

NUCLEAR DEVELOPMENT

*SNC Vogtle 3&4 and
SCE&G VC Summer 2&3*

SNC and SCANA ITAAC 2.5.02.10 Closure
Plan for Setpoint Methodology

Agenda

- Purpose
- Current Licensing Basis
- Setpoint Methodology
- SNC and SCANA ITAAC 2.5.02.10 Closure Plan
- WCAP-16361, “Westinghouse Setpoint Methodology for Protection Systems – AP1000” and RG. 1.105 rev. 4, “Setpoints for Safety-Related Instrumentation”
- Summary

Purpose

- Discuss SNC and SCANA plan to address ITAAC 2.5.02.10 in regards to the Setpoint Methodology
 - RG 1.105, “Setpoints for Safety-Related Instrumentation,” Rev. 3
 - WCAP-16361, “Westinghouse Setpoint Methodology for Protection Systems – AP1000,” Rev. 1
- Communicate the application of RG 1.105 rev. 3 and WCAP-16361, Rev. 1 for performing setpoint calculations
 - These documents define the methodology for meeting 95/95 criterion for the Channel Statistical Allowance (CSA) level and not the individual term level

Current Licensing Basis

UFSAR References

- Appendix 1A
Reg. Guide 1.105, Rev. 3, 12/99 – Instrument Setpoints for Safety-Related Systems [**Conforms to ISA-S67.04-1994**]
- UFSAR, Section 7.1.6 Combined License Information
The calculation of setpoints for protective functions consistent with the methodology presented in Reference 5 is addressed in **WCAP-16361-P** (Reference 17). Reference 5 is an AP600 document that describes a methodology that is applicable to AP1000. AP1000 has some slight differences in instrument spans.

The Setpoint Program described in Technical Specifications Section 5.5 provides the appropriate controls for update of the instrumentation setpoints following completion of the calculation of setpoints for protective functions and the reconciliation of the setpoints against the final design.

Current Licensing Basis

Technical Specification References

- 5.5.14 Setpoint Program (SP)
 - 5.5.14 (b) - The Nominal Trip Setpoint (NTS), As-Found Tolerance (AFT), and As-Left Tolerance (ALT) for each Technical Specification required automatic protection instrumentation function shall be calculated in conformance with WCAP-16361-P, “Westinghouse Setpoint Methodology for Protection Systems – AP1000,” February 2011.
 - 5.5.14 (e) - The SP shall establish a document containing the current value of the specified NTS, AFT, and ALT for each Technical Specification required automatic protection instrumentation function and references to the calculation documentation...This document, including any revisions or supplements, shall be provided upon issuance to the NRC.

Setpoint Methodology

WCAP-16361: AP1000 Setpoint Methodology, Revision 1 (Incorporated by Reference)

- NRC Safety Evaluation [ML072260620]: “The setpoint methodology and calculations for the RTS/ESFAS functions are consistent with the guidance contained in RG 1.105” [rev. 3]
- WCAP-16361-P, Rev. 1 meets RG 1.105 Rev. 3
 - Two-sided uncertainties by using the Square Root-Sum-of-Squares (SRSS)
 - Contains requirements for Safety Related Setpoints
 - Introduce conservatism (margin), where determined appropriate
 - 95% probability with 95% confidence is defined at the Channel Statistical Allowance (CSA) [not individual term level]
 - Individual terms are based on Vendor supplied data. These parameters are treated as 95/95 values unless specified otherwise by the vendor.

Inspections, Tests, Analyses, and Acceptance Criteria

ITACC No.	Design Commitment	Inspections, Test, Analyses	Acceptance Criteria
2.5.02.10	10. Setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.	Inspection will be performed for a document that describes the methodology and input parameters used to determine the PMS setpoints.	A report exists and concludes that the PMS setpoints are determined using a methodology which accounts for loop inaccuracies, response testing, and maintenance or replacement of instrumentation.

SNC and SCANA ITAAC 2.5.02.10 Closure Plan

- Site specific setpoint calculations will be prepared to address the ITAAC requirement.
 - Setpoint calculations will begin in April 2016.
- AP1000 Setpoint Methodology will be used: WCAP-16361, rev. 1.
- RG 1.105 Rev 3 will be the regulatory basis.
- Site specific Setpoints will be prepared and issued to the NRC.

WCAP-16361, “Westinghouse Setpoint Methodology for Protection Systems – AP1000” and Draft RG. 1.105 rev. 4, “Setpoints for Safety-Related Instrumentation”

WCAP-16361 and RG 1.105 Rev. 4 Individual Uncertainty Comparison

- WCAP-16361
 - Individual device parameters are, considered to be independent, two-sided, unverified (by plant calibration or drift determination processes [Reference Accuracy, Temperature Effect, Pressure Effects]), **vendor supplied terms**. Based on vendor supplied data, typically product data sheets and qualification reports, **these parameters are treated as 95/95 values unless specified otherwise by the vendor.**
- Draft RG 1.105 Rev. 4
 - **“Uncertainty data should be modeled using population statistics based on the 95/95 criterion as described under “Uncertainty Data and the 95/95 Criterion” in this RG. This applies to the individual uncertainty elements for each device and to all intermediate and final statistical results.”**

Summary

- SNC and SCANA are licensed to RG 1.105, rev. 3
 - WEC WCAP-16361, Rev. 1 was approved for use by the NRC to meet compliance with RG 1.105, Rev. 3
- ITAAC closure is based on the setpoint methodology described in WCAP-16361, Rev. 1
- Draft RG 1.105 Rev. 4 and WCAP-16361, Rev. 1 utilize different methods for determining individual uncertainty terms
- SNC and SCANA use the 95/95 criteria at the CSA level in accordance with the current licensing basis

Questions

