



Memorandum from the Office of the Inspector General

April 18, 2024

Lisa A. McKinney

REQUEST FOR FINAL ACTION – EVALUATION 2023-17441 – BUILDING AND
INFRASTRUCTURE MANAGEMENT

Attached is the subject final report for your review and final action. Your written comments, which addressed your management decision and actions planned or taken, have been included in the report. Please notify us when final action is complete. In accordance with the Inspector General Act of 1978, as amended, the Office of the Inspector General is required to report to Congress semiannually regarding evaluations that remain unresolved after 6 months from the date of report issuance.

If you have any questions or wish to discuss our findings, please contact Heather R. Kulisek, Manager, Evaluations - Operations, at (423) 785-4815 or Lindsay J. Denny, Director, Evaluations - Operations, at (865) 633-7349. We appreciate the courtesy and cooperation received from your staff during the evaluation.

David P. Wheeler
Assistant Inspector General
(Audits and Evaluations)

HRK:FAJ

Attachment

cc (Attachment):

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OIG File No. 2023-17441



Office of the Inspector General

Evaluation Report

To the Director, Facilities Management

BUILDING AND INFRASTRUCTURE MANAGEMENT

Evaluation Team
Heather R. Kulisek
Randall C. Clapp

Evaluation 2023-17441
April 18, 2024

ABBREVIATIONS

FAM	Facilities Asset Management
FY	Fiscal Year
SREG	Strategic Real Estate and Governance
SPP	Standard Programs and Processes
TVA	Tennessee Valley Authority

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MEMORANDUM DATED APRIL 11, 2024, FROM LISA A. MCKINNEY
TO DAVID P. WHEELER



Evaluation 2023-17441 – Building and Infrastructure Management

EXECUTIVE SUMMARY

Why the OIG Did This Evaluation

The Tennessee Valley Authority's (TVA) Executive Policy 37.000, *Real Property*, states that a strategic guiding principle for management of TVA's real-property portfolio is to "manage real property from an enterprise perspective and invest in core assets to improve condition, safety, and utilization." TVA's Strategic Real Estate and Governance organization performs real-property portfolio management functions for TVA, including utilization studies, net present-value calculations, and facilitation of condition assessments. According to TVA Standard Program and Processes 28.005, *Facilities Asset Management Program*, the Facilities Asset Management Program is intended to provide a method to identify, prioritize, and implement repair/replacement projects to ensure core facilities,ⁱ structures, equipment, and properties are maintained in a condition to satisfy their intended operational capabilities. TVA's real-property database lists 3,247 activeⁱⁱ buildings. Additionally, TVA has 75 bridges that it inspects on a routine basis. Due to the importance of proper maintenance to the safe, efficient, and effective operation of assets, we performed an evaluation to determine if TVA has (1) assessed its facilities for safety risksⁱⁱⁱ and (2) developed plans or completed actions to address the identified risks.

What the OIG Found

We found all buildings and infrastructure have not been formally assessed to identify safety risks. Specifically for fiscal years 2022–2023, we found only 111 of 3,247 (approximately 3 percent) active buildings had condition assessments and 376 (approximately 12 percent) had roof^{iv} inspections. All 75 bridges had required inspections. Additionally, actions were not taken or planned for all identified risks. Building and infrastructure safety risks could go unidentified without performing formal assessments at all facilities and risks could increase if actions are not taken to address assets in poor and failed condition.

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- ⁱ TVA Standard Program and Processes 28.005, *Facilities Asset Management Program*, defines a core facility as a "facility that TVA has determined to maintain and is in alignment with the current and future business planning."
- ⁱⁱ According to Facilities Asset Management personnel, "active" is a status for an existing TVA owned or leased building and "retired" status represent buildings that have been sold, demolished, or a misidentified building that is not a TVA building.
- ⁱⁱⁱ For purposes of this review, we considered the safety risks related to the structural elements of TVA's building and infrastructure such as the five subprograms included in TVA-SPP-28.005, *Facilities Asset Management Program*, architectural system, building envelope, building systems, coating and corrosion control, and roads, parking, and grounds.
- ^{iv} We included roof and bridge inspections because they are routine scheduled assessments of structural elements.



Evaluation 2023-17441 – Building and Infrastructure Management

EXECUTIVE SUMMARY

What the OIG Recommends

We made four recommendations to the Director, Facilities Management, related to assessing all TVA facilities for building and infrastructure safety risks and evaluating assets rated in poor or failed condition. Our detailed recommendations are listed in the body of this report.

TVA Management's Comments

Prior to issuing a formal response, TVA management reviewed the draft report and provided informal comments that have been incorporated into the final report as appropriate. In TVA management's formal response to the draft report, they agreed with the recommendations and provided ongoing or planned actions to address the recommendations. See the Appendix for TVA management's complete response.

Auditor's Response

We concur with the ongoing or planned actions to address the recommendations.

BACKGROUND

The Tennessee Valley Authority's (TVA) Facilities Management organization plans, manages, and maintains core building assets across the Tennessee Valley, including portfolio strategy, project implementation, and maintenance of buildings and grounds. TVA Executive Policy 37.000, *Real Property*, states that a strategic guiding principle for management of TVA's real-property portfolio is to "manage real property from an enterprise perspective and invest in core assets to improve condition, safety, and utilization." TVA Standard Programs and Processes (SPP) 37.003, *Utilization of TVA Real Property by TVA*, states the Strategic Real Estate and Governance (SREG) organization within Facilities Management performs real-property portfolio management functions for TVA, including utilization studies, net present-value calculations, and facilitation of condition assessments. According to TVA's real-property database, TVA has 3,247 active¹ buildings. Additionally, TVA has 75 bridges that it inspects on a routine basis.

According to TVA-SPP-28.005, *Facilities Asset Management Program*, the Facilities Asset Management (FAM) Program within Facilities Management is intended to provide a method to identify, prioritize, and implement repair/replacement projects to ensure core facilities,² structures, equipment, and properties are maintained in a condition to satisfy their intended operational capabilities. Assets are classified into five subprograms in the FAM Program, including, architectural systems, building envelope (building exterior), building systems, coating and corrosion control, and roads, parking, and grounds. To assess certain elements of the subprograms, (1) external contractors perform roofing inspections of buildings, and (2) periodic bridge inspections are conducted to evaluate condition and functionality. Program managers of the subprograms are responsible for updating the condition of assets in the real-property database.

In addition, TVA-SPP-28.005, states that condition assessments are completed periodically by facilities personnel, asset owners, and maintenance personnel to ensure the data is accurate. Asset conditions are rated between one and five with one indicating "Failed Condition-Nonfunctional; No Longer Working" and five indicating "Excellent Condition-New or Like New."

According to *TVA Facilities Asset Management Program (FAM) Guidelines*, outside of the condition assessments and inspections performed of roofs and bridges, FAM relies on the TVA strategic business unit/plant to convey issues to FAM program managers. According to FAM personnel, sites are responsible for day-to-day operations and maintenance, including daily walkdowns, routine inspections, and routine preventive and corrective maintenance. During these

¹ According to FAM personnel, "active" is a status for an existing TVA owned or leased building and "retired" status represent buildings that have been sold, demolished, or a misidentified building that was not a TVA building.

² TVA-SPP-28.005, *Facilities Asset Management Program*, defines a core facility as a "facility that TVA has determined to maintain and is in alignment with the current and future business planning."

activities, site personnel are responsible for identifying and mitigating any safety-related issues or changes to the condition of the assets. In addition, TVA employees may request projects for assets in need of repair through a FAM Web site or hotline. During fiscal years (FY) 2022–2023 there were 153 project requests documented in the spreadsheet maintained by FAM.

Due to the importance of proper maintenance to the safe, efficient, and effective operation of assets, we performed an evaluation of building and infrastructure management.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of our evaluation was to determine if TVA has (1) assessed its facilities for safety risks³ and (2) developed plans or completed actions to address the identified risks. The scope of our review included FY 2022–2023. To achieve our objectives, we:

- Reviewed available documentation and conducted interviews to determine requirements for assessing building and infrastructure safety risk.
- Reviewed documentation of condition assessments⁴ performed to determine if all facilities had an assessment performed to identify building and infrastructure safety risks.
- Reviewed all 10 of 153 project requests tracked by FAM that were safety related and contacted applicable personnel and reviewed available documentation to determine if building and infrastructure safety risks were addressed.
- Selected a sample of 74 of 2,034 subprogram assets listed in the real-property database⁵ as being in “Poor Condition-Excessive wear and tear Somewhat Functional” or “Failed Condition-Non-functional; No Longer Working” condition to determine if actions had been planned or taken. We selected a random sample using rate of occurrence sampling with a 90-percent confidence interval, and a 10-percent desired precision range.⁶

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

³ For purposes of this review, we considered the safety risks related to the structural elements of TVA’s building and infrastructure such as the five subprograms included in TVA-SPP-28.005, *Facilities Asset Management Program*.

⁴ We included roof and bridge inspections because they are routine scheduled assessments of structural elements. However, 17 bridges that are considered simple bridges, such as footbridges on trails, were excluded from our review.

⁵ According to TVA management, the real-property database may not be an accurate record of all TVA facilities.

⁶ The date of inspection for the condition determination was not tracked for 1,266 of 2,034 assets; therefore, the results of this testing cannot be projected to the population since they could be outside the scope.

FINDINGS

We found all buildings and infrastructure have not been formally assessed to identify safety risks. Specifically for FY 2022–2023, we found only 111 of 3,247 (approximately 3 percent) active buildings had condition assessments and 376 (approximately 12 percent) had roof inspections. All 75 bridges had required inspections. Additionally, actions were not taken or planned for all identified risks. Building and infrastructure safety risks could go unidentified without performing formal assessments at all facilities and risks could increase if actions are not taken to address assets in poor and failed condition.

ALL BUILDINGS AND INFRASTRUCTURE HAVE NOT BEEN FORMALLY ASSESSED TO IDENTIFY SAFETY RISKS

TVA-SPP-28.005, *Facilities Asset Management Program*, states condition assessments are completed periodically by facilities personnel, asset owners, and maintenance personnel to ensure data is accurate in the real-property database. In addition, TVA-SPP-37.003, *Utilization of TVA Real Property by TVA*, gives SREG the responsibility to facilitate condition assessments. We identified building and infrastructure safety risks were being assessed through condition assessments of specific buildings and inspections of bridges and roofs for FAM. However, we found only 111 of 3,247 (approximately 3 percent) active buildings had condition assessments completed and 376 (approximately 12 percent) had roof inspections completed. All 75 bridges had required inspections.

In FY 2022, consultants performed condition assessments of 17 buildings at 9 of TVA's 17 gas sites. The assessments reviewed the (1) architectural system and building envelope, (2) structural systems, (3) mechanical systems, (4) electrical systems, (5) plumbing systems, (6) fire alarms, fire protection, and life-safety systems, (7) roads, grounds, and parking, and (8) accessible path of travel. In addition, in FY 2023, SREG contracted with an outside party to perform assessments of 94 buildings. According to SREG, the FY 2023 assessments were not as in depth as those conducted in FY 2022.

The real property database indicated roof inspections were performed at 376 of 3,247 active buildings. According to the FAM program manager, there is not a formal document defining which buildings require roof inspections or required frequency. In addition, bridge inspections were performed at all of TVA's 75 bridges. According to FAM personnel, all TVA bridges are inspected biennially to comply with the Federal Highway Administration and National Bridge Inspection Standards.

There is no formal requirement for building and infrastructure safety risks to be assessed at all facilities; however, SREG has the responsibility to facilitate condition assessments. Performing assessments for all TVA's facilities could identify building and infrastructure safety risks. In the future, clarifying expectations around frequency and responsibility for performing condition

assessments and roofing inspections can help ensure facilities are assessed in a timely manner.

ACTIONS WERE NOT TAKEN OR PLANNED FOR ALL IDENTIFIED RISKS

We determined actions (1) were not planned to address all assets rated in poor and failed condition and (2) had been taken for most safety related project requests. For our sample of 74 assets in poor or failed condition,⁷ we reviewed FAM's FYs 2024–2028 project plan and found planned actions to address 9 of the assets. There were 30 assets that required coating and corrosion projects. FAM management stated that due to limited funding of the coatings program, there will always be a large number of assets where the coatings system is in poor or failed condition. Therefore, they have to prioritize which ones will be addressed each year. If there are outages or inspections planned, they can save money by doing them at that time. Additionally, 9 assets were related to buildings at plants that have plans for closure or are retired and therefore had no plans to address the issue. The remaining 25 were not included for reasons such as assets may be in poor or failed condition based on age, but if the asset is functioning, it may not be addressed unless it is causing a safety issue or is not functioning.

Of the 153 project requests made to FAM during our scope, 10 were related to safety. According to available project documentation and contacts, 9 of the 10 projects were completed and the safety concern resolved. The remaining project did not receive funding, but was included in FAM's FYs 2024–2028 project plan.

Poor and failed asset conditions left unaddressed could increase building and infrastructure safety risks.

RECOMMENDATIONS

We recommend the Director, Facilities Management:

- Develop a plan to assess building and infrastructure safety risks.

TVA Management's Comments – TVA management agreed with the recommendation and will develop a plan outlining the roles and responsibilities and inspection frequency to conduct condition assessments, including assessment of building and infrastructure safety risks. See the Appendix for TVA management's complete response.

Auditor's Response – We agree with TVA management's planned action.

⁷ For 1 asset in our sample of 74, we were informed the asset condition had been improved and was no longer in poor or failed condition.

- Develop guidance for performing condition assessments, including the frequency and responsible organization.

TVA Management's Comments – TVA management agreed with the recommendation and will develop a plan outlining the roles and responsibilities and inspection frequency to conduct condition assessments, including assessment of building and infrastructure safety risks. See the Appendix for TVA management's complete response.

Auditor's Response - We agree with TVA management's planned action.

- Develop guidance for performing roof inspections, including buildings to be inspected and required frequency.

TVA Management's Comments – TVA management agreed with the recommendation and is developing a guidance document outlining the inspection frequency for all TVA roofs, along with the inspection frequency to conduct condition assessments. See the Appendix for TVA management's complete response.

Auditor's Response – We agree with TVA management's ongoing action.

- Evaluate assets in poor and failed condition and determine if corrective actions are needed.

TVA Management's Comments – TVA management agreed with the recommendation and is evaluating and identifying which assets in a failed or poor condition require corrective action. See the Appendix for TVA management's complete response.

Auditor's Response - We agree with TVA management's ongoing action.



Tennessee Valley Authority, 1101 Market Street, Chattanooga, TN 37402

April 11, 2024

David P. Wheeler, WT 2C-K
Assistant Inspector General
(Audits and Evaluations)

RESPONSE: EVALUATION 2023-17441 – Building and Infrastructure Management

Thank you for the opportunity to address recommendations from DRAFT Evaluation 2023-17441- Building and Infrastructure Management. We agree with the provided recommendations. Ongoing and planned actions described below will help ensure improvement within Facilities Management and this key business area.

Below are the four recommendations that were made and responses for each, including actions in progress and/or planned.

Recommendation 1: Develop a plan to assess building and infrastructure safety risks.

Response: *Develop a plan outlining the roles and responsibilities and inspection frequency to conduct condition assessments, including assessment of building and infrastructure safety risks.*

Recommendation 2: Develop guidance for performing condition assessments, including the frequency and responsible organization.

Response: *Develop a plan outlining the roles and responsibilities and inspection frequency to conduct condition assessments, including assessment of building and infrastructure safety risks.*

Recommendation 3: Develop guidance for performing roof inspections, including buildings to be inspected and required frequency.

Response: *Develop a guidance document outlining the inspection frequency for all TVA roofs, along with the inspection frequency to conduct condition assessments.*

Recommendation 4: Evaluate assets in poor and failed condition and determine if corrective actions are needed.

Response: *Evaluate and identify which assets in a failed or poor condition require corrective action.*

This memorandum provides acceptance of the noted recommendations. If you have further questions, please contact me at 423-313-2934.

A handwritten signature in black ink that reads "Lisa A. McKinney".

Lisa A. McKinney
Director, Facilities Management
TVA Support Services

Enclosures

cc (Enclosures):

Megan Anderson
William M. Trumm
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Tricia L. Roelofs
Wilson Taylor III
OIG File No. 2023-17441