Attachment 11

Westinghouse Electric Company WCAP-17458-NP, Revision 0, "WINCISE™ Signal Processing System Cabinet Operation & Maintenance Manual," (Non-Proprietary)

Westinghouse Non-Proprietary Class 3

WCAP-17458-NP
Revision 0

July 2011

WINCISE™ Signal Processing System Cabinet Operation & Maintenance Manual

Westinghouse

WCAP-17458-NP
Revision 0

WINCISE™ Signal Processing System Cabinet Operation & Maintenance Manual

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Nuclear Automation Licensing

July 2011

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LIST OF 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.

Acronym	Definition
3-D	Three Dimensional
A/D	Analog to Digital
AC	Alternating Current
BOM	Bill of Materials
DC	Direct Current
DDP	DC Distribution Panel
DIN	Deutsche Industrie Normen
IIS	In-Core Instrumentation System
IITA	In-Core Instrument Thimble Assembly
IP	Internet Protocol
NPLC	Number of Power Line Cycles
RTU	Remote Terminal Unit
RX	Receive
SPD	Self-Powered Detector
SPE	Signal Processing Electronics
SPS	Signal Processing System
TCP	Transmission Control Protocol
TID	Total Integrated Dose
TX	Transmit
UART	Universal Asynchronous Receiver/Transmitter
VAC	Voltage of Alternating Current
VDC	Voltage of Direct Current
WINCISE™	Westinghouse In-Core Information and Surveillance Engineering

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DEFINITIONS

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.

802.3 100Base-TX:

Cables that contain insulated copper wires twisted together in pairs for the physical layer of an Ethernet network. 100Base-TX is full duplex, fast Ethernet, running at 100 Mbit/s.

802.3 100Base-FX:

A version of fast Ethernet over optical fiber. It uses a 1300 nm near-infrared light wavelength transmitted via two strands of optical fiber, one for receive (RX) and the other for transmit (TX). In this specification, 802.3 100Base-FX will always mean single mode, full duplex.

Application Server:

Hardware that provides signal transmission between the signal processing electronics (SPE), core power distribution calculation software, and the Ovation® highway (or equivalent).

Firmware:

Computer instructions and data that are supplied as an embedded part of a computer-based module or system that cannot be modified by the end user of the module or system.

Host Software:

Application program running on an application server that handles communicating over Ethernet to and from the SPE and performs signal processing.

Incore Instrument Thimble Assembly (IITA):

Housing for self-powered detector (SPD) elements and core exit thermocouples. IITAs are positioned in fixed locations within the reactor core in a manner that allows for determination of the core power distribution.

Module:

In this manual, module and card are used interchangeably. Therefore, amplifier and datalink interface modules equate to amplifier and datalink interface cards.

Self-Powered Detector:

Insulated emitters and associated wiring that is enclosed by a protective sheath within an IITA.

DEFINITIONS (cont.)

TCP/IP:

Read as "TCP over IP;" defines a client/server communication protocol where TCP provides the service of exchanging data reliably directly between two network hosts, and IP handles addressing and routing messages across one or more networks.

1 SYSTEM OVERVIEW

1.1 INTRODUCTION

This document is based on WNA-GO-00075-WBT, Rev. 1, "WINCISE Signal Processing System Cabinet Operation & Maintenance Manual," (Reference 12). This version added applicable references and deleted references that were not being used. It was created to submit to the Nuclear Regulatory Commission for the Watts Bar Unit 2 NSSS Completion Project.

The components described in this manual cover only the Westinghouse In-core Information Surveillance & Engineering (WINCISE™) Signal Processing System (SPS), which is a system that takes low-current signals from incore self-powered detectors (SPDs) and processes them before passing them to external host software. For background information, the remainder of this section provides an overview of how the SPS fits into WINCISE.

The WINCISE System uses signals from in-core SPDs distributed within the reactor core to obtain raw current signals. The current signals from the detectors, which represent the neutron flux activity at the detectors, are used with other reactor condition data to generate a three dimensional (3-D) indication of core power distribution on a continuous basis. WINCISE is an in-core flux monitoring application that utilizes the SPS.

The WINCISE System is an aftermarket application which replaces the plant's movable fission chamber detectors with new vanadium fixed in-core detectors to provide on-line core power information. There are 58 in-core instrument thimble assemblies (IITAs) for Watts Bar Unit 2. Each IITA contains five self-powered vanadium neutron detectors, sequentially increasing in length and axially distributed. Each IITA contains six wires (five detector signals, one common sheath or collector signal), which are routed to one of two WINCISE SPS cabinets, both located inside of containment.

The IITA cables are divided into two independent subsystems or groups (Groups 1 and 2) to provide redundancy in core power measurements. The signals from the detectors in each IITA are routed to one of the two WINCISE SPS cabinets. The signals are divided between the two cabinets such that all detector signals associated with Group 1 are terminated in one WINCISE SPS cabinet and all the Group 2 signals are terminated in the other. Each cabinet contains the signal processing electronics (SPE) needed to process the analog signals from the SPDs and transmit the digitized data to the external host software. The SPE contains embedded firmware to convert the low-current analog signals from the detectors to multiplexed digitized data before transmitting it to the external host software residing on external application servers.

1.2 DESIGN FEATURES

The WINCISE SPS incorporates the following design features:

- Modular construction; [ ]^{a,c}.
- Compatible with Rhodium or Vanadium self powered detectors.
- Precision current to voltage converter circuits with low power, isothermal design.
- [ ]^{a,c}

- Dedicated [ ]^{a,c} bit Delta Sigma A/D per channel.
- Full [ ]^{a,c} isolation for each detector assembly; optimized for low leakage.
- Embedded microcontrollers for calibration and data communication.
- Zero and reference diagnostic data.
- Up to [ ]^{a,c} detector currents per cabinet.
- [ ]^{a,c} data update rate with four second throughput.
- Fully redundant data paths; two per cabinet.
- [ ]^{a,c}
- Media conversion for isolated [ ]^{a,c} output.
- Redundant [ ]^{a,c} power supplies.
- Alternating current (AC) line filtering with circuit breaker protection.
- [
  ]^{a,c}

1.3 WINCISE SPS FUNCTIONAL BLOCK DIAGRAM

Figure 1-1 shows a functional block diagram of the WINCISE SPS. Current signals from IITAs evenly divide into two WINCISE SPS cabinets. Each cabinet houses Signal Processing Electronics (SPE), consisting of backplane cards, amplifier cards, and datalink interface cards. The processed data is transmitted outside of the cabinet by [ ]^{a,c} to the host software. All equipment outside the dashed/dotted box in Figure 1-1 is outside the scope of this manual.

a,c

Figure 1-1. [ ]^{a,c}

1.4 WINCISE SPS EQUIPMENT

The WINCISE SPS cabinet layout is shown in Figure 1-2. The front and rear views are shown with the doors removed, where the front view is assumed to be the view of the SPE modules showing the LEDs and test connectors towards the observer. The left and right views are shown with the side panels removed. The field wiring terminates on bulk head connectors on top of the cabinet. From the bulk head connectors, the field signals are routed to the backplane cards at the rear of the cabinet.

a,c

Figure 1-2. [ ]a,c

Up to [ ]^{a,c} signal cable assemblies [ ]^{a,c} can be routed to one backplane. There are [ ]^{a,c} per cabinet and a total of [ ]^{a,c} signal cable assemblies run between the top plate and the four backplanes.

The [ ]^{a,c} are located near the middle of the cabinet. Up to [ ]^{a,c} amplifier modules are seated between [ ]^{a,c} on each chassis. [ ]^{a,c} modules plug into the backplane through differently sized standard [ ]^{a,c} connectors.

Below the SPE chassis is the media converter assembly. The media converter assembly is where the digitized output is converted from serial to Ethernet, and transmitted out of the cabinet as single mode fiber Ethernet. The media converter assembly contains [ ]^{a,c} and [ ]^{a,c}. The media converter assembly is accessible from the front of the cabinet.

[ ]^{a,c} The power supply panel assembly is accessible from the rear of the cabinet.

On the lower right side of the cabinet (from the front and shown in the LEFT view) is the DC distribution assembly. This is where the DC power from the power supply panel assembly is routed before it is distributed to the rest of the cabinet components.

On the upper right side of the cabinet (from the front and shown in the LEFT view) is the cabinet status interface panel. [ ]^{a,c}

On the upper left side of the cabinet (from the front and shown in the RIGHT view) is the line filter panel assembly. AC power terminates into the cabinet at the line filter panel assembly through shielded conduit. The line filter contains circuit breakers, surge suppressors, and filters to guard against transients in the AC line.

On the upper left side of the cabinet (from the front and shown in the RIGHT view), next to the line filter panel assembly, is the high temperature (hi-temp) cutout assembly. The hi-temp cutout is used to cut power to the cabinet when the internal ambient gets too high in order to protect the cabinet electronics from heat damage.

2 EQUIPMENT DESCRIPTION

2.1 INTRODUCTION

This section of the manual describes the equipment and modules that are part of the WINCISE SPS. The major WINCISE SPS components consist of the SPE, power supply equipment, media conversion equipment, a status interface panel, and a hi-temperature cutout. Westinghouse Drawing 10044E66 (Reference 10), "Watts Bar Unit 2 WINCISE Cabinet Assembly," provides cabinet assembly details. See the Termination List in Appendix C of Reference 12 for detail on how equipment is wired together in the cabinet. See Appendix E of Reference 12 for a complete list of WINCISE SPS drawings.

2.2 DESCRIPTION OF SYSTEM

The WINCISE SPS begins with input current from detector assemblies and ends at the host software residing on external application servers which interface the signals to a display where reactor operators can monitor, analyze, and react to core data parameters.

Each cabinet receives input signals through bulk head connectors at the top of the cabinet. [

]^{a,c}

2.2.1 IIS SPE Chassis (Westinghouse Drawing 3D91845, Reference 2)

The primary function of the IIS SPE chassis is to convert SPD input analog currents to digital values and transmit the values [ ]^{a,c}. The secondary function of the IIS SPE chassis is to provide cabinet status information over the same [

]^{a,c} The topmost chassis (IIS01) is the master chassis, and will be explained further in this section.

2.2.1.1 IIS SPS Backplane Card

Figure 2-1 and Figure 2-2 show front and rear views of the IIS SPS backplane card. [

]^{a,c}

a,c

[

]

a,c

Figure 2-1. [ ]a,c

a,c

[

]

a,c

Figure 2-2. [ ]a,c

2.2.1.1.1 Intra-Chassis Communication

[

]a,c

2.2.1.1.2 Inter-Chassis Communication

In addition to the internal communication paths, the backplane also has connections for external chassis [

]a,c

[

]a,c

a,c

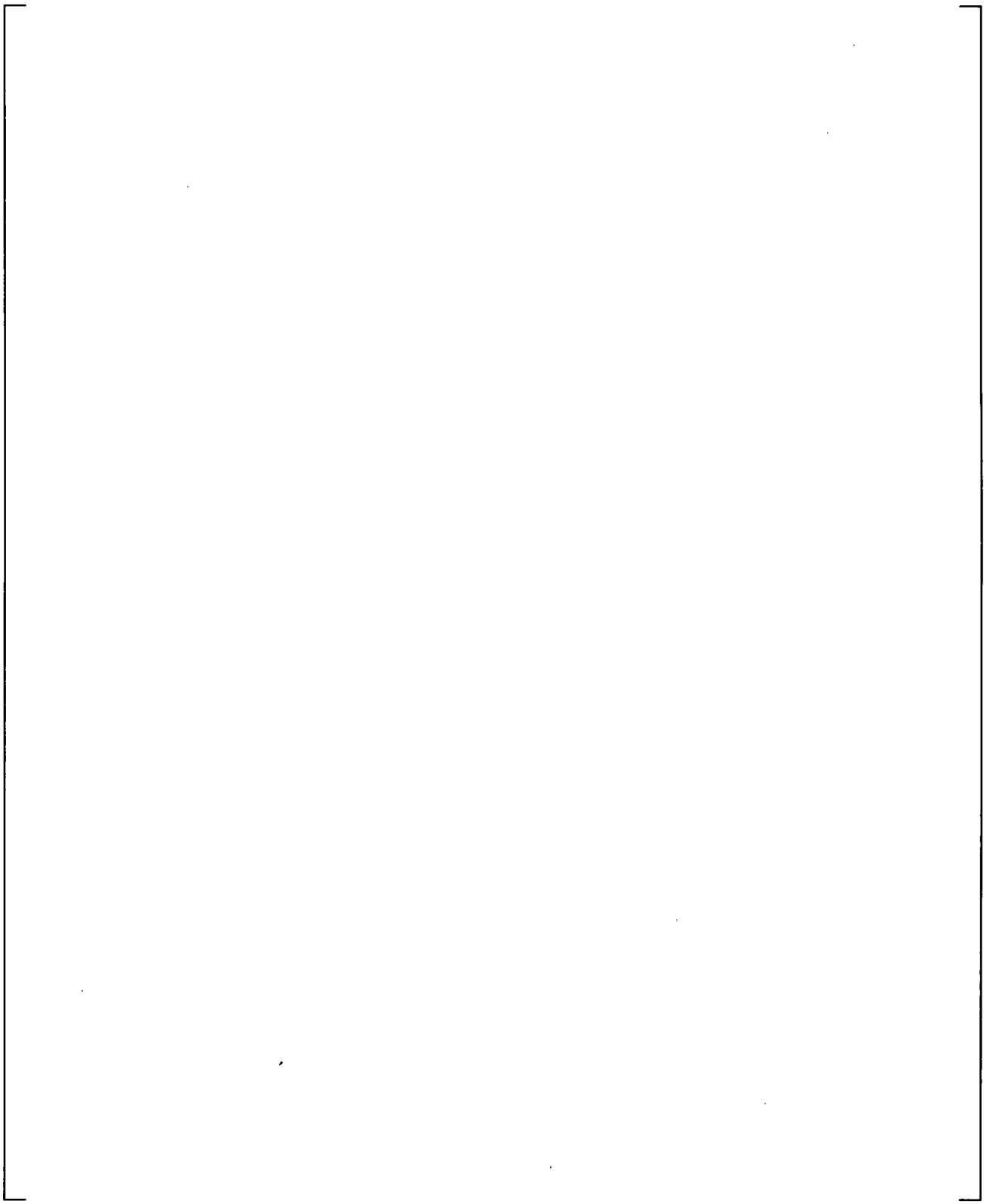


Figure 2-3. [ ][a,c]

2.2.1.1.3 Identification

[

]a,c

2.2.1.2 IIS SPS Amplifier Module Assembly

Figure 2-4, Figure 2-5, and Figure 2-6 show side, front, and isometric views of the IIS SPS amplifier module. The function of the IIS SPS amplifier module is to amplify and digitize low-level analog currents, and communicate the digital current values [ ]a,c.

Each analog current is input to the IIS SPS amplifier module from the backplane card. As mentioned earlier, each IITA feeds input to [ ]a,c amplifier card [ ]a,c. During normal operation, the current inputs are converted to voltages [ ]a,c. The voltages are input to an analog to digital (A/D) converter, which is regularly polled by a microcontroller on the amplifier module to provide a digital value which is proportional to the input current. [ ]a,c The use of isolation ensures that the inputs are electrically isolated from system ground.

One other mode of operation is available on the amplifier module. When requested by the datalink module [ ]a,c, the amplifier module will enter leakage test mode. In leakage test mode, an additional [ ]a,c is added to the current input path. The introduction of this resistance results in a change in the measured current due to the leakage of current in the cabling between the detector and the amplifier module. The change in measured current is used by the application servers to determine the current leakage and adjust the measured current to account for the leakage component.

Each amplifier module can have its calibration verified at the cabinet through known test signals that can be switched in through the front panel. [ ]a,c A 25 pin connector (TJ-1) located on the front of the amplifier card allows for an external test box to control the switching in of these signals. The test signals are switched in using a set of [ ]a,c relays; one per channel.

a,c

Figure 2-4. [ ]a,c

a,c

Figure 2-5. [ ]a,c

a,c

Figure 2-6. [ ]a,c

2.2.1.3 IIS SPS Datalink Interface Module Assembly

Figure 2-7, Figure 2-8, and Figure 2-9 show side, front, and isometric views of the IIS SPS datalink interface module. The primary and secondary functions of the datalink interface module are to collect digital data from the amplifier modules as well as cabinet status information and transmit them [ ]a,c to an external server. These functions are performed in all operating modes of the datalink cards.

[

]a,c This configuration upholds single failure criteria, so in the event of card malfunctions or partial communication failures (on any chassis level) communication to the amplifier cards in the cabinet will not be lost.

[

]a,c

a,c

Figure 2-7. [ ]a,c

a,c

Figure 2-8. [ ]a,c

a,c

Figure 2-9. [ ]a,c

2.2.2 Power Supply Panel Assembly (Westinghouse Drawing 10004D05, Reference 4)

The function of the power supply panel assembly is to convert AC power from the cabinet input to [ ]a,c power. Figure 2-10, Figure 2-11, and Figure 2-12 show front, rear, and side views of the power supply panel assembly. The power supply panel assembly is designed to take as input one single-phase AC power feed of 120 Vac at 60 Hz. Two pairs of power supplies provide redundant, auctioneered power output such that if one power supply fails, the second supply will be able to support the full power load of that pair. One pair of power supplies is rated to supply up to [ ]a,c, and the other is rated to supply up to [ ]a,c. In the cabinet design, the [ ]a,c power supplies provide power to the SPE chassis, and the [ ]a,c power supplies provide power to the supportive electronics in the cabinet.

a,c

Figure 2-10. [ ]a,c

a,c

Figure 2-11. [ ]a,c

a,c

Figure 2-12. [ ]a,c

2.2.3 Media Converter Assembly (Westinghouse Drawing 10043D18, Reference 5)

The function of the media converter assembly is to convert the [ ]a,c outputs of the master chassis datalink cards to [ ]a,c and communicate with the external server over [ ]a,c. Figure 2-13 and Figure 2-14 show front and side views of the media converter assembly. The active components on the media converter assembly are two serial device servers, which convert the [ ]a,c, and [ ]a,c media converters, which convert [ ]a,c. The master datalink utilizes [ ]a,c and the redundant master datalink utilizes the other [ ]a,c to communicate with the external servers.

The input to the device servers is a [ ]a,c (labeled [ ]a,c), which accepts [ ]a,c from one of the master chassis datalink cards. The output from one serial device server [ ]a,c is [ ]a,c and it connects to one of the [ ]a,c media converter's [ ]a,c. The output from the media converters [ ]a,c is [ ]a,c. As stated in subsection 2.2.1.1.2, [

]a,c.

Media conversion downstream of the [ ]a,c on the outgoing [ ]a,c signal to convert it to [ ]a,c ensures optical isolation between the SPS cabinet and upstream network communication. The [ ]a,c follows [ ]a,c standards for networking for all [ ]a,c layers of the OSI model including MAC address and configurable IP address through [ ]a,c protocol. The protocol to communicate over the [ ]a,c.

a,c

[

]

Figure 2-13. [ ]a,c

a,c

[

]

Figure 2-14. [ ]a,c

2.2.4 Cabinet Status Interface (Westinghouse Drawing 2C48499, Reference 6)

The cabinet status interface assembly has two functions: provide a single termination location for cabinet status wiring and monitor temperature through use of an analog temperature sensor, which outputs a voltage proportional to the air temperature within the cabinet when supplied with power. Figure 2-15 and Figure 2-16 show front and side views of the cabinet status interface panel. All status signals input to the cabinet status interface and the temperature sensor output are sent to the datalink modules on the SPE chassis, where all analog signals are converted to digital values, and all status information is communicated to the external server.

a,c

Figure 2-15. [ ]a,c

a,c

Figure 2-16. [ ]a,c

2.2.5 High Temperature Cutout Assembly (Westinghouse Drawing 10042D45, Reference 7)

The function of the high temperature cutout is to shut off power to cabinet components when the temperature rises above [ ]^{a,c} to prevent equipment damage. Table 2-1 shows the maximum temperature ratings of each cabinet component. Figure 2-17 and Figure 2-18 show front and side views of the high temperature cutout assembly. The purpose of shutting off the power is to protect the cabinet electronics in the case of a loss of cooling. In the case of a high temperature, the temperature switch on the high temperature cutout closes, energizing the relay and opening the connection between the AC line filter panel and the power supply panel. Once the temperature has dropped sufficiently [ ]^{a,c}, the high temperature cutout can only be reset by cycling cabinet power. This can be done locally using the breaker on the power input line filter panel or remotely using a circuit breaker on the power feed to the cabinet.

[

Table 2-1 [ ]^{a,c}

]^{a,c}

a,c

Figure 2-17. [ ]a,c

a,c

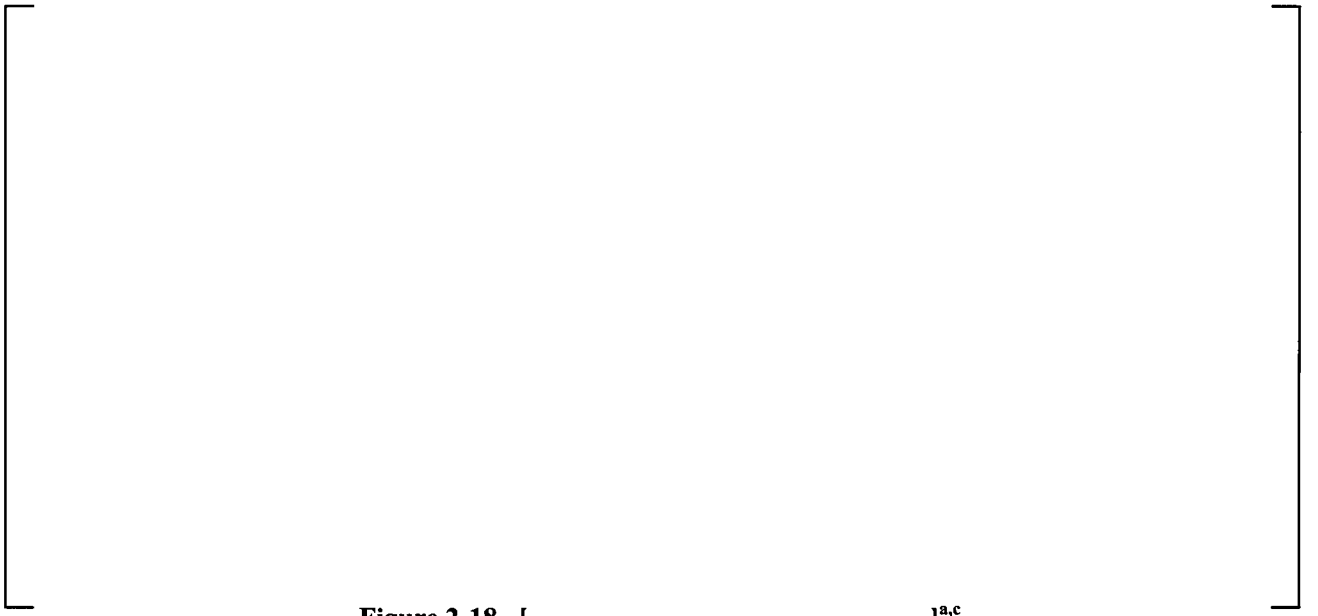


Figure 2-18. [ ]a,c

2.2.6 Power Input Line Filter Assembly (Westinghouse Drawing 10042D05, Reference 8)

The function of the line filter assembly is to protect the cabinet from faults on the power line, and to protect the power line from faults within the cabinet. Figure 2-19 shows the front view of the power input line filter assembly. The power first is connected through a circuit breaker to protect against overcurrent, then through a surge suppressor to protect against short duration overvoltage. The final component in the line filter assembly is a line filter, which is designed to limit the harmonics on the power line caused by the cabinet power supplies.

a,c

Figure 2-19. [ ]^{a,c}

2.2.7 DC Distribution Assembly (Westinghouse Drawing 10043D32, Reference 9)

The functions of the DC distribution assembly are to distribute DC power between the various electrical components within the cabinet, to provide an easy method to control the power to individual components or groups of components, and to provide overcurrent protection on those same components and groups of components. Figure 2-20 shows the front view of the DC distribution panel.

a,c

[

]

Figure 2-20. [ ]^{a,c}

The circuit breakers on the DC distribution assembly and the components controlled by them are listed in Table 2-2.

Table 2-2 [ ]^{a,c} a,c

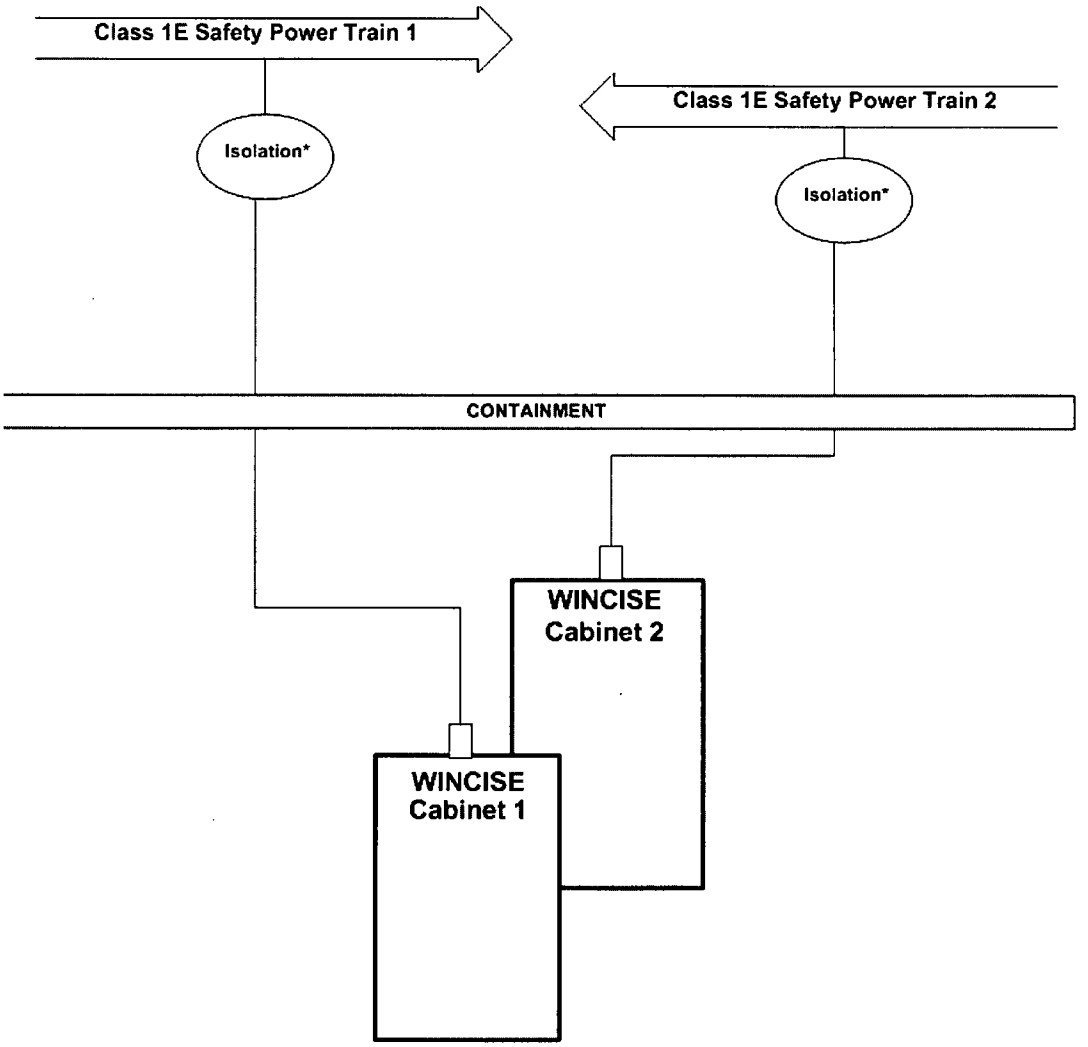
2.3 EQUIPMENT DATA

2.3.1 Equipment Power Requirements

Each WBT WINCISE SPS cabinet must be supplied with single phase AC power from a Safety Class 1E train through a qualified isolation device external to the cabinet, with the following requirements:

Table 2-3 [ ]^{a,c} a,c

The use of power supplied by the Safety Power Train eliminates any credible single fault in the cabinet's power supplies that could reduce the number of valid Core Exit Thermocouples (CETs) available in the IITAs. Figure 2-21 shows the external power supply to the non-safety WINCISE SPS cabinets which is consistent with IEEE 384-1981 (Reference 3).



- Limit voltage out of isolation to be no greater than 264VAC (rating of power supply) to protect cabinets in case of a fault.
- AC power lines to be run in dedicated shielded conduit

* Isolation per IEEE 384. (Refer to Figure 1, item 2)

Figure 2-21. External Power Supply

2.3.2 Equipment Physical Parameters

See Appendix C, Westinghouse Drawing 10044E76, "Watts Bar 2 Cabinet Outline & Installation" for details on the WINCISE SPS cabinet physical parameters.

Note

[

]^{a,c}

2.3.3 Environmental Requirements

The following environmental requirements apply to the WINCISE SPS cabinets.

[

Table 2-4 [ ]^{a,c}	

]^{a,c}

3 REFERENCES

1. WNA-PS-00016-GEN, Rev. 5, "Standard Acronyms and Definitions," Westinghouse Electric Company LLC.

2. 3D91845, Rev. 5, "Standard IIS Signal Processing Electronics Chassis Assembly," Westinghouse Electric Company LLC.

3. IEEE Standard 384-1981, "IEEE Standard Criteria for Independence of Class 1E Equipment and Circuits," Institute of Electrical and Electronics Engineers, Inc., 1981.

4. 10004D05, Rev. 2, "Watts Bar Unit 2 WINCISE Power Supply Panel Assembly," Westinghouse Electric Company LLC.

5. 10043D18, Rev. 6, "Standard Media Converter Assembly," Westinghouse Electric Company LLC.

6. 2C48499, Rev. 3, "Standard Safety Cabinet Status Interface Assembly," Westinghouse Electric Company LLC.

7. 10042D45, Rev. 4, "Standard IIS High Temperature Cutout Assembly," Westinghouse Electric Company LLC.

8. 10042D05, Rev. 12, "Standard Safety Power Input Line Filter Panel Assembly," Westinghouse Electric Company LLC.

9. 10043D32, Rev. 4, "Standard IIS DC Distribution Assembly," Westinghouse Electric Company LLC.

10. 10044E66, Rev. 1, "Watts Bar Unit 2 WINCISE Cabinet Assembly," Westinghouse Electric Company LLC.

11. 10041D57, Rev. 3, "Standard IIS Communication Cable Assembly," Westinghouse Electric Company LLC.

12. WNA-GO-00075-WBT, Rev. 1, "WINCISE Signal Processing System Cabinet Operation & Maintenance Manual," Westinghouse Electric Company LLC.

Attachment 12

Westinghouse Electric Company CAW-11-3218,
Application for Withholding Proprietary Information from Public Disclosure,
WCAP-17458-P, Revision 0, "WINCISE™ Signal Processing System Cabinet Operation & Maintenance Manual," (Proprietary)

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Proj letter: WBT-D-3331

CAW-11-3218

July 28, 2011

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: WCAP-17458-P, Revision 0, "WINCISE™ Signal Processing System Cabinet Operation & Maintenance Manual" (Proprietary)

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-11-3218 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-11-3218, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company LLC, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

BAMeuer /for

J. A. Gresham, Manager
Regulatory Compliance

Enclosures

CAW-11-3218

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared B. F. Maurer, 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:

B. F. Maurer, Manager
ABWR Licensing

Sworn to and subscribed before me
this 28th day of July 2011

Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Cynthia Olesky, Notary Public
Manor Boro, Westmoreland County
My Commission Expires July 16, 2014
Member. Pennsylvania Association of Notaries

(1) I am Manager, ABWR 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 WCAP-17458-P, Revision 0, "WINCISE™ Signal Processing System Cabinet Operation & Maintenance Manual" (Proprietary), dated July 2011, 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 Incore Instrument System (IIS) and may be used only for that purpose.

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

(a) Assist the customer in providing technical licensing information to the NRC that is required for approval of the Watts Bar Nuclear Unit 2 IIS System.

Further this information has substantial commercial value as follows:

(a) Westinghouse plans to sell the use of similar information to its customers for the purpose of licensing in-core instrumentation systems.

(b) Its use by a competitor would improve his competitive position in the development and licensing of a similar product.

(c) The information requested to be withheld reveals the distinguishing aspects of a design 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, analysis 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

Tennessee Valley Authority

Letter for Transmittal to the NRC

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

Enclosed are:

1. __ copies of WCAP-17458-P, Revision 0, "WINCISE™ Signal Processing System Cabinet Operation & Maintenance Manual" (Proprietary)

2. __ copies of WCAP-17458-NP, Revision 0, "WINCISE™ Signal Processing System Cabinet Operation & Maintenance Manual" (Non-Proprietary)

Also enclosed is the Westinghouse Application for Withholding Proprietary Information from Public Disclosure CAW-11-3218, 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-11-3218 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company LLC, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.