FENOC
FirstEnergy Nuclear Operating Company

Beaver Valley Power Station
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L. William Pearce
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March 22, 2005
L-05-046

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

Subject: Beaver Valley Power Station, Unit Nos. 1 and 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
Response to Request for Additional Information in Support of LAR Nos. 327 and 197, Steam Generator Level Allowable Value Setpoints

This letter provides the FirstEnergy Nuclear Operating Company (FENOC) response to an NRC request for additional information (RAI) dated February 14, 2005, relating to FENOC letter L-04-127 dated October 5, 2004.

FENOC letter L-04-127 submitted License Amendment Request (LAR) No. 327 for Beaver Valley Power Station (BVPS) Unit No. 1 and LAR No. 197 for BVPS Unit No. 2. This amendment requests proposed changes to the BVPS Unit Nos. 1 and 2 Technical Specifications that would modify steam generator level allowable value setpoints used in the Reactor Trip System and Engineered Safety Feature Actuation System instrumentation to address identified non-conservative setpoints. The proposed changes address recent generic issues involving new steam generator level uncertainty considerations and margins associated with Westinghouse designed steam generators.

The FENOC response to the request for additional information is provided with this letter as an enclosure. The following attachments to the enclosure provide proprietary, and non-proprietary versions of requested calculation summary sheets, and the related Westinghouse authorization letter:

1. Copies of LTR-MPG-05-22 P-Attachment, "Beaver Valley Power Station Units 1 and 2 Steam Generator Level Allowable Value Setpoints," Docket Nos. 50-334 and 50-412 (Proprietary)

A P01

2. Copies of LTR-MPG-05-22 NP-Attachment, "Beaver Valley Power Station Units 1 and 2 Steam Generator Level Allowable Value Setpoints," Docket Nos. 50-334 and 50-412 (Non-Proprietary)

3. Westinghouse authorization letter CAW-05-1961 with accompanying affidavit, Proprietary Information Notice, and Copyright Notice.

As Attachment 1 contains information proprietary to Westinghouse Electric Company LLC, it is 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.

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-05-1961 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-04-127.

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 March 22, 2005.

Sincerely,

L. William Pearce

Enclosure and Attachments:

FENOC Response to the Request for Additional Information

Attachments to Enclosure

1. LTR-MPG-05-22 P-Attachment, "Beaver Valley Power Station Units 1 and 2 Steam Generator Level Allowable Value Setpoints," Docket Nos. 50-334 and 50-412 (Proprietary)
2. LTR-MPG-05-22 NP-Attachment, "Beaver Valley Power Station Units 1 and 2 Steam Generator Level Allowable Value Setpoints," Docket Nos. 50-334 and 50-412 (Non-Proprietary)
3. Westinghouse Authorization Letter, CAW-05-1961, dated March 9, 2005, with accompanying affidavit, Proprietary Information Notice, and Copyright Notice

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, Attachments 1, 2, 3, 4 and 5)
Mr. L. E. Ryan (BRP/DEP) (w/o Enclosure, Attachments 1, 2, 3, 4 and 5)

Enclosure to Letter L-05-010

BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION (RAI)
RELATED TO STEAM GENERATOR (SG) LEVEL ALLOWABLE VALUE SETPOINTS

By letter dated October 5, 2004, FirstEnergy Nuclear Operating Company (the licensee) proposed changes to BVPS-1 and 2 Technical Specifications (TSs) to change the SG level allowable value setpoints to address identified non-conservative setpoints identified as a result of recent generic issues involving new SG level uncertainty considerations and margins associated with Westinghouse-designed SGs. The Nuclear Regulatory Commission (NRC) staff has determined that it will need the additional information identified below to complete its review.

A. Interim RAI for Current License Amendment Requests.

The NRC staff has determined that setpoint allowable values (AVs) established by means of the Instrumentation, Systems, and Automation Society (ISA) 67.04, Part 2, Method 3, do not provide adequate assurance that a plant will operate in accordance with the assumptions upon which the plant safety analyses have been based. These concerns have been described in various public meetings. The presentation used in public meetings in June and July 2004 to describe the NRC staff's concerns is available on the public website under Agencywide Documents Access Management System (ADAMS) Accession Number ML041810346.

The NRC staff is currently formulating generic communication on this subject to affected licensees. It is presently clear, however, that the NRC staff will not be able to accept any requested TS change requests that are based upon the use of Method 3, unless the method is modified to alleviate the NRC staff's concerns. In particular, each setpoint limit in the TSs must ensure at least 95% probability with at least 95% confidence that the associated action will be initiated with the process variable no less conservative than the initiation value assumed in the plant safety analyses. In addition, the operability of each instrument channel addressed in the setpoint-related TSs must be ensured by the TS requirements. That is, conformance to the TSs must provide adequate assurance that the plant will operate in accordance with the safety analyses assumptions. Reliance on settings or practices outside the TSs and not mandated by them is not adequate.

The NRC staff has determined that AVs computed in accordance with ISA Method 1 or 2 do provide adequate assurance that the safety analysis limits will not be exceeded. The NRC staff has also determined that an entirely different approach, based upon the performance of an instrument channel rather than directly upon the measured trip setting, can also provide the required assurance. This alternative approach, designated Performance-Based Technical Specifications (PBTSs), sets limits on acceptable nominal setpoints and upon the observed deviation in the measured setpoint from the end of one test to the beginning of the next. This approach has been accepted for use at the R. E. Ginna Nuclear Power Plant, and is discussed in a September 22, 2004, Safety Evaluation enclosed with Amendment No. 85, which is available via ADAMS under Accession Number ML041180293. The referenced Safety Evaluation is specific to Ginna, and is cited here only as a general reference for other licensees. It is up to each licensee to modify the approach as necessary to meet the indicated objectives for the particular plant(s) in question. In addition, licensees are welcome to

propose alternative approaches that provide the indicated confidence, but such alternative approaches must be presented in detail and must be shown explicitly to provide adequate assurance that the safety analysis assumptions will not be violated.

The Nuclear Energy Institute (NEI) submitted a white paper concerning this matter for NRC consideration in the fall of 2004. Licensees may choose to endorse whatever approach and justification is described in that white paper, or to act independently of the NEI. If the NEI approach is found to be acceptable to the NRC staff, it will be necessary for each licensee who chooses to use it to affirm that the salient conditions, practices, etc., described in it are applicable to its facilities.

The four options below constitute an acceptable approach with respect to the setpoint-related TS changes you have requested. Please indicate which of the four options you wish to pursue with respect to your request.

1. Demonstrate that the approach that you have used to develop the proposed SG level AV limits provides adequate assurance that the plant will operate in accordance with the safety analyses assumptions. Discuss and demonstrate how Operability is ensured in the TSs.

2. Suspend consideration of setpoint-related aspects of your request pending generic resolution of the NRC staff's concern.

3. Revise your request to incorporate Method 1, Method 2, or PBTSs.

4. Revise your request to incorporate some other approach that you demonstrate to provide adequate confidence that the plant will operate in accordance with the safety analyses and show that Operability is ensured by the TSs surveillance requirement measurements obtained during the channel operational (functional) test.

Response:

Option 1 above will be pursued. The methodology to determine the Allowable Values for the Beaver Valley Power Station Unit Nos. 1 and 2 Steam Generator (SG) Level technical specification change is not based on any of the methods as described in the ISA recommended practice document (ISA-RP67.04-1994, Part II or ISA-RP67.04.02-2000).

The Westinghouse method used for the Beaver Valley Power Station Unit Nos. 1 and 2 SG technical specification change determines a performance based Allowable Value. As noted in WCAP-11419 Rev. 2, and WCAP-11366 Rev. 4 (referenced below), the Allowable Value is satisfied by verification that the channel "as left" and "as found" conditions are within the Rack Calibration Accuracy.

The methodology for the uncertainty calculations and the Allowable Values used for Beaver Valley Power Station Unit Nos. 1 and 2 was previously reviewed by the staff via Westinghouse WCAPs for Beaver Valley Power Station Unit Nos. 1 and 2. The WCAP reference for Beaver Valley Power Station Unit No. 1 is WCAP-11419 Rev. 2, "Westinghouse Setpoint Methodology for Protection Systems Beaver Valley Power Station – Unit 1" dated December 2000, and the WCAP for Beaver Valley Power Station Unit No. 2

is WCAP-11366 Rev. 4, "Westinghouse Setpoint Methodology for Protection Systems Beaver Valley Power Station – Unit 2" dated December 2000. Upon conclusion of this review the staff issued Amendment 239 to facility license DPR-66 and Amendment 120 to facility license NPF-73 via a July 30, 2001 letter titled, "BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 – REVISED IMPLEMENTATION PERIOD FOR LICENSE AMENDMENT NOS. 239 AND 120, (TAC NOS. MB0848 AND MB0849)." The methodology used in the above WCAPs is the same methodology used for the current technical specification change submitted via LAR 327/197.

The criterion for the performance based Allowable Value is controlled by both plant procedures and the technical specifications.

In the Beaver Valley Power Station technical specifications, Sections 3/4.3.1 and 3/4.3.2, the requirement is to verify that the instrumentation is operable. This verification is performed every 92 days by performance of the Channel Functional Test confirming that the channel meets the stated Allowable Value.

Because the Allowable Values for Beaver Valley Power Station are based on the Rack Calibration Accuracy, it then follows that the channel must be within the calibration accuracy to be considered operable. As noted in the referenced WCAPs, the setpoint methodology assumes that the channel is always returned to within the Rack Calibration Accuracy and because the Allowable Value is based on the Rack Calibration Accuracy, this assumption will be met in order for the channel to be considered operable.

B. The licensee proposed to revise the nominal trip setpoints and AV Setpoints for SG water level low-low and high-high. Provide the actual calculations or summary sheets for the NRC staff's review.

Response:

The methodology for calculation of the uncertainties for this technical specification change is a Square Root Sum of the Squares (SRSS) approach, which as noted in the response to information request A above, has been reviewed and approved by the staff via the referenced WCAPs.

Attached are summary tables consistent with the WCAP format which provide the SRSS equation, the value for each uncertainty term and the calculation results for the safety related setpoints that are changing for the technical specification submitted.

Attachment 2

LTR-MPG-05-22 NP-ATTACHMENT,
"BEAVER VALLEY POWER STATION UNITS 1 AND 2
STEAM GENERATOR LEVEL ALLOWABLE VALUE SETPOINTS,"
DOCKET NOS. 50-334 AND 50-412
(NON-PROPRIETARY)

"Beaver Valley Power Station Units 1 and 2 Steam Generator Level Allowable Value Setpoints," Docket Nos. 50-334 and 50-412

March 2005

Westinghouse Electric Company LLC
P.O. Box 355
Pittsburgh, PA 15230-0355

On February 18th, FENOC provided the following request for assistance of Westinghouse in answering several NRC RAI's on the recently submitted Licensing Amendment Request (LAR) for the Steam Generator Level Allowable Value change. The Westinghouse response contains Westinghouse Proprietary Class 2 information.

NRC Request A

The NRC staff has determined that setpoint allowable values (AVs) established by means of the Instrumentation, Systems, and Automation Society (ISA) 67.04, Part 2, Method 3, do not provide adequate assurance that a plant will operate in accordance with the assumptions upon which the plant safety analyses have been based. These concerns have been described in various public meetings. The presentation used in public meetings in June and July, 2004 to describe the NRC staff's concerns is available on the public website under Agencywide Documents Access .Management System (ADAMS) Accession Number ML0418103461.

The NRC staff is currently formulating generic communication on this subject to affected licensees. It is presently clear, however, that the NRC staff will not be able to accept any requested TS change requests that are based upon the use of Method 3, unless the method is modified to alleviate the NRC staff's concerns. In particular, each setpoint limit in the TSs must ensure at least 95% probability with at least 95% confidence that the associated action will be initiated with the process variable no less conservative than the initiation value assumed in the plant safety analyses. In addition, the operability of each instrument channel addressed in the setpoint-related TSs must be ensured by the TS requirements. That is, conformance to the TSs must provide adequate assurance that the plant will operate in accordance with the safety analyses assumptions. Reliance on settings or practices outside the TSs and not mandated by them is not adequate.

The NRC staff has determined that AVs computed in accordance with ISA Method 1 or 2 do provide adequate assurance that the safety analysis limits will not be exceeded. The NRC staff has also determined that an entirely different, approach, based upon the performance of an instrument channel rather than directly upon the measured trip setting, can also provide the required assurance. This alternative approach, designated Performance- Based Technical Specifications (PBTSs), sets limits on acceptable nominal setpoints and upon the observed deviation in the measured setpoint from the end of one test to the beginning of the next. This approach has been accepted for use at the R. E. Ginna Nuclear Power-Plant, and is discussed in a September 22, 2004, Safety Evaluation enclosed with Amendment No. 85, which is available via ADAMS under Accession Number ML041180293. The referenced Safety Evaluation is specific to Ginna, and is cited here only as a general reference for other licensees. It is up to each licensee to modify the approach as necessary to meet the indicated objectives for the particular plant(s) in question. In addition, licensees are welcome to propose alternative approaches that provide the indicated confidence, but such alternative approaches must be presented in detail and must be shown explicitly to provide adequate assurance that the safety analysis assumptions will not be violated.

The Nuclear Energy Institute (NEI) submitted a white paper concerning this matter for NRC consideration in the fall of 2004. Licensees may choose to endorse whatever approach and justification is described in that white paper, or to act independently of the NEI. If the NEI approach is found to be acceptable to the NRC staff, it will be necessary for each licensee who chooses to use it to affirm that the salient conditions, practices, etc., described in it are applicable to its facilities.

The four options below constitute an acceptable approach with respect to the setpoint-related TS changes you have requested. Please indicate which of the four options you wish to pursue with respect to your request.

1. Demonstrate that the approach that you have used to develop the proposed SG level AV limits provides adequate assurance that the plant will operate in accordance with the safety analyses assumptions. Discuss and demonstrate how Operability is ensured in the TSs,

2, Suspend consideration of setpoint-related aspects of your request pending generic resolution of the NRC staff's concern.

3. Revise your request to incorporate Method 1, Method 2, or PBTSs.

4. Revise your request to incorporate some other approach that you demonstrate to provide adequate confidence that the plant will operate in accordance with the safety analyses and show that Operability is ensured by the TSs surveillance requirement measurements obtained during the channel operational (functional) test.

WESTINGHOUSE Response

The methodology to determine the Allowable Values for the Beaver Valley Units 1 and 2 Steam Generator (SG) Level technical specification change is not based on any of the methods as described in the ISA recommended practice document (ISA-RP67.04-1994, Part II or ISA-RP67.04.02-2000). The Westinghouse method used for the Beaver Valley Units 1 and 2 SG technical specification change determines a performance based Allowable Value. As noted in WCAP-11419 Rev. 2, and WCAP-11366 Rev. 4 (referenced below), the Allowable Value is satisfied by verification that the channel "as left" and "as found" conditions about the nominal trip setpoint are within the Rack Calibration Accuracy. The methodology for the uncertainty calculations and the Allowable Values used for Beaver Valley Units 1 and 2 was previously reviewed by the staff via Westinghouse WCAPs for Beaver Valley Units 1 and 2. The WCAP reference for Beaver Valley Unit 1 is WCAP-11419 Rev. 2, "Westinghouse Setpoint Methodology for Protection Systems Beaver Valley Power Station – Unit 1" dated December 2000, and the WCAP for Beaver Valley Unit 2 is WCAP-11366 Rev. 4, "Westinghouse Setpoint Methodology for Protection Systems Beaver Valley Power Station – Unit 2" dated December 2000. Upon conclusion of this review the staff issued Amendment 239 to facility license DRP-66 and Amendment 120 to facility license NPF-73 via a July 30, 2001 letter titled, "BEAVER VALLEY POWER STATION, UNIT NOS. 1 AND 2 – REVISED IMPLEMENTATION PERIOD FOR LICENSE AMENDMENT NOS. 239 AND 120, (TAC NOS. MB0848 AND MB0849)". The methodology used in the above WCAPs is the same methodology used for the current technical specification change submittal.

The criterion for the performance based Allowable Value is controlled by both plant procedures and the technical specifications. In the Beaver Valley technical specifications, sections 3/4.3.1 and 3/4.3.2, the requirement is to verify that the instrumentation is operable. This verification is performed every 92 days by performance of the Channel Operability Test (COT) confirming that the channel meets the stated Allowable Value. Because the Allowable Values for Beaver Valley are based on the Rack Calibration Accuracy, it then follows that the channel must be within the calibration accuracy to be considered operable. As noted in the referenced WCAPs, the setpoint methodology assumes that the channel is always returned to within the Rack Calibration Accuracy and because the Allowable Value is based on the Rack Calibration Accuracy, this assumption will be met in order for the channel to be considered operable.

NRC Request C

The licensee proposed to revise the nominal trip setpoints and AV Setpoints for SG water level low-low and high-high. Provide the actual calculations or summary sheets for the NRC staff's review.

WESTINGHOUSE Response

The methodology for calculation of the uncertainties for this technical specification change is a Square Root Sum of the Squares (SRSS) approach, which as noted in the response to question A above has been reviewed and approved by the Staff via the referenced WCAPs. Attached are summary tables consistent with the WCAP format which provide the SRSS equation, the value for each uncertainty term and the calculation results for the safety related setpoints that are changing for the technical specification submitted.

Unit 1

TABLE 3-12 STEAM GENERATOR WATER LEVEL – LOW-LOW SLB OUTSIDE CONTAINMENT

Parameter	Allowance*
Process Measurement Accuracy	[ ]a,c
Primary Element Accuracy (PEA)	
Sensor Calibration Accuracy (SCA)	
Sensor Reference Accuracy (SRA)	
Sensor Measurement & Test Equipment Accuracy (SMTE)	
Sensor Pressure Effects (SPE)	
Sensor Temperature Effects (STE)	
Sensor Drift (SD)	
Environmental Allowance	
Rack Calibration Accuracy (RCA)	
Rack Measurement & Test Equipment Accuracy (RMTE)	
Rack Temperature Effect (RTE)	
Rack Drift (RD)	

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* In percent span (100 %)

TABLE 3-12 (continued)
STEAM GENERATOR WATER LEVEL – LOW-LOW SLB OUTSIDE CONTAINMENT

Channel Statistical Allowance =

$$\sqrt{PEA^2 + (SMTE + SD)^2 + (SMTE + SCA)^2 + SRA^2 + SPE^2 + STE^2 + (RMTE + RD)^2 + (RMTE + RCA)^2 + RTE^2}$$

$$+ PMA_{PP} + PMA_{FV} + PMA_{DL} + PMA_{ID} + PMA_{FR} + PMA_{SC} + PMA_{RL} + PMA_{MD}$$

[ ] a,c

TABLE 3-13 STEAM GENERATOR WATER LEVEL – LOW-LOW LONF

Parameter	Allowance*
Process Measurement Accuracy	
[a,c]	[a,c]
Primary Element Accuracy (PEA)	
Sensor Calibration Accuracy (SCA)	
Sensor Reference Accuracy (SRA)	
Sensor Measurement & Test Equipment Accuracy (SMTE)	
Sensor Pressure Effects (SPE)	
Sensor Temperature Effects (STE)	
Sensor Drift (SD)	
Environmental Allowance	
Rack Calibration Accuracy (RCA)	
Rack Measurement & Test Equipment Accuracy (RMTE)	
Rack Temperature Effect (RTE)	
Rack Drift (RD)	

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* In percent span (100 %)

TABLE 3-13 (continued)
STEAM GENERATOR WATER LEVEL – LOW-LOW LONF

Channel Statistical Allowance =

$$\sqrt{PEA^2 + (SMTE + SD)^2 + (SMTE + SCA)^2 + SRA^2 + SPE^2 + STE^2 + (RMTE + RD)^2 + (RMTE + RCA)^2 + RTE^2}$$

$$+ PMA_{PP} + PMA_{FV} + PMA_{DL} + PMA_{ID} + PMA_{FR} + PMA_{SC} + PMA_{RL} + PMA_{MD}$$

[ ] a,c

TABLE 3-14 STEAM GENERATOR WATER LEVEL – LOW-LOW LARGE FLB

Parameter	Allowance*
Process Measurement Accuracy	[ ]a,c
Primary Element Accuracy (PEA)	
Sensor Calibration Accuracy (SCA)	
Sensor Reference Accuracy (SRA)	
Sensor Measurement & Test Equipment Accuracy (SMTE)	
Sensor Pressure Effects (SPE)	
Sensor Temperature Effects (STE)	
Sensor Drift (SD)	
Environmental Allowance Transmitter Temperature Error (EA_3) IR Degradation (IR) Reference Leg Heatup (EA_4)	
Rack Calibration Accuracy (RCA)	
Rack Measurement & Test Equipment Accuracy (RMTE)	
Rack Temperature Effect (RTE)	
Rack Drift (RD)	

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* In percent span (100 %)

TABLE 3-14 (continued)
STEAM GENERATOR WATER LEVEL – LOW-LOW LARGE FLB

Channel Statistical Allowance =

$$\sqrt{PEA^2 + (SMTE + SD)^2 + (SMTE + SCA)^2 + SRA^2 + SPE^2 + STE^2 + (RMTE + RD)^2 + (RMTE + RCA)^2 + RTE^2}$$

$$+ PMA_{PP} + PMA_{FV} + PMA_{DL} + PMA_{ID} + PMA_{FR} + PMA_{SC} + PMA_{RL} + PMA_{MD} + EA_3 + EA_4 + IR$$

a,c

[ ]

TABLE 3-14A STEAM GENERATOR WATER LEVEL – LOW-LOW S/I FLB

Parameter	Allowance*
Process Measurement Accuracy	
[ ]a,c	[ ]a,c
Primary Element Accuracy (PEA)	
Sensor Calibration Accuracy (SCA)	
Sensor Reference Accuracy (SRA)	
Sensor Measurement & Test Equipment Accuracy (SMTE)	
Sensor Pressure Effects (SPE)	
Sensor Temperature Effects (STE)	
Sensor Drift (SD)	
Environmental Allowance Transmitter Temperature Error (EA_3) IR Degradation (IR) Reference Leg Heatup (EA_1)	
Rack Calibration Accuracy (RCA)	
Rack Measurement & Test Equipment Accuracy (RMTE)	
Rack Temperature Effect (RTE)	
Rack Drift (RD)	

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* In percent span (100 %)

TABLE 3-14A (continued)
STEAM GENERATOR WATER LEVEL – LOW-LOW S/I FLB

Channel Statistical Allowance =

$$\sqrt{PEA^2 + (SMTE + SD)^2 + (SMTE + SCA)^2 + SRA^2 + SPE^2 + STE^2 + (RMTE + RD)^2 + (RMTE + RCA)^2 + RTE^2}$$

$$+ PMA_{PP} + PMA_{FV} + PMA_{DL} + PMA_{ID} + PMA_{FR} + PMA_{SC} + PMA_{RL} + PMA_{MD} + EA_1 + EA_3 + IR$$

a,c

[ ]

TABLE 3-15 STEAM GENERATOR WATER LEVEL - HIGH-HIGH

Parameter	Allowance*
Process Measurement Accuracy	
[a,c]	[a,c]
Primary Element Accuracy (PEA)	
Sensor Calibration Accuracy (SCA)	
Sensor Reference Accuracy (SRA)	
Sensor Measurement & Test Equipment Accuracy (SMTE)	
Sensor Pressure Effects (SPE)	
Sensor Temperature Effects (STE)	
Sensor Drift (SD)	
Rack Calibration Accuracy (RCA)	
Rack Measurement & Test Equipment Accuracy (RMTE)	
Rack Temperature Effect (RTE)	
Rack Drift (RD)	

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* In percent span (100 %)

TABLE 3-15 (continued)
STEAM GENERATOR WATER LEVEL - HIGH-HIGH

Channel Statistical Allowance =

$$\sqrt{PEA^2 + (SMTE + SD)^2 + (SMTE + SCA)^2 + SRA^2 + SPE^2 + STE^2 + (RMTE + RD)^2 + (RMTE + RCA)^2 + RTE^2}$$

$$+ PMA_{PP} + PMA_{FV} + PMA_{DL} + PMA_{ID} + PMA_{FR} + PMA_{SC} + PMA_{RL} + PMA_{MD}$$

a,c

[ ]

Unit 2

TABLE 3-12 STEAM GENERATOR WATER LEVEL – LOW-LOW LONF

Parameter	Allowance*
Process Measurement Accuracy	a,c [ ]
Primary Element Accuracy (PEA)	
Sensor Calibration Accuracy (SCA)	
Sensor Reference Accuracy (SRA)	
Sensor Measurement & Test Equipment Accuracy (SMTE)	
Sensor Pressure Effects (SPE)	
Sensor Temperature Effects (STE)	
Sensor Drift (SD)	
Environmental Allowance	
Rack Calibration Accuracy (RCA)	
Rack Measurement & Test Equipment Accuracy (RMTE)	
Rack Temperature Effect (RTE)	
Rack Drift (RD)	

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* In percent span (100 %)

TABLE 3-12 (continued)
STEAM GENERATOR WATER LEVEL – LOW-LOW LONF

Channel Statistical Allowance =

$$\sqrt{PEA^2 + (SMTE + SD)^2 + (SMTE + SCA)^2 + SRA^2 + SPE^2 + STE^2 + (RMTE + RD)^2 + (RMTE + RCA)^2 + RTE^2}$$

$$+ PMA_{PP} + PMA_{FV} + PMA_{DL} + PMA_{ID} + PMA_{FR} + PMA_{SC} + PMA_{RL} + PMA_{MD}$$

[ ]^a,c

TABLE 3-12A STEAM GENERATOR WATER LEVEL – LOW-LOW SLB OUTSIDE CONTAINMENT

Parameter	Allowance*
Process Measurement Accuracy	[ ]a,c
Primary Element Accuracy (PEA)	
Sensor Calibration Accuracy (SCA)	
Sensor Reference Accuracy (SRA)	
Sensor Measurement & Test Equipment Accuracy (SMTE)	
Sensor Pressure Effects (SPE)	
Sensor Temperature Effects (STE)	
Sensor Drift (SD)	
Environmental Allowance	
Rack Calibration Accuracy (RCA)	
Rack Measurement & Test Equipment Accuracy (RMTE)	
Rack Temperature Effect (RTE)	
Rack Drift (RD)	

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* In percent span (100 %)

TABLE 3-12A (continued)
STEAM GENERATOR WATER LEVEL – LOW-LOW SLB OUTSIDE CONTAINMENT

Channel Statistical Allowance =

$$\sqrt{PEA^2 + (SMTE + SD)^2 + (SMTE + SCA)^2 + SRA^2 + SPE^2 + STE^2 + (RMTE + RD)^2 + (RMTE + RCA)^2 + RTE^2}$$

$$+ PMA_{PP} + PMA_{FV} + PMA_{DL} + PMA_{ID} + PMA_{FR} + PMA_{SC} + PMA_{RL} + PMA_{MD}$$

a,c

[ ]

TABLE 3-13 STEAM GENERATOR WATER LEVEL – LOW-LOW LARGE FLB

Parameter	Allowance*
Process Measurement Accuracy	[ ]a,c
Primary Element Accuracy (PEA)	
Sensor Calibration Accuracy (SCA)	
Sensor Reference Accuracy (SRA)	
Sensor Measurement & Test Equipment Accuracy (SMTE)	
Sensor Pressure Effects (SPE)	
Sensor Temperature Effects (STE)	
Sensor Drift (SD)	
Environmental Allowance Transmitter Temperature Error (EA_1) IR Degradation (IR) Reference Leg Heatup (EA_3)	
Rack Calibration Accuracy (RCA)	
Rack Measurement & Test Equipment Accuracy (RMTE)	
Rack Temperature Effect (RTE)	
Rack Drift (RD)	

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* In percent span (100 %)

TABLE 3-13 (continued)
STEAM GENERATOR WATER LEVEL – LOW-LOW LARGE FLB

Channel Statistical Allowance =

$$\sqrt{PEA^2 + (SMTE + SD)^2 + (SMTE + SCA)^2 + SRA^2 + SPE^2 + STE^2 + (RMTE + RD)^2 + (RMTE + RCA)^2 + RTE^2}$$

$$+ PMA_{PP} + PMA_{FV} + PMA_{DL} + PMA_{ID} + PMA_{FR} + PMA_{SC} + PMA_{RL} + PMA_{MD} + EA_1 + EA_3 + IR$$

a,c

[ ]

TABLE 3-13A STEAM GENERATOR WATER LEVEL – LOW-LOW S/I FLB

Parameter	Allowance*
Process Measurement Accuracy	[ ]a,c
Primary Element Accuracy (PEA)	
Sensor Calibration Accuracy (SCA)	
Sensor Reference Accuracy (SRA)	
Sensor Measurement & Test Equipment Accuracy (SMTE)	
Sensor Pressure Effects (SPE)	
Sensor Temperature Effects (STE)	
Sensor Drift (SD)	
Environmental Allowance Transmitter Temperature Error (EA_1) IR Degradation (IR) Reference Leg Heatup (EA_2)	
Rack Calibration Accuracy (RCA)	
Rack Measurement & Test Equipment Accuracy (RMTE)	
Rack Temperature Effect (RTE)	
Rack Drift (RD)	

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* In percent span (100 %)

TABLE 3-13A (continued)
STEAM GENERATOR WATER LEVEL – LOW-LOW S/I FLB

Channel Statistical Allowance =

$$\sqrt{PEA^2 + (SMTE + SD)^2 + (SMTE + SCA)^2 + SRA^2 + SPE^2 + STE^2 + (RMTE + RD)^2 + (RMTE + RCA)^2 + RTE^2}$$

$$+ PMA_{PP} + PMA_{FV} + PMA_{DL} + PMA_{ID} + PMA_{FR} + PMA_{SC} + PMA_{RL} + PMA_{MD} + EA_1 + EA_2 + IR$$

a,c

[ ]

TABLE 3-14 STEAM GENERATOR WATER LEVEL - HIGH-HIGH

Parameter	Allowance*
Process Measurement Accuracy	
[ ]a,c	[ ]a,c
Primary Element Accuracy (PEA)	
Sensor Calibration Accuracy (SCA)	
Sensor Reference Accuracy (SRA)	
Sensor Measurement & Test Equipment Accuracy (SMTE)	
Sensor Pressure Effects (SPE)	
Sensor Temperature Effects (STE)	
Sensor Drift (SD)	
Rack Calibration Accuracy (RCA)	
Rack Measurement & Test Equipment Accuracy (RMTE)	
Rack Temperature Effect (RTE)	
Rack Drift (RD)	

---

* In percent span (100 %)

TABLE 3-14 (continued)
STEAM GENERATOR WATER LEVEL - HIGH-HIGH

Channel Statistical Allowance =

$$\sqrt{PEA^2 + (SMTE+SD)^2 + (SMTE+SCA)^2 + SRA^2 + SPE^2 + STE^2 + (RMTE+RD)^2 + (RMTE+RCA)^2 + RTE^2}$$

$$+ PMA_{PP} + PMA_{FV} + PMA_{DL} + PMA_{ID} + PMA_{FR} + PMA_{SC} + PMA_{RL} + PMA_{MD}$$

a,c

[ ]

Summary

The uncertainties, margins, and AVs for Steam Generator Level functions are summarized as follows.

Unit 1

Parameter	NTS	CSA	Margin a,c	Allowable Value
Steam Generator Level Low-Low (LONF)	20.1 % Span	[	]	≥ 19.6% Span
Steam Generator Level Low-Low (SLB) Outside Containment	20.1 % Span			≥ 19.6% Span
Steam Generator Level Low-Low (S/I FLB)	20.1 % Span			≥ 19.6% Span
Steam Generator Level Low-Low (FLB)	20.1% Span			≥ 19.6% Span
Steam Generator Level High-High	81.2% Span	[	]	≤ 81.7% Span

Bracket [ ]^{a,c} information designates data that is Westinghouse proprietary.

Unit 2

Parameter	NTS	CSA	Margin [a,c]	Allowable Value
Steam Generator Level Low-Low (LONF)	20.5 % Span	[	]	≥ 20.0 % Span
Steam Generator Level Low-Low (SLB) Outside Containment	20.5 % Span	[	]	≥ 20.0 % Span
Steam Generator Level Low-Low (S/I FLB)	20.5 % Span	[	]	≥ 20.0 % Span
Steam Generator Level Low-Low (FLB)	20.5 % Span	[	]	≥ 20.0 % Span
Steam Generator Level High-High	92.2 % Span	[	]	≤ 92.7 % Span

Bracket [ ]^{a,c} information designates data that is Westinghouse proprietary.

Attachment 3

WESTINGHOUSE AUTHORIZATION LETTER CAW-05-1961,
AFFADAVIT, PROPRIETARY INFORMATION NOTICE
AND COPYRIGHT NOTICE

Westinghouse

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Nuclear Services
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Pittsburgh, Pennsylvania 15230-0355
USA

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Our ref: CAW-05-1961

March 9, 2005

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: "Beaver Valley Power Station Units 1 and 2 Steam Generator Level Allowable Value Setpoints," Docket Nos. 50-334 and 50-412

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-05-1961 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 First Energy Nuclear Operating Company.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-05-1961, 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,

R. M. Span FOR/J. A. GRESHAM

R. Span, Acting Manager
Regulatory Compliance and Plant Licensing

Enclosures

cc: B. Benney
L. Feizollahi

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) 1L, 1A (letter and affidavit only)
G. Brassart (ECE) 1L, 1A
J. DeBlasio (ECE) 1L, 1A
R. Reagan (ECE) 1L, 1A
T. Williams (ECE) 1L, 1A
D. Morris (ENN) 1L, 1A

CAW-05-1961

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared J. J. McInerney, 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. J. McInerney, Director
Systems and Safety Analysis

Sworn to and subscribed
before me this 9th day
of March, 2005

Notary Public

Notarial Seal
Sharon L. Fiori, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires January 29, 2007
Member, Pennsylvania Association Of Notaries

(1) I am Director, Systems and Safety Analysis, 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 LTR-MPG-05-22 P-Attachment, "Beaver Valley Power Station Units 1 and 2 Steam Generator Level Allowable Value Setpoints," Docket Nos. 50-334 and 50-412 dated March, 2005 (Proprietary), being transmitted by the 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 the Beaver Valley Power Station Units 1 and 2 are specific to Beaver Valley Power Station Units 1 and 2 in response to certain NRC requirements for justification of Steam Generator Level Allowable Value Setpoints License Amendment Request.

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

(a) Provide information in support of plant power uprate licensing submittals.

(b) Provide plant specific calculations.

(c) Provide licensing documentation support for customer submittals.

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 meeting NRC requirements for licensing documentation associated with power uprate licensing submittals.

(b) Westinghouse can sell support and defense of the technology to its customers in the licensing process.

(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, evaluations, analyses 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.