



**Memorandum from the Office of the Inspector General**

February 16, 2024

Matthew Rasmussen

**FINAL REPORT – EVALUATION 2023-17439 – RADIOLOGICAL RESPIRATORY PROTECTION PROGRAM**

Title 10, Code of Federal Regulations, Part 20, requires that occupational radiation exposure be maintained as low as reasonably achievable. The Tennessee Valley Authority's (TVA) Nuclear Power Group (NPG) Standard Programs and Processes (SPP) 05.10, *Radiological Respiratory Protection Program*, establishes TVA Nuclear's policy to minimize the uptake of radioactive material and internal radiation exposure through a respiratory protection program. Due to the risk of employee exposure to airborne radioactive materials and industrial/chemical airborne hazardous materials, we performed an evaluation to determine if selected respiratory requirements from NPG-SPP-05.10 were performed at nuclear plants.

We found the selected respiratory requirements we reviewed for NPG-SPP-05.10 were being performed as required at TVA nuclear plants. Specifically, we found (1) training and medical evaluations were completed as required, and (2) all plants were meeting requirements for appraising the effectiveness of their Radiological Respiratory Protection Programs.

**BACKGROUND**

As noted above, Title 10, Code of Federal Regulations, Part 20, requires that occupational radiation exposure be maintained as low as reasonably achievable. NPG-SPP-05.10 establishes the NPG policy to minimize the uptake of radioactive material and internal radiation exposure through a respiratory protection program.

NPG-SPP-05.10 states respiratory protection devices should only be used by individuals who have been medically certified, trained for use of the respiratory protection equipment, received initial employment whole-body monitoring, and received a respirator fit test for those protection devices requiring a tight facial seal. To determine an individual's ability to wear respiratory protection equipment, a medical evaluation is required annually.

NPG-SPP-05.10 also requires the Respiratory Protection Program Administrator conduct an appraisal of the effectiveness of the respirator program at least annually. According to the SPP, the evaluation of the program should include investigating wearer acceptance of respirators, respirator fit, respirator selection, respirator program operation, appraising protection provided by the respirator, and proper respirator maintenance. The findings of this evaluation will be documented, to include plans to correct any faults identified in the program and target dates for the implementation of the plans.

Due to the risk of employee exposure to airborne radioactive materials and industrial/chemical airborne hazardous materials at TVA nuclear plants, we performed this evaluation of the radiological respiratory protection program.

### **OBJECTIVE, SCOPE, AND METHODOLOGY**

The objective of this evaluation was to determine if selected respiratory requirements from NPG-SPP-05.10 were performed at nuclear plants. The scope of this evaluation was July 1, 2022 through June 30, 2023. The selected respiratory requirements we reviewed were training, medical evaluations, fit tests,<sup>1</sup> and annual appraisals of the effectiveness of the plants Radiological Respiratory Programs. To achieve our objective, we:

- Interviewed nuclear corporate and plant personnel to gain an understanding of the Radiological Respiratory Protection Program.
- Reviewed documentation to determine if issues had been identified with the Radiological Respiratory Protection Program, including:
  - Condition reports<sup>2</sup>
  - Safety incidents
  - Nuclear Regulatory Commission integrated inspection reports
- Performed the following tests to determine if selected requirements of NPG-SPP-05.10 were being performed. Specifically, we:
  - Selected a statistical sample of 158 of 1,872<sup>3</sup> respirators issued at TVA nuclear plants during our scope to determine if the individual assigned the respirator had the training and medical examination required. We selected the sample using rate of occurrence sampling with a 95-percent confidence level.
  - Reviewed documentation to determine if TVA nuclear plants conducted annual appraisals of the effectiveness of their radiological respiratory programs.

This evaluation was conducted in accordance with the Council of the Inspectors General on Integrity and Efficiency's *Quality Standards for Inspection and Evaluation*.

### **FINDINGS**

We found selected respiratory requirements for NPG-SPP-05.10 were being performed at TVA nuclear plants. Specifically, we found training and medical evaluations were completed as required. Our review of training and medical documentation for a sample of 158 individuals assigned respirators found no exceptions. In addition, we found all plants were meeting requirements for appraising the effectiveness of their Radiological Respiratory Protection Program.

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<sup>1</sup> None of the respirators issued in our scope required a fit test; therefore, we did not review.

<sup>2</sup> A condition report is the document used within the TVA Corrective Action Program to document how a problem was found, how the problem was analyzed, and how the problem was fixed.

<sup>3</sup> The 158 sample size was based on our original population of 1,900 respirators issued; however, 29 respirators were outside the scope of our evaluation. While the reduction in our population would have resulted in a 157 sample size, we performed testing of the 158 sample respirators.

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This report is for your review and information. No response to this report is necessary. If you have any questions or wish to discuss our observations, please contact Kristin S. Leach, Senior Auditor, at (423) 785-4818 or Lindsay J. Denny, Director, Evaluations – Operations, at (865) 633-7349. We appreciate the courtesy and cooperation received from your staff during the evaluation.



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(Audits and Evaluations)

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