



Memorandum from the Office of the Inspector General

May 3, 2018

Jerry M. Watson, LCC 1A-BVT

REQUEST FOR FINAL ACTION – EVALUATION 2018-15523 – LAGOON CREEK
COMBINED CYCLE PLANT'S ORGANIZATIONAL EFFECTIVENESS

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 Jamie M. Wykle, Senior Auditor, at (865) 633-7382 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)
ET 3C-K

JMW:FAJ
Attachment
cc (Attachment):

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OIG File No. 2018-15523



Office of the Inspector General

Evaluation Report

To the Plant Manager, Lagoon
Creek Combined Cycle Plant

LAGOON CREEK COMBINED CYCLE PLANT'S ORGANIZATIONAL EFFECTIVENESS

Auditor
Jamie M. Wykle

Evaluation 2018-15523
May 3, 2018

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Evaluation 2018-15523 – Lagoon Creek Combined Cycle Plant’s Organizational Effectiveness

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. To achieve and sustain organizational effectiveness, there should be alignment between strategy, operational performance, and team engagement. Specifically, values and behaviors that drive good performance should be embedded throughout the organization’s business processes and exemplified by the individuals that manage and work in the organization. The Tennessee Valley Authority’s (TVA) 2017 3-year Enterprise Risk Profile recognized that ongoing workforce refinementⁱ might negatively affect the performance environment. Therefore, employee engagement is critical.

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 TVA. This evaluation focuses on Lagoon Creek Combined Cycle Plant (LCCC), a combined cycle plant in TVA’s western region gas division under the Gas and Hydro Operations business unit within Power Operations. TVA’s Gas and Hydro Operations mission is to “to make life better for the people of the Tennessee Valley by keeping their lights on and spurring economic development through affordably priced electricity” with LCCC focusing on base dispatchable,ⁱⁱ intermediate operation.ⁱⁱⁱ The objective of this evaluation was to identify strengths and risks that could impact LCCC’s organizational effectiveness.

What the OIG Found

During the course of our evaluation, we identified strengths that positively affected the day-to-day activities of LCCC’s personnel and performance. These strengths included (1) teamwork, (2) a supportive plant manager, and (3) organizational alignment. However, we also identified issues that could pose risks to LCCC’s effectiveness and its continued ability to meet its responsibilities. Specifically, some employees expressed concerns related to expired certifications because of lack of training to maintain those certifications, and their lack of in-depth knowledge regarding the operating systems at LCCC. In addition, several employees stated that communication could be improved to better share information across groups.

ⁱ Refinement of the workforce includes activities such as reduction in force.

ⁱⁱ Units can be ramped up or shut down in a relatively short amount of time.

ⁱⁱⁱ An intermediate plant supplements the power produced by base load plants during high demand times but runs for longer periods of time during a typical day.



Evaluation 2018-15523 – Lagoon Creek Combined Cycle Plant’s Organizational Effectiveness

EXECUTIVE SUMMARY

Based on our findings and using TVA’s Business Operating Model, we assessed LCCC’s level of risk in the areas of alignment, execution, and engagement. As shown in the table below, we determined:

- Alignment risk is rated low based on alignment of management and employee goals, which supported Gas and Hydro Operations’ mission and initiatives as well as Power Operations’ and TVA’s missions.
- Engagement risk is rated low because of teamwork and management support.
- Execution risk is rated medium because of gaps in training and communication.

	Low Risk	Medium Risk	High Risk
Alignment	X		
Engagement	X		
Execution		X	

What the OIG Recommends

We recommend the Plant Manager, LCCC:

1. Resolve issues related to expired certifications by ensuring employees receive the necessary training to have their certifications reinstated.
2. Evaluate knowledge gaps in LCCC’s digital control systems and bridge those identified gaps through training or other methods.
3. Continue to focus on increasing communication with employees.

TVA Management’s Comments

TVA management agreed with our findings and recommendations and described actions planned and completed. Specifically, TVA management stated LCCC (1) has created a plan to get all employees up-to-date in their training by the end of fiscal year 2018, (2) is actively recruiting for a site controls specialist, and (3) has filled the operations manager position, which is improving communication.

See Appendix B for TVA management’s complete response.

BACKGROUND

Organizational effectiveness, as defined in this evaluation, is the ability of an organization to achieve its mission and goals. To achieve and sustain organizational effectiveness, there should be alignment between strategy, team engagement, and operational performance. Specifically, values and behaviors that drive good performance should be embedded throughout the organization's business processes and exemplified by the individuals that manage and work in the organization.

In recent years, the Tennessee Valley Authority (TVA), has faced internal and external economic pressures and implemented cost-cutting measures in an attempt to keep rates low and reliability high while continuing to fulfill its broader mission of environmental stewardship and economic development. In addition to recognizing operational risks related to those pressures, TVA's 2017 3-year Enterprise Risk Profile recognized that ongoing workforce refinement¹ might negatively affect the performance environment. Therefore, employee engagement is critical.

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 TVA. This evaluation focuses on TVA's Lagoon Creek Combined Cycle Plant (LCCC), which is in TVA's western region gas division under the Gas and Hydro Operations business unit within Power Operations.

Natural gas combined cycle plants are a combination of gas turbines, steam turbines, and heat recovery steam generators that can generate up to 50 percent more energy as compared to a simple cycle generator alone. TVA's LCCC is one of TVA's seven combined cycle facilities. Sharing the same campus as TVA's Lagoon Creek Combustion Turbine Plant, LCCC is located in Brownwood, Tennessee. The plant produces approximately 550 megawatts of electricity. TVA's Gas and Hydro Operations mission is to "to make life better for the people of the Tennessee Valley by keeping their lights on and spurring economic development through affordably priced electricity" with LCCC focusing on base dispatchable,² intermediate operation.³

At the time of our evaluation, LCCC had 24 employees, including one maintenance manager and the plant manager. The operations manager position at LCCC was vacant at the time we conducted our interviews in November 2017.⁴ The plant manager assumed some of the operations manager responsibilities during this time period. Of the 24 employees, 7 are trainees and have been at LCCC less than 2 years.

¹ Refinement of the workforce includes activities such as reduction in force.

² Units can be ramped up or shut down in a relatively short amount of time.

³ An intermediate plant supplements the power produced by base load plants during high demand times but runs for longer periods of time during a typical day.

⁴ The operations manager position at LCCC was filled effective February 19, 2018.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of this evaluation was to identify strengths and risks that could impact LCCC's organizational effectiveness. We assessed operations as of September 30, 2017, and culture at the time of our interviews, which occurred during November and December 2017. To complete the evaluation, we:

- Reviewed TVA's fiscal year (FY) 2017 through FY2019 Business Plan Summary and Western/Southern Region Gas Plants FY2018 Business Plan to gain an understanding of LCCC's goals and how LCCC's responsibilities align with Power Operations' mission.
- Reviewed TVA values and competencies (see Appendix A) for an understanding of cultural factors deemed important to TVA.
- Conducted interviews with 20 employees,⁵ the maintenance manager, and the plant manager and analyzed the results to identify themes related to strengths and risks that could affect organizational effectiveness.
- Reviewed select TVA Standard Programs and Processes and guidelines to gain an understanding of processes and controls.
- Reviewed FY2016 and FY2017 performance management documentation for LCCC management and employees and analyzed the documentation for alignment with department and organizational goals.⁶
- Obtained LCCC employee training records and compared them to required training frequency for incipient fire training, forklift operator training, and confined space training.
- Assessed the overall effectiveness of LCCC in the following areas, as included in TVA's Business Operating Model:
 - Alignment – How well the organization coordinates the activities of its many components for the purpose of achieving its long-term objectives—this is grounded in an understanding of what the organization wants to achieve, and why.
 - Engagement – How the organization achieves the highest level of performance from its employees.
 - Execution – How well the organization achieves its objectives and mission.

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

⁵ Two employees were unavailable for interview due to leave.

⁶ During our evaluation, FY2017 performance management documentation was not complete for all Trades and Labor employees. We reviewed FY2016 performance management documentation for 19 LCCC employees and FY2017 performance management documentation for the LCCC plant manager, maintenance manager, 2 other employees, and 1 former employee.

OBSERVATIONS

During the course of our evaluation, we identified strengths that positively affected the day-to-day activities of LCCC's personnel and performance. These strengths included (1) teamwork, (2) a supportive plant manager, and (3) organizational alignment. However, we also identified issues that could pose risks to LCCC's effectiveness and its continued ability to meet its responsibilities. These issues related to gaps in training and communication.

STRENGTHS

During the course of our interviews and data analyses, we identified strengths that positively affected the day-to-day activities of LCCC personnel and performance. These strengths included (1) teamwork, (2) a supportive plant manager, and (3) organizational alignment.

Teamwork

TVA's collaboration value of "fostering teamwork, developing effective partnerships, and valuing diversity as we work together to achieve results" was evident through interviews with employees of LCCC. Most employees provided positive comments, noting the team works well together and they feel valued in their roles. A few of the 7 trainees at LCCC indicated their lead technicians communicate well and provide them with feedback. Due to the number of LCCC employees in training, teamwork plays a critical role for the plant to achieve its mission. Our interviews revealed some LCCC employees are grateful to be part of TVA's gas fleet and are dedicated and committed to its role in producing reliable generation.

Supportive Plant Manager

Most employees we interviewed shared positive views of the plant manager. In particular, employees stated the plant manager is trusted, understands their work and roadblocks, and is open to feedback and employee input. Further, most employees indicated they feel safe raising a differing opinion or concern to the plant manager. A few employees indicated the plant manager is good with one-on-one verbal communication and comes to the plant control room to talk with them.

Organizational Alignment

Our review of performance management documentation for LCCC managers and employees indicated that performance goals were consistent and aligned with Gas and Hydro Operations' mission. We also confirmed that Gas and Hydro Operations' mission and initiatives supported Power Operations' and TVA's missions.

RISKS

During the course of our interviews and data analyses, we identified issues that could pose risks to LCCC's effectiveness and its continued ability to meet its responsibilities. These issues related to gaps in training and communication.

Training Gaps

A few employees stated they have not gotten the necessary training to maintain certifications needed to perform their job duties. Specifically, they stated their incipient fire training, forklift, bucket truck, crane operator, and/or confined space training has expired. We confirmed a few employees are past the required training frequency for confined space entry, forklift training, and incipient fire training.⁷ As a result, those employees are unable to perform their job duties in these areas until their training is up-to-date. Duties such as driving a forklift or supervising confined-space work are currently being performed by employees whose certifications are current or by employees from Lagoon Creek Combustion Turbine Plant. As stated previously, a few employees indicated they were past the required frequency for incipient fire training; however, they have been trained in the past and believe they can execute in the event of fire. According to a few employees, scheduling of this training was a role performed by the operations manager and has been delayed as a result of the position being vacant.

Several employees also expressed concerns related to a lack of in-depth knowledge to work on the operating systems unique to LCCC. The plant consists of Mitsubishi combustion turbines, the only ones in the TVA fleet, and a General Electric steam turbine. LCCC is also a complex plant because it consists of three different digital control systems and is the only TVA gas plant with this combination.

Several employees stated the plant's previous control specialist, who had an extensive knowledge base and practical expertise on all three of the operating systems, had taken a position outside TVA. This individual had worked on combustion turbines prior to LCCC and was on-site during the construction of the plant. Further, employees indicated this individual was the only employee with extensive knowledge of all three operating systems, and none of the current employees have received the extensive training needed to operate all three systems. According to the plant manager, General Electric was contracted to work during the past outage to fill knowledge gaps. Additionally, the plant manager stated when the 7 employees in training get qualified as operators, the remaining technicians will be trained one by one on the plant systems.

Gaps in Communication

Although most employees indicated the plant manager is open and trusted, some employees brought up concerns related to sharing of information across groups, such as outage schedule information and procedure changes. A few employees indicated information may be provided verbally to some employees and may not

⁷ We could not verify training records for bucket truck or crane operator training.

reach those on other shifts. A few employees believe the communication gaps could be solved if the plant manager would e-mail the information versus communicating it verbally.

Several employees indicated the absence of an operations manager was a contributor to this gaps in communication. Because of this vacancy, the plant manager, in addition to his normal responsibilities, absorbed some of the responsibilities of the operations manager. However, effective February 19, 2018, a new operations manager was hired at LCCC, which could help to improve communications between the plant manager and employees. During our exit meeting, the plant manager recognized formal communication as an improvement area and has committed to increasing communications with employees.

CONCLUSION

Our evaluation determined LCCC has employees who are motivated, work well together, and are trusting of the plant manager. However, critical training needs and gaps in communication could pose a threat to LCCC's fulfillment of its mission.

Based on our findings and using TVA's Business Operating Model, we assessed LCCC's level of risk in the areas of alignment, execution, and engagement. We determined:

- Alignment risk is rated low based on alignment of management and employee goals, which supported Gas and Hydro Operations' mission and initiatives as well as Power Operations' and TVA's missions.
- Engagement risk is rated low because of teamwork and management support.
- Execution risk is rated medium because of gaps in training and communication.

RECOMMENDATIONS

We recommend the Plant Manager, LCCC:

1. Resolve issues related to expired certifications by ensuring employees receive the necessary training to have their certifications reinstated.
2. Evaluate knowledge gaps in LCCC's digital control systems and bridge those identified gaps through training or other methods.
3. Continue to focus on increasing communication with employees.

TVA Management's Comments – TVA management agreed with our findings and recommendations and described actions, planned, and completed. Specifically, TVA management stated LCCC (1) has created a plan to get all employees up-to-date in their training by the end of FY2018, (2) is actively recruiting for a site controls specialist, and (3) has filled the operations manager position, which is improving communication. See Appendix B for TVA management's complete response.

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

TVA Values	
Safety	We share a professional and personal commitment to protect the safety of our employees, our contractors, our customers, and those in the communities that we serve.
Service	We are privileged to be able to make life better for the people of the Valley by creating value for our customers, employees, and other stakeholders. We do this by being a good steward of the resources that have been entrusted to us and a good neighbor in the communities in which we operate.
Integrity	We conduct our business according to the highest ethical standards and seek to earn the trust of others through words and actions that are open, honest, and respectful.
Accountability	We take personal responsibility for our actions, our decisions, and the effectiveness of our results, which must be achieved in alignment with our company values.
Collaboration	We are committed to fostering teamwork, developing effective partnerships, and valuing diversity as we work together to achieve results.

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

April 30, 2018

David P. Wheeler, ET 3C-K

DRAFT EVALUATION 2018-15523 - LAGOON CREEK COMBINED CYCLE PLANT'S
ORGANIZATIONAL EFFECTIVENESS

First, I would like to thank your team for the professional manner in which this audit was conducted with the staff at Lagoon Creek Combined Cycle Plant (LCC). After review of this draft, I agree with your findings at LCC and I am providing my response to address the recommendations and close those gaps, as outlined on page five of the report, regarding Organizational Effectiveness at the site.

Recommendations:

1. Resolve issues related to expired certifications by ensuring employees receive the necessary training to have their certifications reinstated.

Response - LCC has created a matrix and work-off curve to get all employees current in training before the end of FY 18.

2. Evaluate knowledge gaps in LCC's digital control systems and bridge those identified gaps through training or other methods.

Response - We are actively recruiting for a site controls specialist with the intent of filling the role as soon as possible.

3. Continue to focus on increasing communication with employees.

Response - LCC has filled the operations manager position. Now that the normal structure is in place, LCC inherently has better communication channels to the CCOTs on shift. The operations manager arrives daily before shift change to confer with the off and oncoming operations shift. Further, and in addition to the weekly all employee safety meeting, all employees will attend and be allowed to participate in the Plan of the Day meeting at 0730 each day to improve communications flow between employees and management.

Please contact me if you have questions or comments regarding any part of this communication and I will work to further clarify or address as needed.

Respectfully,

Jerry Watson
Plant Manager
Lagoon Creek Combined Cycle Plant

David P. Wheeler
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April 30, 2018

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