



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

June 5, 2014

John J. McCormick, Jr., LP 3D-C

**REQUEST FOR FINAL ACTION – EVALUATION 2013-15157 – REVIEW OF TVA’S ACTIONS TO ADDRESS RIVER OPERATIONS SYSTEMS AND COMPONENTS WITH POOR RATINGS**

During a prior review of how TVA organizations assess the conditions of assets, we learned asset condition assessments completed by River Operations (RO) had determined some assets were in deteriorated condition. As a follow up to the prior work, we reviewed whether TVA is taking actions to address RO systems and components with deteriorated conditions. Assets with deteriorated conditions are designated as “red” or “yellow.” According to RO personnel, a red rating indicates equipment condition is poor, while a yellow rating indicates equipment condition is marginal.

In RO, 1,438 systems and components had been rated red or yellow. We randomly sampled 50 (8 reds and 42 yellows) for detailed review. We found actions had been taken to address some systems and components with poor or marginal health. For the purposes of this report, actions are defined as deficiencies being dispositioned in one of three ways: through the Corrective Action Program, through the work order process, or by initiating a project to correct the deficiency.

Of the 8 systems and components with a red rating, all had either a project or work order developed to address the condition as required by the guidance, 5 were currently in progress, and 3 had no actions currently underway or planned within the next 3 years. During our review, color ratings did not change for any of the 8 systems and components with a red rating.

Of the 42 systems and components with yellow ratings, in 32 cases no action had been taken, and in 10 cases action had been taken in the form of projects being developed to address the identified deficiency. Of the 10 that had projects developed, 2 had projects that were funded or being worked, 7 had projects that were not currently funded, and 1 had a project that was completed. During this review, new guidance was issued within RO clarifying that actions were only required for red systems and components, not yellow. Therefore, not pursuing actions on the items that had been rated as yellow does not represent noncompliance with guidance; however, we note that pushing back and failing to fund actions to address poor system and component health increases TVA’s risk of equipment failure.

According to RO personnel, there are limited projects that can be worked based on funding. RO uses TVA-SPP-19.3, Project Justification Process, along with equipment condition to prioritize projects. Some of the factors used to prioritize projects include

safety, regulatory, and economic/revenue. Currently, RO does not document the justification for reds and yellows that are not funded.

Additionally, TVA has identified asset condition of non-nuclear generation as a top Enterprise Risk Management risk in fiscal year (FY) 2014. ROR-SPP-09.21, System and Component Health Program, was superseded by an Engineering Guidance Document (EGD), which has no requirements, only recommendations. This could potentially result in health assessments not being completed. Without accurate and timely equipment health assessments, TVA cannot effectively manage equipment reliability risk.

We recommend the Vice President, RO:

- Consider the potential impact of eliminating the requirement to do asset health assessments on TVA's non-nuclear asset condition risk, and determine a schedule for completing health assessments that will adequately mitigate the risk of equipment failure.
- Document justification when actions are not taken to address systems and components with a red rating.

The Vice President, RO disagreed with our recommendation concerning eliminating the requirement to do asset health assessments. The response stated that "while our asset health is important to our long-term performance, it is not compliance driven but rather a good practice which aligns to a guidance document." Additionally, the Vice President, RO stated that their significant risks are documented and evaluated throughout their business planning process and that the 10-year Asset Management Plan that is being developed by Operations Support will further document the risks. See the Appendix for TVA's complete response.

## **BACKGROUND**

In 2012, the Office of the Inspector General (OIG) issued a report, 2009-12883 – Survey of TVA's Process for Determining Condition of Assets, the objective of which was to determine how TVA (1) assessed the condition of electric assets and (2) used that information in planning. We found the condition of assets was identified through system, program, and component health assessments.<sup>1</sup> Additionally, all of the organizations used asset condition to identify corrective actions when necessary.

During the 2009-12883 review, RO personnel stated they took actions to address any system with poor ratings, even though the RO process, RO-SPP-09.21, System and Component Health Program, did not specifically include the requirement. We recommended the revising of RO-SPP-09.21, to require an action when a health assessment resulted in a poor rating. Management agreed with the recommendation and updated RO-SPP-09.21 to clarify the expectation that an action item be put in place to track correction of systems with improvement needs.

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<sup>1</sup> System, program, and component health assessments provide a method to improve and maintain equipment performance. Program health assessments are not performed in RO.

EGD-09.021, Equipment Condition Assessment (ECA) Program, was implemented and describes the ECA process.<sup>2</sup> According to the guidance document, this process is an assessment of major equipment and systems as well as physical and material condition of Hydro Operations. The assessments will be used to prioritize projects and determine corrective and preventative maintenance requirements. Deficiencies for red components shall be dispositioned through the Corrective Action Program,<sup>3</sup> work order process, or a project shall be initiated to correct the deficiency. Additionally, ECA's are used as one input to assess risk to the hydro-generation fleet.

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

This review was conducted as a follow up to a previous review: 2009-12883 – Survey of TVA's Process for Determining Condition of Assets, during which we learned that certain generation assets were in deteriorated condition. We performed the review to determine whether TVA is taking actions to address RO systems and components with deteriorated conditions. The scope of our review included RO systems and components with red or yellow ratings for October 2010 through December 2012.

To achieve our objective, we:

- Reviewed processes and procedures and interviewed TVA personnel to determine what steps RO is required to take when deteriorated health is identified.
- Selected a random sample of 50 out of 1,438 systems and components with red and yellow ratings to determine if actions were being taken. Of our population of 1,438 systems and components, 309 were red and 1,129 were yellow.

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

### **FINDINGS**

We found actions have been taken to address some systems and components with deteriorated conditions. Assets with deteriorated conditions are designated as "red" or "yellow." According to RO personnel, a red rating indicates equipment condition is poor, while a yellow rating indicates equipment condition is marginal. In RO, 1,438 systems and components had been rated red or yellow, and we randomly sampled 50 (8 reds and 42 yellows) for detailed review. During this review, new guidance was issued within RO clarifying that actions were only required for red systems and components, not yellow. Therefore, not pursuing actions on the items that had been rated as yellow does not represent noncompliance with guidance; however, we note that pushing back and failing to fund actions to address yellow system and component health increases TVA's risk of equipment failure.

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<sup>2</sup> ROR-SPP-09.21 was superseded by the EGD-09.021, ECA Program, on May 31, 2013.

<sup>3</sup> The systematic process used to find, analyze, and fix performance gaps and near misses such that overall performance is improved.

Of the 8 systems and components with a red rating, all had either a project or work order developed to address the condition as required by the guidance, 5 were currently in progress, and 3 had no actions currently underway or planned within the next 3 years. During our review, color ratings did not change for any of the 8 systems and components with a red rating. Of the 42 systems and components with yellow ratings, in 32 cases no action had been taken, and in 10 cases, action had been taken in the form of projects being developed to address the identified deficiency. Of the 10 that had projects developed, 2 had projects that were funded or being worked, 7 had projects that were not currently funded, and 1 had a project that was completed.

RO personnel acknowledged there are limited projects that can be worked based on funding. Asset owner priority was one reason given for projects not being funded. RO uses TVA-SPP-19.3, Project Justification Process, along with equipment condition to prioritize projects. Some of the factors used to group projects for prioritization include safety, regulatory, and economic/revenue. A Generation portfolio procedure (CGO-SPP-19.004, Project Portfolio Management Process) has been developed that requires business units to maintain a 3-year project portfolio that will be integrated into the Generation Group Portfolio. All projects in the Generation Group Portfolio are subject to TVA's Project Approval Process defined in TVA-SPP-19.3, Project Justification Process.<sup>4</sup> In accordance with TVA-SPP-19.3, RO personnel stated projects that are safety and regulatory related are worked first, and then economic projects are funded. According to RO personnel, there is no formal documentation for the justification for reds and yellows that do not have projects.

Additionally, TVA has identified asset condition of non-nuclear generation as a top Enterprise Risk Management risk in FY2014. Replacing ROR-SPP-09.2, System and Component Health Program with an EGD could make mitigating the risk more difficult; it will potentially increase the number of health assessments that are not completed.

## **RECOMMENDATIONS**

We recommend the Vice President, RO:

- Consider the potential impact of eliminating the requirement to do asset health assessments on TVA's non-nuclear asset condition risk and determine a schedule for completing health assessments that will adequately mitigate the risk of equipment failure.
- Document justification when actions are not taken to address systems and components with a red rating.

**TVA Management's Comments** – The Vice President, RO disagreed with our recommendation concerning eliminating the requirement to do asset health assessments. The response stated that “while our asset health is important to our long-term performance, it is not compliance driven but rather a good practice which aligns to a guidance document.” Additionally, the Vice President, RO stated that their significant risks

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<sup>4</sup> TVA-SPP-19.3, Project Justification Process, defines TVA's process for planning, prioritization, review, approval, evaluation, monitoring, project change authorization, and cancellation and closure of Capital and Operating and Maintenance Projects.

are documented and evaluated throughout their business planning process and that the 10-year Asset Management Plan that is being developed by Operations Support will further document the risks. See the Appendix for TVA's complete response.

**Auditor's Response** – The OIG maintains that replacing ROR-SPP-09.2, System and Component Health Program with an EGD could make mitigating the risk more difficult and will potentially increase the number of health assessments that are not completed. The OIG does agree that the completion of the 10-year Asset Management Plan should address the systems and components with red ratings that do not currently have planned actions.

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This report is for your review and final action. Your written comments, which addressed your management decision and actions planned, have been included in the report. Please notify us within one year from the date of this memorandum when final action is complete.

If you have any questions or wish to discuss our observations, please contact Kristin S. Leach, Senior Auditor, Evaluations, at (423) 785-4818 or Gregory R. Stinson, Director, Evaluations, at (865) 633-7367. We appreciate the courtesy and cooperation received from your staff during the evaluation.



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TVA Board of Directors  
OIG File No. 2013-15157

May 28, 2014

Robert E. Martin, ET 3C-K

**Response to OIG File No. 2013-15157, RO Review of TVA's Action to Address River Operations Systems and Components with Poor Ratings**

In response to the above referenced memorandum, River Operations has reviewed the information provided regarding the system and components rating assessment recommendations.

While our asset health is important to our long-term performance, it is not compliance driven but rather a good practices which aligns to a guidance document. We typically reserve our standard programs and processes (SPPs) for those regulatory and compliance items.

Our significant risks are documented and evaluated throughout our business planning process. The 10-year Asset Management Plan that Operations Support is developing will further document the risks as well as develop a long-term strategy for addressing our systems and components with poor ratings across the non-nuclear fleet.

Please contact me if you have questions or need further clarification.



John J. McCormick, Jr.  
Vice President  
River Operations

MSS:CMI

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OIG File No. 2013-15157