Memorandum from the Office of the Inspector General

November 4, 2026

Daniel T. Tibbs

REQUEST FOR FINAL ACTION – EVALUATION 2026-17602 – FORT LOUDOUN HYDRO UNIT TWO HYDRO LIFE EXTENSION PROJECT

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 Lisa H. Hammer, Director, Evaluations – Projects, at (865) 633-7342. We appreciate the courtesy and cooperation received from your staff during the evaluation.

Greg Stinson
Assistant Inspector General
(Audits and Evaluations)

RDH:KDS
Attachment
cc (Attachment):
TVA Board of Directors
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OIG File No. 2026-17602

Office of the Inspector General

Evaluation Report

To the Vice President,
Generation Projects and
Outage Management

FORT LOUDOUN HYDRO UNIT TWO HYDRO LIFE EXTENSION PROJECT

Auditor
Regina Headrick

Evaluation 2026-17602
November 4, 2026

ABBREVIATIONS

CM	Construction Manager
FLH	Fort Loudoun Hydro
HLE	Hydro Life Extension
OEM	Original Equipment Manufacturer
PCR	Project Change Request
PM	Project Manager
QMP	Quality Management Plan
SPP	Standard Programs and Processes
TVA	Tennessee Valley Authority

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Evaluation 2026-17602 – Fort Loudoun Hydro Unit Two Hydro Life Extension Project

EXECUTIVE SUMMARY

Why the OIG Did This Evaluation

The Tennessee Valley Authority's (TVA) energy portfolio includes 29 hydroelectric plants, consisting of 109 generating units. The hydro fleet, with a total capacity of 3,783 megawatts, supports TVA's mission of providing affordable and reliable electricity to the Tennessee Valley while also enabling TVA to manage the river system. TVA's program to extend the life of the hydro fleet, known as the Hydro Life Extension (HLE) program, outlined a five-year, $800 million plan dedicated to rebuilding hydro units. As of 2022, there were 19 HLE projects, including the project for Fort Loudoun Hydro (FLH) Unit 2.

The life extension project for FLH Unit 2 was originally initiated in November 2017 to replace or refurbish major equipment and components to extend the service life of the unit for the next 40 years. Under a fixed price contract, the original equipment manufacturer (OEM) contractor was selected to complete hydro turbine work and rehabilitate the discharge ring,[i] among other things, for three TVA projects: Melton Hill Unit 1, FLH Unit 1, and FLH Unit 2, with the work being executed in that order. Generation Project and Outage Management, an organization within the Generation Projects and Fleet Services strategic business unit, was responsible for management and oversight of the FLH Unit 2 project.

The FLH Unit 2 project was initially authorized for $27.4 million, however, in April 2022, it was re-baselined to $37.6 million and the in-service date was moved to September 2024. In March 2026, the project was forecasted at $56.5 million with an in-service date of July 2026. FLH Unit 2 was placed in service in July 2026 and, as of August 2026, the project spend was $55.8 million. Due to the importance of maintaining reliable hydro generation, we conducted an evaluation to determine whether the FLH Unit 2 project followed cost and quality management guidelines.

What the OIG Found

Our evaluation of the FLH Unit 2 project identified that some cost and quality management guidelines were not followed. Specifically, TVA did not (1) effectively track rework, which prevented recovery of costs or (2) take corrective action to address identified issues related to welding. In addition, we found the TVA PM lacked access to project records, which could have impacted the PM's ability to manage the project.

[i] A discharge ring in a hydro plant is a circular structure that guides and smooths the flow of water exiting the turbine to reduce turbulence and improve efficiency.

EXECUTIVE SUMMARY

What the OIG Recommends

We made four recommendations to TVA management related to comprehensive cost tracking, recovery of additional costs due to rework, contractor performance issues, and PM turnover process. Detailed recommendations are contained in the body of this report.

TVA Management's Comments

In response to our draft report, TVA management agreed with the recommendations and provided actions planned or completed. See the Appendix for TVA management's complete response.

Auditor's Response

We agree with TVA management's planned or completed actions to address all findings and recommendations.

BACKGROUND

The Tennessee Valley Authority's (TVA) energy portfolio includes 29 hydroelectric plants, consisting of 109 generating units. The hydro fleet, with a total capacity of 3,783 megawatts, supports TVA's mission of providing affordable and reliable electricity to the Tennessee Valley while also enabling TVA to manage the river system. TVA's program to extend the life of the hydro fleet, known as the Hydro Life Extension (HLE) program, outlined a five-year, $800 million plan dedicated to rebuilding hydro units. As of 2022, there were 19 HLE projects, including the project for Fort Loudoun Hydro (FLH) Unit 2.

The life extension project for FLH Unit 2 was originally initiated in November 2017 to replace or refurbish major equipment and components to extend the service life of the unit for the next 40 years. Under a fixed price contract, the original equipment manufacturer (OEM) contractor was selected to complete hydro turbine work and rehabilitate the discharge ring,[1] among other things, for three TVA projects: Melton Hill Unit 1, FLH Unit 1, and FLH Unit 2, with the work being executed in that order. Generation Project and Outage Management, an organization within the Generation Projects and Fleet Services strategic business unit, was responsible for management and oversight of the FLH Unit 2 project.

Project management at TVA is governed by TVA Standard Programs and Processes (SPP) 34.000, *Project Management*. According to the SPP, cost management guidelines provide guidance for defining and controlling costs. This includes developing the estimate, obtaining project authorizations, forecasting, and monitoring costs. Project change requests (PCRs) are used to document changes to the approved project scope, cost, and/or schedule baselines. PCRs are approved based on contractual requirements and documentation provided by the contractor. The project manager (PM) for each project is required to maintain a log with the disposition of all submitted PCRs.

Quality management guidelines outlined in the SPP provide guidance so that all activities affecting quality are accomplished to achieve compliance with pre-established quality objectives and acceptance criteria. The guidelines include steps to establish a project quality team, prepare a quality management plan (QMP), and perform project quality assurance and control.

The FLH Unit 2 project was initially authorized for $27.4 million; however, in April 2022, it was re-baselined to $37.6 million and the in-service date was moved to September 2024. In March 2026, the project was forecasted at $56.5 million with an in-service date of July 2026. FLH Unit 2 was placed in service in July 2026 and, as of August 2026, the project spend was $55.8 million. Due to the importance of maintaining reliable hydro generation, we conducted an evaluation of the FLH Unit 2 project.

[1] A discharge ring in a hydro plant is a circular structure that guides and smooths the flow of water exiting the turbine to reduce turbulence and improve efficiency.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of this evaluation was to determine whether the project followed cost and quality management guidelines. Our scope included cost and quality[2] management for the FLH Unit 2 project.

To complete the evaluation, we:

- Reviewed TVA–SPP–34.000, *Project Management*, to gain an understanding of requirements and/or guidance for cost and quality management.
- Reviewed Project Review Board documentation to identify funding approvals.
- Reviewed TVA's lessons learned for hydro projects through February 2026 to identify quality insights from current and past projects.
- Reviewed documentation of HLE projects awarded to the OEM to determine contracting structure.
- Examined a judgmental selection of 33 out of 217 PCR entries on the PCR log, as of February 2026, to determine if charges were supported and appropriate. This selection was based on the largest dollar amounts and represented $14.9 million out of $17.2 million in project changes.
- Reviewed documentation related to rework to determine (1) if it was managed in accordance with the contract's terms and (2) the impact to TVA's risk and liability.
- Reviewed TVA's (1) contract and associated amendments with the OEM contractor, (2) project management plan, and (3) other standards to identify OEM requirements related to quality.
- Reviewed the OEM contractor's (1) project quality control plan to identify the contractor's approach to quality management and (2) quality documentation such as welder qualifications, non-conformance[3] reports, inspection documents, and test plans to assess quality management.
- Visited the FLH site and conducted interviews with responsible TVA project management personnel to gain further understanding of the project.

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

[2] We narrowed the quality scope to focus on TVA and the OEM contractor.

[3] Non-conformance is defined as a deficiency in characteristic, documentation, procedure or performance, which renders the quality of an item unacceptable or indeterminate or not according to specified requirements.

FINDINGS AND RECOMMENDATIONS

Our evaluation of the FLH Unit 2 project identified that some cost and quality management guidelines were not followed. Specifically, TVA did not (1) effectively track rework, which prevented recovery of costs or (2) take corrective action to address identified issues related to welding. In addition, we found the TVA PM lacked access to project records, which could have impacted the PM's ability to manage the project.

SOME COST MANAGEMENT GUIDELINES WERE NOT FOLLOWED

Cost management guidelines include development of the estimate, obtaining project authorizations, forecasting, and monitoring and control. Monitoring and cost control were primarily accomplished through (1) PCRs, which document changes to the approved project scope, cost, and/or schedule baselines and (2) contract provisions to address cost impacts of contractor performance issues. To evaluate whether cost management guidelines were followed, we reviewed Project Review Board authorizations, and PCRs that represented approximately $14.9 million, or about 87 percent, of all documented cost changes. We also reviewed TVA's enforcement of contract provisions to address rework. We found that while the project team followed certain cost-management practices, TVA's incomplete tracking of rework costs resulted in increased project costs.

The contract with the OEM required the contractor to correct any defects or non-compliance with contract requirements at their own expense. During the project, work by the OEM was determined to be defective and rework was required. According to TVA, as the project progressed it was determined that degradation of a key component was worse than expected, which required additional scope to be added to the OEM through a PCR. Documentation provided by TVA showed the combination of rework and added scope extended the project schedule by at least 290 days and increased the project cost by $4 million. However, TVA did not adequately track the cost to identify what was rework and what was related to the scope increase. As a result, TVA was unable to recover the costs of the rework from the OEM contractor.

SOME QUALITY MANAGEMENT GUIDELINES WERE NOT FOLLOWED

Quality management guidelines include establishing a project quality team, preparing a QMP, and performing project quality assurance and control that includes inspection of deliverables. The QMP required the OEM to prepare a quality assurance plan to meet or exceed TVA standards for all relevant work. The OEM's quality plan necessitated reporting of any non-conformances related to quality, workmanship, materials, equipment, supplies, and/or approved deviations from specified requirements. However, we found all quality guidelines

were not followed. Specifically, TVA did not adequately perform quality assurance and control.

According to the OEM contract, the OEM was required to provide qualified personnel for all work. TVA project management requested the TVA CM to oversee welding. Subsequent to being assigned this responsibility, the CM performed an assessment that identified several non-compliances with welding requirements related to the discharge ring, which was a crucial scope of work. Specifically, the CM documented multiple instances where (1) welders were unqualified for the welding process and techniques needed, (2) the OEM failed to witness the qualification testing, and (3) testing records were invalid and/or missing qualification procedures. In addition, the CM found that the OEM used nonweldable rebar instead of weldable rebar for certain welds.

Based on issues identified, TVA requested a third-party vendor independently review the OEM's welding program and determine the causes of the significant weld failures. The review confirmed deficiencies in welder qualifications and noted the use of nonweldable material could have contributed to the weld failures. Documentation showed that the former PM was made aware of the concerns regarding qualifications and the results of both the CM assessment and the independent review yet did not adequately perform quality assurance and quality control. Specifically, the PM elected for work to continue without requiring corrective actions to address the use of unqualified personnel because he viewed the issues as low risk. By not taking corrective actions to address the identified issues, TVA failed to adequately follow quality management guidelines. This lack of corrective action contributed to rework and 196 out of 240 welds failing.

Recommendations

We recommend the Vice President, Generation Projects and Outage Management:

1. Reinforce comprehensive cost tracking to ensure appropriate cost control.

   TVA Management's Comments – TVA management agreed with the recommendation and stated they took action to (1) emphasize to PMs the requirement to maintain a PCR log and (2) notify CMs to track rework in an issues or delay log. In addition, management will require project management teams to report a PCR log is being maintained, the aggregate cost exposure for that period, and any rework. See the Appendix for TVA management's complete response.

   Auditor's Response – We agree with TVA management's planned and completed actions.

2. Evaluate and determine if TVA can recover additional costs due to rework implications.

   TVA Management's Comments – TVA management agreed with the recommendation and will perform a cost evaluation to identify rework issues and determine if there is a potential to recover costs. See the Appendix for TVA management's complete response.

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

3. Take timely action to address contractor performance issues in accordance with the contract on future hydro unit repairs.

   TVA Management's Comments – TVA management agreed with the recommendation and will establish an agenda item on the monthly PM leadership call to address contractor performance issues. Upon notification of contractor poor performance, senior management will work with the PM and Supply Chain to determine next steps. See the Appendix for TVA management's complete response.

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

INADEQUATE ACCESS TO PROJECT DOCUMENTATION

During our evaluation, we identified issues with project management access to documentation. Since inception, the project had four different PMs with the current PM taking over in December 2025. In response to our request for documentation for this evaluation, we were informed the TVA PM lacked access to comprehensive project documentation and was actively working with his management team to secure it. This lack of access could have impacted the PMs ability to manage the project and was not known until our request was made.

The transition from the previous PM only involved a general discussion regarding overall project details and being shown the location of certain project files; however, there was no turnover process to ensure all relevant documents and information were transferred and accessible. TVA-SPP-34.000 states the PM is to maintain access to all project documentation and that each business unit has a process for storage of project documents.

We discussed these issues with TVA management who took action to implement a new, centralized document repository to help streamline collaboration, improve document governance, and audit compliance. According to TVA, the organization is still actively working to improve PM turnover and transition quality.

Recommendation

We recommend the Vice President, Generation Projects and Outage Management:

4. Continue with document repository implementation and take action to develop and implement a formal PM turnover process.

   TVA Management's Comments – TVA management agreed with the recommendation and stated (1) the document repository system was completed in August 2026 and (2) a project management handbook will be developed and include requirements for the handoff of a project between PMs, including required documentation. See the Appendix for TVA management's complete response.

   Auditor's Response – We agree with TVA management's planned and completed actions.

October 23, 2026

Greg Stinson, WT 2C-K

RESPONSE TO REQUEST FOR COMMENTS - DRAFT EVALUATION 2026-17602 - FORT LOUDOUN HYDRO UNIT TWO HYDRO LIFE EXTENSION PROJECT

This letter is in response to the Draft Evaluation 2026-17602 - Fort Loudoun Hydro Unit Two Hydro Life Extension Project. The Generation Projects and Outage Management (GP&OM) team appreciates this thorough and thoughtful evaluation by Regina Headrick and Lisa Hammer and the Office of Inspector General (OIG).

Recommendations:

1. **Reinforce comprehensive cost tracking to ensure appropriate cost control.**

   Response: Agree. The actions listed below will be implemented. The first and third bullets have been completed.
   - Notification transmitted to the GP&OM Project Managers (PMs) emphasizing that it is a requirement to maintain a Project Change Request (PCR) log. (Per Project Management 34 series process requirements.)
   - All Project Management Teams - Southern and Western Gas Projects, Eastern Gas & Coal, and Hydro Life Extension (HLE) will require, as part of PM routine reporting, that a PCR log is being maintained and include the aggregate cost exposure during that reporting period.
   - Notification transmitted by the Senior Manager of Partner Alliance Construction Management (PA-CM) to the Construction Managers (CMs) that rework will be tracked either in an issues log or delay log by the CMs. This rework will be tracked based on manhours or unit price as to facilitate the aggregate total of rework on projects.
   - Any rework will be reported via the PA-CM weekly report to the PMs, based on the rationale above.

2. **Evaluate and determine if TVA can recover additional costs due to rework implications.**

   Response: Agree. The action listed below will be implemented.
   - Perform a cost evaluation of the Fort Loudon Unit Two and identify rework issues and determine if there is a potential to recover cost.

3. **Take timely action to address contractor performance issues in accordance with the contract on future hydro unit repairs.**

   Response: Agree. The actions listed below will be implemented.
   - Establish an agenda item on the monthly PM leadership call to address contractor performance issues.
   - Upon notification of contractor poor performance; senior management will work with PM and if applicable, Supply Chain to determine next steps.

4. **Continue with document repository implementation and take action to develop a formal PM turnover process.**

   Response: Agree. The actions listed below will be implemented.
   - Document repository system was completed in August 2026.
   - Development of a project management handbook that will include requirements for the handoff of a project between PMs, including required documentation.

Daniel T. Tibbs

Daniel Tibbs
Vice President
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