



Memorandum from the Inspector General, ET 4C-K

November 4, 2015

Curtis G. Rodenhaber, CUF 1A-CCT

REQUEST FOR MANAGEMENT DECISION – EVALUATION 2015-15296 –
CUMBERLAND FOSSIL PLANT ORGANIZATIONAL EFFECTIVENESS

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 of the date of this report.

Information contained in this report may be subject to public disclosure. Please advise us of any sensitive information in this report that you recommend be withheld.

If you have any questions or wish to discuss our findings, please contact Amy R. Rush, Audit Manager, at (865) 633-7361 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.

Richard W. Moore

ARR:BSC

Attachment

cc (Attachment):

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OIG File No. 2015-15296



Office of the Inspector General

Evaluation Report

To the Plant Manager,
Cumberland Fossil Plant

CUMBERLAND FOSSIL PLANT ORGANIZATIONAL EFFECTIVENESS

Audit Team
Amy R. Rush
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Evaluation 2015-15296
November 4, 2015

ABBREVIATIONS

BU	Business Unit
CEO	Chief Executive Officer
CHI	Cultural Health Index
CUF	Cumberland Fossil Plant
EFOR	Equivalent Forced Outage Rate
FY	Fiscal Year
HSC	Health and Safety Committee
IIF	Institute of Internal Finance
MW	Megawatts
OEI	Organizational Effectiveness Initiative
OHI	Organizational Health Index
OIG	Office of the Inspector General
PPE	Personal Protective Equipment
REE	Reportable Environmental Event
SOX	Sarbanes-Oxley
STAR 7	Strategic Teamwork for Actions and Results
TQ	Total Quality
TVA	Tennessee Valley Authority

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Evaluation 2015-15296 – Cumberland Fossil Plant Organizational Effectiveness

EXECUTIVE SUMMARY

Why the OIG Did This Evaluation

This is one in a series of organizational effectiveness reviews the Office of the Inspector General (OIG) will be conducting across the Tennessee Valley Authority's (TVA) business units. Organizational effectiveness, as we have defined it in this review, 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. (See Appendix A for an overview of the dynamics of organizational effectiveness and TVA's historical organizational effectiveness efforts.)

In April 2015, William ("Bill") Johnson, TVA's Chief Executive Officer (CEO) explained to Congress the significant challenges TVA has faced in his 2 years as CEO, including record weather events, a stagnant economy, aging infrastructure, increased regulation, and low load growth. Due to these internal and external economic pressures, TVA has taken 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. While addressing TVA's financial challenges, TVA also developed new corporate values as well as individual contributor and leadership competencies, which are being rolled out to management and specialist-level employees. Significant changes such as these resource reductions and shifts in ability expectations can change the organization's risks. TVA Enterprise Risk Management recognized in its 2015 3-Year Strategic Profile that ongoing organizational refinement and optimization might negatively affect the performance environment.

For the past 30 years, the OIG, through its audits, evaluations, and investigations, has provided "snapshots" of TVA's organizational health that have been sometimes directly referred to as "culture" but, more often than not, labeled as "leadership" or "process control" issues. As part of our professional audit, evaluation, and investigation duties, the OIG has a vested interest in TVA's success. We are conducting organizational effectiveness reviews of specific TVA business units as a part of the OIG's mission to promote economy, efficiency, and effectiveness for the following reasons: (1) TVA has struggled over the years to sustain any improvement in employee engagement, (2) TVA's organizational health could pose a significant risk to the agency's financial and operational success, (3) OIG evaluations in this area will provide an independent



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perspective to the TVA Board of Directors and TVA management, and (4) to promote efforts to ensure a sustained focus on TVA's organizational effectiveness strategies.

Cumberland Fossil Plant (CUF), the focus of this review, is one of the fossil plants relied upon to assist TVA in meeting its mission. CUF's mission, in support of the overarching TVA mission, is "to provide low cost, reliable generation and ancillary services while keeping our people safe and ensuring compliance with environmental regulations." CUF is a two-unit fossil facility located in Cumberland City, Tennessee. Both units at CUF are identical, each rated at 1,300 megawatts (MW), having a summer net capability of 2,386 MW, making it TVA's largest operating steam plant. According to TVA's external Website, CUF generates about 16 billion kilowatt-hours per year, enough to power 1.1 million homes. As of January 13, 2015, CUF had 344 employees on-site.

This review identifies operational and cultural strengths and opportunities for improvement at TVA's CUF. We used operational expectations as defined in CUF's business plan and behavioral expectations as defined by TVA's values as the criteria for this review.

What the OIG Found

We identified several operational and cultural strengths at CUF. Specifically, we found CUF is currently meeting or exceeding expectations related to key measures in its current business plan. In addition, we noted the Plant Manager is generally seen as open, approachable, and respected, and some managers within the midlevel management¹ group are viewed by employees as trusted and supportive of their crews. We also found CUF employees exhibit a high degree of enthusiasm and commitment to the mission of the plant and seem genuinely motivated to make the plant a highly successful operation. Additionally, employees generally view CUF's safety program framework favorably.

However, employees also expressed frustrations related to a number of management decisions and actions. Many of these frustrations were expressed in earlier surveys and appear to be lingering issues which could impact effectiveness. While we do not make any judgments regarding these decisions, the level of frustration could be indicative of the need for more communication in order to prevent these actions from continuing to frustrate the workforce. Furthermore, employees distrusted certain midlevel managers and cited what they believe has been ineffective

¹ For purposes of this report, we define midlevel management as supervisors, superintendents, and coordinators.



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communication between employees and managers. These types of issues, if left unresolved, can undermine employee trust in management and negatively impact both employee engagement and operational performance.

Table 1 provides a high-level description of the strengths and opportunities we identified along with the OIG’s sources for this information. These are discussed in more detail later in the report.

Information Sources for Observed Themes					
	Data	Questionnaire	Focus Groups	Scheduled Interviews	Walk-In Interviews
Strengths					
Equivalent forced outage rate (EFOR) and seasonal EFOR below fiscal year 2015 targets	✓			✓	
No reportable environmental events since 2013	✓				
Plant Manager provides effective leadership			✓	✓	✓
Some supervisors are respected by employees		✓	✓	✓	
Employees are motivated to help CUF succeed		✓	✓	✓	
Safety program framework viewed positively		✓	✓	✓	
Opportunities for Improvement					
Safety mixed messaging	✓	✓	✓	✓	
Unintended consequences of safety accountability		✓	✓	✓	
Enforcement of sick leave policy		✓	✓	✓	✓
Use of contractors		✓	✓		✓
Perception of inadequate staffing		✓	✓	✓	
Disposal of materials		✓	✓	✓	✓
Distrust of some midlevel management		✓	✓	✓	✓
Use of integrated supplier			✓	✓	✓
Overreactions by management		✓	✓		
Perception of conflicting priorities		✓	✓	✓	
Fossil versus Nuclear		✓	✓	✓	

Table 1



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What the OIG Recommends

As we have discussed in this report, CUF has opportunities to address some lingering concerns related to employee frustrations, management issues, and communication issues that we have identified. These types of lingering problems can undermine employees' trust in TVA as a company and they can undermine trust between management and employees. This in turn, can hamper the effectiveness of CUF and ultimately TVA.

Resolving the existing issues between CUF employees and management is only the first step. Creating the right process to resolve issues such as the ones we identify in this report will help minimize frustrations as well as increase trust and engagement. A continuous process where management and employees collaborate to determine optimal solutions to issues can increase trust and teamwork, which are essential to enhancing organizational effectiveness.

Accordingly, we recommend the Plant Manager, CUF:

1. Leverage the existing trust and credibility he has with CUF employees and take actions to address and resolve the lingering issues at CUF identified in connection with this evaluation, which are capable of resolution at the CUF level.
2. Continue to utilize existing methods for obtaining employee feedback and develop an ongoing effective resolution process with employee and management involvement that includes (a) methods to resolve issues, (b) transparency in tracking and reporting on feedback and resolutions, and (c) transparency to employees of rationales for selecting a particular solution.

The OIG will conduct a follow-up review at CUF approximately 6 months after the date of this report to assess progress in addressing the report's findings and recommendations.

TVA Management's Comments

TVA management reviewed and generally agreed with our draft report, and CUF management is currently working on a plan to address the recommendations. See Appendix C for TVA management's complete response.

BACKGROUND

Organizational effectiveness, as we have defined it in this review, 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.

In Appendix A, we provide additional discussion regarding employee engagement and the correlation with business results and risk identification, information on the Tennessee Valley Authority's (TVA) historical organizational effectiveness efforts, TVA's challenge to sustain employee engagement over the long term, TVA's current efforts, and the risk to achieving TVA's business goals.

CUMBERLAND FOSSIL PLANT

Cumberland Fossil Plant (CUF) is one of the fossil plants relied upon to assist TVA in meeting its mission. CUF's mission, in support of the overarching TVA mission, is "to provide low cost, reliable generation and ancillary services while keeping our people safe and ensuring compliance with environmental regulations." CUF is a two-unit fossil facility located in Cumberland City, Tennessee. Both units at CUF are identical, each rated at 1,300 megawatts (MW), having a summer net capability of 2,386 MW, making it TVA's largest operating steam plant.



Photo 1

According to TVA's external Website, CUF generates about 16 billion kilowatt-hours per year, enough to power 1.1 million homes. As of January 13, 2015, CUF had 344 employees on site. These employees primarily work within four

separate departments (1) Maintenance, (2) Operations, (3) Outage, and (4) Engineering. The current CUF plant management team consists of the Plant Manager, Assistant Plant Manager, the managers of the four departments, and other supervisory management.

As with other TVA facilities, CUF has participated in TVA's major organizational health initiatives. The last time the plant was surveyed about organizational health by TVA was 2012, and results showed a decrease in survey scores from 2011 to 2012. Some of the issues in the comments provided by CUF personnel in the 2011 and 2012 Organizational Health Index (OHI) surveys included:

- Management of sick leave;
- Potential disciplinary actions and fear of reporting safety issues;
- Emphasis on production of MW versus emphasis on safety;
- Use of contractors and the potential rework associated with their use;
- Disposal of materials related to Sarbanes-Oxley (SOX);¹
- Favoritism of Nuclear over Fossil and lack of appreciation of CUF employees;
- Management overreactions; and
- Accountability and communication.

As a result of these surveys, CUF management added initiatives for addressing certain issues to the fiscal year (FY) 2014 through FY2016 business plans. The initiatives were designed to address some of CUF's lowest ranking OHI scores in the categories of leadership, innovation and learning, and culture and climate. However, it is difficult to determine the action plans implemented for these initiatives since (1) Organizational Effectiveness Initiative actions including full OHI surveys ended in 2012 as a result of cost-cutting efforts and (2) management at CUF and within TVA have changed since that time period.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of this evaluation was to identify operational and cultural strengths and areas for improvement that could impact CUF's organizational effectiveness. We assessed the operations and relationships at CUF as of April 19, 2015. We used operational expectations as defined in CUF's business plan and behavioral expectations as defined by TVA's values as the criteria for this review. See Appendix B for more detail on the objective, scope, and methodology.

¹ The Sarbanes-Oxley Act was signed into law in 2002 "to protect investors by improving the accuracy and reliability of corporate disclosures made pursuant to the securities laws, and for other purposes." In December 2004, the Consolidated Appropriations Act of 2005 included requirements that TVA comply with SEC reporting requirements including certain provisions of the Sarbanes-Oxley Act. Annually, the CEO and CFO must also report on the effectiveness of the company's internal controls over financial reporting.

OBSERVATIONS

Below are our observations on the strengths and opportunities for improving the effectiveness of CUF. These observations are based on the analyses of information gathered through questionnaires, focus groups attended by employees, and interviews of personnel at the plant, including the Plant Manager and his direct reports. Additionally, we reviewed relevant documentation related to operational performance provided by plant management and other TVA organizations.

Strengths

- CUF is currently meeting or exceeding expectations related to key measures in CUF's current business plan, including (1) equivalent forced outage rate (EFOR)²; (2) seasonal EFOR, the reliability of specific units over a peak season; and (3) reportable environmental events (REE).
- The Plant Manager is generally seen as open, approachable, and respected.
- Some managers within the midlevel management³ group are viewed by employees as trusted and supportive of their crews.
- Employees at CUF exhibit a high degree of enthusiasm and commitment to the mission of the plant and seem genuinely motivated to make the plant a highly successful operation.
- The safety program framework is generally viewed as positive.

Opportunities for Improvement

- Employees expressed frustrations related to a number of management decisions and actions. Many of these frustrations were expressed in earlier surveys and appear to be lingering issues which could impact effectiveness. While we do not make any judgments regarding these decisions, the level of frustration could be indicative of the need for more communication in order to prevent these actions to continue to frustrate the workforce.
- Employees expressed distrust in certain midlevel managers and cited what they believe has been ineffective communication between employees and managers. We view effective communication and leadership skills by managers as imperative to achieve high levels of effectiveness.

These types of issues, if left unresolved, can undermine employee trust in management and negatively impact both employee engagement and operational performance.

² EFOR is the percent of scheduled operating time a unit is out of service due to unexpected problems or failures and/or equipment failures causing outages or derates.

³ For purposes of this report, we define midlevel management as supervisors, superintendents, and coordinators.

OPERATIONAL AND CULTURAL STRENGTHS

We identified operational strengths at CUF in the following areas: (1) reliability measured by the EFOR and seasonal EFOR and (2) environmental reporting. We also identified cultural strengths which positively impact CUF operations. These include leadership behaviors exhibited by the Plant Manager and some midlevel managers as well as enthusiasm and commitment demonstrated by the employees at CUF. In addition, employee perceptions of the safety program framework were also generally positive.

Operational Strengths

EFOR and Seasonal EFOR Below FY2015 Targets

As of March 31, 2015, CUF's EFOR and seasonal EFOR were well below the FY2015 year-end targets as laid out in the CUF March 2015 Site Performance Report. These two measurements, included in CUF's business plan, are used by TVA to assess the reliability of generation. EFOR is the percentage of scheduled operating time a unit is out of service due to unexpected problems or failures and/or equipment failures causing outages or reduced capacity. Seasonal EFOR, which is an incentivized⁴ measure, is the reliability of units over peak seasons. CUF's EFOR was at 1.41 percent compared to CUF's FY-end target of 6.26 percent. Seasonal EFOR was at 1.49 percent, which is currently below the FY-end target of 7.53 percent. This indicates plant management and craft personnel have adequately addressed issues that may have negatively affected plant reliability. As depicted in Figure 1, both EFOR and seasonal EFOR at CUF have been trending downward beginning FY2010 through FY2014, although there was an increase in FY2014.

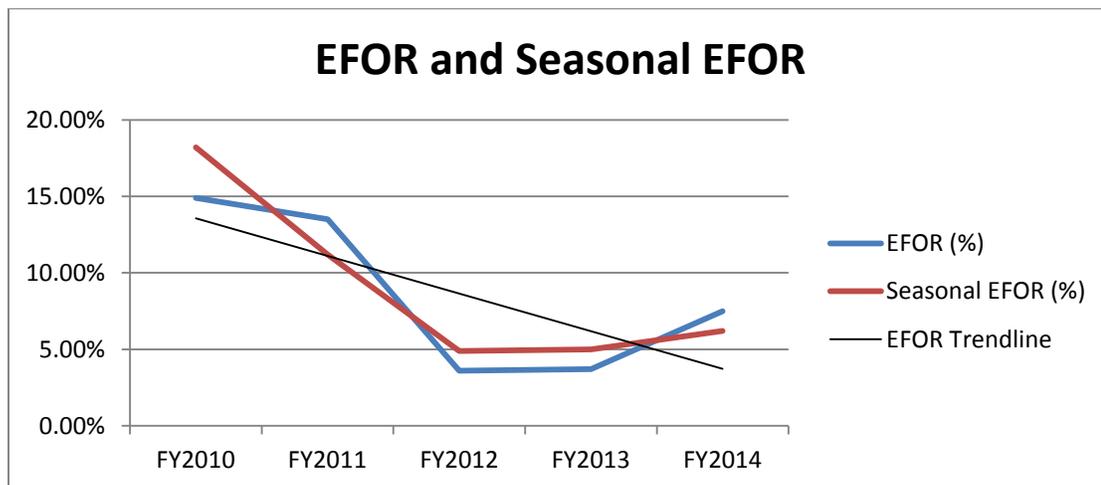


Figure 1

According to site performance reports, the recent decrease in EFOR can be attributed to several specific actions, including hanger inspections, tube replacements, and rotation of equipment. Craft personnel and plant

⁴ This measure is tracked as part of TVA's Winning Performance metrics.

management mentioned rotation of equipment as a positive step in meeting the generation portion of the plant's mission. CUF management also stated their Engineering department participates in a peer group, comprised of representatives from other fossil plants, whose purpose is to develop criteria assessments for components within the major plant systems at CUF. These assessments are performed to determine the condition of components and/or assets at the plant and to prioritize any work needing to be performed.

No Reportable Environmental Events (REEs) Since FY2013

As shown in Figure 2, for FY2008 through April 15, 2015, CUF had no REEs. An REE, which is a key measure identified in CUF's business plan, is defined as:

An environmental event at a TVA facility or elsewhere caused by TVA or TVA contractors that violates permit conditions or other regulatory requirements and triggers regulatory required oral or written communications to or enforcement action by a regulatory agency.

TVA has included REEs as part of its Winning Performance program with the calculation being the number of REEs reported.

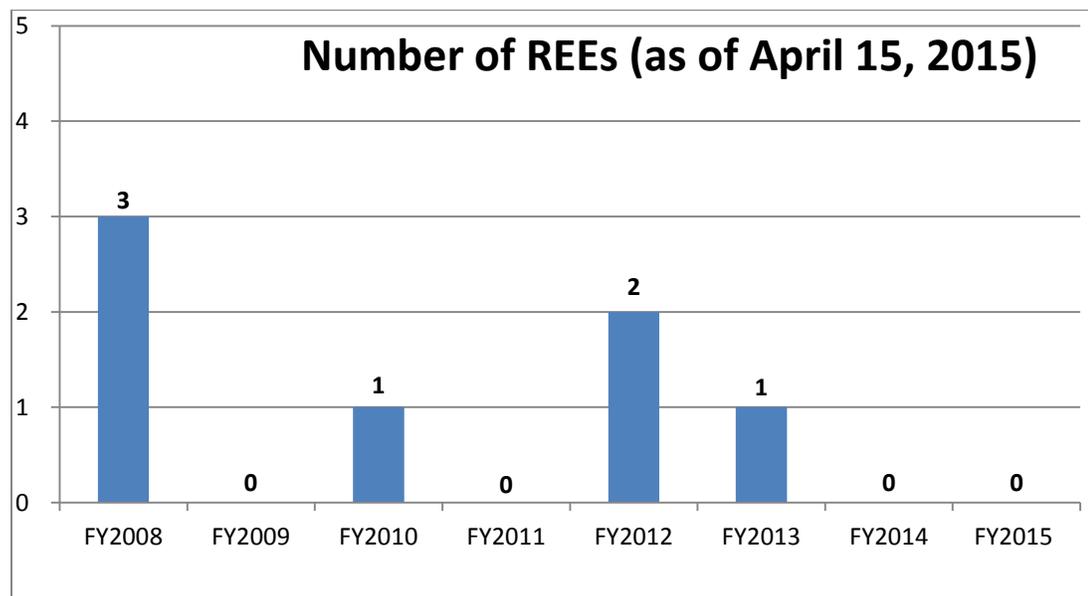


Figure 2

TVA employees are expected to report potential issues to TVA's environmental personnel when necessary. Conversely, environmental personnel are expected to provide oversight and support to mitigate the risk of noncompliance with environmental regulations. Plant management and craft employees we spoke with recognize and support the role of CUF's Environmental staff in mitigating the risk of environmental noncompliance.

Cultural Strengths

Plant Manager Provides Effective Leadership

CUF's current Plant Manager is a long-term employee of CUF. The Plant Manager began his career at CUF in 1991 and has risen through the ranks to Plant Manager, a position he has held since October 2013. Many employees we spoke with had positive views of the Plant Manager's leadership style. One of the reasons given for the positive impression of the Plant Manager was his open-door policy, allowing plant personnel to walk in with questions or clarifications on various topics. For example, employees who may not understand the communications given by their supervisor feel free to come and clarify those communications with the Plant Manager. The Plant Manager also visits with craft personnel on the job site. Individuals interviewed have a comfort level with the Plant Manager and feel free to approach him with issues or concerns.

Some⁵ Supervisors Are Respected by Employees

The majority of the employees we surveyed had positive views of the leadership abilities of some midlevel plant managers. Craft personnel provided specific comments about certain supervisors whom they believe have positively affected morale. These supervisors were described as "having your back" and listening to employees. They were also described as ones who provide the proper tools to do the job safely. These supervisors were perceived as providing support and looking out for the employee's and TVA's best interests.

Employees at CUF Are Motivated to Help CUF Succeed

Employees at CUF want their plant to succeed and work hard at making that happen. Discussions with employees indicated they take pride in a job well done, and believe there is teamwork exhibited amongst craft. Employees indicated they were motivated to perform well because of their personal values and understand the importance of being safe while working at a fossil plant. Overwhelmingly, CUF employees want to be safe and want their coworkers safe as well. They take pride in their plant and its role in producing reliable generation. They have ideas on how to save CUF money and uses for scrap materials.

Safety Program Framework Viewed Positively

CUF personnel's perceptions of the safety program framework were generally positive. Individuals stated a Health and Safety Committee (HSC) was established and is gaining momentum. This committee is charged with monitoring and assisting in the implementation of TVA's safety program at CUF and providing recommendations to the Plant Manager for improvement of program operations. The HSC is also responsible for monitoring findings and reports of workplace inspections⁶ to confirm appropriate corrective measures were implemented.

⁵ Individuals who spoke with OIG personnel were not asked for any information that could identify them. Some of these individuals named their supervisor; while others did not. Therefore, there may be other supervisors that were considered trustworthy but were not specifically named.

⁶ Observations of work performed to determine whether safety policies are being followed.

Craft personnel also discussed human performance tools, such as prejob briefings and Cardinal 5 principles, as being positive aspects of the safety program. Prejob briefings are human performance tools that allow the worker to think through a job and use his/her knowledge to make the job as safe and efficient as possible. Additionally, some individuals informed us the use of Cardinal 5 principles was another positive element of the safety program. In general, CUF's Cardinal 5 program is used to assess high-hazard jobs and includes the following five focus areas: (1) confined space entry, (2) electrical hazards, (3) fall potential, (4) fire/explosion/burn/chemical hazards, and (5) high hazard lifts. According to the CUF Safety Consultant, Cardinal 5 focus areas are discussed during the plan of the day meetings and work is assessed for Cardinal 5 applicability. When Cardinal 5 is applicable, CUF has committed to using an incident prevention checklist which identifies safety requirements and precautions specific to that focus area.

OPPORTUNITIES FOR IMPROVEMENT

We identified a number of areas that could negatively impact the effectiveness of the plant. Employees discussed perceptions about what they deem as "mixed messaging" related to safety practices. They also expressed concern about the unintended consequences related to how people are held accountable for safety. In addition, employees expressed frustrations related to a number of management decisions and actions, many of which had been identified in earlier surveys but may not have been adequately addressed.

Risk of Diminished Trust Around Safety Practices

TVA emphasizes the importance of safety to TVA employees through various methods. Safety of individuals is a metric in the past and present Winning Performance incentive program. TVA's recent roll out of new values also includes safety as a value. TVA's Code of Conduct also states "We create and maintain a safe workplace, and at all times make safety a priority and accept no compromises." In addition, safety is a part of CUF's mission.

Although CUF personnel view the safety program framework as positive, personnel informed us TVA and some CUF management actions associated with demonstrating the importance of safety were viewed as disingenuous because of perceived mixed messaging. Additionally, CUF personnel believe safety incidents and near miss occurrences are not being reported by employees as expected.

Mixed Messaging

Craft employees informed Office of the Inspector General (OIG) personnel of their belief that some managers do not really want safety issues reported or are not interested in safety issues unless they affect MW. Specifically, personnel mentioned that CUF ductwork issues had not been addressed and some plant management did not always exhibit safe behaviors. Additionally, we noted near misses reported by employees were not always documented as closed when

issues were resolved which could lead to the perception that safety issues were not addressed.

CUF Ductwork

During our visits at CUF, multiple individuals across job functions informed us of issues related to ductwork at CUF. Specifically, plant management and craft personnel discussed with the OIG the concern for safety because of ductwork leaks as well as falling lagging, which are the metal sheets that comprise the outside of the ductwork as depicted in Photo 2.



Photo 2

Past and present CUF management are aware of the ductwork issues and have taken steps to address the concerns with the resources provided. This issue has been and is currently identified in CUF business plans, site performance reports, CUF's listing of operational risks, and CUF's near miss incidents reports,⁷ signifying that CUF personnel perceive the ductwork as a significant safety issue. We obtained a list of CUF operational risks from FY2014 through FY2018 business plans. According to the plans, degradation of lagging is considered as having a low to moderate risk of shutting the units down; therefore, it has a minimal impact on generation. However, the probability and severity of falling lagging and continued ductwork degradation was reported as high risk. Although the documentation of this risk is focused on the impact to generation, falling lagging poses a significant safety risk to employees walking near and under the ductwork. The risk probability and severity of falling lagging in conjunction with prior near misses related to ductwork elevate the risk of critical injuries to individuals who are working beneath or walking within the vicinity of the ductwork.

⁷ According to Safety personnel, near miss incidents related to lagging have been addressed; however, these issues have not been closed in the near miss reporting system.

CUF's current risk-containment strategy includes monthly inspections to document deficiencies and track known leaks and repair them during outages as well as to identify funding to replace lagging. While CUF management has indicated the ductwork is structurally sound, recent CUF planning documents indicate it would take approximately \$45 million (i.e., \$9 million per year for the next 5 years in capital funds)⁸ to correct the ductwork issues by replacing ductwork insulation and expansion joints. According to plant management, CUF is receiving \$5 million of the \$9 million requested to address ductwork issues for FY2016.

Additionally, as indicated in Table 1, approximately \$25 million has been spent to replace loose lagging, insulation, and expansion joints; however, ductwork is still considered a risk.

Expenditures Related to Ductwork	
FY	Capital
2009	\$ 4,169,692.83
2010	3,176,024.99
2011	2,833,112.22
2012	6,987,975.87
2013	1,967,487.11
2014	2,361,171.91
2015 (April)	3,822,033.96
Total	\$25,317,498.89

Table 1

Despite efforts by TVA and CUF management to address ductwork issues, craft personnel still believe safety concerns brought up were not considered as important if they did not currently affect generation. Lagging was the top employee concern included in site performance reports dated June 2014 through April 2015. Ductwork issues were also reported by employees in near miss reports dated September 2012, December 2012, and January 2013. These reports stated lagging had fallen off the ductwork; in one case, the lagging almost striking an employee working beneath it and in another case striking a parked vehicle. The third incident was reported as a near miss by an employee; however, it was later deemed as not being a near miss because a piece of lagging was discovered in a parking lot, and it was assumed there was no one around when the lagging fell.

Managers Not Exhibiting Safe Behaviors

Craft personnel indicated some plant management may not be holding themselves accountable regarding the emphasis on safety. Discussions with craft personnel revealed the perception that plant management sets safety

⁸ Capital projects exceeding \$250,000 must be approved through the Fossil Project Approval Board according to TVA-SPP-34.0, Project Management.

expectations for CUF employees, yet these personnel witnessed some plant management not following their own expectations. For example, when the cleats for walking on ice were limited, plant management provided the equipment to craft personnel for their use. However, management proceeded to assist with the job without the appropriate personal protective equipment (PPE) because there was not enough PPE for each person. Another example provided was the belief that work refused by day shift employees due to safety concerns was sent to the backshift with a new work order, and no notes related to the safety concerns from the day shift.

Near Miss Incident Report Closure

CUF employees and TVA Safety personnel believe not all near misses are currently being reported by employees. We obtained and reviewed the near miss incident reports and determined there was a slight drop in reporting of near misses in 2014 and 2015 compared to previous years. This perceived drop in near miss reporting could stem from the fact that open near misses are not being closed in a timely manner. According to TVA Safety personnel, individuals responsible for addressing near miss incidents may not always close them in the system even though the issues may have been addressed. This may lead to the perception that near misses are not important because they are not closed out in a timely manner. Table 2 shows near misses documented as opened and not closed for FY2012 through May 10, 2015.

Near Miss Incident Reports		
FY	Opened	Closed
2012	5	2
2013	7	1
2014	3	0
2015	4	0
Total	19	3

Table 2

We determined the three near misses related to the ductwork discussed previously were documented as open according to the near miss incident reports. However, according to TVA Safety personnel, all three incidents were investigated and addressed.

Safety Accountability May Have Unintended Consequences

While corporate and plant management have implemented actions for holding individuals accountable, these actions may have resulted in unintended consequences. Actions taken by management include incentivizing safety behaviors and correcting inappropriate behaviors. However, craft personnel stated employees did not always report safety incidents for various reasons. These reasons included not wanting to be responsible for loss of bonuses and not wanting to be blamed or disciplined for getting injured.

Incentivized Safety Behaviors

Incentivizing safety behaviors may result in underreporting of injuries and the perception that TVA employees are being safer than they really are. Since 2004, recordable injuries have been included as part of TVA's Winning Performance incentive program. In prior years, safety was included as part of TVA's Winning Performance business measures; however, TVA currently incentivizes safety, along with other performance elements, through use of a corporate multiplier.⁹ According to TVA documentation, the corporate multiplier "is designed to reinforce that we are one unified team" and is not considered as part of the business measures for which employees receive a payout. Mathematically, the corporate multiplier, which ranges from 0 to 1 for FY2015, can either cause no change or reduce the payout amount. For FY2015, the corporate multiplier for the recordable injuries component was set at a goal of 0 for TVA as a whole, which may promote the unintended consequence of underreporting safety incidents. While the intention of including the recordable injury rate as a component of the multiplier is to reinforce unification and safety accountability across TVA, some craft personnel believe reporting safety incidents or injuries would negatively affect not only their own but others' bonuses.

Not only did craft personnel discuss the perception of individuals not reporting safety incidents or injuries due to potential loss of bonuses, but they also did not understand why the goal was set at zero because, in their opinion, this is unrealistic in a plant environment. As of April 2015, the recordable injury rate for TVA was 0.65, which did not meet the goal of zero.

Perception of Discipline for Being Injured

Some craft personnel stated they were aware of individuals who did not report safety incidents because of fear the individual would get written up. Common practice among plant management is to note, in an employee notebook or otherwise, positive and negative employee actions. According to plant management, the intention behind the employee notebook is for management to reinforce positive actions and to offer feedback as well as use those actions as a tool in preparing yearly performance reviews. According to plant management, these actions are a mechanism for holding CUF employees accountable for safety actions, such as wearing the appropriate PPE. Accordingly, recording an event in the employee notebook may be used in employee assessments. When craft personnel do not follow these expectations, disciplinary actions may occur. In instances where an injury has occurred, craft personnel believe they are disciplined for the injury whereas management sees it as holding employees accountable for safety actions.

Unresolved Conflict Between Management and Employees

Employees expressed frustrations related to a number of management decisions and actions. Many of these frustrations were expressed in earlier surveys and

⁹ The OIG issued Evaluation Report 2012-14882, Injury Reporting at TVA, on September 30, 2014, and recommended TVA evaluate the potential influence of the corporate multiplier related to recordable injuries on the reporting of injuries. As of August 24, 2015, this recommendation was still open.

appear to be lingering issues which could impact effectiveness. While we do not make any judgments regarding these decisions, the level of frustration could be indicative of the need for more communication. Discussed below is a summary of the areas of concern that were frequently expressed.

Enforcement of Sick Leave Policy

Craft employees perceive CUF management is treating them differently than craft at other fossil sites with regard to enforcement of TVA's sick leave policy.¹⁰ Specifically, craft personnel stated CUF management is requiring documentation for sick leave usage in excess of 16 hours per quarter which they stated is not required at other fossil sites. This practice stemmed from what management considered as a large number of sick leave hours taken by one department within a 9-month time period. CUF management believes some individuals were taking sick leave outside of the policy guidelines. While the sick leave usage may seem excessive to CUF management, we could not confirm whether or not it was taken in accordance with policy.

Use of Contractors

Because CUF employees take pride in a job well done, they believe they can perform tasks themselves instead of using contractors. They have also indicated rework has been performed by CUF personnel when contractors have been utilized; therefore, they view the use of contractors as being wasteful. In contrast, CUF management believed the potential abuse of sick leave as stated previously could be a reason for the use of contractors. According to CUF personnel, contractors are utilized during outages and to perform other short-term projects or tasks as needed.

Perception of Inadequate Staffing

Craft personnel mentioned having insufficient staffing to perform their responsibilities. Specifically, individuals believed that staffing was inadequate, in some cases, because management recruited certain individuals from craft to assist with planning. In addition, craft personnel mentioned there is additional training they could receive which could help the plant become more efficient with the current staffing levels. Despite their concerns, CUF management and employees agree they complete the work that needs to be accomplished to keep the plant running. In addition, CUF management believes staffing levels were impacted by craft personnel taking sick leave in violation of the policy.

Disposal of Materials

Craft personnel stated they were instructed by certain CUF managers to dispose of usable materials because of SOX requirements and visits from corporate personnel or dignitaries. Craft personnel believe the disposal of usable materials

¹⁰ TVA-SPP-11.420, Leave, states sick leave is to be used when an employee is physically incapacitated to do his or her job as well as when employees are ill, injured, exposed to a communicable disease; have dental, optical, or medical examinations or treatment; are caring for family members who are ill, injured, need medical, dental, or optical treatment, or exposed to communicable diseases; when having or adopting a child; and when attending family bereavement activities.

is a waste of TVA resources. Both housekeeping, including the return to the storeroom of materials not used and completion of associated paperwork, as well as SOX compliance are part of the supervisor and coordinator ratings on performance review and development assessments. CUF plant management stated they were aware items of value had been discarded in the past but believed that current items being discarded are scrap items and not usable materials. We were unable to determine whether materials of value were discarded during our review. However, employees believe disposal of usable items is occurring which could be interpreted as not being good stewards of TVA resources.

Distrust of Some Midlevel Management

In discussions with OIG, craft personnel informed us of their belief that some individuals in midlevel management were not trustworthy. Specifically, craft personnel stated they believed some supervisors were not truthful. We discussed specific information related to this belief with plant management who affirmed communication issues exist with regard to the flow and content of messaging from the Plant Manager and/or some of his direct reports down to the craft. Additionally, CUF management indicated craft personnel would sometimes approach upper levels of management to confirm communications made by those midlevel managers.

Use of Integrated Supplier

Both CUF management and employees were concerned with the use of an integrated supplier used by TVA to purchase materials. Specifically, CUF personnel are under the impression they have to use the supplier to purchase materials; however, they believe using this supplier is a waste of CUF money. Employees have reported this information to the Plant Manager who instructed them to track the potential cost savings identified from not using the supplier. While we did not review material purchases to determine their effect on cost and savings, according to a clause in the supplier contract, effective April 1, 2011, the supplier is guaranteed a certain percentage profit of sales. This could add to the perception that items cost more because a markup is included.

Overreactions by Management

Craft personnel discussed perceived overreactions by TVA and/or plant management for the organization as a whole. Instances provided include past actions in which necessary tools were removed due to the occurrence of safety incidents related to usage of these tools.

Perception of Conflicting Priorities

Craft personnel do not understand why monies are being spent on items that are not associated with meeting the mission of the plant. Examples provided by craft personnel and management included painting certain areas of the plant instead of making repairs such as returning an elevator to service or repairing nonworking bathrooms. Lighting was included as one of the top employee concerns in CUF site performance reports, and some craft mentioned it as a

concern with their safety. Craft personnel stated actions were taken to address lighting issues; however, they do not believe all lighting issues were adequately addressed.

Fossil Versus Nuclear

Craft personnel perceive that Nuclear is more highly favored than Fossil. This belief stems from the amount of resources Nuclear has received over the years as compared to Fossil. Furthermore, the differences between amenities, including cafeterias and LiveWell,¹¹ provided to Nuclear over Fossil have further exacerbated these perceptions of favoritism.

OUR ANALYSIS

Organizational effectiveness, as we have defined it in this review, is the ability of an organization to achieve its mission and goals. At the cornerstone of organizational effectiveness are the people and their behaviors. An organization that has enthusiastic and willing employees is more likely to achieve the organization's goals and mission over time. In general, we found that CUF (1) appeared to be performing well from an operational standpoint based on meeting or exceeding expectations of key measures in their business plan, (2) has a Plant Manager and some in its management team that are well respected and trusted, and (3) has a motivated workforce and management team that share a vision for achieving the mission of the plant.

As we discussed earlier, CUF also has opportunities to address some employee frustrations, management issues, and communication issues. We believe CUF is well positioned to address some of these issues as well as build a more sustainable way to handle the inevitable frustrations, miscommunications, and conflicts that will arise in the future. As we discuss below, to maintain and improve organizational effectiveness CUF will need to leverage its strengths and focus on: (1) addressing the lingering issues and (2) instituting an effective resolution process to address issues early.

ADDRESSING LINGERING ISSUES

As discussed previously, we identified opportunities to improve employee engagement at CUF by addressing some lingering issues cited in this report. It is important to note some of the issues expressed to OIG personnel were also mentioned by employees in the TVA 2011 and 2012 OHI surveys. Because these issues are still being discussed by CUF employees, this indicates that any actions taken by TVA and/or CUF management did not adequately resolve the concerns. These types of lingering issues can undermine trust in an organization and between management and employees and, ultimately, hamper the effectiveness of the organization. This also can lead to employees being less

¹¹ TVA planned to phase out all of its LiveWell fitness facilities with the exception of Nuclear by September 2014. TVA's Nuclear organization accepted responsibility for locally operating and maintaining their fitness centers. At the time of this evaluation, the LiveWell facility at CUF was closed.

likely to participate in future surveys because they become disenchanted with the feedback process and disengage from it.

One way to resolve longstanding issues is to start with dialogue to understand the concerns of the parties and the differing perspectives on the issues, which could ultimately lead to a resolution based on mutual purpose and mutual respect. Management may not be able to institute the option(s) suggested by employees but they can, perhaps, provide a better understanding of why a decision was made. In our judgment, a desired outcome will also be a building of trust and respect by making it psychologically safe for differing opinions to be offered, heard, and considered, enhancing the probability that employees will alert management to potential risks for TVA operations that they might otherwise not reveal.

TVA and CUF plant management have changed since the 2011 and 2012 OHI surveys. The current Plant Manager and certain members of the management team exhibit behaviors that promote trust and respect from their employees. This will position them well to lead the effort for issues that are capable of resolution at the CUF level. For other issues, CUF will need to coordinate with relevant groups outside of CUF to help those parties understand the concerns of CUF employees. In addition, the motivation and passion of the employees to help CUF be successful may indicate receptiveness by the employees to work through these frustrations with the Plant Manager and management team.

The impact of resolving these issues can be significant. More engaged employees are known to give more discretionary effort and are more likely to identify risks to TVA.

INSTITUTING AN EFFECTIVE RESOLUTION PROCESS

Resolving the existing issues between CUF employees and management is only the first step. Creating the right process going forward to timely resolve issues on an ongoing basis and avoiding the accumulation of such will help minimize frustrations as well as increase trust and engagement.

In a healthy work environment, mechanisms are in place to continually collect feedback and resolve issues or conflict. It is a natural state of organizational life that frustrations, miscommunications, and conflict arise. Resolving these issues quickly and collaboratively helps an organization maximize its effectiveness and reduce its risks. Organizations may use many different methods or combination of methods for collecting feedback (e.g., surveys, focus groups, input from employee councils). In addition, when resolving issues, organizations may choose to make final decisions or collaborate with employees to find resolutions. In either case, the rationale for selecting a particular option should be discussed with employees in a timely manner.

Elements of an Effective Resolution Process

At CUF, employees have various avenues available to them to provide their feedback to CUF management. These include, but are not limited to TVA surveys, the CUF management chain, union stewards, employee engagement teams, CUF's HSC, CUF Human Resources representative, Equal Opportunity Compliance concerns program, Non-Nuclear Employee Concerns program, and the OIG Empowerline. In addition, the positive views of the Plant Manager and some midlevel managers encouraged an environment conducive to employees providing feedback to those individuals in CUF management. As stated previously, the Plant Manager was generally seen as open, approachable, and respected. Gallup research shows that having an approachable manager is a key factor in whether an employee will be fully engaged in his or her work. One reason that employees at CUF view the Plant Manager as approachable is his open-door policy, which allowed individuals to walk in with questions or clarifications on various topics. In addition, some midlevel managers were regarded by employees as providing support and looking out for the employee's and TVA's best interests. Therefore, given all of the feedback options available to CUF employees, it was not surprising CUF management was already aware of the majority of the issues identified in this report.

However, at CUF, some issues have lingered, without resolution, for several years. Several of these issues are outside of the purview of CUF management; however, there are some issues, including the distrust with some midlevel managers that are in CUF management's control. We believe an effective resolution process could mitigate the risk of employees' perceptions that their opinions do not matter or that issues are not addressed. In other words, an appropriate resolution process can help build trust between management and employees because it tends to demonstrate that management listens to and cares about its employees. We believe important aspects to consider when instituting such a process include:

- Empowerment of employees to identify potential solutions, where possible, and collaboration with management to determine the optimal solution.
- Providing transparent communication, where possible, in tracking the concern, issue, or question and the associated resolution, and in understanding the rationale for selection of a particular solution.

Determining the best process specifically for CUF and to work through the initial issues may require an investment of time and effort by managers and employees. By working together to implement an effective resolution process and making it a priority, CUF management and employees may build trust and a stronger team and, ultimately, position themselves to better achieve their mission.

Importantly, a continuous process where management and employees collaborate to determine optimal solutions to issues can increase trust and teamwork which are essential to enhancing organizational effectiveness. The leadership style of the current Plant Manager could account for a high proportion of the trust

employees place in management at CUF. However, if a new Plant Manager is assigned at CUF in the future and is not respected or regarded as trustworthy by employees, there is the risk that his/her actions could create a negative environment and diminish the positive attributes that currently exist at CUF. The resolution process should become a habit and part of the way CUF conducts its everyday business. While any change has the potential to disrupt or destroy a positive cultural environment, the trust and teamwork resulting from an effective and collaborative resolution process could help CUF to meet its operational goals.

RECOMMENDATIONS:

We recommend the Plant Manager, CUF:

1. Leverage the existing trust and credibility he has with CUF employees and take actions to address and resolve the lingering issues at CUF identified in connection with this evaluation, which are capable of resolution at the CUF level.
2. Continue to utilize existing methods for obtaining employee feedback and develop an ongoing effective resolution process with employee and management involvement that includes (a) methods to resolve issues, (b) transparency in tracking and reporting on feedback and resolutions, and (c) transparency to employees of rationales for selecting a particular solution.

MANAGEMENT'S COMMENTS AND OUR EVALUATION

In response to our draft report, TVA management stated CUF agreed with the recommendations and that Management will consider the opportunities for improvement identified. CUF management is currently working on a plan to address the recommendations. To address recommendation 1, TVA stated it had recently administered an employee engagement survey to TVA employees. Currently, TVA leaders are in the process of sharing these survey results and providing feedback to employees. CUF plans to utilize the contents of this report in conjunction with TVA survey results to focus on continuous improvement. With regard to recommendation 2, TVA management believes that instituting another TVA-wide formal process is not necessary. According to TVA management, TVA's emphasis will be on improving the informal methods of communication by establishing and reinforcing communication channels through organization-wide scheduled meetings. See Appendix C for TVA management's complete response.

We agree with management's planned approach to utilize our report in conjunction with the actions taken to address survey responses. We also agree that a TVA-wide formal resolution process may not be necessary; however, we encourage CUF management to consider implementation of an ongoing resolution process tailored to CUF management and employee needs. We believe this action could increase trust and collaboration among CUF personnel.

OVERVIEW OF ORGANIZATIONAL EFFECTIVENESS

Research has shown that an organization's overall effectiveness is optimized when high levels of operational and behavioral/cultural excellence exist hand-in-hand. 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. Commitment from both management and employees helps to achieve organizational effectiveness.

Employee engagement is critical for primarily two reasons—engaged employees (1) boost productivity and (2) identify risks to management that might otherwise not be addressed. We are unaware if the Tennessee Valley Authority (TVA) has ever consistently analyzed the correlation of TVA employee engagement to either productivity or to risk identification. While this report is specifically about one fossil fuel plant in TVA's fleet, no analysis would be complete without providing the context for that plant's TVA employees. This overview is given to put into proper context the Office of the Inspector General's (OIG) findings and recommendations for Cumberland Fossil Plant (CUF).

THE CORRELATION BETWEEN ENGAGEMENT AND BUSINESS RESULTS

Over the years, research has confirmed that an engaged workforce translates into business success. The higher the employee engagement the more likely the company will be successful. Companies depend on employees giving their best and, at times, what is sometimes referred to as "discretionary effort." In other words, employees have a choice to do the minimal required to keep their jobs, or they can choose to initiate additional effort to help the company succeed. Engaged employees give discretionary effort that can be "money in the bank" for any company.

Employee engagement increases the chance of organizational success. According to Gallup, Inc.'s¹ *State of the American Workplace*,² businesses with engaged workforces have been correlated to higher earnings per share and have exhibited faster recovery from recessions. Employee engagement has also been linked to increased customer satisfaction and a reduction in safety incidents. A recent Gallup, Inc. study³ compared top and bottom quartile engagement scores of 125 companies (which included approximately 23,900 business units [BU]).

¹ Gallup, originally founded in 1935 as the American Institute of Public Opinion, is primarily a research-based, performance management consulting company. In the 1990s, it developed a tool for measuring and managing employees, the Gallup Q12, which includes 12 actionable workplace elements linked to vital performance outcomes.

² "State of the American Workplace," Gallup, Inc., <http://employeeengagement.com/wp-content/uploads/2013/06/Gallup-2013-State-of-the-American-Workplace-Report.pdf>.

³ Q12 Meta Analysis, The Relationship Between Engagement at Work and Organizational Outcomes Gallup, Inc., <http://www.gallup.com/services/177047/q12-meta-analysis.aspx>.

The results of the study reflected that for the 27 companies with available health and safety data, the related BUs in the bottom quartile averaged 62 percent more safety incidents.⁴

Gallup's *State of the American Workplace* (2010-2012),⁵ defines "engaged" employees as those who are involved in, enthusiastic about, and committed to their work and contribute to their organization in a positive manner." Engagement should not be confused with employees simply being happy. Engagement at the employee level includes being personally accountable and motivated to carry out assigned tasks as well as to identify problems and find appropriate solutions so that efficiency and effectiveness of the organization is increased. *Employee Engagement: Tools for Analysis, Practice, and Competitive Advantage*, coauthored by William H. Macey,⁶ states employee engagement ". . . is an individual's sense of purpose and focused energy, evident to others in the display of personal initiative, adaptability, effort, and persistence directed toward organizational goals." According to Gallup,⁷ these employees "go the extra mile, work with passion, and feel a profound connection to their company." These individuals, if allowed, will become more productive and drive improvements to move the organization toward becoming more effective.

Whether managers themselves are engaged is equally important. A major determinant of whether a company has engaged employees is whether managers are engaged themselves. In the *State of the American Manager: Analytics and Advice for Leaders*,⁸ Gallup, Inc., estimates that only 30 percent of employees in the United States are engaged at work while only 35 percent of managers in the United States are engaged. Further, employees whose managers are open and approachable are more engaged. Management's role is pivotal to the successful engagement of a company's employee. Management's role in an ideal organization is one of support whereby employees are trusted to create a work environment that meets the mission through cost-effective and efficient methods. Fundamental elements of basic engagement include communication of management and job expectations. This includes the creation of an environment where employees (1) feel safe to bring forth issues and ideas even if those issues or ideas differ from management's opinions and (2) are enabled to assist or are responsible for problem identification as well as problem resolution. If these requirements are not met, employees may not be engaged to meet the mission, regardless of how inspiring the mission is.

⁴ To our knowledge, TVA has not compared engagement scores with accident rates to know whether the same correlation applies at TVA.

⁵ "State of the American Workplace," Gallup, Inc., <http://www.gallup.com/services/178514/state-american-workplace.aspx>.

⁶ William H. Macey, et.al, *Employee Engagement: Tools for Analysis, Practice, and Competitive Advantage*, Valtela Corp., 2009.

⁷ "Five Ways to Improve Employee Engagement Now," Gallup, Inc., <http://www.gallup.com/businessjournal/166667/five-ways-improve-employee-engagement.aspx>.

⁸ "State of the American Manager: Analytics and Advice for Leaders," Gallup, Inc., http://www.aseonline.org/images/marketing/StateOfAmericanManager_Gallup.pdf.

THE CORRELATION BETWEEN RISK IDENTIFICATION BY EMPLOYEES AND ENGAGEMENT

Employee engagement not only boosts productivity for a company but creates an “early warning system” when employees point out risks that are lurking beyond the radar of management. An inherent component of employee engagement is the degree to which employees feel comfortable voicing problems or identifying risks to his or her supervisor(s). Specifically:

[If] an employee is comfortable addressing a workplace issue with management with the confidence and knowledge that: (1) the situation will be properly addressed in accordance with company policy; and (2) the reporting employee will not be retaliated against, the open communication will foster confidence, boost morale, and will likely improve the workplace overall by increasing employees' engagement levels.⁹

Risk identification has been the subject of international focus particularly since the financial crash of 2008. In the United Kingdom, “culture reviews” are conducted by some financial institutions as a result of the global financial crisis. The Institute of Internal Finance (IIF) noted failures in the area of risk management were contributing factors of this financial crisis. Specifically, it stated that “weak risk culture, failures in risk governance, and lack of a comprehensive approach to firm-wide risk management resulted in poor risk identification and management.”¹⁰ The IIF further stated risk culture failings typically fall into one of several predictable categories. One of these, known as “sweeping problems under the carpet,” is described as:

People do not challenge one another’s assumptions, attitudes, or actions; this may be the result of forceful leadership at one or another level, of power accreting to a successful desk, or simply of a perception that challenge or questioning will only cause problems for the questioner and thus not contribute constructively to the firm’s direction...[In addition,] Fear of bad news or a “shoot-the messenger” mentality can be powerful cultural attributes preventing people from raising issues forcefully.¹¹

⁹ Katherine Cooper Franklin, Marissa Dragoo, and Amy Mendenhall, “Building an Effective ‘Speak-Up’ Culture,” *Human Resource Executive Online*, September 2014, <http://www.hreonline.com/HRE/view/story.jhtml?id=534357555>.

¹⁰ “Reform in the Financial Services Industry: Strengthening Practices for a More Stable System, The Report of the IIF Steering Committee on Implementation (SCI),” *IIF of International Finance*, December 9, 2009, p. A.III.8., <https://www.iif.com/publication/regulatory-report/iif-releases-report-reforms-financial-services-industry>.

¹¹ “Reform in the Financial Services Industry: Strengthening Practices for a More Stable System, The Report of the IIF Steering Committee on Implementation (SCI),” *IIF of International Finance*, December 9, 2009, p. A.III.8., <https://www.iif.com/publication/regulatory-report/iif-releases-report-reforms-financial-services-industry>.

Importantly, without robust and informal communication channels, “management risks missing...rapidly developing issues...In firms that have had serious problems, there often has been a ‘bad news doesn’t travel’ phenomenon. This is a serious risk in itself, and management should be very concerned if there are indications of this trait in the firm’s culture.”¹²

The OIG has documented the “shoot the messenger mentality” at TVA. In the OIG’s Inspection 2010-13088,¹³ Watts Bar Nuclear Plant Unit 2 Project Set-Up and Management Issues Affected Cost and Schedule, May 18, 2012, some elements of a culture that discouraged “raising your hand” were present, caused TVA reputational harm, and cost millions of dollars. Employees working on the construction of Watts Bar Nuclear Plant Unit 2 raised concerns about the budget and schedule projections. Employees “raised their hands” as they should have but were met with opposition from management, and some of those employees believed they were retaliated against because they were giving bad news. The OIG work not only revealed the Watts Bar Nuclear Plant Unit 2 construction project would be over budget and years off the projected schedule but also that there was a culture that discouraged identifying certain risks at TVA.

TVA’s response to the OIG report was appropriate and, ultimately, the managers overseeing the project were replaced by new managers. Unfortunately, it may be difficult to overcome the history of perceived or actual practices of retaliation without a concerted effort by management. Having an ongoing feedback and resolution mechanism that promotes “raising your hand” and rewarding employees who deliver bad news requires structural support and consistent messaging by TVA leadership. In our judgment, a key for TVA going forward is the ability to assess how risky employees perceive it to be to challenge management.

Given the obvious benefits of high employee engagement (higher productivity and greater risk identification), investing in building the necessary trust with employees to increase employee engagement is a prudent investment.

TVA’S HISTORICAL ORGANIZATIONAL EFFECTIVENESS EFFORTS

Creating as many engaged employees as possible should be a high priority for any government agency that holds the public’s trust. While TVA’s primary focus has been on the achievement of its three-part mission (energy, environment, and economic development) through the years, TVA has also recognized the importance of culture including employee engagement and has attempted to improve those areas. Specifically, TVA has gone through three major

¹² “Reform in the Financial Services Industry: Strengthening Practices for a More Stable System, The Report of the IIF Steering Committee on Implementation (SCI),” *IIF of International Finance*, December 9, 2009, p. A.III.8., <https://www.iif.com/publication/regulatory-report/iif-releases-report-reforms-financial-services-industry>.

¹³ OIG Inspections is now referred to as OIG Evaluations.

organizational health initiatives: the total quality (TQ) movement, the Strategic Teamwork for Action and Results (STAR) 7, and the Organizational Effectiveness Initiative (OEI).

Total Quality

In January 1988, Marvin T. Runyon became the ninth chairman of the TVA Board and inherited an agency with fossil plants in disrepair and equipment and maintenance failures in its nuclear program, primarily due to personnel management and organizational issues. To be able to continue as a viable organization, TVA needed to fundamentally change the way it conducted its business. Soon after beginning at TVA, Mr. Runyon reached the conclusion that organizations were not aligned and began efforts to restructure TVA, including the elimination of certain programs and jobs. These efforts, coupled with the significant number of turnovers occurring within senior management, negatively affected employee morale and trust in management.

In the 1990s, TVA began placing an emphasis on strategic planning that stressed the “consumer first” philosophy and adopted TQ to achieve Mr. Runyon’s central objective of increasing the “competitiveness” of TVA’s electricity program.¹⁴ The objective of TQ at TVA was to integrate quality improvement concepts and principles into the way TVA did business. This initiative included four strategic focus areas, including (1) employee involvement (which provided a means for employees to become more involved in solving TVA’s business problems and managing its processes), (2) customer focus, (3) quality leadership, and (4) process improvements. As part of its TQ efforts, TVA made organizational changes. Even though some remnants of the TQ initiative remain today, TQ faded away due to the departure of its “champions” and the ushering in of STAR 7, “a new approach to the same problem.”

Strategic Teamwork for Action and Results 7

In 1993, Craven Crowell was appointed to the three-member TVA Board of Directors and designated as Chairman. Recognizing the threat of deregulation and the need for a more competitive TVA business model, Mr. Crowell introduced the STAR 7 initiative, the goals of which were (1) a common understanding about TVA’s mission, goals, and values; (2) strengthening of the TVA workforce as a team; and (3) enabling the workforce to adapt to rapid change. In addition, the STAR 7 initiative introduced seven values. During the STAR 7 initiative, TVA also developed the Cultural Health Index (CHI) survey. The CHI was designed as a support tool for measuring effectiveness and targeting improvements in the STAR 7 initiative.

As with TQ, focus on the STAR 7 program decreased over time. This was primarily due to lack of buy-in across all TVA organizations and the conclusion of formal STAR 7 training in 2007. While vestiges of STAR 7 continued to exist after the program’s decline, these remnants would not be enough to overcome

¹⁴ Erwin C. Hargrove, *Prisoners of Myth: The Leadership of the Tennessee Valley Authority 1933-1990*, University of Tennessee Press, Knoxville, 1994, p. 276.

the building storm. In 2008, TVA was confronted with one of the most significant events in its history—the Kingston ash spill—and TVA’s organizational health was about to come to the forefront of attention again.

Organizational Effectiveness Initiative

In 2009, TVA implemented OEI, led by McKinsey & Company (McKinsey) consultants, which attempted to remediate the issues identified after the Kingston ash spill in December 2008. TVA’s efforts focused on five key improvement areas, or workstreams: (1) organizational structure, (2) governance and accountability, (3) operating policies and procedures, (4) skills sets, and (5) rewards and recognition. These workstreams majored on compliance and structure and did not focus on changing behaviors as STAR 7 had done. This was despite the conclusion that cultural elements at TVA had at least contributed to the problems with coal ash disposal.

In addition to the five workstreams listed above, two OEI pilots were initiated: the Paradise Plant Effectiveness effort and the Supply Chain Category Management effort.

- **Paradise Plant Effectiveness** – The Paradise effort, an intensive plant change effort driven by plant leadership, was intended to demonstrate examples of successful change and help employees and management identify ways to improve the most significant gaps in the plant’s operational and organizational performance. During the OEI Paradise pilot, employees at that location were encouraged to provide input related to opportunities to close gaps in the plant’s operations and organization. According to McKinsey, the pilot resulted in an increase of 80 megawatts and gains in organizational engagement and energy. However, after identifying nearly \$62 million in annual run-rate improvement opportunities, TVA executive management decided they were not willing to spend the necessary money to fully fund all of the proposed improvements.
- **Supply Chain Category Management** – The Supply Chain effort involved an accelerated effort to transform the way TVA manages its “spend” on materials and services and improve the health of the Supply Chain organization. According to McKinsey, the initial wave identified expected savings of \$45 to \$75 million.

During OEI, the Organizational Health Index (OHI) employee survey tool, owned by McKinsey, was used to assess TVA’s overall organizational health at particular points in time. By early calendar year 2012, TVA had already started implementation of a new business strategy called “Diet & Exercise.” This new strategy was implemented by the former Chief Executive Officer (CEO) and was designed to keep rates competitive by lowering spending and did not appear to be a culture change program. TVA conducted its last full OHI survey in July 2012.

THE SUSTAINABILITY CHALLENGE AT TVA

Understanding the OIG findings and recommendations at CUF require an understanding of why prior efforts to increase employee engagement have not been successful. The primary reason TVA's efforts have not been successful is because sustainability was not "baked into" the process by fundamentally changing the hearts and minds of management and employees.

In addition, TVA is an organization with many strategic and supporting BUs made up of individuals from varied backgrounds located across the Tennessee Valley. A natural result of this is that TVA is comprised of many different subcultures. The perception exists that TVA, in past initiatives, attempted to treat all groups within TVA as one culture or otherwise homogenous. Several TVA divisions have managed to create healthy cultures through implementation of their own organizational health practices especially crafted to take into account the various subcultures within the company. This should guide future efforts to avoid, for example, endeavors similar to OEI which was perceived by some not to recognize the need for making distinctions between TVA subcultures. A "built to last" culture change at TVA that is sustainable must include an approach that is tailored to fit diverse subcultures and work environments across TVA.

The Tension Between Economic Strategies and Culture

Organizational effectiveness is driven by two components, business performance and organizational culture. While these two components should, and can, be mutually supportive, there is an inherent tension between these two components that has been best described in the Harvard Business Review article, "Cracking the Code of Change."¹⁵ The authors describe the economic drivers in an organization as "Theory E" and the people-oriented or culture drivers as "Theory O." Theory E (economics), usually involves economic incentives, drastic layoffs, downsizing, and restructuring. Theory O (organizational culture), on the other hand, is focused on strengthening employee behaviors, attitudes, capabilities, and commitment. The tension in the theories stems from their effects.

Focusing on only one theory will not bring about the desired result of sustained organizational effectiveness. For example, from an employee's perspective, it may be difficult to trust those in management who implement cost-cutting measures. At the same time, managers who concentrate their efforts on employee trust and collaboration, for example, may find it difficult to make tough, but necessary, business decisions because of their loyalty and commitment to employees. Many companies attempt to cost cut and downsize while simultaneously working on trust building/culture work without recognizing the inherent tensions that occur.

¹⁵ Michael Beer and Nitin Nohria, "Cracking the Code of Change," Harvard Business Review, May 2000, <https://hbr.org/2000/05/cracking-the-code-of-change/ar/1>.

As illustrated above, TVA's efforts have swung between Theory E and Theory O concepts. The TQ, STAR 7, and OEI approaches used by TVA in the past have been either primarily structural/process oriented (Theory E) or behavior focused (Theory O). The emphasis of TQ was on process improvements and problem solving to improve customer relations and facilitation of team work. STAR 7, on the other hand, was primarily focused on teaching employees TVA values and behavior concepts.

With OEI, the pendulum swung back to nonbehavior-type structural changes, such as the reorganization of the company and revision of policies and procedures. For example, the main goal of the operating policies and procedures workstream was to provide for more consistency of policies and procedures across all TVA. Similarly, the goal of the organizational structure workstream was to better align leadership and business functions around TVA's core mission.

While these goals were generally helpful in terms of supporting a healthy culture, OEI, at its core, was not about making deep and positive changes in individuals. Indeed, even when a focus on employee engagement was attempted, as with the Paradise Pilot in 2011, TVA's actions may have caused more harm than good. Specifically, employees who had been asked to come up with process improvements, and did so, may have felt demoralized and discouraged after management decided not to fund those proposals. As a result, employees may have believed management was not being sincere in wanting employee input and engagement.

Although Theory E and Theory O have inherent tensions, both drive the same goal—organizational effectiveness. In fact, this natural tension and the difficulty in reconciling the two theories may have been the reason why TVA's three previous efforts were focused primarily on only one of the two theories at a time. According to the authors of "Cracking the Code of Change," both components are necessary to achieve organizational effectiveness, but they suggest a sequenced approach is an option that can be considered. For example, a company may decide to implement Theory E concepts, and after the "dust has settled," move forward with actions consistent with Theory O. However, the authors warn that reaching the goal under a sequenced approach may take decades to achieve presumably because of the employee "healing time" needed when going from one theory to the other.

TVA'S CURRENT EFFORTS

In analyzing TVA's current efforts, TVA leadership took a sequenced approach by beginning substantial Theory E type cost-cutting measures before implementing new values due to extensive financial and operational challenges. In April of 2015, TVA's CEO explained to Congress the significant challenges TVA has faced in his 2 years as CEO, including: record weather events, a stagnant economy, aging infrastructure, increased regulation and low load growth. Due to these internal and external economic pressures, TVA has taken

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. For example, as of May 19, 2015, jobs have been cut through restructuring of various TVA BUs, including specific cuts within Power Operations, in order to help meet TVA's goal of reducing operation and maintenance expenses by \$500 million by the end of fiscal year (FY) 2015. According to TVA, by the end of 2014, more than \$300 million in sustainable cost reductions had been realized, representing a 20 percent reduction to nonfuel operations and maintenance spending. In addition, TVA has experienced increased sales and reduced its outstanding debt.

While addressing TVA's financial challenges, TVA leadership's focus shifted to Theory O type work. TVA developed new corporate values as well as individual contributor and leadership competencies, which are being rolled out to management and specialist-level employees. According to TVA communications on its internal Website:

TVA values are the fundamental beliefs that guide our actions, our behaviors and our decisions as a company. Collectively, they define how we achieve our mission – the way we do business, treat others, and reward performance. Our values are modeled by our leaders and practiced by our employees. Living our values means that we are actively committed to demonstrating them in our day-to-day behaviors.

These values include:

- Safety – We share a professional and personal commitment to protect the safety of our employees, our contractors, our customers, and those in the communities 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're committed to fostering teamwork, developing effective partnerships, and valuing diversity as we work together to achieve results.

TVA's Theory E work (cost cutting) is on-going as of August 2015 while the Theory O work began officially in the first quarter of FY2015. While the

chronology of Theory E and Theory O work at TVA currently might loosely be called sequencing as opposed to being done simultaneously, from the perspective of employees it is likely that the “dust has not settled,” and there has not been a hard break between the reductions of 2014 and the roll out of the new TVA values. Ordinarily, those conditions make buy-in by employees more difficult and require a greater focus on restoring trust with them.

HOW BIG IS THE RISK?

TVA’s current efforts to build employee engagement may be inspired, in part, by TVA management’s growing recognition that employee morale is a risk to achieving TVA’s business goals. Assessing the extent of that risk continues to be a challenge for TVA. In FY2009, TVA’s Enterprise Risk Management began recognizing corporate culture as a key enterprise risk with a “medium” risk rating. TVA Enterprise Risk Management recognized in its 2015 3-Year Strategic Profile that ongoing organizational refinement and optimization might negatively affect the performance environment. In other words, continued restructuring efforts as well as cost and employee reductions could lead to poor productivity results, which would be consistent with the research we cite above.

OBJECTIVE, SCOPE, AND METHODOLOGY

For the past 30 years, the Office of the Inspector General (OIG) through its audits, evaluations, and investigations, has provided “snapshots” of the Tennessee Valley Authority’s (TVA) organizational health that have been sometimes directly referred to as “culture” but, more often than not, labeled as “leadership” or “process control” issues. As part of our professional audit, evaluation, and investigation duties, the OIG has a vested interest in TVA’s success. This is one in a series of organizational effectiveness reviews the OIG will be conducting across other TVA’s business units (BU). The objective of this evaluation was to identify operational and cultural strengths and areas for improvement that could impact Cumberland Fossil Plant’s (CUF) organizational effectiveness. We assessed the operations and relationships at CUF, as of April 19, 2015. To complete the evaluation, we:

- Reviewed the CUF fiscal year (FY) 2014 through FY2016 business plans, including risks, to (1) gain an understanding of CUF goals for alignment to its mission and to TVA’s mission and imperatives, (2) gain an understanding of CUF risks, and (3) categorize goals into operational factors, based on the goals’ descriptions. We defined operational factors as safety, asset management, project/work management, performance analysis (i.e., financial and operational), and governance and oversight.
- Reviewed TVA’s values and TVA Human Resources’ change management plans for assessing values, behaviors, and competencies, as of September 9, 2014, for understanding of cultural factors deemed as important to TVA. These factors included communication, trust, accountability, collaboration/teamwork, continuous improvement, and integrity.
- Developed a questionnaire, based on operational and cultural factors discussed previously, containing 46 questions validated by the Psychology department of The University of Tennessee, Chattanooga. We administered the questionnaire to CUF personnel and assessed results in order to identify themes related to strengths and areas for improvement at the plant.
- In conjunction with administration of the questionnaire, held information sessions where OIG personnel made themselves available for questions and/or discussions with CUF personnel.
- Interviewed the Plant Manager and direct reports from CUF Outage, Operations, Engineering, and Maintenance groups as well as other designated supervisory/management-level employees to obtain their perceptions related to strengths and areas for improvement of the operational and cultural factors discussed previously.
- Developed focus group and interview questions based on the operational and cultural factors discussed previously and information compiled from the questionnaires. We utilized the questions to conduct focus groups and interviews with CUF personnel who were randomly selected from a population of 344 employees. Individuals listed on CUF’s organizational chart as having

direct reports, including supervisors, superintendents, and managers, were excluded from the focus groups and interviews.

- Interviewed individuals from across the plant that were not selected for a focus group or interview but met with OIG staff to voluntarily provide information.
- Interviewed individuals from other BUs who work at CUF. Individuals interviewed worked for TVA's Business Planning, Environmental, Financial Services, Human Resources, Safety, and Supply Chain.
- Analyzed focus group and interview results to identify themes related to the operational and cultural factors discussed previously.
- In conjunction with analysis of focus group and interview information, reviewed the following CUF operational data to utilize in our assessment of themes related to strengths and areas for improvement:
 - Site performance reports for June 2014 through April 2015.
 - Business plan, including risks, for FY2016 through FY2018 as well as CUF's 10-year plan.
 - Safety information including near miss reports as of May 18, 2015, and Health and Safety Committee reports dated November 2014 through April 2015.
 - Equivalent forced outage rate (EFOR) and seasonal EFOR data for FY2010 through FY2015, dated March 2015.
 - Corrective maintenance information as of April 19, 2015, and preventive maintenance information as of April 15, 2015.
 - Sick leave data for FY2010 through April 30, 2015.
 - Capital, operations and maintenance, and small capital (job order data related to ductwork) for FY2009 through April 20, 2015.
 - Production cost and generation information for FY2009 through March 2015.
 - Reportable environmental events as of April 15, 2015.
- Obtained and reviewed the following TVA and Coal Operations Standard Programs and Processes (SPP) to gain an understanding of the process and controls:
 - TVA-SPP-11.420, Leave
 - TVA-SPP-13.8, Accounting for Materials and Supplies Inventories
 - TVA-SPP -05.017, Environmental Event Notification
 - TVA-SPP-05.019, Reportable Environmental Event (REE) Determination
 - CO-SPP-06.037, Work Management

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

November 3, 2015

Richard W. Moore, ET 4C-K

RESPONSE TO REQUEST FOR COMMENTS – DRAFT EVALUATION 2015-15296 –
CUMBERLAND FOSSIL PLANT ORGANIZATIONAL EFFECTIVENESS

Reference: OIG Memorandum to Curtis G. Rodenhaber, Plant Manager, Cumberland Fossil Plant

This is in response to the recommendations provided in your August 29, 2015, draft evaluation of organizational effectiveness within TVA's Cumberland Fossil Plant. Cumberland Fossil Plant agrees with the recommendations. Management will give consideration to the opportunities for improvement identified and will inform you of our decisions.

TVA management recognizes the importance of organizational effectiveness as we work together to fulfill our mission of service for the people of the Tennessee Valley. We agree that strong, healthy employee engagement is critical to our organization's overall effectiveness. During the 2014 and 2015 Business Plan rollout meetings and other forums, we reinforce TVA's Business Operating Model (see attachment) which emphasizes the importance of business alignment, engagement and execution. Our TVA values are a key component of creating alignment in that model, with competencies and behaviors as a foundation. Over the past year, we have given considerable focus to educating employees on those values and competencies, and incorporating them into our HR and Leadership programs.

We are currently pursuing a comprehensive approach to bolster engagement at all levels of the organization. In June, recognizing the opportunity for additional data to better inform decision-making, we conducted an Employee Engagement Survey. Seventy-six percent of TVA employees provided feedback on the survey and the resulting engagement index exceeded the national norm. TVA leaders are in the process of sharing survey results with their employees, discussing contributing factors to the results, and providing feedback. The open sharing of results, contributing factors, and general discussion, helps address the opportunities for improvement identified in your report. TVA business units will use the survey data; Cumberland Fossil Plant will also use the IG organizational effectiveness report as feedback to enlighten actions focused on continuous improvement.

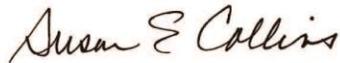
We recognize the flavor-of-the-month effect and sustainability challenges of broad TVA organizational effectiveness efforts described in Appendix A of the subject evaluation. It is important that we not implement an initiative for every finding – whether from a TVA survey, an audit, an evaluation, or a consultant – as such an approach is unsustainable and would cause us to miss the forest for the trees. Further, our general approach to improvement actions is incorporation into day to day management and regular business planning process, which improves long-term sustainability and accountability for results.

Regarding recommendation 2(b), TVA employees already have a wide variety of formal and transparent methods for resolving issues, most of which are listed under *Elements of an Effective Resolution Process* on page 16 of the evaluation, so our emphasis will be on improving the informal methods of communication by establishing and reinforcing communication channels through organization-wide scheduled meetings. Importantly, we will

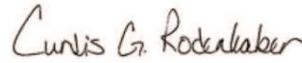
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not be providing another formal avenue for resolution or issue tracking which circumvents a direct conversation with a supervisor or an upper level manager because doing so would unintentionally deprive the employee and the supervisor of an opportunity to build trust, risk delaying resolution, and at worst send the message that direct conversations with management are not the primary means of resolving issues and expressing concerns.

If you have further questions related to organizational effectiveness, please contact Sue Collins at 423-751-8584.



Susan E. Collins
Vice President
Human Resources
LP 3A-C



Curtis G. Rodenhaber
Plant Manager
Cumberland Fossil Plant
CUF 1A-CCT

SEC:DKM

cc (Attachment):

K. J. Black, LP 6A-C
J. R. Dairymple, LP 3K-C
W. D. Johnson, WT 7B-K
D. K. Lanier, MR 3K-C
R. W. Morgan, WT 4D-K
K. L. Mullinax, CUF 1A-CCT
C. G. Pardee, WT 7B-K

ATTACHMENT

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Attachment:



TVA Business Operating Model

