

**Attachment 5**

**TVA Letter Dated November 5, 2010**

**Description of Commitments and Requested Vendor Documents**

**Watts Bar Unit 2 ARPI System Upgrade, "CERPI System Requirements Specification"  
(Nonproprietary), WNS-DS-00001-WBT-NP, Revision 2, dated June 2009**



Westinghouse Non-Proprietary Class 3

## Watts Bar Unit 2 ARPI System Upgrade

# CERPI System Requirements Specification

WNS-DS-00001-WBT-NP,  
Rev. 2

June 2009

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1	Timothy S. Meyers	Updated proprietary information	September 15, 2008
2	Timothy S. Meyers	Updated for system separation	See EDMS

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## ACRONYMS AND TRADEMARKS

Acronyms used in the document are defined in WNA-PS-00016-GEN, "Standard Acronyms and Definitions" (Reference 1), or included below to ensure unambiguous understanding of their use within this document.

Acronyms	Definition
4PDT	Four Pole, Double Throw
CBA	Control Bank A
CBB	Control Bank B
CBC	Control Bank C
CBD	Control Bank D
CERPI	Computer Enhanced Rod Position Indication
CRDM	Control Rod Drive Mechanism
DIB	Detector Interface Board
EMI	Electro-Magnetic Interference
ICS	TVA Integrated Computer System
MCR	Main Control Room
MTP	Maintenance and Test Panel
OPFD	Operator Flat Panel Display
PC	Personal Computer
PLC	Programmable Logic Controller
Q	Filter Quality
RC	Resistance Capacitance
[	] <sup>a</sup>
RIL	Rod Insertion Limit
RPI	Rod Position Indication
RWL	Rod Withdrawal Limit
SBA	Shutdown Bank A
SBB	Shutdown Bank B
SBC	Shutdown Bank C
SBD	Shutdown Bank D
TVA	Tennessee Valley Authority
WNA	Westinghouse Nuclear Automation

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All product and corporate names used in this document may be trademarks or registered trademarks of other companies, and are used only for explanation and to the owners' benefit, without intent to infringe.

## GLOSSARY OF TERMS

Standard terms used in the document are defined in WNA-PS-00016-GEN, "Standard Acronyms and Definitions" (Reference 1), or included below to ensure unambiguous understanding of their use within this document.

<b>Term</b>	<b>Definitions</b>
PLC Train	One redundant set of signal processing equipment including one Programmable Logic Controller (PLC), its associated maintenance and test panel, fiber optic modems, power supplies, and other hardware not shared as inputs to the redundant PLCs.
Tunable	A system parameter that can be adjusted.

## **REFERENCES**

Following is a list of references used throughout this document.

1. WNA-PS-00016-GEN, Rev. 3, "Standard Acronyms and Abbreviations," Westinghouse Electric Company LLC.

## REQUIREMENTS

Design and/or other requirements have been identified in this document. Following is a list of the requirement numbers and the document page on which the requirement is identified.

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## SECTION 1 INTRODUCTION

### 1.1 PURPOSE

This specification presents the Westinghouse Computer Enhanced Rod Position Indication (CERPI) system hardware and software requirements for the Watts Bar Nuclear Plant Unit 2.

### 1.2 SCOPE

The requirements presented herein apply to the detector interface circuitry, the programmable controllers, and the Human-System Interfaces (HSIs) of the CERPI system.

This is not a commercial document and does not define project scope of supply.

### 1.3 OVERVIEW

#### 1.3.1 Existing RPI System

The existing rod position indication (RPI) system provides indication for 57 rods. It is used for plant technical specification compliance and is non-safety related.

The RPI detector is a linear voltage transformer. Detector primary excitation is provided by a constant current source. Detector Secondary voltage is rectified and signal-conditioned to provide analog outputs to control board meters and to the plant's Integrated Computer System (ICS). Rod bottom alarm indication is provided to the plant computer and to the main control room (MCR).

#### 1.3.2 CERPI System

##### R101

[The CERPI system shall use the existing RPI detectors.]

##### R102

[Improved detector primary excitation and secondary signal conditioning shall be incorporated.]

##### R103

[Individual rod bottom alarm functions shall be provided.]

##### R104

c

**R105**

c

**R107**

[Two PLCs – called “PLC A” and “PLC B,” respectively – shall independently calculate rod positions and other algorithms described in this document.]

**R108**

[The only electrical commonality between the PLCs shall be the detector interface boards and the Oscillator control switch.]

**R109**

[A Maintenance and Test Panel (MTP) for each PLC shall be utilized for calibration and maintenance use at the instrument rack, and for establishing the Ethernet connections to the ICS.]

**R110**

[The MTPs shall also be capable of displaying rod positions.]

**R111**

[Rod position information determined by the redundant PLCs shall be provided to the Operator’s Module (OM) on the Main Control Board (MCB) utilizing the Advant<sup>®</sup> Fieldbus 100 (AF100) bus, and to the ICS using the Ethernet connection.]

Guidance: PLC A communicates its information to a dedicated OM that is only capable of displaying information from PLC A. Likewise, PLC B communicates its information to a dedicated OM that is only capable of displaying information from PLC B.

**R112**

[Each PLC train shall have a dedicated control-board-mounted OM, AF100 network, and Ethernet connection to the ICS.]

## SECTION 2 GENERAL SYSTEM REQUIREMENTS

### 2.1 DESIGN CONSTRAINTS

#### 2.1.1 Physical Layout Constraints

##### R201

[The CERPI replacement system electronics shall occupy no more than the four (4) cabinets of the existing RPI system electronics, with minimal structural changes to maintain the seismic qualification.]

##### R202

#### 2.1.2 Environmental Constraints

##### R203

[The CERPI system shall function in an ambient room temperature varying between 65°F and 120°F.]

#### 2.1.3 Redundancy Requirements

##### R204

[Redundant PLCs, power supplies, MTPs, fiber optic modems, and other related hardware to each PLC train shall be implemented in the CERPI design.]

##### R205

[Redundant Rod Bottom Bypass Logic control signals shall be provided via each redundant PLC train.]

##### R207

[Alarms shall be provided via signal relays for PLC Trouble, PLC Watchdog, [ ], Oscillator Trouble, Rod-to-Bank Deviation, Rod-to-Rod Deviation, Insertion Limit Low, Insertion Limit Low-Low, Control Bank D (CBD) Withdrawal Limit, Any Rod On Bottom, All Rods On Bottom, and Power Supply Fail.]

##### R208

[The outputs in R207 shall be provided by each PLC train.]

Guidance: The system used for alarms in the plant shall determine which of the two redundant PLCs to consider.

##### R209

[Two OM's with redundant communication connections to their respective PLC train shall be provided.]

##### R210

[Each PLC shall provide rod position and rod bottom information to its respective MTP and OM.]

**R211**

[Each MTP shall be capable of providing the rod position information it receives from the PLC to the ICS via the fiber optic Ethernet connection.]

**R212**

[Redundant Oscillators shall be implemented in the system. [  
c]

**R213**

[Redundant 24 VDC power supplies shall be utilized for each PLC train. Diode auctioneering and fault indicators shall be utilized.]

**2.1.4 Retention of PLC Data****R214**

[Application program shall be stored in non-volatile memory (flash Programmable Read-Only Memory [PROM]).]

**2.2 SYSTEM PERFORMANCE REQUIREMENTS****2.2.1 System Accuracy Requirements****R215**

[The total system accuracy shall be at least  $\pm 12$  steps for reactor plant steady-state conditions between zero power hot standby and full power operation over a fuel cycle of 18 months, including throughout rod movement.]

**2.2.1.1 Total System Accuracy Error Terms****R216**

c

**2.2.1.2 {System Error Budget Allowances**

The following error budget allowances are based on a calibrated span of 0-231 steps.

Error Budget Term	Error Allowance (Steps)	Error Allowance (% of Calibrated Span)	c
Total Allowance	±12	±5.19%	

**2.2.2 System Throughput Requirements****R217**

[The time that is required to process the rod position signal and rod bottom alarm from input to the detector interface board (DIB) shall be less than 2 seconds.]

(Last Page of Section 2)

### SECTION 3 DETECTOR INTERFACE CIRCUITRY REQUIREMENTS

#### 3.1 DETECTOR INTERFACE CIRCUITRY FUNCTIONAL REQUIREMENTS

##### 3.1.1 General

###### R301

[The Watts Bar Unit 2 CERPI system detector interface circuitry shall consist of 57 DIBs, one for each control rod, and two Oscillator boards (main and backup).]

###### R302

[The DIBs shall perform RPI detector primary excitation and secondary filtering, rectification, and  
[ ]]

###### R303

c

###### R304

c

###### R305

[The main Oscillator shall be the normal source of DIB frequency references.]

###### R306

[In the event of a main Oscillator failure, the DIB frequencies shall be automatically switched to be sourced from the backup Oscillator.]

##### 3.1.2 Detector Interface Board

###### 3.1.2.1 General

###### R307

c

###### 3.1.2.2 Inputs

###### R308

c

R309

c

**3.1.2.3 Processing****3.1.2.3.1 Rod Position Signal**

R310

c

R311

c


R312

[Each DIB reference frequency shall be provided by the Oscillator board.]

Guidance: The existing detector couples AC voltage from the primary winding to the secondary winding in response to actual rod position.

R313

c

R314

c

R315

c

R316

c

### 3.1.2.3.2 RPI Detector Resistance Signal

R317

c

R318

c

R319

c

R320

c

### 3.1.2.4 Outputs

#### 3.1.2.4.1 Position Signal Outputs

R321

[Each DIB shall provide two redundant [

]c output signals proportional to rod

position.]

c

R322

c



R323

c

3.1.2.4.2 [

]c

R324

c

R325

c

R326

c

### 3.1.3 Oscillator Board

#### 3.1.3.1 General

R327

c

R328

[There shall be two Oscillator boards: a main and a backup. [

]c]

R329

[In the event of a main Oscillator failure, the reference frequency busses shall be automatically switched to the backup Oscillator.]

#### 3.1.3.2 Inputs

c

#### 3.1.3.3 Processing

R330

c

R331

c

R332

c

R333

c

#### 3.1.3.4 Outputs

R334

c

R335

c

### 3.2 DETECTOR INTERFACE CIRCUITRY USER INTERFACE REQUIREMENTS

#### 3.2.1 General

R336

[Fuses located on the DIBs and Oscillator boards shall be fixed, utilizing sockets to allow replacement without soldering.]

#### 3.2.2 Detector Interface Boards

##### 3.2.2.1 Test Points

R337

a

### **3.2.3 Oscillator Board**

#### **3.2.3.1 Test Points**

**R338**

**a**

#### **3.2.3.2 Indicators**

**R339**

[A green front card edge Light Emitting Diode (LED) shall be provided for each Oscillator frequency.]

**R340**

[The LED shall be lit by the applicable reference frequency.]

### **3.2.4 Backplane**

**R341**

[Each backplane slot shall have a connector for interfacing the RPI detector to the DIB located in the slot.]

## SECTION 4 PLC REQUIREMENTS

### 4.1 PLC FUNCTIONAL REQUIREMENTS

#### Note

The CERPI system shall have two redundant PLC trains. Both PLC trains shall have identical programs to fulfill the functional requirements described in this section. The requirements below describe one PLC train, which is acceptable because each PLC train is identically designed.

#### 4.1.1 Position Signal Algorithm

##### 4.1.1.1 General

###### R401

[The position signal algorithm shall receive the rod position signal [ ]<sup>c</sup> from its associated DIB and provide the following functions:

--

###### R402

--

##### 4.1.1.2 Inputs


##### 4.1.1.3 Processing

###### 4.1.1.3.1 Position Signal Zero and Span

###### R403

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###### R404

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R405

c

R406

c

R407

c

R408

c

4.1.1.3.2 Position Signal Linearization

R409

c

R410

c

R411

c

R412

c

R413

c

R414

c

R415

c

4.1.1.4 Outputs

c


4.1.2 Temperature Compensation Algorithm

4.1.2.1 General

R416	c
R417	c
R418	c

4.1.2.2 Inputs

			c

4.1.2.3 Processing

R419	c
R420	c
R421	c
R422	c

[ ] c

R423

[ ] c

R424

[ ] c

R425

[ ] c

R426

[ ] c

R427

[ ] c

4.1.2.4 Outputs


R428

[ ] c

4.1.3 Rod Bottom Bypass Algorithm

4.1.3.1 General

[ ] c

R431

[ ] c

R432

c

4.1.3.2 Inputs

c


4.1.3.3 Processing

R433

c

R434

c

R435

c

R436

c

R437

c

4.1.3.4 Outputs

c




4.1.4 Bank Calibrate Algorithm

4.1.4.1 General

R438

c

R439

c

4.1.4.2 Inputs

c


4.1.4.3 Processing

4.1.4.3.1 Temperature Compensation Null Adjustment

R440

c

R441

c

R442

c

**4.1.4.3.2 Position Zero Adjustment**

R443

c

**4.1.4.3.3 Position Span Adjustment**

R444

c

R445

c

**4.1.4.4 Outputs**


c

**4.1.5 Oscillator Supervision and Control Algorithm****4.1.5.1 General**

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c

R446

c

R447

c

R448

c

R449

c

R450

c

R451

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R452

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R453

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R454

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#### 4.1.5.2 Inputs

c



**4.1.5.3 Processing****R455**

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**R456**

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**R468**

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c]

**R469**

[

c]

**R470**  
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**R473**

[

c]

**4.1.5.4 Outputs**

[


c]

4.1.6 Rod Deviation Alarm Algorithms

4.1.6.1 General

R474

c

R475

c

4.1.6.2 Inputs

c


4.1.6.3 Processing

4.1.6.3.1 Rod-to-Rod Deviation

R476

c

R477

c

R478

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R479

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R480

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R481

c

R482

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R483

c

R484

c

**4.1.6.3.2 Rod-to-Bank Deviation**

R485

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R486

c

R487

c

R488

c

R489

c

R490

c

R491

c

**R492**

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**R493**

c

**R494**

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**R495**

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**R496**

c

**R497**

c

**R498**

c

**4.1.6.4 Outputs**

c


**4.1.7 Rod Insertion Limit Algorithm****4.1.7.1 General****R499**

c



R500

c

R501

c

#### 4.1.7.2 Inputs

c


#### 4.1.7.3 Processing

R502

c

R503

c

R504

c

R505

c

R506

c

R507

c

R508

c

R509

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4.1.7.4 Outputs


R512

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R513

c

4.1.8 Rod Speed Indicator Algorithm

4.1.8.1 General

R514

c

R515

c

**4.1.8.2 Inputs**

c


**4.1.8.3 Processing**

R516

c

**4.1.8.4 Outputs**

c


**4.1.9 Rod Demand from Passive Summer Indicator Algorithm****4.1.9.1 General**

R517

c

**4.1.9.2 Inputs**

c


**4.1.9.3 Processing**

R518

c

**4.1.9.4 Outputs**


**4.1.10 Rod Bottom Alarm Algorithms****4.1.10.1 General****R519**

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**R520**

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**R521**

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**4.1.10.2 Inputs**


**4.1.10.3 Processing****4.1.10.3.1 Rod Bottom Alarms****R522**

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**R523**

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**R524**

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R525

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R526

c

**4.1.10.3.2 Any Rod On Bottom Alarm**

R527

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R528

c

**4.1.10.3.3 All Rods On Bottom Alarm**

R529

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R530

c

**4.1.10.4 Outputs**

c


**4.1.11 Control Bank D Withdrawal Limit Alarm Algorithm****4.1.11.1 General**

R531

c

R532

c

**4.1.11.2 Inputs**

			c

**4.1.11.3 Processing****R533**

	c
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**R534**

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**R535**

	c
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**R536**

	c
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**R538**

	c
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**4.1.11.4 Outputs**

			c

**4.1.12 Rod Drop Test Computer Trouble (RDTC) Alarm Algorithm****4.1.12.1 General****R539**

	a
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**R540**

	a
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4.1.12.2 Inputs


a

4.1.12.3 Processing

R541

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a

R542

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R543

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a

R544

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a

4.1.12.4 Outputs


a

4.1.13 Maintenance and Test Panel and Operator Module Trouble Alarm Algorithm

4.1.13.1 General

R545

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c

R546

--

c

**4.1.13.2 Inputs**


**4.1.13.3 Processing****R547**

[The heartbeat alarms shall be implemented using counters.]

**R548**

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**R549**

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**R550**

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**R551**

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**R552**

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**4.1.13.4 Outputs**




4.1.14 AF100 Link Trouble Alarm Algorithm

4.1.14.1 General

R545

c

R546

c

4.1.14.2 Inputs

c

4.1.14.3 Outputs

c

4.1.15 RPI System Trouble Alarm Algorithm

4.1.15.1 General

R552

c

R553

c

**4.1.15.2 Inputs**


**4.1.15.3 Processing****R554**

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**4.1.15.4 Outputs**


**4.1.16 PLC Trouble Alarm Algorithm****4.1.16.1 General****R556**

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**R557**

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**4.1.16.2 Inputs**


**4.1.16.3 Processing****R559**

--

**4.1.16.4 Outputs**


**R560**

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**R561**

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**4.1.16.5 Alarm Action****R562**

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**4.1.17 PLC Watchdog Timeout Alarm Algorithm****4.1.17.1 General****R563**

--

#### 4.1.17.2 Alarm Outputs

R564

c

R565

c

#### 4.1.17.3 Alarm Action

R567

c

### 4.2 PLC USER INTERFACE REQUIREMENTS

#### 4.2.1 Maintenance and Test Panel

##### 4.2.1.1 General

R568

[One MTP shall be provided with each PLC train.]

R569

[The MTP shall provide the means to:

- Calibrate the CERPI system
- Communicate with the Plant Computer
- Reset the Oscillator transfer function
- Show indication of the rod positions
- Evaluate system health]

R570

[The MTP shall serve as a gateway between the PLC and the ICS.]

R571

[The MTP shall be a PC Node Box with a touch-screen flat panel display.]

##### 4.2.1.2 Calibration Adjustments

R572

c

[	c
R573	
[	c
4.2.1.3 Security Features	
R575	
[	c
R576	
[	c
R577	
[	c
4.2.1.4 Plant Computer (ICS) Connection	
R578	
[There shall be a fiber optic Ethernet connection between the MTP and the ICS.]	
R579	
[The MTP shall broadcast data to the ICS.]	
R580	
[	c
R581	
[	c
R582	
[	c
R583	
[	c

**4.2.1.5 MTP Displays****4.2.1.5.1 Control Banks A, B, C, and D Rod Positions Display****R584**

[A display screen shall be provided to show the positions of the rods in CBA, CBB, CBC, and CBD in a bar graph format.]

**R585**

[The ability to identify a rod position value affected by a faulty analog input shall be provided.]

**R586**

[An indication for the rod bottom position of each rod shall be provided.]

**R587**

["Any Rod On Bottom," "All Rods On Bottom," "Rod-to-Bank Deviation," "Rod-to-Rod Deviation," and "RPI System Trouble" alarm signals shall be displayed on this screen.]

**R588**

[ ] <sup>c</sup>

**R590**

[The "Rod Demand from Passive Summer" and "Rod Speed" indicators shall be provided in bar graph format.]

**4.2.1.5.2 Shutdown Banks A, B, C, and D Rod Position Display****R591**

[A display screen shall be provided to show the positions of the rods in Shutdown Banks A, B, C, and D (SBA, SBB, SBC, SBD) in a bar graph format.]

**R592**

[The ability to identify a rod position value affected by a faulty analog input shall be provided.]

**R593**

[An indication for the rod bottom position of each rod shall be provided.]

**R594**

["Any Rod On Bottom," "All Rods On Bottom," "Rod-to-Bank Deviation," "Rod-to-Rod Deviation," and "RPI System Trouble" alarm signals shall be displayed on this screen.]

**R595**

[ ] <sup>c</sup>

**R597**

[The “Rod Demand from Passive Summer” and “Rod Speed” indicators shall be provided in bar graph format.]

**4.2.1.5.3 All Rods Display****R598**

[A display screen which shows all system rod position values simultaneously shall be provided.]

**R599**

[The ability to identify a rod position value affected by a faulty analog input shall be provided.]

**R600**

[“Any Rod On Bottom,” “All Rods On Bottom,” “Rod-to-Bank Deviation,” “Rod-to-Rod Deviation,” and “RPI System Trouble” alarm signals shall be displayed on this screen.]

**R601**

[ ] <sup>c</sup>

**R602**

[The “Rod Demand from Passive Summer” and “Rod Speed” indicators shall be provided in bar graph format.]

**4.2.1.5.4 Bank Demands Display****R603**

[A display screen shall be provided to show the demand positions for all the control and shutdown banks.]

**R604**

[Rod Withdrawal limit for CBD and its associated alarm condition, and rod insertion LOW and LOW-LOW limits for CBA, CBB, CBC, and CBD and the associated alarm conditions shall be displayed.]

**R605**

[“Any Rod On Bottom,” “All Rods On Bottom,” “Rod-to-Bank Deviation,” “Rod-to-Rod Deviation,” and “RPI System Trouble” alarm signals shall be displayed on this screen.]

**R606**

[ ] <sup>c</sup>

**R607**

[The “Rod Demand from Passive Summer,” “Rod Speed,” and “Rod Direction” indicators shall be provided.]

**4.2.1.5.5 Bank Calibration Display****R608**

[A display screen which allows for bank automatic calibration adjustments of a selected rod bank shall be provided.]

**R609**

[ c ]

**R610**

[ c ]

**4.2.1.5.6 Individual Rod Calibration Display****Calibration Tunable Parameter Adjustments**

[ c ]

**R611**

[ c ]

**R612**

[ c ]

**R613**

[ c ]

**4.2.1.5.7 System Status Display****R614**

[ c ]

**R615**

[ c ]

**R616**

[ c ]



#### 4.2.1.5.8 System Resets Display

##### R617

[A display screen containing a reset button for transferring the Oscillator switch-over function back to the main Oscillator for recovery from an Auto-Transfer event shall be provided.]

##### R618

[ ] c

#### 4.2.1.5.9 System Tunable Parameters Display

##### R619

[ ] c

##### R620

[ ] c

#### 4.2.1.5.10 Rod Insertion Limit Alarm Constant Tuning

##### R621

[ ] c

#### 4.2.1.5.11 Alarm Selection Display

##### R622

[A display screen that contains an enable/disable toggle button for each “Rod-to-Rod Deviation,” “Rod-to-Bank Deviation,” “Rod Bottom,” “Any Rod On Bottom,” “All Rods On Bottom,” “Rod Withdrawal Limit,” and “RDTC Trouble” alarm shall be provided.]

### 4.2.2 Operator Flat Panel Display

#### 4.2.2.1 General

##### R623

[There shall be two OMs in the MCR: one for each PLC train.]

##### R624

[Each OM shall consist of four (4) operator-selectable screens that are selectable from either the touch-screen or trackballs that are connected to each OM.]

**R625**

[Operator functions shall be limited to:

- Selecting screens
- Monitoring individual rod positions
- Evaluating system status]

**R626**

[No operator action shall be capable of affecting CERPI system calibration or programming.]

**R627**

[Each OM shall consist of:

- A PC Node Box
- A touch-screen flat panel display
- A trackball]

**4.2.2.2 Calibration Adjustments****R628**

[PLC tunable parameters or the PLC calibration constants shall not be adjustable via OM.]

**4.2.2.3 Security Features****R629**

[There shall not be any password-protected screens on the OM.]

**4.2.2.4 OM Displays****Note**

Each OM shall be capable of accessing all the displays described in this section.

**4.2.2.4.1 Control Banks A, B, C, and D Rod Position Display****R630**

[A display screen shall be provided to show the positions of the rods in CBA, CBB, CBC, and CBD in a bar graph format.]

**R631**

[The ability to identify a rod position value affected by a faulty analog input shall be provided.]

**R632**

[An indication for the rod bottom position of each rod shall be provided.]

**R633**

["Any Rod On Bottom," "All Rods On Bottom," "Rod-to-Bank Deviation," "Rod-to-Rod Deviation," and "RPI System Trouble" alarm signals shall be displayed on this screen.]

**R634****R635**

[The "Rod Demand from Passive Summer" and "Rod Speed" indicators shall be provided in bar graph format.]

**4.2.2.4.2 Shutdown Banks A, B, C, and D Rod Position Display****R636**

[A display screen shall be provided to show the positions of the rods in SBA, SBB, SBC, and SBD in a bar graph format.]

**R637**

[The ability to identify a rod position value affected by a faulty analog input shall be provided.]

**R638**

[An indication for the rod bottom position of each rod shall be provided.]

**R639**

["Any Rod On Bottom," "All Rods On Bottom," "Rod-to-Bank Deviation," "Rod-to-Rod Deviation," and "RPI System Trouble" alarm signals shall be displayed on this screen.]

**R640****R641**

[The "Rod Demand from Passive Summer" and "Rod Speed" indicators shall be provided in a bar graph format.]

**4.2.2.4.3 All Rods Display****R642**

[A display screen shall be provided which shows all system rod position values simultaneously.]

**R643**

[The ability to identify a rod position value affected by a faulty analog input shall be provided.]

**R644**

["Any Rod On Bottom," "All Rods On Bottom," "Rod-to-Bank Deviation," "Rod-to-Rod Deviation," and "RPI System Trouble" alarm signals shall be displayed on this screen.]

**R645**

[

**R646**

[The "Rod Demand from Passive Summer" and "Rod Speed" indicators shall be provided in a bar graph format.]

**4.2.2.4.4 System Status Display****R647**

[CPU and I/O health information for both PLCs shall be on this screen to assist diagnosing and isolating system faults.]

**R648**

[The display shall show the Main Oscillator Failure, Backup Oscillator Failure, Heartbeat Alarm, RDTC Failure, Power Supply Failure, and ICS Data Link Failure status bits.]

**R649**

[

## SECTION 5 BLOCK DIAGRAMS

### 5.1 CORE MAP [

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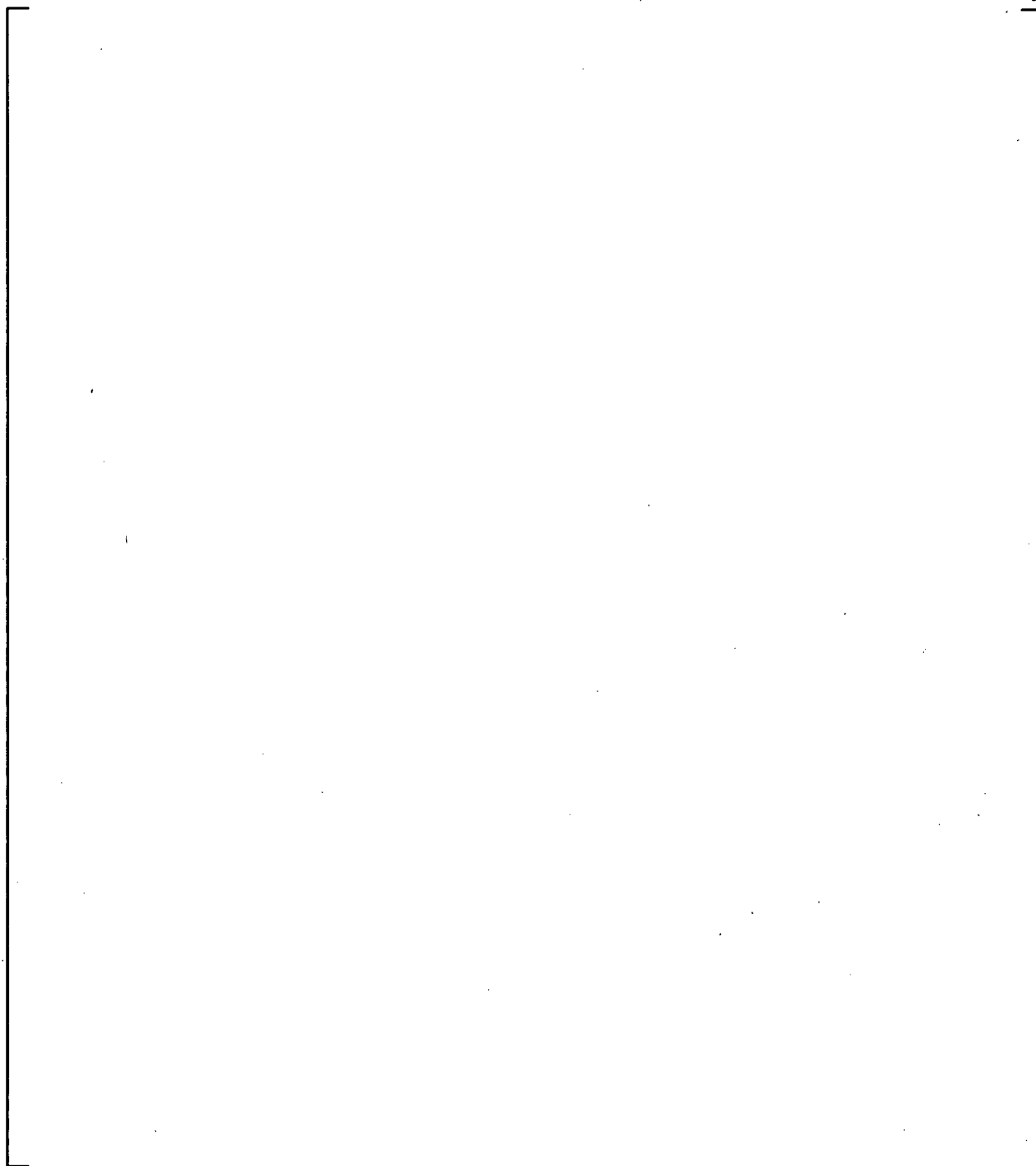


Figure 5.1-1. [

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(Last Page of Section 5)

**Attachment 6**

**TVA Letter Dated November 5, 2010**

**Description of Commitments and Requested Vendor Documents**

**Application For Withholding Proprietary Information From Public Disclosure  
WNS-DS-00001-WBT-P, Revision2, "Watts Bar Unit 2 ARPI System Upgrade, CERPI  
System Requirements Specification," (Proprietary), CAW-10-2981, dated October 8, 2010**



Westinghouse Electric Company  
Nuclear Services  
P.O. Box 355  
Pittsburgh, Pennsylvania 15230-0355  
USA

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

Direct tel: (412) 374-4643  
Direct fax: (412) 374-3846  
e-mail: greshaja@westinghouse.com  
Proj.letter: WBT-D-2487

CAW-10-2981

October 8, 2010

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

Subject: WNS-DS-00001-WBT-P, Rev. 2, "Watts Bar Unit 2 ARPI System Upgrade, CERPI System Requirements Specification" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-10-2981 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 Tennessee Valley Authority.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2981, 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,

A handwritten signature in black ink, appearing to read 'J. A. Gresham', written over a horizontal line.

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

Enclosures

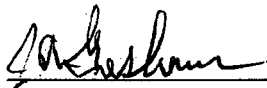
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COMMONWEALTH OF PENNSYLVANIA:

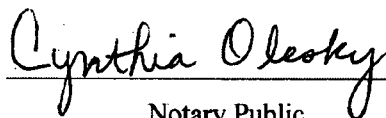
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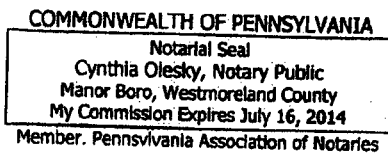
COUNTY OF ALLEGHENY:

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 8th day of October 2010

  
\_\_\_\_\_  
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 Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
  - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
  - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

    - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
  - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
  - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390; it is to be received in confidence by the Commission.
- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WNS-DS-00001-WBT-P, Rev. 2, "Watts Bar Unit 2 ARPI System Upgrade, CERPI System Requirements Specification," (Proprietary) dated June 2009, for submittal to the Commission, being transmitted by Tennessee Valley Authority letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with CERPI System Requirements Specification for Watts Bar Unit 2 and may be used only for that purpose.

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

- (a) Provide environmental and seismic qualification testing to Westinghouse customers.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers.
- (b) Westinghouse can sell support and defense of licensing of the CERPI system.
- (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 evaluations/test reports 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.

Tennessee Valley Authority

Letter for Transmittal to the NRC

The following paragraphs should be included in your letter to the NRC:

Enclosed are:

1. 2 copies of WNS-DS-00001-WBT-P, Rev. 2, "Watts Bar Unit 2 ARPI System Upgrade, CERPI System Requirements Specification," (Proprietary)
2. 2 copies of WNS-DS-00001-WBT-NP, Rev. 2, "Watts Bar Unit 2 ARPI System Upgrade, CERPI System Requirements Specification," (Non-Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-10-2981, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 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-10-2981 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.

**Attachment 8**

**TVA Letter Dated November 5, 2010**

**Description of Commitments and Requested Vendor Documents**

**Westinghouse Document: RRAS, Watts Bar NSSS Completion I&C Projects,  
Eagle 21 Factory Acceptance Test Specification, WNA-DS-01963-WBTNP-Excerpt ,  
Revision 0, Westinghouse Proprietary Class 3,\* Section 7,  
Cabinet Specific FAT Test Requirements, page 7-1**

## SECTION 7 CABINET SPECIFIC FAT TEST REQUIREMENTS

Cabinet 1			
Test Name		Test Type	
I. [ ] <sup>a,c</sup>			
1. E21-INT-001		[ ] <sup>a,c</sup>	
II. [ ] <sup>a,c</sup> Tests			
A. [ ] <sup>a,c</sup> Tests			
1. E21-TSP-300		[ ] <sup>a,c</sup>	
B. [ ] <sup>a,c</sup>			
1. E21-CAL-003			
C. [ ] <sup>a,c</sup> Tests			
Test Type			
1. E21-SRV-205	F-414	[ ] <sup>a,c</sup>	Standard
2. E21-SRV-205	F-434	[ ] <sup>a,c</sup>	Standard
3. E21-SRV-211	L-459	[ ] <sup>a,c</sup>	Standard
4. E21-SRV-205	F-444	[ ] <sup>a,c</sup>	Standard
5. E21-SRV-205	F-424	[ ] <sup>a,c</sup>	Standard
6. E21-SRV-210	P-455	[ ] <sup>a,c</sup>	Standard L/L
III. [ ] <sup>a,c</sup> Tests			
1. E21-CON-205	F-414	[ ] <sup>a,c</sup>	Standard
2. E21-CON-205	F-434	[ ] <sup>a,c</sup>	Standard
3. E21-CON-211	L-459	[ ] <sup>a,c</sup>	Standard
4. E21-CON-205	F-444	[ ] <sup>a,c</sup>	Standard
5. E21-CON-205	F-424	[ ] <sup>a,c</sup>	Standard
6. E21-CON-210	P-455	[ ] <sup>a,c</sup>	Standard L/L



**Attachment 9**

**TVA Letter Dated November 5, 2010**

**Description of Commitments and Requested Vendor Documents**

**Application For Withholding Proprietary Information From Public Disclosure,  
WNA-DS-01963-WBT P-Excerpt, Revision 0 from "RRAS Watts Bar Unit 2  
NSSS Completion I&C Projects, Eagle 21 Factory Acceptance Test Specification"  
(Proprietary), CAW-10-2967, dated October 25, 2010**



Westinghouse Electric Company  
Nuclear Services  
P.O. Box 355  
Pittsburgh, Pennsylvania 15230-0355  
USA

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

Direct tel: (412) 374-4643  
Direct fax: (412) 374-3846  
e-mail: greshaja@westinghouse.com  
Proj letter: WBT-D-2439

CAW-10-2967

October 25, 2010

APPLICATION FOR WITHHOLDING PROPRIETARY  
INFORMATION FROM PUBLIC DISCLOSURE

Subject: WNA-DS-01963-WBT P-Excerpt, Rev. 0 from "RRAS Watts Bar Unit 2 NSSS Completion I&C Projects, Eagle 21 Factory Acceptance Test Specification" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced document is further identified in Affidavit CAW-10-2967 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 Tennessee Valley Authority.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-10-2967, 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,

A handwritten signature in black ink, appearing to read 'J. A. Gresham'.

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

Enclosures

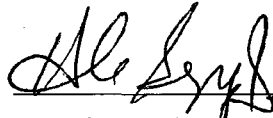
AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

SS

COUNTY OF ALLEGHENY:

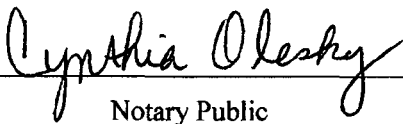
Before me, the undersigned authority, personally appeared H. A. Sepp, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit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



H. A. Sepp, Director

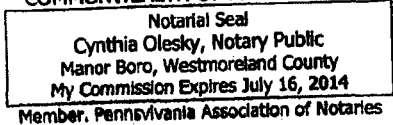
Safety Analysis and Licensing

Sworn to and subscribed before me  
this 25th day of October 2010



Notary Public

COMMONWEALTH OF PENNSYLVANIA



- (1) I am Director, Safety Analysis and 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 Proprietary Information from Public Disclosure accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
  - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
  - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

    - (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of

Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.
  - (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
  - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390; it is to be received in confidence by the Commission.
- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in WNA-DS-01963-WBT P-Excerpt, Rev. 0 from "RRAS Watts Bar Unit 2 NSSS Completion I&C Projects, Eagle 21 Factory Acceptance Test Specification" (Proprietary) for submittal to the Commission, being transmitted by Tennessee Valley Authority letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse is that associated with the Watts Bar Unit 2 Eagle 21 System and may be used only for that purpose.

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

- (a) Perform equipment tests to ensure safe operation of the Reactor Coolant System.

- (b) Allow Westinghouse to support and sell Licensing activities.
- (c) Ensure proper system configuration for safe and reliable operation.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purpose of safety related control systems.
- (b) Westinghouse can sell support and defense of plant licensing.
- (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 test procedures 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.

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Tennessee Valley Authority

Letter for Transmittal to the NRC

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Enclosed are:

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2. \_\_\_ copies of WNA-DS-01963-WBT NP-Excerpt, Rev. 0 from "RRAS Watts Bar Unit 2 NSSS Completion I&C Projects, Eagle 21 Factory Acceptance Test Specification" (Non-Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-10-2967, accompanying Affidavit, Proprietary Information Notice, and Copyright Notice.

As Item 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-10-2967 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.

## **Enclosure 2**

**TVA Letter Dated November 5, 2010**

### **Regulatory Commitments**

1. The AAF definition will be revised in FSAR Amendment 102 to read:

"A tolerance band on either side of the NTSP which defines the limits of acceptable instrument performance, beyond which the channel may be considered degraded and must be evaluated for operability prior to returning it to service. Channels which exceed the AAF will be entered into the Corrective Action Program for further evaluation and trending. The Acceptable As Found tolerance is the SRSS combination of drift, maintenance and test equipment (M&TE) accuracy and readability, and calibration/reference accuracy. Other uncertainties may be included in the AAF if applicable."

This revision eliminates the concern regarding uncertainties. Attachment 3 contained in the October 29, 2010 letter provided the revised FSAR Section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change.

2. The AAL definition will be revised in FSAR Amendment 102 to read:

"A tolerance band on either side of the NTSP within which an instrument or instrument loop is left after calibration or setpoint verification. The Acceptable As Left tolerance is equal to or less than the SRSS combination of reference accuracy, M&TE accuracy and M&TE readability. Other uncertainties may be included in the AAL if applicable."

This revision eliminates the concern regarding calibration history. Attachment 3 contained in the October 29, 2010 letter provided the revised FSAR Section 7.1.2.1.9 that will be included in FSAR Amendment 102 that reflects this change.