



Memorandum from the Office of the Inspector General

February 21, 2023

James R. Dalrymple
Aaron P. Melda

REQUEST FOR FINAL ACTION – AUDIT 2020-15708 – SUBSTATION PHYSICAL SECURITY

As part of our annual audit plan, we performed an audit of physical access to Tennessee Valley Authority's (TVA) substations. Our audit objective was to determine if substations had appropriate physical access controls. Our scope included substations that contain devices with TVA network connectivity.

In summary, we found substations had overall appropriate physical access controls. However, we identified control weaknesses in TVA's annual access review process and management of one of the physical access controls. Additionally, we determined TVA's Standard Programs and Processes (SPP) should be revised to define requirements for physical access reviews. Specifics of the identified issues were omitted from this report due to their sensitive nature in relation to TVA's cybersecurity, but were formally communicated to TVA management in briefings on November 7 and November 9, 2022.

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

BACKGROUND

According to the US Department of Energy, the electric power industry is the backbone of America's economic sectors, generating the energy that empowers its people and businesses in global commerce. The structure of electricity delivery can be categorized into three functions: generation, transmission, and distribution, all of which are linked through key assets known as substations. Substations not only provide crucial links for generation, but also serve as key nodes for linking transmission and distribution networks to end-use customers. Physical access controls are in place at TVA substations to reduce the risk of electric power disruption events within their transmission system, including those with network connectivity.

As part of our annual audit planning, we identified threats against substations with network connectivity as a high-risk area and included this audit in our annual audit plan.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our audit objective was to determine if substations had appropriate physical access controls. Our scope included substations that contain devices with TVA network connectivity. Our fieldwork was completed between February 2020 and December 2022.¹ To meet our objective we:

- Interviewed TVA personnel to gain an understanding of physical security controls in place.
- Reviewed applicable TVA SPPs to gain an understanding of TVA's process related to physical security controls.
- Performed a gap analysis of TVA security policies with best practices to determine if TVA follows recommended practices.
- Reviewed access controls at a sample of five substations. Since this was a judgmental sample, the results of the sample cannot be projected to the population.

As part of our audit planning, we identified physical access controls significant to the objective of our audit and performed testing to determine control effectiveness.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

FINDINGS

We found substations had overall appropriate physical access controls. However, we identified control weaknesses in TVA's annual access review process and management of one of the physical access controls. Additionally, we determined TVA's SPPs did not (1) define the frequency of physical access log reviews and (2) require reviews of visitor logs.

Specifics of the identified issues were omitted from this report due to their sensitive nature in relation to TVA's cybersecurity, but were formally communicated to TVA management in briefings on November 7 and November 9, 2022.

RECOMMENDATION

We recommend the Senior Vice President, Resource Management and Operations Services:

1. Remediate identified control weaknesses.

¹ The project was postponed between December 2020 and April 2022 due to COVID-19 pandemic restrictions.

James R. Dalrymple
Aaron P. Melda
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2. Review TVA SPP requirements for physical access reviews and update accordingly.

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

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This report is for your review and information. 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 audits that remain unresolved after 6 months from the date of report issuance.

If you have any questions, please contact Scott A. Marler, Audit Manager, at (865) 633-7352 or Sarah E. Huffman, Director, Information Technology Audits, at (865) 633-7345. We appreciate the courtesy and cooperation received from your staff during the review.



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

SAM:KDS
cc: TVA Board of Directors
Allen A. Clare
Mary C. Corbitt
Samuel P. Delk
Buddy Eller
David B. Fountain
J. Patrick Hall
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Kay W. Whittenburg
OIG File No. 2020-15708

February 14, 2023

David P. Wheeler, WT 2C-K

RESPONSE TO REQUEST FOR COMMENTS - DRAFT AUDIT 2020-15708 - SUBSTATION
PHYSICAL SECURITY

Our response to your request for comments regarding the subject draft report is attached. We would like to thank Scott Marler and Sarah Huffman for their professionalism and cooperation in conducting this audit. We appreciate your findings which indicate that TVA substations have overall appropriate physical access controls. We are also grateful for the Management briefings your team provided to review the cybersecurity matters found to be of a sensitive nature. If you have any questions, please contact Jack Paul, Sr. Program Manager, Security Compliance.



James R. Dalrymple
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Resource Management & Operations Services
BR 4D-C



Aaron P. Melda
Senior Vice President
Transmission & Power Supply
MR 3H-C

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Attachment

cc (Attachment):

Thomas W. Barnett, WT 10C-K
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Mary C. Corbitt, MR 3K-C
Samuel P. Delk, BR 5A-C
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Attachment A
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Draft Audit 2020 15708- SUBSTATION PHYSICAL SECURITY
Response to Request for Comments

Recommendation	Comments
1. Remediate identified control weaknesses.	Management agrees to document the annual review frequency of the physical access control identified during the audit.
2. Review TVA SPP requirements for physical access reviews and update accordingly.	Management agrees to revise applicable SPP's to define requirements for physical access reviews as related to the physical access control identified during the audit.