



Memorandum from the Office of the Inspector General

November 23, 2021

Joseph T. Moore

**REQUEST FOR MANAGEMENT DECISION – EVALUATION 2021-17251 –
ORGANIZATIONAL EFFECTIVENESS – SOUTHAVEN COMBINED CYCLE PLANT**

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. 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 Jessica L. Monroe, Senior Auditor, at (865) 633-7338 or Lisa H. Hammer, Director, Evaluations – Organizational Effectiveness, at (865) 633-7342. We appreciate the courtesy and cooperation received from your staff during the evaluation.

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

JLM:KDS

Attachment

cc (Attachment):

TVA Board of Directors
David L. Bowling Jr.
Susan E. Collins
Randle K. DeHart
Samuel P. Delk
Buddy Eller
Megan T. Flynn
David B. Fountain
Amanda D. Johns
T. Daniel Lunsford

Jeffrey J. Lyash
Jill M. Matthews
Donald A. Moul
Ronald R. Sanders II
Lawrence Sparks
Wilson Taylor III
Kay W. Whittenburg
Jacinda B. Woodward
OIG File No. 2021-17251



Office of the Inspector General

Evaluation Report

To the Plant Manager, Southaven
Combined Cycle Plant

ORGANIZATIONAL EFFECTIVENESS – SOUTHAVEN COMBINED CYCLE PLANT

Auditor
Jessica L. Monroe

Audit 2021-17251
November 23, 2021

ABBREVIATIONS

| | |
|------|---------------------------------------|
| CC | Combined Cycle |
| DCN | Design Change Notice |
| FY | Fiscal Year |
| PO | Power Operations |
| SCC | Southaven Combined Cycle |
| SHRM | Society for Human Resource Management |
| TVA | Tennessee Valley Authority |
| UNID | Unique Identifier |

TABLE OF CONTENTS

| | |
|---|---|
| EXECUTIVE SUMMARY | i |
| BACKGROUND | 1 |
| OBJECTIVE, SCOPE, AND METHODOLOGY | 2 |
| OBSERVATIONS | 3 |
| RECOMMENDATIONS..... | 6 |

APPENDICES

- A. TVA VALUES AND LEADERSHIP COMPETENCIES
- B. MEMORANDUM DATED NOVEMBER 16, 2021, FROM JOE MOORE TO DAVID P. WHEELER



Evaluation 2021-17251 – Organizational Effectiveness – Southaven Combined Cycle

EXECUTIVE SUMMARY

Why the OIG Did This Evaluation

Organizational effectiveness, as defined in this evaluation, is the ability of an organization to achieve its mission and goals. Due to the importance of alignment between strategy, team engagement, and operational performance, the Office of the Inspector General is conducting organizational effectiveness evaluations of business units across the Tennessee Valley Authority (TVA). This evaluation focuses on Southaven Combined Cycle (SCC), which is an organization within TVA's Power Operations.

SCC was commissioned in 2003, partially acquired by TVA in 2008, and fully acquired in 2013.ⁱ SCC is one of eight combined cycle sites included in TVA's generation portfolio. SCC consists of three units with a summer net capabilityⁱⁱ of 780 megawatts. The objective of this evaluation was to identify factors that could impact SCC's organizational effectiveness.

What the OIG Found

During the course of our evaluation, we identified behaviors that had a positive impact on SCC. These were related to teamwork and interactions with others; however, we also identified risks related to employee and managerial behaviors that had a negative impact on SCC morale. In addition, we identified risks to operations that could hinder SCC's effectiveness. These were related to (1) ineffective work management, (2) inaccurate plant drawings, (3) inadequate staffing, and (4) perceived negative interactions with an internal TVA business partner. Based on our observations, we assessed SCC's level of risk related to behaviors and operations and determined both risks were high. Ratings are reflected in the table below:

| | Low Risk | Medium Risk | High Risk |
|------------|----------|-------------|-----------|
| Behaviors | | | X |
| Operations | | | X |

ⁱ TVA completed the purchase of SCC from Cogentrix Energy, LLC, in May 2008. In September 2008, TVA entered into a lease agreement with Seven States Southaven, LLC. The lease agreement was terminated in August 2013, and TVA entered into an asset purchase agreement with Seven States Southaven, LLC.

ⁱⁱ Net capability is a measure of how much power a plant can generate for a specified time period, excluding the power used by the plant itself.



Evaluation 2021-17251 – Organizational Effectiveness – Southaven Combined Cycle

EXECUTIVE SUMMARY

What the OIG Recommends

We recommend Gas Operations' management take actions to address employee and managerial behaviors, ineffective work management, inaccurate plant drawings, and perceived negative interactions outside SCC.

TVA Management's Comments

Prior to issuing their formal response, TVA management provided informal comments that have been incorporated into the final report as appropriate. In their formal response, Gas Operations' management agreed with the issues identified and the need to address the issues; however, they also indicated that they do not believe the concerns rise to the level of high risk. See Appendix B for TVA management's complete response.

Auditor's Response

Although Gas Operations' management disagreed with the risk ratings, no explanation was provided for that disagreement. As discussed in detail in the accompanying report, we believe the behaviors risk is high due to the number of individuals raising concerns and the significance of examples provided that had a negative impact on morale. In addition, we believe the operations risk is high because the issues identified have the potential to impact safety and the effectiveness and efficiency of work being performed.

BACKGROUND

Organizational effectiveness, as defined in this evaluation, is the ability of an organization to achieve its mission and goals. Due to the importance of alignment between strategy, team engagement, and operational performance, the Office of the Inspector General is conducting organizational effectiveness evaluations of business units across the Tennessee Valley Authority (TVA). This evaluation focuses on Southaven Combined Cycle (SCC), which is an organization within TVA's Power Operations (PO).

Natural gas generation has taken on a larger role in the TVA generation mix in an effort to move TVA towards a more diverse and adaptable generation portfolio. According to TVA's 2020 annual report, TVA's gas generation has grown from 7 percent in fiscal year (FY) 2005 to 28 percent in FY 2020. TVA's natural gas generation includes eight combined cycle (CC) sites, including SCC, and nine combustion turbine sites. SCC was commissioned in 2003, partially acquired by TVA in 2008, and fully acquired in 2013.¹ SCC consists of three units with a summer net capability² of 780 megawatts.

Gas Operations' vision is "blending our strengths every day to deliver event free, reliable, and flexible power for the people of the Tennessee Valley." SCC's initiatives in FY 2021 included, but were not limited to, evaluation of training effectiveness for plant supplied training, improvement of work management, completion of operational projects, and utilization of the outage readiness process to improve forecasting. Metrics for FY 2021 included, but were not limited to, total spend, trip events, equivalent availability factor, and environmental noncompliance.

As of May 2021, SCC was under budget for capital spend, but over budget for operations and maintenance spend. According to the SCC plant manager, operations and maintenance spend for FY 2021 has been driven by emergent work in areas such as cooling tower decking, boiler feed pumps, and circulating water pumps. Between FY 2018 and May 25, 2021, staffing has increased from 24 employees to 27 employees. As of May 25, 2021, staffing included the plant manager, operations manager, maintenance manager, controls gas specialist, 2 coordinators, 2 maintenance mechanics/ machinists, 4 lead operations technicians, 12 CC operations technicians, 2 CC operations technician trainees, and a business support representative.

¹ TVA completed the purchase of SCC from Cogentrix Energy, LLC, in May 2008. In September 2008, TVA entered into a lease agreement with Seven States Southaven, LLC. The lease agreement was terminated in August 2013, and TVA entered into an asset purchase agreement with Seven States Southaven, LLC.

² Net capability is a measure of how much power a plant can generate for a specified time period, excluding the power used by the plant itself.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of this evaluation was to identify factors that could impact SCC's organizational effectiveness. We assessed operations as of June 2021 and culture at the time of our interviews, which occurred between June 21, 2021, and July 20, 2021. To complete the evaluation, we:

- Reviewed (1) PO FY 2021 through FY 2023 business plan, (2) Gas Operations' FY 2021 through FY 2023 business plan, (3) FY 2021 TVA Enterprise Risk Portfolio, and (4) documentation provided by SCC to gain an understanding of initiatives, metrics, and/or risks within SCC.
- Reviewed TVA Values and Competencies (see Appendix A) for an understanding of cultural factors deemed important to TVA.
- Reviewed select PO Standard Programs and Processes to gain an understanding of processes.
- Examined (1) FY 2021 (as of May 2021) financial information to gain an understanding of expenditures used in support of the work environment; (2) FY 2018 through May 25, 2021, staffing data to gain an understanding of headcount changes; and (3) FY 2018 through FY 2020 overtime hours worked.
- Observed a plan of the day meeting and a safety meeting while on-site at SCC the week of June 21, 2021.
- Examined supporting documentation related to SCC plant drawings, reviewed a listing of SCC drawings in TVA's Enterprise Content Management system as of August 19, 2021, and obtained the design change notice (DCN) backlog for the gas fleet, as of August 26, 2021.
- Obtained feedback from nine individuals from other TVA organizations that work with or support SCC.
- Conducted individual interviews with 27³ individuals, including management, and analyzed the results to identify themes that could affect organizational effectiveness.

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

³ On June 7, 2021, the operations manager moved to another position within Gas Operations and a new operations manager assumed the role. We interviewed the outgoing operations manager to obtain feedback and we did not interview the new operations manager due to limited tenure in the position at the time interviews were conducted. In addition, when asking operations' employees questions about management, we asked about the outgoing operations manager.

OBSERVATIONS

During the course of our evaluation, we identified behaviors that had a positive impact on SCC, including teamwork and interactions with others; however, we also identified risks related to employee and managerial behaviors that had a negative impact on SCC morale. In addition, we identified risks to operations that could hinder SCC's effectiveness. These were related to (1) ineffective work management, (2) inaccurate plant drawings, (3) inadequate staffing, and (4) perceived negative interactions with an internal TVA business partner.

BEHAVIORAL FACTORS

According to the Society for Human Resource Management (SHRM),⁴ employee engagement relates to the level of an employee's connection and commitment to the organization. SHRM also specifies drivers of employee engagement, including commitment of leaders, trust in leadership, and positive relationships with supervisors. TVA has developed competencies intended to define common characteristics that set the tone for how work is to be performed in the organization. Defined behaviors are associated with the competencies to provide guidance as to how employees can demonstrate their commitment to TVA values. Based on interviews with individuals within SCC, we determined behavior-related risk was high due to improvements needed in employee relationships and some managerial interactions.

Improvements Needed in Employee Relationships

During our interviews at SCC, most individuals commented positively on teamwork and/or working with others at SCC and indicated they trust their co-workers to do their jobs well. We observed a plan of the day meeting and a safety meeting during our site visit, which illustrated the positive interactions among team members at SCC. However, many individuals expressed concerns related to one employee's behaviors. When asked about ethical culture⁵ at SCC, a few individuals described the same employee as acting unethically. These behaviors are inconsistent with TVA's values of inclusion and integrity. Several individuals described how these behaviors had negatively impacted morale. In addition, many individuals expressed concerns related to interactions and the quality of work with a few individuals. We discussed these concerns with the responsible Gas Operations' management.

Improvements Needed in Some Managerial Interactions

We asked individuals within SCC about relationships or interactions with first-line, middle, and upper management. Most individuals commented positively on relationships or interactions and communication with their first-line management. Specific comments indicated first-line management participated in or instituted regular team meetings, individuals felt comfortable in talking to or asking

⁴ SHRM is a membership organization for Human Resource professionals.

⁵ Ethical culture, as defined in this evaluation, refers to the shared concept of right and wrong behavior in the workplace.

questions of first-line management, and/or first-line management did well with providing or receiving feedback. Most individuals indicated they trusted their first-line management and were comfortable reporting incidents, raising a different opinion, or bringing up concerns. Most individuals commented positively on accountability and recognition from first-line management. Many individuals described verbal recognition, praise provided in emails, and/or providing meals as a way first-line management expressed gratitude.

While most individuals commented positively on first-line management, most individuals also expressed concerns related to interactions with middle and/or upper management. Examples were related to ineffective communication, perceptions that management is not holding others accountable, the need for more recognition, or overall perceptions of distrust. In addition, several individuals indicated these behaviors had negatively impacted morale. We discussed these concerns with responsible Gas Operations' management.

RISKS TO OPERATIONS

Many individuals indicated they have what they need to do their jobs. In addition, several individuals commented positively on the expertise and/or experience of individuals working at SCC. However, we identified risks to operations that could hinder SCC's effectiveness. Specifically, concerns were expressed related to (1) ineffective work management, (2) inaccurate plant drawings, and (3) inadequate staffing. In addition, some individuals at SCC described negative interactions with one internal TVA business partner. Based on these concerns we determined operations-related risk was high.

Ineffective Work Management

Several individuals expressed concerns with work management at SCC. Specifically, some individuals described work packages not containing necessary information or sufficient detail and/or not having the necessary parts available to perform the work. PO-SPP-06.008, Work Package Development, defines the requirements for developing and processing a standard work package and outlines responsibilities associated with work package development in Power Operations. These responsibilities include (1) ensuring work packages are complete and address job safety, (2) identifying and specifying correct parts and sufficient materials to support work activities and ensuring availability to perform scheduled work, and (3) supporting work package revisions or correcting errors in work package documents.

A few individuals described work packages (1) not having detailed work steps and/or a listing of parts or tools needed to perform the work and/or (2) having inadequate or no documentation of pre-job briefings or applicable procedures. Work packages that do not contain needed information, and not having necessary parts and materials available when a work package is received, could impact the effectiveness and efficiency of work performed.

Inaccurate Plant Drawings

Some individuals described inaccurate plant drawings at SCC. Specifically, individuals indicated that SCC plant drawings (1) contained identifiers used by the prior owner and were not updated with TVA unique identifiers (UNID)⁶ and/or (2) do not reflect changes to systems or equipment. In addition, according to the SCC plant manager, some equipment at SCC is missing UNIDs, and SCC is working to add UNIDs or use temporary UNIDs until permanent ones can be added. Because TVA's work management system uses UNIDs, having accurate and up-to-date drawings is important for the safe and efficient performance of work. A list of drawings for SCC in Enterprise Content Management, as of August 19, 2021, showed that approximately 64 percent of the drawings were dated prior to TVA's acquisition of SCC. In addition, while on site at SCC, we examined two examples of prints that did not contain TVA UNIDs, but instead contained other plant identifiers. A few individuals described impacts on execution of the work caused by plant drawings lacking UNIDs. For example, a few individuals expressed concerns that differences between UNIDs and plant drawing identifiers could lead to a safety event, while one individual described the additional time necessary to ensure the correct work is completed on the correct equipment.

According to TVA personnel, the DCN process is used to make changes or updates to plant drawings, including altering or adding UNIDs. PO-SPP-09.002, Design Change Control, states that the DCN process applies to design of and changes to engineering documents, including drawings, among other things. As of August 26, 2021, SCC's DCN backlog included 62 open items, which represented approximately 28 percent of the DCN backlog in the gas fleet. TVA personnel indicated an individual item on the backlog could represent one drawing or multiple drawings. For example, one backlog item for SCC in the DCN backlog included 13,000 documents. The DCN backlog also included several work orders three years or older. According to an SCC manager, one UNID change took a year to be completed in the DCN process. Identifying inaccurate drawings and working with TVA personnel to address updates and changes could positively impact operations at SCC.

Concerns With Inadequate Staffing

While many employees indicated they have what they need to do their job, several individuals expressed concerns with inadequate staffing and/or the amount of overtime worked. In addition, based on the age of the plant, three individuals who support SCC indicated the need for more staff to perform work. While a review of staffing information for FY 2018 through May 25, 2021, indicated an additional three individuals were added to the headcount, overtime data for FY 2018 through FY 2020 revealed SCC had the highest amount of overtime in the gas fleet for the 3-year period. An OIG evaluation of gas plant overtime recommended that Gas Operations conduct a business case analysis to determine if hiring additional employees would be less costly than paying

⁶ A UNID is a unique identifier that is a combination of codes that identify the plant, unit, function, system and sequence identifier of a TVA asset.

overtime.⁷ According to evaluation documentation, TVA conducted a business case analysis and found reasonable justification for headcount addition as a means to offset the cost of overtime. Gas Operations management indicated SCC will have individuals added to their headcount in FY 2022.

Perceptions of Negative Interactions With Internal TVA Business Partner

While many individuals at SCC commented positively on interactions with business units outside of SCC, some individuals described negative interactions with one internal TVA business partner. These perceived negative interactions were related to support provided by the business partner and potential impacts to plant performance. We discussed these concerns with responsible Gas Operations' management.

CONCLUSION

SCC, which accounts for approximately 6 percent of TVA's natural gas generation, plays a role in TVA's diverse and adaptable generation portfolio. We identified behavioral and operations risks that could hinder SCC's effectiveness. Behavioral risks included one employee's behaviors that are inconsistent with TVA values of inclusion and integrity, concerns with interactions and the quality of work with a few individuals, and concerns with interactions with middle and upper management. Operational risks included ineffective work management, inaccurate plant drawings, inadequate staffing, and perceived negative interactions outside SCC. Addressing these risks could improve operational performance and increase morale among staff at SCC.

RECOMMENDATIONS

We recommend the SCC plant manager in conjunction with the Senior Manager, Western Region, and General Manager, Gas Operations, as applicable:

1. Address concerns related to (1) one employee's behaviors, (2) interactions and quality of work with a few individuals, and (3) interactions with middle and upper management.
2. Address work management concerns related to work packages.
3. Address inaccurate plant drawings.
4. Address concerns with perceived negative interactions with an internal TVA business partner.

TVA Management's Comments – Gas Operations' management generally agreed with the recommendations. However, they indicated that they do not believe the concerns rise to the level of high risk, but did not provide an

⁷ Evaluation 2019-15685, Gas Plant Overtime, issued September 24, 2020.

explanation for that disagreement. In addition, they did not agree that one person should be singled out in the report, but will assess leadership development opportunities for all employees to improve performance and engagement. See Appendix B for TVA management's complete response

Auditor's Response - In determining risk to effectiveness, we assessed risk based on concerns identified at the site and believe the concerns described in this report result in a high risk to SCC. Behavioral risks were rated high due to the number of individuals who described specific behaviors that negatively impacted morale at SCC and go against expected behaviors outlined in TVA's values. Operational risks identified were rated high due to potential impacts to safety and the effectiveness and efficiency of work performed.

In addition, we included the concerns related to one individual because of the number of issues identified during the review. While we agree with management's proposed actions to assess leadership development opportunities for all employees, failure to focus the corrective actions on the biggest risks could limit their effectiveness.

| TVA Values | |
|-------------------|--|
| Safety | We are uncompromising in our commitment to the safety and well-being of our teammates and the communities we serve. |
| Service | We are proud to serve in the communities in which we live, work, and play. |
| Integrity | We are honest and straightforward, always doing the right thing with integrity |
| Inclusion | We treat everyone with dignity and respect – emphasizing inclusion by welcoming each person's individuality so we can reach our full potential-. |

TVA Leadership Competencies

Accountability and Driving for Results
Continuous Improvement
Leveraging Diversity
Adaptability
Effective Communication
Leadership Courage
Vision, Innovation, and Strategic Execution
Business Acumen
Building Organizational Talent
Inspiring Trust and Engagement

November 16, 2021

David P. Wheeler, WT 2C-K

REQUEST FOR COMMENTS – DRAFT EVALUATION 2021-17251 – ORGANIZATIONAL
EFFECTIVENESS – SOUTHAVEN COMBINED CYCLE

This is in response to your memorandum dated October 6, 2021. We have reviewed the draft evaluation, and while we do agree with the issues identified and the need to address those issues, we do not believe any of the concerns rises to the level of “high risk.” Please see the following response.

We also would like to thank Jessica Monroe and Lisa Hammer for their diligence and support to optimize the Gas Operations workforce by identifying opportunities for organizational effectiveness.

Recommendations

We recommend the Plant Manager address:

1. Concerns related to employee and managerial behaviors.

Response

Gas Operations agrees with the concerns raised, but does not agree that one person should be singled out in the report. We are assessing leadership development opportunities for all employees to improve performance and engagement.

2. Concerns related to ineffective work management.

Response

Gas Operations agrees with these recommendations and is working to address the concern.

3. Concerns related to inaccurate plant drawings.

Response

Gas Operations agrees with these recommendations and is working to address the concern.

David P. Wheeler, WT 2C-K
Page 2
November 16, 2021

4. Concerns related to perceived negative interactions outside SCC.

Response

Gas Operations agrees with these recommendations and is working to address the internal TVA business partner concern.

Thank you for allowing us to provide these comments. Please contact us if you have any questions.



Joe Moore
Plant Manager
Southaven Combined Cycle Plant

JTM

cc:

David L. Bowling Jr., WT 11A-K
Susan E. Collins, LP 3D-C
Randle K. DeHart, 1 MF-K
Megan T. Flynn, LP 3A-C
David Fountain, WT 6A-K
Amanda D. Johns, LP 3A-C
T. Daniel Lunsford, 1A-BVT

Donald A. Moul, WT 7B-K
Ronald R. Sanders II, MR 5E-C
Michael D. Skaggs, MR 5E-C
Lawrence Sparks, 2K-C
Wilson Taylor III, WT 7D-K
Kay W. Whittenburg, MR 3A-C
Jacinda B. Woodward, LP 2K-C
OIG File No. 2021-17251