



Tom Simril
Vice President
Catawba Nuclear Station
Duke Energy
CN01VP | 4800 Concord Road
York, SC 29745
o: 803.701.3340
f: 803.701.3221

CNS-17-027

10 CFR 50.59
10 CFR 50.4

May 10, 2017

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

Duke Energy Carolinas, LLC (Duke Energy)
Catawba Nuclear Station, Units 1 and 2
Docket Nos.50-413 and 50-414
Renewed License Nos.NPF-35 and NPF-52

Subject: 2015/2016 10 CFR 50.59 Evaluation Summary Report

Attached please find the 2015/2016 10 CFR 50.59 Evaluation Summary Report. The report contains a brief description of changes, tests, and experiments, including a summary of the safety evaluations for Catawba Nuclear Station, Units 1 and 2. This report is submitted pursuant to the provisions of 10 CFR 50.59(d)(2) and 10 CFR 50.4.

If there are any questions regarding this submittal, please contact Tolani E. Owusu at (803) 701-5385.

Sincerely,

Tom Simril
Vice President, Catawba Nuclear Station

IE47
NRR

Attachment
Catawba Nuclear Station, Units 1 and 2 2015/2016 10 CFR 50.59 Evaluation Summary Report

U.S. Nuclear Regulatory Commission
CNS-17-027
May 10, 2017
Page 2

cc: Attachment

C. Haney,
Regional Administrator
U.S. Nuclear Regulatory Commission - Region II
Marquis One Tower
245 Peachtree Center Ave., NE Suite 1200
Atlanta, GA 30303-1257

J. D. Austin,
Senior Resident Inspector
U.S. Nuclear Regulatory Commission
Catawba Nuclear Station

M. Mahoney,
NRC Project Manager (Catawba)
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Mailstop O-8H4A
Rockville, MD 20852-2738

S. E. Jenkins
Manager
Radioactive & Infectious Waste Management
Division of Waste Management
South Carolina Department of Health and Environmental Control
260 Bull St.
Columbia, SC 29201

U.S. Nuclear Regulatory Commission
CNS-17-027
May 10, 2017

Attachment
Catawba Nuclear Station, Units 1 and 2
2015/2016 10 CFR 50.59 Evaluation Summary Report

Action Request 01351537

EC105813 - Upgrade Unit 1 Main Feedwater Control and Bypass Valve Positioners

The present pneumatic valve positioners for the Main Feedwater Control Valves (MFCVs) and Bypass Feedwater Control Valves (BFCVs) are obsolete and present other maintenance and reliability challenges such as susceptibility to drift and absence of ability to communicate with the Distributed Control System (DCS) without additional hardware. Also, single point vulnerabilities exist with the single MFCV pneumatic positioners such that the failure of a single positioner could lead to a unit trip.

To address the obsolescence, maintenance, and reliability concerns the feedwater control system will be upgraded under EC 105813 to replace the pneumatic positioners with digital positioners, provide redundant positioners for the MFCVs, provide capability to switch between the primary and backup MFCV positioners, and replace existing safety-related solenoid valves, including removal of the Wabco quick release valves for the BFCVs.

The revised system will continue to perform the same basic function of using a control air signal to modulate control valve position in order to maintain proper steam generator water levels with respect to reactor power output and turbine steam requirements. There is no impact on the Technical Specifications.

The proposed change has been evaluated relative to each of the eight (8) evaluation questions in 10CFR50.59 and the supplemental questions for digital upgrades from NEI 01-01 Appendix A. Considering the probability and consequences of the various hardware and software failure modes of the proposed changes, the evaluation concluded that this change can be implemented without prior NRC approval.

Action Request 01962944

Revision to Methodology Report DPC-NE-2009-P-A to implement Revision 1-A to WCAP-8963-P-A Addendum 1-A, Safety Analysis for the Revised Fuel Rod Internal Pressure Design Basis (Departure from Nucleate Boiling Mechanistic Propagation Methodology)

The proposed activity being evaluated is a revision to the fuel rod analysis methodology (Section 4.0) in the Westinghouse Fuel Transition methodology report (DPC-NE-2009-P-A). The proposed activity adds a mechanistically based DNB propagation methodology to DPC-NE-2009-P-A. Specifically, methodology report DPC-NE-2009-P-A Revision 3a is being revised to implement Revision 1-A to WCAP-8963-P-A Addendum 1-A, Safety Analysis for the Revised Fuel Rod Internal Pressure Design Basis (Departure from Nucleate Boiling Mechanistic Propagation Methodology), which has been previously approved by the NRC. DPC-NE-2009 methods are considered part of the Updated Final Safety Analysis Report (UFSAR, Reference 3) via reference, and as such, are considered "as described in the UFSAR." This 10 CFR 50.59 evaluation is performed in accordance with guidance in Revision 1 of NEI 96-07 endorsed by the NRC via Regulatory Guide 1.187. It was concluded that the proposed activity is not a departure from a method of evaluation described in the UFSAR, and thus does not require NRC review and approval.

Action Request 01992138

EC105814/000 - Upgrade Unit 2 Main Feedwater Control and Bypass Valve Positioners

The present pneumatic valve positioners for the Main Feedwater Control Valves (MFCVs) and Bypass Feedwater Control Valves (BFCVs) are obsolete and present other maintenance and reliability challenges such as susceptibility to drift and absence of ability to communicate with the Distributed Control System (DCS) without additional hardware. Also, single point vulnerabilities exist with the single MFCV pneumatic positioners such that the failure of a single positioner could lead to a unit trip.

To address the obsolescence, maintenance, and reliability concerns the feedwater control system will be upgraded under EC 105814 to replace the pneumatic positioners with digital positioners, provide redundant positioners for the MFCVs, provide capability to switch between the primary and backup MFCV positioners, and replace existing safety-related solenoid valves, including removal of the Wabco quick release valves for the BFCVs.

The revised system will continue to perform the same basic function of using a control air signal to modulate control valve position in order to maintain proper steam generator water levels with respect to reactor power output and turbine steam requirements. There is no impact on the Technical Specifications.

The proposed change has been evaluated relative to each of the eight (8) evaluation questions in 10CFR50.59 and the supplemental questions for digital upgrades from NEI 01-01 Appendix A. Considering the probability and consequences of the various hardware and software failure modes of the proposed changes, the evaluation concluded that this change can be implemented without prior NRC approval.