

ENCLOSURE 2 CONTAINS PROPRIETARY INFORMATION –  
WITHHOLD FROM PUBLIC DISCLOSURE IN ACCORDANCE WITH 10CFR 2.390



Monticello Nuclear Generating Plant  
2807 W County Road 75  
Monticello, MN 55362

January 13, 2012

L-MT-11-004  
10 CFR 50.90

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

Monticello Nuclear Generating Plant  
Docket 50-263  
Renewed License No. DPR-22

Monticello Extended Power Uprate: Replacement Steam Dryer – Initial Response to Request for Additional Information (TAC MD9990)

- References:
- 1) Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "License Amendment Request: Extended Power Uprate (TAC MD9990)," L-MT-08-052, dated November 5, 2008. (ADAMS Accession No. ML083230111)
  - 2) Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "Monticello Extended Power Uprate: Replacement Steam Dryer Supplement (TAC MD9990)," L-MT-10-046, dated June 30, 2010. (ADAMS Accession No. ML102010462)
  - 3) Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "Monticello Extended Power Uprate: Updates to Docketed Information (TAC MD9990)," L-MT-10-072, dated December 21, 2010. (ADAMS Accession No. ML103570026)
  - 4) Email from Peter Tam (NRC) to Lynne Gunderson, et al. (NSPM), "Monticello EPU - Draft RAI regarding the Replacement Steam Dryer (TAC MD9990)," dated October 12, 2010. (ADAMS Accession No. ML102850581)
  - 5) Email from Peter Tam (NRC) to Lynne Gunderson, et al. (NSPM), "Monticello - Revised RAI regarding the Replacement Steam Dryer for EPU operation (TAC MD9990)," dated November 16, 2010. (ADAMS Accession No. ML103210297)

AG01  
NRR

- 6) Email from Peter Tam (NRC) to Lynne Gunderson, et al. (NSPM), "Monticello – Additional Draft RAI Questions for Extended Power Uprate Using the Replacement Steam Dryer (TAC MD9990)," dated March 16, 2011. (ADAMS Accession No. ML110760666)
- 7) Letter from Peter Tam (NRC) to T J O'Connor (NSPM) Subject: Monticello Nuclear Generating Plant (MNGP) - Audit Report, Use of Nordic Steam Dryer for Extended Power Uprate (TAC No. MD9990)," dated July 8, 2011. (ADAMS Accession No. ML11144A085)

Pursuant to 10 CFR 50.90, the Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, requested in Reference 1 an amendment to the Monticello Nuclear Generating Plant (MNGP) Renewed Operating License (OL) and Technical Specifications (TS) to increase the maximum authorized power level from 1775 megawatts thermal (MWt) to 2004 MWt.

In Reference 2 NSPM provided a supplement to Reference 1 to provide detailed design and analysis results for a replacement steam dryer (RSD) for MNGP. Reference 3 was provided to correct reactor internal pressure differential information provided in Reference 2.

In Reference 4 the NRC provided NSPM draft requests for additional information (RAIs). After a conference call was held to discuss the draft RAIs, the NRC made changes to several draft RAIs and forwarded those changes to NSPM in Reference 5. In reference 6 the NRC provided additional RAIs to NSPM. In April 2011 the NRC performed an audit of RSD documentation: Reference 7 is an audit report of that effort. In the audit report the NRC identified 18 Action Items associated with the RSD.

The purpose of this letter is to provide the NRC with responses to some of the RAIs provided by the NRC in Reference 4, as modified by Reference 5, and Reference 6. In addition, an Action Item from Reference 7 is also addressed in this letter.

Enclosure 1 provides a response to EMCB-SD-RAI-15 S02 and provides supplemental information concerning changes to the Power Ascension Test Plan (PATP) provided in Reference 2. The revised PATP is provided in Enclosure 5.

Enclosure 2 contains Westinghouse Electric Company, LLC (WEC) letter LTR-A&SA-11-57 P - Attachment, "Monticello Replacement Steam Dryer RAI Responses for Acoustic/Structural Analyses," dated November 2011. Enclosure 2 provides the responses to a selection of NRC RAIs and an Action Item, and contains WEC proprietary information.

In Enclosure 2, WEC provided a response to Action Item 17 concerning fabrication and weld qualification of the RSD. In addition to the WEC response provided, NSPM also performed three on-site surveillance inspections of the RSD fabrication activities in accordance with the NSPM quality assurance program. During these surveillances, a

comprehensive review was performed of steam dryer parts, welding, procedures, records and other fabrication activities and documents. Identified findings were resolved by WEC in accordance with the NSPM quality assurance program.

NSPM requests that the proprietary information in Enclosure 2 be withheld from public disclosure in accordance with 10 CFR 2.390(a)4, as authorized by 10 CFR 9.17(a)4. An affidavit supporting the request to withhold Enclosure 2 is provided in Enclosure 3. Accordingly, it is respectfully requested that the information which is proprietary to WEC be withheld from public disclosure in accordance with 10 CFR 2.390.

Correspondence with respect to the copyright or proprietary aspects of WEC information or the supporting WEC affidavit in Enclosure 3 should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company LLC, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Enclosure 4 contains WEC letter LTR-A&SA-11-57 NP - Attachment, "Monticello Replacement Steam Dryer RAI Responses for Acoustic/Structural Analyses," dated November 2011. Enclosure 4 is a redacted non-proprietary version of Enclosure 2 with the WEC proprietary information removed, and is suitable for public disclosure.

Enclosure 5 is a revision to the PATP provided in reference 2. This revision incorporates changes from answers to RAI questions provided herein.

This is the first in a series of letters in which NSPM will provide responses to NRC RAIs and provide updated technical data and analysis that support the suitability of the replacement steam dryer for operation in the EPU environment. Certain documents referenced in some of the RAI responses are not yet complete, but will be made available in upcoming letters. Therefore, statements made concerning the availability of specific documentation should not be taken as commitments but are provided as scheduler information only.

The RAI responses provided herein do not change the conclusions of the No Significant Hazards Consideration and the Environmental Consideration evaluations provided in reference 1 as revised by reference 3.

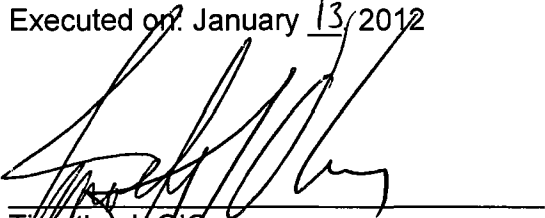
In accordance with 10 CFR 50.91(b), a copy of this application supplement, without enclosures is being provided to the designated Minnesota Official.

#### Summary of Commitments

This letter makes a revision to an existing commitment. In Reference 2, NSPM committed to implement the Power Ascension Test Plan (PATP) as described in Enclosure 1, Appendix 5. Enclosure 5 of this letter is modifying the description of PATP but not the commitment to perform the PATP. Therefore, the commitment is revised.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: January 13, 2012



---

Timothy J. O'Connor  
Site Vice President  
Monticello Nuclear Generating Plant  
Northern States Power Company-Minnesota

Enclosures (5)

cc: Administrator, Region III, USNRC  
Project Manager, Monticello Nuclear Generating Plant, USNRC  
Resident Inspector, Monticello Nuclear Generating Plant, USNRC  
Minnesota Department of Commerce (w/o enclosures)

## ENCLOSURE 1

### RESPONSE TO NRC REQUEST FOR ADDITIONAL INFORMATION EMCB-SD-RAI-15 S02 AND SUPPLEMENTAL INFORMATION

This enclosure provides a response from the Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, to requests for additional information (RAIs) provided by the Nuclear Regulatory Commission (NRC).

#### **MNGP- RAI EMCB-SD-RAI-15 S02**

*Please update the power ascension procedure to include a 96-hour evaluation period by the NRC staff, following receipt of calculations and evaluations justifying continued ascension following a level 1 limit curve exceedance.*

#### **Response:**

In NSPM letter L-MT-10-046 (reference RAI-15-1), Enclosure 1, Appendix 5, NSPM stated that should allowable stress levels be exceeded during power ascension (i.e., exceeds Level 1 curve as measured by the main steam line (MSL) strain gauge readings), then NSPM would reduce power to a previously acceptable level and re-evaluate the allowable stress levels. In addition, NSPM further stated that it would provide to the NRC data reductions and comparisons to design data after appropriate Monticello Nuclear Generating Plant (MNGP) plant management review. If new limit curves are required they will be transmitted to the NRC. Power ascension will continue when Operations is satisfied that all test conditions have been successfully met.

Based on the above NRC request, should it become necessary, if an allowable stress limit is exceeded which requires new limit curves to be developed, NSPM will provide the new limit curves to the NRC and will reduce power to a previously acceptable level. The EPU Power Ascension Test Plan (PATP) is being revised to provide the NRC with a 96 hour period following receipt of new limit curves and justification documentation to evaluate the condition prior to NSPM raising power. Power ascension may continue prior to completion of the NRC evaluation period (96 hour period) if the NRC states their acceptance of NSPM's justification and MNGP plant management approves continued power ascension. After the 96 hours have expired, NSPM may, at its own discretion, continue with power ascension in accordance with the PATP.

After implementation of sections A and B of the EPU PATP and a review of the acoustic loading data taken during power ascension, NSPM has determined that sufficient structural margin has been maintained (not reduced) at CLTP conditions as compared to the analysis performed for the replacement steam dryer (RSD) use at CLTP conditions. This provides assurance that the design work for the RSD provided in

L-MT-11-004  
Enclosure 1

reference RAI-15-1 (specifically WCAP-17085-P) was conservative and provided an adequate conservative analysis of the RSD.

The change described above has been made to the EPU PATP included in Enclosure 5 of this letter. Other changes are also included, including monitoring for moisture carryover. See supplemental information included on the following pages for further details.

References:

RAI-15-1 Letter from T J O'Connor (NSPM) to Document Control Desk (NRC), "Monticello Extended Power Uprate: Replacement Steam Dryer Supplement (TAC MD9990)," L-MT-10-046, dated June 30, 2010. (ADAMS Accession No. ML102010462)

## **SUPPLEMENTAL INFORMATION**

### **Change to Power Ascension Test Plan for the Replacement Steam Dryer**

#### **Background**

In L-MT-10-046, NSPM provided the NRC a proposed modification to the extended power uprate project that involved replacement of the steam dryer. The letter included various evaluations and analyses of the replacement steam dryer (RSD) including in Enclosure 1, Appendix 5 a power ascension test plan (PATP) for the RSD. In addition, NSPM provided a commitment to the NRC to implement the PATP after installation of the RSD.

The RSD - PATP is divided into three testing plans to ensure that sufficient monitoring of the RSD is accomplished as required by Regulatory Guide 1.20.

- Section A – Performs testing from 0% – 80% of the current licensed thermal power level (CLTP is 1775 MWt). This equates to 0 MWt to approximately 1420 MWt - Completed.
- Section B – Performs testing from 80% to 100% of the CLTP. This equates to 1420 MWt to approximately 1775 MWt - Completed.
- Section C – Performs testing above 100% of CLTP to the full CPPU conditions. This equates to 1775 MWt to 2004 MWt. This section will only be completed after NRC approval to proceed to CPPU.

During each section of the PATP, Moisture Carryover (MCO) data, direct monitoring of the steam dryer data (from RSD strain gauges, RSD accelerometers and RSD pressure transducers), and indirect monitoring of the steam dryer data (from Main Steam Line Strain Gauges) is to be taken.

#### **Description of Change**

Upon further evaluation of the PATP, NSPM has determined that obtaining MCO data at lower power conditions does not provide useful results and therefore, cannot be relied on as an indication of steam dryer performance. Therefore, monitoring this parameter during low power conditions will not be performed.

Other minor editorial changes, corrections and reformatting of the PATP have been performed which do not affect the objectives or scope of the PATP. The editorial changes, corrections and reformatting changes are not discussed further in this document.

### **Basis for Change**

The following is an excerpt from General Electric Service Information Letter (SIL) 644, "BWR steam dryer integrity," Rev. 2, Appendix D:

*"While monitoring for indications of steam dryer cracking is important, it is equally important to be aware that individual apparent indications of steam dryer cracking may be due to other factors. BWR moisture carryover may be impacted by: (1) reactor power level, (2) core flow and power distributions, (3) localized "hot spots", (4) core inlet sub-cooling (which is related to final Feedwater temperature), and (5) reactor water level.*

*Moisture carryover is very sensitive to power level. Therefore, data should be collected during steady state operations at the highest possible power levels.*

*Moisture carryover has increased in cases where steam flow is increased towards the center of the core.*

*Moisture carryover has increased in cases where core inlet sub-cooling is decreased (i.e., final Feedwater temperature is increased).*

*Moisture carryover has increased in cases where reactor water level is increased (due to degraded separator performance).*

*Moisture carryover has increased due to changes in the core power distribution associated with an increased radial peaking factor."*

### **Conclusion**

Therefore, based on the above, the PATP has been revised to eliminate the collection of MCO data below approximately 99.5% of Current Licensed Thermal Power (CLTP). Collection of MCO data will begin at 99.5% of CLTP and continue at predefined intervals up to full extended power uprate (EPU) conditions.

Currently, at CLTP conditions, monitoring of MCO indicates that steam quality is approximately 99.99% and has not dipped below 99.984% since replacement of the steam dryer occurred in May 2011. Whereas the previously installed steam dryer had steam quality measurements over the last cycle varying from 99.876% up to a maximum of 99.984%. This indicates improved steam quality conditions using the replacement steam dryer.

At approximately 99.5% - 100% (1765 – 1775 MWt) the test plan will obtain the first MCO data. System performance and integrity will be evaluated based on the review and analysis of MCO values. For the MCO element, an acceptance criterion is established in the PATP. Data evaluation and analyses will be performed by comparing actual obtained data against the acceptance criterion. The MCO criterion will provide



L-MT-11-004  
Enclosure 1

an action level, which are used in determining the acceptability of the continuance of power ascension. Enclosure 5 contains a revised PATP.

L-MT-11-004

**ENCLOSURE 3**

**WESTINGHOUSE AFFIDAVIT FOR WITHHOLDING PROPRIETARY INFORMATION**

**6 pages follow**

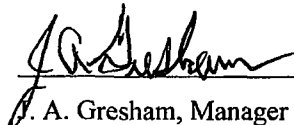
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

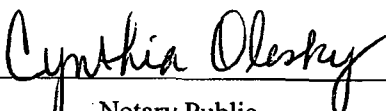
SS

COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared J. 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:

  
\_\_\_\_\_  
J. A. Gresham, Manager  
Regulatory Compliance

Sworn to and subscribed before me  
this 21st day of November 2011

  
\_\_\_\_\_  
Notary Public

COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Cynthia Olesky, Notary Public  
Manor Boro, Westmoreland County  
My Commission Expires July 16, 2014  
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-A&SA-11-57 P-Attachment, Revision 1, "Monticello Replacement Steam Dryer RAI Responses for Acoustic/Structural Analyses" (Proprietary), for submittal to the Commission, being transmitted by Xcel Energy Inc. 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 Monticello Extended Power Uprate License Amendment Request and may be used only for that purpose.

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

- (a) Provide detailed design information to Xcel Energy.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of this information to its customers for purposes of Replacement Steam Dryers performance during power uprates.
- (b) Westinghouse can sell support and defense of the use of Steam Dryer design.
- (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 calculations 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 for generic and/or plant-specific review and approval.

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).

### **Copyright Notice**

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.



**ENCLOSURE 4**

**WESTINGHOUSE LETTER, LTR-A&SA-11-57 NP- ATTACHMENT  
MONTICELLO REPLACEMENT STEAM DRYER  
RAI RESPONSES FOR ACOUSTIC/STRUCTURAL ANALYSES**

**This section covers the following NRC Requests for Additional Information:**

- |                                  |                                    |
|----------------------------------|------------------------------------|
| <b>1) MNGP-EMCB-SD-RAI-2 S02</b> | <b>2) MNGP-EMCB-SD-RAI-24</b>      |
| <b>3) MNGP-EMCB-SD-RAI-26</b>    | <b>4) MNGP-EMCB-SD-RAI-28</b>      |
| <b>5) MNGP-EMCB-SD-RAI-34</b>    | <b>6) MNGP-EMCB-SD-RAI-29</b>      |
| <b>7) MNGP-EMCB-SD-RAI-41</b>    | <b>8) NRC Audit Action Item 17</b> |

**29 pages follow**

**Attachment B**  
**LTR-A&SA-11-57 NP-Attachment, Revision 2**

**Monticello Replacement Steam Dryer**  
**RAI Responses for Acoustic/Structural Analyses**

**Matthew Iannacci**  
**Gianluca Longoni**  
**George McDonough**

**Acoustics & Structural Analysis**

**November 2011**

**Approved: David R. Forsyth, Manager**  
**Acoustic and Structural Analysis**

## Monticello Replacement Steam Dryer RAI Responses for Acoustic/Structural Analyses

### MNGP- EMCB-SD-RAI-2 S02

Section 2.1.2 of Appendix 5 of Enclosure 1 of L-MT-10-046, describes the Power Ascension Test Plan (PATP) for the replacement steam dryer (RSD) and states that *“It is not expected that instrumentation performing direct monitoring of the RSD will be operational through the power ascension process. Therefore, this monitoring may not be available through the full RSD – PATP.”* Section 2.2 further states that: *“The assessment of the system/component performance and integrity will be completed through the analysis of both main steam line and dryer moisture carryover data.”* In other words, the dryer sensors are not expected to provide any data to benchmark the ‘prototype’ RSD or validate the results of the pre-operational vibration analysis. It is not clear to the NRC staff why the licensee assumes that the dryer sensors will fail and will not be functioning during power ascension, although similar instrumentation and measurements have been performed successfully in other plants (e.g., QC2 and Susquehanna).

- (a) Please explain how the locations for the RSD instrumentation will be selected to ensure proper benchmarking, and to provide evidence that the dryer sensors will be installed to quality standards commensurate with the importance of retaining the majority of the sensors operational during the power ascension to benchmark the prototype dryer.

### Response:

Northern States Power, Minnesota (NSPM) has installed the RSD along with direct steam dryer monitoring instrumentation which consisted of [ ]<sup>a,c</sup> mounted directly to the RSD. [ ]<sup>a,c</sup>

[ ]<sup>a,c</sup> The location and justification of RSD instrumentation was made available to the NRC in Westinghouse document [ ]<sup>a,c</sup> as part of the NRC Audit Report by the Office of Nuclear Reactor Regulation Replacement Steam Dryer – Nordic Steam Dryer Supplied by Westinghouse Monticello Nuclear Generating Plant Extended Power Uprate (EPU) License Amendment Request (TAC No. MD9990 (Accession No. ML11144A096)).

The [ ]<sup>a,c</sup> were selected for their resistance to the environmental conditions to be found inside the reactor vessel steam dome, in addition to meeting the data gathering requirements of this project. All [ ]<sup>a,c</sup> have acceptable operational history in similar environments. To date, [ ]<sup>a,c</sup> at steady state CLTP conditions.

[ ]<sup>a,c</sup> was employed as an independent entity to perform various testing on the instruments selected to ensure the instrumentation met the structural design requirements for installation into the Monticello Nuclear Generating Plant (MNGP during operations at CLTP and EPU. [

] <sup>a,c</sup>

During site installation [ ]<sup>a,c</sup> was performed by qualified personnel. These personnel worked to procedures that had been approved by the site. [

] <sup>a,c</sup>

NSPM understands that instrumentation mounted directly to the steam dryer has not always provided reliable data during power ascension activities as implied by Regulatory Guide 1.20, Revision 3, Section C.2.2. In addition, MNGP may require a longer period of operation at CLTP before proceeding to EPU conditions than other stations have experienced. However, as stated above, [

] <sup>a,c</sup>

NSPM installed the RSD along with direct monitoring instrumentation [ ]<sup>a,c</sup> and ascended to CLTP conditions in the May/June 2011 timeframe (reference RAI-2(b) – 1). It is not expected at this time that EPU conditions will be authorized by the NRC until sometime later due to MNGPs continued reliance on containment accident pressure in EPU analyses. Therefore, the MNGP RSD [ ]<sup>a,c</sup> may experience prolonged exposure to reactor pressure and temperature conditions prior to being authorized to proceed above CLTP conditions. Direct monitoring instrumentation is unavailable for repair/replacement during normal plant operation. For these reasons NSPM stated that the direct monitoring instrumentation may not be available above CLTP conditions.

The present plan is to [

] <sup>a,c</sup>

(b) Also, the NRC staff believes, based on earlier experience with MSL measurements, that at least two pairs of functional MSL strain gages are required to ensure an acceptable measurement of internal acoustic pressure. Please provide an explanation if adequate measures are in place to ensure that at

least two pairs of functional MSL strain gages are available at each location for the measurement of acoustic pressure.

**Response:**



a,c

**MNGP- EMCB-SD-RAI-24**

In WCAP-17251-P, Rev. 0, "Monticello Replacement Steam Dryer Four Line-Acoustic Subscale Testing Report," one second of data was selected for frequency domain analysis. The selected data set started when the static pressure in the tank fell to 190 psig. Figures 4.4-1 and 4.4-2 of this report indicate that the transient response at the beginning of the tank depressurization continues into the start of the data set selected for frequency analysis. Please explain the effect of including this initial transient response in the data set on the frequency analysis. Please demonstrate that this effect is conservative with respect to the lowest stress ratio of the RSD.

**Response:**

The graphs shown in Figure 4.4-1 and 4.4-2 show the entire data collection for a representative subscale model run. It is used solely to demonstrate the effect of typical filtering performed on the subscale data.

[

] a,c

**MNGP- EMCB-SD-RAI-26**

It appears that the label for the abscissa in Figures 5.4-5 to 5.4-8 in (WEC Report WCAP-17251-P, Rev. 0) should read Mach number and not frequency. Please clarify and correct, if appropriate.

**Response:**

The NRC is correct in that Figures 5.4-5 to 5.4-8 should have the label for the abscissa denoted as the “Mach Number” and not “Frequency” as indicated. This will be corrected in the next revision of the document planned for [ ] a,c

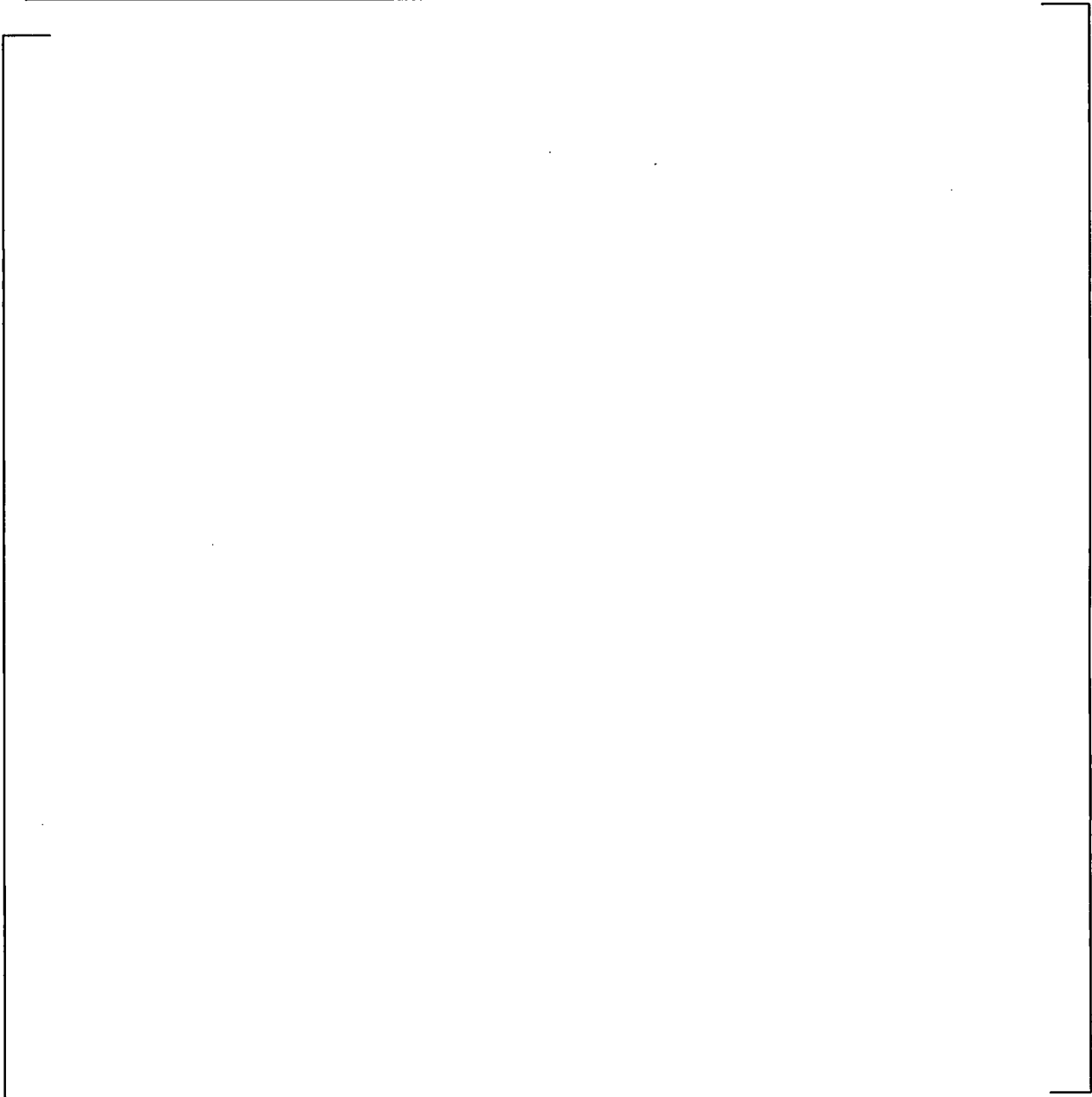
**MNGP- EMCB-SD-RAI-28**

WEC Report WCAP-17252-P, Rev. 0, mentions several times that the dryer pressure loading was computed using the methodology in BWRVIP-194, which is cited as Reference 1 in the report. However, this document, “BWRVIP-194: BWR Vessel and Internals Project, Methodologies for Demonstrating Steam Dryer Integrity for Power Uprate,” has not yet been approved by the NRC staff. Therefore, please provide the necessary additional technical information or propose an acceptable method to address the reference to the BWRVIP-194, which is not endorsed by the staff.

**Response:**

[ ] a,c

a,c



a,c

**MNGP- EMCB-SD-RAI-29**

Figures 3-2 to 3-9 in WEC Report WCAP-17252-P, Rev. 0, show typical results of the root mean square (RMS) differential pressure on the dryer. Please explain whether these results (i.e., the dryer load) are computed from the 2007 in-plant measurements with 38 failed gages, or from the 2008 measurements with fully operating strain gages. In case, they are based on the 2007 measurements with 38 failed strain gages, please explain why the dryer load definition is not updated with the more complete set of strain gage (SG) measurements obtained in 2008.



**Response:**

a,c

**MNGP- EMCB-SD-RAI-34**

The licensee submitted the fatigue assessment results for the replacement steam dryer (RSD) in WCAP-17085-P, Revision 1, Monticello Replacement Steam Dryer Structural Evaluation for High-Cycle Acoustic Loads. Section 2.2.1, "Endurance Strength Limits," of the report, refers to Appendix I of the 2007 version of the ASME Code, Section III, and states that according to Figures I-9.2.2 and I-9.2.3 in the appendix, the code allows the use of Curve B for welds under certain stress conditions. The NRC staff would like to point out that in the 2010 version of the code, fatigue Curves A and B have been removed from Figure I-9.2.2 because these curves have been found lacking sound technical basis. As a result, the 2010 version of the code includes only Curve C in Figure I-9.2.2. So the NRC staff requests the licensee to consider Curve C of the ASME Code version the licensee is using for the fatigue assessment of the RSD and ensure that the minimum alternating stress intensity ratio under EPU conditions is greater than 2.0. The NRC staff is not requesting the licensee to utilize the 2010 edition of the ASME code.

**Response:**

Revised stress margins will be calculated and will use [ ]<sup>a,c</sup>. These results will show that the resulting stress ratios for all dryer locations exceed a value of 2.0 under EPU conditions.

**MNGP-EMCB-SD-RAI-41**

The licensee is requested to submit the instrumentation plan of the replacement steam dryer at Monticello for staff review. The staff requests that the licensee include, in the plan, the types of sensors (accelerometers, pressure sensors, and strain gages) to be used, identifying/justifying their locations, and addressing how the measured results would be used.

**Response:**

The location and justification of RSD instrumentation was made available to the NRC in Westinghouse document [ ]<sup>a,c</sup> as part of the NRC Audit Report by the Office of Nuclear Reactor Regulation Replacement Steam Dryer – Nordic Steam Dryer Supplied by Westinghouse Monticello Nuclear Generating Plant Extended Power Uprate License Amendment Request (TAC No. MD9990 (Accession No. ML11144A096)). The Audit Report stated that “based on the information obtained during the audit, the staff finds that the steam dryer instrumentation, its locations, and the data acquisition plan, are well founded and grounded in previously successful in-plant measurement programs. The NRC staff, therefore, finds the dryer instrumentation and data acquisition plans acceptable.”

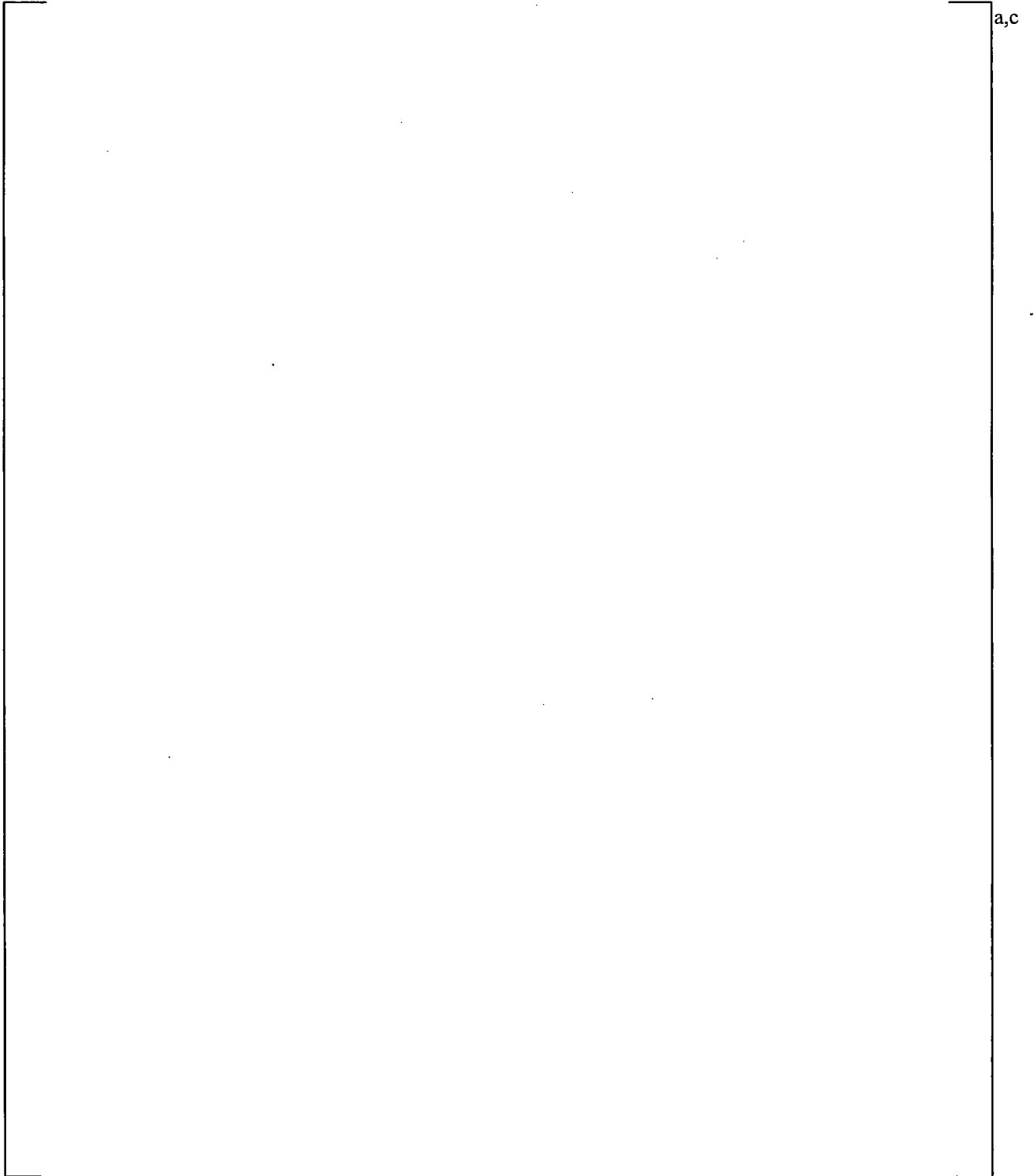
[ ]<sup>a,c</sup>

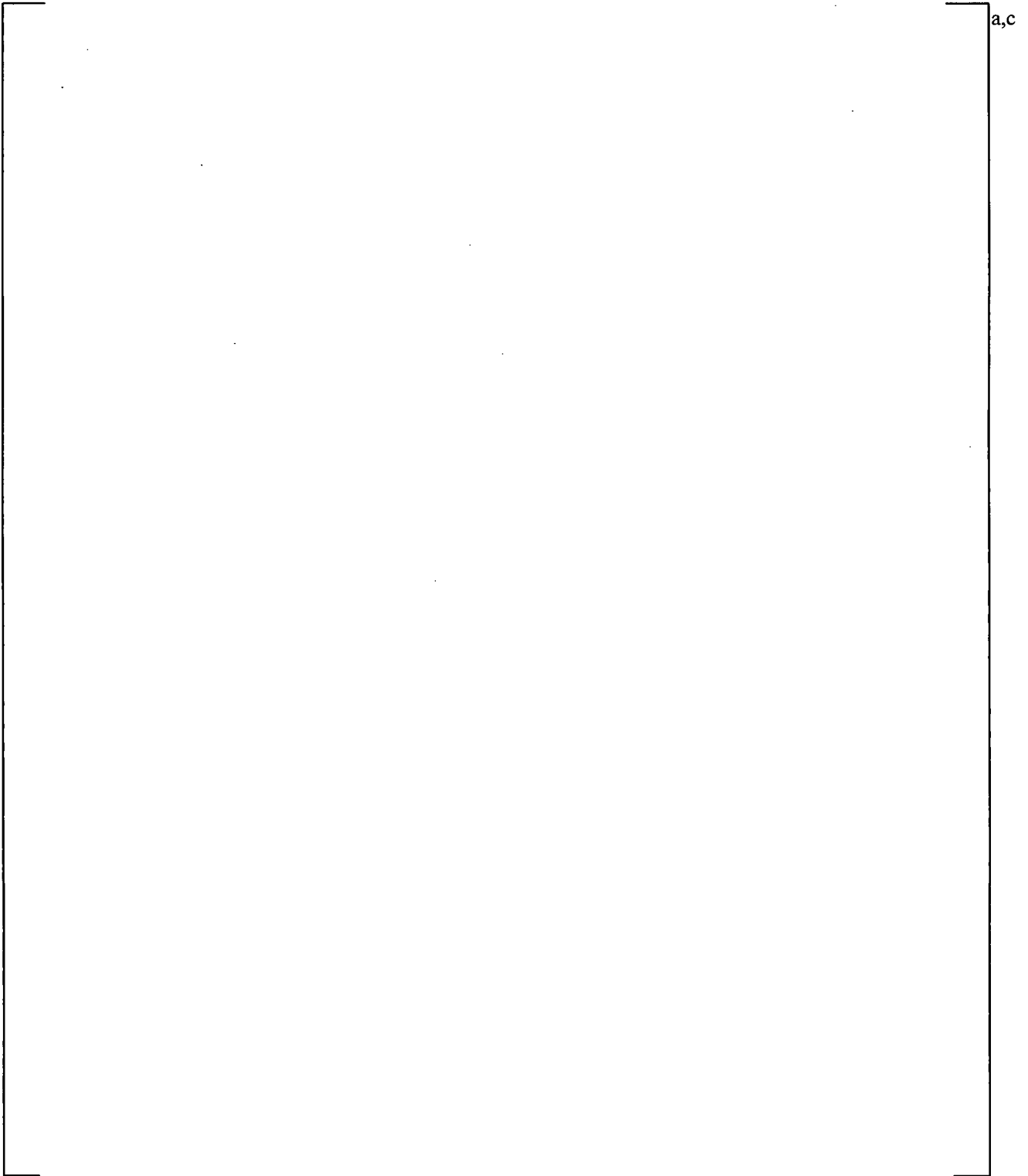
**ITEM 17 from NRC Audit**

The licensee is requested to provide a brief summary of the fabrication and weld qualification for the replacement dryer including annealing of the welds.

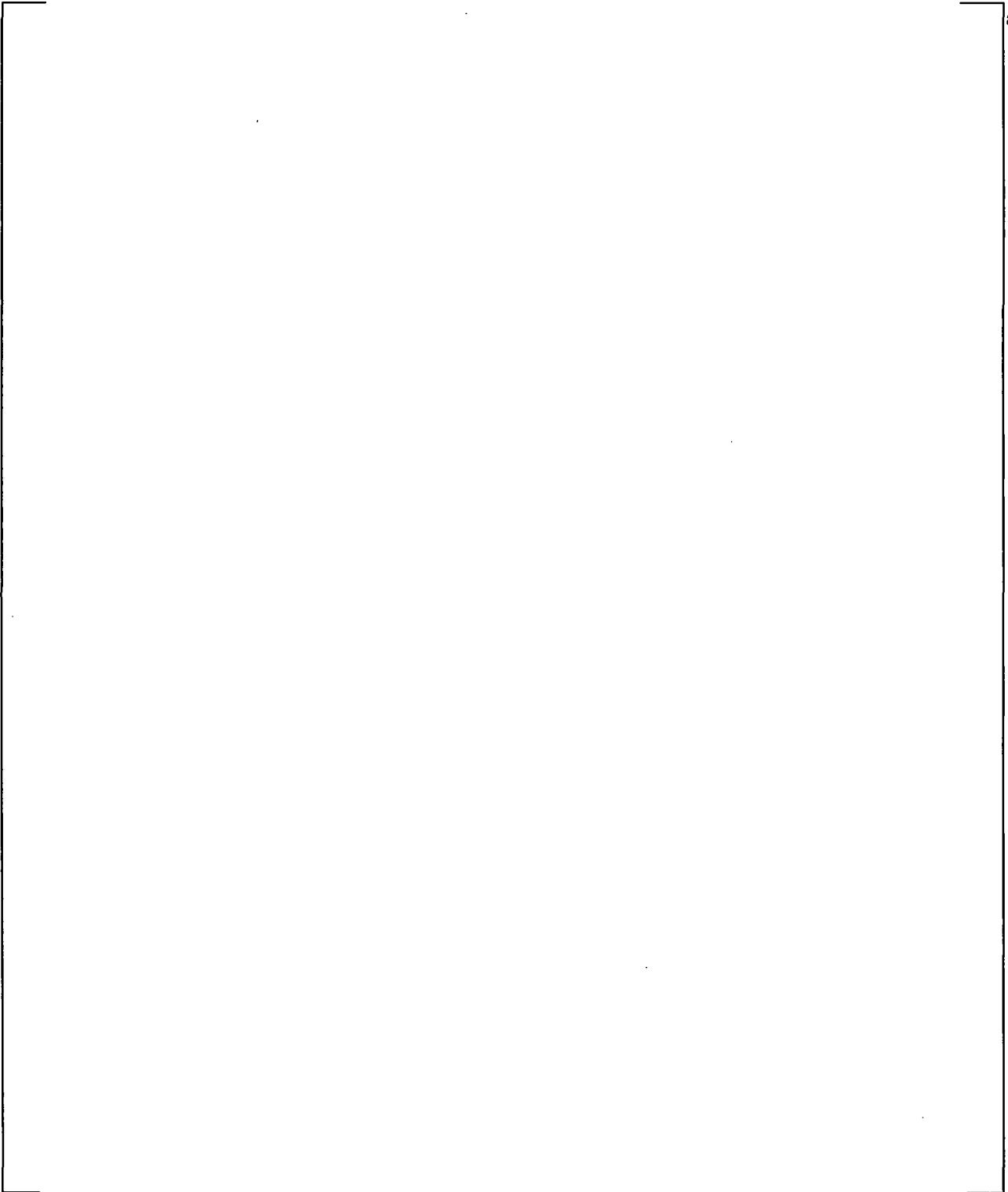
**Response:**

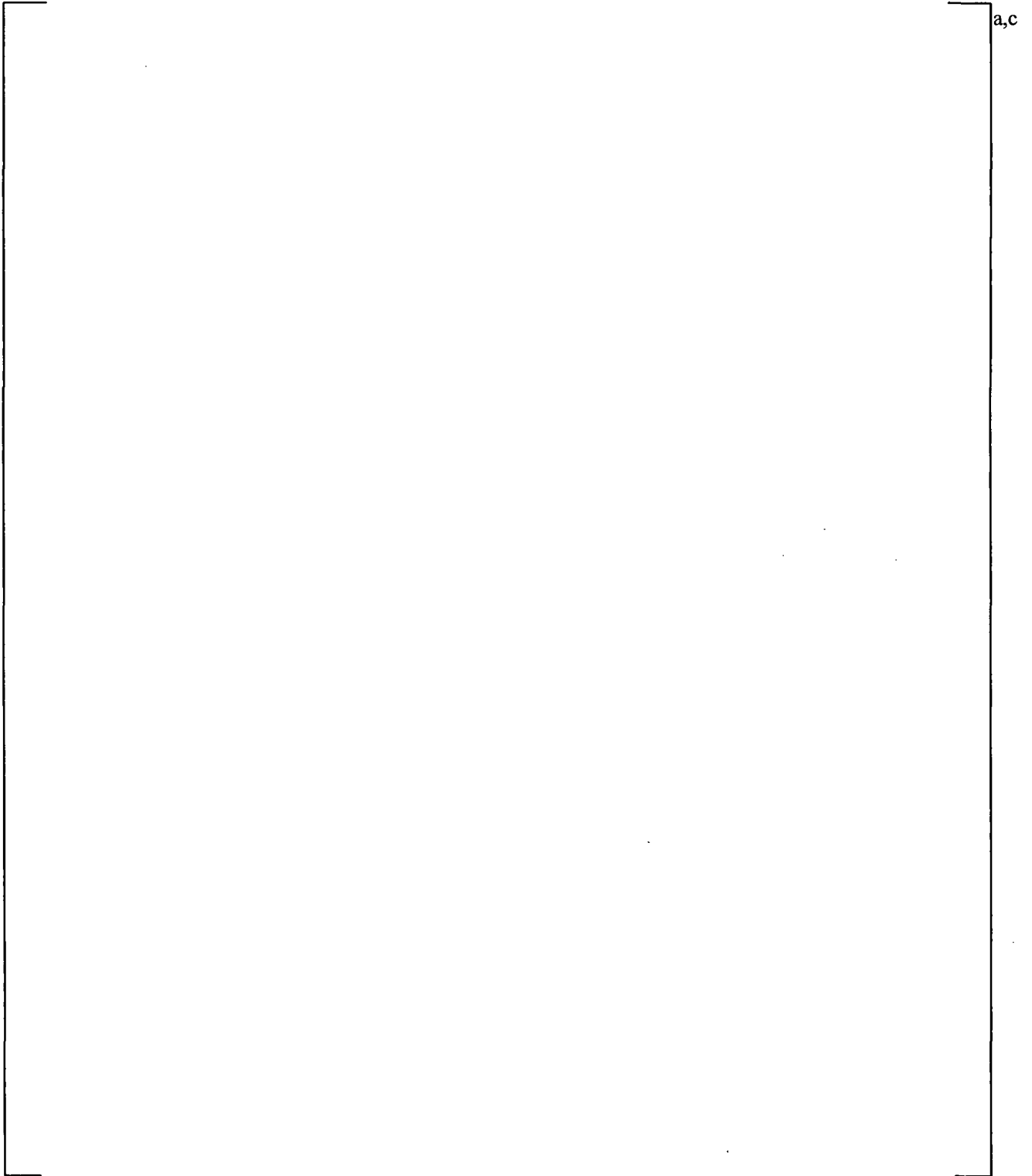
The fabrication was performed in accordance with the fabrication specification [ ]<sup>a,c</sup> (See Below).  
[ ]<sup>a,c</sup>

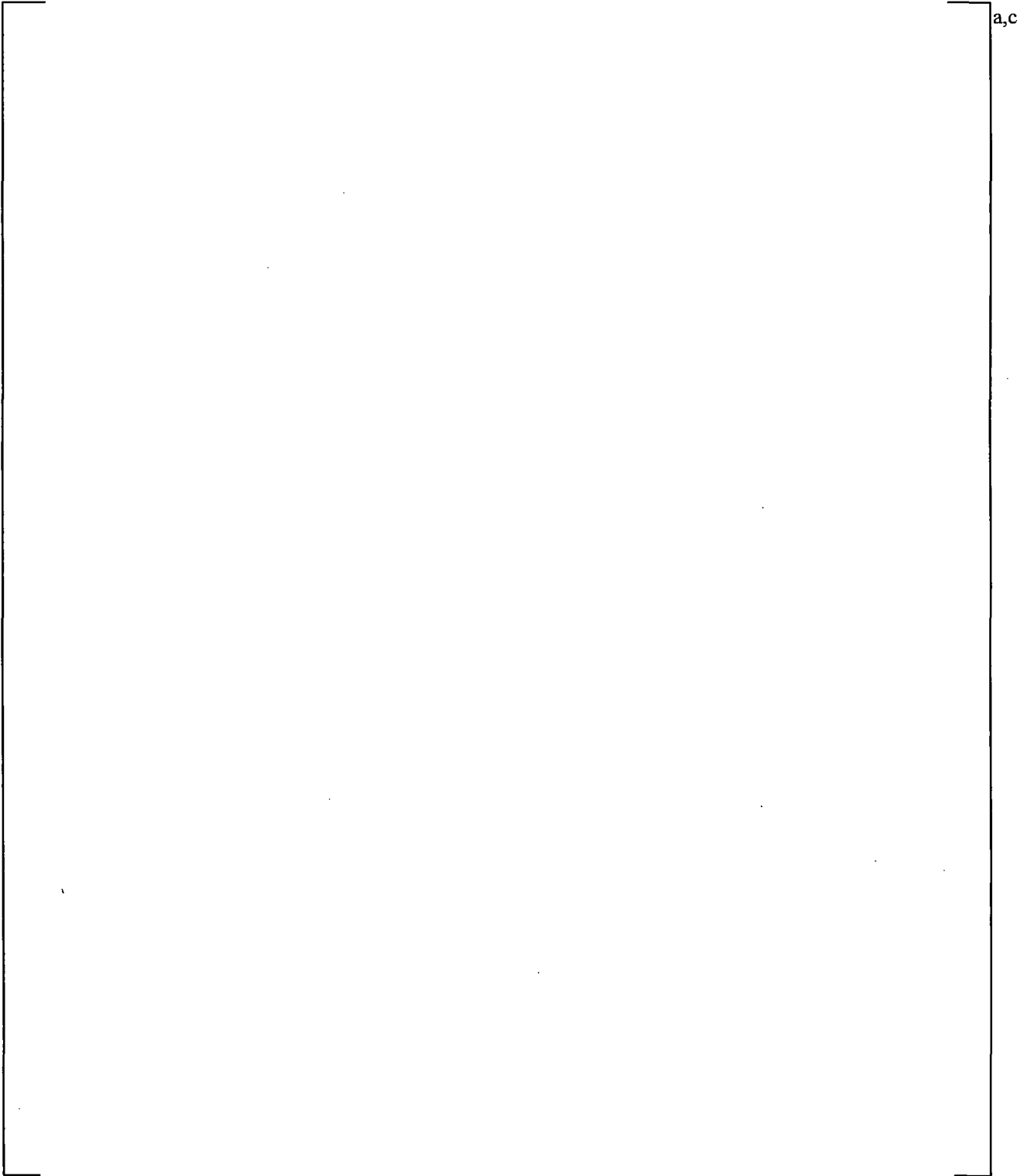




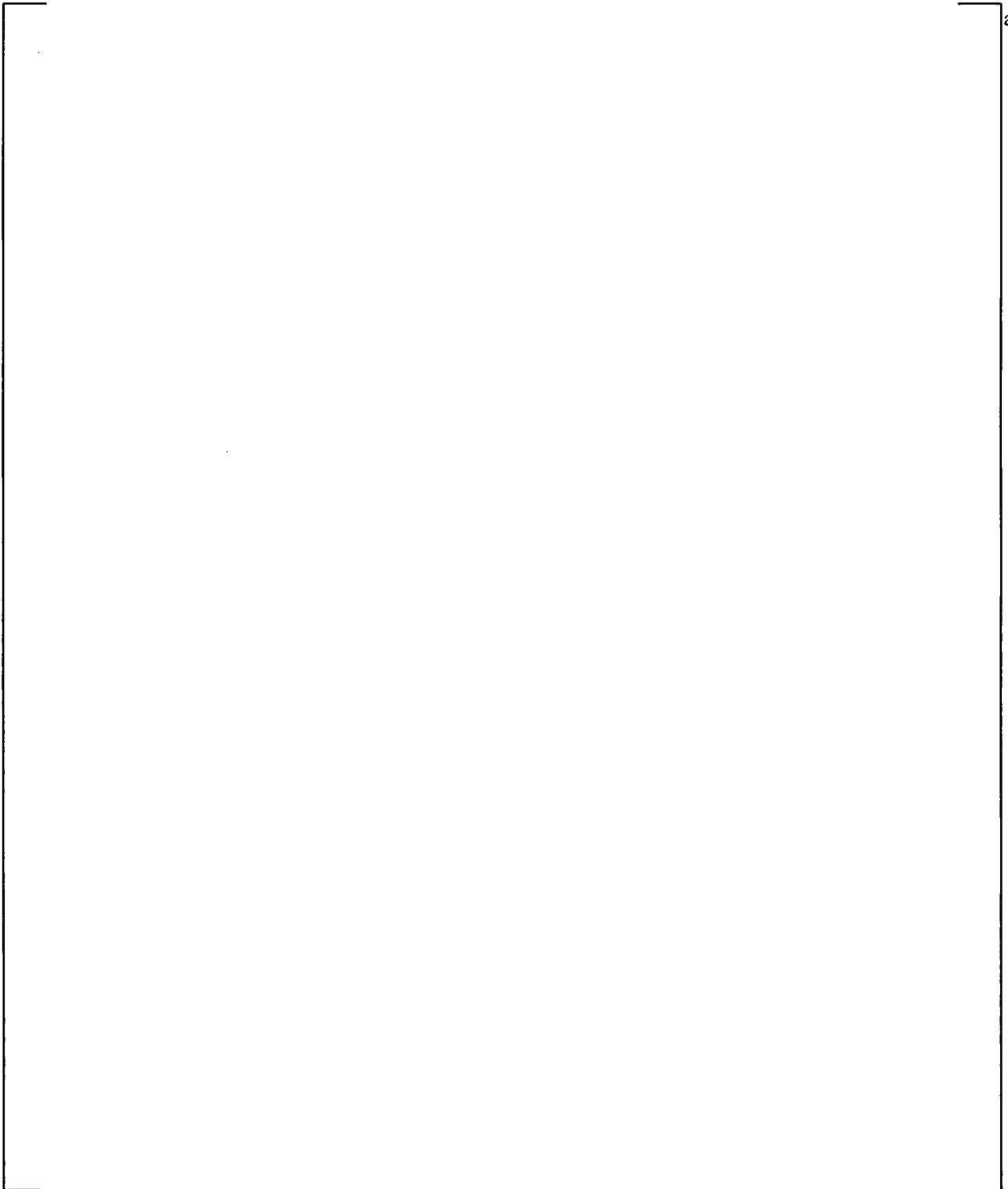
a,c

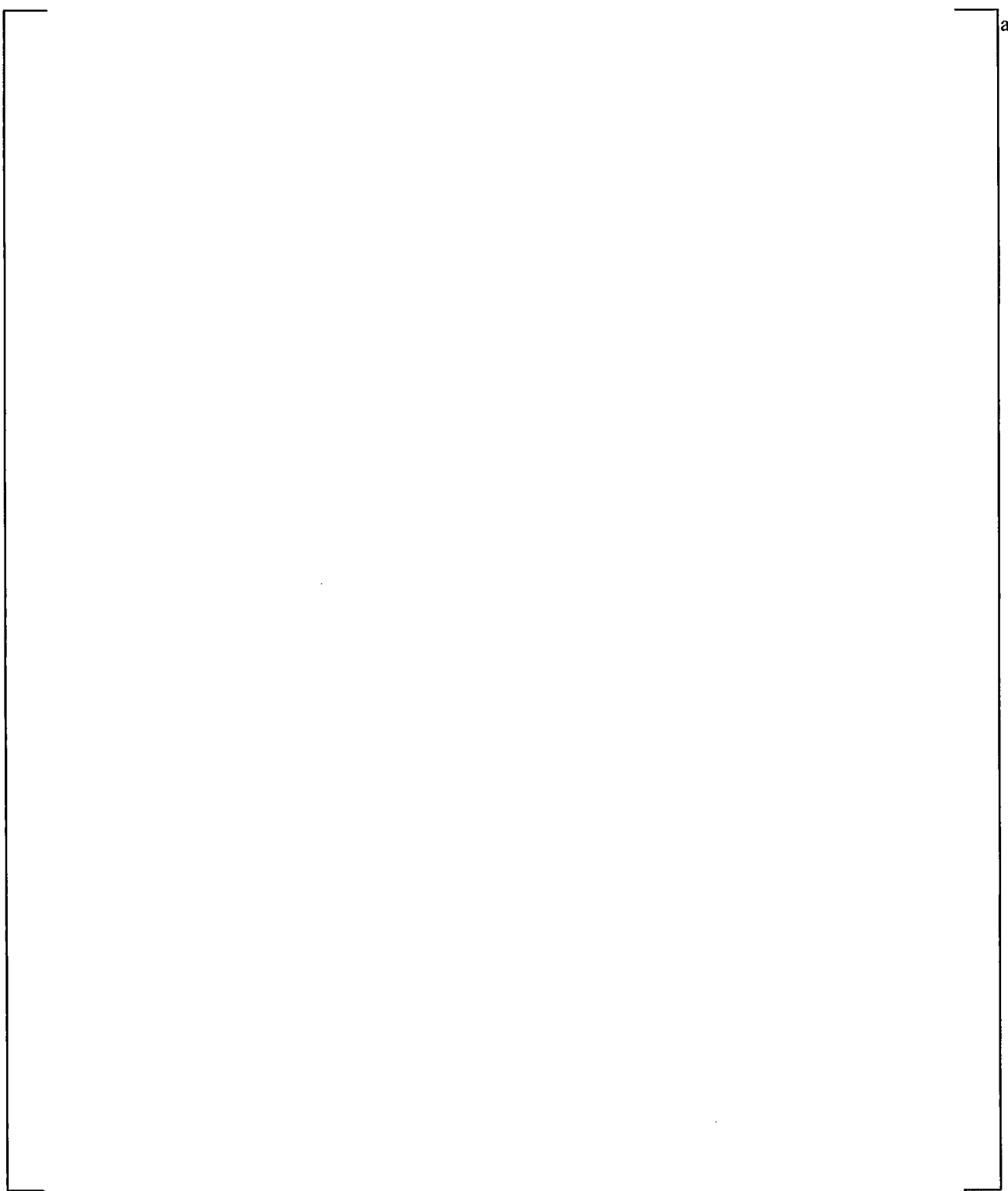


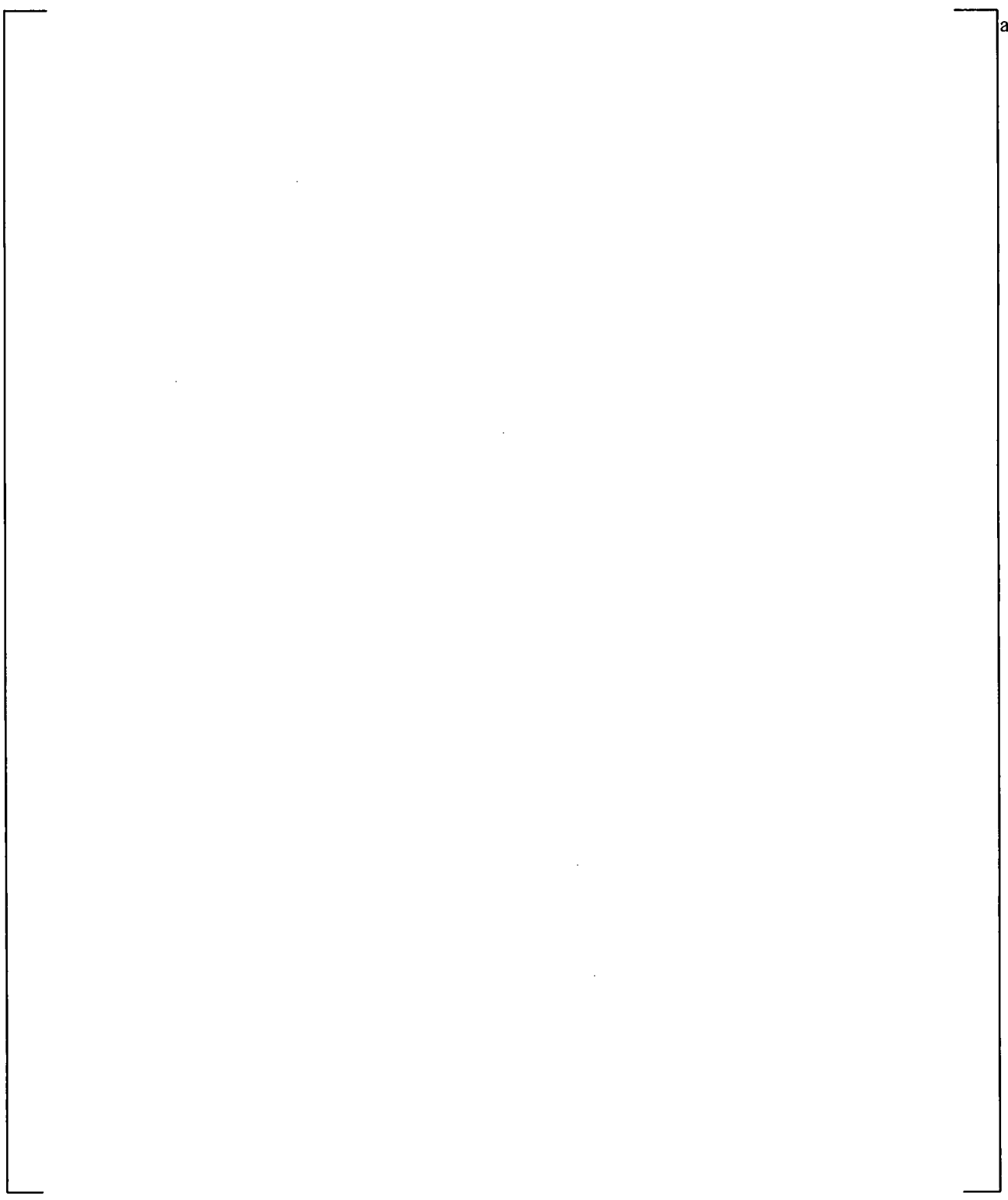


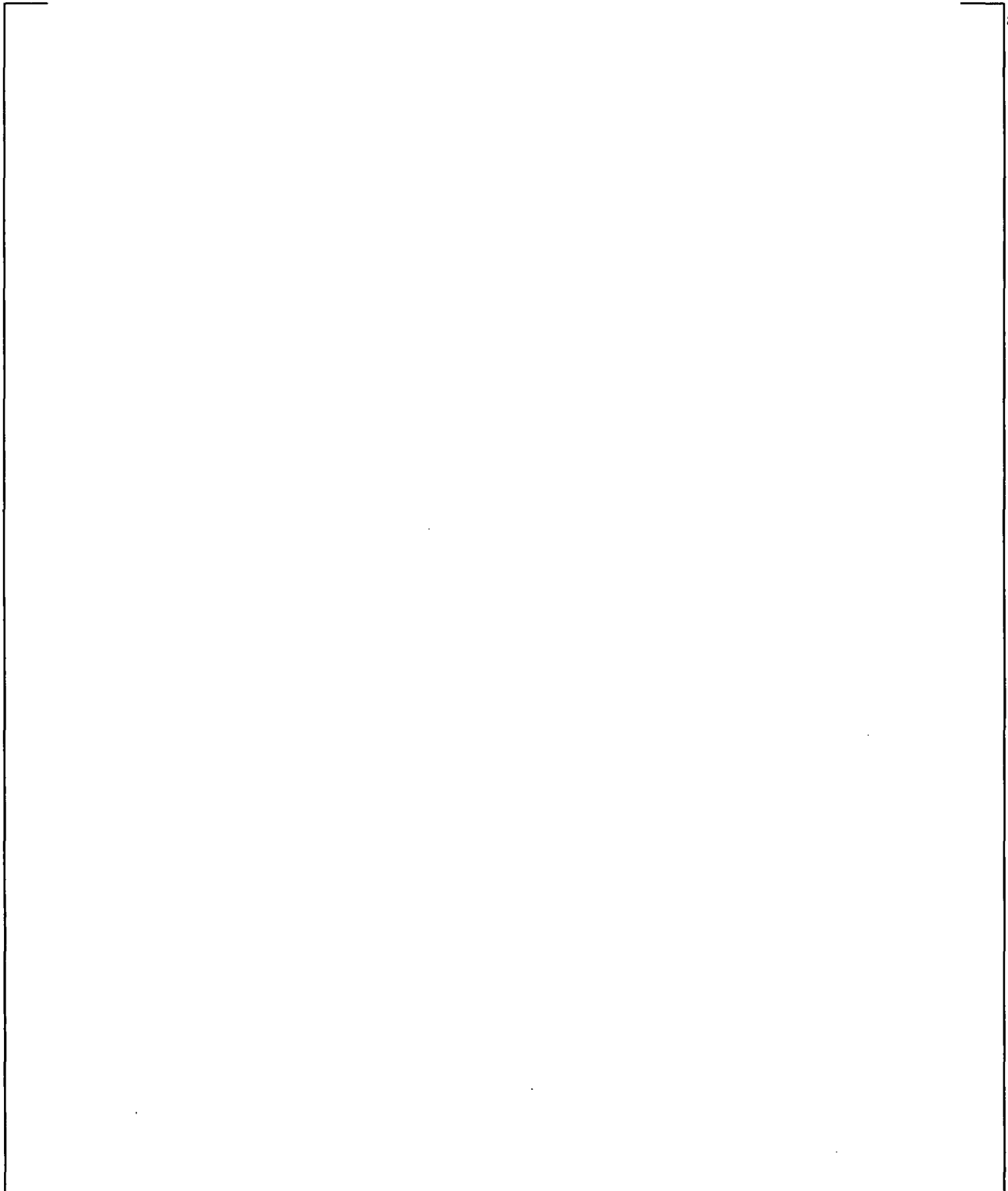


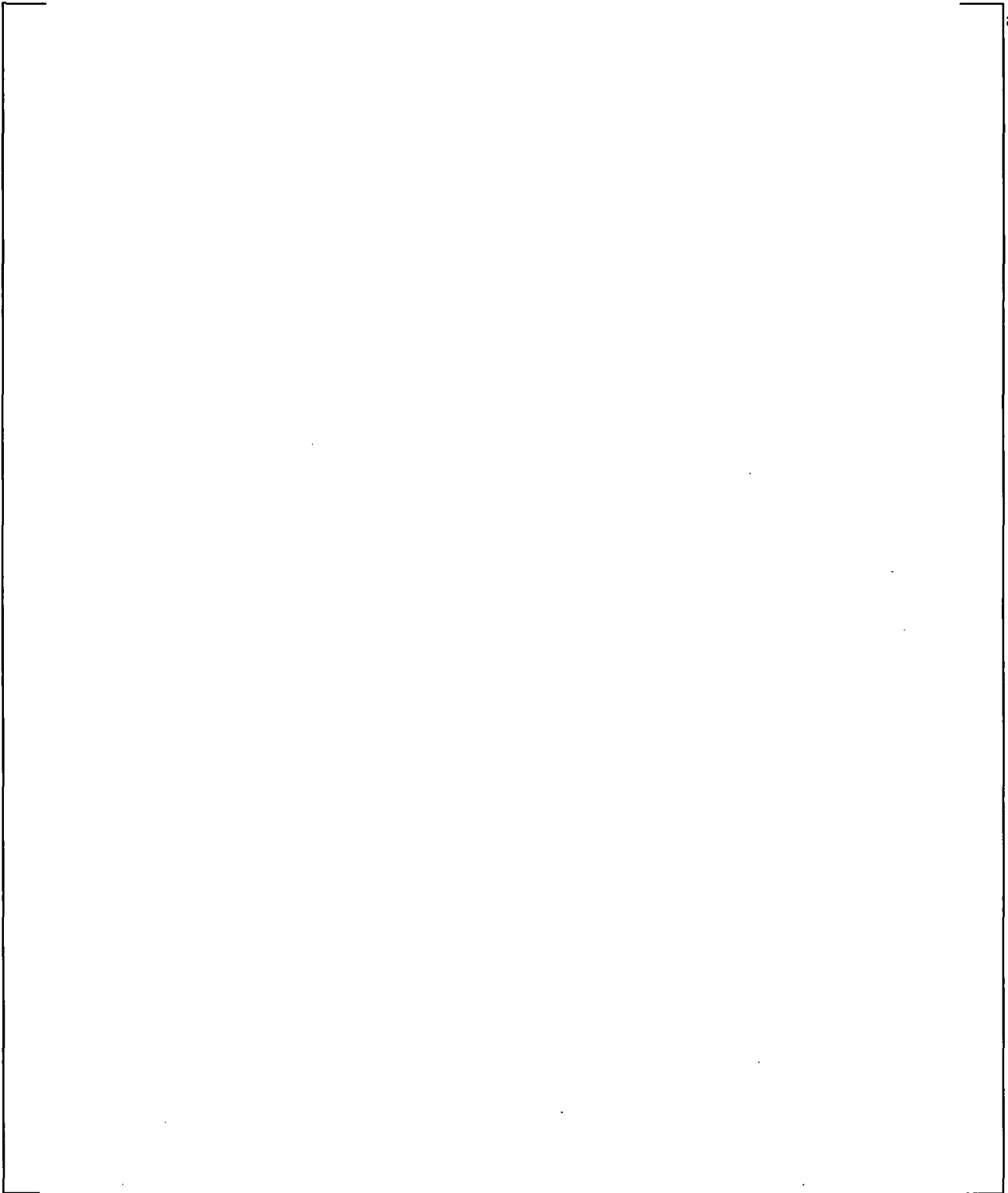


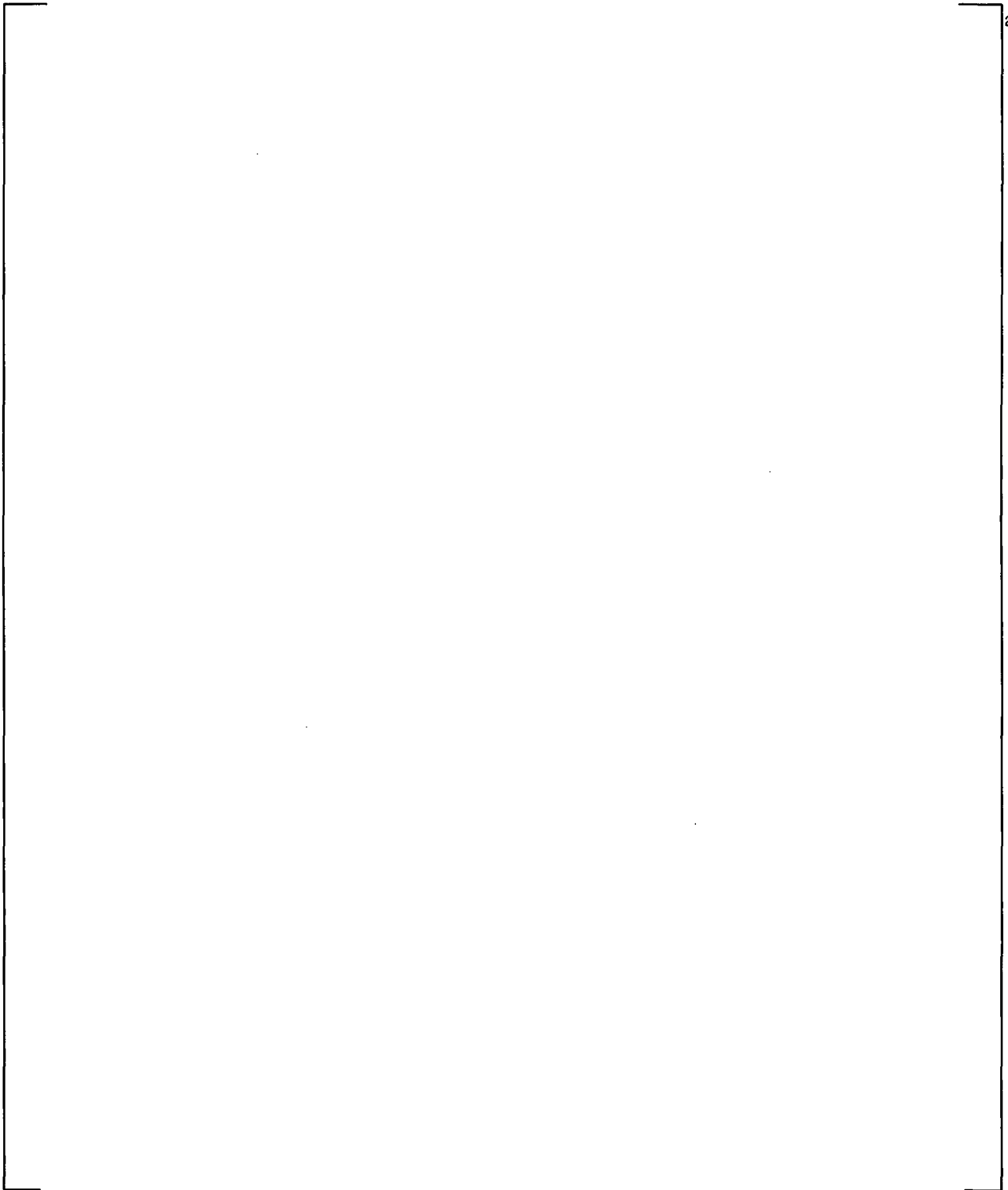


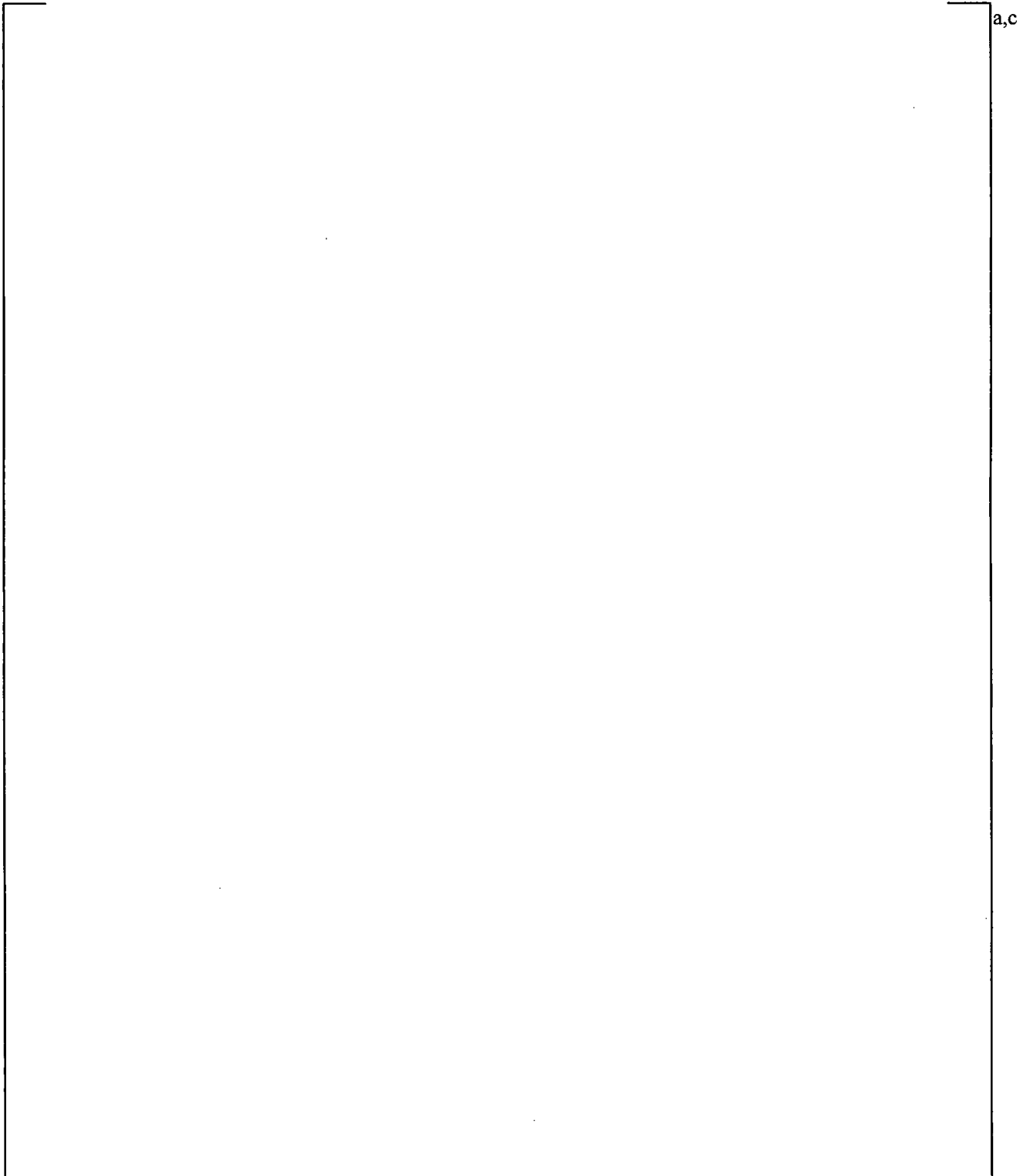






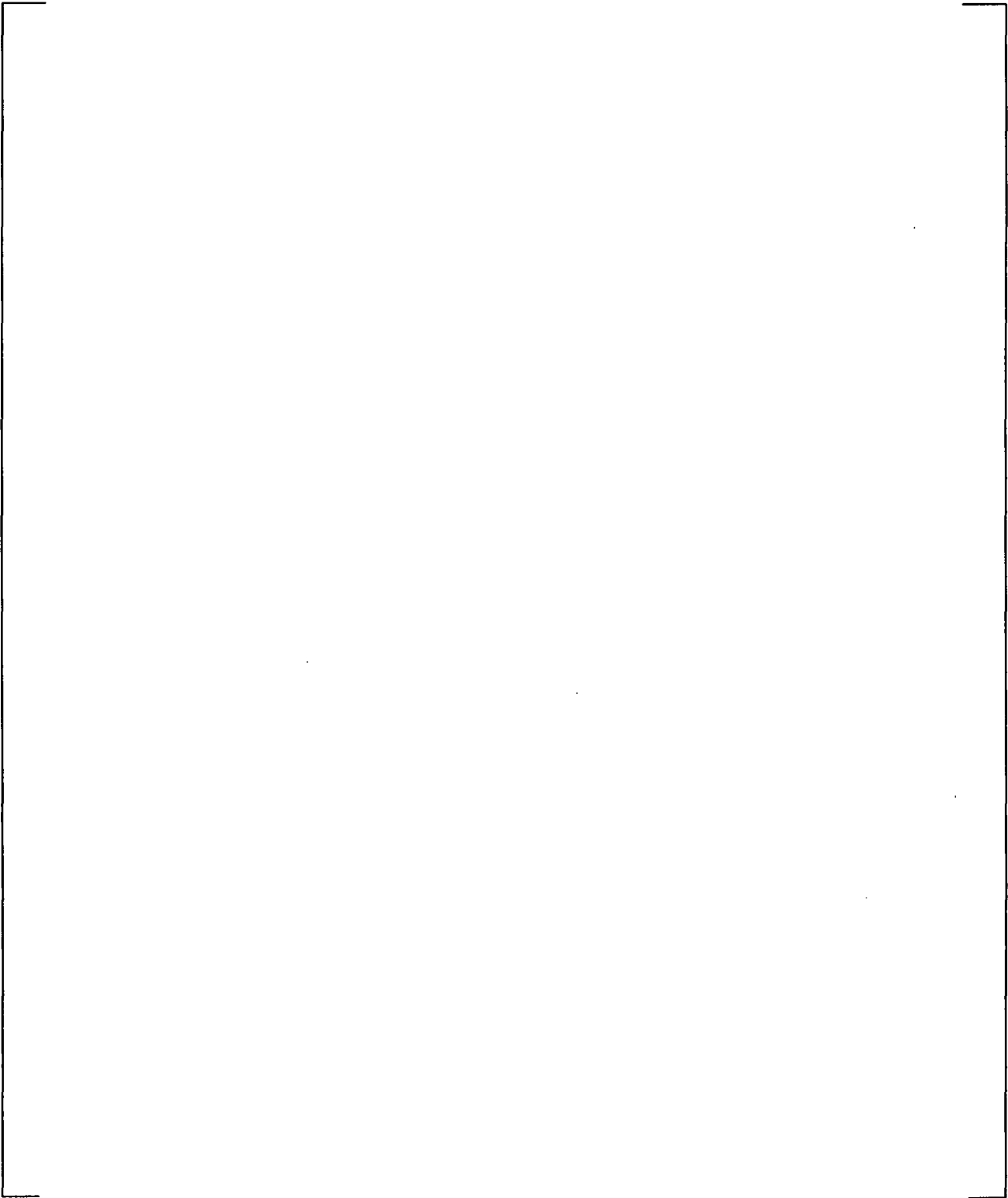




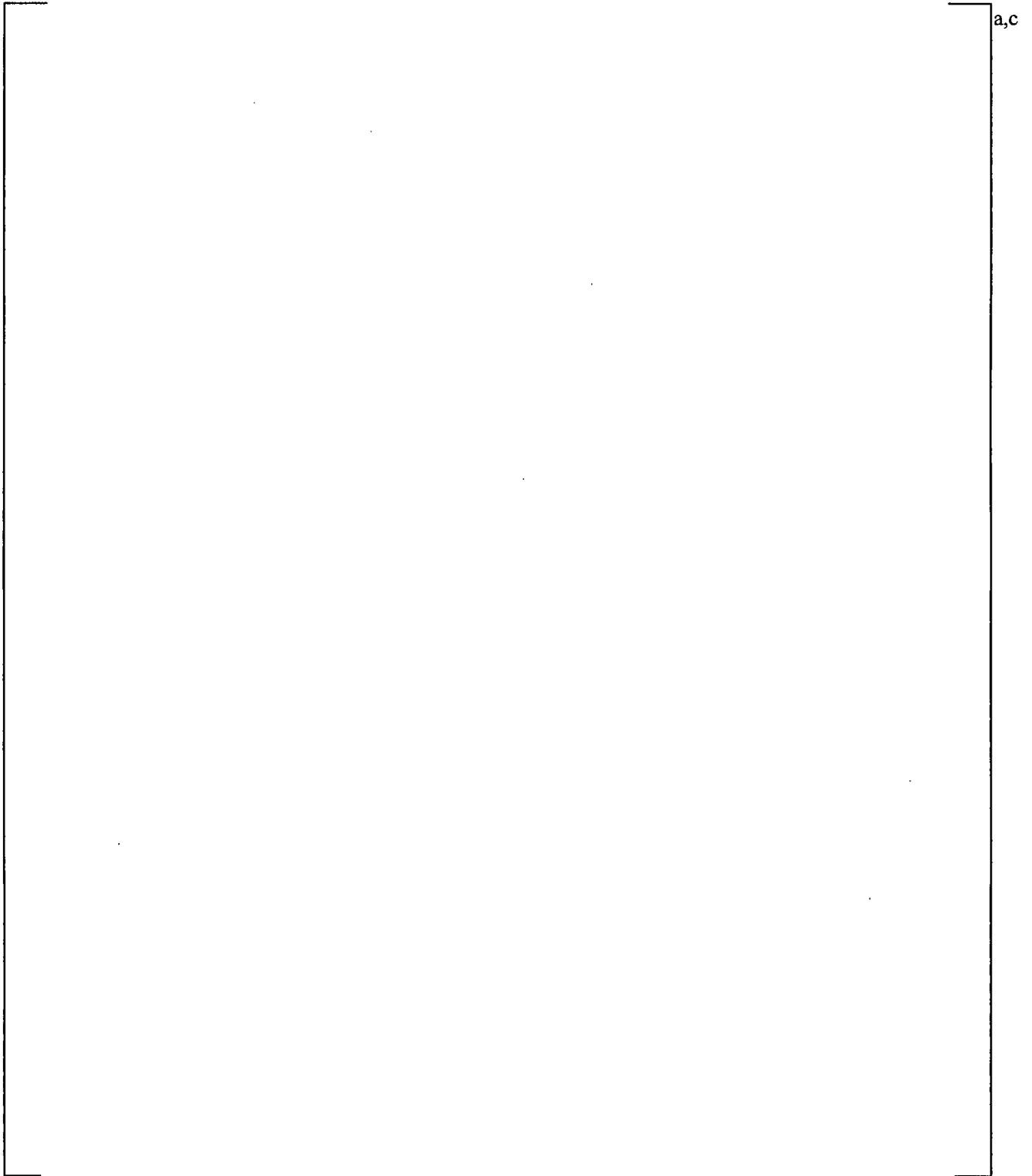


a,c



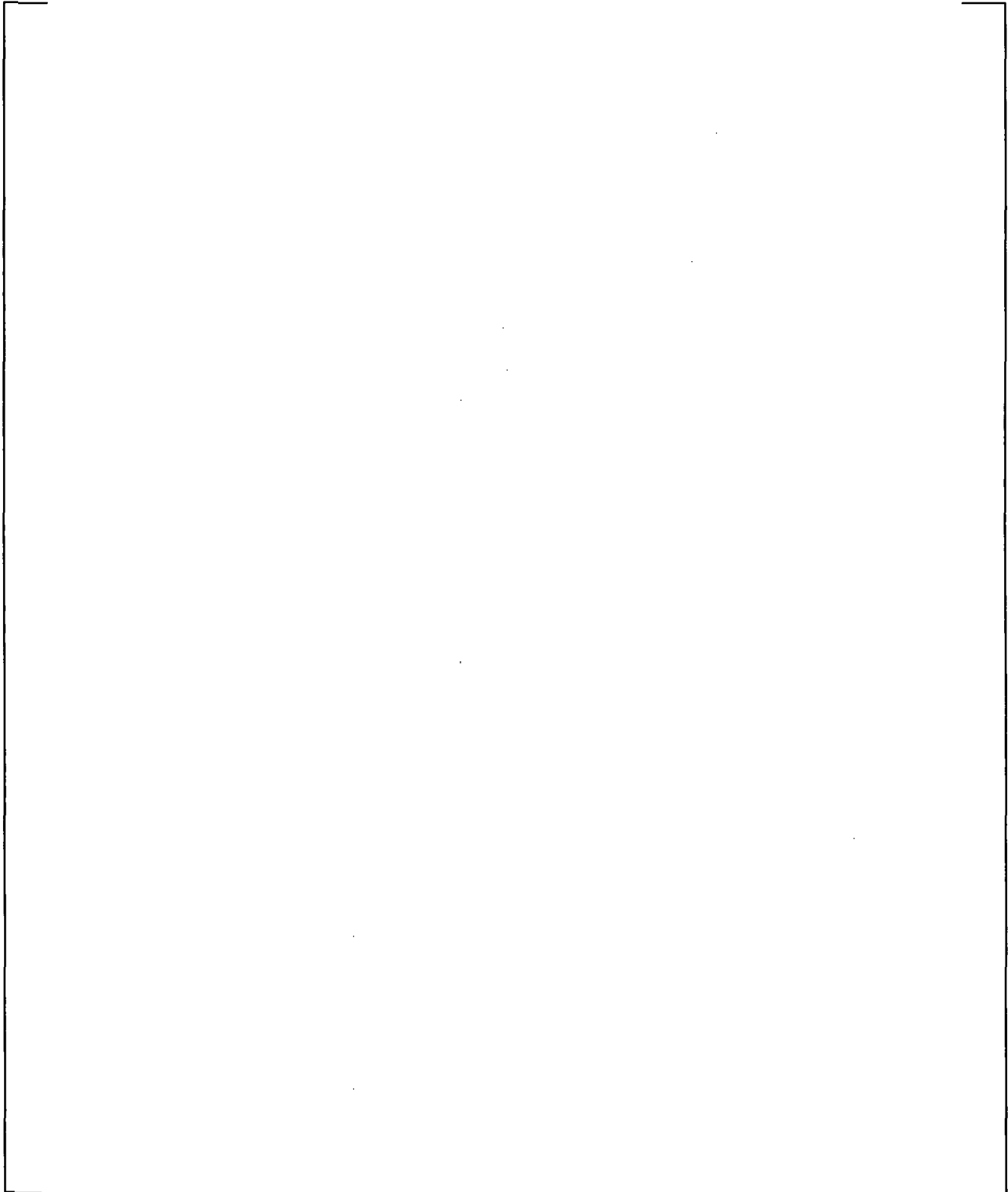


a,c



a,c

a,c



**ENCLOSURE 5**

**REPLACEMENT STEAM DRYER  
POWER ASCENSION TEST PLAN**

**The enclosed Power Ascension Test Plan (PATP) supercedes in its entirety the PATP provided in NSPM letter number L-MT-10-046, Enclosure 1, Appendix 5 (ADAMS Accession No. ML102010462).**

**11 pages follow**

## **REPLACEMENT STEAM DRYER POWER ASCENSION TEST PLAN**

### **1 INTRODUCTION AND PURPOSE**

The Monticello Nuclear Generating Plant (MNGP) Constant Pressure Power Uprate (CPPU also called Extended Power Uprate (EPU)) Flow Induced Vibration (FIV) Replacement Steam Dryer Power Ascension Test Plan (RSD - PATP) describes the planned course of action for monitoring and evaluating the performance of the RSD as well as the Main Steam and Feedwater piping systems during power ascension testing and operation.

The RSD - PATP is divided into three testing plans to ensure that sufficient monitoring of the RSD is accomplished as required by Regulatory Guide 1.20.

- Section A – Performs testing from 0% – 80% of the current licensed thermal power level (CLTP is 1775 MWt). This equates to 0 MWt to approximately 1420 MWt. This section may be completed prior to NRC approval for CPPU (2004 MWt). If this section is performed prior to NRC approval of the CPPU, this section will not be repeated.
- Section B – Performs testing from 80% to 100% of the CLTP. This equates to 1420 MWt to approximately 1775 MWt. This section may be completed prior to NRC approval for CPPU (2004 MWt). If this section is performed prior to NRC approval of the CPPU, this section will not be repeated.
- Section C – Performs testing above 100% of CLTP to the full CPPU conditions. This equates to 1775 MWt to 2004 MWt. This section will only be completed after NRC approval to proceed to CPPU.

The purpose of each section is to verify acceptable performance of the RSD and piping system integrity. The RSD - PATP is a portion of the overall CPPU start-up testing described in Enclosures 9 and 10 of MNGP's CPPU License Amendment Request (Reference 1). The RSD - PATP supersedes previous portions of Enclosures 9 and 10 of Reference 1 that addressed the previously installed steam dryer. Completion of the RSD - PATP will ensure that the integrity of the steam dryer and piping systems will be maintained in an acceptable state.

The RSD - PATP assesses steam dryer and selected piping system performance for the MNGP CPPU start-up power ascension process. Each section establishes operating limits, data collection and analysis requirements, and any subsequent actions if



necessary. The RSD - PATP will also perform confirmatory steam dryer inspections for a period of time following initial and continued operation at uprated power levels.

There are three main elements of the RSD - PATP:

- 1) Slow and deliberate power ascension with defined hold points and durations, allowing time for monitoring and analysis.
- 2) A detailed power ascension monitoring and analysis program to trend steam dryer performance through the monitoring of Main Steam Line (MSL) strain gauges, RSD strain gauges, RSD accelerometers and RSD pressure transducers, and moisture carryover.
- 3) An inspection and analysis program to verify steam dryer and piping system performance.

This plan includes specific hold points and durations during power ascension; activities to be accomplished during hold points; data to be collected; required inspections and walk downs; data evaluation methods; and acceptance criteria for monitoring and trending plant parameters. This plan incorporates requirements from Regulatory Guide (RG) 1.20 (Reference 2). Detailed procedures will be developed to implement this plan.

As of August 2011, Sections A and B of this test plan have been implemented and steam dryer data has been gathered to support operation under CLTP conditions. Only Section C of the test plan remains to be implemented.

## **2 POWER ASCENSION TEST PLAN (PATP) SCOPE**

### **2.1 Parameter Monitoring**

In each test plan the following items will be assessed, except as specifically noted.

#### **2.1.1 Steam Dryer Indirect Monitoring**

RSD stress for all power ascension steps above CLTP conditions will be monitored using MSL strain gauge readings. Evaluation of the strain gauge data will be by comparison against the limit curves, which will be provided to the NRC prior to power ascension. The action levels and the required actions are:

**Level 1: Allowable Stress Exceeded**

- Action - Reduce power to previous acceptable level and re-evaluate

**Level 2: Low Margin to Allowable Stresses**

- Action - Hold at current power level and re-evaluate

If during the RSD - PATP above CLTP conditions (section C testing) the number of active MSL strain gauges is less than one strain gauge at each location, then NSPM will stop start up activities. In this condition repair activities will commence and start up activities above CLTP will resume when strain gauges function has been returned.

### **2.1.2 Steam Dryer Direct Monitoring**

RSD stress will be monitored using RSD strain gauges, RSD accelerometers and RSD pressure transducers. Evaluation of the data will be by comparison against expected calculated values. The action levels and the required actions are:

Level 1: Allowable Stress Exceeded

- Action - Reduce power to previous acceptable level and re-evaluate

Level 2: Low Margin to Allowable Stresses

- Action - Hold at current power level and re-evaluate

RSD data will be collected. It is not expected that instrumentation performing direct monitoring of the RSD will be operational through the power ascension process. Therefore, this monitoring may not be available through the full RSD - PATP.

### **2.1.3 Moisture Carryover Evaluation**

Data evaluation/analysis will be performed near 100% (at approximately 99.5% - 100% which corresponds to 1765 – 1775 MWt) of CLTP and above up to EPU power level by comparing moisture carryover data obtained at each power ascension step against the predetermined acceptance criteria. The subject acceptance criteria and the required action upon failure are:

Level 1: N/A

- Action - None

Level 2: Moisture carryover >0.1% by weight

- Action - Hold at current power level and re-evaluate

### **2.1.4 Data Collection Methods and Locations for the Steam Dryer**

#### **1. Main Steam Line Strain Gauges**

Strain Gauge locations as discussed in L-MT-10-046, Section 2.3 of Enclosure 1 will be monitored. Data obtained from the strain gauges will be recorded on a DAS located outside of the drywell.

## 2. RSD Instrumentation.

RSD Instrumentation (e.g. RSD strain gauges, RSD accelerometers and RSD pressure transducers) will be monitored. Data obtained from the instrumentation will be recorded on a DAS located outside of the drywell.

## 3. Moisture Carryover

Moisture Carryover data collection will be completed via the implementation of existing station operating procedures.

### 2.1.5 Inspections and Walk Downs

Piping, valves and other related components outside the drywell will be monitored visually, either by walk down or cameras at each test power level. If visual observation indicates significant vibration, the noted condition will be evaluated in more detail.

### 2.1.6 Other Monitoring

Plant data that may be indicative of off-normal steam dryer and/or piping system performance will be monitored during power ascension (e.g. reactor water level, steam flow, feed flow, steam flow distribution between the individual steam lines). Plant data can provide an early indication of unacceptable steam dryer/system performance. The monitoring of selected plant parameters will be controlled by test procedure.

## 2.2 Power Ascension Test Plans

Detailed test procedures will be developed for the implementation of the actual power ascension testing evolutions. The MNGP power ascension will occur over a period of time with gradual increases in power, hold periods, and engineering analysis of monitored data prior to subsequent power increases.

### 2.2.1 RSD - PATP Section A – This section was completed during power ascension from the 2011 refueling outage

The RSD – PATP section A includes (but is not limited to):

- 1) Collection of data from 0 MWt to approximately 1420 MWt;
- 2) Power ascension rate will be equivalent to normal operational practices;

- 3) Data will be evaluated against acceptance criteria at every approximately 20% power step increase (355 MWt).

#### **2.2.1.1 Monitoring and Analysis – RSD - PATP Section A**

The assessment of the system/component performance and integrity will be completed through the analysis of main steam line data.

Power ascension above 0 MWt – 1420 MWt will be achieved via the following methodology:

- 1) Ensure limits and operational parameters are defined and available;
- 2) Maximum hourly power increase in accordance with normal operational procedures;
- 3) At each approximately 20% power ascension step (355 MWt);
  - Compare vibration data to acceptance criteria
  - Perform plant walk downs
  - Review data evaluation and walk down results

The duration of the individual 20% power ascension steps will be determined by the time required to obtain the specified data, complete the data evaluation, and determine the acceptability of proceeding to the next power ascension step.

As noted, system performance and integrity will be evaluated based on the review and analysis of MSL strain gauge values. For the strain gauge element, acceptance criteria are established for use in the subject analysis. Data evaluation and analyses will be performed by comparing actual obtained data against the acceptance criteria. The strain gauge criteria will provide two action levels, which are used in determining the acceptability of the continuance of power ascension. The action levels for the steam dryer reanalysis are defined in section 2.1.

#### **2.2.2 RSD - PATP Section B – This section was completed during power ascension from the 2011 refueling outage**

The RSD – PATP section B includes (but is not limited to):

- 1) Collection of data from 1420 MWt to approximately 1775 MWt;
- 2) Power ascension rate equivalent to normal operational practices;
- 3) Data will be evaluated against acceptance criteria at every approximately 6.6% power step increase. Data will be collected with any core flow that lies within the safe operating region of the Power/Flow Map.

### **2.2.2.1 Monitoring and Analysis – RSD - PATP Section B**

The assessment of the system/component performance and integrity will be completed through the analysis of main steam line data.

Power ascension above 1420 MWt to 1775 MWt will be achieved via the following methodology:

- 1) Obtain baseline observations at 1420 MWt;
- 2) Maximum hourly power increase in accordance with normal operational procedures;
- 3) At each approximately 6.6% power ascension step (118 MWt);
  - Compare vibration data to acceptance criteria
  - Perform plant walk downs
  - Review data evaluation and walk down results

The duration of the individual 6.6% power ascension steps will be determined by the time required to obtain the specified data, complete the data evaluation, and determine the acceptability of proceeding to the next power ascension step.

As noted, system performance and integrity will be evaluated based on the review and analysis of MSL strain gauge values. For the strain element, acceptance criteria are established for use in the subject analysis. Data evaluation and analyses will be performed by comparing actual obtained data against the acceptance criteria. The strain criteria will provide two action levels, which are used in determining the acceptability of the continuance of power ascension. The action levels for the MSL strain analysis are defined in section 2.1.

At approximately 99.5% - 100% (1765 – 1775 MWt) the test plan will obtain and evaluate moisture carryover data. System performance and integrity will be evaluated based on the review and analysis of moisture carryover values. For the moisture carryover element acceptance criteria are established for use in the subject analysis. Data evaluation and analyses will be performed by comparing actual obtained data against the acceptance criteria. The moisture carryover criteria will provide an action level, which are used in determining the acceptability of the continuance of power ascension. The action level for the moisture carryover analysis is defined in section 2.1.

### **2.2.3 RSD - PATP Section C**

The RSD – PATP section C includes (but is not limited to):

- 1) Collection of data from 1775 MWt to 2004 MWt;
- 2) Power ascension rate of 2%/hr above 1775 MWt;
- 3) Data will be evaluated against acceptance criteria at every approximately 2.5% power step increase (44 MWt).

#### **2.2.3.1 Monitoring and Analysis – RSD - PATP Section C**

The assessment of the system/component performance and integrity will be completed through the analysis of both main steam line and dryer moisture carryover data.

Power ascension above 1775 MWt will be achieved via the following methodology:

- 1) Obtain baseline observations at 1775 MWt;
- 2) Maximum hourly power increase approximately 2% per hour (35 MWt);
- 3) At each approximately 2.5% power ascension step (44 MWt);
  - Compare vibration data to acceptance criteria
  - Obtain & evaluate moisture carryover data
  - Perform plant walk downs
  - Review data evaluation and walk down results

The duration of the individual 2.5% power ascension steps will be determined by the time required to obtain the specified data, complete the data evaluation, and determine the acceptability of proceeding to the next power ascension step.

As noted, system performance and integrity will be evaluated based on the review and analysis of both MSL strain gauges and moisture carryover values. For both the strain and moisture carryover elements, acceptance criteria are established for use in the subject analysis. Data evaluation and analyses will be performed by comparing actual obtained data against the acceptance criteria. The strain gauge data will be compared to the two action levels on the stress limit curves, which are used in determining the acceptability of the continuance of power ascension. The action levels for the dryer, the MSL strains and moisture carryover analyses are defined in section 2.1.

If a level 1 limit curve stress is exceeded the results of each power ascension step evaluation will be submitted to the NRC for their review prior to movement to the next power ascension step. The NRC will have 96 hours, following receipt of calculations and evaluations justifying continued ascension, to review and provide feedback. After the 96 hours have expired, NSPM may, at its own discretion, continue with power ascension in accordance with this plan. If a level 1 limit curve stress is not exceeded, NSPM may, at its own discretion, continue with power ascension in accordance with this plan.

## **2.2.4 NRC Communication**

### **2.2.4.1 Interface during RSD - PATP**

NSPM will provide to the NRC data reductions and comparisons to design data after appropriate MNGP plant management review. If new limit curves are required they will be transmitted to the NRC. NSPM will transmit data to the NRC project manager as the point of contact. Power ascension will continue when operations is satisfied that all test conditions have been successfully met.

At each 5% increment in power above 100% CLTP (e.g., 105% and 110%) preliminary summary reports will be provided to the NRC.

### **2.2.4.2 Written Reports**

NSPM will provide written reports following completion of the MNGP power ascension testing in accordance with RG 1.20. These reports will outline the evaluations and corrective actions (if necessary) that were required to obtain satisfactory steam dryer performance. Additionally, the reports will include relevant data collected at each power step, comparisons to performance criteria (design predictions), and evaluations performed in conjunction with steam dryer structural integrity monitoring.

The reports to be provided are as follows:

1. Preliminary Report – The preliminary report will meet the requirements of RG 1.20, section C.2.4(1). RG 1.20 section C.2.4(1) requires: *“The preliminary report should summarize an evaluation of the raw and, as necessary, limited processed data and the results of the inspection program with respect to the test acceptance criteria. Anomalous data that could bear on the structural integrity of the reactor internals*

*should be identified, as should the method to be used for evaluating such data.”*

The preliminary report will be provided to the NRC within 60 days of the completion of vibration testing in accordance with RG 1.20, section C.2.5(5).

2. Evaluation Summary report – This report will meet the requirements of RG 1.20, section C.2.2(2). RG 1.20 section C.2.2(2)(a) requires: *“... provide a summary of its evaluation of plant startup and power ascension to the NRC staff within 90 days of reactor criticality. If full licensed power is not achieved in that time period, ... provide a supplemental report within 30 days of achieving full licensed power.”*
3. Final Report – The final report will meet the requirements of RG 1.20, Section C.2.4(2). RG 1.20 section C.2.4(2) requires: *“...final report should include the following information:*
  - (a) description of any deviations from the specified measurement and inspection programs, including instrumentation reading and inspection anomalies, instrumentation malfunctions, and deviations from the specified operating conditions*
  - (b) comparison between measured and analytically determined modes of structural response (including damping factors) and hydraulic response (including those parameters from which the input forcing function is determined) for the purpose of establishing the validity of the analytical technique*
  - (c) determination of the margins of safety associated with operation under normal steady-state and anticipated transient conditions, including the margins of safety associated with any flow-excited acoustic or structural resonances*
  - (d) evaluation of unanticipated observations or measurements that exceeded acceptable limits not specified as test acceptance criteria, as well as the disposition of such deviations”*

The final report will be provided to the NRC within 180 days of the completion of vibration testing in accordance with RG 1.20, section C.2.5(5).



### **3 POST-CPPU MONITORING & INSPECTION PROGRAM**

Monitoring of various plant parameters, potentially indicative of steam dryer / system failure will be continued after completion of the test program. Monitoring results will be made available to the NRC Staff. The following inspections will be performed:

#### **3.1 Moisture Carryover**

Station operating procedures will be used to monitor operating moisture carryover conditions. Results will be reviewed and evaluated on a defined basis to monitor moisture carryover conditions.

#### **3.2 MSL Strain Gauge Monitoring**

As long as the previously installed MSL strain gauges remain operational, future data collection will be performed as deemed appropriate during the remainder of the operating cycle following CPPU implementation.

#### **3.3 Steam Dryer Monitoring and Inspection**

The steam dryer inspection and the monitoring of plant parameters, potentially indicative of steam dryer failure, will be conducted. Future steam dryer non-destructive examinations during refueling outages will be conducted using the inspection considerations of BWRVIP-139 (Reference 3) in conjunction with the new dryer structural weld configurations.

#### **3.4 Inspections and Walk Downs**

During the subsequent refueling outage or other outage that provides access for inspection, piping, valves and other related components inside and outside the drywell will be monitored visually by walk down. If visual observation indicates significant vibration, the noted condition will be documented in the corrective action program and evaluated in more detail.

### **4 REFERENCES**

- 1) Letter from Northern States Power Company, a Minnesota corporation (NSPM), d/b/a Xcel Energy to Document Control Desk (NRC), "License Amendment Request: Extended Power Uprate," L-MT-08-052, dated November 5, 2008. (ADAMS Accession No. ML083230111)
- 2) Regulatory Guide 1.20, Revision 3, "Comprehensive Vibration Assessment Program For Reactor Internals During Preoperational And Initial Startup Testing," dated March 2007. (ADAMS Accession No. ML070260376)

L-MT-10-046

Enclosure 1, Appendix 5 - Revised

Page 11 of 11

- 3) BWRVIP-139 - "BWR Vessel and Internals Project, Steam Dryer Inspection and Flaw Evaluation Guidelines," dated 2005.