



Memorandum from the Office of the Inspector General

May 14, 2013

Anda A. Ray, LP 3K-C

REQUEST FOR MANAGEMENT DECISION – EVALUATION 2012-14523 – REVIEW OF
COAL AND GAS OPERATIONS EMERGENCY PREPAREDNESS AND RESPONSE

Attached is the subject final report for your review and management decision. You are responsible for determining the necessary actions to take in response to our findings. Please advise us of your management decision within 60 days from the date of this report.

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 Heather R. Kulisek, Manager, Evaluations, at (423) 785-4815 or Greg Stinson, Director, Evaluations, (865) 633-7367. We appreciate the courtesy and cooperation received from your staff during the audit.

Robert E. Martin

Robert E. Martin
Assistant Inspector General
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OIG File No. 2012-14523



Office of the Inspector General

Evaluation Report

To the Senior Vice President,
Engineering, Environmental,
and Support Services

REVIEW OF COAL AND GAS OPERATIONS EMERGENCY PREPAREDNESS AND RESPONSE

Audit Team
Heather R. Kulisek
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Evaluation 2012-14523
May 14, 2013

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MEMORANDUM DATED MAY 6, 2013, FROM ANDA A. RAY TO ROBERT E. MARTIN



Evaluation 2012-14523 – Review of Coal and Gas Operations Emergency Preparedness and Response

EXECUTIVE SUMMARY

Why the OIG Did This Review

There have been a number of recent incidents requiring emergency response at Tennessee Valley Authority (TVA) coal plants, including the ash spill at Kingston Fossil Plant and fires at multiple sites. The Office of the Inspector General issued a reportⁱ following the ash spill at Kingston that noted “There did not exist for the TVA Fossil Power Divisionⁱⁱ the same stringent emergency preparedness and planning program as does for TVA’s nuclear and hydroelectric facilities.” That report contained recommendations for improving emergency preparedness, which are discussed in more detail later. This review was initiated to assess TVA’s coal and gas fleet emergency preparedness and response. The objective of this review was to determine if Coal Operations and Gas Operationsⁱⁱⁱ have made progress in their Emergency Preparedness and Response Program since the ash spill at Kingston.

What the OIG Found

Our review found although progress has been made in Emergency Preparedness and Response, the improvements could have been implemented more effectively. There are also additional improvements that could be made. A new position was recently created that will provide governance and oversight for the emergency preparedness and response program; however, the position has not been filled. Also, while the Coal and Gas Generation Emergency Operations Plan was formalized in April 2012, management at three of the six sites that we spoke with were unaware of the plan.

Through interviews and review of documentation, we found a lack of consistency in how emergency preparedness and response are handled between the sites. We found inconsistencies in how the sites (1) developed and managed site emergency response plans and (2) involved local responders. Management is aware of a lack of consistency; however, there is no formal plan to address the inconsistencies.

A limited number of personnel have received *National Incident Management System* training that could improve emergency

ⁱ 2008-12283-01 – Kingston Fossil Plant Ash Slide Interim Report.

ⁱⁱ Fossil Power Division is now Coal Operations and Gas Operations.

ⁱⁱⁱ Gas Operations was included in this review because gas sites co-located with coal sites share emergency plans. In addition, the Coal and Gas Generation Emergency Operations Plan covers both Coal and Gas Operations.



Evaluation 2012-14523 – Review of Coal and Gas Operations Emergency Preparedness and Response

EXECUTIVE SUMMARY

preparedness at the sites. Coal Operations and Gas Operations are in phase one of a three-phase training plan to develop a more in-depth program. We also found there is limited training related to the site-specific emergency response plans.

An additional concern was raised at one site that the role of Incident Commander^{iv} is generally in addition to the role as Shift Operations Supervisor. The concern at one site was that the training required for incident commanders was a significant commitment in addition to the daily work load of a Shift Operations Supervisor. Splitting time between the roles could prevent the Shift Operations Supervisor from performing either role to the best of their abilities.

What the OIG Recommends

We recommend the Senior Vice President, Engineering, Environmental, and Support Services:

- Take steps to increase the consistency of the Emergency Preparedness and Response Program including:
 - Revising emergency plans to include consistent information in a concise, easily accessible format.
 - Communicating with each site’s local responders to determine resource needs and assist with planning.
- Continue to work toward a more in-depth emergency preparedness program through the three-phase training program.
- Work in conjunction with the sites to:
 - Consider adding the site-specific emergency response plan into training, drills, and/or tabletop exercises to provide more experience with emergency response plans.
 - Evaluate ways to balance the time commitments between the roles of Shift Operations Supervisor and Incident Commander or designate another position to serve as Incident Commander.

^{iv} This Incident Commander is the individual responsible for all incident activities, including developing strategies and tactics and the ordering and release of resources. The Incident Commander has overall authority and responsibility for conducting incident operations and is responsible for management of all incident operations at the incident site.



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TVA Management's Comments

TVA management agreed with the findings and recommendations in this report except for the finding regarding time commitment for the Shift Operations Supervisor. According to TVA management, this is a concern, but it appears to be an isolated comment and not a widespread condition. However, there are plans to investigate the time commitment for training and balance of work load for the Shift Operations Supervisor. See the Appendix for TVA management's complete response.

Auditor's Response

The OIG concurs with TVA management's comments.

BACKGROUND

Following the ash spill at Kingston Fossil Plant in December 2008, Tennessee Valley Authority's (TVA) Office of the Inspector General (OIG) conducted a review, *2008-12283-01 Kingston Fossil Plant Ash Slide Interim Report*, which resulted in multiple findings related to Fossil Power Group's emergency preparedness. The resulting recommendations included the implementation of *National Incident Management System (NIMS)*, emergency response training, and implementation of emergency response management best practices.

NIMS provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents,¹ regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment. NIMS provides the template for the management of incidents.

Coal Operations and Gas Operations have a combined emergency response plan, Coal and Gas Generation Emergency Operations Plan CGO-EP-35.001 (Generation Emergency Operations Plan), which is meant to provide a fully coordinated response framework within a common organizational structure to safely and effectively respond to all types of emergencies that affect Coal Operations and Gas Operations. This Generation Emergency Operations Plan was implemented in April 2012. In addition, each site has a site-specific emergency response plan. The purpose of the site-specific plan is to (1) protect facility and contractor personnel during natural disasters, general emergencies, and other contingencies; (2) enable facility response personnel to address emergencies as they arise in a safe, environmentally responsible, and effective manner; and (3) manage risk to employees, contractors, visitors, and plant property and resources, as well as citizens of the Tennessee Valley and its resources.

OBJECTIVE, SCOPE, AND METHODOLOGY

There have been a number of recent incidents requiring emergency response at TVA fossil plants, including the ash spill at Kingston and fires at multiple plants. This review was initiated to assess TVA's coal and gas fleet's² emergency preparedness.

The objective of this review was to determine if Coal Operations and Gas Operations have made progress in their Emergency Preparedness and Response Program since the ash spill at Kingston. This review looked at the

¹ An incident is an occurrence, natural or manmade, that requires a response to protect life or property.

² Gas Operations was included in this review because gas sites co-located with coal sites share emergency plans. In addition, the Generation Emergency Operations Plan covers both Coal and Gas Operations.

current status of emergency preparedness with respect to both Coal Operations and Gas Operations.

To achieve our objective, we:

- Reviewed regulations and TVA processes to determine the requirements for emergency preparedness.
- Interviewed key personnel including plant managers at the sites in our sample below to determine what is being done to prepare for emergencies.
- Assessed the consistency and completeness of a sample of coal and gas sites' emergency response plans. A judgmental sample of 5 sites (out of 19 total coal and/or gas sites³) was selected based on location, plant size, and other distinguishing factors. The following plants were selected for our review:

Figure 1: Sites Selected for Judgmental Sample

| <u>Plant</u> | <u>Type</u> | <u>Location</u> |
|-----------------------------------|--------------|-----------------|
| Allen Fossil Plant | Coal and Gas | Tennessee |
| Colbert Fossil Plant | Coal and Gas | Alabama |
| Kingston Fossil Plant | Coal | Tennessee |
| Magnolia Combined Cycle Gas Plant | Gas | Mississippi |
| Shawnee Fossil Plant | Coal | Kentucky |

This review was conducted in accordance with the *Quality Standards for Inspection and Evaluation*.

FINDINGS AND RECOMMENDATIONS

The OIG report issued following the ash spill at Kingston noted that “There did not exist for the TVA Fossil Power Division^[4] the same stringent emergency preparedness and planning program as does for TVA’s nuclear and hydroelectric facilities.” The current review found that although progress has been made in Emergency Preparedness and Response, improvements could have been implemented more effectively. In addition, opportunities to improve the program still exist in the areas of site consistency and training. Through interviews and review of documentation, we found a lack of consistency in how emergency preparedness is handled between the sites. Also, training more personnel in NIMS and adding training opportunities could build a more in-depth emergency

³ For the purposes of this report, a site is a physical location regardless of the number of plants at that site.

⁴ Fossil Power Division is now Coal Operations and Gas Operations.

preparedness program. An additional concern was raised during interviews concerning the responsibilities of the Shift Operations Supervisors. The roles specified for Incident Commanders⁵ are generally in addition to their jobs as Shift Operations Supervisors, and there were concerns that the training was a significant commitment in addition to the daily work load.

IMPROVEMENTS TO THE EMERGENCY PREPAREDNESS PROGRAMS COULD HAVE BEEN IMPLEMENTED MORE EFFECTIVELY

The OIG report issued following the ash spill at Kingston noted that “There did not exist for the TVA Fossil Power Division the same stringent emergency preparedness and planning program as does for TVA’s nuclear and hydroelectric facilities.” The emergency preparedness programs of Coal Operations and Gas Operations made improvements since the 2008 ash spill at Kingston. However, the improvements could have been implemented more effectively. While a new position was recently created to provide governance and oversight for the emergency preparedness and response program, the position has not been filled. Also, while they have formalized the Generation Emergency Operations Plan, management at three of the six sites we spoke with were unaware of the plan.

A 2009 report issued by the OIG following the Kingston ash spill included a recommendation related to implementation of emergency response management best practices. One of the best practices outlined in the report was a “comprehensive emergency management position at the executive level.” Following the 2009 report, there were specific positions for the management of emergency preparedness and response. However, at the time of our review, the specific positions no longer existed, and this role was being filled by a Senior Program Manager whose job description did not identify Coal Generation’s or Gas Generation’s emergency preparedness and response as a responsibility. According to the Senior Program Manager who had held this position since 2011, the job duties also reached outside the handling of emergency preparedness and response. In January 2013, a position specifically for emergency preparedness and response was approved; however, it is not as an executive level position and has not been filled.

At the time of this review, there were still managers at the sites who were unaware of the Generation Emergency Operations Plan that was issued in April 2012. As of October and November 2012, the site management at three of the six plants⁶ that we interviewed were unaware of the plan and its requirements.

⁵ This Incident Commander is the individual responsible for all incident activities, including developing strategies and tactics and the ordering and release of resources. The Incident Commander has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.

⁶ We spoke with management on both the coal and gas sides at Allen Fossil Plant.

INCONSISTENCIES EXIST IN THE EMERGENCY PREPAREDNESS PROGRAMS

Through interviews and review of documentation, we found a lack of consistency in how emergency preparedness is handled between sites. There is inconsistency in the development and management of the sites emergency response plans. Through interviews with site management, we determined involvement of local responders is also handled differently between sites. Management is aware of the lack of consistency; however, there is no formal plan to address the inconsistencies.

We reviewed the site-specific emergency response plans for consistency and completeness. We found plans varied in detail and in length from 113 to 236 pages. Pertinent information such as the actions to be taken in an emergency was not consistently found under the same sections of the plans. In both the Kingston and Allen Fossil Plant emergency response plans, there is an appendix for "Logistics (Life Support)." The purpose of this procedure is to provide information about life support measures necessary for employees who cannot leave the site and responders who are required for response to longer-term disasters/emergencies. The other three sites in our sample did not have this appendix. Emergency plans should contain the same site-specific information in a consistent manner. This would assist with plan updates and ensure all plans contain the necessary information. This would also make it easier for personnel transferring between sites to easily access the information in an emergency situation.

Through the interviews conducted, we found the involvement of local responders varied between sites. Whereas one site believed the emergency responders should not have a copy of the emergency response plan for security purposes, at least one other site supplied local responders with a copy. Also, when asked about the amount of contact with local responders, management at the sites were only able to describe contact mainly during the annual drills at the sites. At one of the sites, the local responders had requested more time on-site to become more familiar with the site. According to management, funding is an issue since there is a cost associated with having local responders participate in the drills.

TVA management has acknowledged the need for consistency within the program; however, no formalized plan has been established to address the inconsistencies discussed above. Prior to a change in the Senior Program Manager's⁷ responsibilities, there were tentative plans to work with site management to generate an emergency response plan that could be standardized across the fleet.

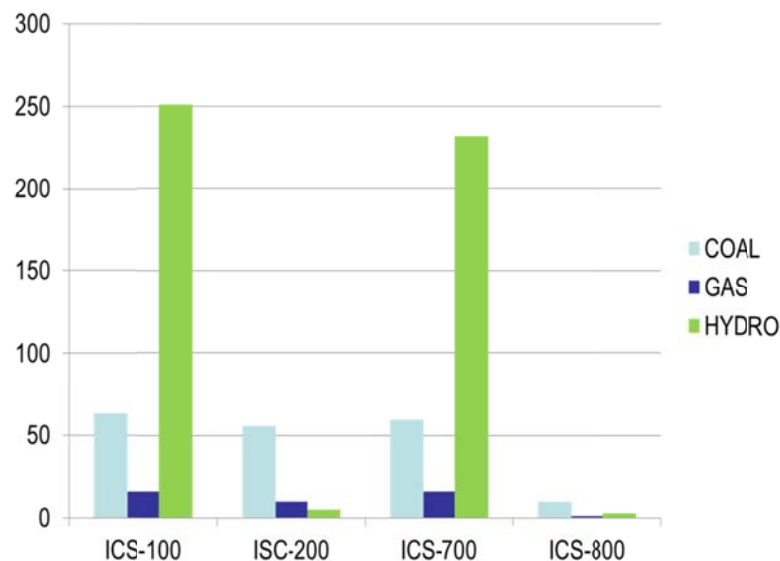
⁷ The Senior Program Manager we interviewed during our review has moved into a new position.

TRAINING PROGRAM COULD BE MORE IN-DEPTH

Increasing the number of employees trained to respond to emergencies and broadening the scope of training opportunities could improve emergency preparedness at the sites. We found there is a limited number of NIMS trained personnel; however, there is a plan in place to train more employees. Furthermore, there is limited training related to the site-specific emergency response plans, which could increase response time and confidence in an emergency.

Through interviews with TVA management, we found there are limited NIMS trained personnel at each site. While TVA management stated they are NIMS compliant, they have limited personnel at each site who have received the NIMS training. They rely on trained personnel within each region to be available for duty on a regular basis to respond to emergencies. A three-phase training plan has been developed to provide training to more personnel, providing them with a more in-depth program. Phase one of the plan is expected to be completed in 2013. Figure 2 below shows a comparison between the number of employees trained as of October 2012 in each NIMS course level for Coal Generation, Gas Generation, and River Operations. The Senior Program Manager also stated that it is difficult to maintain compliance with the training requirements of NIMS because the requirements often change. As seen in the figure below, River Operations, which was identified as having a stringent emergency preparedness program, has far more employees that have taken the NIMS training courses than Coal Operations and Gas Operations combined.

Figure 2: Comparison Between the Number of Employees Who Have Completed Four Key NIMS Training Courses⁸



⁸ ICS-100 is *Introduction to Incident Command System (ICS)*. ICS-200 is *ICS for Single Resources*. ICS-700 is *NIMS: An Introduction*. ICS-800 is *National Response Framework: An Introduction*.

In addition, one plant manager expressed a concern that the formalized training focuses on NIMS and not necessarily on actual emergency response. According to the Senior Program Manager, the standard number of drills held at each site is two per year. Incorporating site-specific information into training, drills, and/or tabletop exercises would provide the opportunity to become more familiar with the site-specific emergency response plan. The Senior Program Manager's concern was the cost associated with additional drills. When local responders have to come on-site, an expense is incurred. Increasing site personnel's familiarity with the site-specific emergency response plan could decrease response time and increase personnel's confidence during emergency situations.

ADDITIONAL OBSERVATION

During the course of the review, there was a potential area for improvement identified in our interviews related to the responsibilities of the Shift Operations Supervisors. The roles specified for Incident Commanders are generally in addition to their jobs as Shift Operations Supervisors, and there were concerns at one site that the training was a significant commitment in addition to the daily work load. When discussed with the Senior Program Manager and Program Advisor, they felt the Shift Operations Supervisors were in the best position for the job since there is always one on-site. However, splitting time between the roles could prevent the Shift Operations Supervisor from performing either role to the best of their abilities.

RECOMMENDATIONS

We recommend the Senior Vice President, Engineering, Environmental, and Support Services:

- Take steps to increase the consistency of the Emergency Preparedness and Response Program including:
 - Revising emergency plans to include consistent information in a concise, easily accessible format.
 - Communicating with each site's local responders to determine resource needs and assist with planning.
- Continue to work toward a more in-depth emergency preparedness program through the three-phase training program.
- Work in conjunction with sites to:
 - Consider adding the site-specific emergency response plan into training, drills, and/or tabletop exercises to provide more experience with emergency response plans.
 - Evaluate ways to balance the time commitments between the roles of Shift Operations Supervisor and Incident Commander or designate another position to serve as Incident Commander.

TVA Management's Comments – The Senior Vice President, Engineering, Environmental, and Support Services provided a written response to a draft of this report. TVA management agreed with the findings and recommendations in this report except for the finding regarding time commitment for the Shift Operations Supervisor. According to TVA management, this is a concern, but it appears to be an isolated comment and not a widespread condition. However, there are plans to investigate the time commitment for training and balance of work load for the Shift Operations Supervisor. See the Appendix for TVA management's complete response.

Auditor's Response – The OIG concurs with TVA management's comments.



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402-2801

May 6, 2013

Robert E. Martin, ET 3C-K

CGO COMMENTS - DRAFT EVALUATION 2012-14523 - REVIEW OF COAL AND GAS
OPERATIONS EMERGENCY PREPAREDNESS AND RESPONSE

We appreciate the opportunity to review and provide comments to the draft evaluation and recommendations from the subject review.

Specifically, the OIG Recommendations are as follows:

- Take steps to increase the consistency of the Emergency Preparedness and Response Program including:
 - Revising emergency plans to include consistent information in a concise, easily accessible format.
 - Communicating with each site's local responders to determine recourse needs and assist with planning.
- Continue to work toward a more in-depth emergency preparedness program through the three phase training program.
- Work in conjunction with the site to:
 - Consider adding site specific emergency response plan into training, drills, and/or tabletop exercises to provide more experience with emergency response plans.
 - Evaluate ways to balance the time commitments between the roles of Shift Operations Supervisor and Incident Commander or designate another position to serve as Incident Commander.

We agree with the findings and recommendations of the report except for the last bulleted item regarding time commitment for the Shift Operations Supervisor (SOS). This is a concern, but it appears to be an isolated comment and not a widespread condition. The following response to the individual recommendation is offered for your consideration.

As mentioned in the report, a new position with responsibility to manage the Emergency Preparedness and Response program has been created. Although this position is not an executive level position, it is similar to the organization level within TVA's Nuclear and Hydroelectric facilities. We believe this position, working in parallel with TVA Security and Emergency Management, fulfills the intent of the recommendations in the OIG report following the Kingston Ash Spill. A candidate has been selected to fill the position effective May 6. This position will provide the direction and accountability needed to increase the consistency of the Emergency Preparedness and Response program. This position will continue the current plan which is under development to update the site specific coal and gas emergency plans to a standard format. This plan will include a pilot at Colbert and then be replicated throughout the rest of the fleet. Establishing and maintaining a good relationship with local responders is very important. The new

Robert E. Martin
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program manager has extensive experience at the local level which will strengthen communications and coordination with local responders. Annual drills and exercises are an essential method to ensure communication between sites and local responders. Due to the remote location of many of our sites the local responders are often volunteers which can present a challenge. Regardless, we will strive to ensure that communications occur with all the local responders.

Coal and gas are continuing to work toward a more in-depth emergency preparedness program. Given the uncertainty for specific plant operations, the details of the three phase program are being reevaluated to look for better ways to meet emergency preparedness goals. One of the near term objectives for the new program manager will be to evaluate the necessary and required training and optimize the delivery of that training.

Routine communication and coordination between the program manager and the sites will be expected. Typically drills and exercises include use of the emergency response plan. Consolidation and standardization of drills, including the incorporation of emergency response plans in all training is underway. This will be enhanced as the site emergency plans become standardized.

We will investigate the time commitment for training and balance of work load for the Shift Operations Supervisor. However, the SOS is the primary Incident Commander at the coal plants and we believe it is essential that role continue.

We acknowledge the need and importance of a consistent emergency preparedness and response program across Generation, and will actively pursue resolution of the recommendations from the review.

Sincerely,



Anda A. Ray
Senior Vice President
Engineering, Environmental & Support Services
LP 3K-C

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