Memorandum from the Office of the Inspector General

November 8, 2017

David M. Czufin, LP 3R-C

REQUEST FOR MANAGEMENT DECISION – EVALUATION 2017-15461 – TVA NUCLEAR CORRECTIVE ACTION PROGRAM – WATTS BAR

Attached is the subject final report for your review and management decision. You are responsible for determining the necessary actions to take in response to our findings. Please advise us of your management decision within 60 days from the date of this report.

Information contained in this report will be subject to public disclosure. Please advise us of any sensitive information in this report that you recommend be withheld.

If you have any questions, please contact Samuel L. Ruble, Senior Auditor, Evaluations, at (865) 633-7384 or E. David Willis, Director, Evaluations, at (865) 633-7376. We appreciate the courtesy and cooperation received from your staff during the evaluation.

David P. Wheeler
Assistant Inspector General
(Audits and Evaluations)
ET 3C-K

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Attachment
cc (Attachment):
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OIG File No. 2017-15461

Office of the Inspector General

Evaluation Report

To the Senior Vice President, Engineering and Operations Support

TVA NUCLEAR CORRECTIVE ACTION PROGRAM – WATTS BAR

Senior Auditor
Samuel L. Ruble

Evaluation 2017-15461
November 8, 2017

ABBREVIATIONS

CAP	Corrective Action Program
CR	Condition Report
CWEL	Chilled Work Environment Letter
CYs	Calendar Years
NPG	Nuclear Power Group
NRC	Nuclear Regulatory Commission
PI	Performance Improvement
RCA	Root Cause Analysis
SPP	Standard Programs and Processes
TVA	Tennessee Valley Authority
Watts Bar	Watts Bar Nuclear Plant

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Why the OIG Did This Evaluation

In March 2016, the Nuclear Regulatory Commission (NRC) issued a Chilled Work Environment Letter (CWEL) for the Tennessee Valley Authority's (TVA) Watts Bar Nuclear Plant (Watts Bar). The NRC concluded a "chilled work environment"[i] existed in the Operations Department because of a perception that operators were not free to raise safety concerns using all available avenues without fear of retaliation. In the CWEL, the NRC raised concerns about whether TVA's Corrective Action Program (CAP) had been effective at identifying and resolving safety issues. Due to the concerns raised in the CWEL, we initiated evaluations of the CAPs at Watts Bar, Sequoyah, and Browns Ferry Nuclear Plants to determine if the CAPs were effective in resolving concerns.

This report covers our review of Watts Bar's CAP. Since the NRC had recently completed a Problem Identification and Resolution Inspection of Watts Bar CAP, we limited the scope of this evaluation to anonymous condition reports (CRs)[ii] initiated in calendar years 2015 and 2016.

What the OIG Found

We determined that TVA took actions to address the anonymous CAP CRs in a timely manner. Specifically, we found for 22 of the 25 CAP CRs tested, the actions were completed within a reasonable time frame. The remaining 3 CAP CRs were appropriately closed to another CR that was previously initiated for the same concern and is scheduled for completion in May 2018. However, we did identify an opportunity for improvement related to (1) routing of handwritten, anonymous CRs and (2) documenting that CRs are routed to the appropriate personnel.

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[i] According to the NRC Inspection Procedure 93100, "A 'chilled work environment' is one in which employees perceive that raising safety concerns to their employer or to the NRC is being suppressed or is discouraged and can occur because of an event, interaction, decision, or policy change."

[ii] A CR is a computer generated or paper form used to document evaluation and resolution of conditions (CAP and non-CAP) in the CR Application within Maximo (the Tennessee Valley Authority's work management system). The CR is considered within the scope of CAP if the issue is associated with a safety-related or quality-related system, structure, or component. C-level CRs are in scope of CAP. E-level CRs are non-CAP.

What the OIG Recommends

We recommend the Senior Vice President, Engineering and Operations Support, require (1) handwritten, anonymous CRs be typed prior to routing to appropriate personnel for identity protection of the originator and (2) documentation be maintained that verifies CRs are routed to the appropriate personnel.

TVA Management's Comments

TVA management informally responded to our draft report and stated they had no comments to add to the report.

BACKGROUND

The Nuclear Regulatory Commission (NRC) defines a Corrective Action Program (CAP) as the system by which a utility identifies and resolves problems at a nuclear plant. The CAP includes a process for evaluating the safety significance of the problems, setting priorities in correcting the problems, and tracking them until they have been corrected. The NRC further states that an adequate CAP supports a safety conscious work environment because it (1) enables employees to identify concerns that may affect facility safety and security and (2) provides a formal mechanism for the review and resolution of such concerns.

Nuclear Regulatory Commission's Code of Federal Regulations, Title 10, Part 50, Appendix B, outlines the expectations for nuclear plant's CAP. It states:

> Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition, and the corrective action taken shall be documented and reported to appropriate levels of management.

The Tennessee Valley Authority's (TVA) Nuclear Power Group (NPG) Standard Programs and Processes (SPP) 22.300, Corrective Action Program, states the CAP (1) identifies and drives the correction of conditions and (2) is designed to address conditions in a manner consistent with the nature of the condition and its importance to plant safety, personnel safety, or plant reliability. The procedure states the scope of CAP includes (1) documentation and resolution of conditions adverse to quality and (2) documentation of conditions that potentially affect structures, systems, components or programmatic elements that are safety-related,[1] quality-related,[2] or related to other key elements such as design, licensing, regulated events, and nuclear safety culture.

In March 2016, the NRC issued a Chilled Work Environment Letter (CWEL) for Watts Bar Nuclear Plant (Watts Bar) that concluded a "chilled work environment"[3] existed in the Operations Department because of a perception that operators were not free to raise safety concerns using all available avenues without fear of retaliation. Additionally, the NRC called into question whether the CAP had been

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1 A term that relates primarily to accident prevention and/or mitigation functions.

2 A term that encompasses quality assurance program requirements for activities that affect structures, systems, and components.

3 According to the *NRC Inspection Manual*, Inspection Procedure 93100, "A 'chilled work environment' is one in which employees perceive that raising safety concerns to their employer or to the NRC is being suppressed or is discouraged and can occur because of an event, interaction, decision, or policy change."

effective in identifying and resolving safety issues. The NRC further stated that information from the CAP had provided opportunities for management to identify changes in certain aspects of the safety culture, but the information was not fully acknowledged and acted upon by TVA. TVA's Root Cause Analysis (RCA)[4] to the CWEL acknowledged a weakness in the CAP. TVA stated in the RCA, "The administration of CAP was determined to have contributed to the cause of the chilled work environment, as it did not provide opportunities for management to identify issues sooner."

As a result of the concerns raised in the CWEL, we initiated evaluations of the CAPs at Watts Bar, Sequoyah, and Browns Ferry Nuclear Plants to determine if the CAPs were effective in resolving concerns. This report summarizes our evaluation of the CAP at Watts Bar.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of our evaluation was to determine whether the Watts Bar CAP is effective in resolving concerns. During the course of our evaluation, the NRC conducted a Problem Identification and Resolution Inspection at Watts Bar in which the NRC ". . . inspectors identified a weakness in the licensee's ability to identify problems and enter them into the CAP." Due to the NRC's findings related to the Watts Bar CAP and because the Problem Identification and Resolution did not discuss anonymous condition reports (CRs),[5] we limited the scope of this evaluation to anonymous CRs initiated in calendar years (CYs) 2015 and 2016. For the purposes of this review, we defined effective as completing actions (1) to address the issue and (2) in a timely manner. We did not assess the adequacy of the actions taken to address the concerns identified.

To achieve our objective we:

- Reviewed pertinent SPPs to gain an understanding of TVA's CAP process, including:
  - NPG-SPP-22.300, Corrective Action Program
  - NPG-SPP-22.302, Corrective Action Program Screening
  - NPG-SPP-01.16, Condition Report Initiation
- Interviewed the Watts Bar Performance Improvement (PI) manager to gain a better understanding of CAP processes and procedures.

[4] Watts Bar approached this action by using the CAP to develop an RCA. The RCA was designed to identify the root cause that allowed the chilled work environment to exist.

[5] A CR is a computer generated or paper form used to document evaluation and resolution of conditions (CAP and non-CAP) in the CR Application within Maximo (TVA's work management system). The CR is considered within the scope of CAP if the issue is associated with a safety-related or quality-related system, structure, component or program, or other regulatory significant programs. C-level CRs are in scope of CAP. E-level CRs are non-CAP.

- Reviewed the NRC's Watts Bar Nuclear Plant – NRC Problem Identification and Resolution Inspection (Part 2) issued on March 10, 2017, to determine what CAP issues, if any, were identified by the NRC.
- Obtained and reviewed 257 (25 C-Level and 232 non-CAP) anonymous CRs initiated from January 1, 2015, to December 31, 2016.
- Reviewed all 25 anonymous CAP (C-Level) CRs to determine if the CR was completed:
  - By reviewing Maximo and supporting documentation when documentation was available.[6]
  - In a timely manner by verifying (1) the corrective action plans were developed within the required number of days, and (2) the corrective actions were completed within a reasonable time frame.
- Reviewed the 232 non-CAP CRs to determine if they were correctly classified as E-level in accordance with NPG-SPP-22.300, Corrective Action Program.
- Judgmentally selected all nuclear safety culture-related CRs (60 of 257) to determine if they were routed to the appropriate personnel in accordance with NPG-SPP-01.16, Condition Report Initiation, and NPG-SPP-22.302, Corrective Action Program Screening.

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

FINDINGS

We determined that TVA took actions to address the anonymous CAP CRs in a timely manner. Specifically, we found for 22 of the 25 CAP CRs tested, the actions were completed in a reasonable time frame. The remaining 3 CAP CRs were appropriately closed to another CR that was previously initiated for the same concern and is scheduled to be completed in May 2018. However, we identified opportunities for improvement relating to the routing of anonymous CRs.

CAP CRS WERE COMPLETED AND TIMELY

Based on the documentation maintained in Maximo and the information obtained from the PI manager, we determined the actions for 22 of the 25 CAP CRs, initiated in CYs 2015 and 2016, were completed and the actions were timely. The remaining 3 CRs were appropriately closed to a similar CR, which contained the same issue, whose actions were still ongoing.

[6] Some CRs in Maximo had no documented attachments due to being closed to either an all-hands briefing, shop-specific briefings, or individual coaching.

OPPORTUNITY FOR IMPROVEMENT RELATED TO ROUTING OF ANONYMOUS CRS

Although the actions taken to address anonymous CAP CRs were completed in a timely manner, we identified opportunities for improvement related to (1) routing of handwritten, anonymous CRs and (2) documenting that CRs are routed to the appropriate personnel.

Handwritten, Anonymous CRs

NPG-SPP-01.16, Condition Report Initiation, requires all anonymous CRs (CAP and non-CAP) be routed to appropriate personnel. Handwritten CRs are copied and sent to all appropriate personnel. During the scope of our evaluation, a CR was submitted at Watts Bar stating that management might be able to determine the identity of employees writing anonymous CRs based on the handwriting. Additionally, an employee at Sequoyah Nuclear Plant stated that several people had expressed concerns about managers identifying their handwriting[7] on anonymous CRs.

The current practice of sending the handwritten copy directly to management could increase the risk of retaliation and deter employees from submitting CRs.

Routing of Anonymous CRs

NPG-SPP-01.16, Condition Report Initiation, requires all anonymous CRs (CAP and non-CAP) to be routed to appropriate personnel. NPG-SPP-01.16 requires all anonymous CRs to be routed to the following individuals:

- Employee Concerns Specialist/Employee Concerns Program Manager
- Director, Plant Support/Director, PI
- Plant Manager
- Site Vice President/Vice President
- Corporate Senior Program Manager, Safety Culture

During our evaluation, we requested evidence that the 60 judgmentally sampled, anonymous CRs were routed in accordance with the SPP. TVA was unable to provide evidence that 15 (8 of which were CAP) of 60 CRs were routed to any of the appropriate individuals. According to TVA personnel, CRs are routed using e-mail, and the staff members who were responsible for the 15 are no longer employed at Watts Bar.

Without documentation of routing, it would be difficult for management or oversight groups to determine if the appropriate personnel were made aware of potentially significant concerns raised within the plant.

[7] Eighty-seven of the anonymous CRs received in CYs 2015 and 2016 were handwritten.

RECOMMENDATIONS

We recommend the Senior Vice President, Engineering and Operations Support, require (1) handwritten, anonymous CRs be typed prior to routing to appropriate personnel for identity protection of the originator and (2) documentation be maintained that verifies CRs are routed to the appropriate personnel.

TVA MANAGEMENT'S COMMENTS

TVA management informally responded to our draft report and stated they had no comments to add to the report.