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Proprietary Information
Withhold from Public Disclosure

Richard St. Onge
Director, Nuclear Regulatory Affairs and
Emergency Planning

May 30, 2013

10 CFR 50.4

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

Subject: **Docket No. 50-361**
Response to Request for Additional Information (RAI 73) Regarding Confirmatory Action Letter Response
(TAC No. ME 9727)
San Onofre Nuclear Generating Station, Unit 2

References:
1. Letter from Mr. Elmo E. Collins (USNRC) to Mr. Peter T. Dietrich (SCE), dated March 27, 2012, Confirmatory Action Letter 4-12-001, San Onofre Nuclear Generating Station, Units 2 and 3, Commitments to Address Steam Generator Tube Degradation

2. Letter from Mr. Peter T. Dietrich (SCE) to Mr. Elmo E. Collins (USNRC), dated October 3, 2012, Confirmatory Action Letter – Actions to Address Steam Generator Tube Degradation, San Onofre Nuclear Generating Station, Unit 2

3. Letter from Mr. Richard J. St. Onge (SCE) to Document Control Desk (USNRC), dated April 2, 2013, Response to Request for Additional Information (RAI 13), Revision 1 Regarding Confirmatory Action Letter Response, San Onofre Nuclear Generating Station, Unit 2

4. Letter from Mr. James R. Hall (USNRC) to Mr. Peter T. Dietrich (SCE), dated May 10, 2013, San Onofre Nuclear Generating Station, Unit 2 - Request for Additional Information Regarding Response to Confirmatory Action Letter

Dear Sir or Madam,

On March 27, 2012, the Nuclear Regulatory Commission (NRC) issued a Confirmatory Action Letter (CAL) (Reference 1) to Southern California Edison (SCE) describing actions that the NRC and SCE agreed would be completed to address issues identified in the steam generator tubes of San Onofre Nuclear Generating Station (SONGS) Units 2 and 3. In a letter to the NRC dated October 3, 2012 (Reference 2), SCE reported completion of the Unit 2 CAL actions and included a Return to Service Report (RTSR) that provided details of their completion.

SCE provided the response to Request for Additional Information (RAI) 13 in a letter dated April 2, 2013 (Reference 3). By letter dated May 10, 2013 (Reference 4), the NRC issued RAI 73 regarding the response to RAI 13. Enclosure 2 of this letter provides the response to RAI 73.

P.O. Box 128
San Clemente, CA 92674

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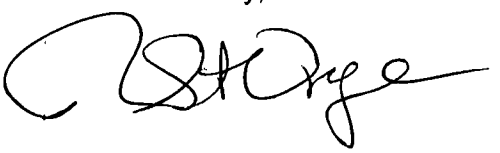
Enclosure 2 of this submittal contains proprietary information. SCE requests that this proprietary enclosure be withheld from public disclosure in accordance with 10 CFR 2.390(a)(4). Enclosure 1 provides notarized affidavits from Westinghouse, which sets forth the basis on which the information in Enclosure 2 may be withheld from public disclosure by the NRC and addresses with specificity the considerations listed by paragraph (b)(4) of 10 CFR 2.390. Enclosure 3 provides the non-proprietary version of Enclosure 2.

There are no new regulatory commitments contained in this letter. If you have any questions or require additional information, please call me at (949) 368-6240.

Sincerely,



Enclosures:

1. Notarized Affidavits
2. Response to RAI 73 (Proprietary)
3. Response to RAI 73 (Non-Proprietary)

cc: A. T. Howell III, Regional Administrator, NRC Region IV
J. R. Hall, NRC Project Manager, SONGS Units 2 and 3
G. G. Warnick, NRC Senior Resident Inspector, SONGS Units 2 and 3
R. E. Lantz, Branch Chief, Division of Reactor Projects, NRC Region IV

ENCLOSURE 1

Notarized Affidavits

Westinghouse Electric Company
Nuclear Services
1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066
USA

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Direct tel: (412) 374-4643
Direct fax: (724) 720-0754
e-mail: greshaja@westinghouse.com
Proj letter: CONO-13-44

CAW-13-3724

May 23, 2013

APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-LAM-13-34-P-Attachment, "Response to NRC Confirmatory Action Letter RAI #73 for SONGS Unit 2" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-13-3724 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Southern California Edison.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference CAW-13-3724, and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 310, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

James A. Gresham, Manager
Regulatory Compliance

Enclosures

CAW-13-3724

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared James A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

James A. Gresham, Manager
Regulatory Compliance

Sworn to and subscribed before me
this 23rd day of May 2013

Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Anne M. Stegman, Notary Public
Unity Twp., Westmoreland County
My Commission Expires Aug. 7, 2016
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

(1) I am Manager, Regulatory Compliance, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.

(2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse Application for Withholding Proprietary Information from Public Disclosure accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.

(iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in LTR-LAM-13-34-P Attachment, "Response to NRC Confirmatory Action Letter RAI #73 for SONGS Unit 2" (Proprietary), for submittal to the Commission, being transmitted by Southern California Edison letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with a response to NRC RAI #73 and may be used only for that purpose.

This information is part of that which will enable Westinghouse to:

(a) Adequately support the response to the NRC RAI.

Further this information has substantial commercial value as follows:

(a) Westinghouse plans to sell the use of the information to its customers for the purpose of supporting responses to NRC RAIs.

(b) Westinghouse can sell support and defense of safety analysis services.

(c) The information requested to be withheld reveals the distinguishing aspects of a methodology which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar technical evaluation justifications and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

PROPRIETARY INFORMATION NOTICE

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests associated with a response to NRC RAI #73 and may be used only for that purpose.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

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ENCLOSURE 3

SOUTHERN CALIFORNIA EDISON

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

REGARDING RESPONSE TO CONFIRMATORY ACTION LETTER

DOCKET NO. 50-361

TAC NO. ME 9727

Response to RAI 73

(NON-PROPRIETARY)

RAI 73:

In Section 4.2, "Impact of the RSGs on the SBLOCA AOR," of Reference 1, SCE assesses the effects of differences between the original and replacement steam generators on the small-break loss of coolant accident (SBLOCA) analysis of record (AOR). Specifically, items (ii) through (vi) of Section 4.2 address the differences in tube geometry and material, primary and secondary side liquid inventory, elevation of components, and total metal mass, and provide the licensee's conclusions on the effects of each difference on the SBLOCA analysis, if any. The NRC staff reviewed available documentation for the S2M evaluation model (Reference 2) and did not identify a basis for these conclusions. Please provide the basis for these conclusions. If the basis is completely described by the RAI response, please qualify the conclusions with supplemental information.

RESPONSE:

Note: RAI Reference 1 is letter from SCE to NRC titled "Response to Request for Additional Information (RAI 13) Regarding Confirmatory Action Letter Response," dated April 2, 2013. RAI Reference 2 is Westinghouse document CENPD-137, Supplement 2-P-A, "Calculative Methods for the ABB CE Small Break LOCA Evaluation Model," dated April 1998.

SBLOCA sensitivity studies were performed and the results are provided as follows:

4.2 Impact of the Replacement Steam Generators (RSGs) on the SBLOCA AOR

ii. Effect of the differences in SG tube geometry and material.

[

]

$$R_{wall} = \frac{D_O}{2k_{wall}} \ln\left(\frac{D_O}{D_I}\right)$$

where:

R_{wall} = tube wall resistance to heat transfer, (Btu/hr-ft^2-°F)$^{-1}$
D_O = tube outside diameter, ft
D_I = tube inside diameter, ft
k_{wall} = tube material thermal conductivity, Btu/hr-ft-°F

shows [ ]
compared to the OSGs at 550°F. This [ ] since after
the cessation of the subcooled forced convection mode of SG heat transfer early in the LOCA
transient, the [ ] is generally the
limiting resistance for SG heat transfer during a LOCA.

The impact on the SONGS limiting SBLOCA case with OSGs due to the differences in the SG tube geometry and SG tube material between the OSGs (Inconel 600) and RSGs (Inconel 690) [

]

Note: The SONGS SBLOCA limiting case with OSGs is the 0.04 ft^2 break with a PCT of 2077 °F. The PCT for the SBLOCA analysis is calculated in two steps. First, a no-clad rupture break spectrum analysis is run to determine the limiting break size. The limiting PCT for the no-rupture analysis is 1926.4 °F. Then, a parametric study on gap pressure for the limiting break case is run to determine the maximum PCT. For the parametric study shown in this RAI response only the no-rupture part of the analysis was rerun.

iii. Effect of the differences in SG primary side liquid inventory and heat transfer area.

The RSGs with 8% Steam Generator Tube Plugging (SGTP) have approximately [ ] SG primary side than the OSGs with 21.4% SGTP. As noted in Item 4.2.i [ ] in the primary sides of SGs for the RSGs [ ] of core uncovery and the subsequent less severe core uncovery due to the decrease of the core decay heat at a later time.

Evaluation of the impact of the increase in primary liquid inventory [

]

iv. Effect of the differences in SG secondary side liquid inventory.

The nominal secondary side liquid inventory for the RSGs is approximately [ ] SBLOCA calculations with the Supplement 2 Model (RAI Reference 2) are [

. The impact of the difference on the SG heat transfer [,] and its impact on core uncovery or time of core uncovery is [ ].

The impact on the SONGS limiting SBLOCA case with OSGs due to the larger SG secondary side liquid inventory for the RSGs [

]

v. Effect of the differences in elevation of SG components.

The average SG tube length for the RSGs is [ ] The vertical rise for the longest tube for the RSGs is [ ] the OSGs. These differences in elevation [ ] on a SBLOCA event since the impact on the elevation head difference between the hot and cold sides of the SGs is negligible.

The impact of the increase in vertical elevation of the RSG primary side components on the SONGS limiting SBLOCA case with OSGs [

]

vi. Effect of the differences in SG total metal mass.

The SG metal mass for the RSGs is [ ] OSGs. This [ ] ECCS performance analyses were performed with the Supplement 2 Model (RAI Reference 2). SG secondary side wall heat is [ ] the secondary side and has [ ] on the RCS.

The impact on the SONGS limiting SBLOCA case with OSGs due to the larger SG secondary side metal mass [

]

Figure 4.2-1. Effect of the Differences in SG Tube Geometry and Material. Core Pressure

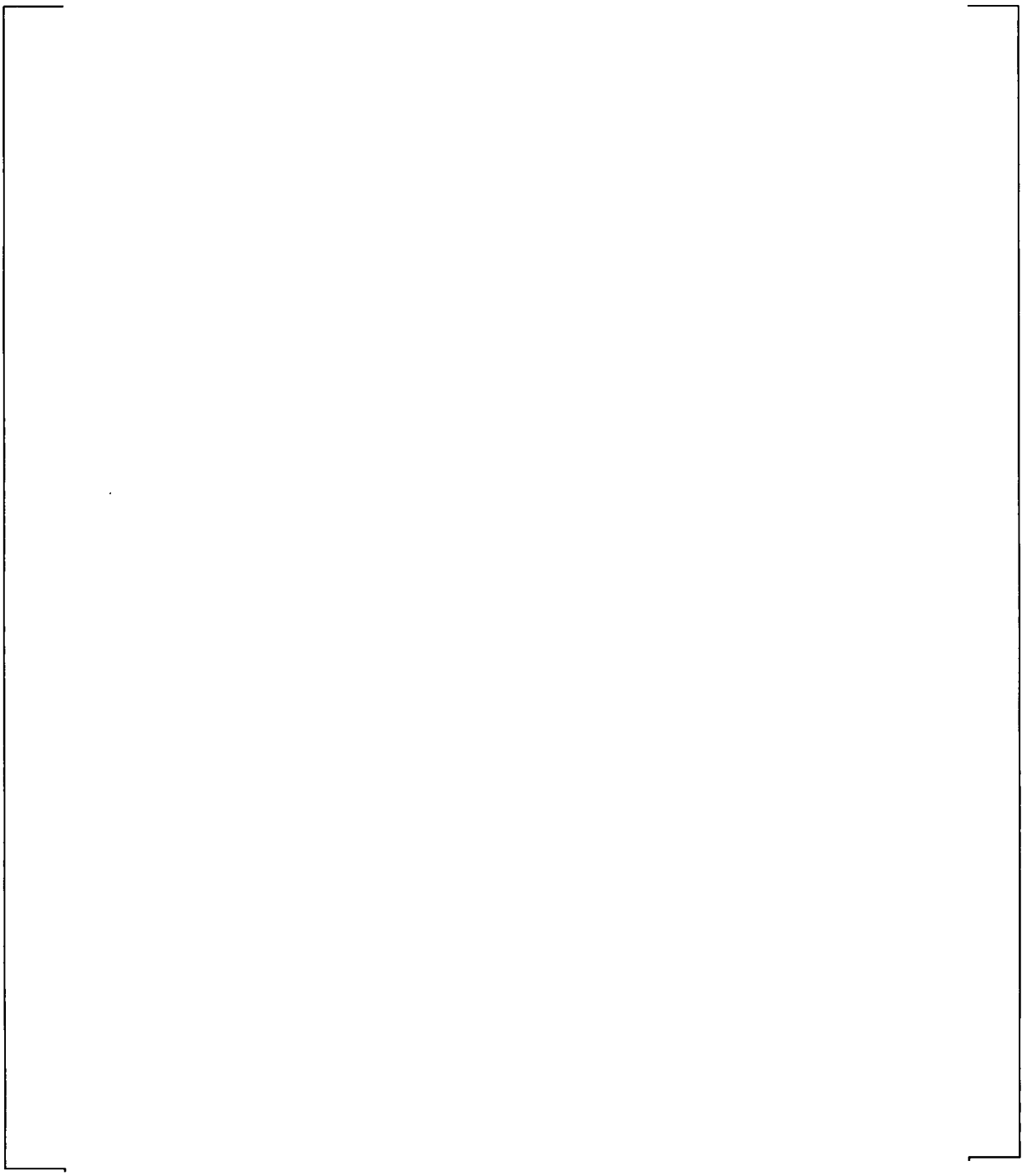

Figure 4.2-2. Effect of the Differences in SG Tube Geometry and Material. Core Mixture Level

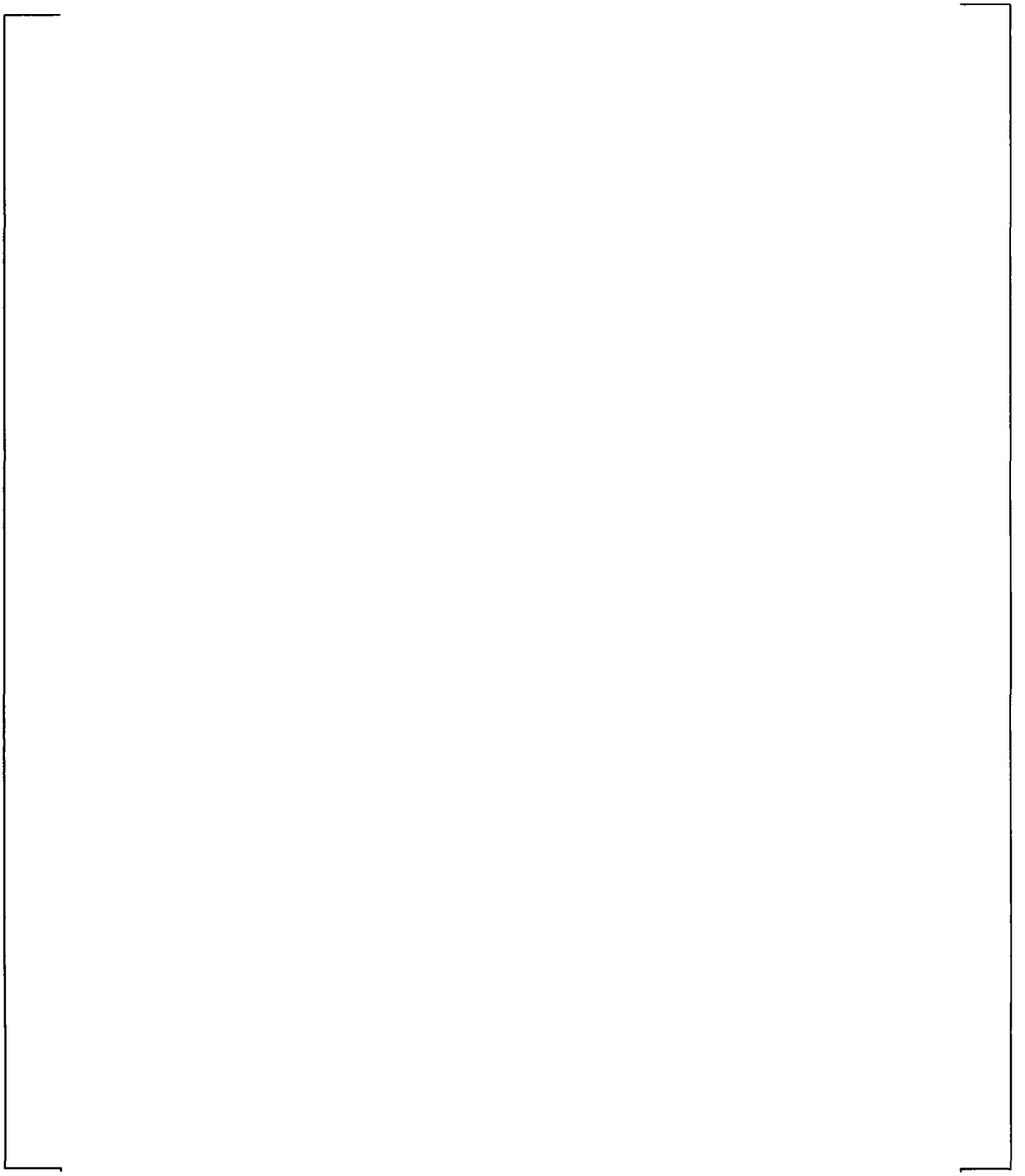

Figure 4.2-3. Effect of the Differences in SG Tube Geometry and Material. Hot Spot Cladding Temperature

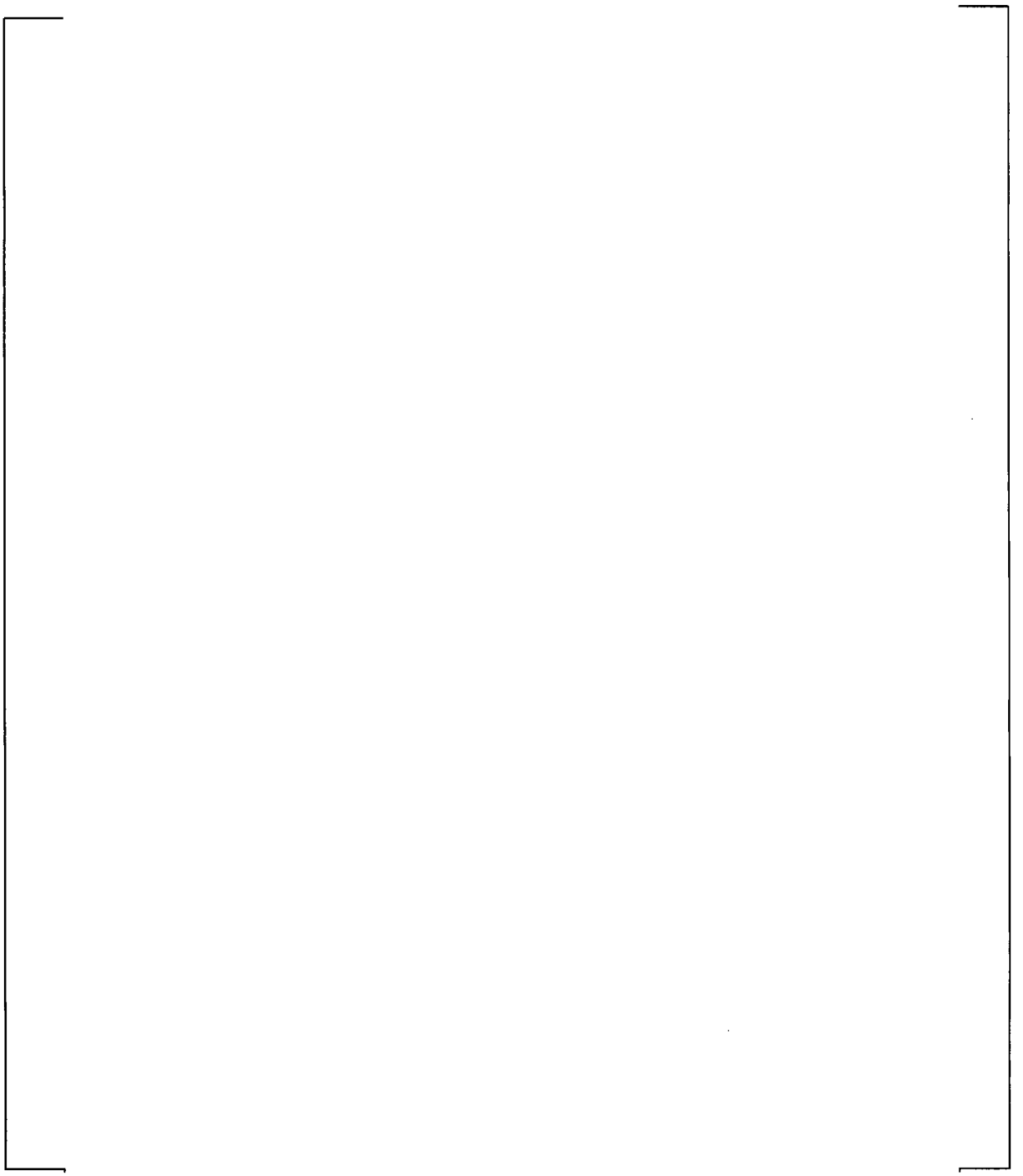

Figure 4.2-4. Effect of the Differences in SG Primary Side Liquid Inventory and Heat Transfer Area.
Core Pressure

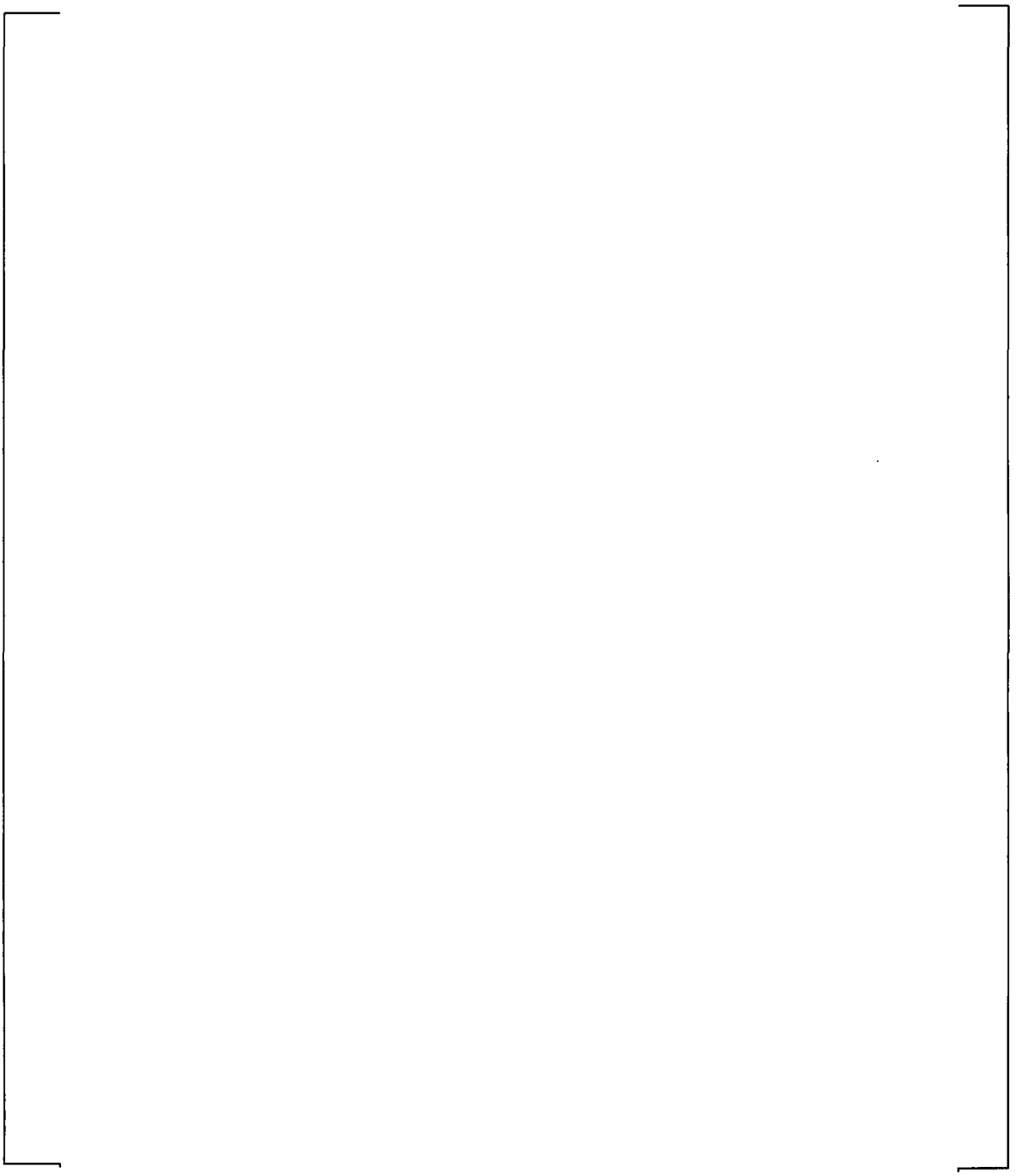

Figure 4.2-5. Effect of the Differences in SG Primary Side Liquid Inventory and Heat Transfer Area.
Core Mixture Level

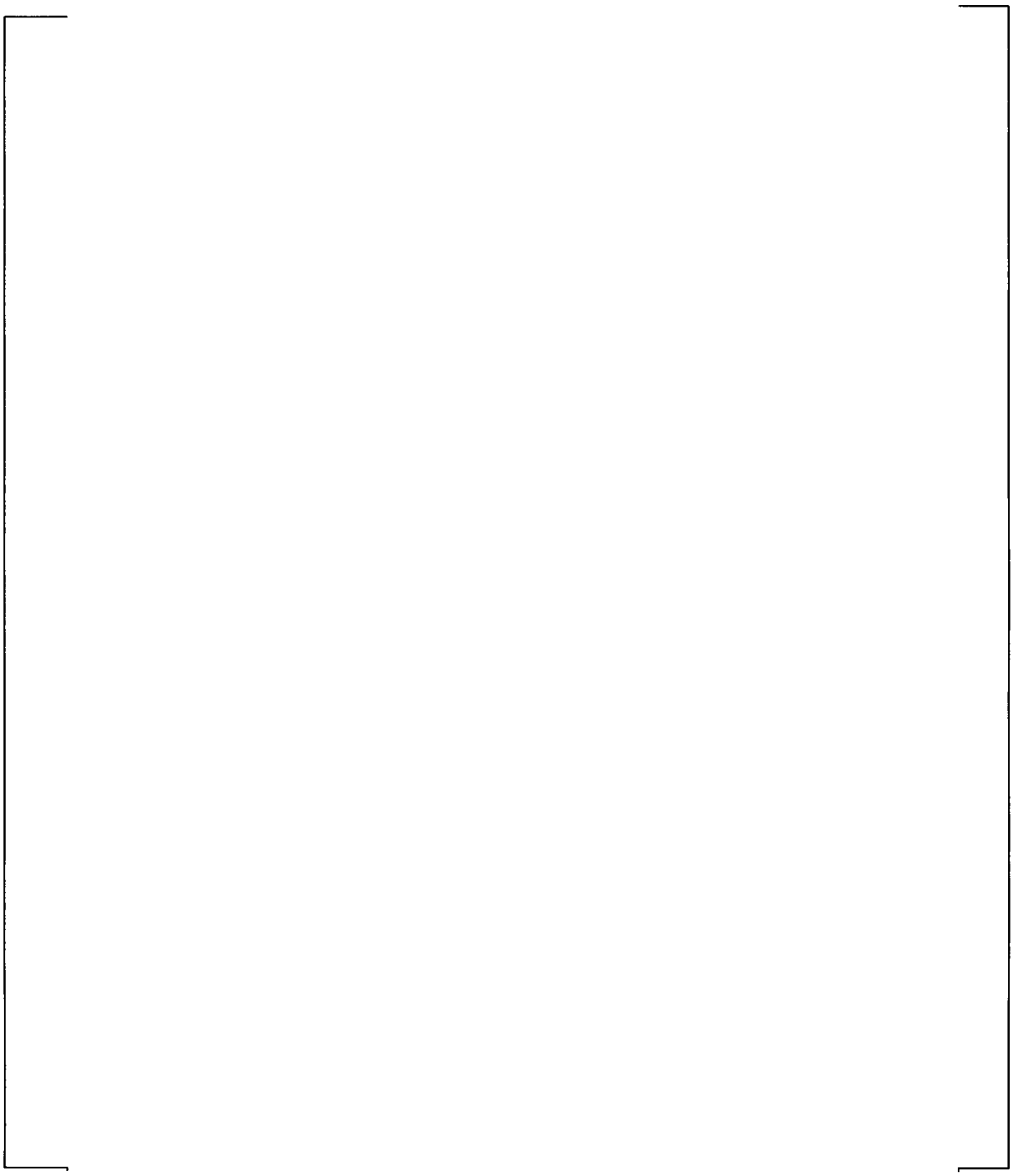

Figure 4.2-6. Effect of the Differences in SG Primary Side Liquid Inventory and Heat Transfer Area.
Hot Spot Cladding Temperature

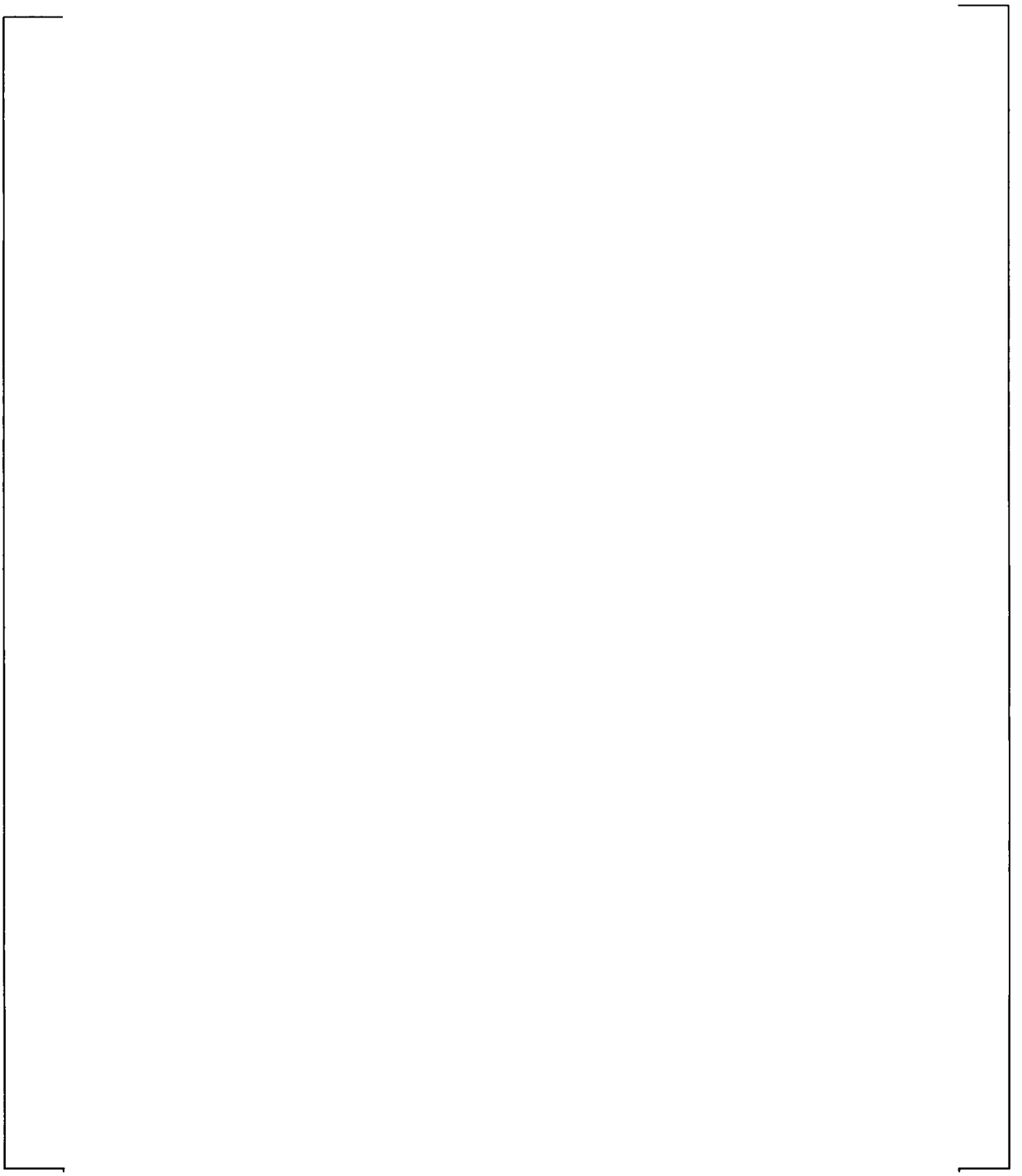

Figure 4.2-7. Effect of the Differences in SG Secondary Side Liquid Inventory. Core Pressure

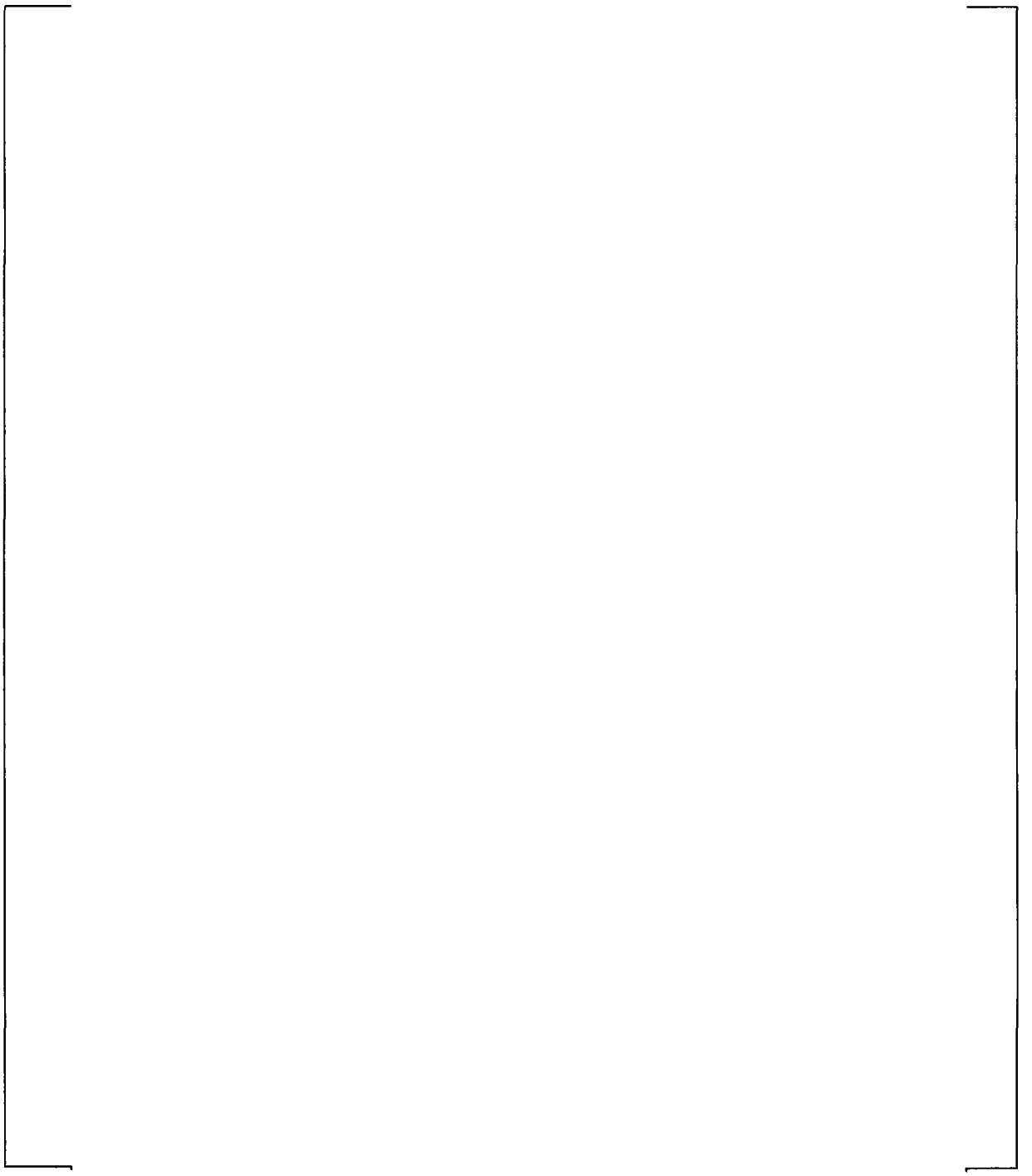

Figure 4.2-8. Effect of the Differences in SG Secondary Side Liquid Inventory. Core Mixture Level

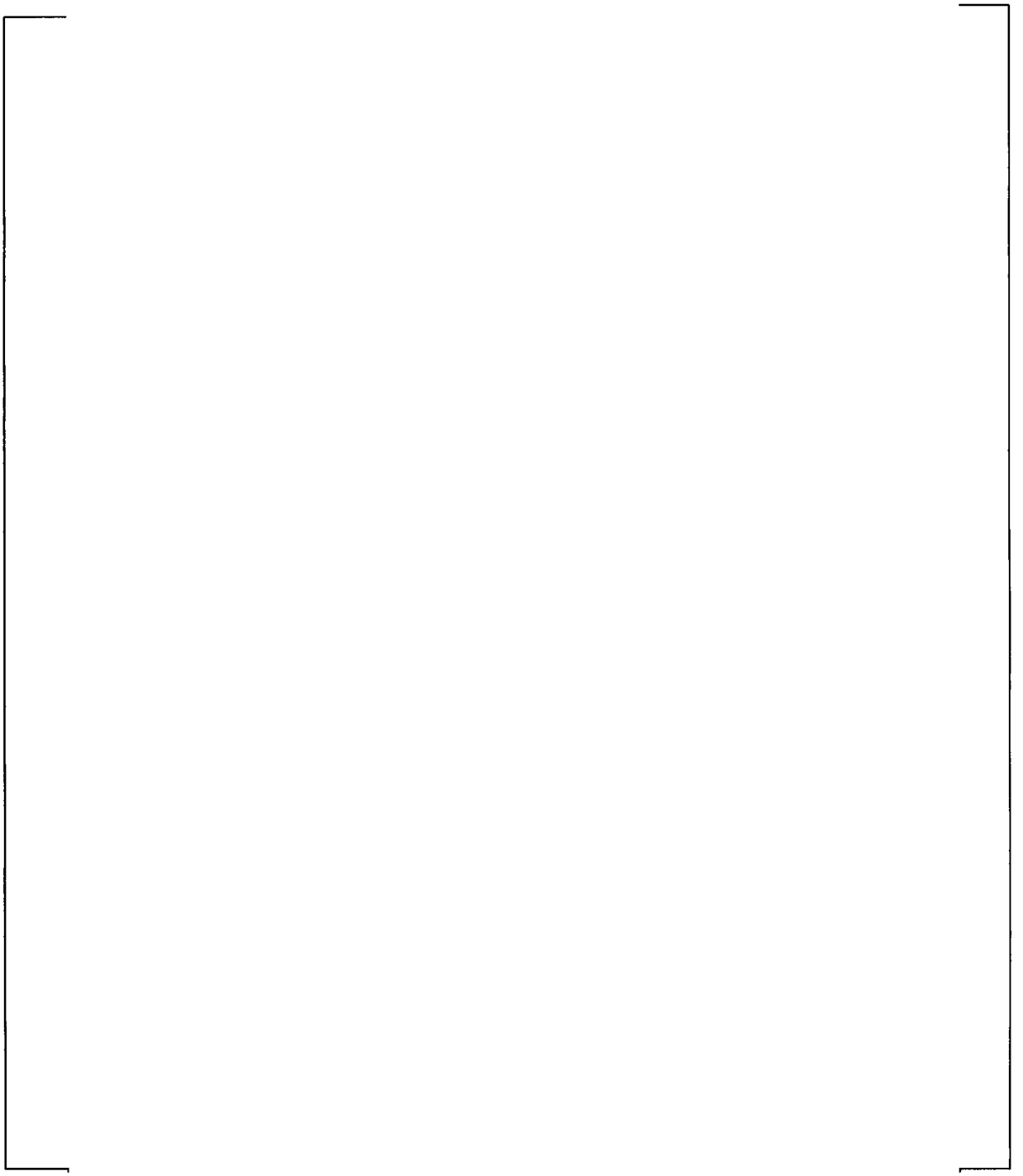

Figure 4.2-9. Effect of the Differences in SG Secondary Side Liquid Inventory. Hot Spot Cladding Temperature

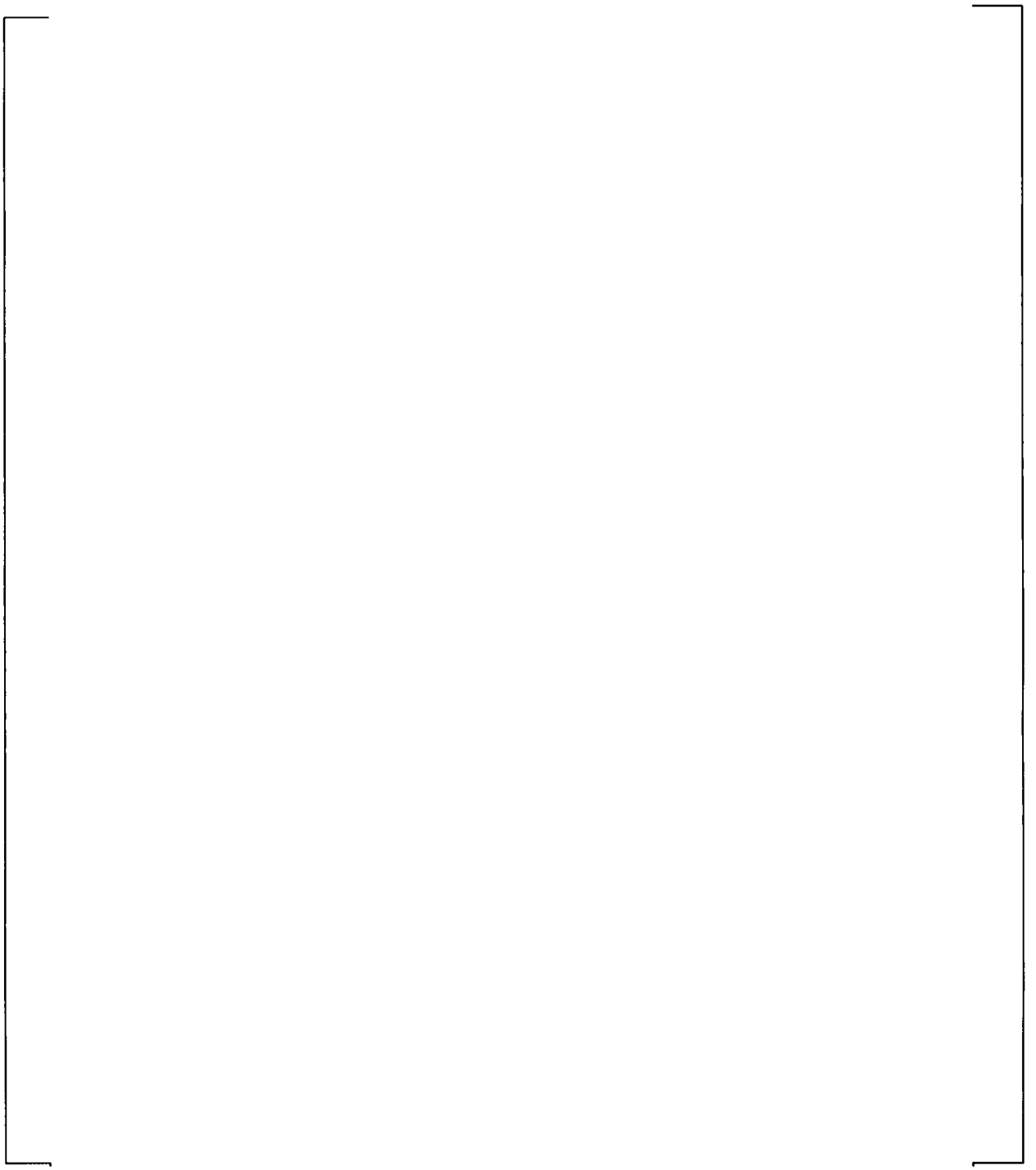

Figure 4.2-10. Effect of the Differences in Elevation of SG Components. Core Pressure

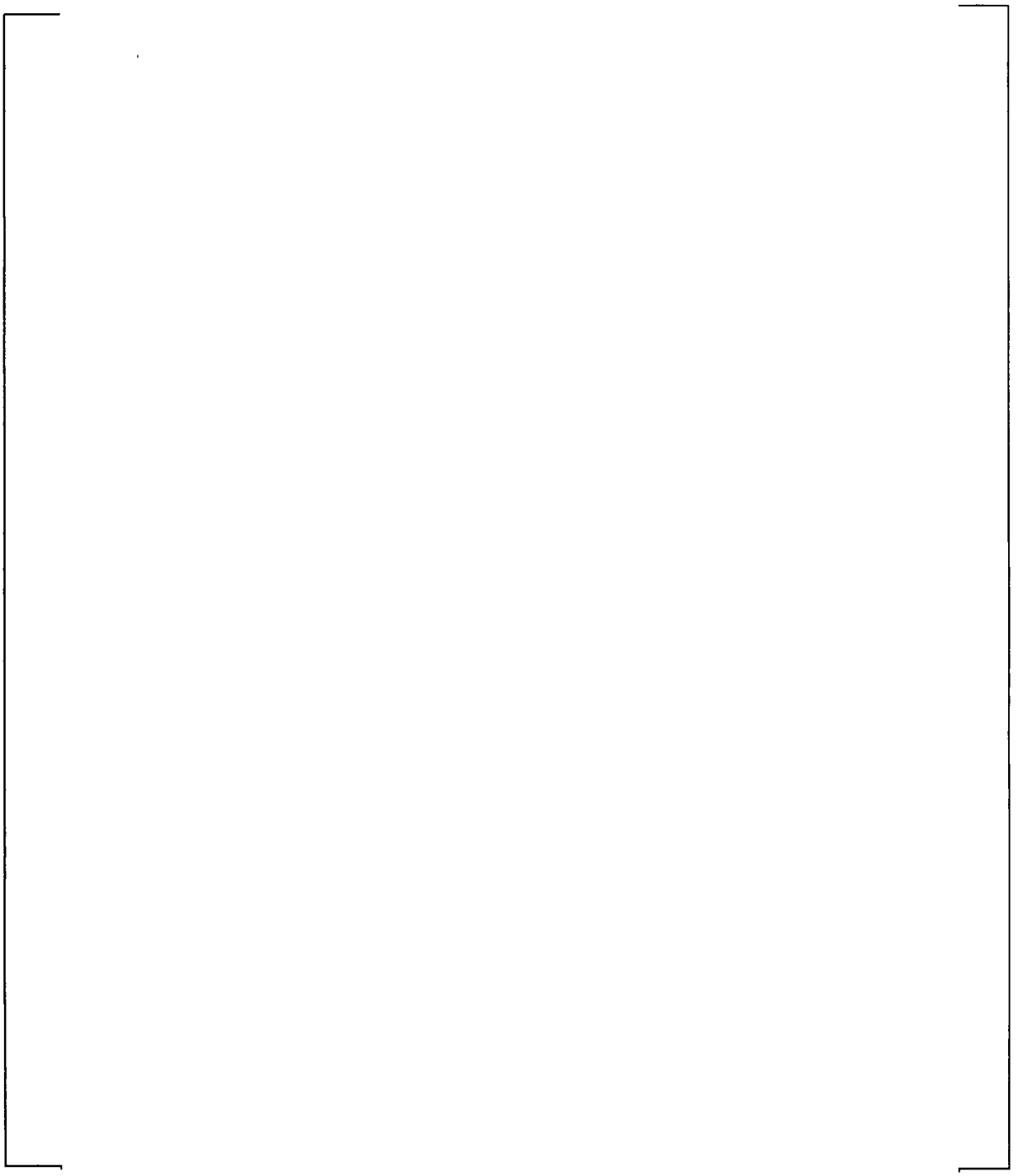

Figure 4.2-11. Effect of the Differences in Elevation of SG Components. Core Mixture Level

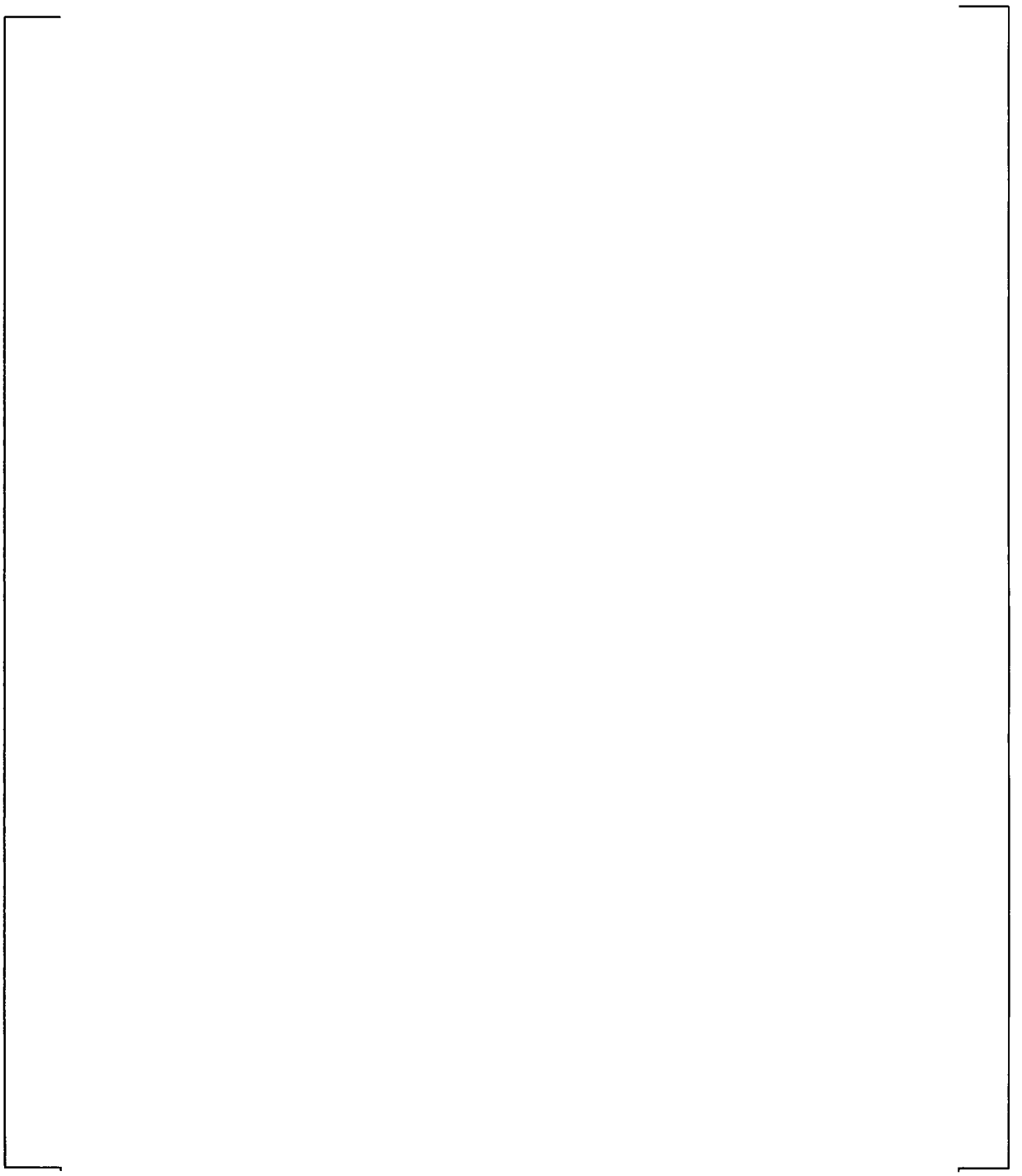

Figure 4.2-12. Effect of the Differences in Elevation of SG Components. Hot Spot Cladding Temperature

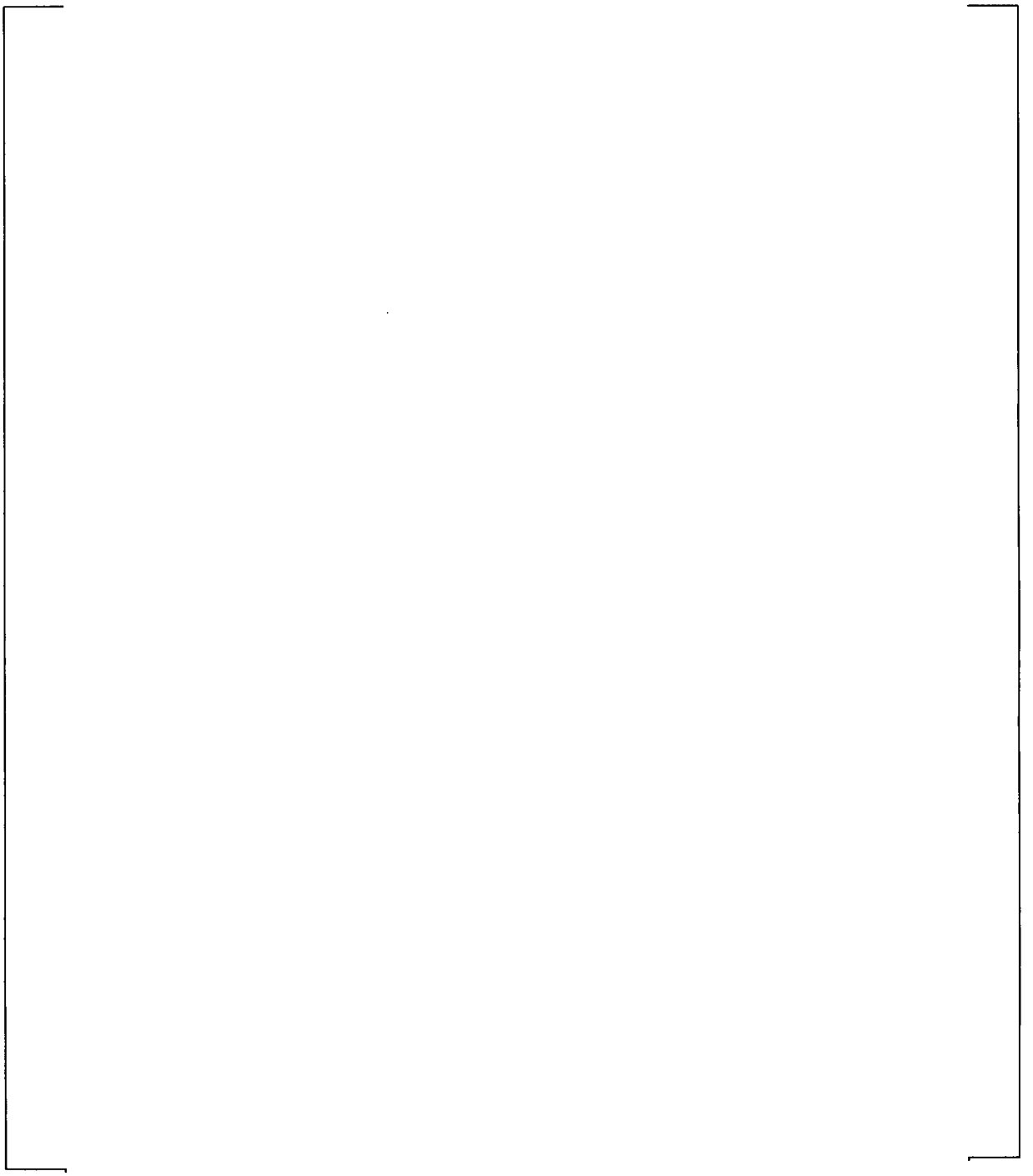

Figure 4.2-13. Effect of the Differences in SG Total Metal Mass. Core Pressure

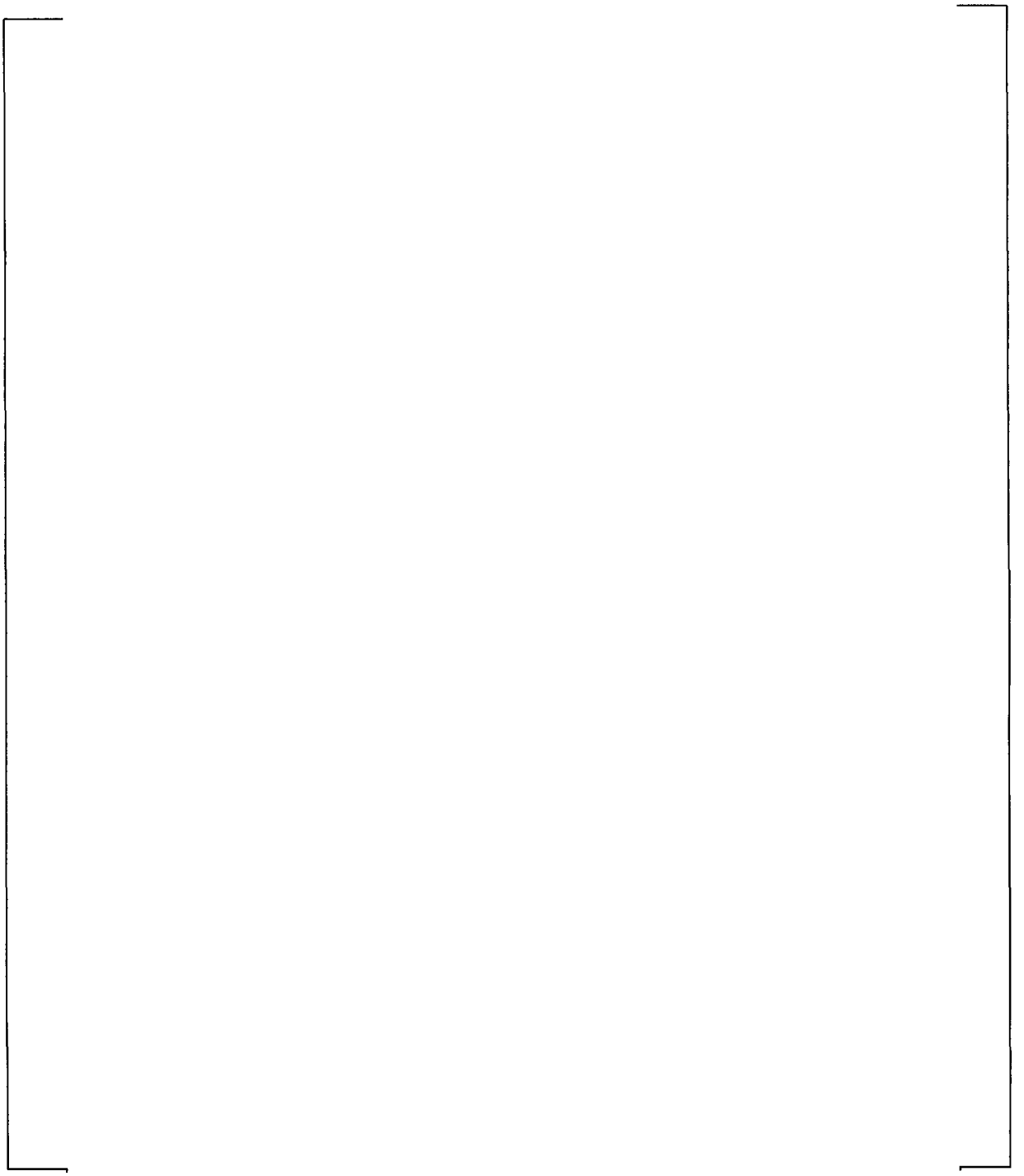

Figure 4.2-14. Effect of the Differences in SG Total Metal Mass. Core Mixture Level

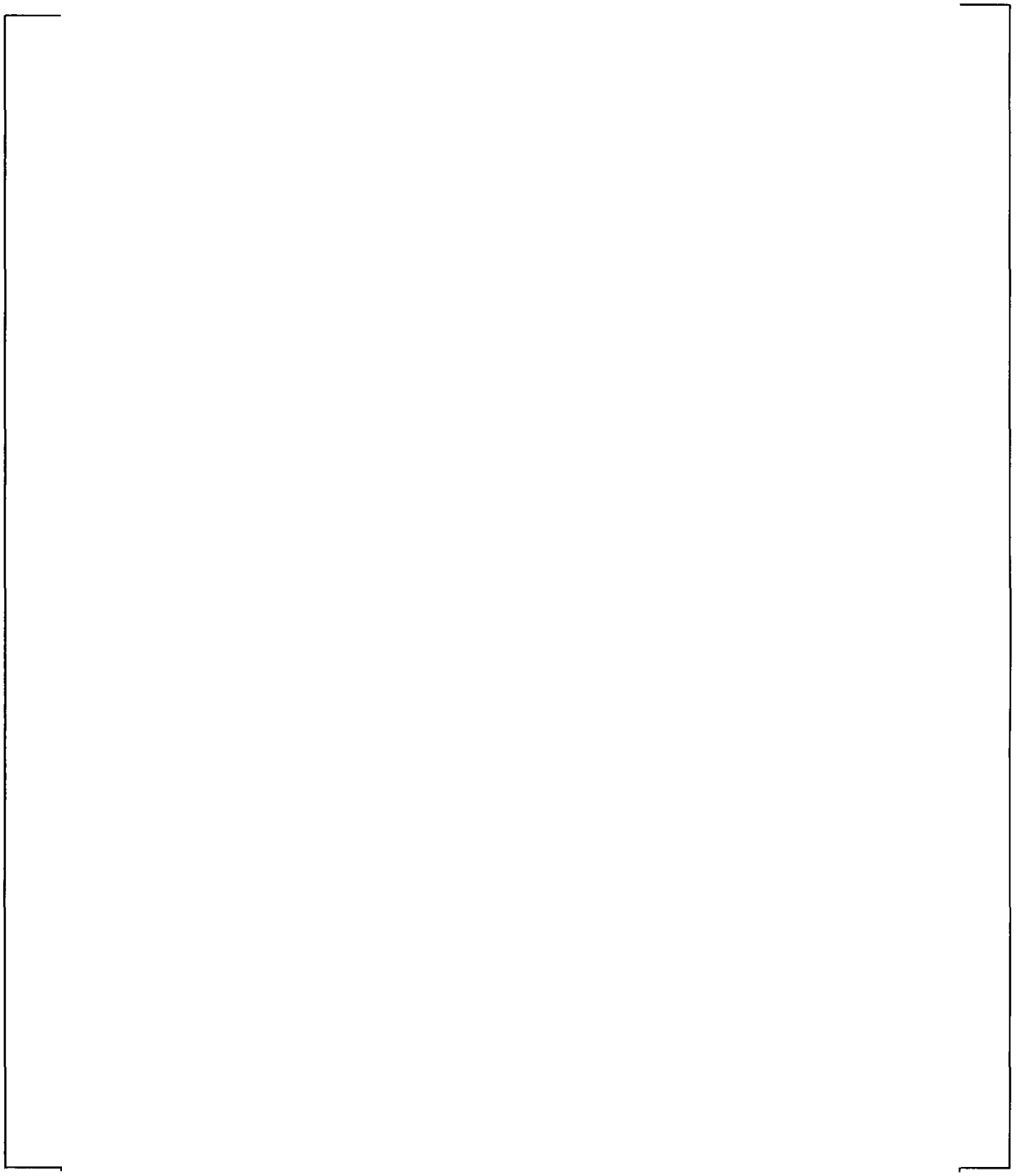

Figure 4.2-15. Effect of the Differences in SG Total Metal Mass. Hot Spot Cladding Temperature