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Constellation Energy
R.E. Ginna Nuclear Power Plant

August 15, 2005

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: **R.E. Ginna Nuclear Power Plant**
Docket No. 50-244

Supplemental Information Related to Small Break (SB) Loss of Coolant Accident (LOCA) Analysis and Post-LOCA Boric Acid Precipitation Analysis

REFERENCE: (1) Letter from Mary G. Korsnick (Ginna LLC) to Donna M. Skay (NRC), "License Amendment Request Regarding Revised Loss of Coolant Accident (LOCA) Analyses – Changes to Accumulator, Refueling Water Storage (RWST), and Administrative Control Technical Specifications", dated April 29, 2005.

(2) WCAP-10054-P-A, Addendum 2, Revision 1, "Addendum to the Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code: Safety Injection into the Broken Loop and COSI Condensation Model," Thompson, C. M., et al., July 1997.

(3) Letter dated August 1, 2005 from R. A. Gramm, U. S. Nuclear Regulatory Commission to J. A. Gresham, Westinghouse Electric Company, "Suspension of NRC Approval for Use of Westinghouse Topical Report CENPD-254-P, 'Post LOCA Long-term Cooling Model' Due to Discovery of Non-conservative Modeling Assumptions During Calculations Audit"

(4) Letter from C. L. Caso to T. M. Novak, Chief, Reactor Systems Branch, NRC, from Manager, Safeguards Engineering, Westinghouse Corporation Power Systems, CLC-NS-309, "Long Term Buildup of Boric Acid", April 1, 1975.

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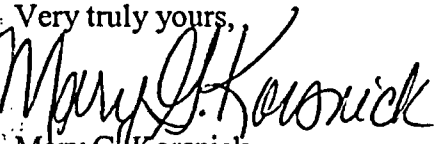
This letter responds to verbal requests for information received during a phone call with the NRC staff on August 11, 2005 related to the R.E. Ginna Nuclear Power Plant (Ginna) Extended Power Uprate (EPU). The requested information relates to the Small Break (SB) Loss of Coolant Accident (LOCA) analysis and the post-LOCA boric acid precipitation analysis. This additional information should clarify the evaluation methods used for the Ginna EPU in these areas to allow the NRC staff to proceed with its detailed technical review of the EPU.

The SBLOCA and post-LOCA boric acid precipitation analyses for the Ginna EPU were provided to NRC in Reference 1 [Pre-submittal to NRC dated 4/29/05]. Tables 4 and 5 of Enclosure 6 to Reference 1 provide a listing of SBLOCA transient and rod heat up results, respectively, for the 1.5", 2" and 3" breaks analyzed. SBLOCA transient parameter plots were only provided for the limiting 2" break in Reference 1. Enclosure 1 to this letter provides similar parameter plots for the 1.5" and 3" breaks analyzed and documented for the Ginna EPU. In addition, although not documented in the analysis, 4" and 6" break size transient calculations for the Ginna EPU were performed to demonstrate that no core uncovery occurred for these breaks, thereby confirming that the range of breaks analyzed contained the limiting break. Additional SBLOCA transient behavior can be found in NRC-approved topical report, Reference 2 [WCAP-10054-P-A, Addendum 2, Revision 1].

For the post-LOCA boric acid precipitation analysis, we understand that NRC has generic concerns regarding boron precipitation evaluation methods. We note that in Reference 3 [NRC letter dated 8/1/2005] NRC has suspended approval of Westinghouse topical report CENPD-254-P. While CENPD-254-P is applicable to Combustion Engineering plant designs and is not directly applicable to Ginna, generic concerns in Reference 3 have prompted the clarifications provided in Enclosure 2 to this letter. The Ginna EPU boric acid precipitation analysis, provided in Enclosure 7 to Reference 1, was performed consistent with, or conservative with respect to, the methods and assumptions outlined in Reference 4 [Westinghouse letter to NRC dated April 1, 1975] which supports the boric acid precipitation design basis analysis for Ginna. We understand there may be additional generic concerns relating to the Westinghouse post-LOCA boric acid precipitation analysis and, to the extent they apply to Ginna, we intend to work with Westinghouse and your staff to resolve these concerns. Our intention is to provide a supplemental response to the generic boric acid precipitation concerns that apply to Ginna by October 31, 2005.

Should you have questions regarding the information in this submittal, please contact George Wrobel at (585) 771-3535 or george.wrobel@constellation.com.

Very truly yours,



Mary G. Korsnick

Enclosures: (1) Additional SBLOCA Transient Results
(2) Supplemental Information on the Potential for Boric Acid Precipitation
(3) List of Regulatory Commitments

STATE OF NEW YORK :
: TO WIT:
COUNTY OF WAYNE :

I, Mary G. Korsnick, being duly sworn, state that I am Vice President - R.E. Ginna Nuclear Power Plant, LLC (Ginna LLC), and that I am duly authorized to execute and file this response on behalf of Ginna LLC. To the best of my knowledge and belief, the statements contained in this document are true and correct. To the extent that these statements are not based on my personal knowledge, they are based upon information provided by other Ginna LLC employees and/or consultants. Such information has been reviewed in accordance with company practice and I believe it to be reliable.

Mary G. Korsnick

Subscribed and sworn before me, a Notary Public in and for the State of New York and County of MONROE, this 15 day of August, 2005.

WITNESS my Hand and Notarial Seal: Sharon L Miller
Notary Public

My Commission Expires:

SHARON L. MILLER
Notary Public, State of New York
Registration No. 01MI6017755
Monroe County
Commission Expires December 21, 2006

12-21-06
Date

cc: S. J. Collins, NRC
P. D. Milano, NRC
Resident Inspector, NRC

ENCLOSURE 1
R.E. Ginna Nuclear Power Plant

Additional SBLOCA Transient Results

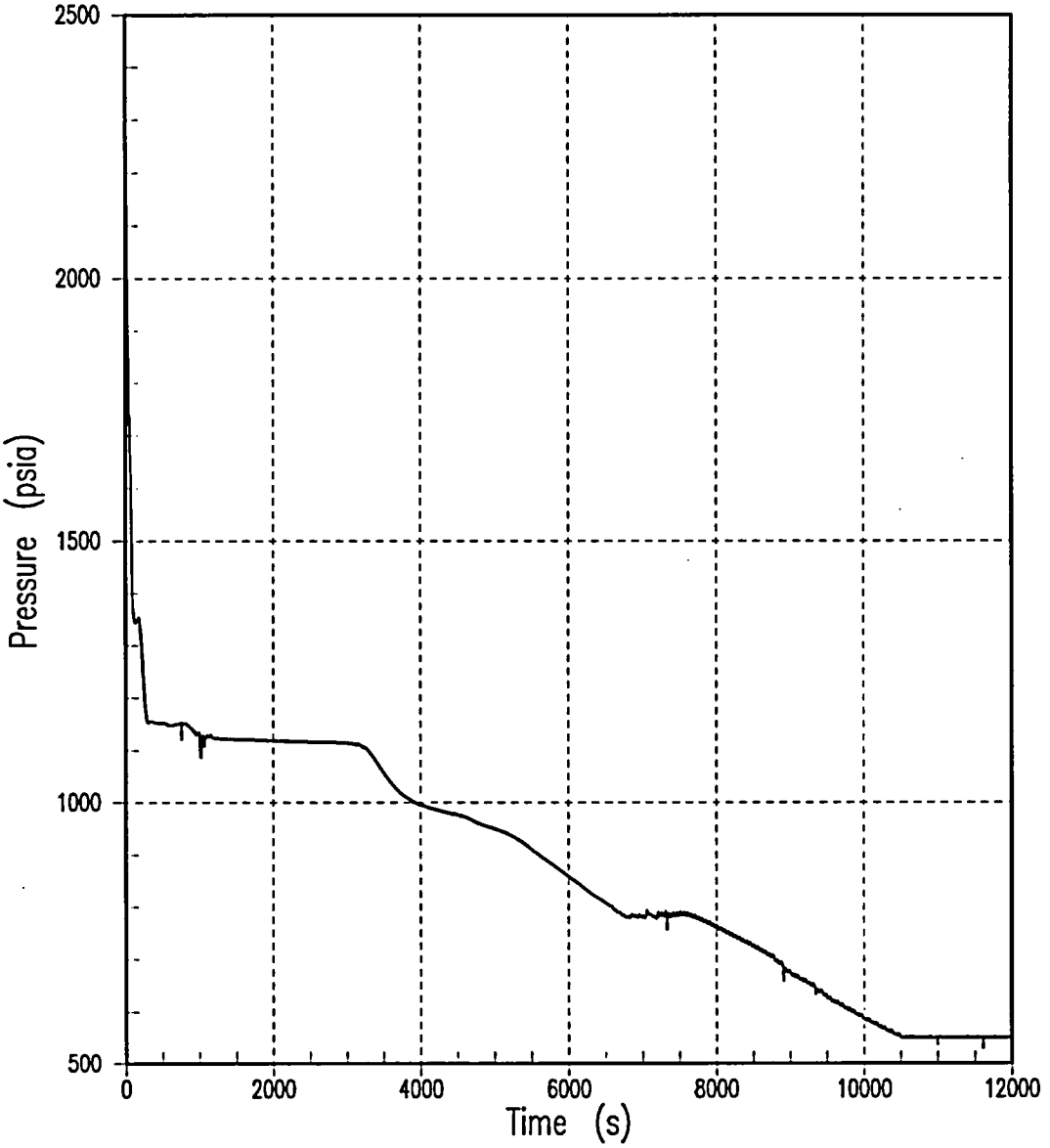


Figure 1: Pressurizer Pressure 1.5-Inch Break

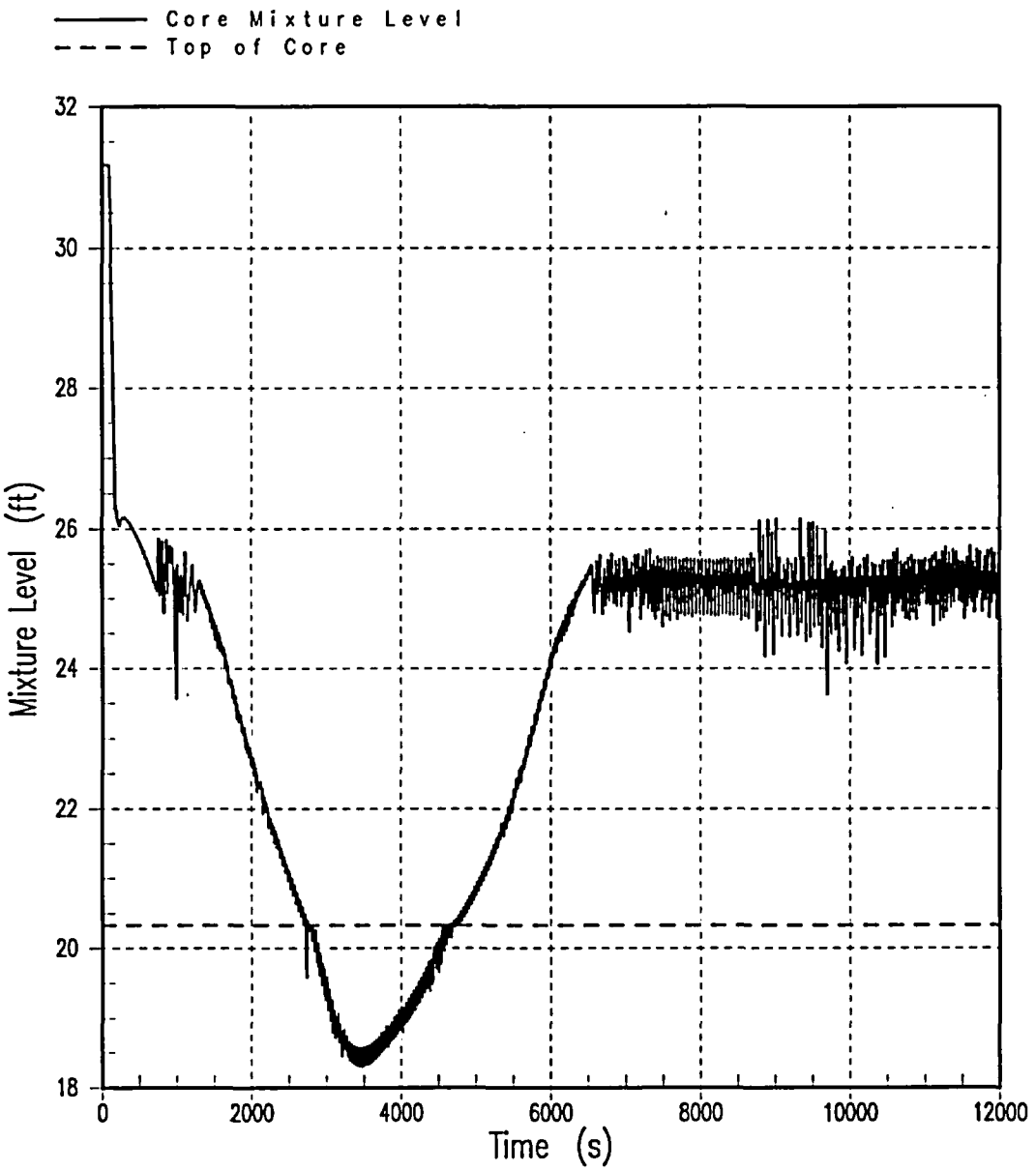


Figure 2: Core Mixture Level 1.5-Inch Break

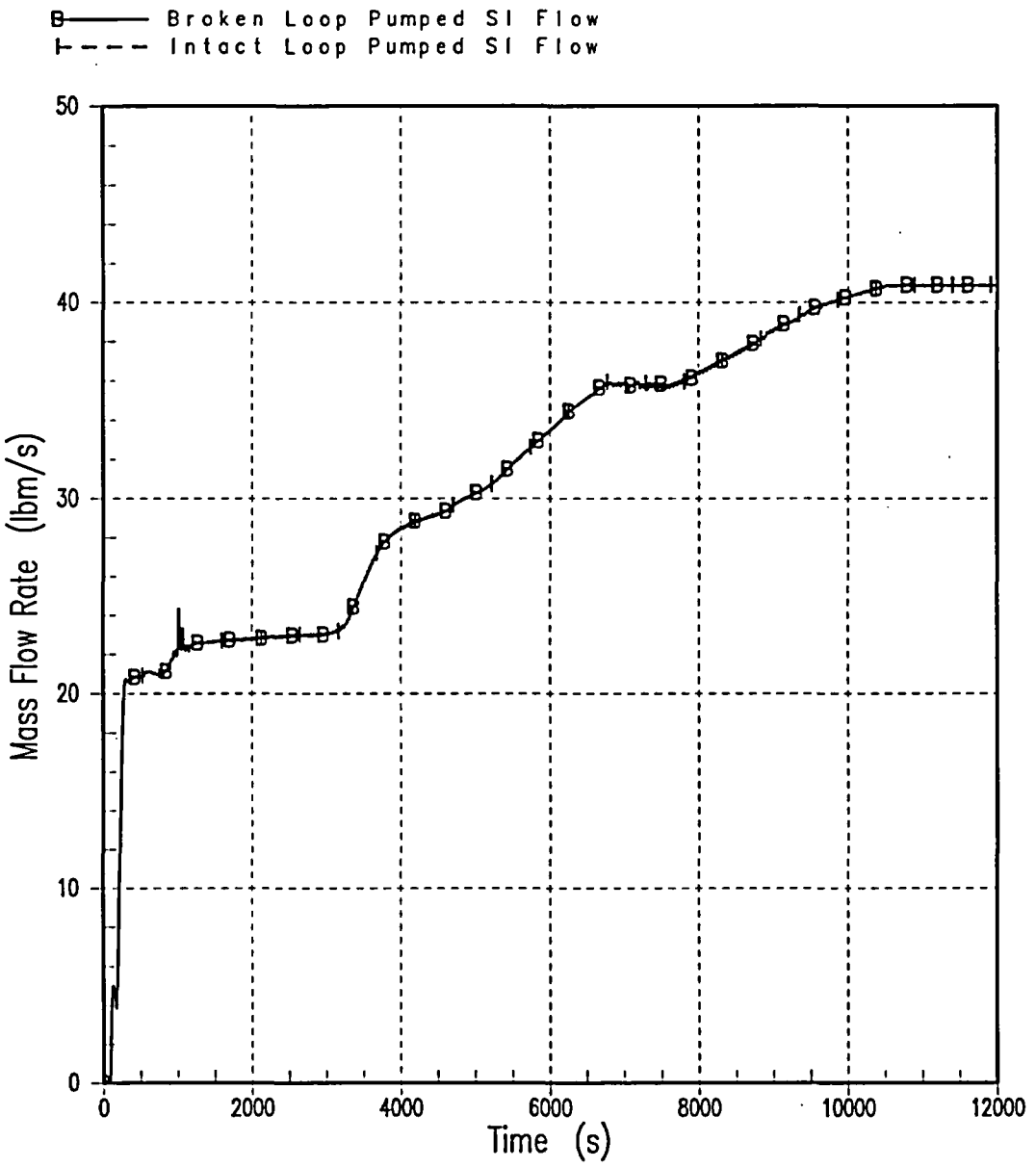


Figure 3: Broken Loop and Intact Loop Pumped SI Flow Rate 1.5-Inch Break

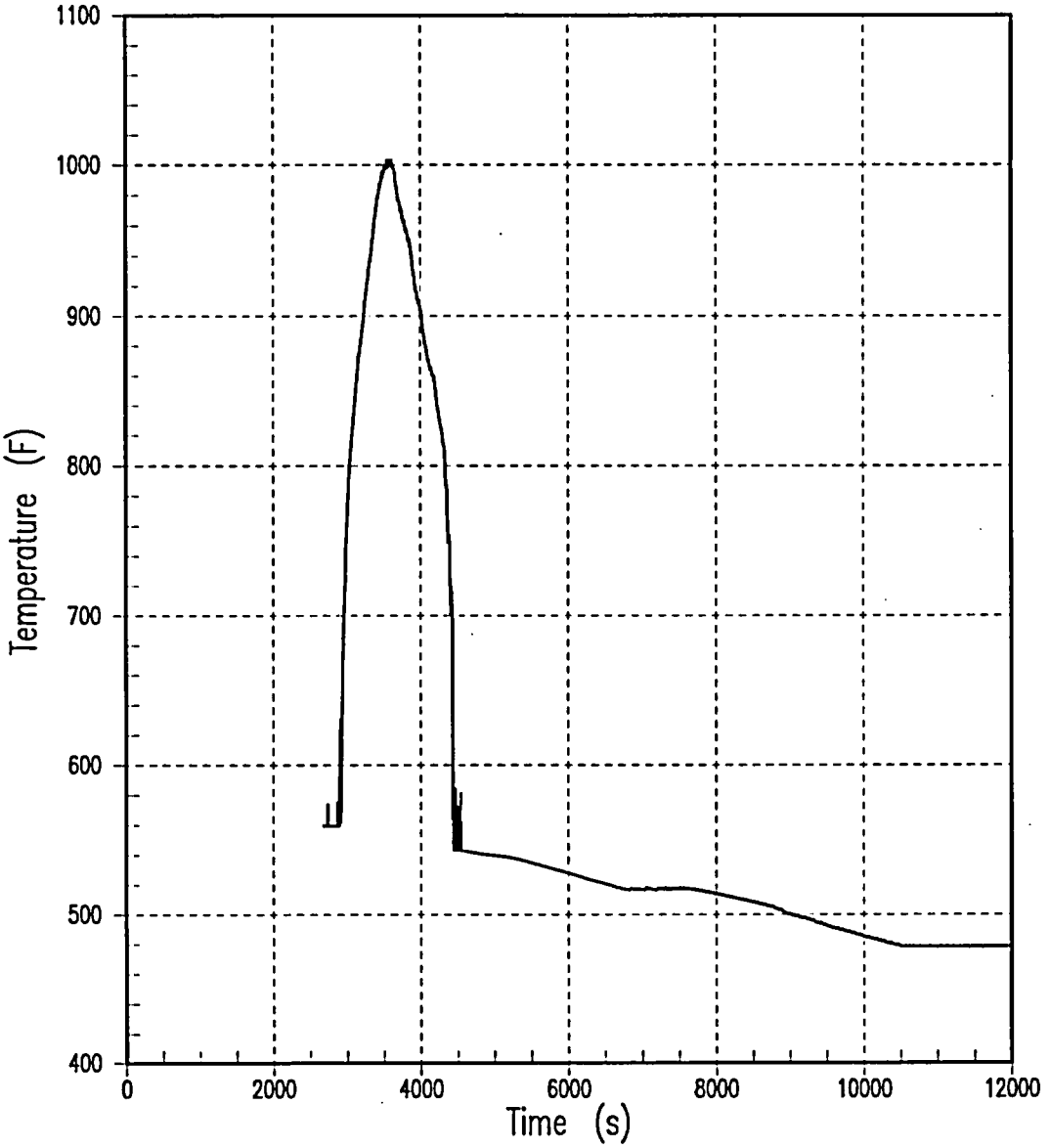


Figure 4: Peak Cladding Temperature at PCT Elevation 1.5-Inch Break

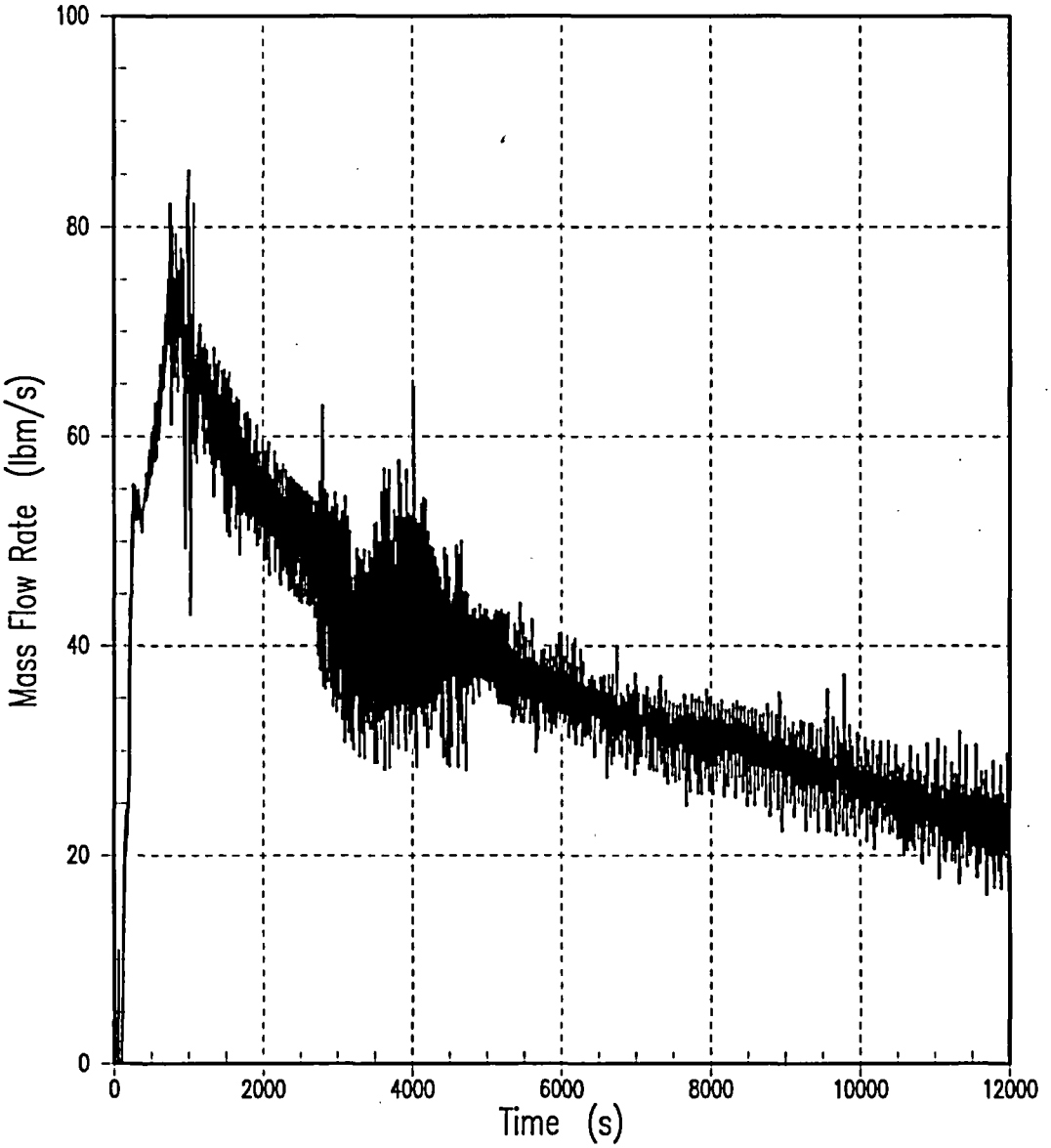


Figure 5: Core Exit Vapor Flow 1.5-Inch Break

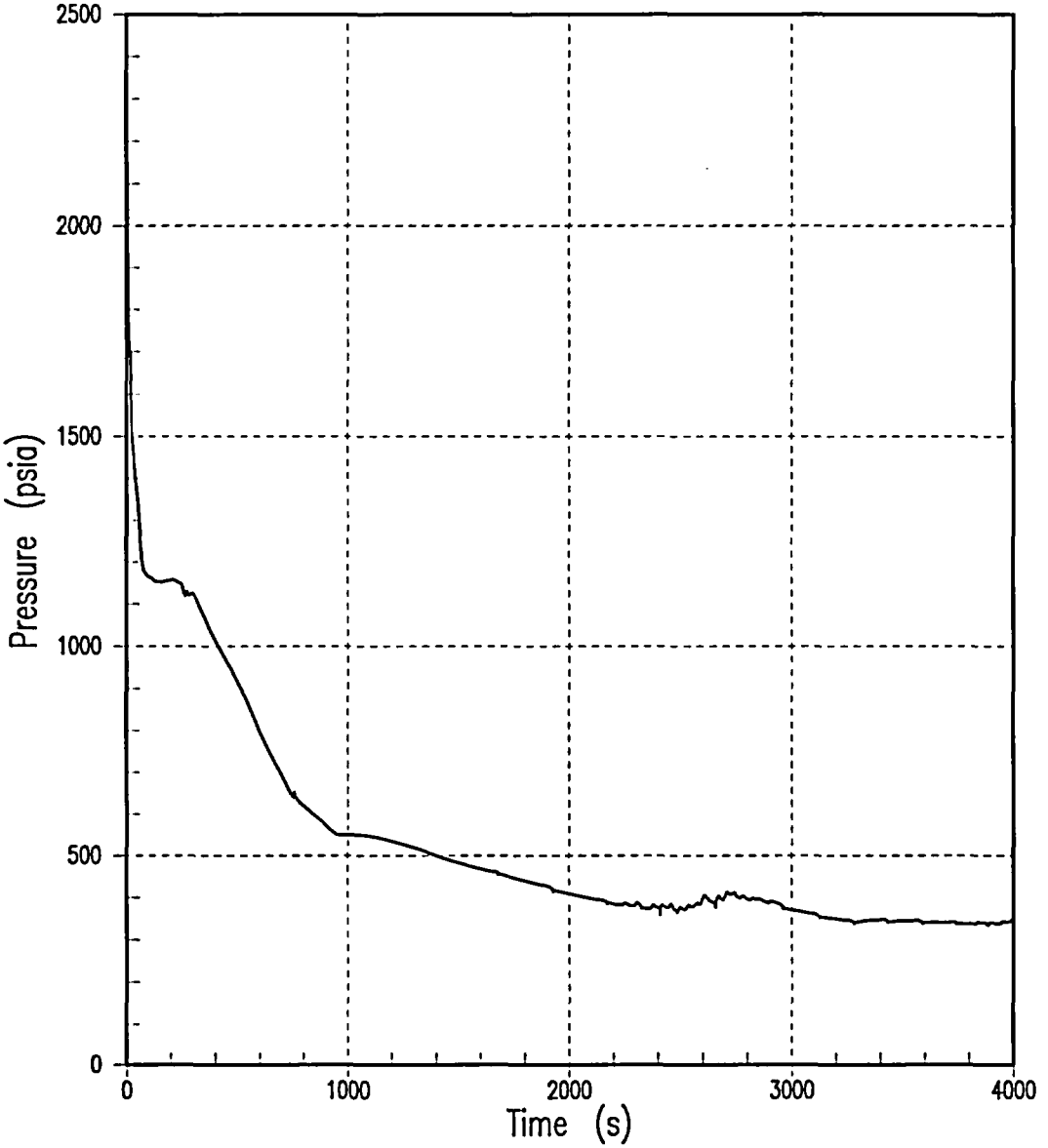


Figure 6: Pressurizer Pressure 3-Inch Break

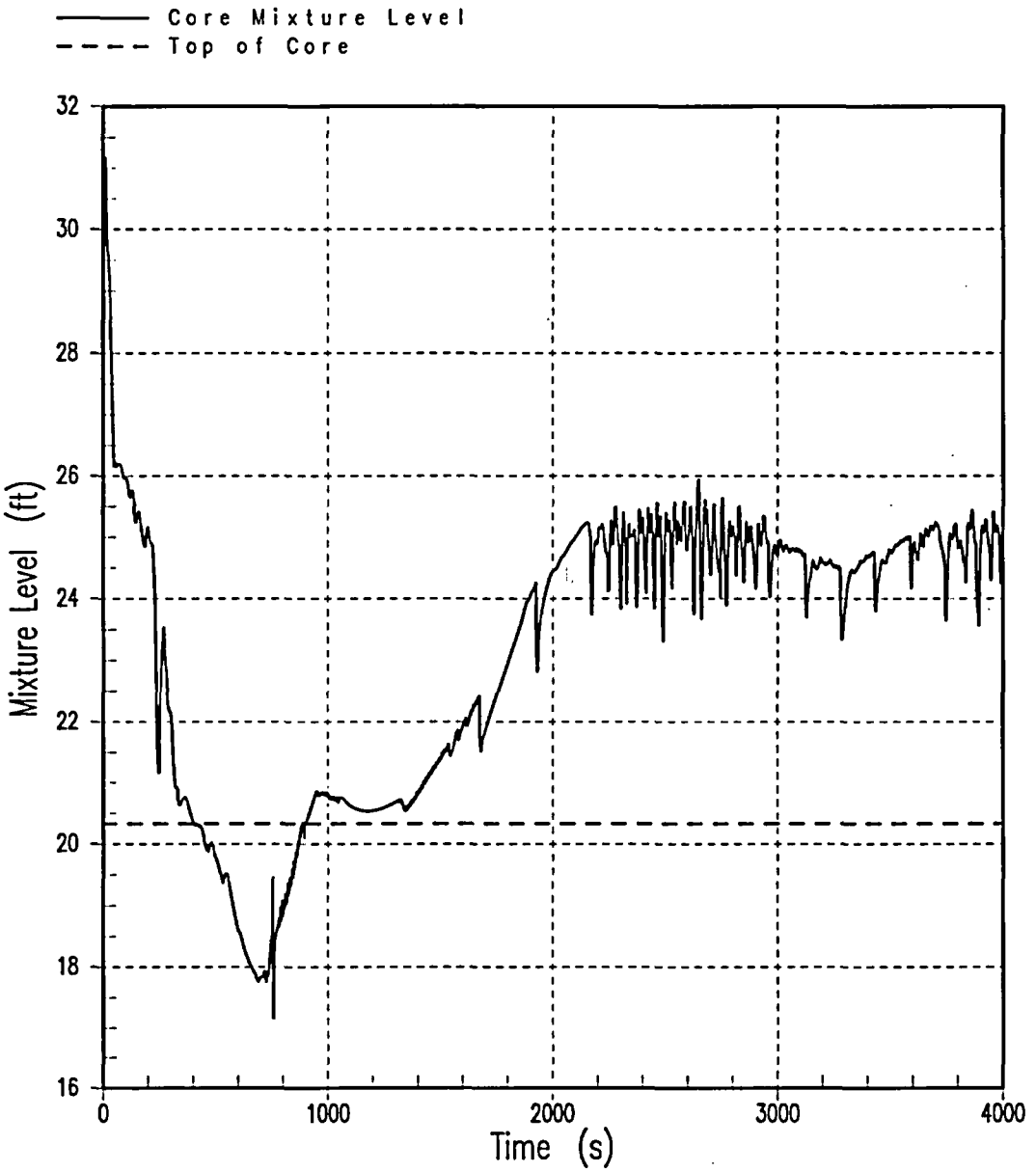


Figure 7: Core Mixture Level 3-Inch Break

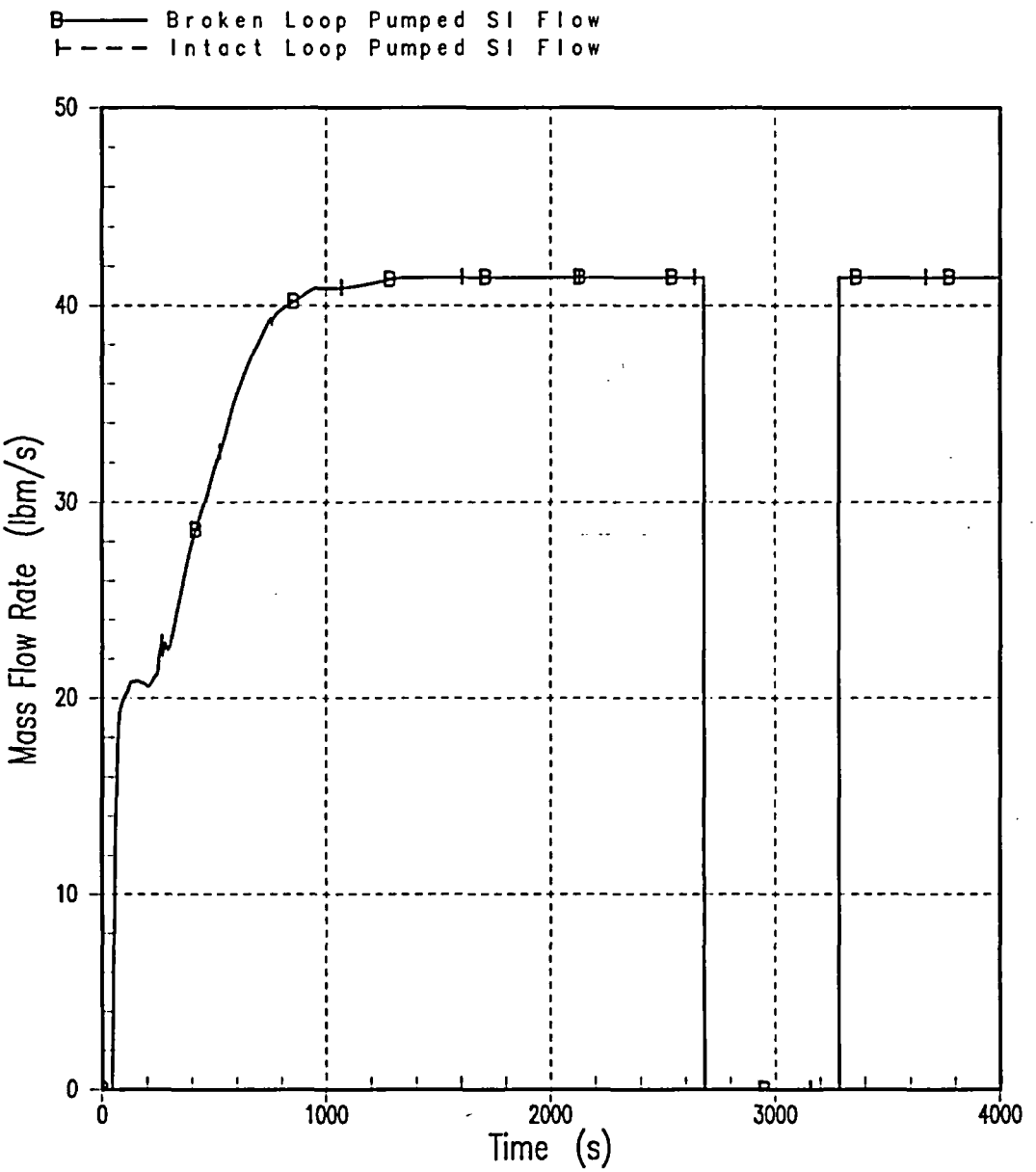


Figure 8: Broken Loop and Intact Loop Pumped SI Flow Rate 3-Inch Break

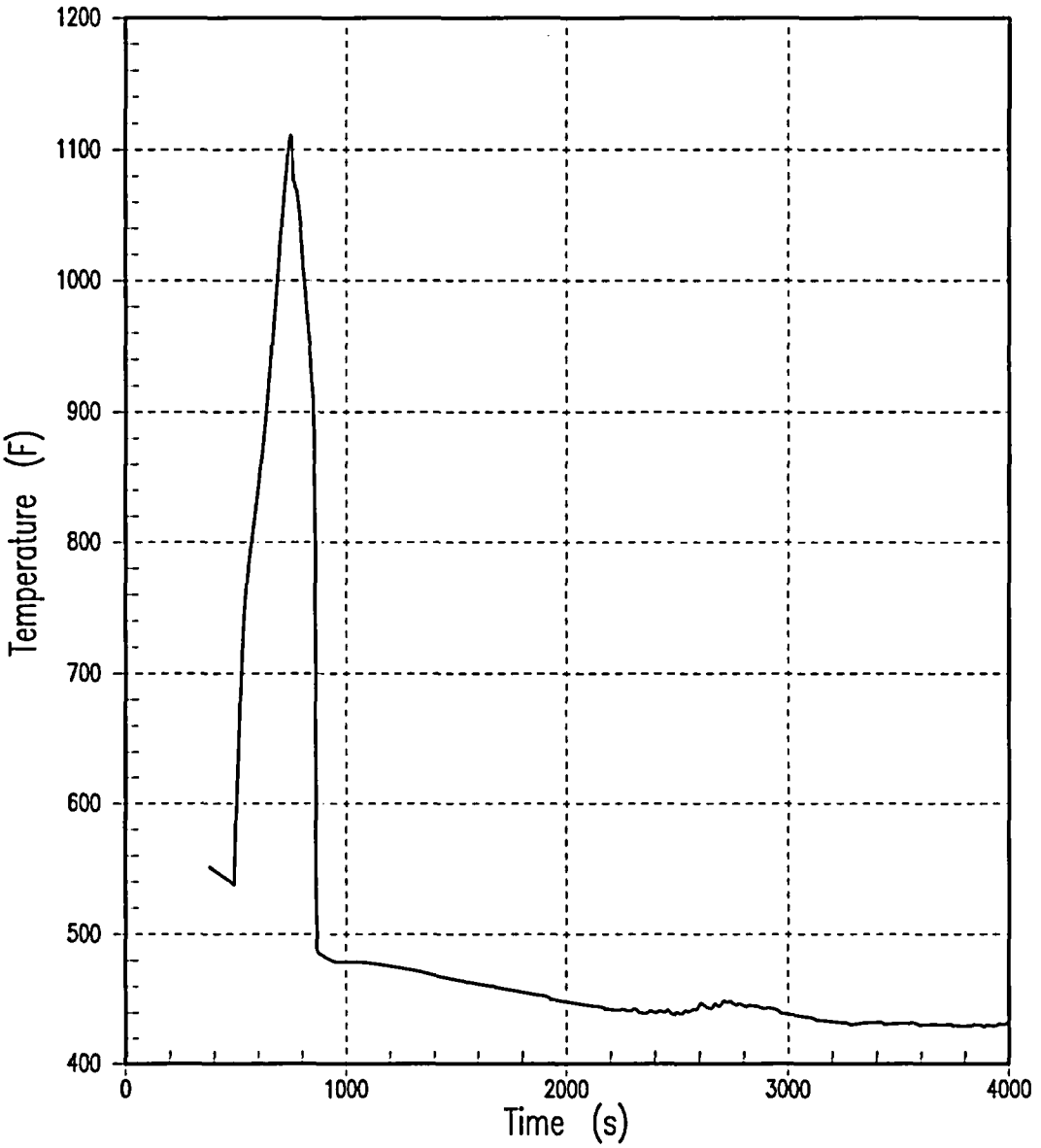


Figure 9: Peak Cladding Temperature at PCT Elevation 3-Inch Break

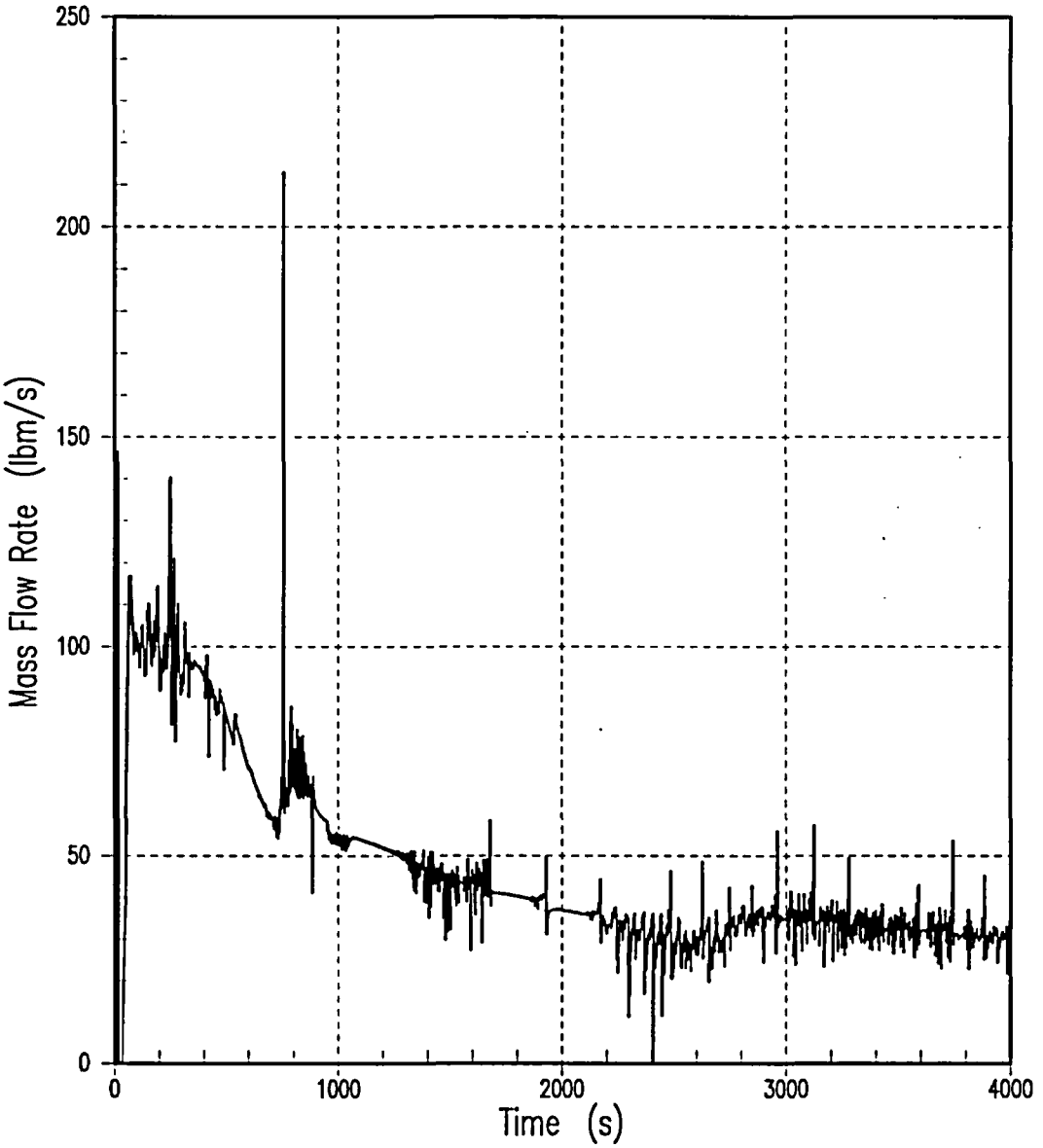


Figure 10: Core Exit Vapor Flow 3-Inch Break

ENCLOSURE 2
R.E. Ginna Nuclear Power Plant

Supplemental Information on the Potential for Boric Acid Precipitation

Supplemental Information on the Potential for Boric Acid Precipitation

A recent NRC letter to Westinghouse (Reference 1) suspended the approval of a post-LOCA long-term cooling topical report applicable to CE plant designs citing issues related to the potential for boric acid precipitation. While the subject topical report and methodology are not directly applicable to Ginna, issues raised in the NRC letter have prompted the following clarifications and additional information regarding the Ginna boric acid precipitation analysis.

Review of Ginna ECCS Design in Regards to Boric Acid Precipitation Analysis Methodology

Since Ginna is an upper plenum injection (UPI) design with low head safety injection directly to the upper plenum, conventional 3-loop and 4-loop hot leg recirculation switchover or simultaneous recirculation switchover post-LOCA actions do not apply. Simultaneous hot (UPI) and cold side (SI) injection will occur automatically when RCS pressure decreases below the low head RHR injection pressure (140 psia). Boric acid precipitation calculations are performed only to establish the maximum length of time before UPI initiation after which boric acid precipitation might occur. After UPI and after the start of sump recirculation, the cold leg SI is normally terminated. The calculated time also is conservatively used to establish the time after which cold leg SI injection should be reestablished, once it is terminated. This time will be specified in the Emergency Operating Procedures. Details on specific ECCS design and the anticipated operator actions are given in Enclosure 7 of the Ginna Tech Spec LAR (Reference 2). The calculated core region boric acid concentration as a function of time for a large break LOCA for the Ginna EPU is given in Figure 1. This analysis was performed consistent with, or conservative with respect to, Reference 3, which has been the NRC accepted method for Westinghouse design plants and the method that supports the current Ginna design basis analysis. The Reference 3 methodology treats small breaks as non-limiting because of the benefits of lower core voiding, greater SI subcooling, and the higher boric acid solubility limit for SBLOCA RCS pressures.

Boric Acid Precipitation Analysis Methodology

Reference 1 raises a number of issues related to the methodology used to establish the maximum length of time before UPI initiation after which boric acid precipitation might occur. The most significant issues are the decay heat assumption and the consideration of core and upper plenum voiding as it affects the analysis for determining liquid mixing volume. The Ginna calculations used a best estimate decay heat assumption and neglected voiding as did the calculations for the as-submitted Beaver Valley Units 1 and 2 EPU LAR. Recent boric acid re-analysis cases performed in response to RAIs for Beaver Valley Units 1 and 2 EPU LAR (Reference 4) show that best estimate decay heat assumption and neglected voiding are offset by partial credit for mixing in the lower plenum and by taking full credit for the experimentally determined boric acid solubility limit at the atmospheric boiling temperature of a water/boric acid solution (Figure 2). Figure 3 shows the original and re-analyzed boric acid concentration transient for the Beaver Valley Unit 1 EPU. It is expected that revised calculations for Ginna would show the same result.

References

1. Letter dated August 1, 2005 from R. A. Gramm, U. S. Nuclear Regulatory Commission to J. A. Gresham, Westinghouse Electric Company, "Suspension of NRC Approval for Use of Westinghouse Topical Report CENPD-254-P, 'Post LOCA Long-term Cooling Model' Due to Discovery of Non-conservative Modeling Assumptions During Calculations Audit"

2. Letter from M. G. Korsnick (Constellation Energy) to D. M. Skay (USNRC), License Amendment Request Regarding Revised Loss of Coolant Accident (LOCA) Analyses - Changes to Accumulator, Refueling Water Storage (RWST), and Administrative Control Technical Specifications, R. E. Ginna Nuclear Power Plant, Docket No. 50-244, April 29, 2005

3. Westinghouse Letter to the NRC, CLC-NS-309, "Long Term Buildup of Boric Acid," 04-01-75.

4. FENOC Letter to NRC, L:-05-112, "Responses to a Request for Additional Information in Support of License Amendment Request Nos. 302 and 173," 07-08-05.

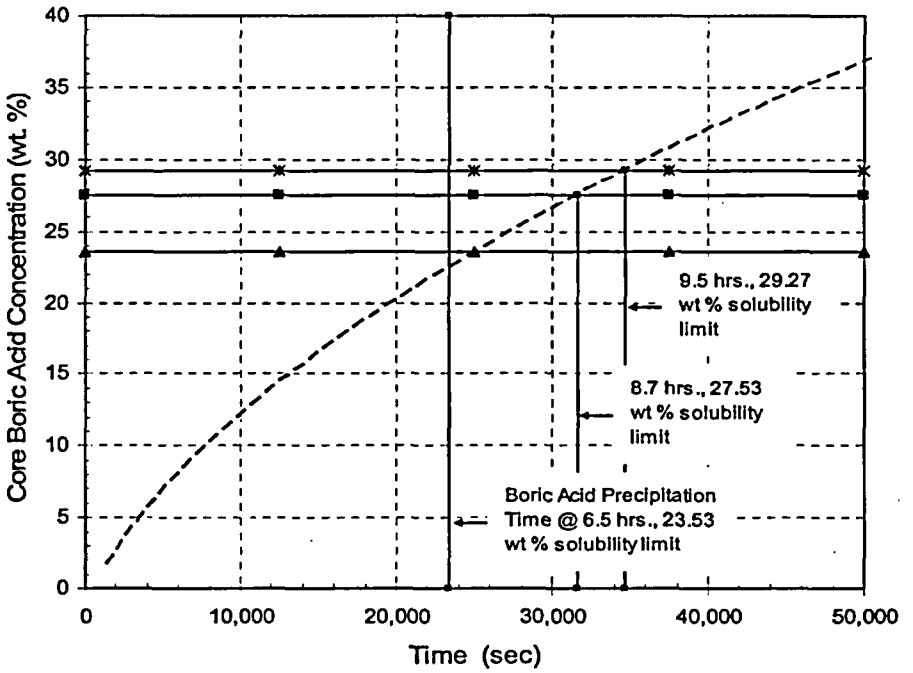


Figure 1 - Ginna Post-LOCA Core Region Boric Acid Concentration vs. Time

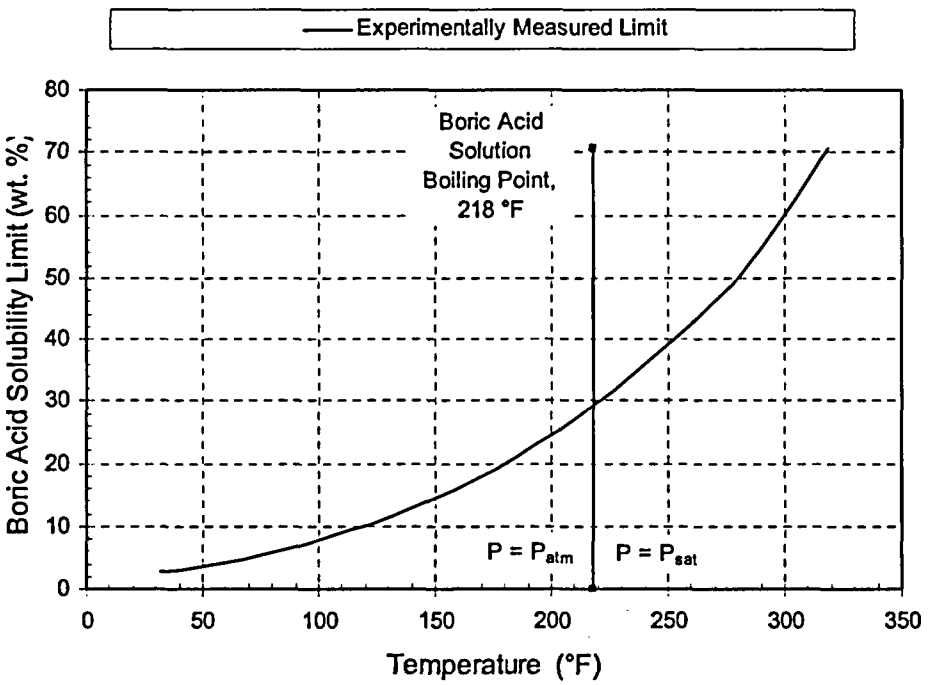


Figure 2 - Boric Acid Solubility Limit vs. Temperature [Cohen, 1969]

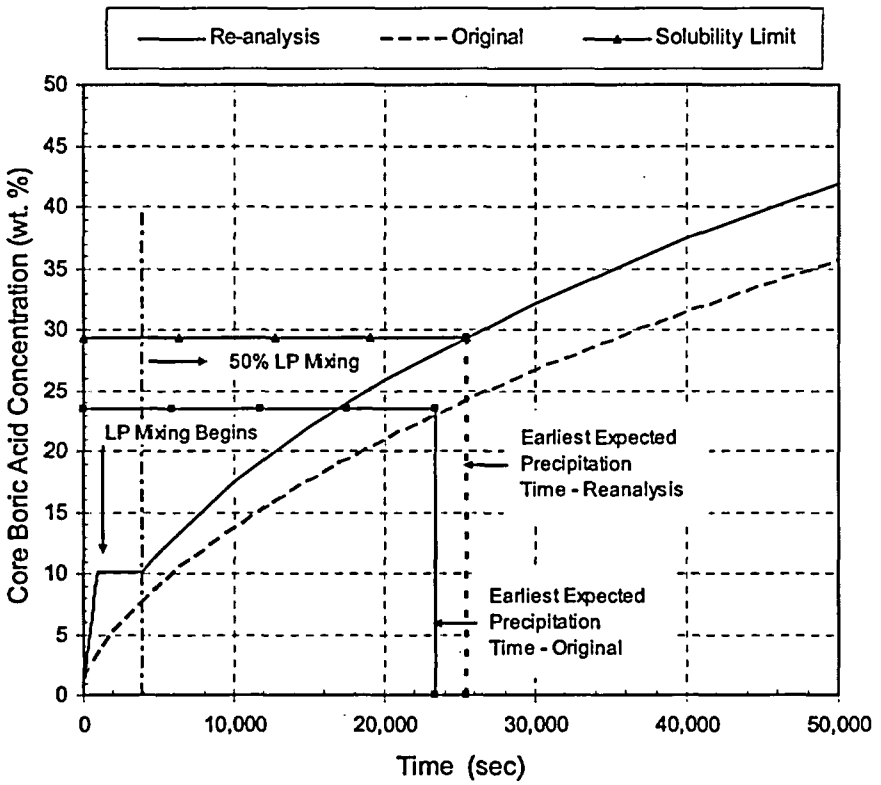


Figure 3 - Beaver Valley Unit 1 - Boric Acid Precipitation, Original Analysis versus Re-analysis

ENCLOSURE 3
R.E. Ginna Nuclear Power Plant

List of Regulatory Commitments

The following table identifies those actions committed to by R.E. Ginna Nuclear Power Plant, LLC in this document. Any other statements in this submittal are provided for information purposes and are not considered to be regulatory commitments.

REGULATORY COMMITMENT	DUE DATE
Provide a supplemental response to the generic boric acid precipitation concerns that apply to Ginna.	Prior to October 31, 2005.