



Memorandum from the Office of the Inspector General

September 25, 2018

Sean M. Connors, LP 3K-C
William G. Cronin, BR 4D-C

**REQUEST FOR FINAL ACTION – EVALUATION 2018-15560 – COAL OPERATIONS’
CLEARANCE PROCEDURE**

Attached is the subject final report for your review and final action. Your written comments, which addressed your management decision and actions planned or taken, have been included in the report. Please notify us when final action is complete. In accordance with the Inspector General Act of 1978, as amended, the Office of the Inspector General is required to report to Congress semiannually regarding evaluations that remain unresolved after 6 months from the date of report issuance.

If you have any questions or wish to discuss our findings, please contact Lindsay J. Denny, Evaluations Manager, at (865) 633-7349 or E. David Willis, Director, Evaluations, at (865) 633-7376. We appreciate the courtesy and cooperation received from your staff during the evaluation.

David P. Wheeler
Assistant Inspector General
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WT 2C-K

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Attachment
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OIG File No. 2018-15560



Office of the Inspector General

Evaluation Report

To the Vice President, Coal Operations
and the Director, Safety and Aviation
Services

COAL OPERATIONS' CLEARANCE PROCEDURE

Evaluation Team
Lindsay J. Denny
Leslie A. Franks
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Evaluation 2018-15560
September 25, 2018

ABBREVIATIONS

AE	Authorized Employee
CPAL	Clearance Personal Accountability Log
CR	Condition Report
eSOMS	Enterprise Shift Operations Management System
MOIC	Management Official in Charge
PAE	Primary Authorized Employee
PO	Power Operations
QE	Qualified Employee
RE	Responsible Employee
SPP	Standard Programs and Processes
TSP	TVA Safety Procedure
TVA	Tennessee Valley Authority
WO	Work Order

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MEMORANDUM DATED SEPTEMBER 21, 2018, FROM SEAN M. CONNORS
AND WILLIAM G. CRONIN TO DAVID P. WHEELER



Evaluation 2018-15560 – Coal Operations’ Clearance Procedure

EXECUTIVE SUMMARY

Why the OIG Did This Evaluation

Working in industrial environments is inherently dangerous and steps must be taken to ensure the safety of personnel performing work on energized equipment. Proper clearance procedure practices can reduce the number of accidents resulting from inadvertent release of hazardous energy,ⁱ which accounts for close to 10 percent of serious accidents in many industries according to the Occupational Safety and Health Administration. The Tennessee Valley Authority’s clearance procedure utilizes a tagoutⁱⁱ system to ensure equipment with potential for release of hazardous energy is properly controlled, providing a safe work environment for employees. Due to the importance of the clearance procedure to plant personnel safety, and in response to recent fatalities resulting from clearance violations, we initiated a review of the coal operations’ clearance procedure. Our objective was to determine if (1) the clearance procedure is being performed for work requiring clearances to safely control hazardous energy, (2) clearances issued are in compliance with the clearance procedure, and (3) required training and audits are being performed in compliance with the clearance procedure.

What the OIG Found

We determined the clearance procedure was being performed for work requiring clearances. However, the effectiveness of the clearance process is limited because (1) some clearances were not in compliance with the clearance procedure, (2) required training had not been completed by all personnel holding or working on clearances, and (3) audits performed were not in compliance with the procedure. We also identified opportunities for improvement related to procedure clarification and training.

What the OIG Recommends

We made recommendations regarding (1) reinforcing and clarification of the clearance procedure, (2) training enhancements, and (3) audit completion.

-
- ⁱ Energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other sources in machines and equipment can be hazardous to workers. During the servicing and maintenance of machines and equipment, the unexpected startup or release of stored energy can result in serious injury or death to workers.
- ⁱⁱ The placement of a tagout device on an energy-isolating device indicates the device and the equipment being controlled shall not be operated until the tagout device is removed.



Evaluation 2018-15560 – Coal Operations’ Clearance Procedure

EXECUTIVE SUMMARY

TVA Management’s Comments

TVA management generally agreed with the recommendations in this report and provided actions to address the recommendations. See the Appendix for TVA’s complete response.

Auditor’s Response

We concur with TVA management’s planned actions.

BACKGROUND

Working in industrial environments is inherently dangerous and steps must be taken to ensure the safety of personnel performing work on energized equipment. Proper clearance procedure practices can reduce the number of accidents resulting from inadvertent release of hazardous energy,¹ which accounts for close to 10 percent of serious accidents in many industries according to the Occupational Safety and Health Administration. The Tennessee Valley Authority's (TVA) clearance procedure utilizes a tagout² system to ensure equipment with potential for release of hazardous energy is properly controlled, providing a safe working environment for employees.

TVA Safety Procedure (TSP) 18.613, *Clearance Procedure to Safely Control Hazardous Energy Using Group Tagout*, establishes TVA-wide requirements for clearances to safely control hazardous energy, while Power Operations (PO) Standard Programs and Processes (SPP) 10.015, *Coal and Gas Clearance Procedure*, governs the clearance process at the coal plants. The purpose of the coal and gas clearance procedure is to establish standardized requirements that are necessary for group tagout in accordance with Title 29 Code of Federal Regulations §1910.269. These requirements are to be utilized to ensure equipment is isolated from its energy source and rendered non-operative before performing work on machines or equipment where the unexpected energizing, start up, or release of stored energy could occur and cause injury or property damage.

Clearances are prepared, issued, and maintained in TVA's Enterprise Shift Operations Management System (eSOMS). There are five key roles in the clearance process: Management Official in Charge (MOIC), Responsible Employee (RE), Qualified Employee (QE), Primary Authorized Employee (PAE), and Authorized Employee (AE).

- The plant, facility, production, or site manager serves as the MOIC and is responsible for overseeing the implementation of the clearance procedure and can designate others to fulfill MOIC responsibilities as appropriate. The MOIC is (1) responsible for problem resolution when needed and (2) issues and maintains the official plant clearance list, which identifies the individuals that are trained and qualified to serve as REs, QEs, and PAEs.
- REs are responsible for writing and issuing clearances, which includes reviewing clearance requests, verifying clearance boundaries,³ preparing

¹ Energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other sources in machines and equipment can be hazardous to workers. During the servicing and maintenance of machines and equipment, the unexpected startup or release of stored energy can result in serious injury or death to workers.

² The placement of a tagout device on an energy-isolating device indicates the device and the equipment being controlled shall not be operated until the tagout device is removed.

³ Clearance boundaries are points at energy isolating devices established in accordance with the procedure that allows AEs to safely work on equipment under a clearance.

equipment tags,⁴ and discussing pertinent clearance information with relevant personnel.

- QEs participate in prejob briefings with the REs before hanging or removing equipment tags utilized to establish the clearance boundaries.
- PAEs hold the clearance and are responsible for the work performed under the clearance, including: (1) performing walkdowns of the clearance boundaries, (2) ensuring the clearance is adequate to safely protect AEs performing the work, (3) ensuring AEs understand the nature of the work to be performed, and (4) maintaining the clearance personal accountability logs (CPAL). CPALs are paper or electronic rosters that identify all AEs working on equipment under a specific clearance. Typically, paper CPALs are utilized for contractors, while employees electronically sign onto the CPALs contained in eSOMS.
- AEs are the personnel performing work on the equipment under clearance. AEs are responsible for signing on the CPAL prior to starting work and signing off the CPAL when work is completed.

Clearance responsibilities are assigned based on an individual's qualifications (i.e., level of clearance training completed) and not based on title or position. According to PO-SPP-10.015, all personnel, including contractors (who are typically trained at the AE or sometimes PAE level), are to be trained and examined annually relative to their responsibilities.

PO-SPP-10.015 also sets forth clearance audit requirements. Ten percent of all clearances issued per month are to be audited by independent personnel qualified at the RE level. These audits are conducted to ensure that employees are knowledgeable of the clearance process, implement it correctly, and utilize it as required when performing service, maintenance, or modification on equipment.

Due to the importance of the clearance procedure to plant personnel safety, and in response to recent fatalities resulting from clearance violations, we initiated an evaluation of the coal operations' clearance process.

⁴ Tags are warning devices affixed to equipment and serve as visual markers of clearance boundaries for employees.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of our evaluation was to determine if (1) the clearance procedure is being performed for work requiring clearances to safely control hazardous energy, (2) clearances issued are in compliance with the clearance procedure, and (3) required training and audits are being performed in compliance with the clearance procedure. The scope of our evaluation included clearances issued at Bull Run, Cumberland, Gallatin, Kingston, Paradise, and Shawnee Fossil Plants and the time frames noted below. To achieve our objective, we:

- Interviewed the following pertinent personnel to gain an understanding of the clearance process, requirements, and potential areas for improvement:
 - Safety personnel in Resources and River Management.
 - Corporate and site training personnel in Resources and River Management.
 - Performance Excellence and Asset Reliability personnel in PO.
 - MOIC and designees at coal sites visited.
- Reviewed relevant documentation to gain an understanding of the clearance process and identify potential areas for improvement:
 - TVA-TSP-18.613, *Clearance Procedure to Safely Control Hazardous Energy*.
 - PO-SPP-10.015, *Coal and Gas Clearance Procedure*.
 - TVA-SPP-18.004 *Contractor Safety Management*.
 - Condition reports (CR) generated between October 1, 2016, and June 19, 2018.
 - Clearance Assessments conducted by Performance Excellence and Safety personnel during fiscal years 2017 and 2018.
- Judgmentally selected a sample size of 11 active clearances at Bull Run Fossil Plant and 12 at Kingston Fossil Plant to walk down to visually verify that required tags were in place and contained the requisite information. We judgmentally selected clearances based on the clearance descriptions, dates created, and locations throughout the site.
- Statistically selected a random sample of 96 out of 80,750 work orders (WO) with actual start dates between October 1, 2017, and March 31, 2018, from Maximo⁵ using rate of occurrence sampling with a 95-percent confidence level to determine if clearances had been issued for work requiring such. Since this was a statistical sample, our results can be projected to the population.
- Statistically selected a random sample of 74 out of 251 clearances with tags authorized to be hung between October 1, 2017, and March 31, 2018, from eSOMS using rate of occurrence sampling with a 95-percent confidence level

⁵ Maximo is TVA's Work Management System.

to determine if clearances were in compliance with procedural requirements. We tested the following elements of the procedure:

- Clearance request documentation requirements.
- Clearance preparation and verification requirements in eSOMS, including placement and verification of tags.
- CPAL requirements.
- Sequence of clearance steps performed.
- Reviewed training records from TVA's Learning Management System for personnel associated with the 74 statistically selected clearances to determine if training had been completed as required.

Since this was a statistical sample, our results can be projected to the population. However, as discussed later in our report, due to the lack of supporting documentation we were unable to project our findings to the population.

- Reviewed clearance audits conducted between October 1, 2017, and March 31, 2018, to determine if audits had been performed in accordance with TVA-SPP-10.015 and TVA-TSP-18.613.

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

FINDINGS AND RECOMMENDATIONS

We determined the clearance procedure was being performed for work requiring clearances. However, we determined (1) some clearances sampled were not in compliance with the clearance procedure, (2) required training had not been completed by all personnel holding or working on clearances, and (3) audits performed were not in compliance with the procedure. We also identified opportunities for improvement related to procedure clarification and training.

CLEARANCES OBTAINED AS REQUIRED

We statistically selected a sample of 96 WOs out of 80,750 to determine if clearances were obtained for work as required. Based on consultation with plant personnel and subject matter experts, we determined that 80 WOs either did not require a clearance or had no work performed. Regarding the remaining 16 WOs, we found clearances associated with 9 of the WOs in eSOMS and plant personnel were able to provide us with clearances for an additional 7 WOs. Based on this information, we determined the clearance procedure was being performed for work requiring clearances. However, as discussed below, clearances were not always in compliance with TVA's procedures, thus limiting the effectiveness of the clearance process.

CLEARANCES ISSUED WERE NOT IN COMPLIANCE WITH PROCEDURE

We selected 74 clearances to test compliance with PO-SPP-10.015 and noted 5 (7 percent) of them had not been issued in compliance with requirements. Specifically, we identified (1) a clearance revision without the original clearance being closed and (2) clearance requests not completed in accordance with procedure. Additionally, we identified clearance requests that had not been submitted within the specified time frame. TVA was unable to provide certain documentation for 7 clearances and as such we were unable to determine if they were completed in compliance with the procedure. Due to this, we were unable to project the results of our sample testing.

We also walked down 23 clearances at two sites to verify tags were in compliance with the procedure and found 2 of 88 clearance tags were missing. Additionally, we identified opportunities for improvement related to clarification of the clearance procedure, which are discussed below.

Clearance Revised Without Closing Original Clearance

According to PO-SPP-10.015, a clearance boundary revision is a two-step process accomplished by issuing a new clearance and closing the original clearance, which ensures employee protection is maintained throughout the process. We identified a clearance with a revision in which the original clearance had not been closed. Additionally, the original PAE was holding the clearance as of the date of our testing, although he was terminated in July 2018.

Clearance Requests Not Completed According to Procedure

According to PO-SPP-10.015, clearance requests shall include as much information as possible to include a clear, detailed description of the work to be performed. Additionally, each person requesting a clearance must submit a separate clearance request. Out of 74 clearances tested, we identified 1 with a clearance request form which had not been signed and dated by operations personnel and 2 without a requester name. We also identified 1 clearance for which each clearance holder did not submit a clearance request, as required by the procedure.

Clearances Not Requested Within Specified Time Frame

As specified by PO-SPP-10.015, clearance requests for planned maintenance are to be submitted 24 hours prior to when work is scheduled to begin. The procedure does not specify this requirement for emergent work. Our testing identified 20 clearance requests that were not submitted within the specified time frame. However, there was not enough information on the clearance request to determine whether the work was planned or emergent.

Clearance Documentation Missing

According to PO-SPP-10.015, clearance documentation is to be retained for 1 year. We requested clearance request forms and CPALs from the respective sites. However, out of 74 clearances selected, TVA was unable to provide

1 clearance request form. TVA was also unable to provide six CPALs held by contractor PAEs.

Clearance Tags Missing

We performed a walkdown of 23 clearances (consisting of 88 tags) at two sites. We observed a total of 86 tags; however, we identified 2 tags missing out of 32 tags associated with a 2014 caution order.⁶ The site was made aware of these 2 missing tags and indicated that the tags would be replaced. We revisited the site 7 weeks later and noted that the tags had not been replaced; however, the site personnel replaced the tags while we were onsite.

Opportunities to Clarify Clearance Procedure

We noted that PO-SPP-10.015 and TVA-TSP-18.613 contained contradicting instructions regarding when clearance requests should be submitted. Specifically, TVA-TSP-18.613 states that clearances shall be requested 3 days in advance of the work needing to be performed. However, PO-SPP-10.015 states that for planned maintenance, clearances should be requested 24 hours in advance of scheduled work.

Additionally, our sample of 74 clearances included eight caution orders, for which we were unable to obtain clearance requests. According to site personnel, the clearance procedure does not require a clearance request for a caution order. However, according to corporate employee with expertise in this area, since the caution order is a clearance tag named in the procedure, it should follow the same process as any other clearance. The procedure does not specifically state a requirement for a clearance request for caution orders.

Recommendations

We recommend the VP, Coal Operations, and the Director, Safety and Aviation Services:

- Reinforce procedure guidelines regarding clearance revisions and requests.

TVA Management's Comments – TVA management stated they will reinforce expectations to all Coal Operations managers regarding clearance revisions and requests. Additionally, an action will be assigned to the Operations Peer Team to align the governing procedures PO-SPP-10.015 and TVA-TSP-18.613.

Auditor's Response – We concur with management's planned actions.

- Implement a periodic review of active clearances to verify tags are still properly in place.

TVA Management's Comments – TVA management stated they will reinforce expectations to all Coal Operations managers regarding the

⁶ Caution orders do not establish control of energy isolating devices. Caution order tags indicate that a hazardous or abnormal condition exists and provide direction concerning the condition under caution.

10 percent sampling audit of all active clearances once per year. Additionally, an action will be assigned to the Operations Peer Team to institute a 100 percent yearly audit of all tags that have been in place greater than or equal to 1 year.

Auditor's Response – We concur with management's planned actions.

- Clarify the clearance procedures regarding clearance requests for caution orders and time frame in which clearance requests must be submitted.

TVA Management's Comments – TVA management stated that PO Generation Services will verify time frame requirements in procedure PO-SPP-10.015 to ensure PO requirements are equally or more stringent than TVA-TSP-18.613. For those instances where the PO requirements are more stringent, the senior program manager will communicate the higher requirements and expectations. Additionally, the Vice President, Coal Operations will discuss the temporary nature of caution tags with all coal plant managers.

Auditor's Response – We concur with management's planned actions.

REQUIRED TRAINING NOT COMPLETED

We obtained training records for all employees and contractors associated with the 74 clearances in our sample to determine if training was completed in accordance with the clearance procedure. We found that training had not been completed as required for some employees and contractors in our sample. Additionally, the control in place to prevent employees with lapsed training from signing on to clearances did not perform as intended. We also identified areas for improvement related to training.

Training Not Completed as Required

During the course of testing clearances for compliance with PO-SPP-10.015, we identified 273 employees and contractors who performed work related to the clearances in our sample. During our review of the training records of those 273 employees and contractors, we identified 3 employees signed onto electronic CPALs who had completed the initial clearance training, but their annual refresher training had either expired prior to signing onto the CPAL or expired during the time they were signed onto the CPAL. We identified an additional employee and 5 contractors signed onto paper CPALs whose training had expired, ranging from approximately 3 months to 4 years prior.

According to PO-SPP-10.015, the MOICs are responsible for auditing and maintaining the official plant clearance lists. We determined the 3 employees and 4 contractors who had not completed the required training were

appropriately not included on the plants' official clearance lists.⁷ However, for the 3 employees signed onto electronic CPALs, their eSOMS access should have also been revoked when they were removed from the clearance list, but they were still able to sign on to CPALs. Additionally, we found an RE who had prepared a clearance in eSOMS but who was not on the plant's official clearance list.⁸

Opportunities for Improvement Related to Training

During interviews with training and site personnel, we identified areas for improvement related to training. Specifically, we found (1) confusion between the two applicable clearance procedures, (2) PAE training is not sufficient, (3) inconsistent training for site-specific clearance differences, and (4) risk regarding contractor training refresher time frame.

Confusion Between the Two Applicable Clearance Procedures

As mentioned previously, TVA-TSP-18.613 sets TVA-wide minimum clearance requirements, while PO-SPP-10.015 governs clearance processes at coal sites and imposes more stringent requirements expected to be carried out at the sites. The clearance procedure training delivered to employees and contractors is based on the governing TVA-wide procedure and does not include requirements specific to PO-SPP-10.015.

Training personnel⁹ interviewed indicated that incorporating PO-SPP-10.015 requirements varies site-to-site because there is no formal method to train employees on PO-SPP-10.015. Of six training personnel interviewed, two indicated they are aware of and include the PO-SPP-10.015 requirements in their training, one indicated that they do not train on these requirements, and three were unsure if or how those requirements were incorporated. According to various plant personnel interviewed, this leads to confusion regarding clearance requirements and which procedure is expected to be used onsite.

PAE Training is Not Sufficient

PAEs have execution responsibilities for the clearance procedure, which include:

- Obtaining all permits and approvals to support the clearance and associated work.
- Ensuring the clearance held is adequate to safely protect workers during the performance of planned work.

⁷ We could not determine whether the remaining 2 employees had been removed from the plant's official clearance list when their training expired because at the time of our review their training had been updated.

⁸ The RE had completed the required training, but the record had not been entered into TVA's Learning Management System, therefore he was removed from the official plant clearance list.

⁹ The training specialists interviewed are responsible for coordinating the trainings and administering training materials provided by Corporate, but they are not always the ones delivering the courses. TVA employees qualified at the RE level can deliver the training; however, we did not speak with REs regarding training.

- Ensuring that the clearance prevents accumulation of hazardous energy from all sources and other hazards such as hazardous chemicals and gases.
- Ensuring CPALs are used and maintained.

According to site-training personnel, the training for a PAE is a 4 hour instructor-led class which consists of a PowerPoint presentation of the clearance procedure and does not include any hands on demonstration. Training personnel indicated that this is not adequate to fully equip the PAE for their amount of responsibility. Additionally, during our evaluation, we reviewed a CR in which a clearance violation was committed by a contractor PAE who had just completed clearance training, but did not fully understand the process for signing on to a clearance.

Inconsistent Training Related to Site-Specific Clearance Practices

Based on our interviews, we determined there is a gap in training for site-specific practices regarding the clearance procedure. Opportunity for confusion exists when employees transfer sites and are asked to perform similar tasks as completed previously, but are unfamiliar with specific equipment and processes at the new location. One clearance violation CR we reviewed was related to a maintenance employee who recently transferred from one coal site to another and performed work without signing onto a clearance. At the former site, the practice for the specific type of work being performed was to obtain a caution order, whereas the employee's new site established clearances for the same work. This difference in site practices and lack of training contributed to the resulting clearance violation.

Risk Related to Contractor Refresher Training

During our review of CRs, we identified 11 clearance violations, 4 of which were committed by contractors. Interviews with site-training personnel identified a risk related to training of contractors that could be a potential cause. The time frame for when a contractor's training expires is the same as a TVA employee. However, contractors may leave the TVA site and perform work for another company (utilizing different procedures) and then return to TVA, where their training is still valid for 1 year. There is a risk associated with contractors who have fallen out of practice with TVA's clearance procedure being allowed to come back onsite and work without participating in a clearance training refresher. Although TVA-SPP-18.004, *Contractor Safety Management*, requires managed task contract employees to have a safety orientation training, according to a TVA training employee, contract employees can opt out if they have had the training within the past year.

Recommendations

We recommend the VP, Coal Operations:

- Determine why the control designed to maintain eSOMS access consistent with the official plant clearance list did not function as intended and make changes as necessary to prevent recurrence.

TVA Management's Comments – TVA management stated an action will be assigned to the Operations Peer Team to identify and correct any inconsistencies or lack of functionality in eSOMS and the plant clearance list. Additionally, the expectations of the official clearance lists will be reinforced.

Auditor's Response – We concur with management's planned actions.

- Reinforce the expectation for MOIC to review official plant clearance lists and training records semiannually.

TVA Management's Comments – TVA management stated an action will be assigned to the Operations Peer Team to align the governing procedures PO-SPP-10.015 and TVA-TSP-18.613 and reinforce expectations to all plant managers regarding the requirement for following established procedures.

Auditor's Response – We concur with management's planned actions.

We recommend the VP, Coal Operations, in conjunction with Training:

- Incorporate organization specific procedure information into the training at each site to ensure employees are receiving training over the PO-SPP-10.015 procedure and are aware of the differences in requirements between it and TVA-TSP-18.613.

TVA Management's Comments – TVA management stated a training needs analysis will be conducted by Enterprise Improvement and line partners to ascertain the correct frequency, method, and assessment criteria for differences in PO-SPP-10.015 and TVA-TSP-18.613.

Auditor's Response – We concur with management's planned actions.

- Incorporate a hands-on training portion for the PAE training course to support practical application of the procedure.

TVA Management's Comments – TVA management stated a training needs analysis will be conducted by Enterprise Improvement and line partners to ascertain the correct method of training for PAE qualifications and refresher training.

Auditor's Response – We concur with management's planned actions.

- Incorporate training for transferring employees regarding the differences in site-specific equipment and clearance processes.

TVA Management's Comments – TVA management stated an action will be assigned to Enterprise Improvement and the Operations Peer Team to identify site-specific training for transferred employees and ensure this training is being entered into LMS.

Auditor’s Response – We concur with management’s planned actions.

- Provide refresher training for contractors returning to TVA after breaks in time onsite to certify they are knowledgeable of the clearance procedures.

TVA Management’s Comments – TVA management stated a training needs analysis will be conducted by Enterprise Improvement and line partners to ascertain the appropriate time frame for contractors’ refresher training and determine what should be included.

Auditor’s Response – We concur with management’s planned actions.

AUDITS NOT PROCEDURALLY COMPLIANT

According to PO-SPP-10.015, clearance audits are conducted to ensure that employees are knowledgeable of the clearance process, implement it correctly, and utilize it as required when performing service, maintenance, or modification on equipment. We obtained the 1,340 clearance audits performed between October 1, 2017, and March 31, 2018, and compared them to the number of clearances issued during the same time frame. We determined most sites were meeting or exceeding the 10-percent audit requirement; however, we found that one site did not meet the 10-percent monthly requirement for October 2017, December 2017, or February 2018. See Table 1 below.

Site	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Bull Run	28%	27%	27%	19%	17%	30%
Cumberland	28%	45%	23%	24%	22%	25%
Gallatin	33%	16%	31%	17%	24%	18%
Kingston	12%	18%	16%	29%	20%	20%
Paradise	34%	16%	17%	21%	27%	32%
Shawnee	6%	12%	6%	13%	8%	13%

Table 1

We also noted that the audits performed were not in compliance with the procedure; specifically: (1) none of the audits observed all 11 of the questions prescribed by the procedure, (2) some of the audits were performed by individuals not qualified as REs, and (3) there was no documentation of interviews being conducted as required.

- PO-SPP-10.015 sets forth 11 questions that should be answered by the audits; however, we noted in our testing of the audit data that none of the audits had answered all 11 questions.
- PO-SPP-10.015 requires those performing clearance audits to be qualified at the RE level. However, we noted that 12 of the audits had been performed by five individuals who were not qualified at the RE level. Three of the five individuals had been trained at the RE level in the past, but their training wasn’t current at the time of the audit.

- TVA-TSP-18.613 instructs auditors to interview all employees associated with the clearance under audit (i.e., the RE, QE, PAE, AEs, and affected employees)¹⁰ to ensure they understand the purpose and limitations of a tagout system and their related responsibilities. However, PO-SPP-10.015 does not include instructions regarding completing interviews as part of the audits and we were unable to obtain evidence that these interviews had taken place.

Additionally, of the 11,843 elements observed in the 1,340 audits, we noted that there were 40 elements observed to have been performed incorrectly. Based on this information and the number of issues identified in our testing of clearances, it does not appear that the audits are meeting the intent of the procedural requirement.

Recommendation

We recommend the VP, Coal Operations reinforce audit requirements as specified in the clearance procedure, including the (1) 10-percent audit requirement, (2) prescribed audit questions, and (3) interviews with relevant employees.

TVA Management's Comments – TVA management stated expectations will be reinforced to all Coal Operations managers regarding conducting the audit process in accordance with the procedures.

Auditor's Response – We concur with management's planned actions.

¹⁰ Affected employees are personnel required to use equipment identified for servicing, maintenance, or modification under a clearance or work in an area where such servicing, maintenance, or modification is being performed. Affected employees include the general population that work or travel unescorted in an area where equipment is under clearance or components have clearance tags affixed.

September 21, 2018

David P. Wheeler, WT 2C-K

REQUEST FOR COMMENTS - DRAFT EVALUATION 2018-15560 - COAL OPERATIONS'
CLEARANCE PROCEDURE

We would like to thank the Office of the Inspector General for the comprehensive review of Coal Operations' clearance procedure compliance. This review and recommendation will enable us to set up and monitor the corrective actions across the coal fleet so that we can maintain safe operations of our sites.

Recommendations:

1. Reinforce procedure guidelines regarding clearance revisions and requests.

Response: Vice President, Coal Operations shall reinforce expectations to all Coal Operations managers regarding clearance revisions and requests. Plant managers are to ensure that their site is following the PO-SPP-10.015 in accordance with danger and caution tag clearance revisions and requests. We will also assign an action to the Operations Peer Team to align the governing procedures PO-SPP-10.015 and TVA-SPP-18.613 on the advance time for clearance requests.

2. Implement a periodic review of active clearances to verify tags are still properly in place.

Response: Vice President, Coal Operations will reinforce expectations to all Coal Operations managers regarding the 10 percent sampling audit of all active clearances once per year. Further, an action will be assigned to the Operations Peer Team to institute a 100 percent yearly audit of all tags that have been in place greater than or equal to one year.

3. Clarify the clearance procedure regarding requests for caution orders and the time frame in which clearance requests must be submitted.

Response: Power Operations Generation Services will verify time frame requirements in PO-SPP-10.015 and TVA-SPP-18.613 to ensure Power Operations (PO) requirements are equally or more stringent than TVA-SPP-18.613. For those instances where the PO requirements are more stringent, the senior program manager will communicate clearly to all PO managers the higher requirements and expectations. Vice President, Coal Operations will also discuss with all Coal Plant managers the temporary nature of caution tags, in that the condition requiring the caution tag should be remedied as soon as possible.

4. Determine why the control designed to maintain eSOMS access consistent with the official plant clearance list did not function as intended and make changes as necessary to prevent recurrence.

David P. Wheeler
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Response: Vice President, Coal Operations shall assign an action to the Operations Peer Team to identify any inconsistencies or lack of functionality in eSOMS V5 and the plant clearance list and lead those corrective actions so that they will perform as designed. It was communicated thoroughly, however, that LMS would not be the governing factor of the clearance list as that function was not enabled in the recent version of eSOMS. Manual reports will be utilized to determine if any delinquent employee is holding a clearance. These reports are audited by site personnel and quarterly by the senior program manager. Vice President, Coal Operations shall reinforce the expectations of the official clearance list.

5. Reinforce the expectations for MOIC to review official plant clearance lists and training records semiannually.

Response: Vice President, Coal Operations will assign an action to the Operations Peer Team to align the governing procedures PO-SPP-10.015 and TVA-SPP-18.613 on the requirements to audit official plant clearance lists and training records. Further, Vice President, Coal Operations shall reinforce expectations to all plant managers regarding the requirement for following our established procedures.

6. Incorporate organizational specific procedure information into the training at each site to ensure employees are receiving training over the PO-SPP-10.015 procedure, and are aware of the differences in requirements between it and TVA-TSP-18.613.

Response: Vice President, Coal Operations shall direct a training needs analysis be conducted by Enterprise Improvement and line partners to ascertain the correct frequency, method and assessment criteria for differences in PO-SPP-10.015 and TVA-TSP-18.613.

7. Incorporate a hands-on training portion for the PAE training course to support practical application of the procedure.

Response: Vice President, Coal Operations shall direct a training needs analysis to be conducted by Enterprise Improvement and line partners to ascertain the correct method of training for PAE qualifications and refresher training.

8. Incorporate training for transferred employees regarding the differences in site-specific equipment and clearance processes.

Response: Vice President, Coal Operations shall assign an action to Enterprise Improvement and the Operations Peer Team to identify site specific training which will include any site specific procedure information in the training for transferred employees and ensure this training is being entered into LMS records.

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9. Provide refresher training for contractors returning to TVA after breaks in time onsite to certify they are knowledgeable of the clearance procedures.

Response: Vice President, Coal Operations shall direct a training needs analysis be conducted by Enterprise Improvement and line partners to ascertain the appropriate timeframe in which refresher training shall be conducted and design refresher training for contractors and to determine what the refresher training shall include.

10. Reinforce audit requirements as specified in the clearance procedure, including the (1) 10-percent audit requirement, (2) prescribed audit questions, and (3) interviews with relevant employees.

Response: Vice President, Coal Operations shall reinforce expectations to all Coal Operations managers regarding the audit process. This process shall be in accordance with procedures PO-SPP-10.015 and TVA-TSP-18.613.

Again thank you for the engagement of the Office of the Inspector General and the assessment/evaluation of the coal fleet clearance procedure adherence. This in-depth review will enable us to strengthen our processes and compliance and make the coal fleet a much safer organization through the recommendations and actions that we will implement going forward.



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