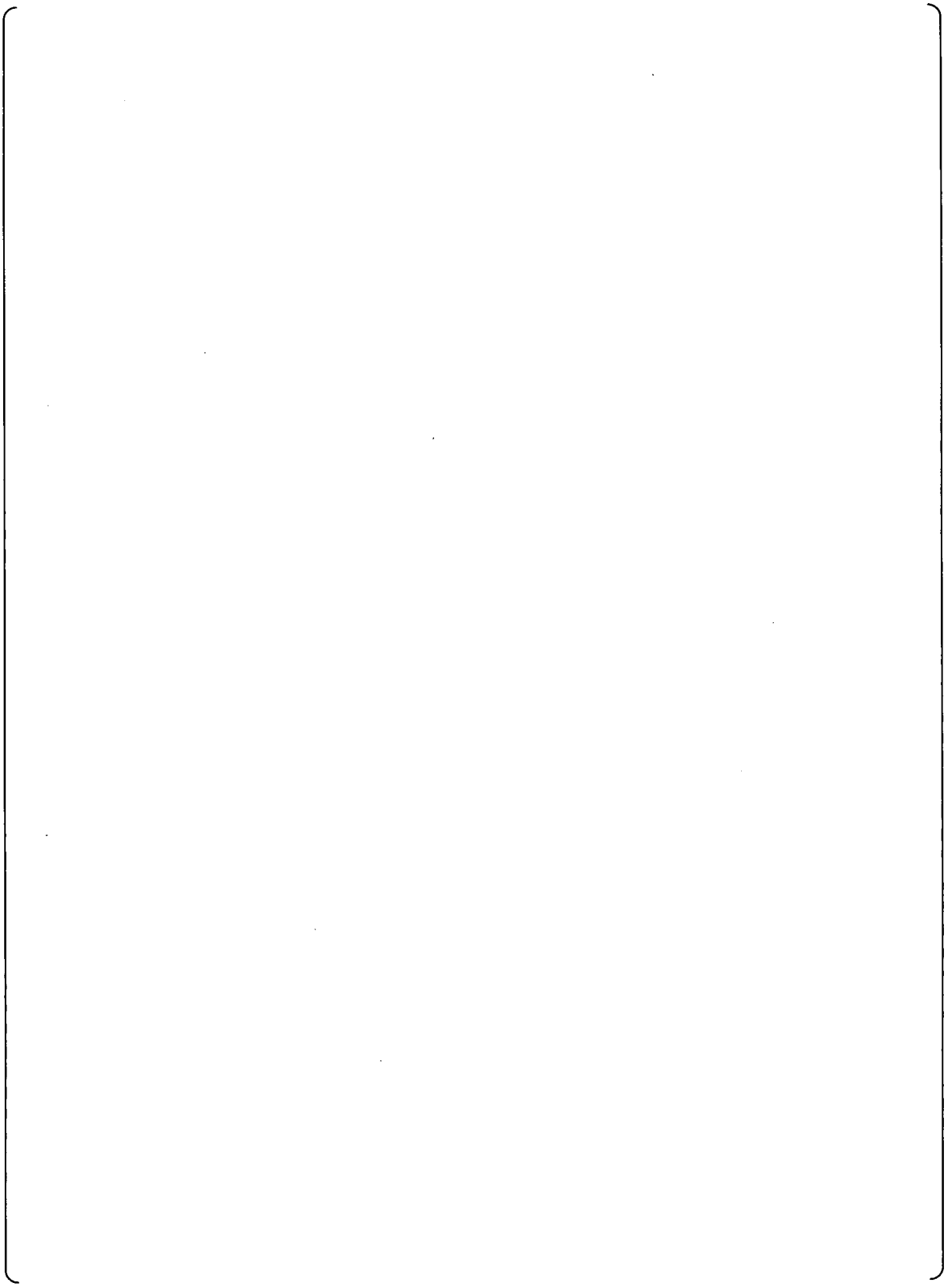
For each case, please provide the peak pressure and the impulse load on the cavity wall.

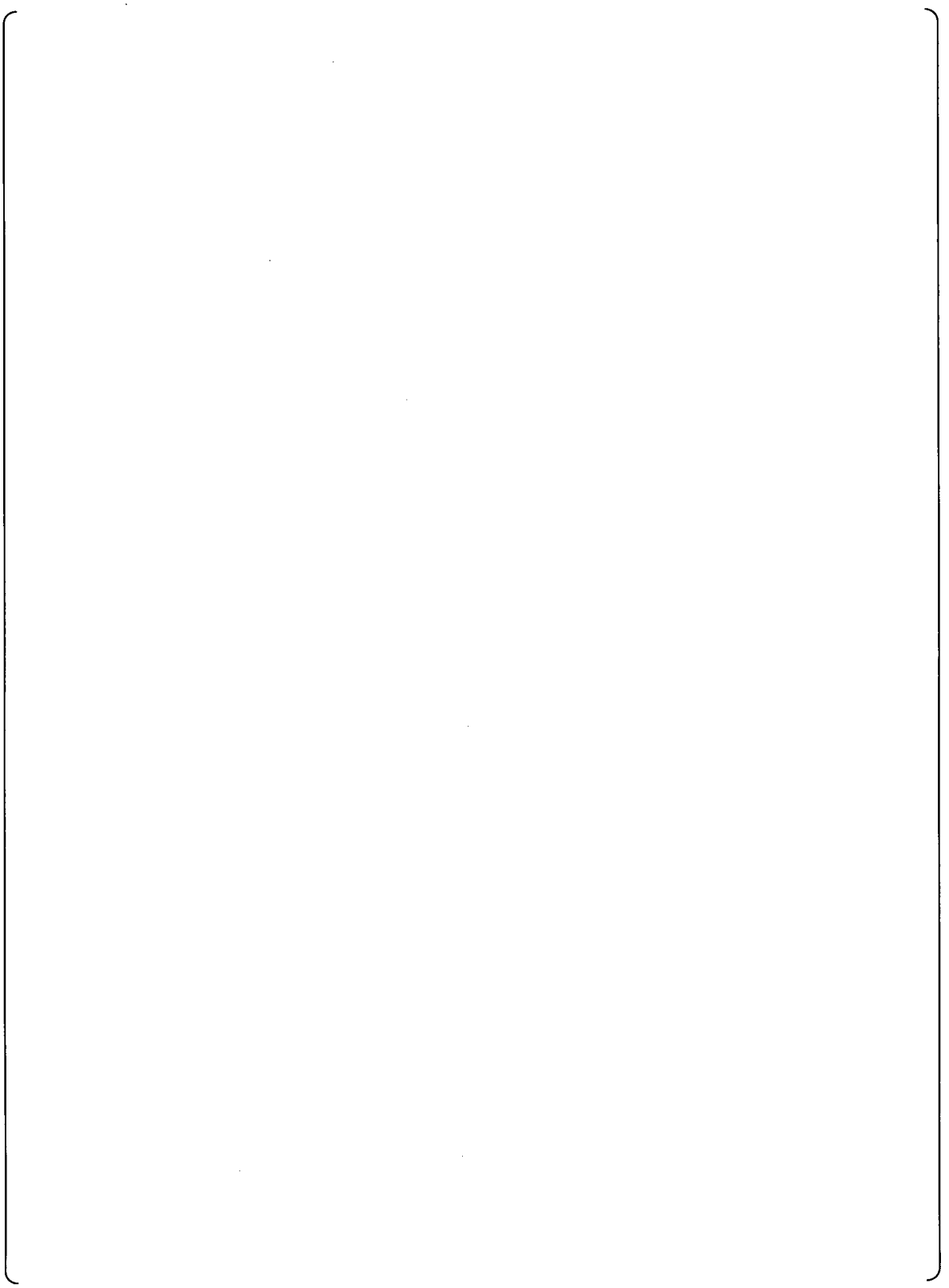
ANSWER:

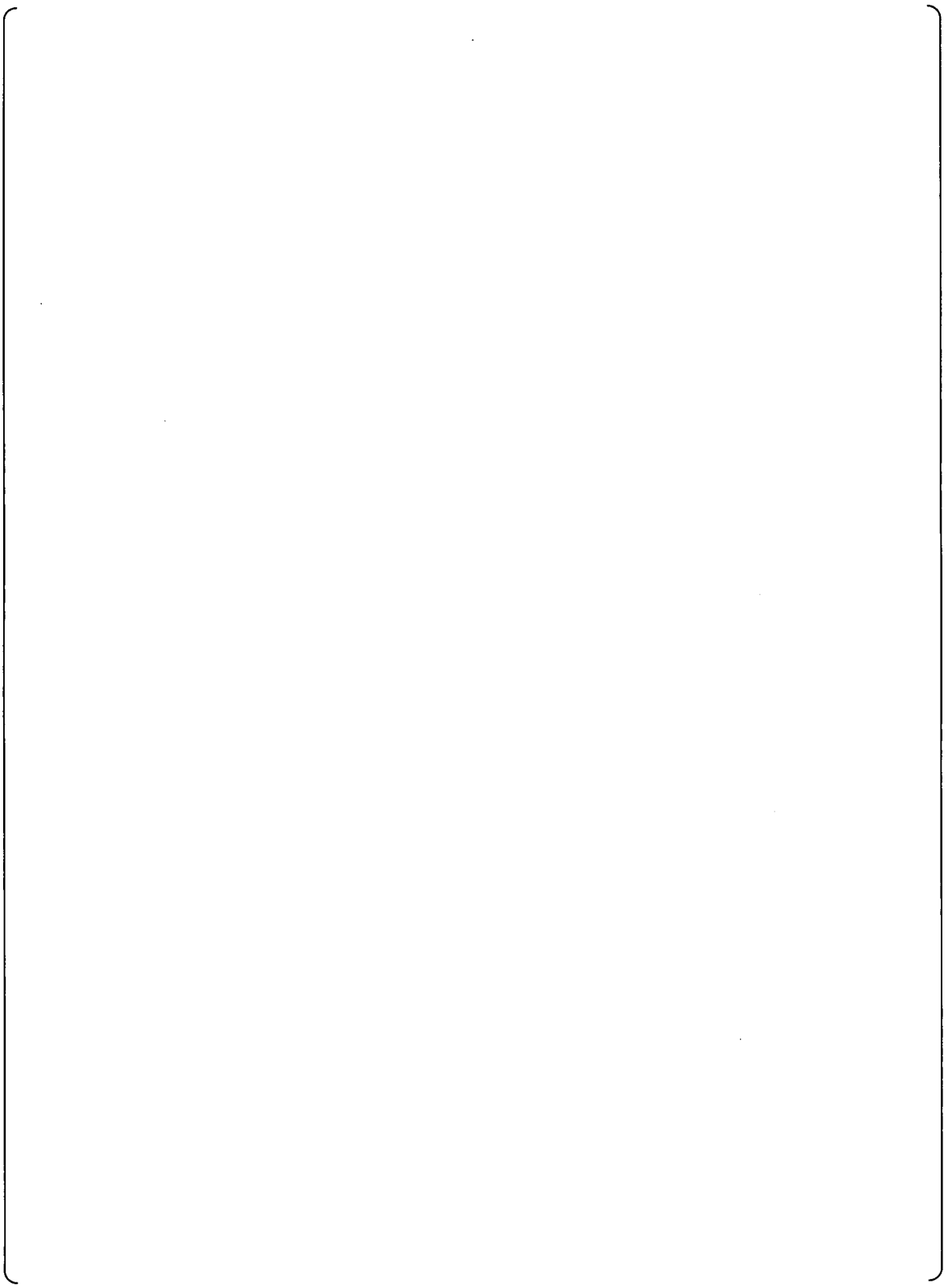


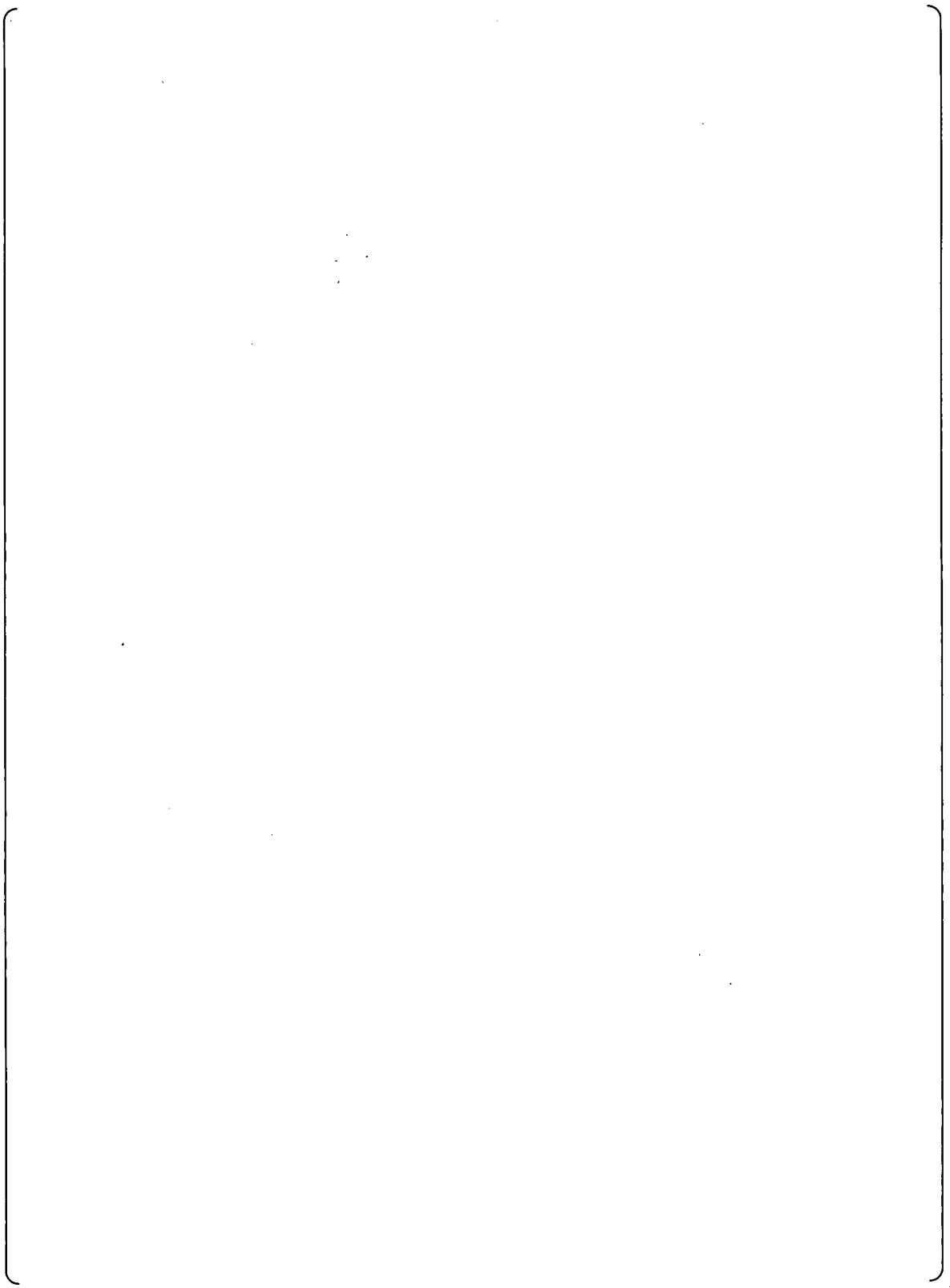












Impact on DCD

There is no impact on DCD from this RAI.

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There is no impact on COLA from this RAI.

Impact on PRA

There is no impact on PRA from this RAI.