

L. William Pearce
Site Vice President

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December 8, 2004
L-04-153

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

**Subject: Beaver Valley Power Station, Unit No. 2
Docket No. 50-412, License No. NPF-73
Response to Request for Additional Information in Support of LAR
No. 184 Elimination of Periodic Pressure Sensor and Protection Channel
Response Time Tests**

This letter provides the FirstEnergy Nuclear Operating Company (FENOC) response to an NRC request for additional information (RAI) dated October 25, 2004, relating to FENOC letter L-04-094 dated July 23, 2004 (License Amendment Request [LAR] No. 184 for Beaver Valley Power Station [BVPS] Unit No. 2). This amendment request proposed changes to the BVPS Unit No. 2 Technical Specifications which would eliminate periodic response time testing requirements on selected sensors and selected protection channel components.

The FENOC response to the request for additional information is provided in Enclosure 1 of this letter. Attachment A of Enclosure 1 provides a table of BVPS Unit 2 sensor response time testing results. Attachment B provides an update for the response time allocation table and associated table notes that were included in our July 23, 2004 submittal. This updated table shows the process channel and actuation logic response time allocations that will be used with the proposed amendment.

Proprietary and non-proprietary versions of vendor documents referenced in the FENOC response are provided as attachments to Enclosure 2. As Enclosure 2 Attachments A through D (see Page 3 list of enclosures) contain information proprietary to Westinghouse Electric Company LLC, they are supported by an affidavit signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b) (4) of Section 2.390 of the Commission's regulations.

AP01

Beaver Valley Power Station, Unit No. 2
Response to RAI in Support of LAR No. 184
Elimination of Periodic Pressure Sensor and Protection Channel Response Time Tests
L-04-153
Page 2

Accordingly, it is respectfully requested that the information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting Westinghouse Affidavit should reference CAW-04-1905, Rev. 1 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

The information provided with this submittal does not change the evaluations or conclusions of the No Significant Hazards Consideration presented in FENOC letter L-04-094. No new regulatory commitments are included in this submittal. If there are any questions concerning this matter, please contact Mr. Henry L. Hegrat, Supervisor - Licensing, at 330-315-6944.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 8, 2004.

Sincerely,


L. William Pearce

Enclosures:

1. FENOC Response to the Request for Additional Information, and the following attachments.
 - A. Historical BVPS Unit 2 Transmitter Response Times
 - B. BVPS Unit 2 Process Channel & Actuation Logic Response Time Allocations (Updated LAR Table 1)
 2. Westinghouse authorization letter, CAW-04-1905, Rev. 1, dated October 22, 2004, Proprietary Information Notice, Copyright Notice, and the following attachments.
 - A. Westinghouse Document Number 1TS2898, Revision 0, "Time Response Failure Analysis," for the Westinghouse 7300 5NRA card (Proprietary)
 - B. Westinghouse Document Number 1TS2899, Revision 0, "NRA Card Time Response Test Procedure," for the Westinghouse 7300 5NRA card (Proprietary)
 - C. Westinghouse Drawing 6D30262, Revision 0 for the Westinghouse 7300 5NRA card (Proprietary)
 - D. Westinghouse Drawing 6D30262, Revision 1 for the Westinghouse 7300 6NRA card (Proprietary)
 - E. Westinghouse Document Number 1TS2898, Revision 0, "Time Response Failure Analysis," for the Westinghouse 7300 5NRA card (Non-Proprietary)
 - F. Westinghouse Document Number 1TS2899, Revision 0, "NRA Card Time Response Test Procedure," for the Westinghouse 7300 5NRA card (Non-Proprietary)
 - G. Westinghouse Drawing 6D30262, Revision 0 for the Westinghouse 7300 5NRA card (Non-Proprietary)
 - H. Westinghouse Drawing 6D30262, Revision 1 for the Westinghouse 7300 6NRA card (Non-Proprietary)
- c: Mr. T. G. Colburn, NRR Senior Project Manager
Mr. P. C. Cataldo, NRC Sr. Resident Inspector
Mr. S. J. Collins, NRC Region I Administrator
Mr. D. A. Allard, Director BRP/DEP (w/o Enclosure 2, Attachments A, B, C, & D)
Mr. L. E. Ryan (BRP/DEP) (w/o Enclosure 2, Attachments A, B, C, and D)

Letter L-04-153
Enclosure 2

Westinghouse Documents

1. Westinghouse authorization letter, CAW-04-1905, Rev. 1, dated October 22, 2004
2. Proprietary Information Notice
3. Copyright Notice
4. Attachments
 - A. Westinghouse Document Number 1TS2898, Revision 0, "Time Response Failure Analysis," for the Westinghouse 7300 5NRA card (Proprietary)
 - B. Westinghouse Document Number 1TS2899, Revision 0, "NRA Card Time Response Test Procedure," for the Westinghouse 7300 5NRA card (Proprietary)
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Westinghouse

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Document Control Desk
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e-mail: greshaja@westinghouse.com

Our ref: CAW-04-1905, Rev. 1

October 22, 2004

**APPLICATION FOR WITHHOLDING PROPRIETARY
INFORMATION FROM PUBLIC DISCLOSURE**

Subject: Westinghouse Document Number 1TS2898, Rev. 0, "Time Response Failure Analysis"
Westinghouse Document Number 1TS2899, Rev. 0, "NRA Card Time Response Test Procedure"
Westinghouse Drawing 6D30262, Revision 0
Westinghouse Drawing 6D30262, Revision 1

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-04-1905, Rev. 1 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by FirstEnergy Nuclear Operating Company.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-04-1905, Rev. 1, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

cc: W. Macon, NRC
E. Peyton, NRC

bcc: J. A. Gresham (ECE 4-7A) 1L
R. Bastien, 1L (Nivelles, Belgium)
C. Brinkman, 1L (Westinghouse Electric Co., 12300 Twinbrook Parkway, Suite 330, Rockville, MD 20852)
RCPL Administrative Aide (ECE 4-7A) (letter and affidavit only)

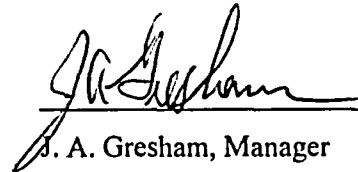
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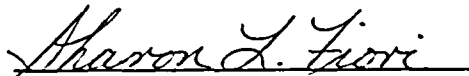
COUNTY OF ALLEGHENY:

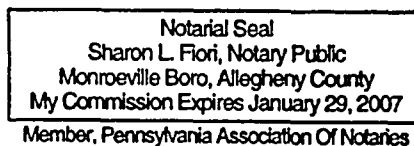
Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit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


J. A. Gresham, Manager

Regulatory Compliance and Plant Licensing

Sworn to and subscribed
before me this 22nd day
of October, 2004


Notary Public



- (1) I am Manager, Regulatory Compliance and Plant Licensing, 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" 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 Westinghouse Document Number 1TS2898, Revision 0, "Time Response Failure Analysis," Westinghouse Document Number 1TS2899, Revision 0, "NRA Card Time Response Test Procedure," Westinghouse Drawing 6D30262, Revision 0, and Westinghouse Drawing 6D30262, Revision 1 (Proprietary) dated January 2004, for Beaver Valley Unit 2, being transmitted by FirstEnergy Nuclear Operating Company letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted for use by Westinghouse for Beaver Valley Unit 2 is expected to be applicable for other licensee submittals in response to certain NRC requirements for justification of the elimination response time testing.

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

- (a) Support elimination of response time testing.
- (b) Support the licensing of the elimination of response time testing.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purposes of eliminating response time testing.
- (b) Westinghouse can sell support and defense of license amendment requests.
- (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 information 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 1

Letter L-04-153

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION (RAI)

BEAVER VALLEY POWER STATION, UNIT NO. 2 (BVPS-2)

ELIMINATION OF PERIODIC PRESSURE SENSOR

AND PROTECTION CHANNEL RESPONSE-TIME TESTS

DOCKET NO. 50-412

By letter dated July 23, 2004, FirstEnergy Nuclear Operating Company (the licensee) requested an amendment to the BVPS-2 Technical Specifications (TSs) to allow the elimination of certain periodic pressure sensor and protection channel response-time tests. The Nuclear Regulatory Commission (NRC) staff has determined that the additional information below is needed to complete its review of the licensee's application.

1. Note 1 in Table 1 stated: "Allocated sensor response times for the ITT Barton 752, 763 (763A) and 764 pressure sensors specified in Table 1 are based on historical records (method 1) of acceptable response time testing (RTT) obtained from the BVPS-2 RTT program. The sensor response times for all sensors except the containment pressure sensors were obtained using the Analysis and Measurement Services (AMS) noise analysis method. The containment pressure sensor response times were obtained using a hydraulic RTT method. The historical response time data used as the bases for the allocated response times were the AMS sensor response time measurement tests performed on October 1998, August 2000, January 2002 and August 2003 and the containment pressure sensors hydraulic RTT performed between February 1995 and August 2003. The highest response time measured for the ITT Barton sensors were as follows: Barton 752 – 160 [milli-seconds (ms)]; Barton 763 (763A) – 370 ms; Barton 764 – 380 ms".

Since the most conservative value may not reflect the 95/95 confidence level if the number of total previous tests is small, please submit the actual values obtained in previous response time measurement tests.

Response:

BVPS Unit 2 sensor response time measurement test results are provided in Enclosure 1, Attachment A. Conservative values were calculated for each function listed in Enclosure 1, Attachment A to ensure allocated response times reflect the 95/95-confidence level. The allocated pressurizer pressure sensor response time was found to be less conservative than the calculated value.

The allocated sensor response time proposed to be used for the pressurizer pressure sensors, as listed in our July 23, 2004 submittal, Enclosure Table 1, was 400 milli-seconds. To ensure that the allocated sensor response times used accounts for any statistical deviations of the historical RTT data, the pressurizer pressure sensor

allocated response time will be revised to 420 milli-seconds. Enclosure 1, Attachment B provides an updated Table 1 and associated Table notes which shows the process channel and actuation logic response time allocations that will be used with the revised pressurizer pressure sensor allocation response time.

2. On page 10 of Enclosure 1 of the submittal, it is stated: "Some versions of 7300 cards installed (or planned to be installed) in BVPS Unit 2 are cards that have been re-designed since the original FEMA [failure effects and modes analysis] was performed for WCAP-14036-P-A (see Table 1, Note 3). These newer cards have been evaluated by Westinghouse for RTT elimination. The results of this evaluation for the newer NLP, NSA and NAL cards concluded that the differences in the re-designed cards are insignificant with respect to the conclusions of the original FEMA and that the FEMA and bounding response times documented in WCAP-14036-P-A, Revision 1 is applicable to these newer cards. A new FMEA was performed for the re-designed NRA cards. This FEMA was based on the original NRA FEMA methodology used for WCAP-14036-P-A, Revision 1. The Westinghouse evaluation concluded that the newer NRA cards meet the bounding response times listed in WCAP-14036-P-A, Revision 1".

Please provide the new FEMA showing that the cards actually installed or planned for installation are bounded by the original FEMA, WCAP-14036, and the NRC staff's related Safety Evaluation.

Response:

7300 NLP and NSA Cards

The NRC staff reviewed and approved the evaluations for the Westinghouse 7300 11NLP and 6NSA cards in the letter from Gordon E. Edison (NRC) to Mr. Stephen A. Byrne (South Carolina Electric & Gas Company), "Virgil C. Summer Nuclear Station, Unit No. 1 – Inclusion of Two Upgraded Instrument Cards into Response Time Testing Elimination Category (TAC No. MB2236)," dated March 12, 2002.

7300 NAL Card

The following is a summary of changes made to Revision 30 of the Westinghouse 7300 NAL card since the evaluation was completed in WCAP-14036-P-A, Revision 1:

Revision 31:

DC to DC power supply circuit T24 was replaced with a faster transistor. Transorb was added, C98 was removed, and a resistor value was changed to protect T24s and T26s. The time response was not affected by this design change. The Commercial Dedication Instruction, Test Procedure, and Shelf Life were added to the drawing.

Revision 32:

H107 transistor was inspected to confirm the vendor, to ensure a consistent transistor gain.

Revision 33:

This drawing change was a documentation change only and has no impact to the time response.

Revision 34:

This drawing change was a documentation change only and has no impact to the time response.

Revision 35:

This drawing change was a documentation change only and has no impact to the time response.

Revision 36:

This drawing change was a documentation change only and has no impact to the time response.

Revision 37:

Revision 37 changed the artwork of the NAL card from 9NAL to 10NAL to accommodate a new thumbwheel switch.

Also, capacitor C105 in the DC to DC power supply circuit was relocated so that it is fused from the 26VDC and 24VDC power supply bus. No other changes were made to the NAL card on this revision. These changes have no adverse impact to the time response performance of the NAL card.

Revision 38:

Revision 38 corrected minor bill of material errors to correct the quantities for the transistor insulation pads used on the NAL card. Also Item 84 was removed from use on an earlier card revision. However, the bill of material still listed this item on Sheet 5. This revision corrected the bill of material by deleting this item from the bill of material (Sheet 5). This drawing change was a documentation change only and has no impact to the time response.

Revision 39:

Revision 39 removed obsolete resistor (item 87 on Sheet 5) and replaced it with item 124 on Sheet 45 having the same form, fit and function. Also the 0.047 μ f, 50V ceramic capacitor (item 125 on Sheet 45) was added to the DC to DC power supply circuit to improve the power supply performance. The additional capacitor is not in the signal path and has no impact to the time response of the NAL card.

All of the changes to the NAL card discussed above were reviewed with respect to the impact on the bounding response times of Revision 30 of the Westinghouse 7300 NAL card since the evaluation was completed in WCAP-14036-P-A, Revision 1. The review of the impact on the bounding response times focused on changes to components in the signal path. If no changes were made to the component values in the signal path, then it was concluded that there was no impact on the response times of Revision 30 of the Westinghouse 7300 NAL card since the evaluation was completed in WCAP-14036-P-A, Revision 1. The review concluded that none of the changes made to the NAL card in Revision 31 to Revision 39 have resulted in changes in component values in the signal path.

7300 NRA Card

The Westinghouse 7300 4NRA card was completely redesigned, resulting in the 5NRA card and therefore a new Failure Modes and Effects Analysis (FMEA) and test procedure were developed to determine the bounding response times for the 5NRA card. The new FMEA results are presented in Enclosure 2, Attachment A.

The following changes were made to the Westinghouse 7300 5NRA card:

1. The track was removed under R30 which was an error on the 5NRA artwork.
2. Capacitor C34 was added for load compensation on the RTD bridge current. This capacitor is not in the signal path and has no impact to the response time of the 5NRA card.

The changes to the Westinghouse 7300 5NRA card discussed above, which resulted in the 5NRA2 and 6NRA1 cards do not affect the signal path, and therefore do not affect the Time Response Failure Analysis documented in Westinghouse Document Number 1TS2898, Revision 0 and NRA Card Time Response Test Procedure documented in Westinghouse Document Number 1TS2899, Revision 0 that were performed and developed for the 5NRA card.

Enclosure 2, Attachment A contains a Proprietary version of Westinghouse Document Number 1TS2898, Revision 0, "Time Response Failure Analysis," for the Westinghouse 7300 5NRA card.

Enclosure 2, Attachment B contains a Proprietary version of Westinghouse Document Number 1TS2899, Revision 0, "NRA Card Time Response Test Procedure," for the Westinghouse 7300 5NRA card.

Enclosure 2, Attachment C contains a Proprietary version of Westinghouse Drawing 6D30262, Revision 0 for the Westinghouse 7300 5NRA card.

Enclosure 2, Attachment D contains a Proprietary version of Westinghouse Drawing 6D30262, Revision 1 for the Westinghouse 7300 6NRA card.

Enclosure 2, Attachment E contains a Non-Proprietary version of the Westinghouse Document Number 1TS2898, Revision 0, "Time Response Failure Analysis," for the Westinghouse 7300 5NRA card.

Enclosure 2, Attachment F contains a Non-Proprietary version of Westinghouse Document Number 1TS2899, Revision 0, "NRA Card Time Response Test Procedure," for the Westinghouse 7300 5NRA card.

Enclosure 2, Attachment G contains a Non-Proprietary version of Westinghouse Drawing 6D30262, Revision 0 for the Westinghouse 7300 5NRA card.

Enclosure 2, Attachment H contains a Non-Proprietary version of Westinghouse Drawing 6D30262, Revision 1 for the Westinghouse 7300 6NRA card.

Enclosure 1, Attachment A
L-04-153

Historical BVPS Unit 2 Transmitter Response Times (seconds)

Function	Manufacture/ Model Number	EIN Number	Response Time	Date	Response Time	Date	Response Time	Date	Response Time	Date
Pressurizer Pressure	ITT Barton 763	2RCS-PT455	0.36	8/03	0.34	1/02	0.37	8/00	*	---
		2RCS-PT456	0.32	8/03	0.35	1/02	0.37	8/00	0.37	10/98
		2RCS-PT457	0.37	8/03	0.36	1/02	0.36	8/00	0.37	10/98
RCS Flow	ITT Barton 752	2RCS-FT414	0.11	8/03	0.11	1/02	0.12	8/00	0.10	10/98
		2RCS-FT415	0.10	8/03	0.11	1/02	0.10	8/00	0.11	10/98
		2RCS-FT416	0.10	8/03	0.11	1/02	0.11	8/00	0.11	10/98
		2RCS-FT424	0.13	8/03	0.14	1/02	0.13	8/00	0.16	10/98
		2RCS-FT425	0.14	8/03	0.13	1/02	0.13	8/00	0.13	10/98
		2RCS-FT426	0.12	8/03	0.13	1/02	0.11	8/00	0.11	10/98
		2RCS-FT434	0.15	8/03	0.14	1/02	0.14	8/00	0.12	10/98
		2RCS-FT435	0.13	8/03	0.15	1/02	0.13	8/00	0.14	10/98
		2RCS-FT436	0.13	8/03	0.15	1/02	0.15	8/00	0.15	10/98
S/G Level	ITT Barton 764	2FWS-LT474	0.30	8/03	0.28	1/02	0.28	8/00	0.30	10/98
		2FWS-LT475	0.29	8/03	0.26	1/02	0.27	8/00	0.26	10/98
		2FWS-LT476	0.23	8/03	0.22	1/02	0.23	8/00	0.23	10/98
		2FWS-LT484	0.30	8/03	0.35	1/02	0.32	8/00	0.38	10/98
		2FWS-LT485	0.31	8/03	0.29	1/02	0.30	8/00	0.34	10/98
		2FWS-LT486	0.24	8/03	0.25	1/02	0.26	8/00	0.26	10/98
		2FWS-LT494	0.24	8/03	0.27	1/02	0.35	8/00	0.35	10/98
		2FWS-LT495	0.27	8/03	0.28	1/02	0.32	8/00	0.36	10/98
		2FWS-LT496	0.20	8/03	0.24	1/02	0.28	8/00	0.27	10/98

**Enclosure 1, Attachment A
L-04-153**

Historical BVPS Unit 2 Transmitter Response Times (seconds)

Function	Manufacture/ Model Number	EIN Number	Response Time	Date	Response Time	Date	Response Time	Date	Response Time	Date
Main Steam Pressure	ITT Barton 763	2MSS-PT474	0.01	8/03	0.01	1/02	0.01	8/00	0.01	10/98
		2MSS-PT475	0.02	8/03	0.01	1/02	0.02	8/00	0.02	10/98
		2MSS-PT476	0.09	8/03	0.07	1/02	0.04	8/00	0.04	10/98
		2MSS-PT484	0.01	8/03	0.01	1/02	0.01	8/00	0.01	10/98
		2MSS-PT485	0.01	8/03	0.01	1/02	0.01	8/00	0.01	10/98
		2MSS-PT486	0.01	8/03	0.01	1/02	0.01	8/00	0.01	10/98
		2MSS-PT494	0.01	8/03	0.01	1/02	0.01	8/00	0.02	10/98
		2MSS-PT495	0.05	8/03	0.04	1/02	0.03	8/00	0.03	10/98
		2MSS-PT496	0.02	8/03	0.04	1/02	0.02	8/00	0.03	10/98
Containment Pressure	ITT Barton 764	2LMS-PT950			0.070	8/29/00	0.070	2/23/98	0.072	3/20/95
		2LMS-PT951			0.047	1/4/02	0.034	4/27/99	0.030	8/23/96
		2LMS-PT952	0.175**	8/7/03	0.043	8/8/00	0.064	2/24/98	0.038	3/2/95
		2LMS-PT953			0.041	8/23/00	0.062	2/23/98	0.065	2/14/95

Notes: The sensor response times for all sensors except the containment pressure sensors were obtained using the Analysis and Measurement Services (AMS) noise analysis method. The containment pressure sensor response times were obtained using a hydraulic RTT method.

* A reliable response time value could not be determined for 2RCS-PT 455 during AMS response time testing. The transmitter was subsequently replaced with a new transmitter following performance of a pre-installation response time measurement test. Later response time testing of the original transmitter showed an acceptable response time.

**Different test rig was used which provides more conservative response times.

Enclosure 1, Attachment B
Letter L-04-153
Table 1 (Revised)
Beaver Valley Power Station Unit 2
Process Channel & Actuation Logic Response Time Allocations

Reactor Trip System

FUNCTION	SENSOR	TIME (Note 1)	7300/NIS STRING (Note 3)	TIME (Note 5)	SSPS RELAYS (Note 6)	TIME (Note 7)
Power Range, Neutron Flux	Detectors Exempt	N/A	NIS FMEA	65 ms	Input	20 ms
Power Range, Neutron Flux, Hi-Negative Rate	Detectors Exempt	N/A	NIS FMEA	200 ms	Input	20 ms
OTDT (Vary Tavg)	Weed N9004E-2B/ Weed N9004S-2B	(Note 2)	NRA+NSA+NSA+NSA +NAL (Note 4)	400 ms	Input	20 ms
OTDT (Vary Delta T)	Weed N9004E-2B/ Weed N9004S-2B	(Note 2)	NRA+NSA+NSA+NAL (Note 4)	400 ms	Input	20 ms
OTDT (Vary Press)	ITT Barton 763/763A	420 ms	NLP+NSA+NSA+NAL	400 ms	Input	20 ms
OTDT (Vary Flux)	Detectors Exempt	N/A	NIS (1 ms)+NSA +NCH +NSA+NAL	401 ms	Input	20 ms
OPDT (Vary Tavg)	Weed N9004E-2B/ Weed N9004S-2B	(Note 2)	NRA+NSA+NSA+NSA +NSA+NAL (Note 4)	400 ms	Input	20 ms
OPDT (Vary Delta T)	Weed N9004E-2B/ Weed N9004S-2B	(Note 2)	NRA+NSA+NSA+NAL (Note 4)	400 ms	Input	20 ms

Enclosure 1, Attachment B
Letter L-04-153
Table 1 (Revised)
Beaver Valley Power Station Unit 2
Process Channel & Actuation Logic Response Time Allocations

Reactor Trip System

FUNCTION	SENSOR	TIME (Note 1)	7300/NIS STRING (Note 3)	TIME (Note 5)	SSPS RELAYS (Note 6)	TIME (Note 7)
PZR. PRESS. LO	ITT Barton 763/763A	420 ms	NLP+NAL	100 ms	Input	20 ms
PZR. PRESS. HI	ITT Barton 763/763A	420 ms	NLP+NAL	100 ms	Input	20 ms
RCS FLOW LO	ITT Barton 752	200 ms	NLP+NAL	100 ms	Input	20 ms
SG LEVEL LO-LO	ITT Barton 764	400 ms	NLP+NAL	100 ms	Input	20 ms
RCP UNDER-VOLT.	Gould 211N6171 (47D)	(Note 2)	N/A	N/A	Input	20 ms
RCP UNDER-FREQ.	E-MAX SFR-2/59-12A	(Note 2)	N/A	N/A	Input	20 ms

Enclosure 1, Attachment B
Letter L-04-153
Table 1 (Revised)
Beaver Valley Power Station Unit 2
Process Channel & Actuation Logic Response Time Allocations

Engineered Safety Features Actuation System

FUNCTION	SENSOR	TIME (Note 1)	7300/NIS STRING (Note 3)	TIME (Note 5)	SSPS RELAYS (Note 6)	TIME (Note 7)
CONTAINMENT PRESS. HI	ITT Barton 764	400 ms	NLP+NAL	100 ms	Input + Master + Slave	88 ms
PZR. PRESS. LO	ITT Barton 763/763A	420 ms	NLP+NAL	100 ms	Input + Master + Slave	88 ms
STEAM LINE PRESS. LO	ITT Barton 763/763A	400 ms	NLP+NAL	100 ms	Input + Master + Slave	88 ms
CONT. PRESS HI-HI	ITT Barton 764	400 ms	NLP+NAL	100 ms	Input + Master + Slave	88 ms
SG LEVEL HI-HI (FEEDWATER ISOLATION)	ITT Barton 764	400 ms	NLP+NAL	100 ms	Input + Master + Slave	88 ms
CONT. PRESS. INT HI-HI	ITT Barton 764	400 ms	NLP+NAL	100 ms	Input + Master + Slave	88 ms
STEAM LINE PRESS RATE -HI NEG	ITT Barton 763/763A	400 ms	NLP+NAL	100 ms	Input + Master + Slave	88 ms
SG LEVEL LO-LO	ITT Barton 764	400 ms	NLP+NAL	100 ms	Input + Master + Slave	88 ms
UNDERVOLTAGE RCP	Gould 211N6171 (47D)	(Note 2)	N/A	N/A	Input + Master (Note 8)	52 ms

Enclosure 1, Attachment B
Letter L-04-153
Table 1 Notes

1. Allocated sensor response times for the ITT Barton 752, 763 (763A) and 764 pressure sensors specified in Table 1 are based on historical records (method 1) of acceptable RTT obtained from the BVPS response time testing program. The sensor response times for all sensors except the containment pressure sensors were obtained using the Analysis and Measurement Services (AMS) noise analysis method. The containment pressure sensor response times were obtained using a hydraulic RTT method. The historical response time data used as the bases for the allocated response times were the AMS sensor response time measurement tests performed on October 1998, August 2000, January 2002 and August 2003 and the containment pressure sensors hydraulic RTT performed between February 1995 and August 2003. The highest response time measured for the ITT Barton sensors were as follows: Barton 752 – 160 ms; Barton 763 (763A) – 370 ms; Barton 764 – 380 ms.
2. Allocated response times not used for these variables. The components will continue to be tested as required.
3. 7300 cards installed are 4NCH, 4NRA (5NRA and 6NRA may be installed later in 2004), 11NLP, 6NSA and 10NAL or older artwork levels. The WCAP-14036-P-A R1 evaluation for RTT elimination was based on 4NCH, 4NRA, 6NLP, 4NSA and 9NAL or older artwork levels versions of the 7300 cards. The newer versions of the 7300 cards used at BVPS Unit 2 have been evaluated by Westinghouse and the bounding response times reported in WCAP-14036-P-A R1 are valid for these versions of cards. The NIS components installed were evaluated in Section 4.6 of WCAP-14036-P-A R1.
4. Card string includes a Lead/Lag card set to zero. Therefore, this card will continue to be periodically RTT and response time contribution included in the total channel response time in accordance with WCAP-14036-P-A R1, Section 8.0.
5. The allocated response times are derived from Table 8-1 of WCAP-14036-P-A R1. If ABRMs are installed in the future, response times listed will be adjusted to account for the ABRM installed using the response times listed in Table 9-1 of WCAP-15413.
6. SSPS Input and Master relays are Midtex Series 156 and Potter & Brumfield KH series relays. SSPS Slave relays are Westinghouse AR relays and Potter & Brumfield MDR relays. Values are tabulated from Section 4.8 of WCAP-14036-P-A R1.
7. The allocated response times for the SSPS reactor trip functions (input relay) and ESFAS functions (input relay, master relay and slave relay) are derived from Table 8-1 of WCAP-14036-P-A R1. For ESFAS functions, the time shown only accounts for one slave relay in the circuit. For circuits containing two slave relays in series an additional 36 msec. must be added.
8. Slave relay actuation is time delayed, and therefore, will continue to be tested to verify timer operation.