Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

August 9, 2007

TVA-BFN-TS-418
TVA-BFN-TS-431

10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop OWFN, P1-35
Washington, D. C. 20555-0001

Gentlemen:

In the Matter of	)	Docket Nos. 50-259
Tennessee Valley Authority	)	50-260
	)	50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 - TECHNICAL SPECIFICATIONS (TS) CHANGES TS-431 AND TS-418 - EXTENDED POWER UPRATE (EPU) - RESPONSE TO ROUND 13 REQUEST FOR ADDITIONAL INFORMATION (RAI) - SBWB RAIs (TAC NOS. MC5262, MC5263, AND MC5264)

By letters dated June 28, 2004 (ADAMS Accession No. ML041840109) and June 25, 2004 (ML041840301), TVA submitted license amendment applications for EPU of BFN Unit 1 and BFN Units 2 and 3, respectively. On September 22, 2006, TVA submitted a supplemental TS-431 change request (ML062680459), which revised the original June 28, 2004, Unit 1 EPU application to request approval of a 5 percent increase in thermal power to 3458 Megawatts thermal (MWt) until such time as additional steam dryer analyses could be completed. The Unit 1 supplemental TS-431 request was approved by NRC on March 6, 2007 (ML063350404). Therefore, all three BFN units are currently licensed for operation at 3458 MWt and the pending EPU amendments would change the BFN operating licenses for Units 1, 2, and 3 to increase the maximum authorized power level by approximately 15 percent to 3952 MWt.

D030

MRK

On July 5, 2007, the NRC staff issued a Round 13 RAI (ML071780190) regarding the EPU license amendment requests. The Round 13 RAI contains a set of APLA RAIs and seven additional SBWB RAIs. Enclosure 1 to this letter provides TVA's responses to the Round 13 SBWB RAI items. Responses to the APLA RAIs are in preparation and will be submitted separately.

Enclosure 1 contains information that General Electric-Hitachi (GEH) and Areva NP, Inc. (Areva) consider to be proprietary in nature and subsequently, pursuant to 10 CFR 9.17(a)(4) and 2.390(a)(4), such information should be withheld from public disclosure. Enclosure 2 is a redacted version of Enclosure 1 with the proprietary material removed and is suitable for public disclosure. Enclosure 3 contains affidavits from GEH and Areva supporting this request for withholding from public disclosure.

TVA has determined that the additional information provided by this letter does not affect the no significant hazards considerations associated with the proposed TS changes. The proposed TS changes still qualify for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9).

If you have any questions regarding this letter, please contact me at (256)729-3612.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 9th day of August, 2007.

Sincerely,

D. T. Langley
Manager of Licensing
and Industry Affairs

Enclosures:
1. Response to Round 13 Request for Additional Information - SBWB Items (Proprietary Information Version)
2. Response to Round 13 Request for Additional Information - SBWB Items (Non-Proprietary Information Version)
3. GEH and Areva Affidavits

Enclosures
cc (Enclosures):
State Health Officer
Alabama State Department of Public Health
RSA Tower - Administration
Suite 1552
P.O. Box 303017
Montgomery, Alabama 36130-3017

NRC Senior Resident Inspector
Browns Ferry Nuclear Plant
10833 Shaw Road
Athens, AL 35611-6970

Mr. James H. Moorman, III, Branch Chief
U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, Georgia 30303-8931

Eva Brown, Project Manager
U.S. Nuclear Regulatory Commission
(MS 08G9)
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852-2739

NON-PROPRIETARY INFORMATION

ENCLOSURE 2
TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, and 3

TECHNICAL SPECIFICATIONS (TS) CHANGES TS-431 AND TS-418
EXTENDED POWER UPRATE (EPU)

RESPONSE TO ROUND 13 REQUEST FOR ADDITIONAL INFORMATION
SBWB ITEMS

(NON-PROPRIETARY INFORMATION VERSION)

Enclosed is a redacted version of TVA's response to NRC's July 5, 2007 (ADAMS Accession No. ML071780190), Round 13 Request for Additional Information (RAI) SBWB items regarding TVA's requests EPU of BFN Units 1, 2, and 3.

NRC RAI SBWB-67 (Unit 1 Only)

Discuss whether the 3-D MONICORE core monitoring system is based on TGBLA06/PANAC11 methods.

TVA Response to SBWB-67 (Unit 1 Only)

The 3-D MONICORE core monitoring system is based on TGBLA06/PANAC11 methods.

NRC RAI SBWB-68 (Unit 1 Only)

The 50 megawatt thermal/million pounds mass/hour (MWt/Mlbm/hr) limit establishes the generic envelope for General Electric neutronic methods nodal, bundle and axial power distribution uncertainties. Discuss whether the core thermal power to core flow ratio for the Unit 1 extended power uprate will remain below 50 MWt/Mlbm/hr at any statepoint in the allowed operating domain limit.

TVA Response to SBWB-68 (Unit 1 Only)

The 50 MWt/Mlbm/hr limit is not applicable to all statepoints in the expanded operating domain. Rather, it applies only to the low flow point at rated power. For the EPU operating domain for BFN Unit 1, the applicable statepoint is 99% flow at the 100% rated EPU power of 3952 MWt.

At this statepoint for BFN Unit 1, this results in a value of;

3952 MWt/0.99*102.5 Mlbm/hr) = 38.95 MWt/Mlbm/hr

which is well below the generic limit and is acceptable.

The 50 MWt/Mlbm/hr metric was defined by General Electric (GE) in the response to RAI 25 as transmitted in MFN 05-029 (Reference 1). The RAI response provided justification that the Safety Limit Minimum Critical Power Ratio (SLMCPR) power distribution uncertainties as originally developed in NEDC-32694P-A (Reference 2) were applicable to EPU and Maximum Extended Load Line Limit Plus reactor cores. Additional comparisons between the predictions of the analytical methods and measured Traversing Incore Probe (TIP) responses for high power density plants were also provided. Both the original Licensing Topical Report and the RAI information use information from TIP calibrations which predominately exist near rated power and generally require steady-state operation. Trending of TIP prediction efficacy versus core power/core

flow ratio for these TIP comparisons was analyzed in the RAI and summarized in Section 3.1.5.1 of the draft Safety Evaluation for NEDC-33173P (Reference 3).

References:

1. Letter from Louis M. Quintana (GE) to Herbert Berkow (NRC), Responses to RAIs - Methods Interim Process (TAC No. MC5780), Response to RAIs 5, 25, 26, 27, and 29, MFN 05-029, April 8, 2005.

2. NEDC-32694P-A, "Power Distribution Uncertainties for Safety Limit MCPR Evaluations," August 1999.

3. NEDC-33173P - Draft SE, "Draft Safety Evaluation By The Office Of Nuclear Reactor Regulation Licensing Topical Report NEDC-33173P, "Applicability of GE Methods To Expanded Operating Domains," General Electric Nuclear Energy, March 2007.

NRC RAI SBWB-69 (Unit 1 Only)

Discuss whether the plant specific R-factor calculation at a bundle level was performed consistent with lattice axial void conditions expected for the hot channel operating state.

TVA Response to SBWB-69 (Unit 1 Only)

As a clarification, the R-factor is not calculated at the lattice level. The R-factor is a bundle level evaluation as described in NEDC-32505P-A, "R-Factor Calculation Method for GE11, GE12 and GE13 Fuel." The R-factor evaluation process utilizes the lattice level power peaking information that is dependent on the axial void profile.

The nodal void conditions for the purpose of calculating the bundle maximum R-factor is defined by a generic axial void profile. This generic profile as described in NEDC-32505P-A is based on a [[

]]. As requested in the Safety Evaluation for BFN Unit 1 restart, a void profile consistent with expected operation will be used. To accommodate the limitation in the Safety Evaluation, a void profile representative of a hot channel will be used. This void profile will represent a bundle with [[

]]. The

original and modified axial void profiles can be seen in Figure SBWB-69-1.

The R-factors based on the modified axial void profile have been evaluated in an offline simulation of the BFN Unit 1 Cycle 7 projected operating plan. R-factors based on the modified void profile will be implemented for power uprate operation. The change in the predicted MCPR performance can be seen in Figure SBWB-69-2.

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Figure SBWB-69-1: Axial Void Profiles

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Figure SBWB-69-2: Browns Ferry 1 Cycle 7 Projected MCPR Performance

NRC RAI SBWB-70 (Unit 1 Only)

The presence of bypass voiding at the low-flow conditions where instabilities are likely can result in calibration errors. Discuss whether these calibration errors were accounted for when determining the setpoints for the detect and suppress long term methodology.

TVA Response to SBWB-70 (Unit 1 Only)

The calibration errors due to bypass voiding will be accounted for while determining the setpoints for any detect and suppress long term methodology.

As an illustration, based on an Operating Limit MCPR of 1.39 and a SLMCPR of 1.09, BFN Unit 1 Cycle 7 has a nominal Operating Power Range Monitor (OPRM) amplitude setpoint of 1.15. With a 5% OPRM penalty, the OPRM amplitude setpoint

penalty is 0.0075, resulting in an effective OPRM amplitude setpoint of 1.14 (rounded down due to instrument accuracy). The adjustment to the OPRM setpoint to account for this error will be made as part of power uprate implementation. The Average Power Range Monitor penalty is not applicable for the OPRM system.

NRC RAI SBWB-82 (Unit 2 and 3 Only)

Provide the reference and/or description of the models governing counter-current flow (CCFL) at the exit to the hot bundle/core. Also identify the reference that describes the validation (separate effects and integral test data comparisons) of the CCFL limit model governing top down cooling in rod bundles.

TVA Response to RAI SBWB-82 (Unit 2 and 3 Only)

In the AREVA NP[1] NRC-approved EXEM BWR-2000 methodology, CCFL is calculated for the average core and hot channel regions independently using the Kutateladze correlation (Reference SBWB-82.1). The Ohkawa-Lahey Drift Flux Model (Reference SBWB-82.2) is used to calculate two-phase slip at junctions in the fuel bundle and collapses to the Kutateladze formulation at the CCFL limit. In the Safety Evaluation Report for XN-NF-80-19(P)(A) (Reference SBWB-82.3) the NRC places the following restriction on AREVA concerning the use of CCFL correlations in the EXEM BWR ECCS Evaluation Model:

> *"The CCFL Models and coefficients used to predict spray water entry to the core region and by-pass drainage to control rod guide tube region in FLEX have been amply supported by results of experimental studies conducted by ENC in their FCTF test facility. Application of the model to specific fuel designs will, however, require justification of CCFL correlation coefficients used if designs vary from the measured test configurations."*

As a result of this restriction AREVA is required to perform tests on new fuel designs to demonstrate that the Kutateladze correlation coefficients are applicable to the fuel design. The CCFL test data generated by AREVA for ATRIUM™-10[2] fuel is

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[1] AREVA NP Inc. is an AREVA and Siemens company.

[2] ATRIUM is a trademark of AREVA NP.

compared to the CCFL predicted by Kutateladze in Figures SBWB-82.1 and SBWB-82.2. The testing justifies continued use of the current Kutateladze correlation coefficients to predict countercurrent flow in ATRIUM-10 fuel.

To further demonstrate the adequacy of the AREVA model, Figures SBWB-82.3 through SBWB-82.7 are provided. Figure SBWB-82.3 shows the RELAX system nodalization for the BFN EXEM BWR-2000 Loss-of-Coolant-Accident (LOCA) analysis model. The nodalization is included as a reference for the nodal locations of the data presented in the remaining plots.

Figures SBWB-82.4 and SBWB-82.5 show the collapsed liquid level (CLL) in the lower upper plenum volume (Volume 1) for the mid- and top-peaked 0.05 ft^2 breaks, respectively. As annotated, at the time of reflood the collapsed liquid level in Volume 1 is between about [ ] for these cases. Low pressure core spray (LPCS) is injected into Volume 1 and after LPCS injection begins there is no liquid water predicted to be in the upper upper plenum volume (Volume 2). Therefore, the data in these plots represent the CLL for the entire upper plenum region during the period of LPCS injection.

The reason so little water is retained in the upper plenum is because of the large bypass outlet flow area open to the upper plenum present in BWR-4 cores. The bypass exit includes the many open partial grids around the core periphery. In fact, the flow area of the bypass exit is more than half that of the combined fuel channels. There is not enough LPCS injection prior to reflood to fill the bypass so water injected in the upper plenum quickly drains into the bypass region for the entire LPCS injection period prior to reflood. As shown in Figures SBWB-82.6 and SBWB-82.7, the flow of liquid from the upper plenum into the bypass increases rapidly after the core spray begins which prevents substantial accumulation of water in the upper plenum prior to reflood.

A difference between the AREVA modeling and that of some more complex methods is the absence of a low power peripheral fuel channel in the model. The basis for separating low power peripheral bundles into a separate flow path from the average core is that water would more easily penetrate this channel, leaving less water in the upper plenum to drive countercurrent flow in the hot bundle. However, since there is already a large area flow path with low hydraulic resistance from the upper plenum into the bypass available for the entire spray

period (bypass does not fill completely), there would be little gained in terms of model accuracy for the 0.05 ft^2 breaks by adding a much higher resistance (relative to bypass) low power peripheral channel.

Additionally, the current AREVA modeling of the upper plenum (single radial node) allows instant transport of liquid from where it is deposited by the core spray to the periphery of the core where it falls down the large bypass openings (note, there is a small high resistance opening at the bottom of the bypass so this water is held up in the bypass). This is conservative for the 0.05 ft^2 cases because it results in less liquid water being retained in the upper plenum to drive countercurrent flow in the hot bundle than would realistically be expected. In reality there would be a time constant associated with the flow of injected water to the periphery of the core based on level, density, and cross-flow resistance.

There are physical features of the upper tie plate and other structures that have a height greater than the [ ] of liquid water calculated to be present in the upper plenum at the time of reflood and would interfere with collapsed liquid flow to the periphery of the core. One such feature is the chimney region between the top of the upper tie plate grid and the top of the fuel channel. This feature provides a physical barrier greater than [ ] in height to prevent the flow of collapsed liquid water from one bundle to the next and results in a trapped liquid reservoir above each bundle when liquid collapses in the upper plenum.

The AREVA EXEM BWR-2000 methodology models the upper plenum volumes (Volumes 1 and 2 in Figure SBWB-82.3) as homogenous equilibrium volumes. This modeling choice has the added conservatism of reducing the density for the CCFL fluid as compared to collapsed liquid. As a result, the total mass of liquid that is permitted to penetrate into the fuel channel during periods of countercurrent flow is reduced.

The above discussion provides the basis for the following statements relative to the NRC-approved EXEM BWR-2000 LOCA methodology:

- The ATRIUM-10 fuel design has been tested and shown to allow countercurrent flow that is comparable to that predicted by the correlation used for CCFL (Kutateladze correlation).

- The quantity of liquid water retained in the upper plenum after LPCS begins is conservative for CCFL through the upper tie plate.

- The density of the CCFL fluid entering the fuel bundle is conservatively low.

Therefore, it is concluded that the countercurrent flow in the hot channel predicted by the EXEM BWR-2000 LOCA methodology for the 0.05 ft^2 break cases is conservative.

Note that it is expected that different approved LOCA methodologies will have different models that will assert different levels of conservatism for different break sizes. As a result, it is expected that different approved methods, while still predicting an overall conservative Peak Clad Temperature, may predict different break sizes as limiting. This reality is part of the basis for requiring a break spectrum instead of selecting a single break case that has been determined to be limiting for a particular plant.

References

SBWB-82.1. K.H. Sun and R.T. Fernandez, "Countercurrent Flow Limitation Correlation for BWR Bundles During LOCA," ANS Transactions, Volume 27, pp. 605-606, 1977.

SBWB-82.2. K. Ohkawa and R.T. Lahey Jr., "The Analysis of Proposed BWR Inlet Flow Blockage Experiments in PBF," NES-486, Rensselaer Polytechnic Institute, Troy, NY, December 1978.

SBWB-82.3. XN-NF-80-19(P)(A) Volumes 2, 2A, 2B, and 2C, *Exxon Nuclear Methodology for Boiling Water Reactors EXEM BWR ECCS Evaluation Model,* Exxon Nuclear Company, September 1982.

Figure SBWB-82.1 ATRIUM-10 Upper Tie Plate
CCFL Test Data Compared to
Kutateladze Correlation

Figure SBWB-82.2 ATRIUM-10 Spacer
CCFL Test Data Compared to
Kutateladze Correlation

Figure SBWB-82.3 RELAX LOCA System
Nodal Diagram

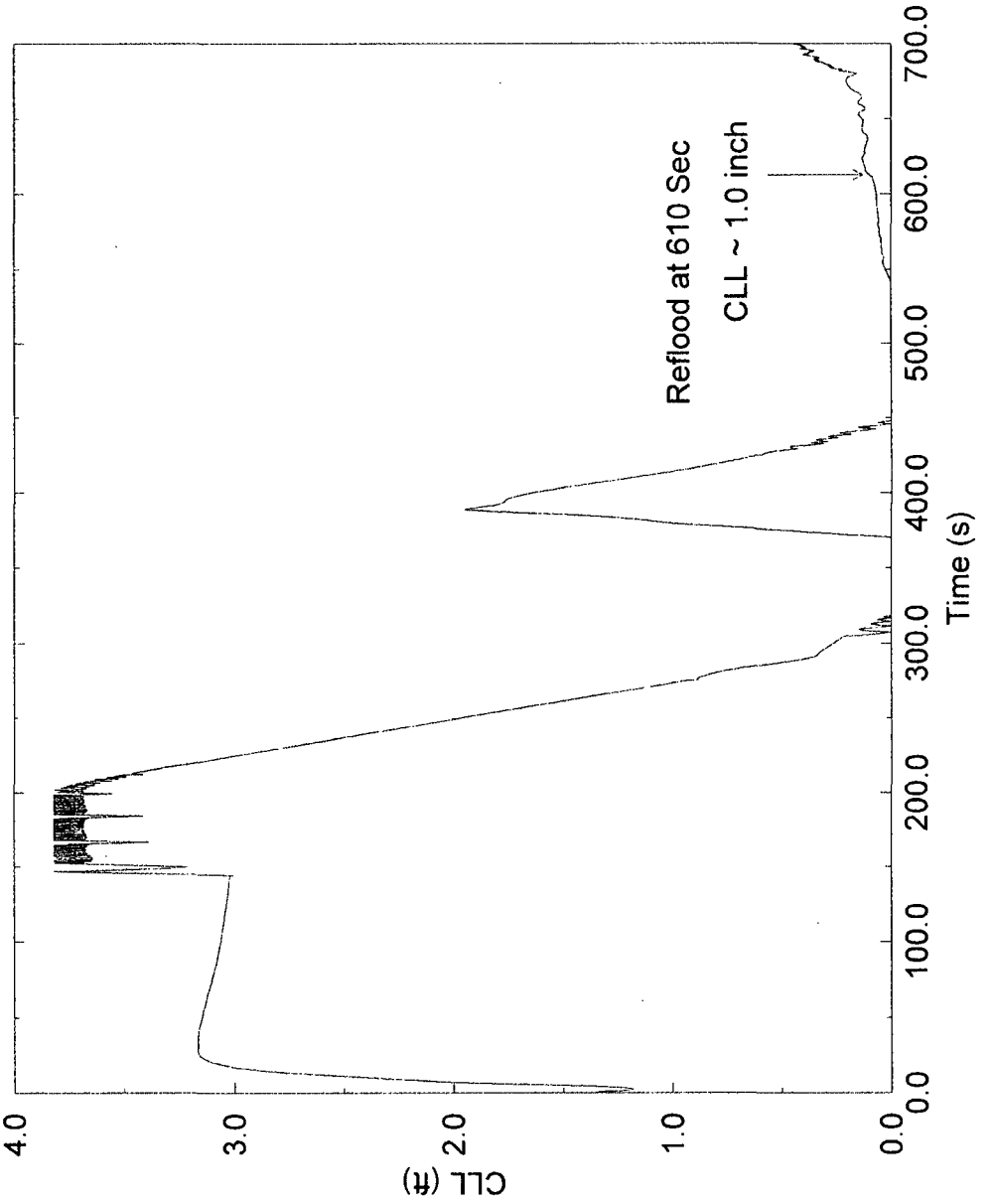


Figure SBWB-82.4 Upper Plenum
Lower Collapsed Liquid Level for
0.05 FT2/PD MID SF-BATT 102P/105F EPU

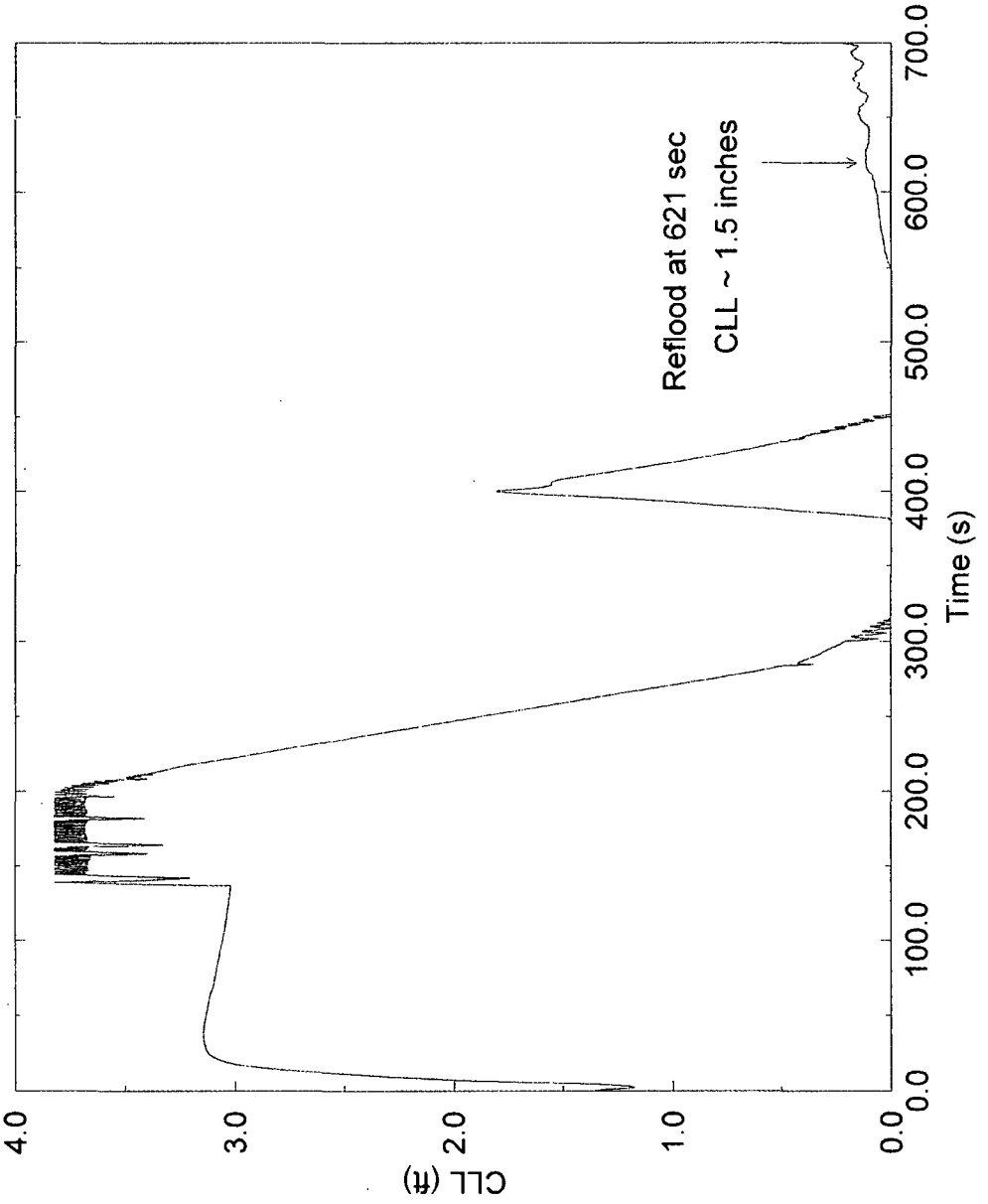


Figure SBWB-82.5 Upper Plenum Lower Collapsed Liquid Level for 0.05 FT2/PD TOP SF-BATT 102P/105F EPU

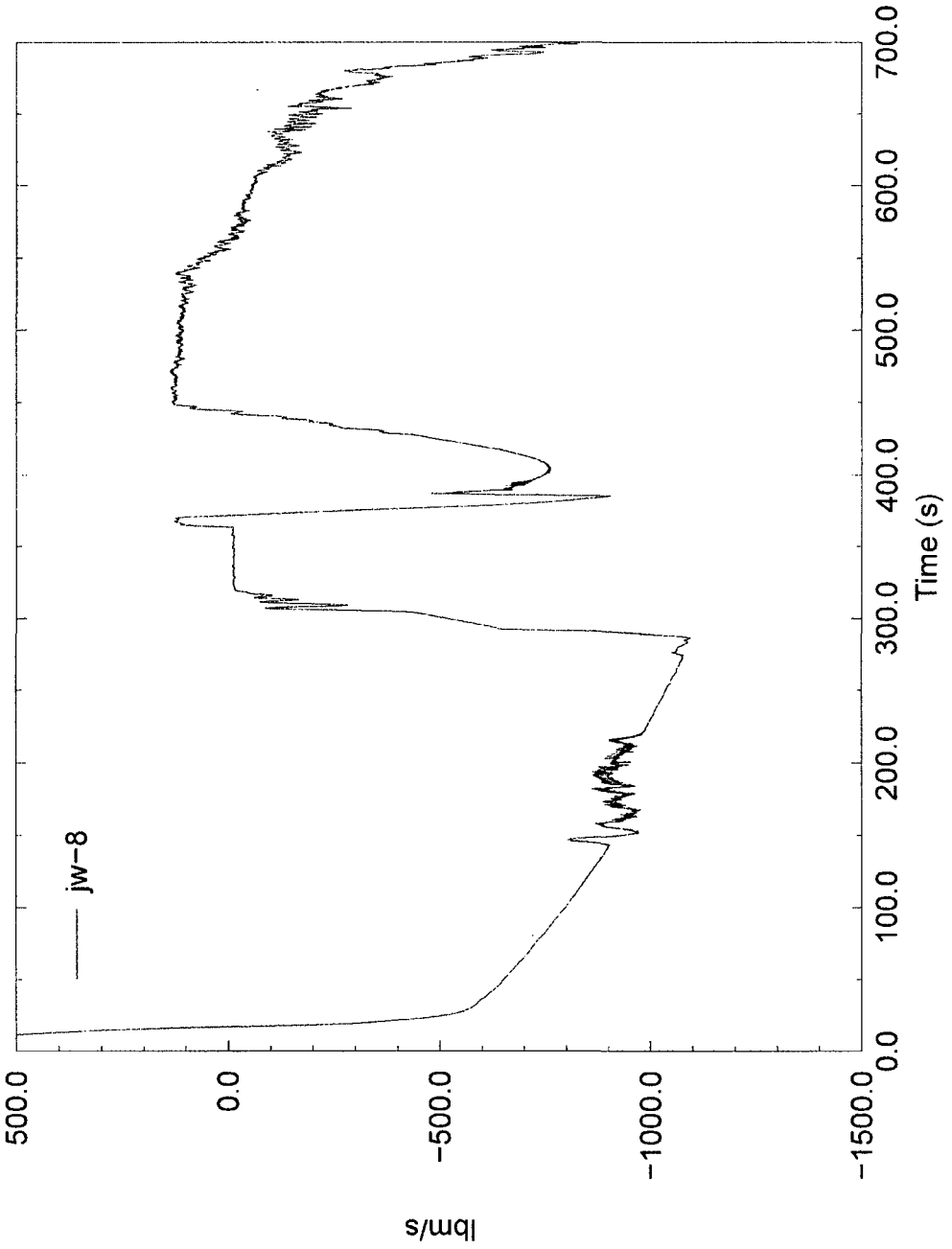


Figure SBWB-82.6 Bypass Exit
Junction Mass Flow Rate for
0.05 FT2/PD MID SF-BATT 102P/105F EPU

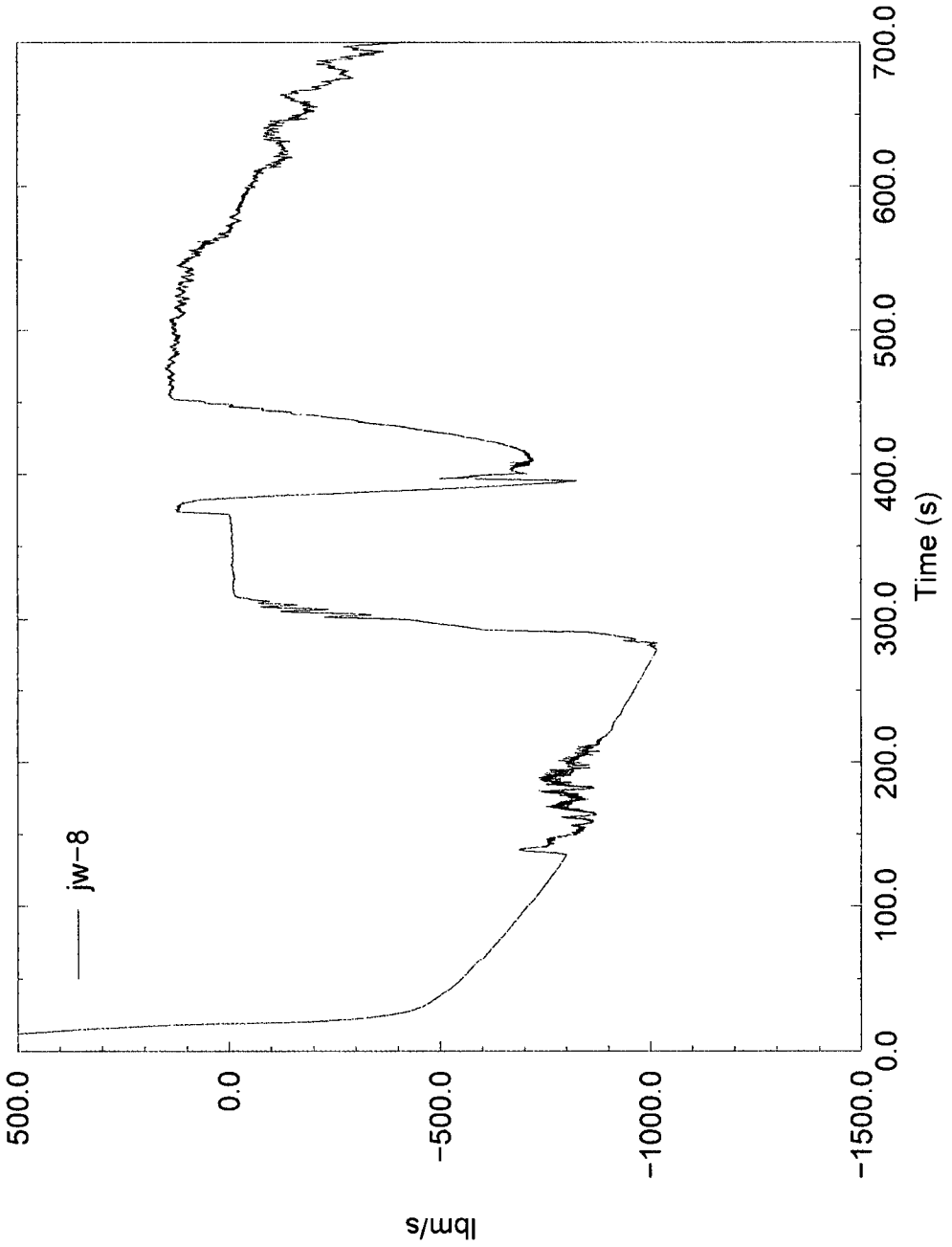


Figure SBWB-82.7 Bypass Exit
Junction Mass Flow Rate for
0.05 FT2/PD TOP SF-BATT 102P/105F EPU

NRC RAI SBWB-83 (Unit 2 and 3 Only)

Provide the vapor and liquid hot bundle exit velocities versus time for the 0.05 ft^2 breaks presented in the April 18, 2007, SBWB-64 Supplement response.

TVA Response to RAI SBWB-83 (Unit 2 and 3 Only)

The 0.05 ft^2 break vapor and liquid superficial velocities at the core exit junction for the hot bundle (junction 10 of Figures SBWB-83.5 and SBWB-83.6) are provided in Figures SBWB-83.1 through SBWB-83.4. The definition of superficial velocity used here is the velocity an individual phase would have if the entire flow region were filled with the selected phase at the predicted volumetric flow rate for that phase.

The flow area for the region of the fuel bundle with partial length rods is more restrictive for CCFL than the upper tie plate. So, the superficial velocities for the top hot channel junction with partial length rods from the mid-peaked analysis (junction 8 of Figures SBWB-83.5) are also provided. Flow at this junction for the top-peaked case is not provided because the partial length rods are below the peak power node. Therefore, CCFL at this junction is not relevant to countercurrent flow reaching the high power node for the top-peaked case. To provide a reference for the location of the junctions associated with the plotted data, the hot bundle nodalizations used in the RELAX model for mid- and top-peaked axial power peaking are presented in Figures SBWB-83.5 and SBWB-83.6.

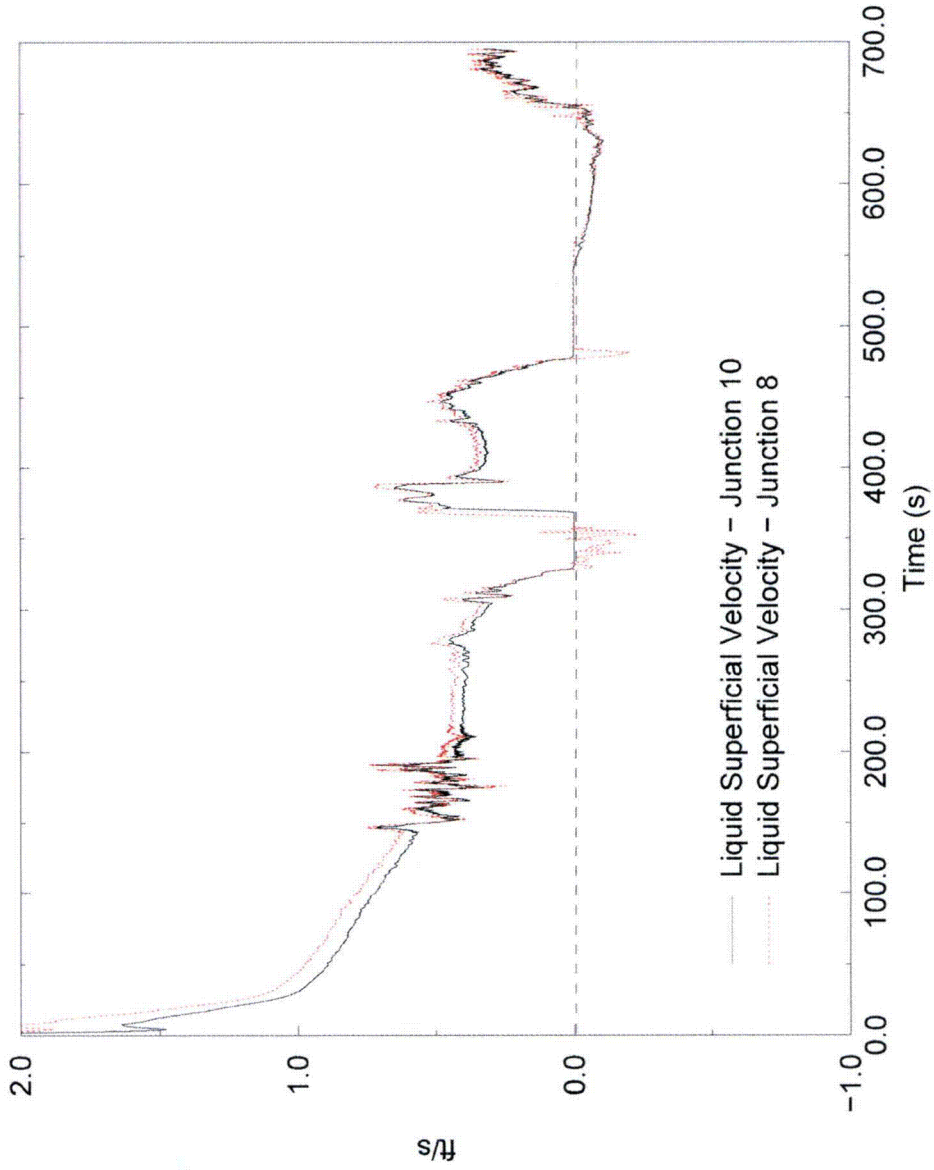


Figure SBWB-83.1 Liquid Superficial Velocity at
Hot Channel Outlet and
Top Partial Length Rod Junction for
0.05 FT2/PD MID SF-BATT 102P/105F EPU

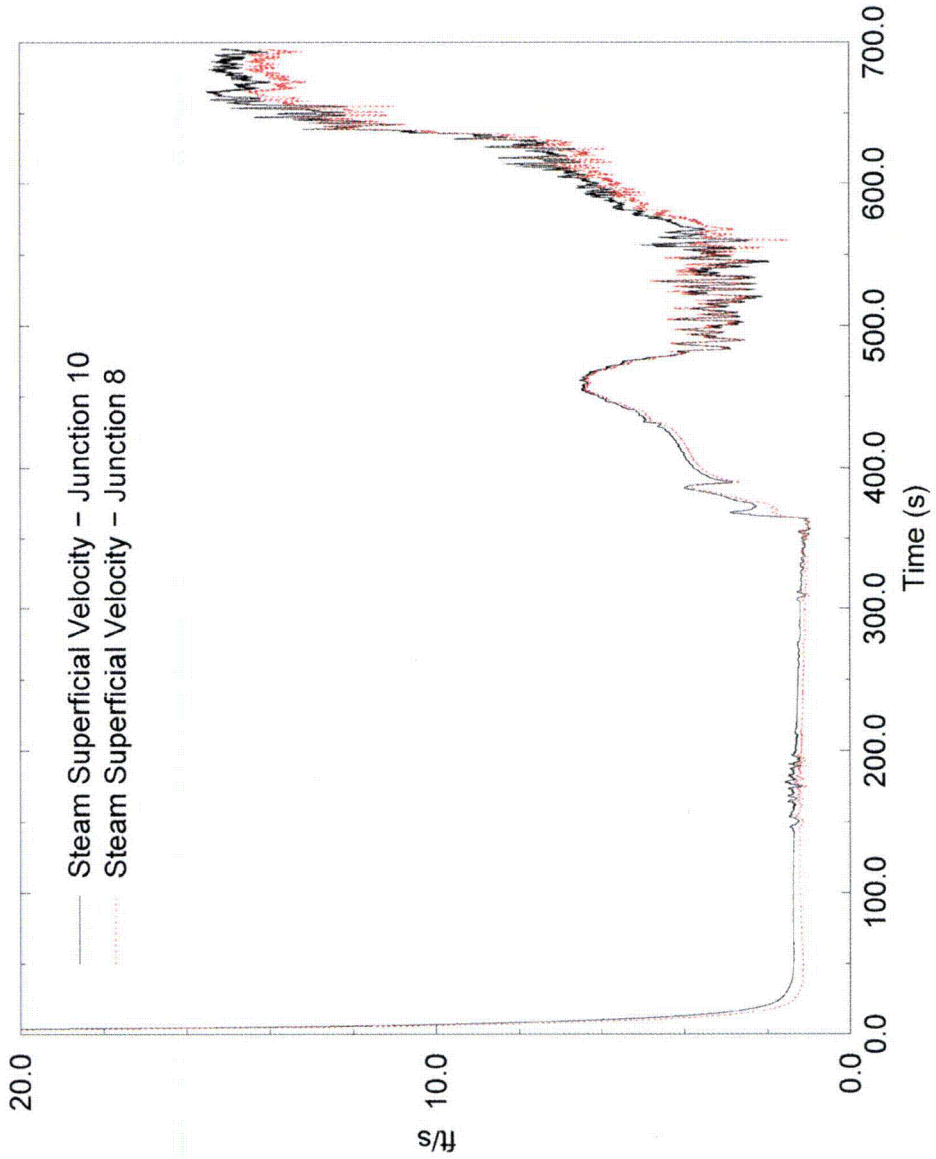


Figure SBWB-83.2 Steam Superficial Velocity at
Hot Channel Outlet and
Top Partial Length Rod Junction for
0.05 FT2/PD MID SF-BATT 102P/105F EPU

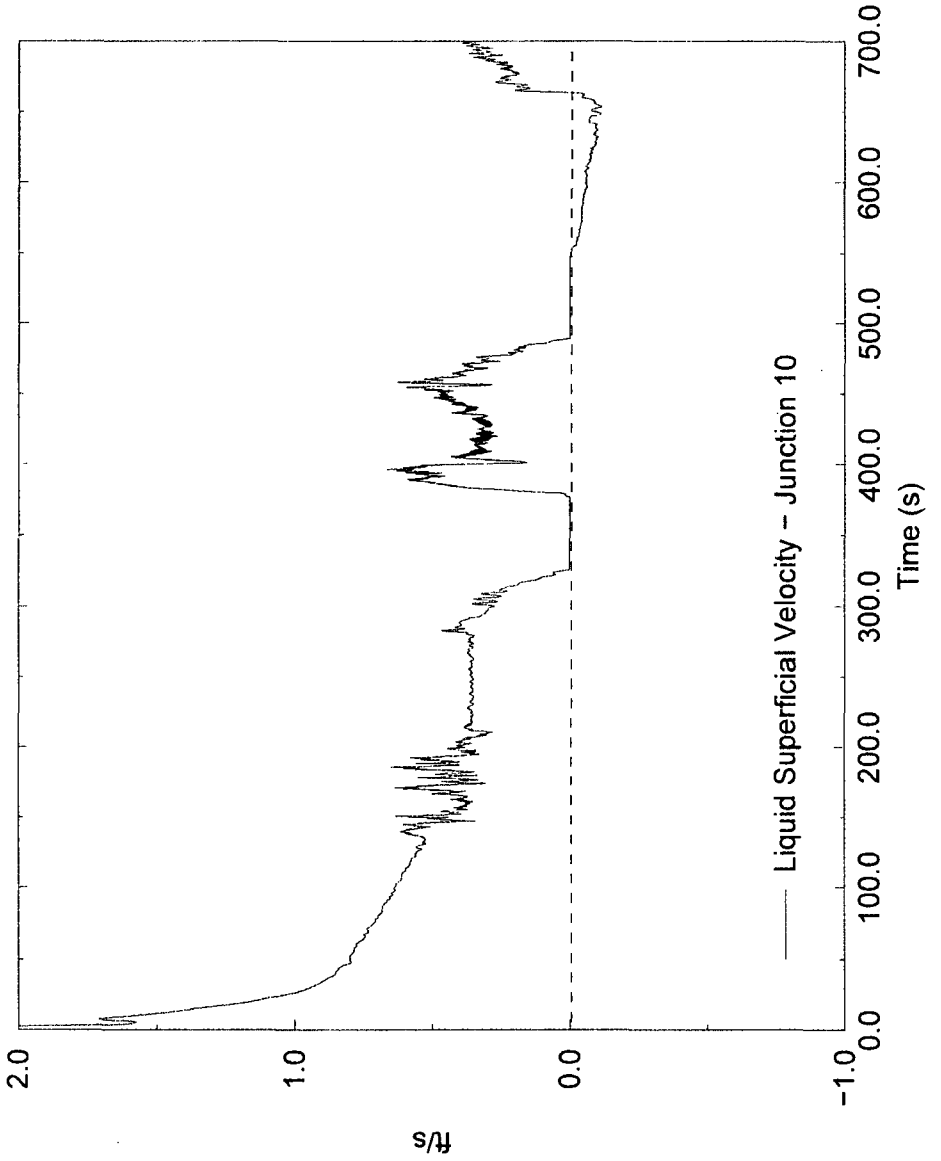


Figure SBWB-83.3 Liquid Superficial Velocity at Hot Channel Outlet for 0.05 FT2/PD TOP SF-BATT 102P/105F EPU

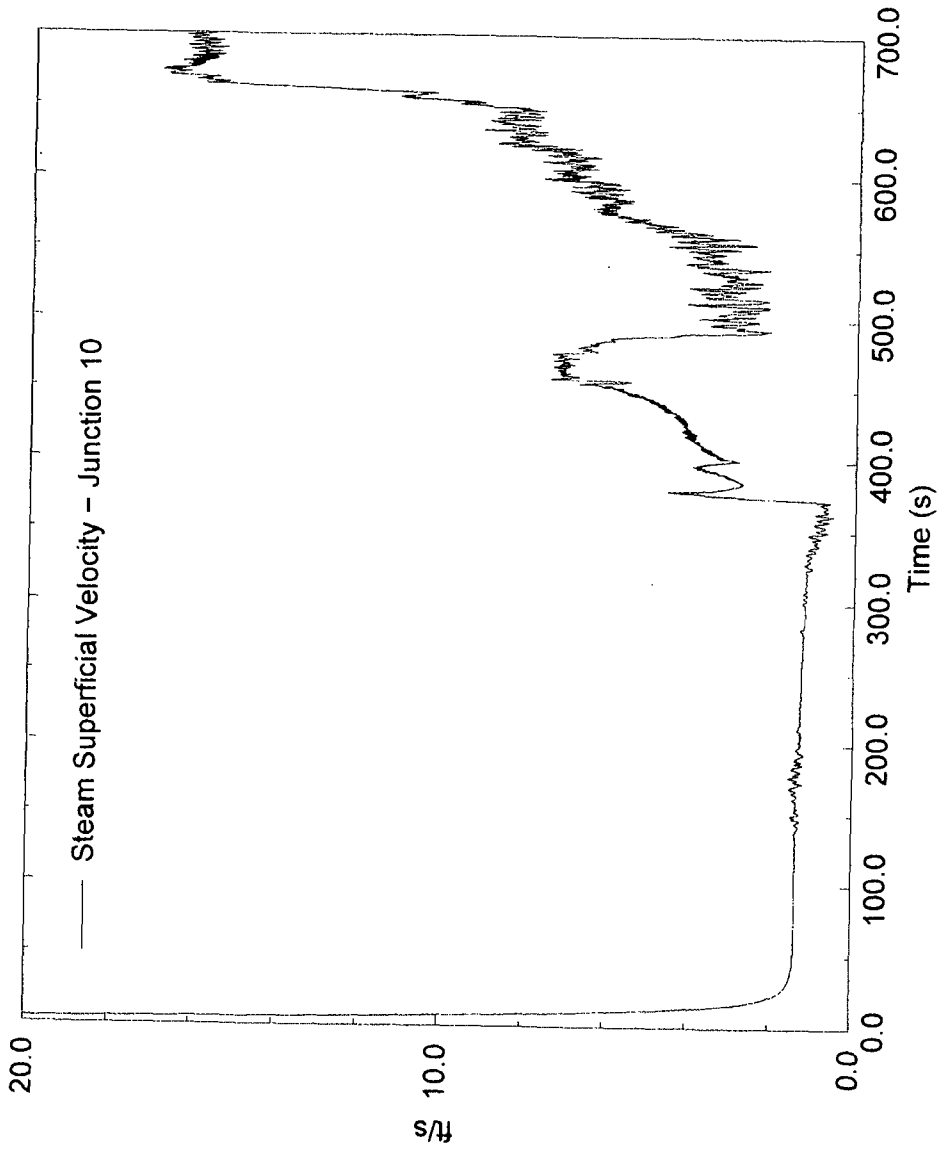


Figure SBWB-83.4 Steam Superficial Velocity at
Hot Channel Outlet for
0.05 FT2/PD TOP SF-BATT 102P/105F EPU

Figure SBWB-83.5 RELAX LOCA Hot Channel
Nodal Diagram for
Mid-Peaked Axial Shapes

Figure SBWB-83.6 RELAX LOCA Hot Channel
Nodal Diagram for
Top-Peaked Axial Shapes

NRC RAI SBWB-84 (Unit 2 and 3 Only)

Provide the axial power shapes used in the calculations provided in the April 18, 2007, request for additional information response.

TVA Response to RAI SBWB-84 (Unit 2 and 3 Only)

The axial power distributions for mid- and top-peaked LOCA analysis cases are provided in Figure SBWB-84.1

Figure SBWB-84.1 Axial Power Distribution for Mid- and Top-Peaked LOCA Analyses

ENCLOSURE 3
TENNESSEE VALLEY AUTHORITY
BROWNS FERRY NUCLEAR PLANT (BFN)
UNITS 1, 2, and 3

TECHNICAL SPECIFICATIONS (TS) CHANGES TS-431 AND TS-418
EXTENDED POWER UPRATE (EPU)

RESPONSE TO ROUND 13 REQUEST FOR ADDITIONAL INFORMATION
SBWB ITEMS

GEH AND AREVA AFFIDAVITS

GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

I, George B. Stramback, state as follows:

(1) I am Manager, Regulatory Services, GE-Hitachi Nuclear Energy Americas LLC ("GEH") and have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.

(2) The information sought to be withheld is contained in Enclosure 1 of the GEH letter, GE-ER1-AEP-07-362, Larry King (GE) to J. Valente (TVA), entitled *GEH Responses to NRC Request for Additional Information – SBWB-67, SBWB-68, SBWB-69, and SBWB-70*, dated August 1, 2007. The proprietary information is delineated by a [[dotted underline inside double square brackets.{3}]] Figures and large equation objects are identified with double square brackets before and after the object. In each case, the superscript notation{3} refers to Paragraph (3) of this affidavit, which provides the basis for the proprietary determination.

(3) In making this application for withholding of proprietary information of which it is the owner, GEH relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), and 2.390(a)(4) for "trade secrets" (Exemption 4). The material for which exemption from disclosure is here sought also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).

(4) Some examples of categories of information which fit into the definition of proprietary information are:

a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by GEH's competitors without license from GEH constitutes a competitive economic advantage over other companies;

b. Information which, if used 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 of a similar product;

c. Information which reveals aspects of past, present, or future GEH customer-funded development plans and programs, resulting in potential products to GEH;

d. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in paragraphs (4)a., and (4)b, above.

(5) To address 10 CFR 2.390 (b) (4), the information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GEH, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GEH, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.

(6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge, or subject to the terms under which it was licensed to GEH. Access to such documents within GHNEA is limited on a "need to know" basis.

(7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GEH are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.

(8) The information identified in paragraph (2), above, is classified as proprietary because it contains detailed information about the results of analytical models, methods and processes, including computer codes, which GEH has developed, obtained NRC approval of, and applied to perform evaluations of loss-of-coolant accident events in the GEH Boiling Water Reactor ("BWR"). The development and approval of the BWR loss-of-coolant accident analysis computer codes was achieved at a significant cost to GEH, on the order of several million dollars.

The development of the evaluation process along with the interpretation and application of the analytical results is derived from the extensive experience database that constitutes a major GEH asset.

(9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GEH's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GEH's comprehensive BWR safety and technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

The research, development, engineering, analytical and NRC review costs comprise a substantial investment of time and money by GEH.

The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

GEH's competitive advantage will be lost if its competitors are able to use the results of the GEH experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to GEH would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GEH of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing these very valuable analytical tools.

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

Executed on this 1st day of August 2007.

George B. Stramback

George B. Stramback
GE-Hitachi Nuclear Energy Americas LLC

AFFIDAVIT

STATE OF WASHINGTON)
) ss.
COUNTY OF BENTON)

1. My name is Jerald S. Holm. I am Manager, Product Licensing, for AREVA NP Inc. and as such I am authorized to execute this Affidavit.

2. I am familiar with the criteria applied by AREVA NP to determine whether certain AREVA NP information is proprietary. I am familiar with the policies established by AREVA NP to ensure the proper application of these criteria.

3. I am familiar with the AREVA NP information contained in the TVA letter entitled *Browns Ferry Nuclear Plant (BFN) – Units 1, 2, and 3 – Technical Specifications (TS) Changes TS-431 and TS-418 – Extended Power Uprate (EPU) – Response to Round 13 Request for Additional Information (RAI) – SBWB RAIs (TAC Nos. MC5262, MC5263, and MC5264)*, dated August 2007, and referred to herein as "Document." Information contained in this Document has been classified by AREVA NP as proprietary in accordance with the policies established by AREVA NP for the control and protection of proprietary and confidential information.

4. This Document contains information of a proprietary and confidential nature and is of the type customarily held in confidence by AREVA NP and not made available to the public. Based on my experience, I am aware that other companies regard information of the kind contained in this Document as proprietary and confidential.

5. This Document has been made available to the U.S. Nuclear Regulatory Commission in confidence with the request that the information contained in this Document be

withheld from public disclosure. The request for withholding of proprietary information is made in accordance with 10 CFR 2.390. The information for which withholding from disclosure is requested qualifies under 10 CFR 2.390(a)(4) "Trade secrets and commercial or financial information".

6. The following criteria are customarily applied by AREVA NP to determine whether information should be classified as proprietary:

(a) The information reveals details of AREVA NP's research and development plans and programs or their results.

(b) Use of the information by a competitor would permit the competitor to significantly reduce its expenditures, in time or resources, to design, produce, or market a similar product or service.

(c) The information includes test data or analytical techniques concerning a process, methodology, or component, the application of which results in a competitive advantage for AREVA NP.

(d) The information reveals certain distinguishing aspects of a process, methodology, or component, the exclusive use of which provides a competitive advantage for AREVA NP in product optimization or marketability.

(e) The information is vital to a competitive advantage held by AREVA NP, would be helpful to competitors to AREVA NP, and would likely cause substantial harm to the competitive position of AREVA NP.

The information in the Document is considered proprietary for the reasons set forth in paragraphs 6(b) and 6(d) above.

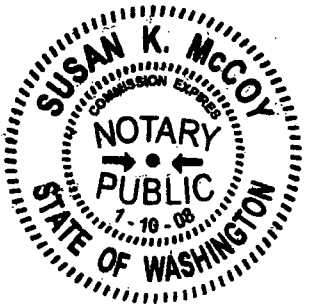
7. In accordance with AREVA NP's policies governing the protection and control of information, proprietary information contained in this Document have been made available, on a limited basis, to others outside AREVA NP only as required and under suitable agreement providing for nondisclosure and limited use of the information.

8. AREVA NP policy requires that proprietary information be kept in a secured file or area and distributed on a need-to-know basis.

9. The foregoing statements are true and correct to the best of my knowledge, information, and belief.

Jerold S Holm

SUBSCRIBED before me this 31st day of July, 2007.



Susan K. McCoy
NOTARY PUBLIC, STATE OF WASHINGTON
MY COMMISSION EXPIRES: 1/10/2008