



Memorandum from the Office of the Inspector General

December 4, 2018

Robert M. Deacy, Sr., LP 5D-C
Jay C. Stowe, BR 4D-C

**FINAL REPORT – EVALUATION 2018-15580 – WIDOWS CREEK FOSSIL PLANT
DEMOLITION PROGRAM**

Widows Creek Fossil Plant (WCF) is one of the plants selected in a series of planned plant retirements to enter the demolition phase of the Tennessee Valley Authority's (TVA) Decommissioning, Deactivation, Decontamination, and Demolition (D4) program. The decontamination phase involves removing hazardous and regulated materials and universal waste prior to demolition. The demolition phase involves the removal of the plant and associated equipment, facilities, and structures. Demolition also includes creating conditions for proper site drainage and establishing vegetation. TVA contracted with Brandenburg Industrial Service Company (Brandenburg)¹ to perform the decontamination and demolition at WCF.

We initiated this evaluation due to inherent safety risks associated with the demolition phase of deconstruction. Our objective was to determine whether demolition and decontamination activities at WCF (1) adhered to safety principles found in the TVA D4 Program Guide² and (2) complied with selected safety criteria established in Brandenburg's Health and Safety Plan (HASP) for WCF.

Our evaluation found TVA and Brandenburg met selected safety principles and requirements established in TVA's D4 Program Guide and Brandenburg's HASP for WCF. However, during our site visit, we noted safety hazards related to an eyewash station and personal protective equipment (PPE). We informed site management of the hazards and they were corrected immediately. Additionally, 25 percent of site personnel interviewed indicated they had witnessed individuals not wearing appropriate PPE.

BACKGROUND

TVA refers to decommissioning, deactivation, decontamination, and demolition as D4 for its plant retirement program. TVA's D4 Program Guide describes the components as follows:

- Decommissioning involves removal of records, office furniture, ash from boilers, etc.

¹ Brandenburg specializes in demolition and environmental remediation, which includes asbestos abatement, hazardous material removal, soil remediation, asset recovery, and site preparation.

² TVA developed a guide to establish a standardized approach to the plant retirement process.

- Deactivation is the process of severing power and piping to the plant to provide a cold, dark, and dry structure to the demolition contractor.
- Decontamination encompasses abatement of asbestos and removal of remaining hazardous materials prior to demolition.
- Demolition includes removal of the plant and associated equipment, facilities, and structures; creating conditions for proper site drainage; and establishing vegetation.

TVA developed a D4 Program Guide to establish a standardized approach to the plant retirement process. One of the key outcomes of TVA's D4 program is to perform each of the four stages in a safe manner. TVA stated it is prioritizing the safety of all personnel and has safety goals of zero fatalities and zero recordable injuries. A major challenge for the D4 program will be demolishing these assets with no injuries due to the inherent risks and safety challenges associated with plant demolition.

TVA selected Brandenburg to perform decontamination and demolition activities at WCF. TVA's D4 Program Guide required Brandenburg to develop and implement a site-specific safety plan. Accordingly, Brandenburg created a HASP to provide a healthy and safe work environment for employees directly involved in D4 activities at WCF. Brandenburg's HASP includes, but is not limited to, safety and health training, communication, and monitoring criteria to be followed in the performance of D4 activities.

In 2016, we evaluated the demolition D4 activities at John Sevier Fossil Plant (JSF). Our evaluation found TVA and Brandenburg met most safety requirements established in TVA's D4 Program Guide and Brandenburg's HASP for JSF. However, it was determined (1) Brandenburg was not in compliance with hazard identification requirements outlined in its HASP, and (2) D4 Overview training records were not maintained at JSF by Brandenburg for 6 of 25 sampled Brandenburg employees.

We initiated this evaluation due to inherent safety risks during demolition activities.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objective was to determine whether decontamination and demolition activities at WCF (1) adhered to safety principles found in the TVA D4 Program Guide and (2) complied with selected safety criteria established in Brandenburg's HASP for WCF. The scope included TVA D4 Program Guide and HASP safety procedures in place during the decontamination and demolition phase of WCF.

To achieve our objective, we:

- Reviewed TVA's D4 Program Guide and Brandenburg's HASP to gain an understanding of safety criteria established for the decontamination and demolition phases at WCF.
- Selected safety principles and requirements for testing from TVA's D4 Program Guide and Brandenburg's HASP based on requirements related to our objective, clearly verifiable,

and not requiring technical expertise, to determine whether Brandenburg was complying with the selected criteria. We selected items such as:

- Risk analyses
 - Environmental reviews
 - Safety reviews
 - TVA approval of the HASP
 - Lessons learned
 - Hazardous materials surveys
 - Engineering surveys
 - HASP maintained onsite
 - First Aid/CPR certifications
 - Air monitoring records
 - Hazard communication
 - Lead exposure assessments
 - Safety assessments and observations
- Randomly selected 40 of 171 Brandenburg employee's records to determine if Brandenburg met medical and training requirements as established in TVA's D4 Program Guide and Brandenburg's HASP.
 - Interviewed 40 of 171 Brandenburg employees to gain their perspectives on (1) demolition safety practices and (2) whether TVA and Brandenburg were providing them with appropriate direction and support.
 - Visited WCF on August 27-28, 2018, and September 5, 2018, to observe conditions and demolition activities being performed outside and around the plant. We did not enter locations to observe work activities where active asbestos decontamination was being performed.
 - Randomly selected 40 of 171 Brandenburg employees to verify the completion of one Safety Task Analysis Card (STAC) each day during the week of July 23-28, 2018, as suggested by Brandenburg's HASP.
 - Reviewed Safety Observation System (SOS)³ records to verify the completion of two SOS entries each week by 80 percent of employees in accordance with the goal stated in Brandenburg's HASP.

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

During our evaluation, we found Brandenburg complied with selected safety principles and requirements from TVA's D4 Program Guide and the HASP. We visited WCF on

³ The STAC is a tool employees use to identify and list the steps of their assigned task and hazards associated with that task. The SOS is a tool for employees to assess work behaviors and suggest improvements for unsafe work practices or behaviors.

Robert M. Deacy, Sr.
Jay C. Stowe
Page 4
December 4, 2018

August 27-28, 2018, and September 5, 2018, and noted the following positive observations during our site visits:

- Professionalism and emphasis on safety exhibited by TVA and Brandenburg supervision.
- Safety meeting attended by Brandenburg personnel that included stretching, hazard reminders, and a safety briefing.
- Hydration reminders during safety briefings.

During our interviews, 25 percent of employees indicated they had observed individuals not wearing the appropriate PPE. However, in many cases, they said the employees were reminded or coached on the spot regarding the appropriate PPE. Also, we noted 5 of 40 employees did not complete STACs every day for the week selected for review. However, although Brandenburg's HASP at JSF required the daily STACs, the HASP at WCF made the daily completion of STACs a suggestion instead of a requirement.

In addition, during our site walkthrough on August 27, 2018, we noted safety hazards that could cause injury including (1) a hazardous materials storage area with no eyewash station and (2) an employee handling steel without the use of gloves. TVA and Brandenburg corrected these conditions immediately by (1) adding an eyewash station to the hazardous materials storage area and (2) instructing the employee to use the appropriate PPE.

- - - - -

This report is for your review and information. No response to this report is necessary. If you have any questions or wish to discuss our observations, please contact Samuel L. Ruble, Senior Auditor, at (865) 633-7384 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
(Audits and Evaluations)
WT 2C-K

SLR:FAJ

cc: TVA Board of Directors
Janet J. Brewer, WT 7C-K
William G. Cronin, BR 4D-C
Robertson D. Dickens, WT 9C-K
William D. Johnson, WT 7B-K
Dwain K. Lanier, MR 6D-C

Justin C. Maierhofer, WT 7B-K
Jill M. Matthews, WT 2C-K
Sherry A. Quirk, WT 7C-K
Michael D. Skaggs, WT 7B-K
Roger T. Waldrep, LP 5D-C
OIG File No. 2018-15580