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Revision 1

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Westinghouse Generic Setpoint Control Program Recommendations

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C. R. Tuley*
Setpoints and Control Systems

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Reviewer: T. P. Williams*
Setpoints and Control Systems

Approved: M. P. Drudy, Manager*
Setpoints and Control Systems

*Electronically approved records are authenticated in the electronic document management system.

Westinghouse Electric Company LLC
1000 Westinghouse Drive
Cranberry Township, PA 16066, USA

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1 INTRODUCTION

Westinghouse Nuclear Steam Supply Systems (NSSS) and Advanced Plants (**AP1000**®[1] plant) utilize a large number of instruments for protection, control, Post-Accident Monitoring System (PAMS), indication (computer and control board), alarm and Balance Of Plant (BOP) functions. NSSS and **AP1000** protection and PAMS functions are typically listed in the plant Technical Specifications e.g., NUREG-1431 Tables 3.3.1-1, 3.3.2-1, and 3.3.3-1 (Reference 23). Chapter 7 of the NSSS Updated Final Safety Analysis Report (UFSAR) and **AP1000** Design Control Document (DCD) define typical channel functional requirements, including the channel instrument uncertainty. The channel instrument uncertainty is based upon a calculation that models defined characteristics for the function (process errors, sensor, process rack, plant computer, indication and alarm), scaling of the channel, calibration, surveillance and maintenance of the instrumentation. Two U. S. Nuclear Regulatory Commission (NRC) documents identify the acceptability of the use of an approved Setpoint Control Program (SCP):

- Final Interim Staff Guidance - 8 (ISG-08) (Reference 1) – Option 3, for Advanced Plants, and
- Technical Specification Task Force (TSTF) Traveler TSTF-493, Revision 4 (TSTF-493) (Reference 2) – Option B, for current NSSS plants.

The information contained on the following pages provides the SCP characteristics Westinghouse believes are necessary to control setpoint design input and methodology assumptions inherent in the Westinghouse Setpoint Methodology (WSM).

The WSM has been defined in the past in a plant specific WCAP for current NSSS plants and WCAP-16361-P (Reference 3) for the **AP1000** plant. WCAP-17504-P Revision 1 (Reference 20) is the generic Westinghouse document that describes the current WSM that addresses DG-1141, Draft Regulatory Guide (RG) 1.105 Revision 4 (Reference 32) requirements and is directly linked to the SCP requirements. Typically, a current plant specific document contains four sections:

1. a description of the basic uncertainty algorithm,
2. uncertainty term definitions,
3. tables providing function specific uncertainty calculations, and
4. a short description of the application of the methodology.

The primary purpose of a typical plant specific WSM (limited to protection functions) is to; 1) determine the Nominal Trip Setpoint (NTS) for a protection function, given a Safety Analysis Limit (SAL) defined in the plant safety analyses, documented in the plant UFSAR or DCD, or 2) demonstrate the adequacy of an existing NTS for a given SAL. This is accomplished by accounting for all appropriate instrument uncertainties, both sensor and process racks, process effects (PMA terms) and demonstrating margin

[1] **AP1000** is a trademark or registered trademark of Westinghouse Electric Company LLC, its affiliates and/or subsidiaries in the United States of America and may be registered in other countries throughout the world. All rights reserved. Unauthorized use is strictly prohibited. Other names may be trademarks of their respective owners.

between the NTS and the SAL in percent instrument span. However, the WSM is only part of the process. Inherent assumptions of the WSM are:

[a,c

]

Proceeding through this process provides assurance, at the appropriate probability and confidence level (95/95 for protection [

]^{a,c} that a function will perform as designed within the modeling of the safety analyses.

The SCP noted in ISG-08 (Reference 1) is designed to meet the NRC guidance provided by BTP 7-12, Revision 5 (Reference 4), DG-1141, Draft RG 1.105 Revision 4 (Reference 32) and NRC Staff Guidance for License Amendment Requests to Implement a TSTF-493 Option B Setpoint Control Program (Reference 30). The means by which the acceptance criteria of BTP 7-12 are satisfied through the Westinghouse SCP recommendations are identified in Appendix A. The means by which the information noted in BTP 7-12 review procedures are satisfied are identified in Appendix B. The means by which the information noted in Reference 30 are satisfied through the Westinghouse SCP recommendations are identified in LTR-NRC-15-37, "Westinghouse Responses to U.S. Nuclear Regulatory Commission Request for Additional Information for the Topical Reports (TRs) WCAP-17503-P/WCAP-17503-NP,

Revision 0, 'Westinghouse Generic Setpoint Control Program Recommendations' and WCAP-17504-P/WCAP-17504-NP, Revision 0, 'Westinghouse Generic Setpoint Methodology' (TAC No. ME8115)" (Reference 31), specifically, the Westinghouse response to NRC RAI question 2 on WCAP-17503 Revision 0. The WSM, in plant specific form, has been reviewed by the NRC many times, the latest being a review of WCAP-16361-P (Reference 3). The NRC's safety evaluation of this WCAP is dated August 20, 2007 (Reference 6). The basic methodology utilized in WCAP-16361-P (Reference 3) and WCAP-17504-P Revision 1 (Reference 20) is consistent with that noted in ANSI/ISA-67.04.01-2006 (R2011) (Reference 7). Information contained in the International Society of Automation (ISA) recommended practice, the latest version of the document being ISA-RP67.04.02-2010 (Reference 8), was also considered in the development and evolution of the WSM.

As previously noted, the SCP and WSM specifically address the functions identified in plant Technical Specifications, e.g., NUREG-1431 Tables 3.3.1-1, 3.3.2-1 and 3.3.3-1 (Reference 23). [

]^{a,c} Uncertainty calculations and the subsequent NTS determination for functions of a lesser significance utilize a graded approach of [ ]^{a,c} similar to that described in ISA-TR67.04.01-2005 (Reference 9), i.e., 95/95, [ ]^{a,c} Following the steps outlined in this SCP for the maintenance of setpoint design input control ensures that the plant remains within the design analyses through the life of the plant.

A process flow diagram is provided below for ease in visualization of the SCP.

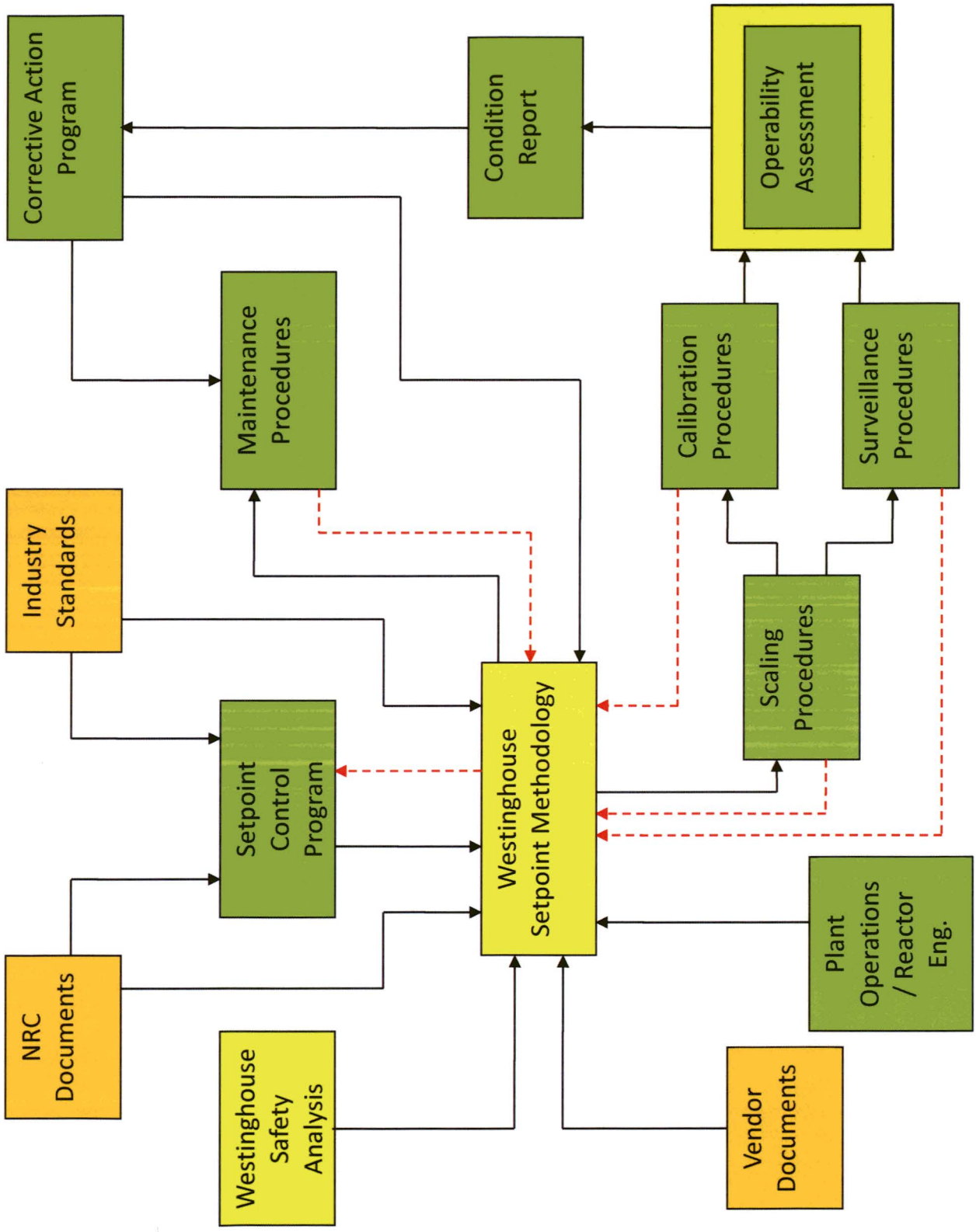

Figure 1-1 Westinghouse Setpoint Control Program Process Flow Diagram

2 PROGRAM GOALS AND OBJECTIVE

The Westinghouse SCP assures the control of critical instrumentation design input parameters, such that the plant remains within the design constraints and safety analyses assumptions during all modes of plant operation, both normal and expected transient conditions, e.g., Steam Generator and Pressurizer Level functions, and within the initial condition assumptions for abnormal events and accident conditions throughout the life of the plant. To achieve these goals, the NTS values are determined, considering process effects and instrument uncertainties, such that relevant safety features can be either automatically initiated or an operator may take appropriate action. This program is also implemented to assure compliance with applicable regulatory requirements and expectations.

To assure appropriate Instrumentation and Control (I&C) equipment operability within the assumptions of the WSM, the SCP will:

[ ] a,c

Thus, the SCP provides a means of continuous evaluation of changes to equipment, procedures and processes that provide design input to the WSM.

This document describes the scope of the SCP and provides insight to the hierarchy of the various components of the SCP.

3 SCOPE

This document defines the SCP components needed and notes the requirements of each major activity. Detailed descriptions of the various plant processes and plant administrative controls are not provided as these will be provided on a plant specific basis. However, key points and functions are identified to provide an understanding of the purpose of each component of the SCP. Further definition of each of the plant processes will be provided via the generation of reports or procedures or implementation plans that are produced on a plant specific basis. The sections that follow note the major SCP elements and subsequent descriptions for the Westinghouse SCP. Where appropriate; calibration, surveillance and operability acceptance criteria are identified.

[ ] a,c

The SCP addresses credible plant operations that are important for the safety of the plant as well as accident conditions required to be considered as a part of the nuclear power plant design. This includes:

[ ] a,c

The SCP covers the utilization of the WSM, the determination of the instrument channel uncertainty, the calculation of the 10 CFR 50.36 Limiting Safety System Setting (LSSS), NTS for the WSM, [

] a,c

The SCP starts with the functional requirements, initially defined by Westinghouse, or required by the NRC or industry, [ ]a,c

[

]^{a,c} It then continues through the utilization of the WSM to determine the NTS and operability criteria for each function. The scaling program is executed to provide the correct calibration and display of a signal on qualified I&C equipment. Finally, it defines the process of maintaining the setpoints by the surveillance and maintenance of setpoints and instrumentation.

Issues that can affect the instrument uncertainty calculation for one or more protection functions or control functions, and thus, should cause uncertainty re-evaluation within the SCP are changes in any of the following:

[a,c

]

[ ] a,c

Specific details of the SCP, WSM, NTS determination, the scaling program, or the surveillance or maintenance procedures of setpoints and instruments are not provided in this document. These details are described in the appropriate documents, under administrative controls, that result from the SCP, such as the WSM topical report, e.g., Reference 20, instrument uncertainty calculation notes; calibration, surveillance and maintenance procedures, and plant CAP description.

4 WESTINGHOUSE SETPOINT METHODOLOGY DEFINITIONS

The WSM is explained in the generic report, Reference 20, or a plant specific topical report, e.g., Reference 3 for the **AP1000** plant. Inherent in any discussion of an SCP are setpoint methodology terms. To assure a common understanding for this discussion, the necessary terms are defined below in alphabetical order, excerpted from WCAP-17504 Revision 1 (Reference 20).

- **As Found** – The condition in which a transmitter, instrument process rack module, or process instrument loop is found after a period of operation.

- **As Found Tolerance** (AFT) – The As Found limit identified in the plant surveillance procedures. This defines a significant operability criterion for the instrument process rack and the transmitter. It is a sufficient condition to satisfy an operability assessment for an instrument process rack. The AFT for the instrument process rack is the same as (equals) the As Left Tolerance (ALT) or instrument process rack calibration accuracy (RCA) defined in the uncertainty calculations, i.e., AFT = ALT = RCA. For process racks, the AFT is a two-sided parameter (±) about the NTS. It is also defined as RD and is reflected in process rack surveillance procedures as the "as found limit," which is applied in both directions, initially in the field about the desired calibration point (which establishes RD as an absolute drift parameter), and [ ]^{a,c} about the calibration As Left point (which establishes RD as a relative drift parameter).

[ ]^{a,c}

- **As Left** – The condition in which a transmitter, instrument process rack module, or process instrument loop is left after calibration or trip setpoint verification. This condition is typically better than the calibration accuracy for the piece of equipment.

- **As Left Tolerance** (ALT) – The As Left limit identified in the plant calibration procedures. This defines the initial operability criterion for the instrument process rack or the transmitter. It is a necessary condition to satisfy an operability assessment for an instrument process rack or transmitter. The ALT is defined as the appropriate calibration accuracy in the uncertainty calculations for the sensor or associated instrument process rack string and is initially based on the vendor's Reference Accuracy (RA). For process racks, the ALT is a two-sided parameter (±) equal to the RCA about the NTS. It is also reflected in process rack calibration procedures as the "as left limit," which is applied in both directions about the desired calibration points, e.g., 0 %, 25 %, 50 %, 75 % and 100 % span.

[ ]^{a,c}

- **Channel** – The sensing and process equipment, i.e., transmitter to bistable (analog process racks) or transmitter to trip output (digital process racks), for one input to the voting logic of a protection function. Westinghouse designs protection functions with voting logic made up of multiple channels, e.g., 2 out of 4 Steam Generator Level - Low-Low channels for one steam generator must have their bistables in the tripped condition for a Reactor Trip to be initiated. For control functions, a channel is the sensing and process equipment through the controller module. For indication functions, a channel is the sensing and process equipment through the indicator (control board or Plant Process Computer).

- **Channel Statistical Allowance** (CSA) – The combination of the various channel uncertainties via Square-Root-Sum-of-the-Squares (SRSS), statistical, or algebraic techniques. It includes instrument (both sensor and process rack) uncertainties and non-instrument related effects. This parameter is compared with the Total Allowance (TA) for determination of instrument channel margin. For a protection function, the uncertainties included in, and the conservatism of, the CSA algorithm results in a CSA magnitude that is calculated on a two-sided (±) 95 % probability / 95 % confidence level (95/95) basis.

- **Environmental Allowance** (EA) - The change in a process signal (transmitter or process rack output) due to adverse environmental conditions from a limiting design basis accident condition or seismic event. Typically this value is determined from a conservative set of enveloping conditions and may represent the following:

    - Temperature effects on a transmitter
    - Radiation effects on a transmitter
    - Seismic effects on a transmitter
    - Temperature effects on a level transmitter reference leg
    - Temperature effects on signal cable, splice, terminal block or connector insulation
    - Seismic effects on process racks.

a,c

[ ]

- **Margin** – The calculated difference (in % instrument span) between the TA and the CSA.

  Margin = TA – CSA

  Margin is defined to be a non-negative number, i.e., Margin ≥ 0 % span.

- **Nominal Trip Setpoint** (NTS) – The trip setpoint defined in the WSM and reflected in the plant procedures. This value is the nominal value programmed into the digital instrument process racks or the nominal value to which the bistable is set (as accurately as reasonably achievable) for analog instrument process racks. The NTS is based on engineering judgement (to arrive at a Margin ≥ 0 % span), or a historical value, that has been demonstrated over time to result in adequate operational margin. Based on the requirements of 10 CFR 50.36(c)(1)(ii)(A), Westinghouse defines the NTS as the LSSS for the RTS and ESFAS functions listed in the plant Technical Specifications, e.g., Tables 3.3.1-1 and 3.3.2.-1 of, NUREG-1431 (Reference 23) or the **AP1000** plant (Reference 10).

- **Rack Calibration Accuracy** (RCA) – The two-sided (±) calibration tolerance of the process racks as reflected by the ALT in the plant calibration procedures. The RCA is defined at multiple points across the calibration range of the channel, e.g., 0 %, 25 %, 50 %, 75 % and 100 % span for input modules, and specifically at the NTS for the bistable or trip module. [

  ]^{a,c}

  It is assumed that the individual modules in a loop are calibrated to a particular tolerance and that the process loop (as a string) is verified to be calibrated to a specific tolerance (RCA). [

  ]^{a,c}

- **Rack Drift** (RD) – The change in input-output relationship (As Found – As Left) over a period of time at reference conditions, e.g., at constant temperature. [

  ]^{a,c}

  Recording and trending of the As Found condition of the process racks (RD = (As Found - As Left)) consistent with the process described in Section 4 of WCAP-17504 Revision 1 (Reference 20) is necessary to assure conformance with the WSM basic assumptions and the DG-1141 Draft RG 1.105 (Revision 4) required 95/95 basis. (As Found – As Left) is defined as [ ]^{a,c}

- **Reference Accuracy** – "accuracy rating" as defined in ISA-51.1-1979 (R1993) (Reference 11, page 12), specifically as applied to Note 2 and Note 3 for a sensor/transmitter or an instrument process loop string (channel). The magnitude is typically defined in a manufacturer's specification data sheet. Inherent in this definition is the verification of the following under a set of reference conditions; Conformity (Reference 11, page 16), i.e., Linearity (Reference 11, page 39), Hysteresis (Reference 11, page 36) and Repeatability (Reference 11, page 49). The determination of the components of Reference Accuracy require the performance of three passes up and three passes down across the instrument span to gather sufficient data (Reference 11, page 64, Table 3). This parameter is explicitly verified for each sensor/transmitter or channel at least [ ]^{a,c} as part of the TSTF-493 trending program.

- **Safety Analysis Limit** (SAL) – The parameter value identified in the plant safety analyses or other plant operating limit at which a reactor trip or actuation function is assumed to be initiated. The SAL is typically defined in Chapter 15 of the UFSAR (current operating plants) or Tier 2, Chapter 15, Table 15.0-4a of the **AP1000** plant (Reference 10). Actual SAL values are determined, or confirmed, by review of the plant safety analyses.

- **Sensor Calibration Accuracy** (SCA) – The two-sided (±) calibration tolerance for a sensor or transmitter as defined by the ALT in the plant calibration procedures. The SCA is defined at multiple points across the calibration range of the channel, e.g., 0 %, 25 %, 50 %, 75 % and 100 % span. [

]^{a,c}

- **Sensor Drift** (SD) – The change in input-output relationship (As Found – As Left) over a period of time at reference calibration conditions, e.g., at constant temperature. Recording and trending of the As Found condition of the sensor or transmitter (SD = (As Found – As Left)) consistent with the process described in Section 4 of WCAP-17504 Revision 1 (Reference 20) is necessary to assure conformance with the uncertainty calculation basic assumptions and the DG-1141 Draft RG 1.105 (Revision 4) required 95/95 basis. (As Found – As Left) is defined as [

]^{a,c}

- **Square-Root-Sum-of-the-Squares** (SRSS) –

$$\varepsilon = \sqrt{(a)^2 + (b)^2 + (c)^2}$$

As approved for use in setpoint calculations by ANSI/ISA-67.04.01-2006 (R2011)(Reference 7).

- **Total Allowance** (TA) – The absolute value of the difference (in % instrument span) between the SAL and the NTS.

$$TA = |SAL - NTS|$$

- **Trend** – The evaluation of [ ]^{a,c} consistent with the process described in Section 4 of WCAP-17504 Revision 1 (Reference 20) on a periodic basis [ ]^{a,c} utilizing As Left (gathered utilizing three passes up and three passes down across the instrument span) and As Found [ ]^{a,c} plant data for SCA, SD, RCA and RD for each control, protection and indication function to verify that the statistically based assumptions of the uncertainty calculations and the DG-1141 Draft RG 1.105 (Revision 4) required 95/95 basis are satisfied.

5 INPUTS TO THE WESTINGHOUSE SETPOINT METHODOLOGY AND THE WESTINGHOUSE SETPOINT CONTROL PROGRAM

The primary inputs to the WSM, and thus the SCP, are the instrumentation Functional Requirements documents for the protection system, control system and indication for the primary side, secondary side and safety-related equipment. These documents are the combined efforts of instrumentation engineers (sensor and process rack), analysts (cognizant of the safety analyses and transient analyses) and operations engineers. Reviews and evaluations of industry, NRC and vendor documentation are performed in conjunction with performance of engineering calculations to determine the control and protection system responses. Noted below are various documents that have bearing or influence on the determination or maintenance of protection system, control system or indication systems and their setpoints.

5.1 INDUSTRY DOCUMENTS

Noted below are industry documents Westinghouse has considered in the WSM or SCP, depending on the transmitters installed. It should not be construed that consideration implies unqualified endorsement. Westinghouse reviews the applicability of the vendor information to the uncertainty calculations and uses the information as appropriate.

5.1.1 ANSI/ISA-67.04.01-2006 (R2011)

(Reference 7)

In general, Westinghouse endorses this standard.

- Specifically, the WSM utilizes the SRSS and algebraic combination techniques noted in Section 4.5.

- The WSM does not utilize the Limiting Trip Setpoint (LTSP) concept noted in Sections 4.3 and 4.4. Instead, the WSM utilizes the Nominal Trip Setpoint (NTSP in the standard, NTS in Westinghouse nomenclature) as the basis for setpoint determination.

5.1.2 ISA-RP67.04.02-2010

(Reference 8)

Westinghouse utilizes the recommended practice (RP) as a general guide only.

- As with Reference 7, the WSM does not utilize the LTSP concept described in this document. Instead, the WSM utilizes the NTS as the basis for setpoint determination.

- The WSM does not utilize the periodic test acceptance criteria (PTAC) magnitude identified in Section 8.1 of the RP. Evaluation of drift data for process racks for multiple plants and rack models, both analog and digital, has concluded that the more appropriate magnitude is the AFT as

defined by; AFT = ALT = RCA. The WSM has also adopted a more conservative ALT definition than the RP, as defined by; ALT = RCA.

- [
  ]^{a,c}

5.1.3 ISA-TR67.04.09-2005

(Reference 9)

Westinghouse endorses the concept of a Graded Approach. With respect to WSM uncertainty calculations, the following are utilized:

1. Two-sided 95/95 calculations for all RTS/ESFAS protection functions identified in the Technical Specifications, e.g., Tables 3.3.1-1 and 3.3.2-1 of NUREG-1431 (Reference 23) and the **AP1000** plant (Reference 10), [
   ]^{a,c}
2. [
   ]^{a,c}
3. [ ]^{a,c}

5.1.4 ISA 51.1-1979 (R1993)

(Reference 11)

The WSM utilizes this standard for definition of instrumentation parameter terms.

5.1.5 ISA 67.06.01-2002

(Reference 12)

Westinghouse considers this standard, recognizing that specific methods between the annexes and the WSM may differ. Westinghouse suggests Annex G, Online Monitoring, requires additional development prior to utilization to justify increased surveillance intervals for transmitters.

5.1.6 IEEE-279-1971

(Reference 28)

Westinghouse protection systems are designed to be in conformance with this standard. The WSM identifies the levels at which protective action is required, i.e., the NTS.

5.1.7 IEEE-338-2006

(Reference 13)

Westinghouse protection systems are designed to be in conformance with this standard. The identified testing requirements are considered in the WSM, e.g., functional tests, channel calibration tests and test methods.

5.1.8 IEEE-498-1990

(Reference 29)

Westinghouse agrees with the requirements of this standard. Specifically, Westinghouse concurs with the requirement that the accuracy of the working standard should be four times better than the accuracy of the Measurement and Test Equipment (M&TE) (Figure 1 of the standard). [

]^{a,c}

5.1.9 IEEE-603-2009

(Reference 14)

Westinghouse protection systems are designed to be in conformance with this standard. The protection system process racks are designed to allow periodic testing and calibration of channels via the introduction of known inputs. The WSM reflects the most common periodic testing methods utilized in the plant. The WSM documents the methodology that provides the basis for the TA and identifies the basis for the utilized SAL.

5.1.10 Technical Specifications Task Force Traveler TSTF-493, Revision 4

(Reference 2)

The proposed Westinghouse generic SCP is in conformance with TSTF-493, Revision 4, Option B. Based on the WSM, the SCP does not utilize the concepts of LTSP and Allowable Value (AV), but rather defines an operable channel based on the AFT and ALT about the NTS. The NTS, AFT and ALT are defined, and controlled, for each protection function process rack channel as part of the SCP. The AFT and ALT for transmitters are also defined, and controlled, for each protection function as part of the SCP.

5.1.11 Emergency Response Guidelines

The Emergency Response Guidelines (ERGs) specify operator action points where specific operations are performed to stabilize the plant and limit the consequences of an event. These action points may be determined utilizing the WSM and accounting for the environmental and process conditions that exist at that time. The determination, control and maintenance of these operator action points would be contained within the SCP.

5.2 NRC DOCUMENTS

Noted below are NRC documents Westinghouse has considered in the WSM or SCP.

5.2.1 RG 1.105 Revision 3

(Reference 5)

The WSM is in general compliance with the requirements of this RG. However, Westinghouse does take exception to the definition of the LSSS as the Allowable Value. As noted previously, the WSM defines the NTS as the LSSS. The NRC Staff concerns identified in the "Discussion" section of the RG are addressed in the following manner:

1. Limited drift data evaluated – Reference 20 notes the number of calibration/drift intervals utilized in the Westinghouse calibration/drift evaluation process.

2. Drift data accounts for all data points – [

]^{a,c}

3. Large number of data points for limited number of channels – Reference 20 provides support for the claim that the Westinghouse calibration/drift evaluation process is appropriate. [

]^{a,c}

4. Flawed outlier analysis – Reference 20 provides the Westinghouse outlier evaluation process, [

]^{a,c}

5. Time dependency found to be negligible – [

]^{a,c} Rather, Reference 20 provides the process Westinghouse follows to establish the absence/presence of a significant time dependent drift characteristic and follows this process for plant specific drift evaluations.

6. Assumption of Normal distribution – Reference 20 identifies the process Westinghouse follows with regards to normality. [

]^{a,c}

7. Drift evaluations utilize incomplete data sets – [

]^{a,c}

8. Drift projections do not include appropriate projection penalties – Reference 20 describes the Westinghouse drift evaluation process, [

]^{a,c}

9. Process or installation variables not addressed – [

]^{a,c}

10. Assumptions for instrumentation or process effects not verified or surveillance performed – [ ]^{a,c}

11. Pooling of generic drift data with plant specific data – [

]^{a,c}

12. All applicable data not utilized – see (7) above.

5.2.2 Draft RG DG-1141, Proposed RG 1.105 Revision 4 (ML081630179)

(Reference 32)

The WSM, as defined in WCAP-17504-P Revision 1 (Reference 20), is in general compliance with the requirements of this proposed Regulatory Guide revision.

5.2.3 RG 1.97

(Reference 24)

The WSM is appropriate and applicable for instrumentation uncertainty determination for monitoring instrumentation required by RG 1.97, whichever revision is the licensing basis for the plant.

5.2.4 **BTP 7-12 Revision 5**

(Reference 4)

BTP 7-12 Revision 5 provides guidance on the establishment and maintenance of setpoints. The means by which the acceptance criteria of BTP 7-12 are satisfied by the Westinghouse SCP are provided in this document and are identified in Appendix A.

5.2.5 **ISG-08**

(Reference 1)

With respect to the **AP1000** plant, ISG-08 requires one of three options be met for information contained in the plant technical specifications prior to issuance of the Combined Operating License (COL):

1) Provide a plant specific value.

2) Provide a value that bounds the plant-specific value, but by which the plant may be safely operated (i.e., a usable bounding value).

3) Establish a PTS Section 5.5 or 5.6 administrative controls program or report.

Such an administrative controls technical specification as described in option (3) shall require (a) use of an NRC reviewed and approved methodology for determining the plant-specific value, (b) establishment of an associated document, outside the PTS, in which the relocated plant-specific value shall be recorded and maintained, and (c) any other information or restrictions the NRC staff deems necessary and appropriate to satisfy 10 CFR 50.36. For example, some COL applicants have proposed an administrative controls technical specification for a set point control program to satisfy 10 CFR 50.36(c)(1)(ii)(A) in lieu of specifying explicit values for the limiting safety system settings in the PTS.

Options (2) and (3) should allow an applicant to provide the necessary information without relying on information that is impractical to obtain before the time of COL issuance (i.e., information such as design detail, equipment selection, as-built system configuration, and system test results). Option (2) may be the most time-efficient approach to provide to the NRC staff for review.

As transmitter and process rack uncertainties had not been determined at a level sufficient to satisfy Option 1 and Option 2 was determined to be a burden to the plant, Option 3 was selected. This was reflected in Chapter 16, Specification 5.5.14 of Reference 10. A plant referencing this document (WCAP-17503-P Revision 1) that provides separate plant specific documents providing details of the plant specific SCP for NRC review, meets this requirement.

5.2.6 GL 91-04

(Reference 15)

The Westinghouse calibration and drift data evaluation process has been reviewed and found acceptable by the NRC for several 24 month surveillance cycle extensions. Reference 20 is the most definitive documentation of the Westinghouse calibration and drift evaluation process. The Westinghouse SCP requirements for evaluation of As Left and As Found data are consistent with the requirements of GL 91-04.

5.2.7 RIS 2006-17

(Reference 21)

With respect to this document, the parameters; LTSP and AV have no equivalent in the WSM and are not utilized. Operability of the process racks and the transmitters are as defined in Section 5.6.3.

The LSSS is defined as the NTS in the WSM. With respect to the NRC guidance provided on test acceptance criteria about the NTS, Westinghouse utilizes the process rack reference accuracy (defined as RCA) only in the determination of the ALT and AFT, i.e., AFT = ALT = RCA for process racks.

5.2.8 Notice of Availability Supplement to NRC-2009-487, "NRC Staff Guidance for License Amendment Requests to Implement a TSTF-493 Option B Setpoint Control Program"

(Reference 30)

The means by which the information noted in Reference 30 are satisfied through the Westinghouse SCP recommendations are identified in LTR-NRC-15-37, "Westinghouse Responses to U.S. Nuclear Regulatory Commission Request for Additional Information for the Topical Reports (TRs) WCAP-17503-P/WCAP-17503-NP, Revision 0, 'Westinghouse Generic Setpoint Control Program Recommendations' and WCAP-17504-P/WCAP-17504-NP, Revision 0, 'Westinghouse Generic Setpoint Methodology' (TAC No. ME8115)" (Reference 31), specifically, the Westinghouse response to NRC RAI question 2 on WCAP-17503 Revision 0, see Appendix C.

5.3 VENDOR DOCUMENTS – TYPICAL

Noted below are typical industry equipment vendor documents Westinghouse considers in the WSM or SCP, depending on the transmitters installed. It should not be construed that consideration implies unqualified endorsement. Westinghouse reviews the applicability of the vendor information to the uncertainty calculations and uses the information as appropriate.

- Cameron/Barton®(2) Model 764 Differential Pressure Transmitter User Manual (Reference 16).

[2] Barton® is a registered trademark of Cameron International Corporation ("Cameron")

- Ultra/Weed Product Specifications Series N-E11 and N-E13 Electronic Pressure Transmitters (Reference 17).
- Rosemount 1154 Series H Alphaline®(3) Nuclear Pressure Transmitter (Reference 18).
- Ultra/Weed Product Specifications Model DTN2010 Pressure Transmitters (Reference 19).
- Fluke 8845A/8846A®(4) Digital Multimeter User's Manual (Reference 25).
- Keithley Model 2002®(5) Multimeter User's Manual (Reference 26).
- Heise®(6) 901A/901B Digital Pressure Indicator Installation and Operation Manual (Reference 27).

5.4 PLANT DOCUMENTS

5.4.1 Scaling Procedures/Calculations

The WSM receives input from the scaling procedures or calculations. Examples of scaling corrections are:

[ ] a,c

The As Left (calibration) and As Found (drift determination) limits are typically provided in the calibration and surveillance procedures but calculated via scaling calculations. The values from these procedures are input to the uncertainty calculations for an operating plant and thus the magnitudes can have an effect in the determination or acceptability evaluation of the NTS.

Therefore, the plant scaling calculations and procedures should not be modified without an evaluation of the potential effects on the associated function uncertainty calculation. The SCP shall assure that a formal hierarchy of review is established via the plant scaling procedures to confirm the potential

[3] Alphaline, Rosemount and the Rosemount logotype are registered trademarks of Rosemount Inc.

[4] Fluke is a registered trademark of the Fluke Corporation

[5] All Keithley product names are trademarks or registered trademarks of Keithley Instruments, Inc.

[6] Heise is a registered trademark of Dresser, Inc., Dresser Measurement

effects are addressed. The procedures necessary to achieve this hierarchy are contained in the plant SCP. [

]^{a,c}

5.4.2 Calibration Procedures

The WSM assumes that the plant calibration procedures confirm device operability via [

]^{a,c}

The WSM assumes that the more complex instrument process racks are string calibrated, or string verified if individual module calibration is performed. The WSM assumes the calibration is performed at multiple points across the instrument span. An instrument string or sensor that cannot be calibrated to within the ALT is declared inoperable and repair or replacement action is initiated. The assumptions of the WSM are confirmed as part of the uncertainty determination process. The SCA and RCA characteristics of the WSM are confirmed on a periodic basis via the trend program evaluation process of the ALT recorded values.

Operating plant Calibration procedures typically identify M&TE by make and model or equivalent accuracy that must be used in the performance of the procedure. The WSM reflects the accuracy of operating plant worst case M&TE or makes recommendations with regards to new plant M&TE, e.g., Digital Multimeter (DMM), digital pressure gauge, decade resistance box, for a given Calibration procedure. The SCP shall assure that a formal hierarchy of review is established via the plant Calibration procedures to address changes to M&TE used in the plant. The procedures necessary to achieve this hierarchy are contained in the plant SCP. [

]^{a,c}

[ ] a,c

5.4.3 Surveillance Procedures

The WSM assumes that the plant Surveillance procedures confirm device operability via verification that the instrument channel or sensor maintains operation within the AFT on a periodic basis. The WSM assumes that the As Found condition of the more complex instrument channels is determined on a string basis. The WSM assumes the surveillance is performed at multiple points across the instrument span. The assumptions of the WSM are confirmed as part of the uncertainty determination process. The SD and RD characteristics of the WSM are confirmed on a periodic basis [ ]^{a,c} via the trend program evaluation process of the recorded AFT and ALT values (AFT – ALT).

An instrument channel that is found:

1. Within the ALT = AFT = RCA is considered OPERABLE,

2. Outside the ALT = AFT = RCA and can be recalibrated to within the ALT is considered OPERABLE, but Suspect and should be observed closely via trending, for indications of additional drift outside tolerance. Such drift should result in the generation of a Condition Report and frequent drift should result in repair or replacement. Multiple instrument channels for a given function drifting in this manner should result in an evaluation of the drift characteristics of the RD term of the WSM.

3. Outside the ALT = AFT = RCA and cannot be recalibrated to within the ALT is considered INOPERABLE. A Condition Report should be generated and the instrument channel should be repaired or the failed component replaced to return the instrument channel to an OPERABLE condition.

A sensor that is found:

1. Within the ALT is considered OPERABLE,

2. Within the AFT, but outside the ALT, is considered OPERABLE and must be recalibrated to within the ALT,

3. Outside the AFT, but can be recalibrated to within the ALT, is considered OPERABLE, but Suspect and should be observed closely, via trending, for indications of additional drift outside tolerance. Such drift should result in generation of a Condition Report and frequent drift should result in repair or replacement. Multiple sensors for a given function drifting in this manner should result in an evaluation of the drift characteristics of the SD term of the WSM.

4. A sensor that cannot be recalibrated to within the ALT, regardless of the As Found condition, is considered INOPERABLE. A Condition Report should be generated and the device should be repaired or replaced to return the sensor to an OPERABLE condition.

Operating plant surveillance procedures typically identify M&TE by make and model or equivalent accuracy that must be used in the performance of the procedure. The WSM reflects the accuracy of operating plant worst case M&TE or makes recommendations with regards to new plant M&TE, e.g., DMM, digital pressure gauge, decade resistance box, for a given Surveillance procedure. It should be recognized that there are multiple means to identify the M&TE or the accuracy of M&TE that must be used in the performance of calibration or surveillance. The most straight forward approach is to explicitly identify in a Calibration or Surveillance procedure the minimum accuracy required, e.g., X psig, Y millivolts, Z Ohms. Another approach is to specify a specific device, e.g., Fluke 8842A on the 20 VDC range, Keithley 2000 on the 1 VDC range. In many cases when the latter approach is used the phrase "or equivalent," is also specified, to allow the use of an equal or more accurate device if the specified device is not available. The "or equivalent" M&TE may be used once equivalency (or better) has been established and documented. In the event that a transmitter or process rack is changed to a different model or vendor, the M&TE requirements may change. At which point, a thorough review of the M&TE requirements is in order. The SCP shall assure that a formal hierarchy of review is established via the plant Surveillance procedures to address changes to M&TE used in the plant. The procedures necessary to achieve this hierarchy are contained in the plant SCP. [

]^{a,c}

a,c

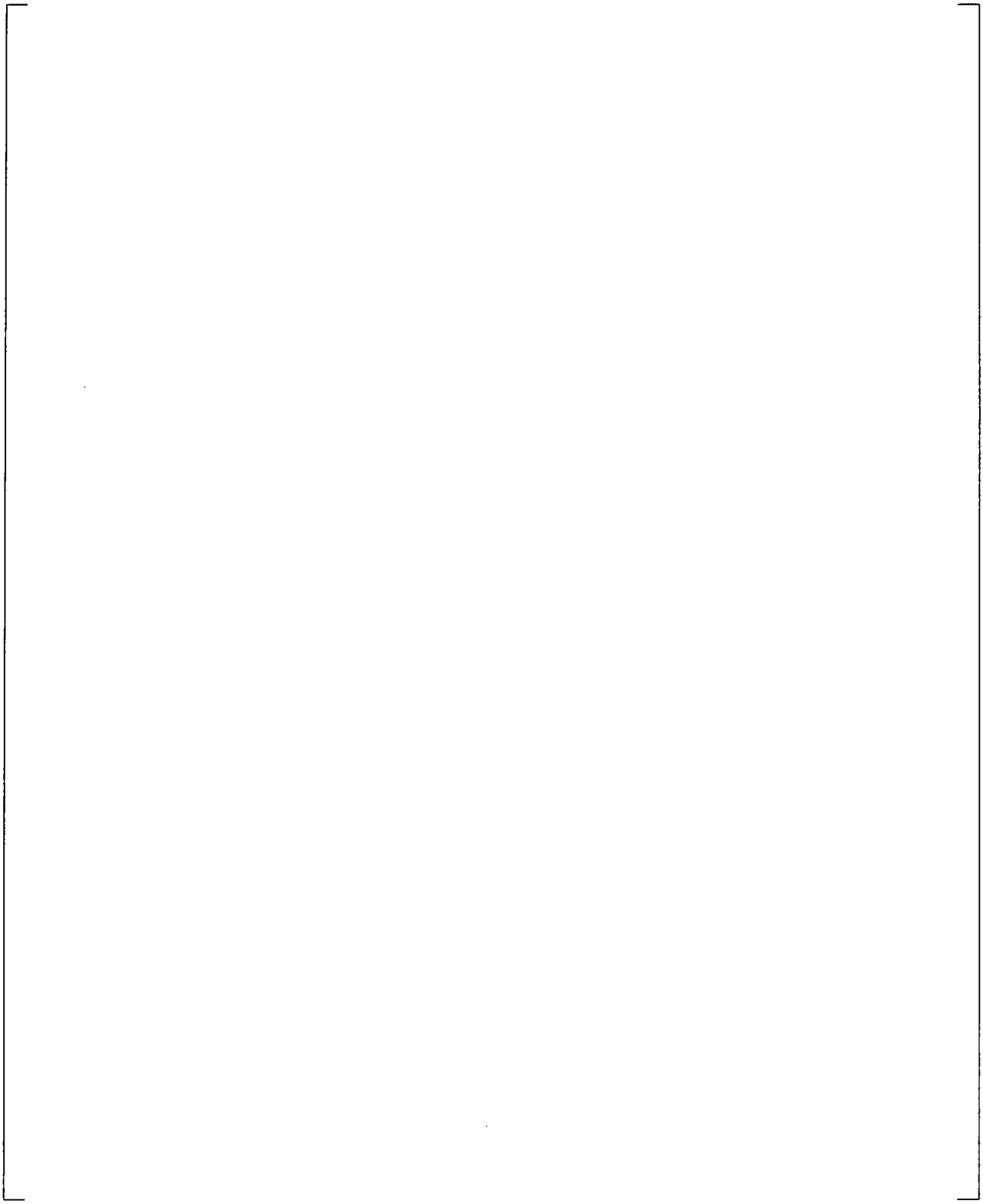

Figure 5-1 Plant Procedure Hierarchy Example Diagram

5.4.4 Corrective Action Program

The generation of a Condition Report should result in entering the Correction Action Program (CAP). The inability to satisfy the ALT or AFT for a given function should be trended within the CAP for feedback to the Maintenance Procedures and to the WSM. The inability to satisfy the ALT and AFT for a given function should result in evaluation of the adequacy of the RD and SD term characteristics and the subsequent effects on the uncertainty calculation, i.e., NTS and SAL.

5.4.5 Maintenance Procedures

The maintenance procedures provide input to the WSM via the performance of the sensor/transmitters and process racks. Confirmation that the hardware performs as designed and modeled in the uncertainty calculations, would result in no changes to the NTS or surveillance/calibration process. If it is found that abnormally high maintenance is necessary to keep equipment within specification, this could call into question the appropriateness of the various equipment uncertainty terms. The uncertainty term magnitudes are based on equipment design specifications and the inability to meet these magnitudes could call into question other uncertainty assumptions and equipment operability. Thus, feedback from the instrumentation maintenance program on these assumptions and how the equipment is operating is required. If new or different equipment, e.g., transmitter, process rack modules, M&TE, is installed or utilized, or significantly revised Calibration or Surveillance procedures are utilized, it is then necessary to evaluate the effects of such changes on the uncertainty calculation assumptions and results, and potentially the adequacy of the NTS, ALT and AFT values. Such changes should also be evaluated to determine potential effects on scaling procedures/calculations.

The opposite would be the fact that little or no recalibration is required to meet ALT/AFT values. This could suggest that the ALT/AFT values are not representative of expected equipment performance by being too large in magnitude. A 95/95 parameter is expected to be challenged on an occasional basis. If an AFT is never challenged, that is indicative of using a conservatively high magnitude in the uncertainty calculation but a non-conservatively high magnitude for a performance based operability criterion.

5.4.6 Plant Operations/Reactor Engineering

The WSM receives input, or feedback, from Plant Operations through the confirmation of acceptable AFT values. Indirectly this occurs through the channel check process performed by the Operators. If a channel deviates from its associated channels frequently, without equipment failure, this could be an indication that the AFT is not representative of the equipment performance, i.e., is too large in magnitude. Reactor Engineering would confirm that the allowed Incore/Excore ΔI mismatch magnitude is sufficient. This is influenced by the surveillance interval, i.e., the expected shift in ΔI as a function of core burnup.

5.4.7 Change Control Process

In order to maintain the uncertainty calculations of the WSM current during plant operation, the Change Control Process must determine and evaluate the effects of changes to: instrumentation

(transmitters, process racks, M&TE, control system design/approach), plant operating parameters (Thot, Tcold, flow rates, pressures), plant design (tap relocation, replacement steam generators, flow measurement methods, steam generator or vessel internals), operating philosophy (surveillance intervals, surveillance methods, calibration methods) and analyses (SAL, NTS, thermal design methodology). This evaluation process must require formal review of potential effects of plant changes and processes on the assumptions and values of the WSM. The SCP shall provide the formalization and linkage of the Change Control Process to the WSM calculations.

5.4.8 Administrative Controls

To assure interlocking of the various plant procedures and processes, an Administrative Controls program, with appropriate oversight and auditing must be present. This would typically be performed via a Quality program.

5.5 PLANT SAFETY ANALYSES

SALs are initially gathered from Chapter 15 of the plant UFSAR or DCD, e.g., Reference 10, and confirmed with the holder of the Analysis of Record (AOR). (In some older plants, the SALs are defined in Chapter 14.) [

]^{a,c} This information is utilized by the WSM in the form of SAL values [

]^{a,c}

5.6 INSTRUMENTATION TESTING

5.6.1 Instrumentation Qualification Testing

Design aspects of transmitter, process rack or other equipment, e.g., solid state relays, behavior are confirmed for Design Basis Event (DBE) conditions via qualification testing. This type of testing is typically limited in the number of devices tested and scope. [

]^{a,c} The results of the qualification testing are utilized in the WSM. The SCP shall provide the controls necessary to assure that replacement equipment meets or exceeds the same criteria. The areas covered in Westinghouse design basis qualification testing are:

1. Environmental

   a. Temperature – [

   ]^{a,c} This testing includes a bounding temperature for the maximum temperature expected for a high energy line break, typically a large steam line break.

   b. Radiation – the device design accuracy is confirmed for radiation exposure [

   ]^{a,c}

c. Submergence/high humidity – device survivability is confirmed for those transmitters that are required to operate in a high humidity environment and potential submergence.

2. Drift – [
]a,c

3. Seismic – survivability and design maximum error during bounding seismic acceleration testing is confirmed. [
]a,c

Items 1.a, 1.b, and 3 result in the definition of Environmental Allowance (EA) terms in the WSM. Item 2 results in the definition of [
]a,c

5.6.2 [ ]a,c

a,c

[

]

5.6.3 **Calibration and Surveillance Testing**

1. As Left Condition - Calibration Accuracy - Reference Accuracy verification – On a periodic basis the transmitter or process rack channel is calibrated. This calibration should verify the device accuracy, [ ]a,c and establish the As Left condition at multiple calibration points within the instrument calibration span, e.g., 0 %, 25 %, 50 %, 75 % and 100 % span, for multiple passes (three up/three down) for the next surveillance interval. When combined with previous As Left values, the trend characteristics of the reference accuracy of that device and function can be determined. Such trend data for an instrument channel (transmitter or process racks) [ ]a,c

[
]^{a,c} of the calibration process and thus, confirm the WSM uncertainty calculation assumption. The ability to calibrate is the first step in establishing the operability condition of the device or instrument channel.

2. As Found Condition – Drift – On a periodic basis the transmitter's or process rack channel's As Found condition should be determined at multiple calibration points within the instrument calibration span, e.g., 0 %, 25 %, 50 %, 75 % and 100 % span. The recording of the [
]^{a,c} in the increasing and decreasing span directions across the instrument span, when compared to the [ ]^{a,c} at the same points determines the instrument drift. When combined with previous drift data for that device or instrument channel, the trend characteristics of drift for that device or instrument channel can be determined. The device characteristics establish the performance of that single device or channel. [

]^{a,c} the WSM uncertainty calculation assumption of drift for the transmitter and/or process racks is confirmed. The magnitude of drift for a device is the second indication of the operability condition of the device or instrument channel.

5.7 CALIBRATION AND DRIFT DATA EVALUATION

The WSM (Reference 20) assumes that the SCA, RCA, SD and RD terms can be described as two-sided, random probability distribution functions. In the simplistic sense, the SRSS presumes that the distribution functions can be described as Normal. [

]^{a,c} However, changes in hardware (transmitters, process racks, M&TE), surveillance intervals or procedures can invalidate previous uncertainty calculation assumptions, depending on the degree of conservatism of said assumptions. Therefore, to maintain the 95/95 calculation basis of the individual uncertainty terms, as required by DG-1141 (Reference 32), periodic evaluation of transmitter and process rack calibration (recorded As Left condition) and drift (recorded As Found condition - recorded As Left condition) data is required. It is suggested that the evaluation for a function should take place any time the hardware or surveillance interval is changed [ ]^{a,c}

Reference 20 describes the Westinghouse data evaluation process in detail. In the simplistic sense, it should be noted that the process includes the following:

[ ] a,c

5.8 INSTRUMENT OPERABILITY CRITERIA

Instrument operability is determined based on several criteria. On a continuous basis, channel checks, i.e., comparison of redundant channels, are performed by the plant process computer. The SCP shall determine and document the appropriate channel check acceptance criteria. These acceptance criteria should be representative of normal operation and expected differences between like channels. [

]^{a,c}

On a longer term basis (refueling), instrument performance is determined by the surveillance procedure, i.e., the gathering of [ ]^{a,c} As Found data for multiple points across the instrument span. If during the surveillance process, a device is found outside of the ALT, the device is recalibrated utilizing the appropriate calibration procedure. The ability to calibrate a device is a major indication of the expected performance of the instrument and once a device can be recalibrated to within the ALT it is again considered operable.

If a device is found outside of the AFT, it is identified (via entry into the plant CAP) for further evaluation, as this is an indication of drift greater than that assumed in the WSM uncertainty calculation. It may be concluded that the device is not operating within design and must be investigated for repair or replacement. It may be concluded that the surveillance interval is too long and should be decreased. It may be concluded that the drift magnitude is characteristic of the device, found to be consistent with design, and that the uncertainty calculation should be revised.

The SCP shall assure that a formal hierarchy of review is established via plant maintenance procedures to address instrument operability assessment – Surveillance procedure review, initialization of a condition report to note operation outside of design, entry into a CAP for repair or replacement as necessary. The procedures necessary to achieve this hierarchy are to be contained in the plant SCP.

5.8.1 Procedures for Detecting Instrument Abnormal Conditions

The WSM instrument uncertainty calculations account for protection function actuation and post event indication when the transmitter experiences harsh environment conditions within the instrumentation qualification envelope. [

]^{a,c}

5.8.2 Instrument Process Rack

The WSM assumes that an instrument process rack string begins each surveillance interval within the two-sided tolerances of the RCA (ALT) term in order to satisfy the requirements of the calibration process. This is the first definition of an operable instrument channel. While the response time of the process rack is not explicitly measured as part of the calibration process, it is expected that the instrument technician performs a qualitative evaluation, i.e., the channel is not slow in responding. This is a second order definition of operability. In order to satisfy the randomness requirement, minimize the possibility of introducing an uncertainty bias over time [ ]^{a,c} and withstand the application of tolerance factors in a statistical trend evaluation; it is suggested that whenever an instrument channel is adjusted, the instrument technician should drive the calibration error to zero, i.e., minimize the calibration error. When a "leave alone zone" concept is incorporated into the calibration process, it is incumbent upon the plant staff to verify through the calibration trend evaluation process that a calibration bias is not introduced. An instrument channel must be left within the ALT at each calibration point as part of the three up/three down multi-pass calibration process. Westinghouse [ ]^{a,c} therefore, it should be found within the ALT; thus, the Westinghouse definition for operability of the process racks: AFT = ALT = RCA. If an instrument process rack string is found outside of the AFT, the instrument string must be recalibrated and left within the ALT.

5.8.3 Sensor/Transmitter

The WSM assumes that a sensor or transmitter begins each surveillance interval within the two-sided tolerances of the SCA term in order to satisfy the requirements of the calibration process. This is the first definition of an operable transmitter. The second definition of an operable sensor or transmitter is that at the end of the surveillance interval (fuel cycle), the device should be found within its AFT, i.e., for relative drift determinations, [ ]^{a,c}; for absolute drift determinations, [ ]^{a,c} While the response time of the transmitter is not explicitly measured as part of the calibration process, it is expected that the instrument technician performs a qualitative evaluation, i.e., the device is not slow in responding. This is a second order definition of operability. In order to satisfy the randomness requirement, minimize the possibility of introducing an uncertainty bias over time [ ]^{a,c} and withstand the application of tolerance factors in a statistical trend evaluation; it is suggested that whenever a transmitter is adjusted, the instrument technician should drive the calibration error to zero, i.e., minimize the calibration error. When a "leave alone zone" concept is incorporated into the calibration process, it is incumbent upon the plant staff to verify through the calibration trend evaluation process that a calibration bias is not introduced. A sensor or transmitter must be left within the ALT at each calibration point as part of the three up/three down multi-pass calibration process. If a sensor or transmitter is found outside of the ALT, it must be recalibrated and left within the ALT.

6 OUTPUTS OF THE WESTINGHOUSE SETPOINT METHODOLOGY

6.1 SCALING PROCEDURES/CALCULATIONS

The WSM works in the unit of % span. Utilization of % span, instead of the engineering unit (psia, psig, % RTP, etc.), results in fewer errors in the determination of the instrument uncertainty. However, this is not acceptable for the instrument technician to use in the field. The channel must be scaled into a unit that can be read in the field, milliamp (mA), or voltage (V) if measured across a dropping resistor, for transmitters, and voltage for process rack modules (signal condition, bistables and analog to digital (A/D) converters). In addition, it is in the scaling process that [

]^{a,c} Thus, the WSM provides input to the plant instrumentation Scaling procedures or calculations. [

]^{a,c}

6.2 CALIBRATION AND SURVEILLANCE PROCEDURES

The surveillance program, which includes the recalibration of the channels, will assess operability of the equipment, transmitter or process rack modules. As a result, instrumentation that is out of calibration or determined inoperable will be identified, recalibrated, repaired or replaced. When an instrument is replaced with a different make or model, criteria must be developed to define the acceptability of the new instrumentation. These criteria may include recalculation of the setpoint to re-establish margin (analysis or operational margin as required). If necessary, the plant Technical Specifications, licensing and or design basis documentation must be appropriately revised.

Calibration and surveillance of the transmitters and process racks is performed on a periodic basis, as required by the plant Technical Specifications. Transmitters and process rack modules are checked on a continuous basis via the plant process computer and periodically by the Operators via the control board indication, i.e., comparisons between channels (channel checks). Transmitters are checked utilizing known inputs on a refueling basis (nominal 18 months, maximum 22.5 months or nominal 24 months, maximum 30 months) to determine the As Found condition. Process rack modules are checked utilizing known inputs on a more frequent basis, as short as monthly, as long as semi-annually. The Surveillance procedures confirm that the hardware is performing as designed and if not found within the ALT, are recalibrated utilizing the appropriate Calibration procedure. These checks and calibrations provide the data necessary to determine the drift magnitudes and establish the initial condition for the next operating or surveillance interval. Device As Left and As Found data are recorded and managed. The data are utilized to confirm device operation within design and the assumptions of the uncertainty calculations.

The As Left data are evaluated to confirm that calibration biases are not introduced through the calibration process.

As Left and As Found data are evaluated to confirm that the device drift magnitude is within limits and that no biases become evident. The As Left and As Found data form the basis for future re-evaluation of the calibration and drift magnitudes utilized in the uncertainty calculations and NTS determination. The WSM provides as an output, the definition of the design ALT/AFT, through the SCA and SD term magnitudes for the sensor/transmitter and the RCA and RD term magnitudes for the process racks. These magnitudes are reflected as two-sided calibration accuracies (As Left tolerances) at the calibration points in the transmitter and process rack Calibration procedures; and as two-sided As Found tolerances at the calibration points in the transmitter and process rack Surveillance procedures.

M&TE utilized to perform the instrument calibration and surveillance should be as accurate as reasonably achievable. Utilization of currently available, high accuracy DMM and digital pressure gauges, examples of which are provided in Section 5.3, results in easily accomplished accuracy ratios of 10:1 (SCA:M&TE, RCA:M&TE). This minimizes the effect of M&TE on the As Left and As Found condition of the instrumentation. Surprisingly, older DMMs (0.05 % span for a Fluke 8600A) can achieve better accuracies than more modern DMMs (0.09 % span for a Fluke 8050A and 0.08 % span for a Fluke 45) on a worst case basis, i.e., 5 VDC reading on a 1 – 5 VDC instrument span. However, this suggests that while the desired 10:1 ratio is not satisfied with some DMMs, a 5:1 ratio is satisfied. The effects of a 5:1 ratio M&TE are still acceptable as the DMM uncertainty is a specification and may not represent the actual uncertainty with careful calibration and use under controlled conditions.

[ ] a,c

It should be understood that if the ratio of SCA:M&TE or RCA:M&TE is less than 10:1, it must be explicitly modeled in the WSM and this requirement reflected in the plant SCP. It should also be recognized that since As Found data is typically taken at the same time as As Left data, the M&TE for the As Found is the same as for the As Left and is reflected in the uncertainty calculations based on the SCA:M&TE or RCA:M&TE ratios.

[ ] a,c

[ ] a,c

6.3 MAINTENANCE PROCEDURES

The plant SCP shall identify that the instrument maintenance program provides directions to repair instrumentation to within design specifications. The maintenance program shall track and assess ALT/AFT data to determine the performance of the instrument throughout the life of the device. Replacement instrumentation shall be confirmed to meet or exceed the design specifications of the instrument uncertainty calculations. If the replacement instrumentation does not meet the design specifications of the instrument uncertainty calculations; the instrument uncertainty calculations shall be re-evaluated and revised as necessary. If the replacement instrumentation exceeds the design specifications of the instrument uncertainty calculations, the ALT/AFT shall be evaluated for revision to reflect the appropriate criteria. If the ALT/AFT criteria are revised, appropriate changes must be reflected in all affected downstream calculations and documentation, e.g., Scaling procedures/calculations, Calibration procedures, Surveillance procedures, etc.

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APPENDIX A: NRC BTP 7-12 ACCEPTANCE CRITERIA

1. Facility setpoint list identifying safety setpoints and non-safety setpoints for functions providing protective functions important to safety or that are relevant to compliance with technical specification limiting conditions for operation.

[ ] a,c

2. Identification of safety setpoints that are not safety-limit-related LSSS and the basis for this determination.

[ ]a,c

3. Identification of setpoints that trigger procedural actions that are important to safety.

[ ]a,c

4. Description of the setpoint methodology and procedures used in determining setpoints, including information sources, scope, assumptions, interface reviews, and statistical methods.

[ ]a,c

5. Terminology used to describe limits, allowances, and tolerances, and environmental or other effects used to support setpoint calculations.

[ ]a,c

6. Technical specifications and basis for LSSSs.

[ ]a,c

7. Basis for acceptable as-found band and acceptable as-left band and determination of the instrument operability based on acceptable as-found band and acceptable as-left band.

[ ]a,c

8. Basis for calibration intervals.

[

]^{a,c}

9. Basis for assumptions regarding instrument uncertainties and discussion of the method used to determine uncertainty values.

[

]^{a,c}

10. Description of the provisions for control of measuring and test equipment used for calibration of the instrument.

[

]^{a,c}

11. Description of the program and methodology used to monitor and manage instrument uncertainties, including drift.

[

]^{a,c}

12. Description of the functional and performance criteria for the initiation and execution of the safety functions at the setpoints.

[

]^{a,c}

13. Instrument specifications, including range, accuracy, repeatability, hysteresis, dynamic response, environmental qualification, calibration reference, and calibration intervals for each instrument type.

[

]^{a,c}

14. Instrument loop diagrams showing all hardware elements of the instrument loop(s).

[

]^{a,c}

15. *Instrument and tubing layout drawings and installation details showing locations and elevations of instruments and tubing relative to a reference datum, as well as the points where the instrument interfaces with the monitored process.*

[

]^{a,c}

16. *For digital instrumentation, the configuration database for the instrumentation functions, and identification of digital elements (hardware and software) where error could be introduced into the measurement – for example, errors that could result from analog-to-digital or digital-to analog conversion or from numerical methods used in the software (e.g., curve fitting).*

[ ]^{a,c}

17. *The description of assumptions in accordance with ISA-S67.04, should include the environmental allowances (temperature, pressure, humidity, radiation, vibration, seismic, and electrical) for the instruments.*

[

]^{a,c}

APPENDIX B: NRC BTP 7-12 REVIEW PROCEDURES

1. Relationships between the safety limit, analytical limit, limiting trip setpoint, the allowable value, the setpoint, the acceptable as-found band, the acceptable as-left band, and the setting tolerance.

[ ] a,c

2. The reviewer should assure that the setpoint technical specifications meet the requirements of 10 CFR 50.36. Additional information related to setpoint technical specifications is provided in RIS 2006-17.

[ ]a,c

3. Basis for selection of the trip setpoint.

[ ]a,c

4. Uncertainty terms that are addressed.

[ ]a,c

5. Method used to combine uncertainty terms.

[ ]a,c

6. Justification of statistical combination.

[ ]a,c

7. Relationship between instrument and process measurements units.

[ ]a,c

8. Data used to select the trip setpoint, including the source of the data.

[

]^{a,c}

9. Assumptions used to select the trip setpoint (e.g., ambient temperature limits for equipment calibration and operation, potential for harsh accident environment).

[

]^{a,c}

10. Instrument installation details and bias values that could affect the setpoint.

[

]^{a,c}

11. Correction factors used to determine the setpoint (e.g., pressure compensation to account for elevation difference between the trip measurement point and the sensor physical location).

[

]^{a,c}

12. Instrument test, calibration or vendor data, as-found and as-left; each instrument should be demonstrated to have random drift by empirical and field data. Evaluation results should be reflected appropriately in the uncertainty terms, including the setpoint methodology.

[

]^{a,c}

APPENDIX C: LTR-NRC-15-37

Submittal of: "Westinghouse Responses to U.S. Nuclear Regulatory Commission Request for Additional Information for the Topical Reports (TRs) WCAP-17503-P/WCAP-17503-NP, Revision 0, 'Westinghouse Generic Setpoint Control Program Recommendations' and WCAP-17504-P/WCAP-17504-NP, Revision 0, 'Westinghouse Generic Setpoint Methodology' (TACNo. ME8115)" (Proprietary/Non-Proprietary).

(Limited to NP-Attachment A)

Westinghouse Electric Company
1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066
USA

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Direct tel: (412) 374-4643
Direct fax: (724) 940-8560
e-mail: greshaja@westinghouse.com

LTR-NRC-15-37

June 25, 2015

Subject: Submittal of "Westinghouse Responses to U.S. Nuclear Regulatory Commission Request for Additional Information for the Topical Reports (TRs) WCAP-17503-P/WCAP-17503-NP, Revision 0, 'Westinghouse Generic Setpoint Control Program Recommendations' and WCAP-17504-P/WCAP-17504-NP, Revision 0, 'Westinghouse Generic Setpoint Methodology' (TAC No. ME8115)" (Proprietary/Non-Proprietary).

Enclosed are the proprietary and non-proprietary versions of "Westinghouse Responses to U.S. Nuclear Regulatory Commission Request for Additional Information for the Topical Reports (TRs) WCAP-17503-P/WCAP-17503-NP, Revision 0, 'Westinghouse Generic Setpoint Control Program Recommendations' and WCAP-17504-P/WCAP-17504-NP, Revision 0, 'Westinghouse Generic Setpoint Methodology' (TAC No. ME8115)"

Also enclosed are:

1. An Application for Withholding Proprietary Information from Public Disclosure, AW-15-4172 (Non-Proprietary), with Proprietary Information Notice and Copyright Notice
2. An Affidavit (Non-Proprietary).

This submittal contains proprietary information of Westinghouse Electric Company LLC. In conformance with the requirements of 10 CFR Section 2.390, as amended, of the Commission's regulations, we are enclosing with this submittal an Application for Withholding Proprietary Information from Public Disclosure and an Affidavit. The Affidavit sets forth the basis on which the information identified as proprietary may be withheld from public disclosure by the Commission.

Correspondence with respect to the proprietary aspects of the Application for Withholding or the Westinghouse Affidavit should reference AW-15-4172 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

James A. Gresham, Manager
Regulatory Compliance

Enclosures

LTR-NRC-15-37
Page 2 of 2

bcc: James A. Gresham
Cheryl Robinson
Anne M. Stegman

Westinghouse Electric Company
1000 Westinghouse Drive
Cranberry Township, Pennsylvania 16066
USA

U.S. Nuclear Regulatory Commission
Document Control Desk
11555 Rockville Pike
Rockville, MD 20852

Direct tel: (412) 374-4643
Direct fax: (724) 940-8560
e-mail: greshaja@westinghouse.com

AW-15-4172

June 25, 2015

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: LTR-NRC-15-37 P-Attachment, "Westinghouse Responses to U.S. Nuclear Regulatory Commission Request for Additional Information for the Topical Reports (TRs) WCAP-17503-P/WCAP-17503-NP, Revision 0, 'Westinghouse Generic Setpoint Control Program Recommendations' and WCAP-17504-P/WCAP-17504-NP, Revision 0, 'Westinghouse Generic Setpoint Methodology' (TAC No. ME8115)" (Proprietary)

Reference: Letter from James A. Gresham to Document Control Desk, LTR-NRC-15-37, dated June 25, 2015

The Application for Withholding Proprietary Information from Public Disclosure is submitted by Westinghouse Electric Company LLC (Westinghouse), pursuant to the provisions of paragraph (b)(1) of Section 2.390 of the Commission's regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

The proprietary information for which withholding is being requested is identified in the proprietary version of the subject report. In conformance with 10 CFR Section 2.390, Affidavit AW-15-4172 accompanies this Application for Withholding Proprietary Information from Public Disclosure, setting forth the basis on which the identified proprietary information may be withheld from public disclosure.

Accordingly, it is respectfully requested that the subject 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 proprietary aspects of the Application for Withholding or the accompanying Affidavit should reference AW-15-4172 and should be addressed to James A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, 1000 Westinghouse Drive, Building 3 Suite 310, Cranberry Township, Pennsylvania 16066.

James A. Gresham, Manager
Regulatory Compliance

AW-15-4172
June 25, 2015

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF BUTLER:

I, Henry A. Sepp, am 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 my knowledge, information, and belief.

Henry A. Sepp, Director
CRE-Systems and Components Engineering

(1) I am Director, CRE-Systems and Components Engineering, 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 constitute Westinghouse policy and provide 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.

(iii) 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.

(vi) 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.

(v) 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.

(vi) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in LTR-NRC-15-37 P-Attachment, "Westinghouse Responses to U.S. Nuclear Regulatory Commission Request for Additional Information for the Topical Reports (TRs) WCAP-17503-P/WCAP-17503-NP, Revision 0, 'Westinghouse Generic Setpoint Control Program Recommendations' and WCAP-17504-P/WCAP-17504-NP, Revision 0, 'Westinghouse Generic Setpoint Methodology' (TAC No. ME8115)" (Proprietary), for submittal to the Commission, being transmitted by Westinghouse letter, LTR-NRC-15-37, 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 NRC review and approval of WCAP-17503-P/WCAP-17503-NP, Revision 0 and WCAP-17504-P/WCAP-17504-NP, Revision 0 and may be used only for that purpose.

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

(i) Secure NRC approval of WCAP-17503-P/WCAP-17503-NP, Revision 0 and WCAP-17504-P/WCAP-17504-NP, Revision 0.

(b) Further this information has substantial commercial value as follows:

(i) Westinghouse plans to sell the use of similar information to its customers for the purpose of performance of control and protection function instrument uncertainty calculations using a methodology that has received NRC prior approval.

(ii) Westinghouse plans to sell the use of similar information to its customers for the purpose of assisting in the organization and securing NRC approval of a plant-specific Setpoint Control Program.

(iii) Westinghouse can sell support and defense of industry guidelines and acceptance criteria for plant-specific applications.

(iv) 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 uncertainty calculations and consultation services, including 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.

6 AW-15-4172

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 non-proprietary versions of documents furnished to the NRC in connection with requests for generic review and approval of WCAP-17503-P/WCAP-17503-NP, Revision 0 and WCAP-17504-P/WCAP-17504-NP, Revision 0.

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.

Westinghouse Responses to U.S. Nuclear Regulatory Commission Request for Additional Information for the Topical Reports (TRs) WCAP-17503-P/WCAP-17503-NP, Revision 0, 'Westinghouse Generic Setpoint Control Program Recommendations' and WCAP-17504-P/WCAP-17504-NP, Revision 0, 'Westinghouse Generic Setpoint Methodology' (TAC No. ME8115) (Non-Proprietary)

June 2015

Westinghouse Electric Company
1000 Westinghouse Drive
Cranberry Township, PA 16066

Westinghouse Responses to NRC RAIs on WCAP-17503-P

1. **Intent of WCAP 17503-P, Revision 0, and WCAP-17503-NP, Revision 0, Topical Report**

The title of the TR is "Westinghouse Generic Setpoint Control Program Recommendations." From this title, the staff anticipated that the purpose of this document is to provide licensees who intend to use the Westinghouse Setpoint Methodology for determination of CSA, nominal trip setpoint, as-found tolerance, and ALT values (etc.) as described within Westinghouse WCAP-17504-P/WCAP-17504-NP, Revision 0, with guidance for ensuring that inputs and information needed for determination of these values are properly identified, controlled, interpreted, and used or applied. Further, it appears to the NRC staff that WCAP-17503-P/ WCAP-17503-NP, Revision 0, is intended to provide guidance for ensuring that outputs from these calculations are appropriately fed back to applicable maintenance, surveillance, and calibration procedures and other plant documents so appropriate plant corrective action program actions can take place, leading to proper update of the affected setpoint calculations when needed. However, the NRC staff notes that while the document provides detailed information identifying the inputs and outputs to be controlled, there is little or no guidance describing how or why such information needs to be controlled. The Program Goals and Objective section states: "the setpoint control program (SCP) provides a means of continuous evaluation of changes to equipment, procedures and processes that provide design input to the Westinghouse Setpoint Methodology. This document describes the scope of the SCP and provides insight to the hierarchy of the various components of the SCP."

However, the NRC staff notes there is little or no guidance for implementing programmatic controls to assure the Westinghouse Setpoint Methodology will be appropriately, routinely, and consistently applied. There are statements within the Scope section as follows:

> "Detailed descriptions of the various plant processes and plant administrative controls are not provided as these will be provided on a plant specific basis. However, key points and functions are identified to provide an understanding of the purpose of each component of the SCP. Further definition of each of the plant processes will be provided via the generation of reports or procedures or implementation plans that are produced on a plant specific basis."

The staff views the title of this report to be a bit misleading, in that the document does not provide actual recommendations to licensees for implementing a program/process for setpoint information control, but only describes the inputs, outputs, and relationships that need to be controlled, if one were to implement a setpoint control program incorporating the Westinghouse Setpoint Methodology. A more appropriate title might be "Westinghouse Setpoint Methodology Data Considerations for Inclusion within a Licensee-Developed Setpoint Control Program."

Please describe the actual intent, scope, and limitations of this document.

Westinghouse Response:

In the above, Westinghouse has determined that three significant points were identified. They will be addressed in sequence below.

First paragraph excerpt: "However, the NRC staff notes that while the document provides detailed information identifying the inputs and outputs to be controlled, there is little or no guidance describing how or why such information needs to be controlled."

With respect to guidance on how to control information; each plant has its own system for generation and control of procedures. With neither regulatory authority nor contractual oversight, Westinghouse must work with a utility on a plant specific basis with the system in place at their plant to meet the guidance of WCAP-17503-P. Westinghouse proposes to do exactly that. When a utility contracts with Westinghouse for setpoint calculations, Westinghouse requests and reviews the appropriate information, i.e., procedures, vendor documents, safety analyses, etc., recognizing up front that the calculation is a "snapshot in time" that may not reflect (or bound) the effects of changes made in the future to those same procedures, vendor documents (hardware) or safety analyses. Thus, when discussing a Setpoint Control Program (SCP) in the generic sense, Westinghouse must limit the discussion to identification of the characteristics and sensitive parameters of the Westinghouse Setpoint Methodology (WSM) and to recommend control of those procedures, vendor documents and safety analyses. Recognizing this, Westinghouse will address these limitations by ensuring that the plant specific SCP reflects the additional control expected by the NRC. Therefore, for utilities that contract with Westinghouse for work on and assistance with an SCP, the NRC can expect the following:

[ ] a,c

[ ] B,C

The above addresses the "how." As to the "why," it is suggested that any input parameter that is utilized in a protection function uncertainty calculation should be controlled. While the uncertainty magnitude may be small, in many cases the magnitude is controlled by the process, e.g., calibration (As Left), drift determination (As Found), M&TE (actual hardware utilized and its calibration and maintenance). Therefore, it is appropriate to control all input parameters to an uncertainty calculation, per the guidance of this WCAP.

Second paragraph excerpt: "However, the NRC staff notes there is little or no guidance for implementing programmatic controls to assure the Westinghouse Setpoint Methodology will be appropriately, routinely, and consistently applied."

As noted above, with neither regulatory authority nor contractual oversight, Westinghouse has limited the scope of WCAP-17503 to identification of the WSM sensitivities and programmatic guidance. Once contracted, it is Westinghouse's preferred approach to work with the utility's plant specific existing programs and procedures to provide the appropriate controls. It is believed that WCAP-17503, in conjunction with WCAP-17504, does provide the information necessary to define where Westinghouse will be looking for the presence or establishment of the appropriate procedures and controls. In many cases, it is expected that a review of existing procedures and programs will result in low to moderate level changes to provide the controls necessary.

Third paragraph excerpt: "The NRC staff views the title of this report to be a bit misleading, in that the document does not provide actual recommendations to licensees for implementing a program/process for setpoint information control, but only describes the inputs, outputs, and relationships that need to be controlled, if one were to implement a setpoint control program incorporating the Westinghouse Setpoint Methodology. A more appropriate title might be "Westinghouse Setpoint Methodology Data Considerations for Inclusion within a Licensee-Developed Setpoint Control Program."

If after further discussion with the NRC staff it is determined appropriate, Westinghouse will change the document title of the approved version of WCAP-17503, and where required in the approved version WCAP-17504, which references WCAP-17503.

2. **Current Version of Staff Guidance for Technical Specification Task Force (TSTF) Traveler TSTF-493 Option B.**

The NRC staff notes the "Introduction" section and Section 5.1.10 of WCAP-17503-P/WCAP-17503-NP, Revision 0, makes reference to the TSTF-493, Revision 4, (TSTF-493) - Option B, for current NSSS plants. This Option, if voluntarily exercised, would enable licensees to revise their plant-specific TSs by relocating allowable values and nominal trip setpoints from TS Section 3.3, "Instrumentation," to the plant's Final Safety Analysis Report (FSAR) reference or to a document incorporated into the facility FSAR by reference and by adding Administrative Control TS 5.5.[ ], "Setpoint Control Program (SCP)." The TSs SCP program would require assessment of channel performance during testing to verify that instrument channel settings are consistent with values established by the NRC-approved setpoint methodology/ies for each plant. The TS SCP would also apply new surveillance test evaluation criteria to certain instrument functions, consistent with Attachment A of NRC-approved TSTF-493, Revision 4. The availability of this TSs voluntary improvement was announced in the Federal Register.

Subsequent to the initial issuance of the Federal Register Notice of Availability, the NRC staff developed additional guidance and provided clarification regarding its expectations for licensee submittals describing the licensee's intent to develop a SCP under TSTF-493 Option B. This additional guidance was provided in draft form to the BWR/PWR Owner's Group TSTF for comments in January 2013. The NRC staff's understanding is that Westinghouse may have received a copy of this draft additional guidance for its comments and use. If not, please let the NRC staff know and the staff will ensure that a copy is forwarded to you.

If you have had an opportunity to review and comment on the staff's draft additional guidance, please provide your evaluation comparing the guidance contained in WCAP-17503-P/ WCAP-17503-NP, Revision 0, with the staff's additional guidance transmitted to the TSTF.

Westinghouse Response:

Westinghouse has given the draft guidance document considerable thought since it was made available to the BWR/PWR Owner's Group Technical Specification Task Force. In general, Westinghouse is in agreement with the information believed to be appropriate for NRC review of an SCP submittal. Westinghouse has identified where and how this information may be contained, i.e., in Westinghouse generic WCAPs, Westinghouse plant specific WCAPs and/or plant supplied documents and procedures in the attached commented draft guidance document, noted as "Appendix A." While the basic document is open literature to the public, Westinghouse considers the highlighting and comments of a highly commercial nature and thus has marked the attached as Westinghouse Proprietary Information.

3. **Interaction with other Technical Specification Initiatives—TSTF-425**

TS Initiative 5b, "Relocation of Most Surveillance Requirement Frequency Requirements from Technical Specifications to a Licensee-Controlled Program" resulted in the development of TSTF-425, which, if adopted, permits most surveillance requirement frequencies to be determined by the licensee through a process defined in an administrative TSs program (approved July 2009). If a licensee were to adopt this program, it would be permitted to follow the guidance of NEI 04-10, which requires performance monitoring of structures, systems & components whose surveillance frequency has been revised as part of a feedback process to assure the change in test frequency has not resulted in degradation of equipment performance and operational safety. The surveillance frequency/interval is an input to the determination of the amount of uncertainty in instrument channel performance due to drift. Uncertainty due to drift, is to be accounted for in both the total loop uncertainty calculations and the determination of appropriate as-found tolerance.

Please describe any additional guidance or recommendations to ensure that technical specification improvement programs and initiatives (such as the surveillance frequency control program described above) adopted by licensees will be closely coordinated as inputs (potentially subject to occasional changes) to the instrument setpoint and surveillance requirements portion of a licensee's SCP.

Westinghouse Response:

The SCP guidelines proposed in this document define a defense in depth approach. For example, Page 6 of WCAP-17503 provides a reasonable list of items that could result in a change to an input to an uncertainty calculation that could have an effect on a control or protection function setpoint. That list should be incorporated into the plant's Change Control Program. Then programs like TSTF-425, would be included as a potential initiator of a setpoint change, e.g., [

]^{a,c}. While TSTF-425 may not provide guidance on what evaluations must be performed, WCAP-17504 does, [

]^{a,c}. Thus, the tools would be in place to evaluate the effects of changes prior to implementation, e.g., [

]^{a,c}. The same can be said for changes [

]^{a,c}

[ ] a,c

4. Consideration of Vendor Documents

Section 5.3 of WCAP-17503-P/WCAP-17503-NP, Revision 0, describes the applicability of vendor documents to the Westinghouse Setpoint Methodology, and provides a list of example vendor documents to be considered in the application of the Setpoint Methodology. The statement is made: "There are aspects of various documents that Westinghouse does not consider appropriate for the WSM and thus does not comply with or utilize in the Westinghouse methodology or calculations." Please elaborate on this statement; i.e., describe the aspects or types of information described in the example vendor documents that are not considered appropriate for use with the Westinghouse Setpoint Methodology.

Westinghouse Response:

Westinghouse will revise the statement in WCAP-17503 to provide clarification. Westinghouse, in conjunction with the utility, reviews the applicability of the vendor documentation to the plant when performing uncertainty calculations. Westinghouse and the utility then agree on the use of the vendor information as design input to the uncertainty calculations. The vendor information should then be controlled by the plant SCP. There may be instances where the vendor specifications are not applicable as written. For example, the specifications may have been prepared for the larger I&C industry, not specifically for use in the nuclear industry. Therefore, the specifications may not address all the necessary information for the uncertainty calculations, and other sources of information may be required, e.g., supplemental vendor test information, or industry operating history. Also, after sufficient plant surveillance data has been introduced into the trending program and device drift has been determined, it would be appropriate to use the plant drift value in lieu of vendor specifications.

Westinghouse proposes to reword this section in the approved version of WCAP-17503 as follows:

Noted below are typical industry equipment vendor documents Westinghouse considers in the WSM or SCP depending on the transmitters installed. It should not be construed that consideration implies unqualified endorsement. Westinghouse reviews the applicability of the vendor information to the uncertainty calculations and uses the information as appropriate.

5. Consideration of Worst-Case M&TE

Section 5.4.3 of WCAP-17503-P/ WCAP-17503-NP, Revision 0, describes the relationship of the use of plant surveillance procedures as input to the application of the Westinghouse Setpoint Methodology. Section 5.4.3 states: "Operating plant surveillance procedures typically identify M&TE by make and model or equivalent accuracy that must be used in the performance of the procedure. The WSM reflects the accuracy of operating plant worst case M&TE or makes recommendations with regards to new plant M&TE, e.g., DMM, digital pressure gauge, decade resistance box, for a given surveillance procedure. The SCP shall assure that a formal hierarchy of review is established via the plant surveillance procedures to address changes to M&TE used in the plant."

a) Please clarify, using examples, what is meant by assurance of a "formal hierarchy of review".

Westinghouse Response:

There are multiple means to identify the M&TE or the accuracy of M&TE that must be used in the performance of calibration or surveillance. The most straight forward approach is to explicitly identify in a calibration or surveillance procedure the minimum accuracy required, e.g., X psig, Y millivolts, Z Ohms. Another approach is to specify a specific device, e.g., Fluke 8842A on the 20 VDC range, Keithley 2000 on the 1 VDC range. In many cases when the latter approach is used the phrase "or equivalent," is also specified, to allow the use of an equal or more accurate device if the specified device is not available. The "or equivalent" M&TE may be used once equivalency (or better) has been established and documented. In the event that a transmitter or process rack is changed to a different vendor, the M&TE requirements may change. At which point, a thorough review of the M&TE requirements is in order. [

]^{a,c}

[ ] a,c

Page 8 of 11

b) This approach to handling M&TE data seems at odds with the description of M&TE uncertainty in the Westinghouse Setpoint Methodology TR, where it appears to the staff that the Westinghouse uncertainty expressions assume that the accuracy rating of the reference measuring means for calibrating (M&TE) is always one-tenth or better than that of the M&TE device being calibrated, and the resulting M&TE uncertainty is always one-tenth or better than that of the sensor or group of rack devices under test. Is the plant actual or worst-case M&TE uncertainty to be considered in the application of the Westinghouse Setpoint Methodology, or not?

Westinghouse Response:

Please see the Westinghouse responses to NRC RAI 3 on WCAP-17504-P. When uncertainty calculations are performed by Westinghouse, the calibration and surveillance procedure worst case (limiting) M&TE are determined. Thus, the SCA:SMTE and RCA:RMTE limiting ratios are evaluated for each function. If the limiting ratio of SCA:SMTE (or RCA:RMTE) is less than 10:1; Westinghouse includes the magnitude of SMTE (or RMTE) in the uncertainty calculation.

c) Section 6.2 of WCAP-17503-P/ WCAP-17503-NP, Revision 0, describes the effects of a 5:1 ratio of calibrated device to M&TE uncertainty is acceptable. However, no guidance is provided describing the conditions under which the uncertainty of M&TE needs to be specifically accounted for in the calculations of nominal trip setpoint or As-Found and As-Left Tolerances, as opposed to the conditions when one can assume the uncertainty is negligible and not to be specifically accounted for.

Westinghouse Response:

With respect to determination of the CSA, which evaluates the acceptability of the NTS, as noted above, the M&TE should be explicitly addressed when the SCA:SMTE or RCA:RMTE ratio is less than 10:1. With respect to As Left and As Found tolerances (ALT and AFT), Westinghouse does not recommend the inclusion of M&TE errors in their determination. Using the Westinghouse Setpoint Methodology defined in WCAP-17504-P:

- Transmitters
  - ALT = SCA – vendor defined reference accuracy
  - AFT = SD – initially vendor defined drift magnitude
- Process Racks
  - ALT = RCA – vendor defined reference accuracy
  - AFT = ALT = RCA – vendor defined reference accuracy

It is a Westinghouse position that neither SMTE nor RMTE should be included in the definition of ALT or AFT.

With respect to the acceptability of a 5:1 Calibration Accuracy:M&TE ratio noted in the section, it was intended to identify that strict adherence to a 10:1 ratio is not required. However, as noted above, any ratio less than 10:1 must be explicitly addressed in the uncertainty calculation and the equation: $CSA \leq |SAL - NTS|$ must be satisfied, i.e., Margin ≥ 0.0 % span.

6. Documentation of the Source of Data Derived from Plant Safety Analyses

Section 5.5 of WCAP-17503-P/ WCAP-17503-NP, Revision 0, describes the use of safety analysis data as input to the Westinghouse Setpoint Methodology, however there is no guidance provided to licensees to document and control the source of the data derived from plant safety analyses. Please describe the guidance that will be provided to licensees on the need for coordination of setpoint calculation input data with any changes made to plant safety analyses as a result of updated safety analysis modeling or plant configuration changes (e.g., as a result of the installation of new design steam generators.)

Westinghouse Response:

Section 5.5 identifies that the plant Safety Analyses contained in Chapter 15 of the UFSAR are a source of input for the control and protection function uncertainty calculations, specifically, the Safety Analysis Limit (SAL) [ ]^{a,c}. This information is reviewed by the holder of the Analysis of Record (AOR) for each reload and major plant modification. Section 3 of WCAP-17503, page 6, provides a detailed listing, with examples, of equipment modifications, plant changes, procedure changes, and items to which the Westinghouse Setpoint Methodology has demonstrated sensitivity. However, a more comprehensive listing is contained in the Section 3 tables in the Westinghouse provided plant specific uncertainty calculation (WSM) WCAP that is a necessary part of any Setpoint Control Program for a Westinghouse NSSS. The most comprehensive evaluation of Westinghouse Setpoint Methodology parameter to transient or modification sensitivity would be performed by Westinghouse. Westinghouse includes in the plant specific Westinghouse Setpoint Control Program WCAP statements providing equivalent guidance. Regulatory requirements already exist for control of the AOR on the holder of the safety analyses. However, to ensure appropriate treatment and coordination, Westinghouse will provide guidance identifying an explicit requirement within the plant procedures for review of the effects on the setpoint uncertainty calculations of changes in any of the following:

[ ]^{a,c}

[ ] a,c

7. Drift Evaluation

Section 5.2.1 of WCAP-17503-P/ WCAP-17503-NP, Revision 0, describes compliance of the Westinghouse Setpoint Methodology with Regulatory Guide 1.105, Rev. 3. In its description of the evaluation of drift data, Reference 22 is noted. The staff could not locate this reference in its ADAMS repository. Please furnish an ADAMS Accession number for this report, if one is known, or provide an additional copy of this report for use in evaluating WCAP-17503-P/WCAP-17503-NP, Revision 0, and WCAP-17504-P/ WCAP-17504-NP, Revision 0.

Westinghouse Response:

A copy of the referenced letter, LTR-NRC-07-14, noted as "Appendix B," and its attachment, noted as "Appendix C," are attached.

Westinghouse Responses to NRC RAIs on WCAP-17503-P

Appendix A

Notice of Availability Supplement to NRC–2009–0487
NRC Staff Guidance for License Amendment Requests to Implement a
TSTF-493 Option B Setpoint Control Program

Introduction

In accordance with the U.S. Nuclear Regulatory Commission (NRC) staff's May 11, 2010 Notice of Availability of the TSTF-493 Instrument Setpoint Control Program guidance (75 FR 26294, available at www.regulations.gov, ID: NRC-2009-0487) licensees may elect to submit a license amendment request for NRC staff evaluation which contains a description of their proposed Setpoint Control Program that meets Option B of TSTF-493, Revision 4 "Clarify Application of Setpoint Methodology For LSSS Functions." Using TSTF-493 Option B, licensees may relocate the Allowable Values (AVs) and Nominal Trip Setpoints (NTSPs) of instrument channels implementing certain limiting safety system setting (LSSS) safety functions from Technical Specifications Section 3.3, "Instrumentation," to the Final Safety Analysis Report (FSAR) or another document (e.g. Technical Requirements Manual) incorporated into the facility FSAR by reference, and add an Administrative Control Technical Specification into Section 5 of the Technical Specifications, entitled "Setpoint Control Program."

The Setpoint Control Program establishes the technical specification requirements for ensuring that setpoints for automatic protective devices are initially within and remain within the assumptions of the applicable safety analyses. The program provides a means for processing changes to instrumentation setpoints, and identifies setpoint methodologies to ensure instrumentation will function as required. The program ensures that testing of automatic protective devices related to variables having significant safety functions as delineated by 10 CFR 50.36(c)(1)(ii)(A) verifies that instrumentation will function as required. Specifically, the Setpoint Control Program establishes the following programmatic requirements:

a. The program lists the Functions in the following specifications to which it applies (Note: The following is a typical list of functions for a BWR-6 reactor design, as identified in a letter from the TSTF Owners Group to the NRC dated April 23, 2010, (ML101160025) containing a marked version of the BWR-6 Standardized Technical Specifications. Other marked Standardized Technical Specifications in that letter have different affected Functions, as appropriate):

   1. LCO 3.3.1.1, "Reactor Protection System (RPS) Instrumentation;"
   2. LCO 3.3.1.2, "Source Range Monitor (SRM) Instrumentation;"
   3. LCO 3.3.2.1, "Control Rod Block Instrumentation;"
   4. LCO 3.3.2.2, "Feedwater and Main Turbine High Water Level Trip Instrumentation;"
   5. LCO 3.3.4.1, "End of Cycle Recirculation Pump Trip (EOC-RPT) Instrumentation;"
   6. LCO 3.3.4.2, " Anticipated Transient Without Scram Recirculation Pump Trip (ATWS-RPT) Instrumentation;"
   7. LCO 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation;"
   8. LCO 3.3.5.2, "Reactor Core Isolation Cooling (RCIC) System Instrumentation;"

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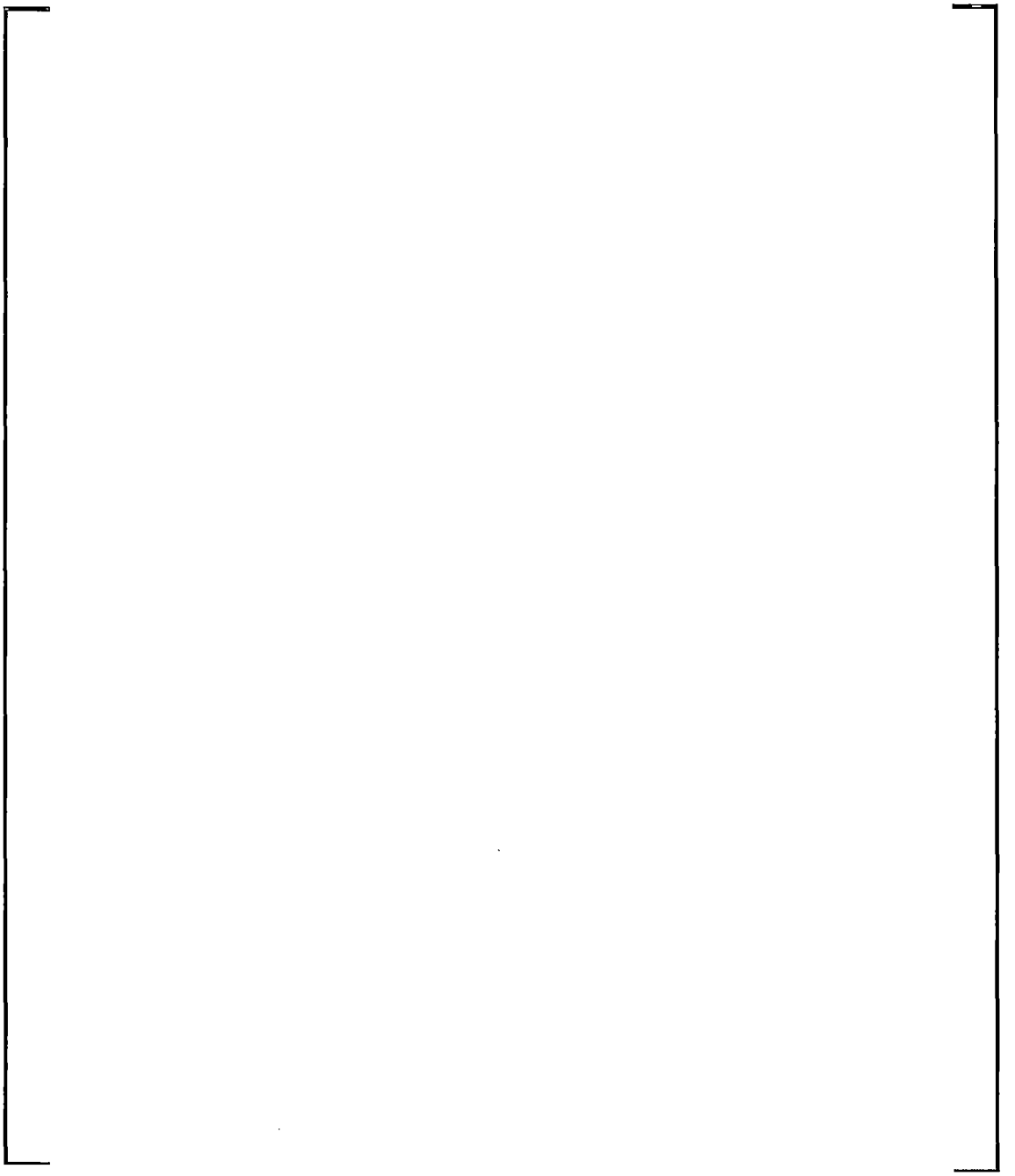

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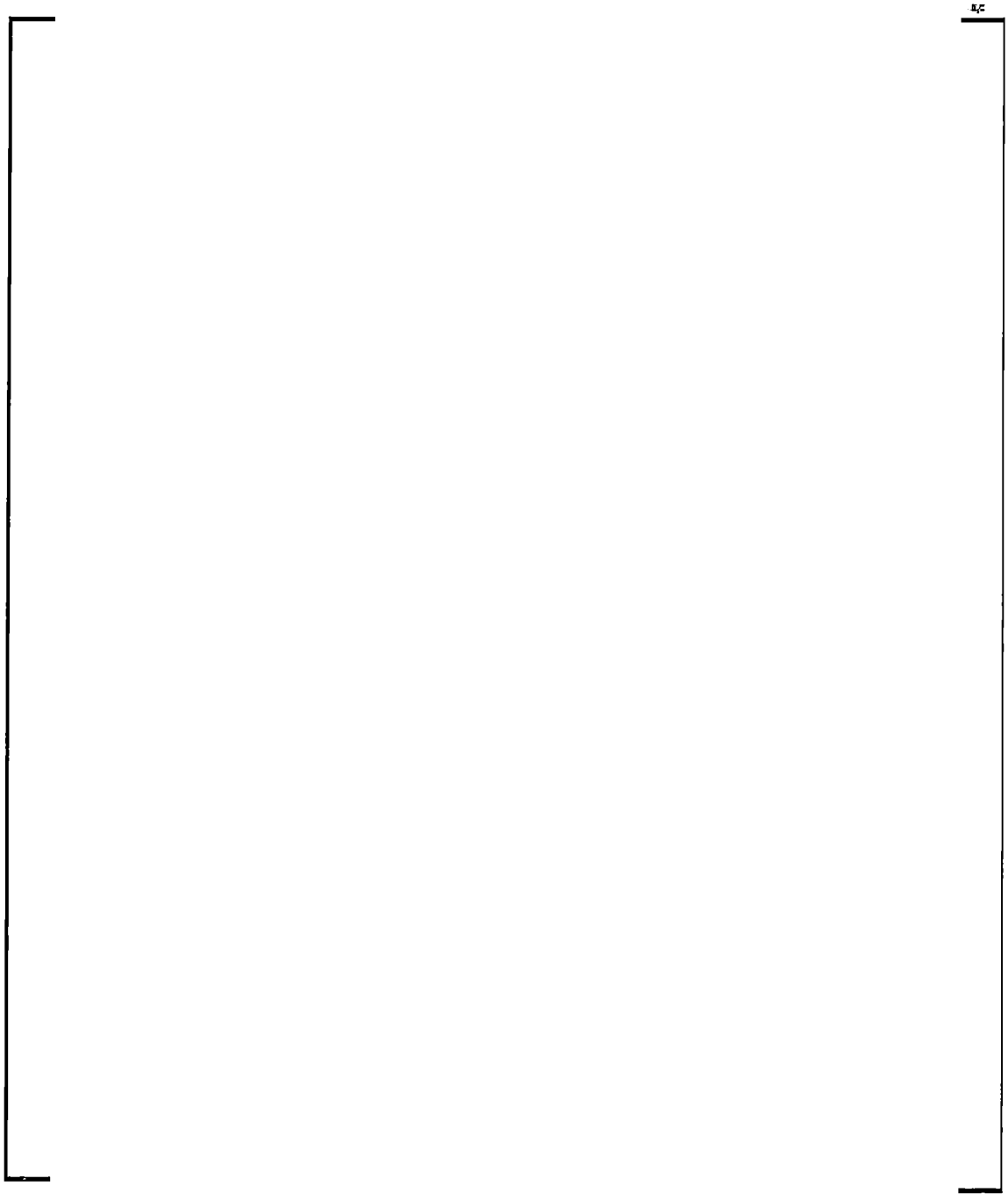

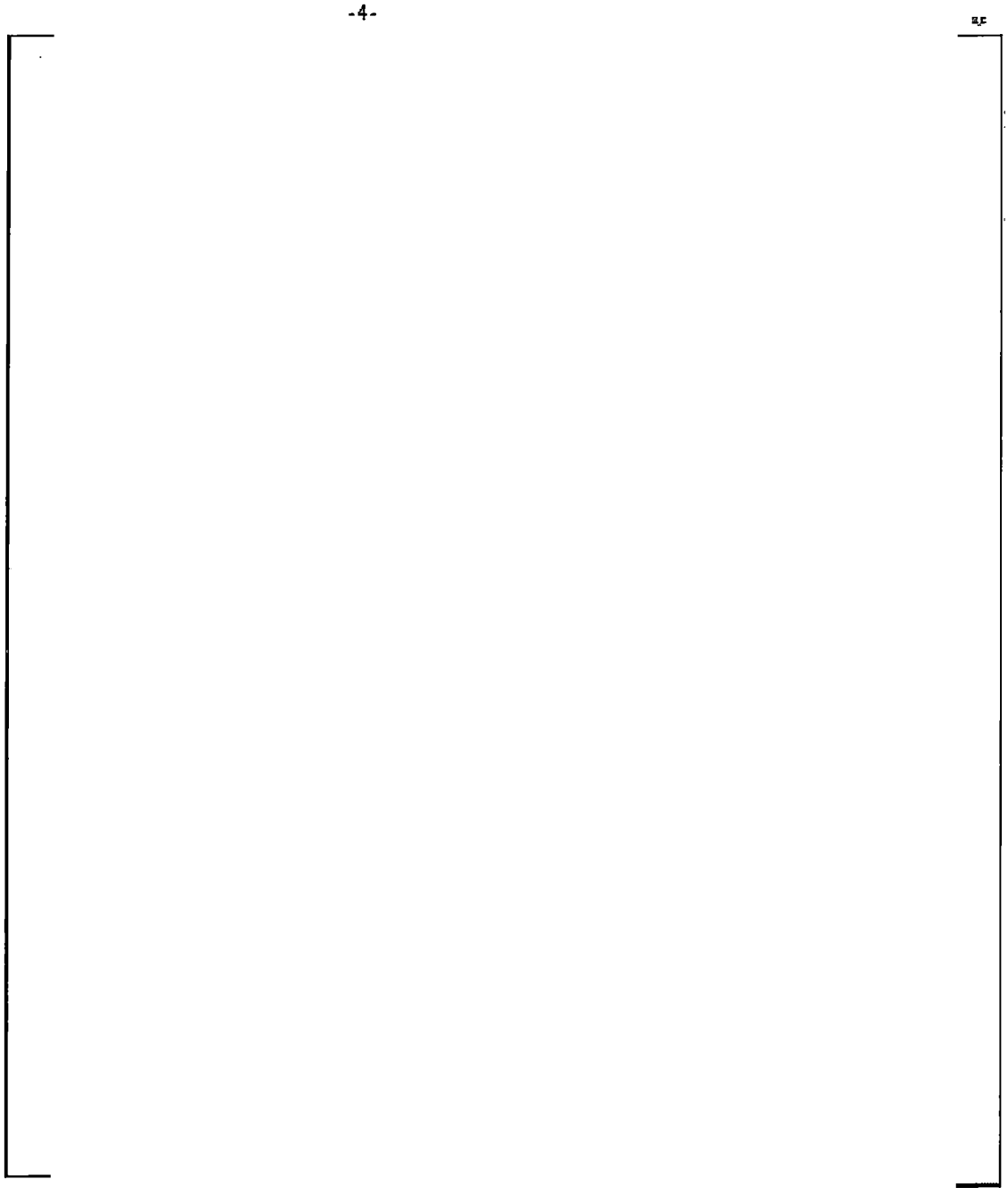

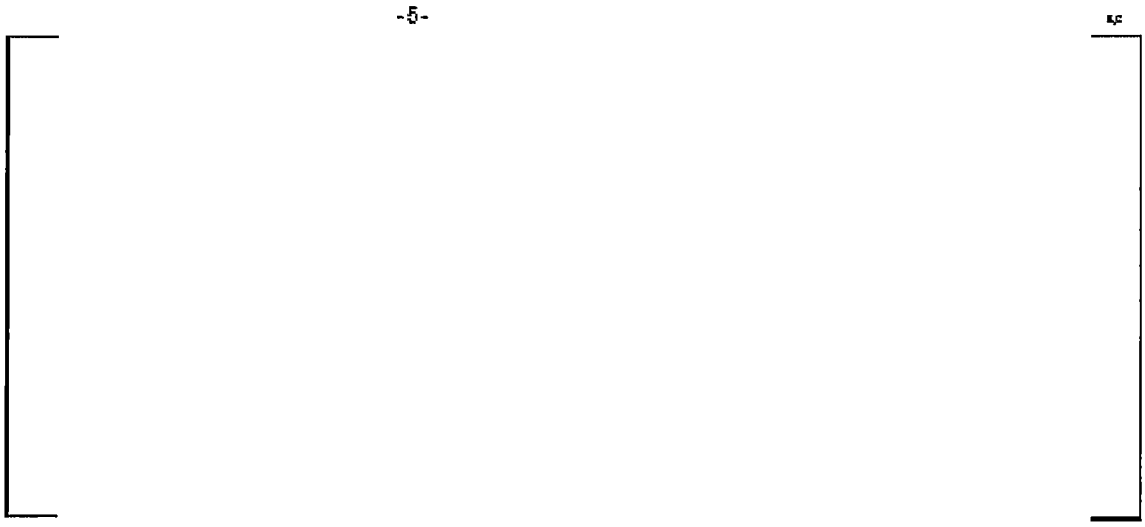

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Detailed Guidance for the Content of License Amendment Request Submittals for TSTF-493 Option B Setpoint Control Programs

To be considered for NRC review, the licensee's 10CFR50.90 submittal proposing a TSTF-493 Option B Setpoint control program must contain detailed descriptions of two processes:

1. Detailed Setpoint Methodology Description, and
2. Detailed Setpoint Control Program Description

These process descriptions are discussed below.

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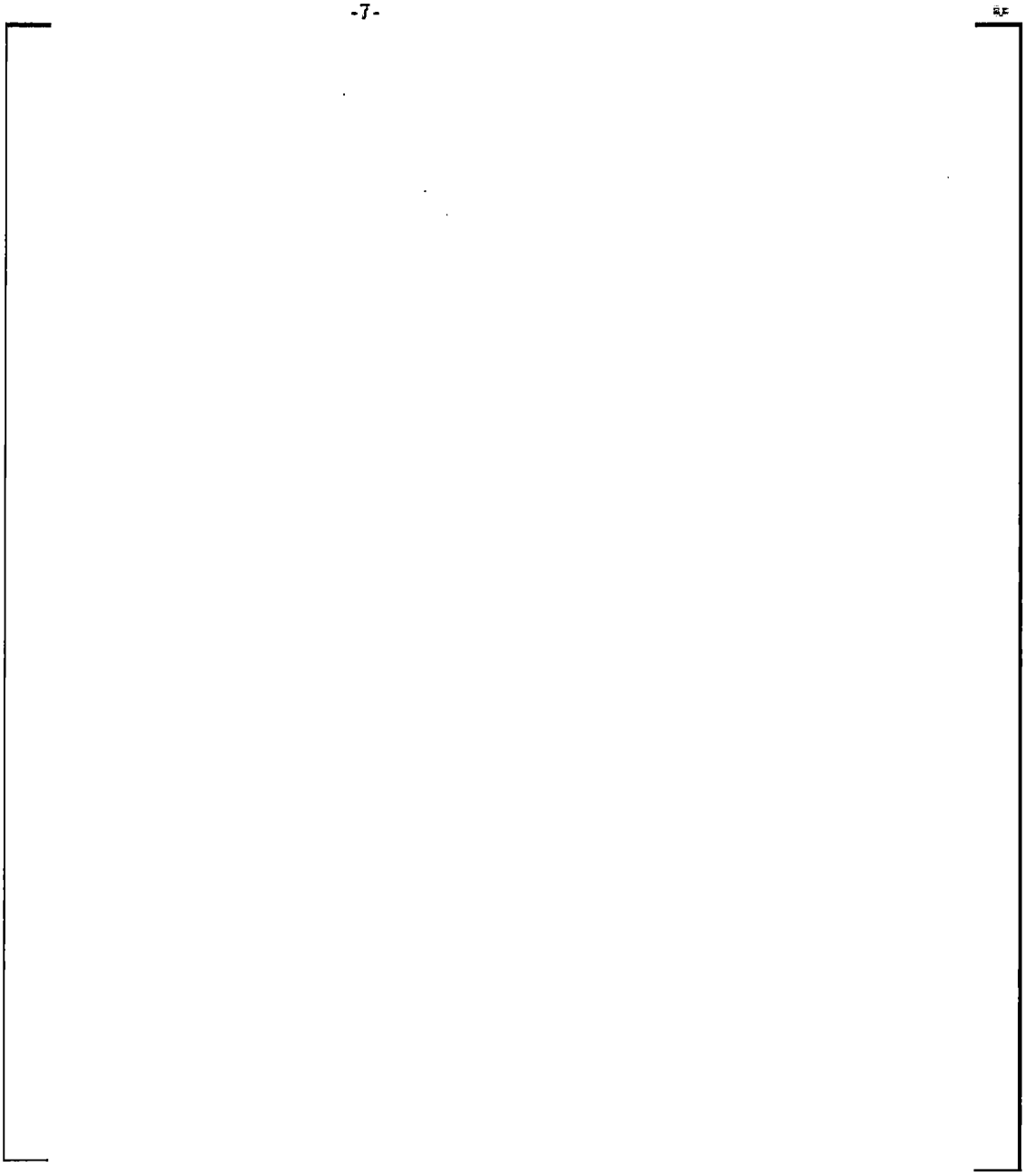

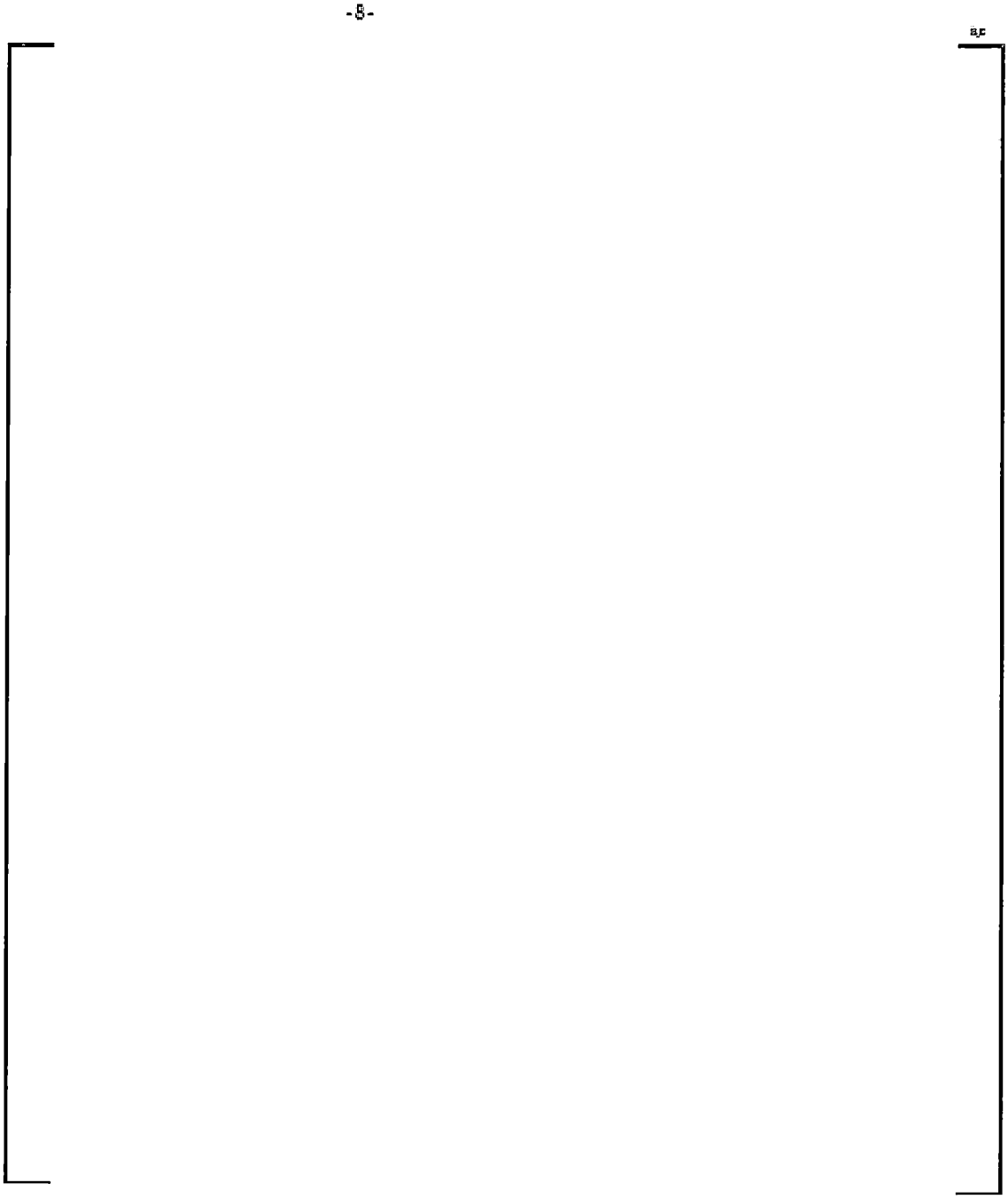

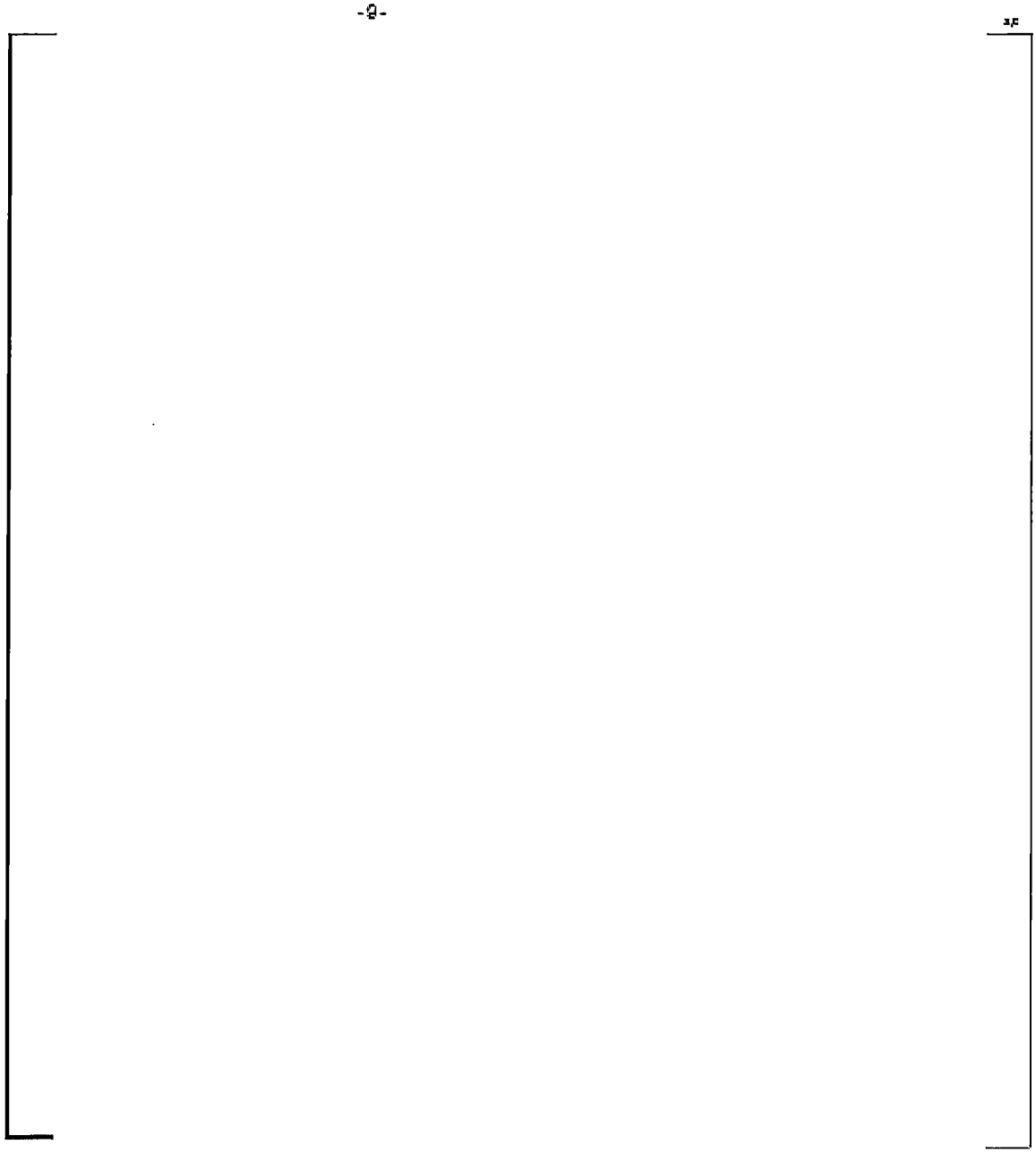

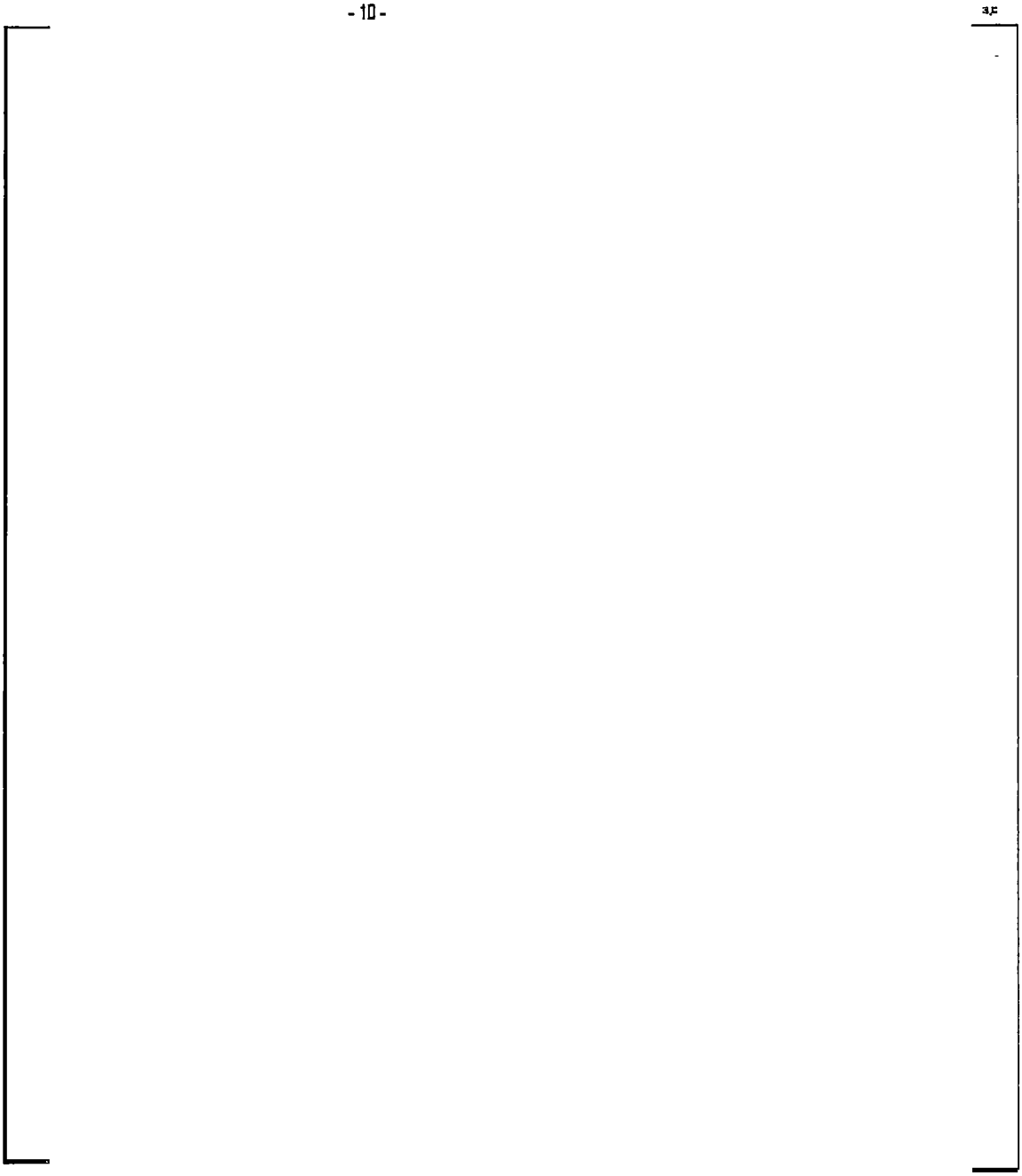

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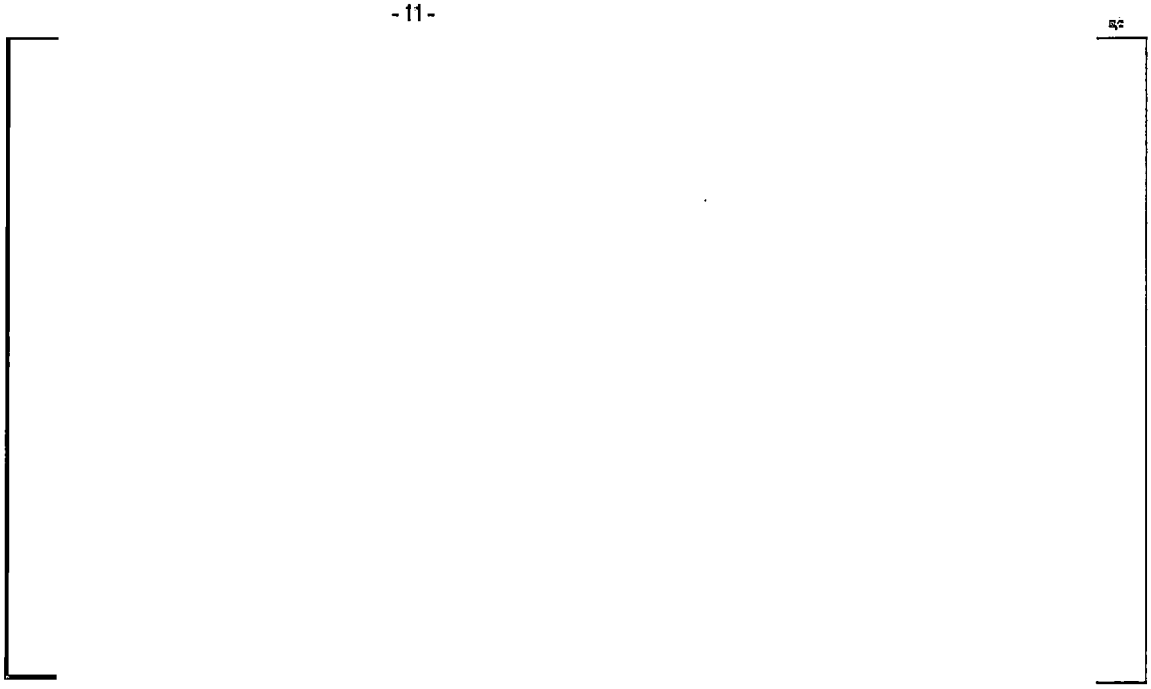

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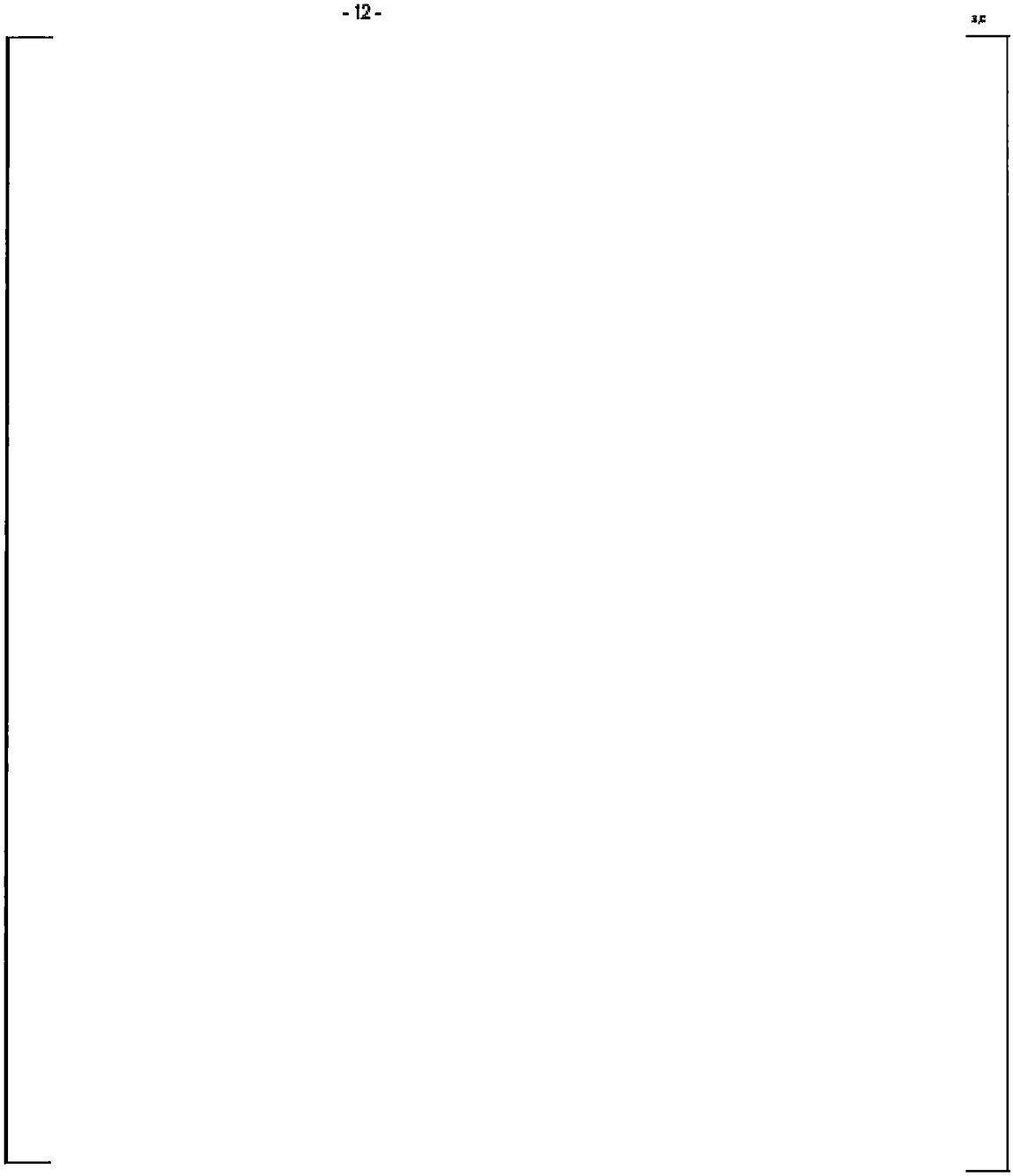

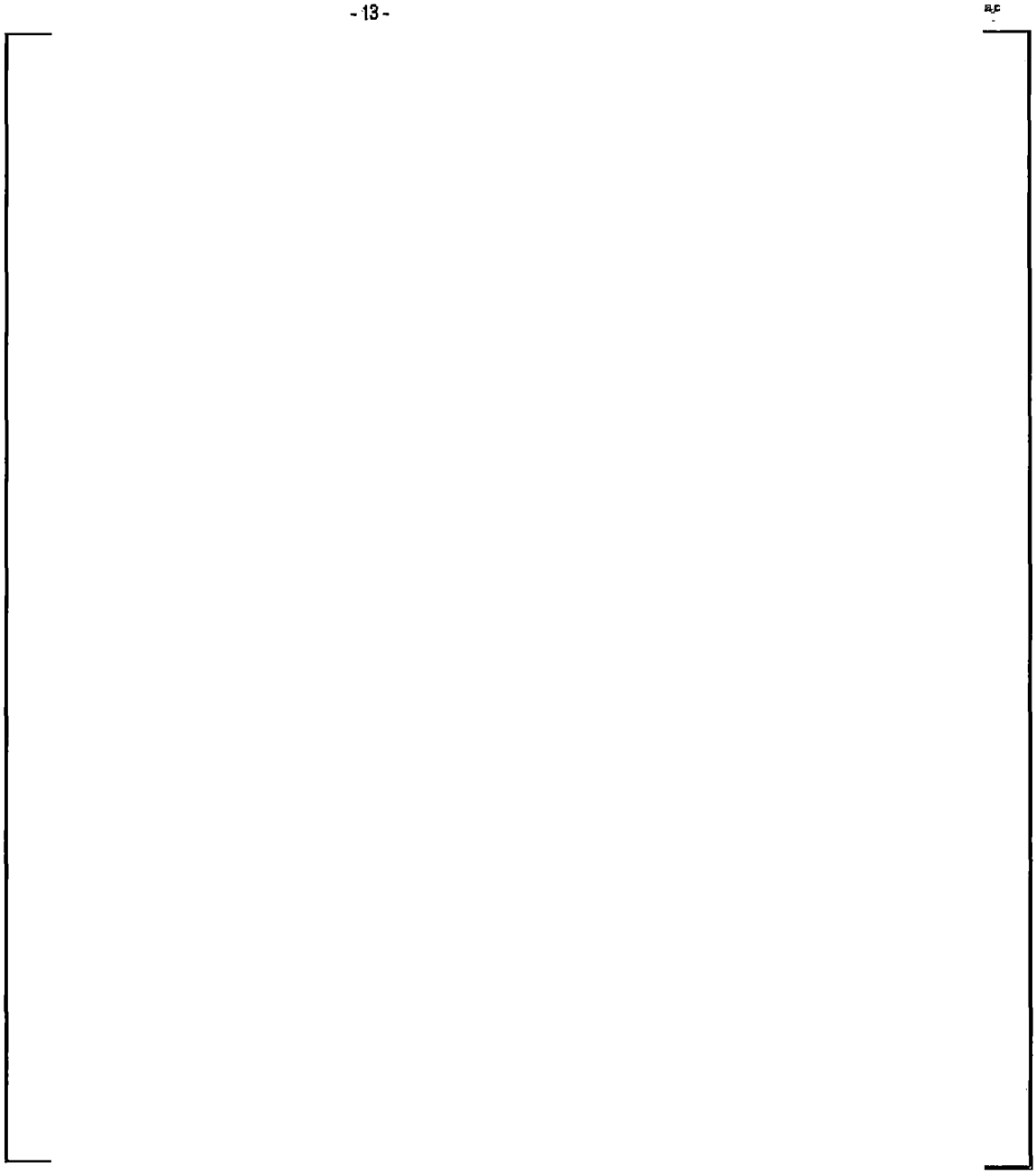
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Westinghouse Responses to NRC RAIs on WCAP-17503-P

Appendix B

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) 374-4419
Direct fax: (412) 374-4011
e-mail: maurerbf@westinghouse.com

Our ref: LTR-NRC-07-14

March 15, 2007

Subject: Westinghouse Presentation to the NRC, "Westinghouse Transmitter and Process Rack Surveillance Extension Program" (Proprietary)

Enclosed is a copy of presentation slides, "Westinghouse Transmitter and Process Rack Surveillance Extension Program," for a discussion with the NRC to be held March 22, 2007.

Also enclosed is:

1. One (1) copy of the Application for Withholding, AW-07-2253 (non-proprietary) with Proprietary Information Notice.
2. One (1) copy of Affidavit (Non-Proprietary).

This submittal contains proprietary information of Westinghouse Electric Company LLC. In conformance with the requirements of 10 CFR Section 2.390, as amended, of the Commission's regulations, we are enclosing with this submittal an Application for Withholding from Public Disclosure and an affidavit. The affidavit sets forth the basis on which the information identified as proprietary may be withheld from public disclosure by the Commission.

Correspondence with respect to this affidavit or Application for Withholding should reference AW-07-2253 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,

B. F. Maurer, Acting Manager
Regulatory Compliance and Plant Licensing

Enclosures

cc: Jon Thompson (NRC O-7E1A)

bcc: J. A. Gresham, 1L
R. Bastien (Nivelles, Belgium) 1L, 1A
C. B. Brinkman (Rockville) 1L, 1A
RCPL Administrative Aide (ECE 4-7) 1L w/affidavit

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) 374-4419
Direct fax: (412) 374-4011
e-mail: maurerbf@westinghouse.com

Our ref: AW-07-2253

March 15, 2007

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: "Westinghouse Transmitter and Process Rack Surveillance Extension Program" (Proprietary)

Reference: Letter from B. F. Maurer to Document Control Desk, LTR-NRC-07-14, dated March 15, 2007

The Application for Withholding is submitted by Westinghouse Electric Company LLC (Westinghouse), pursuant to the provisions of Paragraph (b) (1) of Section 2.390 of the Commission's regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

The proprietary material for which withholding is being requested is identified in the proprietary version of the subject report. In conformance with 10 CFR Section 2.390, Affidavit AW-07-2253 accompanies this Application for Withholding, setting forth the basis on which the identified proprietary information may be withheld from public disclosure.

Accordingly, it is respectfully requested that the subject 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 this Application for Withholding or the accompanying affidavit should reference AW-07-2253 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,

B. F. Maurer, Acting Manager
Regulatory Compliance and Plant Licensing

cc: Jon Thompson (NRC O-7E1A)

Enclosures

AW-07-2253

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

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, Acting Manager
Regulatory Compliance and Plant Licensing

Sworn to and subscribed before me
this 15th day of March, 2007

Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Sharon L. Markle, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Jan. 29, 2011
Member, Pennsylvania Association of Notaries

(1) I am Acting Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.

(2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse "Application for Withholding" accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

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

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

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

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

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

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.

(iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in, "Westinghouse Transmitter and Process Rack Surveillance Extension Program" (Proprietary) for a meeting to be held on March 22, 2007, for submittal to the Commission, being transmitted by Westinghouse letter LTR-NRC-07-14 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 methods utilized to determine the magnitude and characteristics of transmitter and process rack drift such that surveillance intervals may be extended.

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

(a) Determine and justify extended transmitter surveillance intervals.

(b) Determine and justify extended process rack surveillance intervals.

(c) Determine and justify different instrument uncertainty calculation methodologies.

Further this information has substantial commercial value as follows:

(a) Westinghouse plans to sell the use of the information to its customers for the purpose of transmitter and process rack surveillance extension.

(b) Westinghouse can sell support and defense of transmitter and process rack surveillance extension.

(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 surveillance extension and instrument uncertainty calculation methodologies 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.

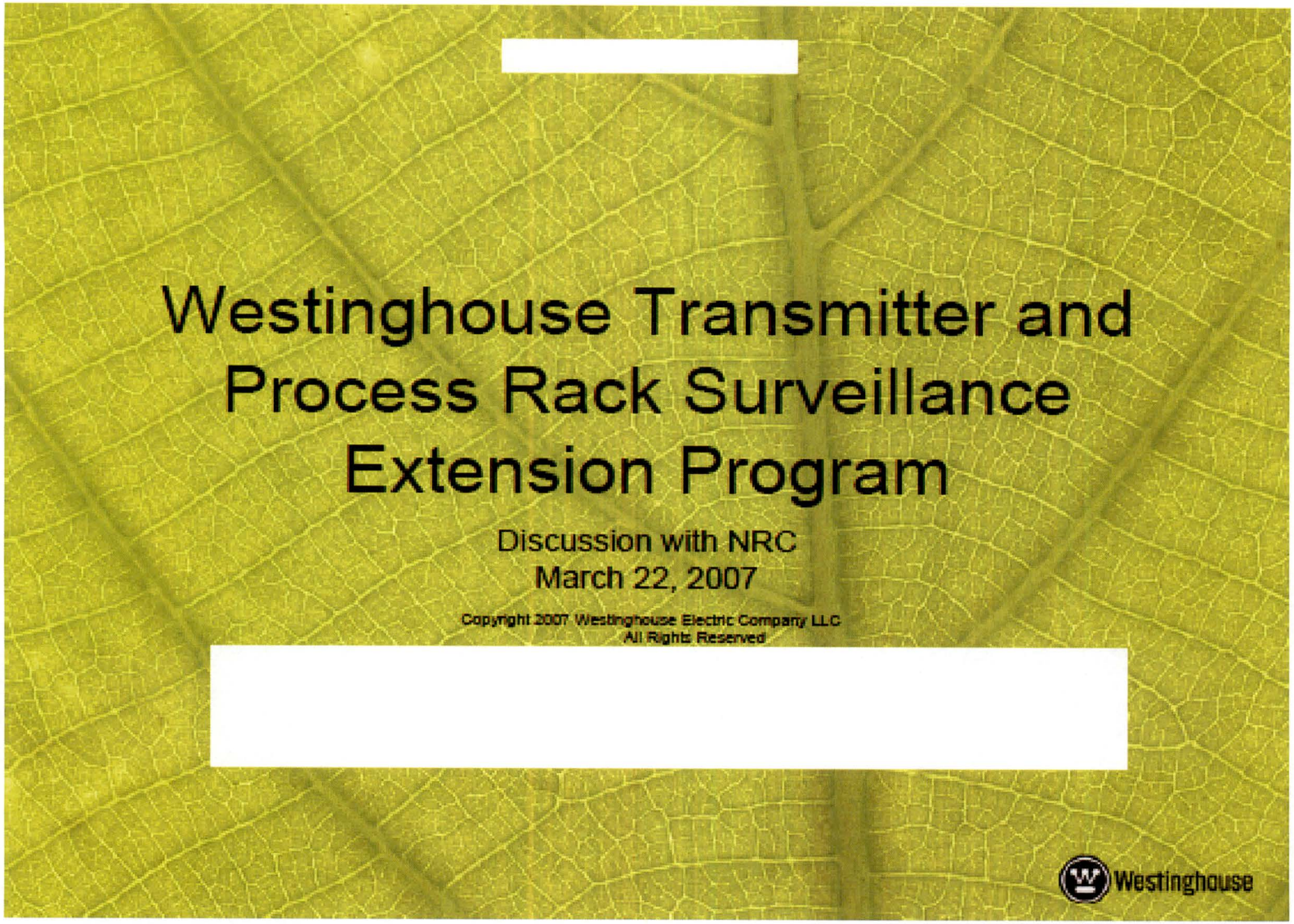
In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has 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.

Westinghouse Responses to NRC RAIs on WCAP-17503-P

Appendix C


Westinghouse Transmitter and Process Rack Surveillance Extension Program
Discussion with NRC
March 22, 2007
Copyright 2007 Westinghouse Electric Company LLC
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Westinghouse

Objectives

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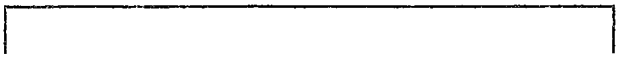

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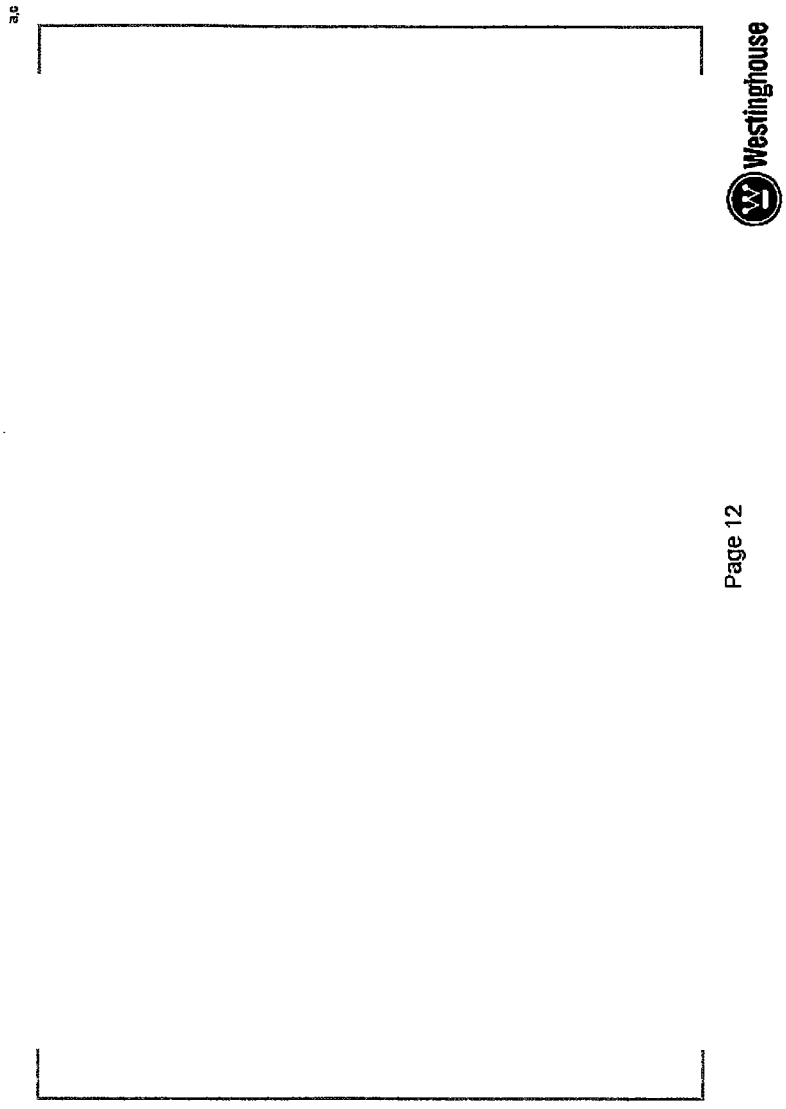
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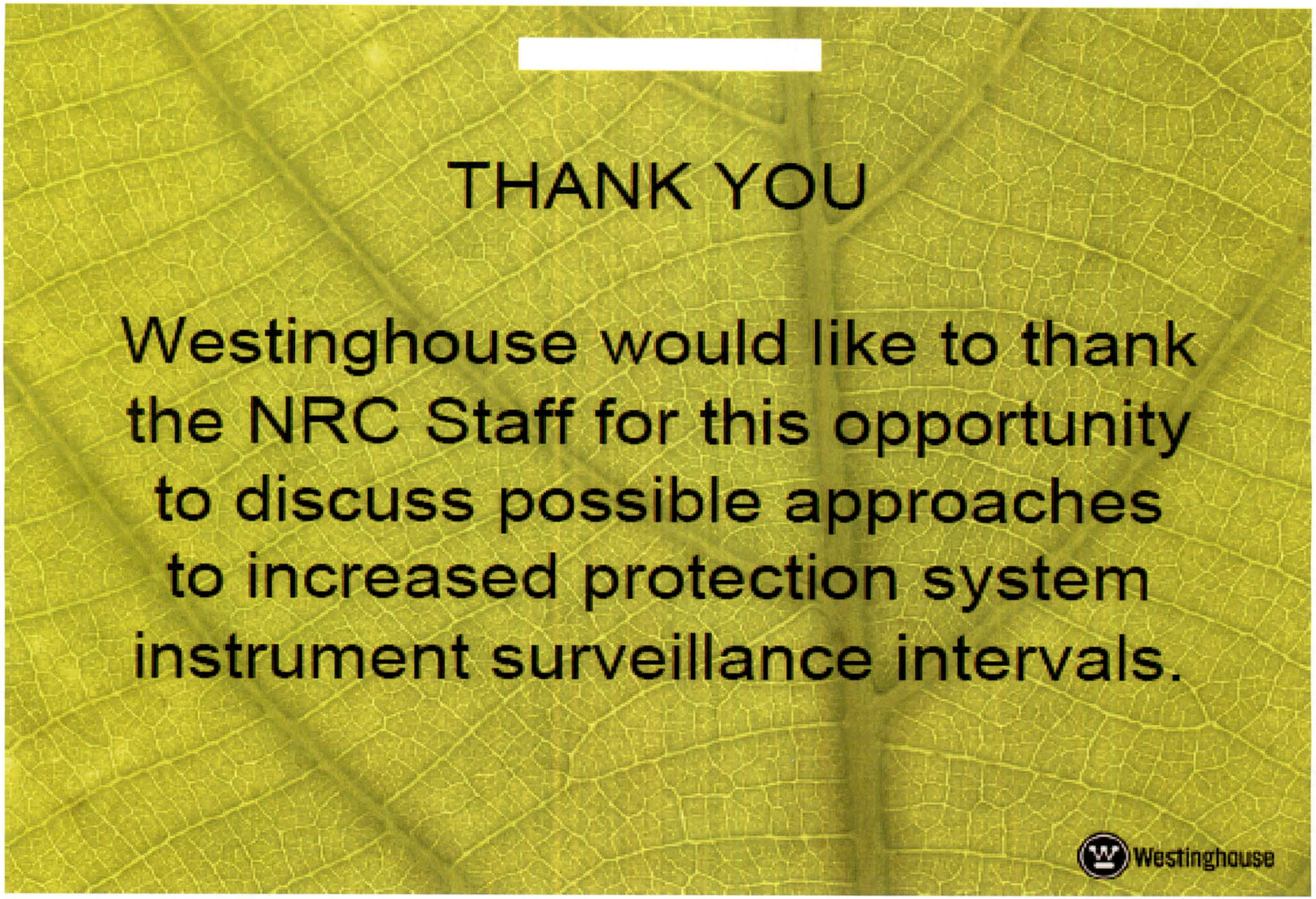
THANK YOU
Westinghouse would like to thank the NRC Staff for this opportunity to discuss possible approaches to increased protection system instrument surveillance intervals.
Westinghouse