SER Compliance with WCAP-16260-P-A, Rev. 1, "The Spatially Corrected Inverse Count Rate (SCICR) Method for Subcritical Reactivity Measurement" (Non-Proprietary)

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Reactivity-Sensitivity Analyses of SCICR Application at Wolf Creek Unit 1

The first application of the spatially corrected inverse count rate (SCICR) method for subcritical reactivity measurement is planned for initial application at Wolf Creek Unit 1. This method of reactivity measurement is described in the approved Westinghouse Topical Report (TR) WCAP-16260-P-A, Rev. 1. The final safety evaluation performed by the NRC staff (TAC No. MC3065) included the condition that reactivity-sensitivity analyses must be conducted and submitted to the NRC staff for review/audit on a plant-specific basis to pre-determine any masking effect (biases) in the SCICR applications at each plant.

The sensitivity calculations were performed in the same manner as described in Section 5.3 of WCAP-16260-P-A, Rev. 1. The results of the core reactivity bias and control rod constant bias cases are presented below. These are equivalent to Tables 5-2 and 5-4 of WCAP-16260-P-A, Rev. 1.

Wolf Creek Unit 1
Quality of the SCICR Line Fit in the Simulated Cases
With Core Reactivity and Control Rod Constants Biases
(RMS = Root Mean Squared, pcm = 10^{-5})

a, c

[

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The reactivity-sensitivity results for Wolf Creek Unit 1 exhibit similar trends as those presented in WCAP-16260-P-A, Rev. 1 for the applicable plant/core type. Therefore, it is concluded that the sensitivity of the SCICR methodology to a core reactivity bias is very small or conservative and non-masking for Wolf Creek Unit 1. [

]$^{a, c}$.