



**STATE OF TENNESSEE  
COMPTROLLER OF THE TREASURY**



**DEPARTMENT OF ENVIRONMENT AND CONSERVATION,  
AIR POLLUTION CONTROL BOARD, AND  
BOARD OF GROUND WATER MANAGEMENT**

**Performance Audit Report**

December 2018

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**Justin P. Wilson, Comptroller**



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December 4, 2018

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Speaker of the House of Representatives  
The Honorable Mike Bell, Chair  
Senate Committee on Government Operations  
The Honorable Jeremy Faison, Chair  
House Committee on Government Operations  
and  
Members of the General Assembly  
State Capitol  
Nashville, Tennessee 37243  
and  
The Honorable Shari L. Meghreblian, PhD, Commissioner  
Department of Environment and Conservation  
312 Rosa L. Parks Ave  
Nashville, TN 37243

Ladies and Gentlemen:

We have conducted a performance audit of selected programs and activities of the Department of Environment and Conservation, the Air Pollution Control Board, and the Board of Ground Water Management for the period July 1, 2015, through September 30, 2018. This audit was conducted pursuant to the requirements of the Tennessee Governmental Entity Review Law, Section 4-29-111, *Tennessee Code Annotated*.

Our audit disclosed certain findings, which are detailed in the Audit Conclusions section of this report. Management of the department and boards have responded to the audit findings; we have included the responses following each finding. We will follow up the audit to examine the application of the procedures instituted because of the audit findings.

This report is intended to aid the Joint Government Operations Committee in its review to determine whether the department and boards should be continued, restructured, or terminated.

Sincerely,

A handwritten signature in black ink that reads "Deborah V. Loveless".

Deborah V. Loveless, CPA, Director  
Division of State Audit

18/016c



**Division of State Audit  
Department of Environment and Conservation,  
Air Pollution Control Board, and Board of  
Ground Water Management  
Performance Audit  
December 2018**

*Our mission is to make government work better.*

## AUDIT HIGHLIGHTS

### **The Department of Environment and Conservation's mission**

is to enhance the quality of life for citizens of Tennessee and to be stewards of the natural environment by protecting and improving the quality of Tennessee's air, land, and water through a responsible regulatory system; protecting and promoting human health and safety; conserving and promoting natural, cultural and historic resources; and providing a variety of quality outdoor recreational experiences.

We have audited the Department of Environment and Conservation, the Air Pollution Control Board, and the Board of Ground Water Management for the period July 1, 2015, through September 30, 2018. Our audit scope included a review of internal controls and compliance with laws, regulations, policies, procedures, and provisions of contracts or grant agreements in the following areas:

- the Bureau of Environment's data management practices, permit efficiency reporting, and environmental complaint processes;
- the Bureau of Environment, Division of Toxic Substances' enforcement process;
- financial assurance cost estimations performed by the Bureau of Environment's Divisions of Solid Waste Management and Radiological Health;
- the Bureau of Environment, Division of Radiological Health's X-ray tube registration and inspection processes;
- the department's subrecipient monitoring program;
- the Bureau of Parks and Conservation, Division of Archaeology, and the Bureau of Environment, Tennessee Geological Survey's digitalization of files; and
- operations of the Air Pollution Control Board and the Board of Groundwater Management.

**Scheduled Termination Date:**

**June 30, 2019**

Our review resulted in eight findings, five observations, and one emerging issue.

## KEY CONCLUSIONS

### FINDINGS

- The department lacks an effective data management process to allow easy access to program information and lacks clear evidence that environmental safety concerns have been properly tracked and addressed (page 10)
- The department had inadequate information systems controls in one area (page 13).
- The department's Bureau of Environment did not prepare and submit its permit efficiency reports as required by statute (page 16).
- Divisions in the department's Bureau of Environment do not have sufficient procedures on investigating, logging, and monitoring complaints; also, the divisions do not track environmental complaints for data trends and additional information that could impact public health (page 21).
- The Toxic Substances Program did not always impose additional enforcement actions, including revoking or suspending licenses and assessing civil penalties against facilities in violation of regulations for lead-based paint (page 28).
- The Division of Radiological Health does not have an effective automated tracking system for recording X-ray tube registration by owners and inspections by the division (page 41).
- The Division of Radiological Health did not maintain documentation in registered inspector files to support that the inspectors met the division's education and experience requirements (page 47).
- As noted in the prior two audits, the Division of Internal Audit did not complete all required subrecipient monitoring reviews and did not submit accurate subrecipient populations in its monitoring plans; as noted in the current audit, the division did not issue reports timely, which increases the risk that subrecipients will fail to properly administer the grants as the department intended (page 52).

### OBSERVATIONS

The following topics are included in this report because of their effect on the operations of the Department of Environment and Conservation, the Air Pollution Control Board, and the Board of Ground Water Management, as well as on the citizens of Tennessee:

- The department should include additional information in permit efficiency reports to improve reporting transparency (page 18).
- The Solid Waste Program's policies and procedures did not include reviewing and updating initial cost estimations; the Radiological Health Program did not have a formal financial assurance policy and has not updated the financial assurance cost estimation method since the program's inception (page 32).

- Registrations submitted in October 2017 were not timely (page 42).
- As noted in the prior audit, the Compliance Advisory Panel still lacked the same two member appointments for the majority of the audit period (page 56).
- The Division of Archaeology and the Tennessee Geological Survey should update their records disposition authorizations to reflect current practices and should prioritize their efforts to digitize paper documents to ensure state records are properly preserved (page 62).

### **EMERGING ISSUE**

- Potential Emissions Testing Changes (page 67).

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## INTRODUCTION

### AUDIT AUTHORITY

This performance audit of the Department of Environment and Conservation, the Air Pollution Control Board, and the Board of Ground Water Management was conducted pursuant to the Tennessee Governmental Entity Review Law, Title 4, Chapter 29, *Tennessee Code Annotated*. Under Section 4-29-240, the department and the boards are scheduled to terminate June 30, 2019. The Comptroller of the Treasury is authorized under Section 4-29-111 to conduct a limited program review audit of the agency and to report to the Joint Government Operations Committee of the General Assembly. This audit is intended to aid the committee in determining whether the department and its related boards should be continued, restructured, or terminated.

### BACKGROUND

The Department of Environment and Conservation is responsible for protecting and improving the quality of Tennessee's air, land, and water through a responsible regulatory system; conserving and promoting natural, cultural, and historic resources; and providing a variety of quality outdoor recreational experiences. As of fiscal year 2018, the department is staffed by over 2,770 employees located in Nashville, as well as in state parks and field offices across Tennessee. The 4 major sections of the department are

- the Bureau of Environment,
- the Bureau of Parks and Conservation,
- the Administration Division, and
- the Office of External Affairs.

The department's organizational chart is on page 4.

The Bureau of Environment is the state's primary environmental regulatory agency for sources of air and water pollution; solid waste processing and disposal; regulation of petroleum underground storage tanks; and toxic and hazardous waste processing. The bureau is also responsible for remediating brownfield sites,<sup>1</sup> reclaiming abandoned mine lands, conducting stream maintenance in West Tennessee, and providing geological services. The Bureau of Environment includes the following divisions: Air Pollution Control, Tennessee Geological Survey, Radiological Health, Remediation, Solid Waste Management, Underground Storage Tanks, Water Resources, and the West Tennessee River Basin Authority.<sup>2</sup> The Bureau of Environment maintains eight Environmental Field Offices, where staff from the various

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<sup>1</sup> Brownfield sites are properties previously used for industrial or commercial facilities, such as former dry-cleaning facilities or gas stations. Before the property can be repurposed, the department will remediate any hazardous substances, pollution, or contaminants.

<sup>2</sup> The West Tennessee River Basin Authority is not a part of this audit. It is administratively attached to the department and has its own sunset termination date.

environmental programs conduct permitting work and inspections and investigate complaints. See **Exhibit 1** on page 8 for a map of the eight field offices and the divisions included at each office.

The Bureau of Parks and Conservation operates and maintains all state parks and natural areas; provides federal and state grants to local governments through the Recreation Education Services; and preserves archaeological resources. The department manages 56 state parks and 85 state natural areas, which encompass more than 200,000 acres across Tennessee and range from rustic natural and historic sites to resort parks, including 6 inns, 8 restaurants, 4 marinas, and the 9 golf courses on the Tennessee Golf Trail.

The Administration Division provides management and support services to the department through the divisions of Records, Space and Facilities, Fiscal Services, Financial Responsibility, Grants and Contract Administration, Budget, Procurement, Information Systems, Emergency Services, and Internal Audit.

The Office of External Affairs provides outreach and communication to department stakeholders, including local government agencies, the regulated community, public interest groups, and citizens. Staff are located in the central office and each of the eight environmental field offices.

The **Commissioner's Office** includes the **Office of General Counsel; Office of Communications; Office of People and Organizational Development; Office of Policy and Planning; and Office of Energy Programs**. The Office of Policy and Planning is responsible for environment policy research and analysis; environmental sustainability; technical guidance and strategic planning; Title VI; and environmental justice functions. The Office of Energy Programs provides technical and financial assistance to local governments, schools, and state agencies through the State Energy Office and the State Facility Utility Management Section.

## **DEPARTMENT'S DELEGATED AUTHORITY FROM THE ENVIRONMENTAL PROTECTION AGENCY**

The Department of Environment and Conservation has delegated responsibility from the U.S. Environmental Protection Agency (EPA) to regulate air pollution, solid and hazardous waste, underground storage tanks, water pollution, water supply, and groundwater. EPA's mission is to protect human health and the environment. Among other things, EPA works to ensure that federal laws protecting human health and the environment are administered and enforced fairly and effectively, as Congress intended, for Americans to have clean air, land, and water. EPA issues policy and guidance documents, helps regulated entities meet federal requirements, and holds entities legally accountable for environmental violations in 10 regional offices across the country. EPA's Region 4 Office located in Atlanta, Georgia, serves Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee.

## **AIR POLLUTION CONTROL BOARD AND BOARD OF GROUND WATER MANAGEMENT**

The **Air Pollution Control Board** assists the Department of Environment and Conservation with preparing rules for the Division of Air Pollution Control and provides technical, scientific, and enforcement support to the division.

The **Board of Ground Water Management** assists the department with preparing rules for groundwater management and reviews applicants for well driller or installer licenses.

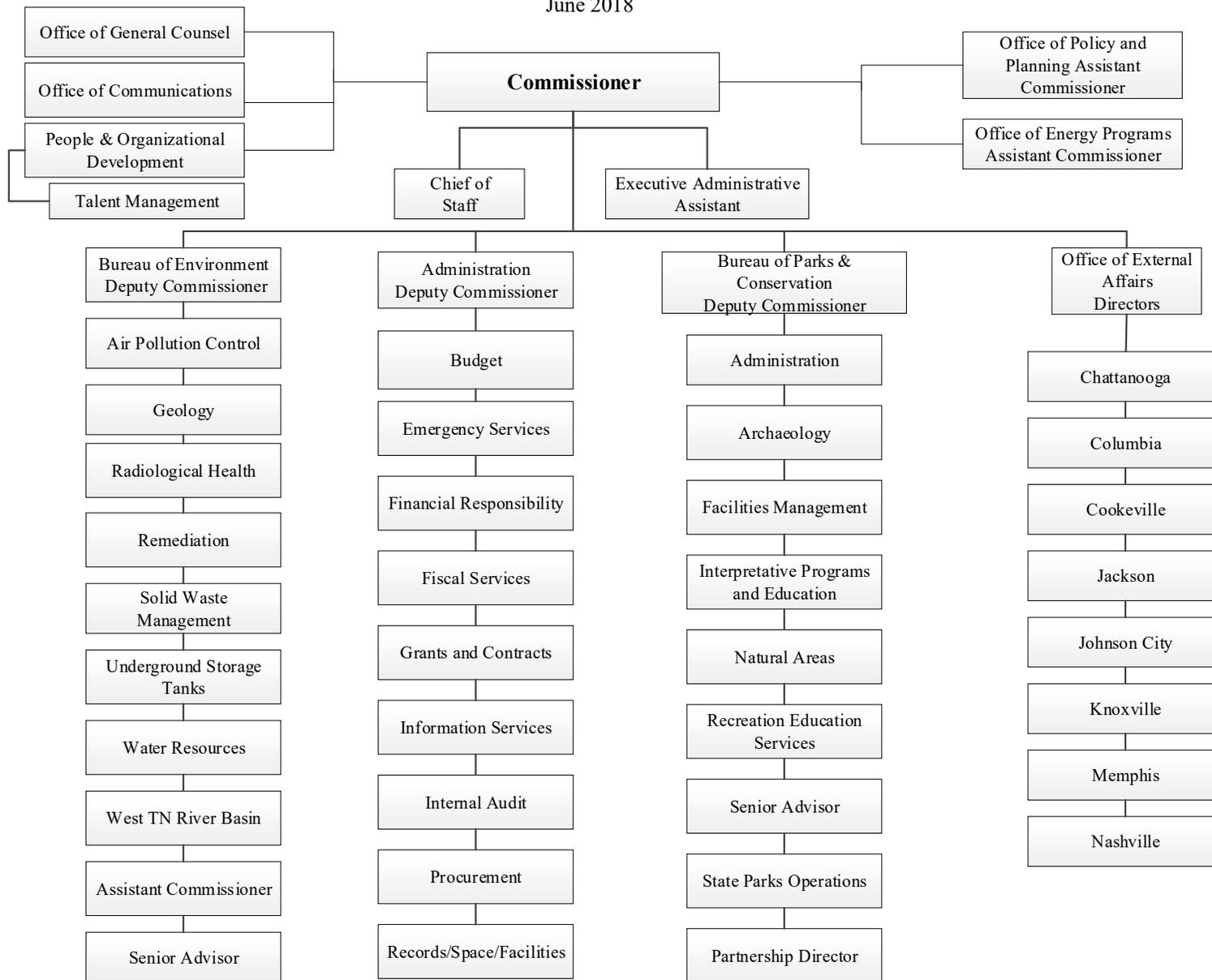
For more information on the **Air Pollution Control Board** and the **Board of Ground Water Management**, see page 65.

The department's business unit codes in Edison are in **Appendix 5**.

**DEPARTMENT OF ENVIRONMENT AND CONSERVATION**

Organizational Chart

June 2018



## AUDIT SCOPE

We have audited the Department of Environment and Conservation, the Air Pollution Control Board, and the Ground Water Management Board for the period July 1, 2015, through September 30, 2018. Our audit scope included a review of internal controls and compliance with laws, regulations, policies, procedures, and provisions of contracts or grant agreements in the following areas:

- the Bureau of Environment's data management practices, permit efficiency reporting, and environmental complaint processes;
- the Bureau of Environment, Division of Toxic Substances' enforcement process;
- financial assurance cost estimations performed by the Bureau of Environment's Divisions of Solid Waste Management and Radiological Health;
- the Bureau of Environment, Division of Radiological Health's X-ray tube registration and inspection processes;
- the department's subrecipient monitoring program;
- the Bureau of Parks and Conservation, Division of Archaeology, and the Bureau of Environment, Tennessee Geological Survey's digitalization of files; and
- operations of the Air Pollution Control Board and the Board of Groundwater Management.

Department management is responsible for establishing and maintaining effective internal controls and for complying with applicable laws, regulations, and provisions of contracts and grant agreements. Because we could not confirm the reliability of the department's data, we were unable to thoroughly and effectively answer all the audit's objectives (see **Finding 1**). Therefore, all findings and observations presented in this report contain a limited analysis of the department and its operations.

For our sample design, we used nonstatistical audit sampling, which was the most appropriate and cost-effective method for concluding on our audit objectives. Based on our professional judgment, review of authoritative sampling guidance, and careful consideration of underlying statistical concepts, we believe that nonstatistical sampling provides sufficient, appropriate audit evidence to support the conclusions in our report. We present more detailed information about our methodologies in the individual report sections.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

## PRIOR AUDIT FINDINGS

### REPORT OF ACTIONS TAKEN ON PRIOR AUDIT FINDINGS

Section 8-4-109, *Tennessee Code Annotated*, requires that each state department, agency, or institution report to the Comptroller of the Treasury the action taken to implement the recommendations in the prior audit report. The prior audit report was dated January 2012 and contained six findings. The Department of Environment and Conservation filed its report with the Comptroller of the Treasury on August 27, 2014.

### RESOLVED AUDIT FINDINGS

The current audit disclosed that the Department of Environment and Conservation resolved the following previous audit findings concerning:

- failure to meet an internal policy regarding the monthly inspections of Class I landfills;
- inadequate information for oversight activities provided from negative response inspection forms; and
- lack of signed conflict-of-interest forms from all of the current members on several environmental boards.

### PARTIALLY RESOLVED AUDIT FINDINGS

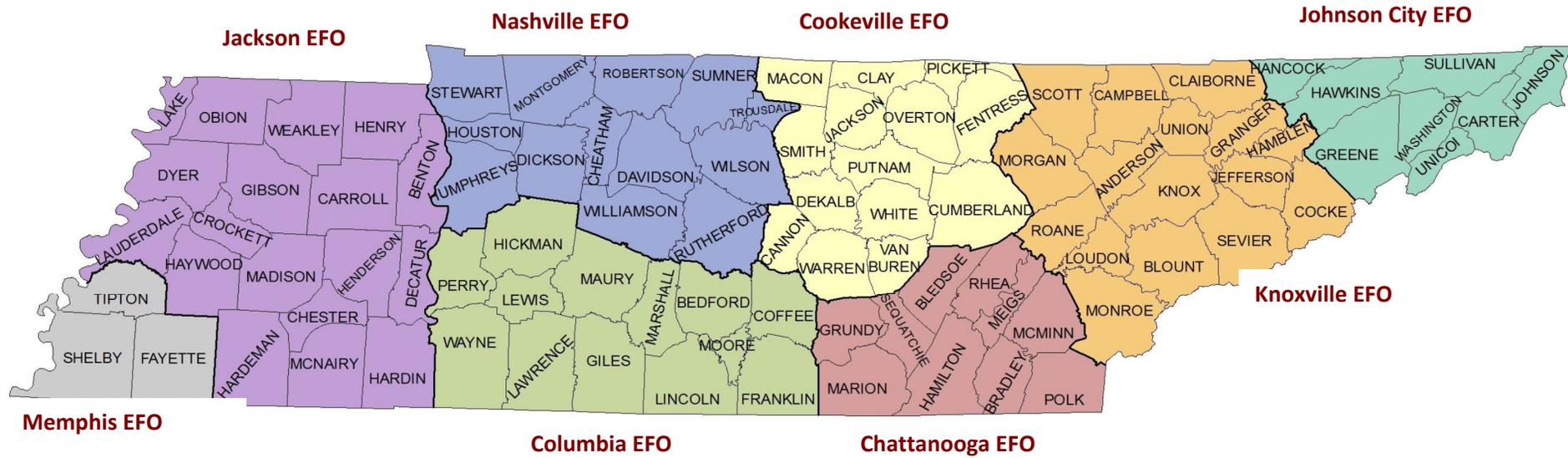
The current audit found that two previous audit findings are partially resolved. The prior audit reported the following:

- The Division of Solid Waste Management had ineffective internal controls over its WasteBin database and needed to develop written policies and procedures for entering inspection results. Our current audit found that the division has developed written policies and procedures; however, because of our concerns with the Bureau of Environment's data management practices, we could not conclude that the internal controls over WasteBin were resolved (see **Finding 1**).
- The Compliance Advisory Panel, required by the federal Clean Air Act, held only one meeting from 2009 through 2011 and had 2 vacancies at the time of the prior audit. Our current audit found that the panel met 10 times; however, the panel had the same 2 vacancies for the majority of the audit period (see **Observation 4**).

## REPEAT AUDIT FINDING

The January 2012 performance audit included a finding that the Department of Environment and Conservation had not complied with the subrecipient monitoring policy in effect at that time. This prior finding has not been corrected and is repeated on page 52 (see **Finding 8**).

## Exhibit 1 Environmental Field Offices



<b>Environmental Field Office (EFO) Legend</b>	
<b>Divisions Included in EFO</b>	
<span style="display: inline-block; width: 20px; height: 15px; background-color: #cccccc; border: 1px solid black;"></span>	WR, UST, DRH, SWM, DR
<span style="display: inline-block; width: 20px; height: 15px; background-color: #9966cc; border: 1px solid black;"></span>	APC, WR, UST, SWM, DR
<span style="display: inline-block; width: 20px; height: 15px; background-color: #6699cc; border: 1px solid black;"></span>	APC, WR, UST, DRH, SWM, DR
<span style="display: inline-block; width: 20px; height: 15px; background-color: #99cc99; border: 1px solid black;"></span>	APC, WR, UST, SWM
<span style="display: inline-block; width: 20px; height: 15px; background-color: #ffff99; border: 1px solid black;"></span>	APC, WR, UST, SWM
<span style="display: inline-block; width: 20px; height: 15px; background-color: #cc6666; border: 1px solid black;"></span>	APC, WR, UST, DRH, SWM, DR
<span style="display: inline-block; width: 20px; height: 15px; background-color: #ff9933; border: 1px solid black;"></span>	APC, WR, UST, DRH, SWM, DR
<span style="display: inline-block; width: 20px; height: 15px; background-color: #66cc66; border: 1px solid black;"></span>	APC, WR, UST, SWM, DR

Air Pollution Control – APC; Radiological Health – DRH; Remediation –DR; Solid Waste Management – SWM; Underground Storage – UST; and Water Resources – WR

Source: Department of Environment and Conservation.

# Audit Conclusions



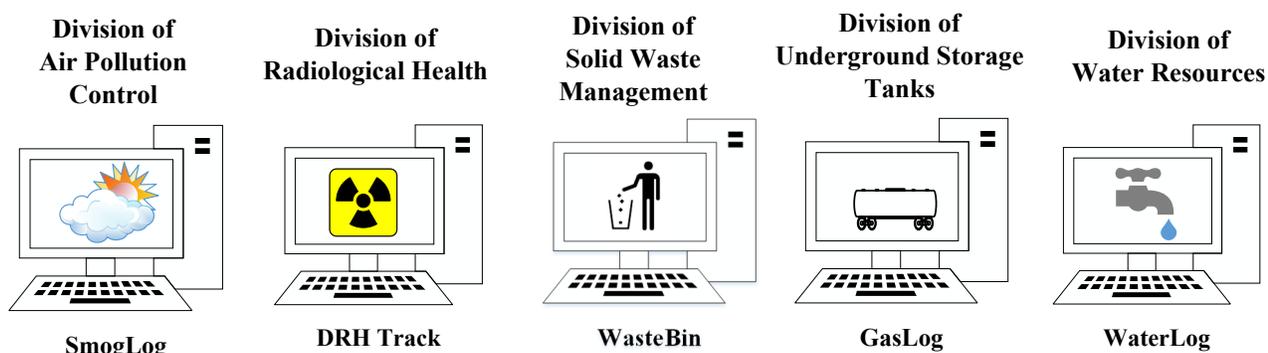
Bureau of  
Environment Data  
Management and  
Reporting



## DATA MANAGEMENT

The Bureau of Environment in the Department of Environment and Conservation is responsible for monitoring and storing information about the state's environmental activities. To assist the bureau with monitoring this information, five divisions—Air Pollution Control, Radiological Health, Solid Waste Management, Underground Storage Tanks, and Water Resources—have primary computer systems that they use to process permit applications, inspections, licensure applications, and enforcement actions (see **Figure 1**). These divisions also use data repositories, such as Excel spreadsheets, Access databases, paper files, and other electronic documents, to track environmental activities as part of the bureau's data management practices.

**Figure 1**  
**The Bureau of Environment's Primary Computer Systems**



### Audit Results

**1. Audit Objective:** Are the bureau's computer systems properly tracking environmental program data?

**Conclusion:** No, the bureau's computer systems cannot properly track environmental data due to unreliable internal controls and poor data management practices (see **Finding 1**).

**2. Audit Objective:** Does the department have adequate information systems controls?

**Conclusion:** The department provided inadequate internal controls in one area (see **Finding 2**).

### Methodology to Achieve Objectives

We interviewed various staff within the bureau and from the department's Information Systems Division to learn about each division's computer systems. In addition, we reviewed environmental complaints and legal orders located in the WaterLog system and met with the Division of Water Resources' staff to observe some of the smaller electronic documents that staff use to process and store information.

**Finding 1 – The department lacks an effective data management process to allow easy access to program information and lacks clear evidence that environmental safety concerns have been properly tracked and addressed**

The Department of Environment and Conservation’s Bureau of Environment is the state’s primary environmental regulatory agency, and its mission is to protect and improve “the quality of Tennessee’s air, land, and water through a responsible regulatory system” and ensure that “regulated facilities are following all applicable environmental laws and regulations.” The bureau carries out its mission through functions such as granting permits, conducting inspections, investigating complaints, and monitoring and enforcing compliance of regulated facilities subject to the state’s environmental laws and regulations. The U.S. Environmental Protection Agency has delegated to the department the responsibility to regulate air pollution, solid and hazardous waste, underground storage tanks, water pollution, water supply, and groundwater.

Types of Permits Issued
Landfills
Oil and Gas Drilling
Septic Tank
Storm Water Construction
Underground Storage Tanks

The bureau collects information, including but not limited to, permitting, inspections, complaints, registrations, and licensing from its regulatory divisions and stores this information in over 100 independent data repositories, including paper-based repositories (see **Table 1**).

**Table 1  
Number of Repositories by Division**

Division Name	Number of Repositories
Division of Air Pollution Control	13
Division of Radiological Health	31
Division of Solid Waste Management	36
Division of Underground Storage Tanks	5
Division of Water Resources	76
<b>Bureau Total</b>	<b>161</b>

Without more centralized control over data, the bureau cannot effectively manage its environmental programs. When data is stored in numerous independent data repositories, from spreadsheets to web-based applications, the bureau and the department lack a crucial management resource to facilitate decision-making and regulatory functions. Effective collection and management of this information is especially critical.

Most importantly, there were broad data management issues, and we could not determine, nor could management readily show us, that they had met the bureau’s regulatory requirements and mission. Several circumstances are described within the sections of this report, but to illustrate some of the issues we encountered, we focused on data repositories in the Division of Water Resources. During our review, we learned that most of the bureau’s divisions’ primary computer systems, except for those in the Division of Radiological Health, were copied from the Division

of Water Resources' WaterLog computer system, which was created by department staff. Therefore, we focused our review on the Division of Water Resources' WaterLog system and the other repositories staff use to support the division's operations.

### Issues Identified Within the Division of Water Resources

#### *WaterLog System – Insufficient Edit Checks*

We found that the WaterLog system did not include appropriate edit checks, which allowed it to accept records with incorrect dates and missing information, affecting the reliability of the system's data. We found that several complaints had "received dates" after the "investigation dates." We also found several complaints were missing essential information, such as the complaint description, the investigation date and completion date, and the name of the staff member assigned to the complaint. Management of the Division of Water Resources did not ensure that proper edit checks were included in WaterLog. The department's Information Systems Division reported that each of the bureau's divisions must request edit checks for its primary computer system derived from the WaterLog system.

Edit checks are programmed computer controls that are built into a system to prevent users from entering incorrect data. Examples would be a check that prevents users from entering a number in a textbox that should only contain alphabetic characters or a check that prevents a record from being accepted without the required information being completed.

#### *WaterLog System – Staff Cannot Generate Reliable Reports*

We were unable to obtain a report containing a list of legal orders that were issued to individuals who had violated the state's water laws. Staff stated that WaterLog can generate reports; however, the reports may contain incorrect information. WaterLog provides a large amount of information to its users, but it is staff's responsibility to work through multiple processes to generate reports containing the correct information. Although staff are provided with training on WaterLog, it is still difficult for users to operate the system. Because the system is not user friendly, staff who are new and inexperienced with the system, or who are not adept at managing the required processes, could easily generate an inaccurate report. In this case, staff classified records, such as legal orders and complaints, under a single category. As a result, management did not provide us with the requested records for audit testwork.

#### *Division of Water Resources – No Centralized Repository*

During the audit period, the Division of Water Resources did not have a centralized computer system or repository for staff to locate and track information. We interviewed division staff to inquire about how water permits are tracked, and staff identified at least seven data repositories used to store water permit applications, and staff may use additional repositories not identified to us during our review. As a result, we had no assurance that we could obtain complete, reliable information necessary for our audit objectives.



In all, we learned the division used 76 data repositories to track and store a variety of important information regarding the health of Tennessee’s water, including information about permits, enforcement actions, and complaints, to name a few. Some of these repositories were custom created by the division staff, while others were Excel spreadsheets or Access databases.

*Division of Water Resources – Repositories Not Secure*

We also found that many of the Division of Water Resources’ repositories lacked appropriate security controls, such as Excel workbooks that were not password-protected. As a result, data is at risk for unauthorized changes, and we could not confirm the data’s accuracy, completeness, or authenticity. Furthermore, we found that many of the applications were stored on various staff members’ computers or on the department’s network drives. Information stored on staff members’ computers would not be accessible to management if the staff member was not available, and data on the department’s network drives may not have appropriate controls to ensure that no unauthorized changes were made.

Overall Concerns With the Bureau’s Data Management Practices

As noted above, these examples are from the Division of Water Resources; our audit identified other serious issues with the bureau’s management of its information that are included in this report (see **Table 2**). Neither the bureau nor the department has maintained appropriate controls over numerous repositories or maintained adequate information systems controls in one area (see **Finding 2**).

From our review of records and discussions with bureau staff, we determined that management did not have easy access to its information and, as a result, could not provide us with complete data for audit testwork. In addition, without the ability to quickly and effectively access and analyze environmental data for all programs, services, and complaints, the bureau and department management could not provide evidence that they efficiently used the department’s resources to track and address environmental safety concerns that may impact Tennessee’s citizens and its environment.

**Table 2**  
**Bureau of Environment**  
**Divisions With Data Management Issues**

<b>Division Name</b>	<b>Report Section</b>
Division of Air Pollution Control	Environmental Complaints
Division of Radiological Health	Registration and Inspections of X-ray Tubes
Division of Remediation	Environmental Complaints
Division of Solid Waste Management	Environmental Complaints; Toxic Substances Program
Division of Underground Storage Tanks	Environmental Complaints
Division of Water Resources	Data Management; Environmental Complaints

As of July 1, 2018, the department’s Information Systems Division was integrated into the Department of Finance and Administration’s Strategic Technology Solutions. While this integration relocated technical support for the department’s information resources, management remains responsible for ensuring the completeness, accuracy, and reliability of the data in those

repositories. In addition, as of the conclusion of this audit, the bureau and the department reported that they were anticipating using several of the Environmental Protection Agency's web-based applications to replace over 20 of the department's most vulnerable repositories.

### **Recommendation**

Management of the department and the bureau should consult with the Department of Finance and Administration's Strategic Technology Solutions to determine the appropriate way to consolidate its remaining disparate data repositories and applications into effective management tools. The department and the bureau should then implement the plan, including budgeting the appropriate resources, to ensure that the bureau has the necessary management tools to protect Tennessee's citizens and environment.

### **Management's Comment**

We concur with the finding. The department believes that a fully integrated environmental database management system would enhance the department's ability to monitor environmental performance; track environmental compliance and identify significant environmental trends; and provide better customer service. The department anticipates that creating such a system will require significant financial resources and time. Currently, the department is working with Strategic Technology Solutions (STS) to develop a Legal Entity Management System that will enable the department to track information concerning a regulated entity across divisions. The department will continue to consult with STS to identify an appropriate way to ensure that the bureau has the necessary data management tools.

### **Finding 2 – The department had inadequate information systems controls in one area**

The Department of Environment and Conservation provided inadequate internal controls in one area related to its information systems. The details of this finding are confidential pursuant to Section 10-7-504(i). We provided the department with detailed information regarding the specific conditions we identified, as well as the related criteria, causes, and our specific recommendations for improvement.

### **Recommendation**

Management should ensure this condition is remedied by developing effective controls to ensure compliance with applicable requirements.

### **Management's Comment**

We concur with the finding. The department has a corrective action plan in place to address the inadequacy.

## PERMIT EFFICIENCY REPORTING

The Department of Environment and Conservation's Bureau of Environment issues permits and licenses within the bureau's Solid Waste Management, Radiological Health, Air Pollution Control, and Water Resources divisions. Permits cover a wide range of environmental areas. In fiscal year 2017, the bureau reviewed 11,984 permit applications for completeness and 30,142 permit applications for a final permit decision. The bureau compiles permit information from its various divisional data systems and applications to complete permit efficiency reports every fiscal quarter, as well as semi-annually and annually.

### Permit Efficiency Reports

In 2012, the Tennessee General Assembly directed the department to prepare two reports each year detailing the progress and efficiency of the environmental permit application process. Section 4-3-506, *Tennessee Code Annotated*, requires the department to electronically submit each report to the Governor and the General Assembly, and to post the report to the department's website by February 1 and August 1 of each year. The statute states the following:

- (a) It is the intent of the general assembly that the department of environment and conservation seek to accomplish making a completeness determination and issuing or denying any permit within the time frames specified by the department's rules and regulations.
- (b)(1) The commissioner shall prepare semiannual permitting efficiency reports that include statistics on whether the department has timely acted on permit applications pursuant to the appropriate rule. The reports are due February 1 and August 1 of each year beginning in 2013.
- (2) For permit applications that have not met the time frame required by rule, the report must state the reasons for not meeting the time frame. In stating the reasons for not meeting the time frame, the commissioner shall separately identify delays caused by the responsiveness of the applicant, lack of staff, scientific or technical disagreements, or the level of public engagement.
- (3) The report shall specify the number of days from initial submission of the application to the day of determination that the application is complete. The report due August 1 of each year must aggregate the data for the year and assess whether the program or system changes are necessary to achieve the time frame as specified by rule.
- (4) The report shall be posted on the department's web site and electronically submitted to the governor and members of the general assembly.

## Customer Focused Government Report

The bureau also reports permit efficiency data to the Governor’s Office of Customer Focused Government<sup>3</sup> (CFG), which compiles and reports data from all state agencies and presents the information on the state’s Transparent Tennessee website. The CFG and state departments work together to identify each department’s “key operational goals” to achieve each fiscal year. The department identified a specific goal for 2017–2018 to “Operate an effective and efficient environmental regulatory program.” Program management used the performance of permit applications completed within the applicable regulatory timeframes as the key performance indicator to evaluate attainment of this goal (see **Figure 3**).

**Figure 3**  
**Bureau of Environment’s Goal for Permit Applications**

**Governor’s Priority: Health and Welfare**

<b>Goal:</b> Operate an effective and efficient environmental regulatory program.						
<b>Improves Customer Service By:</b> TDEC’s environmental regulatory program is an important component of the department’s mission to protect human health and the environment and to preserve the quality of life that makes Tennessee an attractive place to work, live, and play. Issuing protective environmental permits in a timely and consistent manner, conducting inspections efficiently and equitably, and ensuring compliance within the regulated community are critical to the success of our state’s businesses and industries and the continued protection of the citizens and natural resources of Tennessee.						
Metrics	Frequency	Baseline	Target	Prior	Current	Status
Percent of final actions made on complete BOE permit applications within the applicable regulatory time period.	Fiscal Quarterly	99.5%	100%	99.5%	99.6%	↑
Percent of inspections completed as committed to per division annual workplans.	Fiscal Quarterly	100%	100%	97.1%	96.4%	↓

Source: Screenshot from the Office of Customer Focused Government’s website, June 19, 2018.

## Audit Results

**1. Audit Objective:** Did the bureau submit the permit efficiency reports for calendar year 2017 and February 2018 in accordance with statute?

**Conclusion:** No, the bureau did not submit the reports in accordance with statute (see **Finding 3**).

**2. Audit Objective:** Do the department’s methods used to determine permit efficiency accurately reflect the number of days that it takes the bureau to process permit applications?

<sup>3</sup> The Governor’s Office of Customer Focused Government was created in 2011 to focus on operational improvement opportunities across all state departments.

**Conclusion:** We found two permitting processes that are outliers for determining efficiency, such as inconsistency in rules and undefined timeframes (see **Observation 1**).

Methodology to Achieve Objectives

We reviewed applicable statute, along with the permit efficiency reports from calendar year 2017 and February 2018. We also interviewed program staff in each of the bureau’s divisions to learn how staff calculate and track permit efficiency data, as well as how they report it to bureau management.

**Finding 3 – The department’s Bureau of Environment did not prepare and submit its permit efficiency reports as required by statute**

Reports Do Not Contain Required Information

Based on our review of the reports prepared during our audit period, the approximately 30-page reports consisted of mostly narrative information, along with a summary of numerical data. The summary data did not include permits by type and rule, but instead provided a total of permits by division (see **Figure 4**).

**Figure 4**  
**Example of Summary Table<sup>4</sup>**

Table 1. FY 17/18 Semiannual Environmental Permitting Report Permit Completeness Decisions								
PERMIT APPLICATIONS & MODIFICATIONS - PERMIT APPLICATION COMPLETENESS DETERMINATION	Permit Applications for Completeness Review on hand as of June 30, 2017	Permit Applications for Completeness Review Received between 7/1/17 and 12/31/17	Total Number of Permit Applications in House for Permit Completeness Review through 12/31/17	Number of Permit Applications received for Completeness Review and the Statutory and/or Regulatory Time Limit has not expired during this Reporting Period	Number of Permit Application Completeness Decisions made within the Statutory and/or Regulatory Time Limit for 7/1/17 thru 12/31/17	Number of Permit Applications Completeness Decisions exceeding the Statutory and/or Regulatory Time Limit for the 7/1/17 thru 12/31/17	% Permit Application Completeness Decisions made within the Statutory and/or Regulatory Time Limit for the 7/1/17 thru 12/31/17	Total Number of Permit Applications in House for Permit Completeness Review through 12/31/17
APC	51	192	243	43	200	0	100.0%	243
DRH	0	1,562	1,562	0	1,562	0	100.0%	1,562
DWR	601	3,960	4,561	466	4,025	70	98.3%	4,561
SWM	3	27	30	9	21	0	100.0%	30
<b>Totals</b>	<b>500</b>	<b>5,741</b>	<b>6,396</b>	<b>518</b>	<b>5,808</b>	<b>70</b>	<b>98.8%</b>	<b>6,396</b>

Source: February 2018 permit efficiency report, page 23.

<sup>4</sup> The following acronyms are used in the first column of the table:

- APC – Division of Air Pollution Control
- DRH – Division of Radiological Health
- DWR – Division of Water Resources
- SWM – Division of Solid Waste Management

Furthermore, the reports did not contain information required in statute. Specifically, management did not

- include why the department did not meet a permit application timeframe;
- individually specify the number of days from when an applicant initially submits an application to when the Bureau of Environment reviews the permit application and deems the application complete and ready for approval or denial; and
- assess whether program or system changes were necessary to achieve the timeframe specified by rule.

Bureau management told us that the reports are now “more general” and do not include detailed reasons for each permit application delay or individual processing times because the report would be voluminous if all required information was included. By not fulfilling the reporting requirements described in statute, management has not fully complied with its reporting duties to the General Assembly, the Governor, and the public.

#### Reports Not Submitted and Posted Timely

Our review found that department management did not ensure that the bureau submitted its February 1, 2017; August 1, 2017; and February 1, 2018, permit efficiency reports to the Governor and General Assembly as required by statute (see **Table 3**). Bureau management acknowledged that they did not submit the reports on time and, as a result, did not meet the statutory requirement.

**Table 3**  
**Permit Efficiency Reports Submitted Late**

<b>Report Due</b>	<b>Date of Letter Submittal</b>	<b># of Days Late</b>
February 1, 2017	January 12, 2018	341
August 1, 2017	January 12, 2018	161
February 1, 2018	April 24, 2018	83

We also found that as of May 16, 2018, the bureau had not posted the February 2017 or February 2018 permit efficiency reports on the department’s website as required by statute. According to bureau management and the department’s website coordinator, the reports could not be posted because of a difficulty with the Department of Finance and Administration’s Strategic Technology Solutions Division.

#### **Recommendation**

The department should ensure permit efficiency reports are submitted to the Governor and General Assembly, and posted to the department’s website, by February 1 and August 1 of each year. The department should ensure permit efficiency reports include the following information:

- reasons why permit application timeframes are not met;

- the number of days between applications’ initial submission and when the department deems them complete; and
- an assessment about whether program or system changes are necessary to achieve the timeframe specified by rule.

The department should assess whether it should seek an amendment to current statute that would reduce the reporting requirements, but still provide the legislature with the information it needs to assess whether the department is making completeness determinations and issuing or denying permits within required timeframes.

### **Management’s Comment**

We concur with the finding. The department will ensure timely submittal and posting of future permitting efficiency reports.

The department strives to comply with Section 4-3-506, *Tennessee Code Annotated*, in a manner that fulfills the intent of the General Assembly while also making the permitting efficiency reports meaningful to the Governor, the General Assembly, and the public. It is important to note that the department does report the information in a summary format. Due to the volume of permitting actions taken by the department (roughly 34,000 per year), if the department reported the data as currently prescribed by the statute (for each permitting action), the reports would be very large and take significant staff resources to produce in addition to making the information more difficult to review.

The department recognizes the value of the reporting requirement and has seen performance improvement as a result of its enactment. Amending Section 4-3-506, *Tennessee Code Annotated*, to reflect the current practice of summarizing information would enable the department to meet the statutory requirement while retaining the benefit of accountability.

### **Observation 1 - The department should include additional information in permit efficiency reports to improve reporting transparency**

The permit efficiency report and the Customer Focused Government (CFG) report are derived from the same datasets (see **Finding 3**). From our review and discussions with staff in each division who are responsible for reporting data for the report, we found two outliers for permit timeframes that could skew the results for reporting of permit efficiency.

When processing landfill permit applications, the Division of Solid Waste Management’s rules allow the processing clock to stop when the division determines an application is not complete and requests additional information from the applicant. The processing clock restarts once the division receives the missing information from the applicant. The division reports that it only counts “clean days,” which are the days that staff process the permit applications. The division does not count days that staff wait for the applicant to provide missing information. As a result, the actual number of calendar days it takes the division staff to process an application is

much greater than the clean days that the bureau reports in the permit efficiency report and the CFG report.

The Department of Environment and Conservation's Rule 0400-11-01-.07(6)(b)1 requires the division to issue or deny a permit application within 240 days after the division certifies the application is complete. To illustrate the clean days versus calendar days analysis, the division received a landfill permit application on October 11, 2013, and the application was still pending as of April 10, 2018, due to the division requesting additional or missing information from the applicant. The division's records show staff completed the landfill permit application in only 108 clean days and thus had 132 days remaining before the regulatory deadline. The division received another landfill permit application on November 10, 2014, and as of April 10, 2018, it was still pending with 78 clean days left.

According to division staff, landfill applications can take several months or years to complete due to their complexity. By using the clean day timeframe to track processing days, top management and other stakeholders may not be fully aware of applications' true processing time. Although department rules allow permit applications' deadline clocks to stop and restart, this practice may not match the spirit of the legislative permit efficiency law and CFG key operational goals, which are both in place to ensure the department processes permits efficiently. Providing additional details in the report about clean days and calendar days would provide the reader with more information and an understanding of the complexity of the landfill permit application processing and would improve transparency of reporting to readers and citizens.

The Division of Water Resources reports that all of its oil and gas permits are issued within a regulatory timeframe; however, there are no federal or state regulatory requirements for issuing these permits within a certain timeframe. Therefore, the division could unintentionally misrepresent information when it reports that permits are issued on time.

These practices may not conform with the intent of the permit efficiency report and the CFG report, which are intended to measure the efficiency of the bureau's permit process. Without disclosing more information in the permit efficiency report and removing permits without specified timeframes from the CFG calculation, readers and users of both reports lack a complete understanding of permit efficiency or whether the department is achieving permit process efficiency.

The department should indicate in the permit efficiency report and the CFG report that the number of days it takes to process landfill permit applications is based on the number of days that staff actually work on applications, not on calendar days.

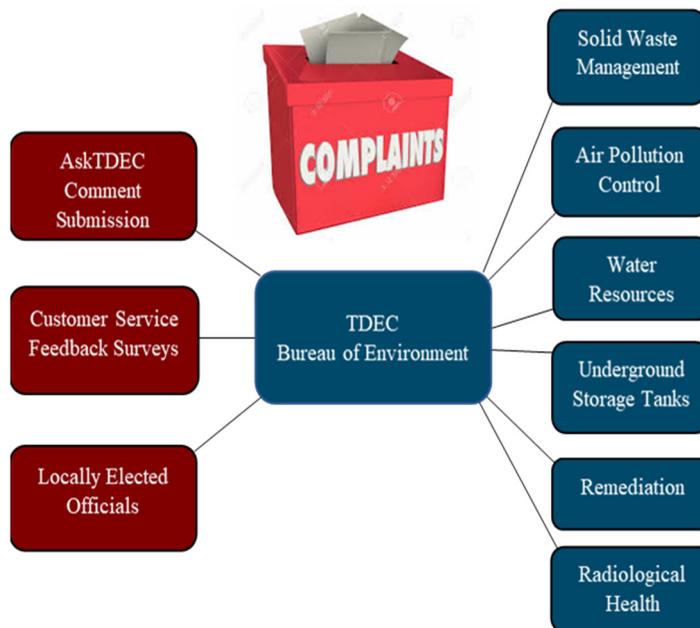
## **ENVIRONMENTAL COMPLAINTS**

The Department of Environment and Conservation receives environmental complaints from citizens via letters, emails, and phone calls at the central office and the eight environmental field offices. Six divisions in the department's Bureau of Environment receive environmental

complaints: Water Resources, Air Pollution Control, Solid Waste Management, Underground Storage Tanks, Remediation, and Radiological Health.

Environmental complaints are concerns about activities that the department could determine to be violations of environmental laws after review and investigation. These concerns can include, but are not limited to, open burning, illegal dumping, gasoline vapors, and stream debris. Complaints come in via the department's AskTDEC comment submission,<sup>5</sup> customer service feedback surveys,<sup>6</sup> and locally elected officials. Staff route complaints to the appropriate division and log them in the divisions' respective computer applications. Some complaints go directly to the appropriate division when the complainants contact someone in that division. While there is not a centralized intake system, the complaint and investigation information that is logged into each division's computer application includes the location; the responsible party; the dates the complaint was received and who investigated; a description of the complaint; and photographs from the site, if there is any evidence. Environmental field office managers determine if complaints are severe or will cause immediate environmental harm, such as an oil sheen on a river,<sup>7</sup> and these are investigated as quickly as possible. The division may send an advisement or notice of violation letter to the responsible party if the investigator deems it necessary.

### Environmental Complaint Intake Process



Source: Auditor observation and walk-through.

each division's computer application includes the location; the responsible party; the dates the complaint was received and who investigated; a description of the complaint; and photographs from the site, if there is any evidence. Environmental field office managers determine if complaints are severe or will cause immediate environmental harm, such as an oil sheen on a river,<sup>7</sup> and these are investigated as quickly as possible. The division may send an advisement or notice of violation letter to the responsible party if the investigator deems it necessary.

### Audit Results

**1. Audit Objective:** Did the bureau have a centralized system to produce a comprehensive list of environmental complaints from each division?

<sup>5</sup> AskTDEC can be accessed on the department's website; users enter their contact information and questions, as well as photos or videos.

<sup>6</sup> Customer satisfaction surveys are in all emails sent out by department staff, state park brochures, and emails to people who have stayed in inns at state parks.

<sup>7</sup> An oil sheen on a river appears when an oil spill or leak has occurred in the water.

**Conclusion:** Although there is no centralized system or comprehensive list of environmental complaints, each division can access and create a list of complaints from their respective computer applications. However, based on issues with the computer applications, the list of complaints may not be reliable (see **Finding 1**).

**2. Audit Objective:** Did the bureau have formalized procedures for investigating, logging, and monitoring complaints?

**Conclusion:** None of the divisions, except for Radiological Health and Solid Waste Management, had formalized complaint procedures, which resulted in some monitoring inconsistencies (see **Finding 4**). Due to difficulties with the systems used by the bureau, the divisions were not readily able to track and monitor complaints needed to determine risks related to public health and safety, to provide accountability of environmental concerns to citizens, or to analyze data trends (see **Finding 4**).

**3. Audit Objective:** Did the bureau investigate environmental complaints within appropriate timeframes?

**Conclusion:** None of the divisions, except for Radiological Health and Solid Waste Management, defined appropriate timeframes in their procedures. Additionally, due to the unreliability of the bureau's complaint data in the divisions' computer applications (see **Finding 1**) and the lack of formalized complaint policies, we were unable to conclude on the timeliness of complaint investigations (see **Finding 4**).

#### Methodology to Achieve Objectives

To meet our objectives, we interviewed the deputy commissioners for the Environment and Administration bureaus; directors for Information Systems and Customer Interface; environmental division directors; deputy directors; and field office managers to determine whether the Bureau of Environment had a centralized system or a comprehensive list of environmental complaints from the divisions' computer applications for calendar years 2016 and 2017. (See **Exhibit 1** for a map of field offices.) We reviewed the divisions' complaint policies and the individual performance plans of division staff. Additionally, we discussed complaint tracking with personnel to determine whether the divisions are using data trends. We reviewed the divisions' annual workplans and inquired about complaint investigation timeframes.

#### **Finding 4 – Divisions in the department's Bureau of Environment do not have sufficient procedures on investigating, logging, and monitoring complaints; also, the divisions do not track environmental complaints for data trends and additional information that could impact public health**

The Department of Environment and Conservation's Bureau of Environment does not have a centralized list of complaints received from all divisions. Furthermore, management does not

track environmental complaints for data trends and additional information beyond employee productivity, although doing so could help assess environmental risks and concerns for the department and citizens.

Although each division can access its complaint list from its respective computer applications,<sup>8</sup> we identified data reliability issues with the division's computer applications (see **Finding 1**). The following are some examples we found during our initial review of the divisions' computer data:

- instances of incomplete, missing, or incorrect data;<sup>9</sup>
- 22 environmental complaints in the Solid Waste Management and Water Resources divisions from 2011 through 2017 that are still open and are not marked as resolved or closed; and
- inconsistencies with variations in logging and monitoring complaints.

Therefore, we were unable to perform data reliability tests and could not rely on any information system data to meet our audit objectives for completeness and accuracy of the data (see **Finding 1**).

We did determine that the divisions do not have sufficient written procedures on how to investigate, log, and monitor complaints, which results in complaint handling inconsistencies.

#### Lack of Complaint Procedures

While the complaint intake procedure is similar across the bureau, each division does not have formalized complaint procedures for handling complaints after the intake process. As of June 2018, the bureau's Solid Waste Management and Radiological Health divisions have standard operating procedures for complaint investigations; however, the Division of Remediation does not have any written procedures for complaint handling. For example, Division of Remediation staff did not consistently follow the same procedures for logging and monitoring complaint information in DORWay,<sup>10</sup> and as such we could not identify critical dates with which to evaluate timeliness. Staff attribute these inconsistencies to a lack of written guidance. Without sufficient complaint guidance, the bureau may not handle citizens' complaints in a timely manner, if at all, which could result in environmental issues not being investigated and resolved.

The remaining three divisions—Water Resources, Air Pollution Control, and Underground Storage Tanks—use employee individual performance plans (IPP) to denote their investigation procedures, including timeframes. IPPs establish employees' performance expectations and

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<sup>8</sup> Each division uses its primary system to enter complaints as follows: Water Resources—WaterLog, Air Pollution Control—SmogLog, Solid Waste Management—WasteBin, Underground Storage Tanks—GasLog, and Remediation—DORWay.

<sup>9</sup> This occurs when a complaint was marked complete, but there was no investigation date or the investigation date was before the complaint's received date.

<sup>10</sup> The Division of Remediation uses the DORWay computer application system to document project information and site history. DORWay has a module for logging complaints that are reported to the division.

support the employees' performance evaluations but should not take the place of formal written policies and procedures. Without formal complaint procedures, management cannot ensure that staff are properly trained to log, investigate, and resolve complaints.

### Lack of Tracking Complaint Data

Although most divisions track the number of complaints for workload analysis, such as reviewing field office activities and employee productivity, they are not tracking any risks related to environmental programs to determine whether environmental laws are enforced. Tracking complaint data on violation type, location, and resolution would help the bureau assess its success in resolving and preventing future complaints. Bureau staff stated that the divisions primarily use complaint data for employee performance evaluations, except for the Division of Air Pollution Control, which uses investigation timeliness and complaint type data for additional internal reports. For example, Air Pollution Control management tracks the percentage of the complaints received for open burning to ensure its process is working and to determine if any changes, additional outreach, or education are needed for the open burning regulations.

The remaining five divisions are not tracking complaints for other purposes, such as types of complaints or timeliness; instead, the divisions identify issues and modify training and procedures from discussions with staff, not from evaluating trends in reports. Without tracking data trends, the bureau may miss vital information it could use to solve environmental problems that could impact public health.

### Recommendation

Bureau management should implement policies and procedures to track environmental complaint data across all divisions to assess risks related to public health and safety and to provide accountability for environmental concerns to citizens.

Management in the divisions of Water Resources, Air Pollution Control, Underground Storage Tanks, and Remediation should develop complaint procedures, and the divisions of Solid Waste Management and Radiological Health should update their current policies to include specific procedures for timeliness, as well as for investigating, logging, and monitoring all environmental complaints.

### Management's Comment

We concur with the finding. The department values the contribution complaints make in support of the department's mission and takes complaints very seriously; however, the department does not solely or primarily rely on complaints as a means to protect human health and the environment. The department conducts regular inspections of regulated entities, reviews monitoring reports submitted by regulated entities, and conducts its own regular environmental monitoring to ensure human health and the environment are protected.

We concur with the recommendation that developing or updating written policies relative to complaint management in each division will enhance department effectiveness. Please also see Management's Comment to Finding 1 relative to data management tools.

# Toxic Substances Enforcement



## TOXIC SUBSTANCES PROGRAM

The Department of Environment and Conservation, Bureau of Environment, Division of Solid Waste Management manages the Toxic Substances Program. The program works to protect the people of Tennessee from environmental and health hazards caused by three toxic substances: lead, asbestos, and polychlorinated biphenyls (PCBs).<sup>11</sup> The program is responsible for ensuring that companies and individual workers who repair, renovate, and/or remove lead-based paint and asbestos from buildings are properly trained and licensed and conduct inspections for the toxic substances. Through a cooperative agreement with the U.S. Environmental Protection Agency (EPA), the program conducts PCB compliance inspections to monitor the use, storage, disposal, and management of PCBs by electrical utility companies, industries, scrap metal facilities, and other businesses. Program staff send the asbestos and PCB inspections to EPA to enforce any corrective actions or penalties.

### Examples: Lead-based Paint Abatement Work



Source: Department of Environment and Conservation, Toxic Substances Program Director.

### Lead-based Paint

Professionals working with lead-based paint must obtain a training certification in accordance with Section 68-131-402, *Tennessee Code Annotated*. The fees associated with receiving the license and certificate vary by discipline.<sup>12</sup> Lead-based paint applications follow the state's authorization package approved by the EPA. The training required for lead-based paint

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<sup>11</sup> PCBs are a group of man-made organic chemicals that can cause a number of different harmful effects.

<sup>12</sup> The disciplines and their associated fees for lead-based paint applications are as follows: inspectors—\$400, risk assessors—\$500, supervisors—\$400, project designers—\$600, and workers—\$120.

certifications is provided through a third-party vendor, as well as through the EPA, and must be renewed every three years. To renew the licenses and certifications, the applicants mail in an application and the training certification to the department.

Workers who are performing the removal of lead-based paint must submit a notice to the division 15 days before beginning any lead-based paint abatement activity. To ensure compliance with lead-based paint abatement, certification regulations, and consistent inspections, the program developed an Enforcement Response Policy. As described in the department's Lead-based Paint Abatement Rule 1200-1-18 and the state's lead-based paint authorization package<sup>13</sup> approved by the EPA, program staff conduct monthly inspections to determine compliance with the work practice standards for assessing the presence of lead-based paint hazards in residential, multi-family dwelling, and children-occupied facilities based on notifications from individuals and companies performing abatement work.

During an inspection, division staff may issue a violation to individuals and companies contracted to perform lead-based paint abatement services for any of the following reasons:

- obtaining lead-based paint abatement training documentation through fraudulent means (such as creating falsified documents);
- misrepresenting or falsifying the contents of training course documents required for certification;
- performing lead-based paint abatement work that requires a certification without having proof of certification;
- duplicating or using another individual's lead-based paint certificate to perform the abatement work that requires a certificate;
- failing to comply with appropriate work practice standards;
- failing to maintain required records; or
- failing to comply with any provision in the rules.

When program staff detect violations, they enter the information into the TenLead application to provide a record of violations, and the following actions are taken:

- Notice of noncompliance and notice of violation letters are sent within 15 days to establish a schedule for the violator to achieve compliance.
- Follow-up activity and a second notice of violation are issued with a reduced compliance schedule if the violator is near completing the corrective actions. If the violations are corrected, no further action is required, except for possible penalty assessment.

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<sup>13</sup> The authorization package is the certification procedures and requirements for individuals and firms engaged in lead-based paint abatement activities within the state.

- If the violator has failed to correct the violation, additional enforcement activities begin with a notice of show cause<sup>14</sup> meeting.

Section 68-131-401, *Tennessee Code Annotated*, and the department’s Lead-Based Paint Abatement Rule 1200-1-18 allow the program to pursue administrative enforcement actions (notices of violation) and additional enforcement actions, which include revoking or suspending a license and assessing civil penalties against any facility found in violation of the regulations. The Enforcement Response Policy manual states that enforcement cases requesting civil penalties may proceed even if the follow-up notice of violation reveals that the violator was brought into compliance within the specified timeframe. The department’s rules and statute do not address what course of action program staff should take with violators who have repeat violations.

The department’s program staff are responsible for lead-based paint inspections and for issuing any enforcements resulting from violations found during the lead-based paint inspections; therefore, the focus of our review was on lead-based paint.

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### Audit Results

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**Audit Objective:** Did the Toxic Substances Program issue any additional enforcement actions for violations detected with the lead-based paint inspections, as required by its enforcement policy?

**Conclusion:** Based on our review, from July 2015 to April 2018, the program did not always impose additional enforcement actions, including revoking or suspending licenses or assessing civil penalties for violations of lead-based paint violations (see **Finding 5**).

#### Methodology to Achieve Objective

We interviewed program staff to gain an understanding of the program’s procedures for approving licenses and certifications and issuing enforcement actions. We reviewed rules, policies, and statute for conducting inspections and issuing enforcements. We obtained and reviewed the division’s list of inspections from TenLead to determine the number of violations and enforcements issued from July 2015 to April 2018. There were approximately 413 inspections, with 66 inspections that had violations. During our review of the department’s data management controls, we noted that the department had data reliability issues with its computer applications (see **Finding 1**); therefore, we did not rely on the information system data obtained for this program.

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<sup>14</sup> The “show cause” meeting gives violators a chance to explain why they did not correct the violations within previously stated time periods or as a result of previous actions in the enforcement process.

**Finding 5 – The Toxic Substances Program did not always impose additional enforcement actions, including revoking or suspending licenses and assessing civil penalties against facilities in violation of regulations for lead-based paint**

While the Toxic Substances Program has been regularly issuing administrative enforcements, such as a notice of violation or notice of noncompliance, our review determined that the program did not impose additional enforcement actions, such as revoking or suspending a license and assessing civil penalties against facilities that failed to correct lead-based regulation violations. The department and the Division of Solid Waste management’s approach is to encourage compliance without issuing additional enforcement actions; as a result, program staff are required to send multiple notices for uncorrected violations. Additionally, program management does not identify or track repeat violators.

Based on our review and discussions with program staff, we found that from the population of approximately 413 inspections performed between July 2015 and April 2018, 66 inspections had uncorrected violations; however, only 1 of those 66 violations resulted in additional enforcement actions. In that case, the division director sent a Director’s Order,<sup>15</sup> which included penalties, to the facilities because the firm and workers were not certified to perform lead-based paint abatement activities. Based on our review of the program’s policies and procedures, rules, regulations, and list of inspections conducted, as well as our interviews with program staff, the program did not impose any additional enforcement actions when the notices of violations were not addressed. Although the Lead-Based Paint Abatement Rule 1200-1-18 states that the Department of Environment and Conservation may suspend or revoke any certification or license for any persons in violation of this rule or statute, the division did not do this for any uncorrected and repeated violations. The division only revokes the lead-based paint worker’s license and certification when he or she appears on the list received from the Department of Human Services’ Child Support Program for lack of child support payment.

We also found that the program does not have a designated employee assigned to handle enforcement actions for the lead-based paint violations. If the program were to issue additional enforcement actions with accompanying penalties to repeat violators, the repeat violators would have an incentive to become or stay compliant.

We attempted to review inspection data entered in the TenLead application to determine whether the department issued any additional enforcements. We found similar data reliability issues as described in **Finding 1**, such as duplicate inspections and incomplete data fields.

**Recommendation**

Division management should ensure program staff follow the rules, policies, and statute for imposing enforcement actions for program violations. Those should include methods to identify repeat violators and provisions for increasing levels of penalties for repeat violators.

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<sup>15</sup> A Director’s Order, with a penalty fee not to exceed \$100,000, is an administrative order signed by the division’s director that sets forth the individual, firm, or training program’s violations and directs that certain actions be taken to settle the reported violations.

### **Management's Comment**

We concur with the finding. Improvements can be made in the Lead-Based Paint enforcement process. Although compliance has generally been achieved, there have been situations where enforcement should have been extended to a Director's Order, including civil penalties, and was not. Additional attention will be paid toward ensuring staff pursue appropriate enforcement, including addressing repeat violators.

# Financial Assurance



## FINANCIAL ASSURANCE COST ESTIMATIONS

The federal Resource Conservation and Recovery Act of 1976<sup>16</sup> and Section 68-202-402, *Tennessee Code Annotated*, require owners and operators of certain businesses, including solid and hazardous waste storage facilities, oil and gas wells, and processors of radioactive materials, to maintain and provide sufficient funds (financial assurance or financial responsibility) to adequately pay for closure,<sup>17</sup> post-closure (maintenance and monitoring), third-party liability, and corrective action (clean-ups) at hazardous waste facilities. The Department of Environment and Conservation is required by law to obtain financial instruments<sup>18</sup> to fulfill the financial assurance requirements before permitting for each environmental program area: Hazardous Waste, Mineral Test Hole, Oil and Gas, Radiological Health, Remediation, Sewerage Systems, Solid Waste, Surface Mining (excluding coal), Underground Injection Control, and Underground Storage Tanks.

### Division of Financial Assurance and Business Process Improvement

The department's Division of Financial Assurance and Business Process Improvement ensures that the financial instruments submitted by owners and operators are adequate and meet the requirements of each program area. Division staff work with the department's environmental programs and the Office of General Counsel to confirm that the financial assurance amounts are sufficient to cover the closures, other maintenance, and clean-up as required. The division is responsible for monitoring and updating changes to the financial assurance amounts and monitoring the solvency of the financial instruments (to ensure, among other things, that the instrument has not expired) for the facilities.

### Program Area Technical Staff

The technical staff within each division's program area are responsible for estimating the financial assurance amounts required for its program area based on their knowledge and expertise. The divisions follow federal environmental law, as well as department rules and regulations and its policies and procedures, for determining how much financial assurance each facility needs.

We focused our review on the program areas for Solid Waste, Hazardous Waste, Radiological Health, and Underground Storage Tanks, and we examined each program's compliance with policies and procedures on financial assurance, including the division's responsibility to cover the costs of closures when a company does not have substantial financial assurance to cover its closure costs.

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<sup>16</sup> The act requires that states granted authority by the Environmental Protection Agency to oversee environmental programs establish standards for financial assurance.

<sup>17</sup> A closure refers to the inactive or closed portion of certain types of solid waste, hazardous waste, and underground storage tank facilities. A post-closure is the time period following the shutdown of a facility for monitoring purposes, often considered to be 30 years.

<sup>18</sup> The financial tools or instruments that the department accepts are cash bonds, performance bonds, irrevocable standby letters of credit, insurance policies, trust funds, certificates of deposit, or financial tests/corporate guarantees.

## Audit Results

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**Audit Objective:** Did management of the four program areas—Solid Waste, Hazardous Waste, Radiological Health, and Underground Storage Tanks—have policies and procedures for determining the initial financial assurance amounts and for reviewing and updating cost estimations?

**Conclusion:** While all four program areas had policies and procedures for determining the initial financial assurance cost estimation, the Solid Waste Program’s policies and procedures did not include reviewing and updating initial cost estimations. Additionally, the Radiological Health Program did not have a formal financial assurance policy and has not updated the financial assurance cost estimation method since the program’s inception (see **Observation 2**).

### Methodology to Achieve Objective

To meet the objective, we interviewed directors of the Solid Waste, Hazardous Waste, Radiological Health, and Underground Storage Tanks divisions and the director of the Financial Assurance and Business Process Division to determine how each division estimates financial assurance amounts, how often they update and review the cost estimations, and whether they encountered situations with insufficient financial assurance amounts. We reviewed the financial assurance rules, regulations, and cost estimation methods for the four program areas to determine whether management had adhered to the rules and regulations.

**Observation 2 – The Solid Waste Program’s policies and procedures did not include reviewing and updating initial cost estimations; the Radiological Health Program did not have a formal financial assurance policy and has not updated the financial assurance cost estimation method since the program’s inception**

### Solid Waste Program

Our initial review revealed that the Solid Waste Program within the Division of Solid Waste Management assumed control<sup>19</sup> of the post-closure activities for three landfills<sup>20</sup> (one Class I Sanitary landfill in Hamblen County and two Class II landfills in Lewis County and Benton County). For the Class I landfill in Hamblen County, the current closure’s associated expenditures of \$1.6 million exceeded the \$1.3 million financial assurance by \$206,000 in fiscal year 2018.

Additionally, the most recent of the three cases involved the Environmental Waste Solutions (EWS) Class II landfill (in Benton County), which filed for Chapter 7 bankruptcy in

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<sup>19</sup> The permitted entity failed to meet closure and/or post-closure requirements and the department foreclosed on the closure/post-closure financial instruments.

<sup>20</sup> Landfills are divided into four different classes based on the types of waste they can process and store. Management considers Class I landfills to be the highest in potential risk of hazardous contamination.

April 2017. According to the Division of Financial Assurance and Solid Waste staff, the Solid Waste Management Division, as of June 2018, used \$1.7 million in financial assurance funds from the Solid Waste Management Fund<sup>21</sup> to cover the EWS long-term expenses after the bankruptcy. The Office of General Counsel is currently in litigation to recoup monies from the liable parties.

We found that the program's policies and procedures did not include reviewing and updating, as necessary, initial cost estimates for current sufficiency. At the time of our audit fieldwork, the Solid Waste Program management was drafting a *Financial Assurance Manual* (in addition to its rules and regulations) to ensure that management's processes for the cost estimations related to closure and post-closure operations are valid.

### Radiological Health Program

For the Radiological Health Program, we determined that management of the Division of Radiological Health does not have a formal financial assurance policy and has not updated the financial assurance cost estimation method since the program's inception in the mid-1980s (over 30 years ago). We also found that the method did not include the following requirements as stated in the division's Licensing and Registration Rule 0400-20-10-.12, which defines considerations the division must include when determining adequate financial assurance for licensure applicants:

- the probable extent of contamination of radioactive material at the facility;
- the amount of possible off-site property damage caused by the facility's operation;
- the cost of removing and disposing of radiation sources at the facility; and
- the costs involved in reclaiming the property on which the facility or site is located.

Division management and staff followed informal procedures that were verbal, not written. Additionally, the procedures lacked specific factors of consideration for determining the financial assurance amounts, such as possible off-site property damage caused by a facility.

The division's method for determining the financial assurance amount charged to facility owners/operators uses a set dollar amount of \$42 multiplied by the square footage of the area used for radiological health operations. For example, if a facility uses 1,000 square feet for radiological health operations, the total amount of financial assurance the facility is required to provide collateral for is \$42,000 (42 x 1,000). The division could not explain the basis of this methodology. In its 2017 Financial Integrity Act Risk Assessment, the division identified as a risk insufficient financial assurance for a licensee that has become bankrupt. Division management stated that the cost estimation method was never updated because the division has not encountered facilities with inadequate financial assurance amounts. As best practice, each division should review its cost estimation methodology periodically and update the policies to prevent the possibility of inadequate financial assurance amounts that would put the state at risk.

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<sup>21</sup> The Solid Waste Management Fund is supported by a fee that landfill operators charge per ton of solid waste to anyone disposing of solid waste.

# X-ray Tube Registration and Inspection



## REGISTRATIONS AND INSPECTIONS OF X-RAY TUBES

The Department of Environment and Conservation, Bureau of Environment, Division of Radiological Health is responsible for protecting Tennesseans and the environment from the hazards associated with radiation. According to Section 68-202-201 et seq., *Tennessee Code Annotated*, the division's duties include regulating the use and possession of radioactive materials and radiation-producing machines and responding to accidents involving radiation. The division issues licenses and inspects possessors and transporters of radioactive materials. It also registers and inspects medical, academic, and industrial facilities that own X-ray equipment.

The Nuclear Regulatory Commission (NRC) is the federal oversight agency for the division. Tennessee operates as an agreement state, meaning that NRC has agreed that the state can assume responsibility for the regulatory function for radioactive materials. As part of that agreement, NRC periodically reviews the division's performance. NRC's most recent review in May 2016 found that Tennessee was "satisfactory" on seven performance indicators. The division anticipates the next NRC review will be in fall 2018.<sup>22</sup>

The division is organized into three sections.

- The Licensing/Registration/Planning Section is responsible for issuing licenses and registrations to owners or transporters of radioactive materials, including medical, academic, and industrial facilities that own X-ray equipment. Section 68-202-208(a), *Tennessee Code Annotated*, and department rules require owners of X-ray tubes to register them with the division within 10 days after acquisition and to pay a registration fee (see **Appendix 3**). About 90% of X-ray tubes are registered to and used by health professionals.<sup>23</sup> The section is located at the central office in Nashville.
- The Inspection and Enforcement Section inspects all licensed and registered facilities, including those facilities that own X-ray tubes, to determine the facilities' compliance with state and federal regulations. Section 68-202-503, *Tennessee Code Annotated*, requires that X-ray tubes have an inspection every one to four years according to their registration classification (see **Appendix 3**). This section has offices in four of the eight environmental field offices: Chattanooga, Knoxville, Nashville, and Memphis.
- The Technical Services Section performs environmental monitoring, provides instrument calibration services for the division, conducts emergency response training, and oversees low-level radioactive waste activities. It is located at the central office in Nashville.

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<sup>22</sup> The May 2016 Integrated Materials Performance Evaluation Program review by the NRC found the division's programs satisfactory. The review included the division's staffing and training; technical quality of licensing and inspections for all nuclear materials programs; and responses to incidents such as lost or stolen materials or damaged equipment.

<sup>23</sup> Division management said 10% of registered X-ray tubes are used in manufacturing or industrial facilities, particularly in quality control processes.

## Review of the Registration Process for X-ray Tubes

As described above, staff in the central office's Licensing/Registration/Planning Section are responsible for reviewing and recording registration information. The tubes are owned and used in the practices of health-related board licensees such as dentists, medical facilities, veterinarians, radiologists, and chiropractors.

The division provides a form on its webpage for X-ray facility and tube owners to complete and submit. The form requires the facility name and address, the name of the person in charge of the X-ray equipment,<sup>24</sup> the facility's medical specialty,<sup>25</sup> and a description of the equipment.

When the owner submits a registration form to the division, staff in the Licensing/Registration/Planning Section review it to verify that all information is complete. (If not complete, the reviewer requests any missing information from the registrant.) The reviewer assigns a facility and tube registration number<sup>26</sup> and the registration date to each completed form. Next, staff prepare three paper forms that the division uses to track facilities and tubes:

- a route slip – a form kept in the facility's permanent paper file that has the facility name, registration number, address, and type and number of tubes;
- a registration change form – routed to the department's Fee Billing Section for invoicing of the registration fees; and
- an X-ray registration form – for routing to one of the division's four environmental field offices responsible for X-ray tube inspections. (Staff use the form as notification to the respective field office of new tube registrations, and the office adds to or makes a paper file for the facility that will contain inspection information.)

Staff issue a registration permit and mail it to the applicant, along with a letter about radiation exposure hazards, notices for posting at the facility, and a caution label to place on the X-ray equipment (see **Figure 5**).

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<sup>24</sup> This is a Radiation Safety Officer, who is responsible for the safe use of the equipment.

<sup>25</sup> Dentist, veterinarian, doctor, etc.

<sup>26</sup> Each facility has a unique registration number assigned to it that is a combination of a number for the county the facility is in and a sequential number that is from a paper logbook. For example, a registration number of 514-3000 would indicate the facility is in Davidson county and is the 3,000th facility registered. The first X-ray tube at the facility would be control #1, the second control #2, etc.

**Figure 5**



Source: Division of Radiological Health.

DRH Track and Paper File

The facility and tube information are added to the DRH Track computer application using the information on the registration form. Staff add the registration form for the facility and the route slip from the registration package to the division's paper files (see **Exhibit 2**). The division has 20 five-drawer filing cabinets where X-ray facility and tube paper files are stored (see **Figure 6**). The files are organized by sections of the state and alphabetized by facility name.

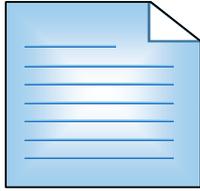
**Figure 6**  
**Paper Files for X-ray Facility Registrations**



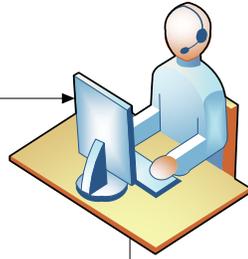
Source: Auditor photo.

**Exhibit 2**  
**Division of Radiological Health**  
**X-ray Tube Registration Process**  
**DRH Licensing/Registration/Planning Section**

**Application for X-ray Tube Registration**

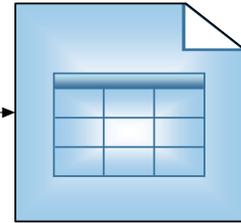


X-ray tube owner completes registration application and submits it to the division.



Staff review application and determine if it is complete.

**X-ray Tube Owner Information**



Division mails registration, notices, label to owner.

**TDEC Billing Section**



Division staff send route slip to department's billing section. Billing section prepares invoice to owner for fees.

**Environmental Field Office**



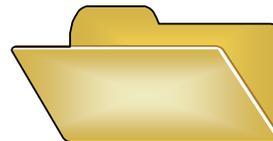
Division staff send route slip to environmental field office for notification of new tube registration and to schedule inspection.

**DRH Track**



Division staff enter X-ray tube registration information in DRH Track.

**Paper File**



Division staff complete a paper file with X-ray tube registration information.

Source: Auditor observation and walkthrough.

## Installers of X-ray Equipment

The division also registers installers of X-ray tubes. According to the department's rules, Chapter 0400-20-10-.25, "Reports," requires installers to report, within 30 days after the end of each calendar quarter, the name and address of the owner and the location of each installed X-ray tube. Based on our discussion and observations, staff of the Licensing/Registration/Planning Section review the installer reports as they are received in the division and compare X-ray tube information on the installer forms to registration information in the division's paper files. In the division's 2017 Financial Integrity Act risk assessment, this review and comparison was the mitigating control for the high risk associated with X-ray equipment that was installed and in operation but was not registered with the department.

### *Process to Find Unregistered Owners/Equipment*

Division management described three controls in place to assist staff in identifying X-ray tubes in use but not registered:

- Licensing/Registration/Planning Section staff review the quarterly reports submitted by X-ray tube installers and compare those to registered tubes. However, division management stated that while the process is useful, it does have limitations. For example, if a health facility acquires X-ray devices from another practice or a health facility is acquired by a new owner, the division does not currently have a way to track the changes in ownership.
- Staff actively search for new facilities with the potential to use X-ray equipment; for example, if division staff notice a new dental practice or veterinarian office in their locale, they check to see if that facility has registered equipment.
- Staff also work with the inspectors, who may find devices that are in use but are not registered (see **Appendix 3** for inspection cycles). State inspectors assist owners with registering any device that has not been registered, and inspectors note in the inspection file a violation with corrective action taken.

## DRH Track Computer Application

The division uses DRH Track, an Oracle-based computer application, to track registrations and inspections of X-ray facilities and tubes. According to division management and the department's information systems staff, the application was designed in-house more than 20 years ago as a tracking system for X-ray tubes and inspections and was heavily modified for use in billing and invoicing.

The division uses paper copies of the registration and all associated information and maintains them in the central office. Four environmental field offices maintain paper files of X-ray facilities with X-ray tube inspections. The division also stores completed and reviewed inspections on a shared state network drive that is accessible by division staff.

## New Information System

In collaboration with the division, the Department of Finance and Administration's Strategic Technology Solutions is developing a new online computer application system for the division that will replace DRH Track. According to the division, the new system will allow staff to store registration and inspection paperwork electronically and will also provide enhanced search and reporting functions. The new system will have online registration for X-ray tubes and an inspection tracking and form storage function. As of August 2018, the online registration portion is in the testing phase, and according to management, it should be operational by the end of 2018. The remaining functions should be completed by June 2019.

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### **Audit Results**

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**1. Audit Objective:** Did the division have an effective automated tracking system for owner registrations and for required inspections?

**Conclusion:** The division's computer application, DRH Track, has limited functionality—generating reports is cumbersome, system storage is inadequate, the system does not have a unique identifier to tie inspections to registered tubes, and there are data reliability concerns (see **Finding 6**).

**2. Audit Objective:** Did owners of X-ray tubes submit timely registrations to the division between October 1, 2017, and October 31, 2017?

**Conclusion:** Based on the division's paper files, we determined that for 34 of 41 X-ray tube registrations, the owners did not submit the registrations to the division within 10 days of possession, as required by statute (see **Observation 3**).

## Methodology to Achieve Objectives

We met with division management to gain an understanding of the DRH Track computer application and how the division uses it to track X-ray tube registration and schedule inspections. We met with division management and the department's Information Systems Division to determine how to obtain data from DRH Track with the dates X-ray tubes were registered and inspected.

To gain an understanding of the X-ray tube registration process, we interviewed the division's Licensing/Registration/Planning section's management. We conducted a walk-through of the registration process with division staff. We obtained registration clerks' Excel spreadsheets with X-ray tube registrations that they completed for the month of October 2017 and compared them to the division's paper files.

**Finding 6 – The Division of Radiological Health does not have an effective automated tracking system for recording X-ray tube registration by owners and inspections by the division**

Our original audit objective was to determine whether X-ray tube owners are timely registering X-ray tubes and whether the Division of Radiological Health is inspecting X-ray tubes as required by statute. Between April and June 2018, our audit team and our office’s Information Systems auditors met with division management and the department’s Information Systems Division to discuss obtaining and using data from the Oracle-based tables that store X-ray tube registration and inspection data. As a result of these meetings, as well as phone conversations and emails during the same period, we concluded that the information needed to complete our audit objectives was not readily available from the DRH Track system or from other electronic repositories.

**Limited Functionality of DRH Track**

Division management stated that the system has limited functionality, and, when generating large reports from DRH Track, staff must use parameters that will keep the data sets small. The following include examples of the system limitations:

- *Report generation is cumbersome.* Staff generate reports using only one class (see **Appendix 3**) of X-ray tubes and wide date ranges to obtain information for a larger population. By having to perform work-around procedures to generate reports, staff are faced with inefficient use of time and resources. For example, when we requested a list of all registered X-ray tubes, the division used a date parameter from 1950 to 2030 to capture all active X-ray tubes. In addition, one class of tubes was so large that the division had to run reports by each of the 4 regions. In all, the division ran a total of 10 reports from DRH Track and combined the information into an Excel spreadsheet to provide us the number of registered X-ray tubes by class. Because of the difficulty of generating reports from DRH Track, we asked management how it determined whether it was timely inspecting X-ray facilities and tubes. Management stated that they “build” an inspection work plan each year as part of their Customer Focused Government strategy. This plan is based on the historic number of annual inspections and the number of full-time inspectors employed by the division. Central and regional office staff log and track inspections using Excel spreadsheets. These spreadsheets are examples of the multiple data repositories the division uses outside of DRH Track.
- *System storage is inadequate.* We were told that DRH Track does not have the capability to store any electronic documents related to the X-ray facility and tube registration or inspections. As a result, the division must continue to rely on paper files.
- *System identifiers are lacking.* We also determined that DRH Track does not assign a unique identifier to registered X-ray tubes that matches a tube to the appropriate inspection date.
- *There are data reliability concerns.* Management could not provide assurance that the information in the application was accurate and, thus, would not sign the Division of State Audit’s Data Acquisition Form certifying that the data is accurate. As such, we

did not obtain the data from DRH Track to determine whether X-ray tube owners registered tubes within the 10 days required and whether the division inspected X-ray tubes as required by statute. Management stated that the paper files kept by the division are reliable and their “file of record.”

### Numerous Applications Are Needed to Support Primary System

One of the risks identified in the division’s 2017 Financial Integrity Act Risk Assessment was the division’s failure to maintain an adequate, technically supportable information management system. To compensate for the limitations of DRH Track, the division developed other monitoring methods. The division uses 31 data repositories to manage its programs in addition to DRH Track. These tools are in various forms such as Excel spreadsheets, Access databases, Word documents, or paper logbooks. The division uses 14 of these data repositories to store information to support the X-ray registration and inspection processes. Using numerous data repositories makes it difficult for management to ensure its data is complete and to provide evidence that management has met requirements of state statute and other data management best practices (see Data Management section for **Finding 1**).

The importance of ensuring that X-ray machines are operating properly through timely inspections is supported by research indicating that medical X-rays are the single largest source of man-made radiation exposure. Because the division is the state’s authority on radiation, the public relies on the division to ensure that X-ray facilities are operating safely.

### Recommendation

The division should work with the Department of Finance and Administration’s Strategic Technology Solutions (STS) to ensure the new system is designed to achieve all requirements for registration management and critical inspections of X-ray facilities and tubes. The division should ensure that the new system reduces the need for multiple data applications, such as Excel spreadsheets and paper logbooks, to track registrations and inspections. STS and the division should determine how future technological support and guidance will improve the division’s ability to track and schedule inspections and improve its data management practices.

### Management’s Comment

We concur with the finding. The Division of Radiological Health currently uses an Oracle database called DRH Track which allows the division to track inspections performed, inspections due, tubes registered, and what fees are owed by registrants. However, we recognize that a more robust, updated system will increase the efficiency of the division. The division is now working with Strategic Technology Solutions to transition to such a system.

### Observation 3 – Registrations submitted in October 2017 were not timely

As noted in the background, the Division of Radiological Health’s Licensing/Registration/Planning Section staff are responsible for reviewing and recording X-ray

tube registration information submitted by owners. They record the information in an Excel spreadsheet and in the DRH Track system.

In an attempt to determine whether owners were registering with the division within 10 days of acquiring X-ray equipment, we obtained the Excel spreadsheets maintained by the registration clerks for October 2017 and compared the tube registration information to the division's paper files.

Based on our testwork, we found that the paper file records contained 41 owners of X-ray tubes that had registered the tubes in October 2017. We determined that 34 of these 41 owners had not registered within 10 days of possession of the X-ray equipment, as required by statute. The number of days that owners registered the tubes late ranged from 2 to 2,792 days (see **Chart 1**).

Section 68-202-208(a), *Tennessee Code Annotated*, and Department of Environment and Conservation Rule 0400-20-10-.24(1) require owners of X-ray tubes to register the tubes with the division within 10 days after acquisition.

Division management identified unregistered X-ray equipment as a high risk in its 2017 Financial Integrity Act risk assessment. Owners are billed for the period they have had the X-ray tube in operation, but fines are not added to the fee owed. Timely registration of X-ray equipment is important for public health. When owners register timely, the division's inspectors can schedule the inspections as required by law.

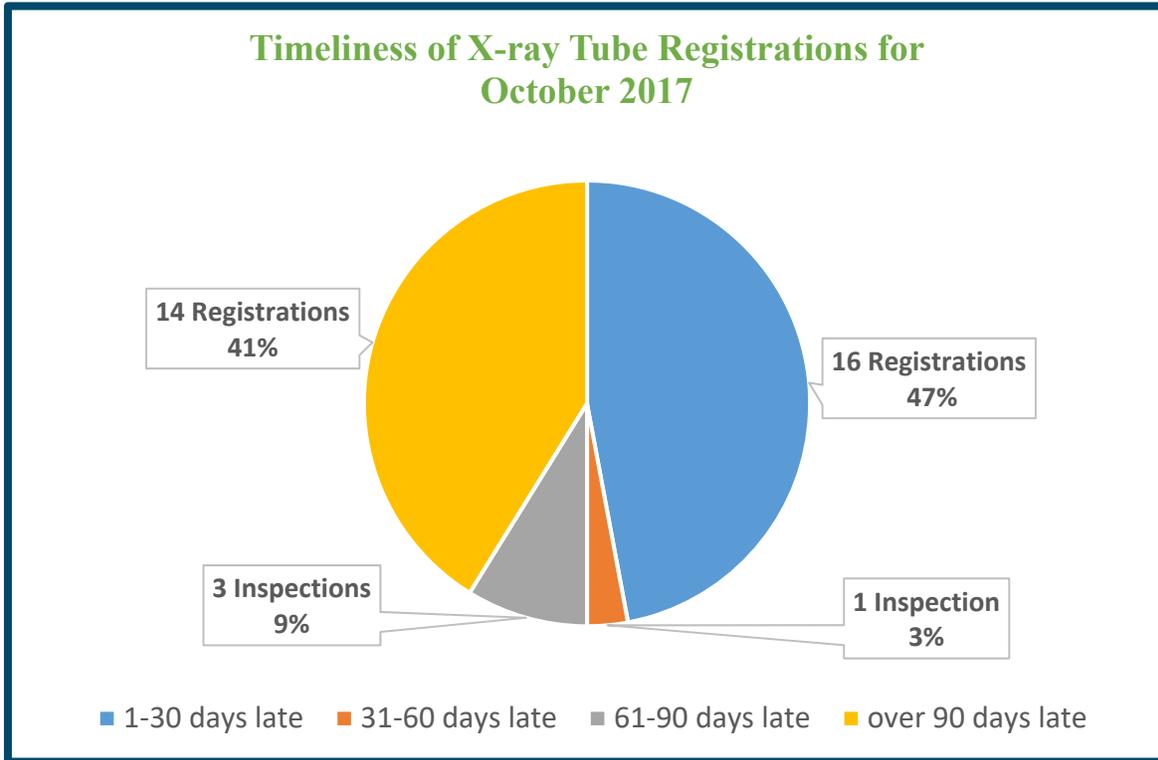
The Conference of Radiation Control Program Directors, Inc.<sup>27</sup> (of which the division is a member) recommends that, as a best practice, states register X-ray equipment prior to operation and review the information submitted by the owner prior to registration.

Also, according to an April 2012 U.S. Environmental Protection Agency report, research indicates that medical X-rays are the single largest source of man-made radiation exposure. When owners fail to register, the division cannot timely inspect X-ray tubes; cannot ensure that owners follow all regulations and guidelines; cannot determine that the X-ray equipment meets standards for minimizing radiation exposure; and cannot ensure that the X-ray equipment can produce quality medical records for diagnostic purposes.

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<sup>27</sup> The Conference of Radiation Control Program Directors, Inc. is a nonprofit, non-governmental professional organization of radiation professionals in state and local government. Its mission is "to promote consistency in addressing and resolving radiation protection issues, to encourage high standards of quality in radiation protection programs, and to provide leadership in radiation safety and education."

**Chart 1**  
**Results of Testwork**



The division should develop additional methods and take a more proactive role to ensure owners of X-ray equipment are aware of registration requirements. Division management should work with health licensing boards to emphasize to licensed health professionals the importance of timely registering the X-ray equipment used in their practices. The division could assist the boards with information to be included in periodic newsletters to the licensed practitioners or in web postings or other electronic communications. In addition to its practice of having staff look for new facilities in their locales, the division should obtain information on newly licensed facilities and practitioners from the boards for contacting and informing licensees. The division should seek a rule change that would allow fines for late registrations. The division should consult with the Conference of Radiation Control Program Directors to obtain information on educating owners of X-ray tubes, including actions taken in other states that help with timely registrations.

### **REGISTERED INSPECTOR PROGRAM FOR PRIVATE INSPECTORS**

Inspections of X-ray facilities are performed by state inspectors (Division of Radiological Health employees) or by private inspectors, whichever the owner of the facility chooses. According to division management, the private inspector program, started in 1982, helps to ensure facilities are inspected timely. The division estimates that private inspectors conduct about 50% of all X-ray facility inspections each year. In Tennessee, facilities that use private inspectors receive an 82% discount on their annual X-ray tube registration fees paid to the state.

The Conference of Radiation Control Program Directors, Inc. recommends that states that choose to use a private inspector program should establish what credentials are necessary to become a private inspector and should develop a program to review private inspectors' work. The division has established private inspector qualifications and has implemented a quality assurance program to provide oversight of their work. The division refers to these private inspectors as registered inspectors (RIs).

### Qualifications of Registered Inspectors

Section 68-202-503(c), *Tennessee Code Annotated*, allows inspections of X-ray facilities by "individuals who have met standards of knowledge and training." Through its rulemaking process, the division established six categories that combine education and experience. Each RI must meet the qualifications in one of those six categories (see **Appendix 4**).

To achieve certification, an RI applicant must complete the "Application for Registration to Perform Radiation Machine Inspections" and submit it with proof of education and experience. The Licensing/Registration/Planning Section staff review and verify the applicant's information to determine if the applicant meets qualifications for registration. If they do, the RI's name is entered in the DRH Track computer application, a registration number is assigned to the RI, and the RI pays an annual registration fee of \$850 to the department. The division posts on its website the RI's name, contact information, and the types of X-ray tubes the RI is certified to inspect (see **Appendix 3** for X-ray tube types).

The Licensing/Registration/Planning Section staff also maintain paper files for each RI that include the application for registration; proof of education and experience; and any correspondence between the division and the RI. Because of inherent limitations, DRH Track does not store any documents related to the RI's registration.

When performing inspections, the division requires registered RIs to use division-approved inspection forms to document the results of the inspections. Facilities contact the RIs to schedule inspections, the facilities pay the RIs directly for inspections, and the RIs keep that payment.<sup>28</sup> RIs provide their inspection reports to the facility owners, who submit the reports to the division within 60 days.

### Quality Assurance Program

The division has developed a quality assurance program for reviewing RIs' work. All RI inspections are subject to a desk review by the Licensing/Registration/Planning Section staff. When staff are satisfied that an inspection meets standards, they enter the inspection results into DRH Track with notation that the inspection is an RI inspection.

A second part of the quality assurance process includes follow-up inspections by state inspectors. Section 68-202-503, *Tennessee Code Annotated*, states that RI inspections are subject to random survey inspections by state inspectors to ensure the division's requirements are properly

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<sup>28</sup> RIs can schedule an inspection at the facility's convenience. Inspections by state inspectors are not scheduled.

enforced. The Inspection and Enforcement Section performs these follow-up inspections. The division's policy is to follow up on 10% of the prior calendar year's total inspections by RIs during the following fiscal year.

As noted above, the Licensing/Registration/Planning Section maintains an Excel spreadsheet to track all inspection reports, including the RI inspections. However, given system and application limitations, staff are unable to generate ad hoc reports of total RI inspections from DRH Track. Using inspection information recorded in the Excel spreadsheet, the division projects the total number of follow-up inspections to be performed and submits that to the Inspection and Enforcement Section. According to division management, the division met the 10% goal for follow-up inspection for calendar years 2015 through 2017. However, because the spreadsheet is one of the numerous independent data repositories the division uses outside of DRH Track, the data cannot be relied upon. The impact of management's use of multiple repositories is addressed in the Data Management section on page 9 of the report (see **Finding 1**).

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### Audit Results

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**1. Audit Objective:** Did the Division of Radiological Health establish standards of knowledge and training, as required by statute, for the registered inspector (RI) program?

**Conclusion:** Yes, the division promulgated rules with education and experience requirements for RIs.

**2. Audit Objective:** Did the division maintain documentation that supports that RIs have met education and experience requirements per the division's rules?

**Conclusion:** No. Seven of 31 RI files (23%) did not contain documentation to support that the inspector met the education and experience requirements in department Rule 0400-20-10-.27(4) (see **Finding 7**).

**3. Audit Objective:** Did the division establish a quality assurance program to review RIs' work?

**Conclusion:** Yes, the division has established a quality assurance program for the inspections performed by RIs.

**4. Audit Objective:** Did the division meet its policy to follow up on 10% of RI inspections?

**Conclusion:** Although division management stated that it completed the required number of follow-up inspections, because of our concerns identified with management's data repositories, we were unable to verify this statement (see Data Management section for **Finding 1**).

## Methodology to Achieve Objectives

We reviewed the state statutes and department rules for the RI program. We interviewed division staff and management responsible for the RI files and program. We obtained the division's list of RIs from its website; however, due to data management issues, we were unable to determine if the list was a complete population. Therefore, we reviewed the 31 active RI paper files that were available in the division's Licensing/Planning/Registration Section.

### **Finding 7 – The Division of Radiological Health did not always maintain documentation in registered inspector files to support that the inspectors met the division's education and experience requirements**

We reviewed the Division of Radiological Health's paper files of registered X-ray inspectors. For 7 of the 31 files reviewed, we found that the files did not contain documentation to support that the registered inspector (RI) met the education and experience requirements set forth in the Department of Environment and Conservation's rules. According to division management, these 7 RIs met the criteria in the rules (see **Appendix 4**) and were registered since the program began and rules were adopted; however, documentation is missing, and the division does not maintain an electronic copy of these files.

Section 68-202-503(c), *Tennessee Code Annotated*, allows inspections by "individuals who have met standards of knowledge and training." The division has established qualification standards for RIs based on their education and experience in department rules (see **Appendix 4**). The division is responsible for determining whether RIs meet the qualifications and for maintaining documentation to support its determination.

The division posts the names, contact information, and types of X-ray tubes the RIs are certified to inspect on its website, making the information available to the public. Because the public views the division as a resource and authority on matters related to radiological health, information made available to the public should be accurate and complete.

### **Recommendation**

The Division of Radiological Health should ensure that all RIs meet the standards of knowledge and training required by the department's rules. The division should maintain and properly safeguard documentation that these individuals meet qualifications to provide accurate and complete information to the public and those using the services of the RIs.

### **Management's Comment**

We concur with the finding. As noted, the seven files did not contain documentation for the registered inspectors that were known by the division to have met the criteria since the time the applicable rules were promulgated. The division obtained the documentation of the seven registered inspectors again and now has the documentation on file. The division has also placed the information in the division's database for efficient access and has instituted a process to review

education and experience documentation annually. Although maintaining this credentialing information is not expressly required by statute, we concur with the recommendation that it should be maintained.

# Prior Audit Findings



## SUBRECIPIENT MONITORING

### Background

The Department of Environment and Conservation administers state and federal grant and loan programs to meet the department's mission of protecting and improving the quality of Tennessee's air, land, and water; conserving and promoting natural, cultural, and historic resources; and providing a variety of quality outdoor recreational experiences.

All state agencies awarding state or federal funds or non-cash assistance to subrecipients must follow the state's Central Procurement Office (CPO) Policy 2013-007, "Grant Management and Subrecipient Monitoring Policy and Procedures." Under the policy, agencies must annually submit monitoring plans for CPO approval by October 1. If a state agency subsequently makes changes to a CPO-approved subrecipient monitoring plan, the agency must also submit the revised plan to CPO for approval. The state agency must monitor all subrecipient grant contracts at least once every three years. At the conclusion of each subrecipient monitoring review, the agency must issue a report to the subrecipient within 30 business days from the fieldwork end date.

### *Department Responsibilities*

The department's Division of Internal Audit creates the subrecipient monitoring plan to monitor the subrecipients of state and federal grant programs on the federal fiscal period, October 1 through September 30. Three staff members and one supervisor are responsible for performing the monitoring reviews of subrecipient grant contracts. Subrecipients of grants or loans include local governments; housing authorities; utility districts; development districts; nonprofit entities; owners and caretakers of historic properties; state parks; and colleges and universities. The majority of the department's subrecipient grant contracts have terms of at least three years, while other grant contracts may be either two- or one-year terms.

The department-administered federal and state programs that are subject to monitoring reviews include

- the Clean Tennessee Energy program, which funds clean alternative energy, energy conservation, and air quality improvement projects;
- recreational education projects, which help fund recreational trails and establish parks and recreational areas; and
- the Solid Waste Division's programs for used oil, household hazardous waste collection, and recycling convenience centers.

The Division of Internal Audit is also responsible for monitoring the Clean Water State Revolving Fund, the Drinking Water State Revolving Fund, and the subrecipient grant contracts administered by the Tennessee Historical Commission.<sup>29</sup>

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<sup>29</sup> The Division of Internal Audit monitors Historical Commission grants because the commission is administratively attached to the department.

The department's Division of Grants and Contracts Administration manages grant applications and requests for reimbursement for the department. Grants and loans initiated during fiscal years 2016, 2017, and 2018 totaled \$432,160,357 for 21 grant programs and 2 loan programs (see **Appendix 6** for program names and **Tables 4** and **5** for a breakdown of these amounts).

**Table 4**  
**Grant Award Amounts by Fiscal Year**

<b>Fiscal Year</b>	<b>State</b>	<b>Federal</b>	<b>Settlement<sup>30</sup></b>	<b>Total</b>
2016	\$18,256,594	\$4,316,808	\$2,901,924	\$25,475,327
2017	\$5,969,044	\$2,486,374	\$878,902	\$9,334,320
2018	\$13,972,794	\$765,731	\$2,208,727	\$16,947,251
<b>Total</b>	<b>\$38,198,432</b>	<b>\$7,568,913</b>	<b>\$5,989,554</b>	<b>\$51,756,898</b>

Source: Department of Environment and Conservation, Division of Grants and Contracts Administration.

**Table 5**  
**Loan Award Amounts by Fiscal Year**

<b>Drinking Water Loans</b>			
2016	\$18,000,333	\$10,574,102	\$28,574,435
2017	\$4,649,785	\$10,462,075	\$15,111,860
2018	\$2,632,000	\$4,881,725	\$7,513,725
<b>Subtotal</b>	<b>\$25,282,118</b>	<b>\$25,917,902</b>	<b>\$51,200,020</b>
<b>Total Loans</b>	<b>\$317,539,359</b>	<b>\$62,864,100</b>	<b>\$380,403,459</b>
<b>Clean Water Loans</b>			
<b>Fiscal Year</b>	<b>State</b>	<b>Federal</b>	<b>Total</b>
2016	\$76,470,759	\$15,931,241	\$92,402,000
2017	\$42,397,907	\$8,329,576	\$50,727,483
2018	\$173,388,575	\$12,685,381	\$186,073,956
<b>Subtotal</b>	<b>\$292,257,241</b>	<b>\$36,946,198</b>	<b>\$329,203,439</b>

Source: Department of Environment and Conservation, Division of Water Resources.

Both 2010 and 2012 sunset performance audits of the department reported a finding that the department was not monitoring the minimum number and dollar amount of subrecipient grant contracts required by the Department of Finance and Administration's Policy 22, "Subrecipient Contract Monitoring," which preceded CPO's Policy 2013-007, "Grant Management and Subrecipient Monitoring Policy and Procedures." In addition, the 2012 audit found inaccuracies in the department's monitoring plan submitted to the Department of Finance and Administration. Management concurred with the 2012 finding and estimated that the Division of Internal Audit would need from one to six additional full-time staff to complete the required monitoring.

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<sup>30</sup> The Tennessee Valley Authority was required to provide \$26.4 million to Tennessee to fund environmental mitigation projects as a result of a 2011 federal court settlement.

## Audit Results

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**1. Audit Objective:** Did the department's Division of Internal Audit correct the finding from the prior audit concerning completing all subrecipient monitoring in accordance with its annual monitoring plans, and did it ensure that subrecipient contract populations were accurate?

**Conclusion:** No, the division did not complete all subrecipient monitoring reviews in accordance with the approved subrecipient monitoring plans for 2016, 2017, and 2018. We also found inaccuracies in the subrecipient grant contract populations (see **Finding 8**).

**2. Audit Objective:** Did the division submit revised monitoring plans to the Central Procurement Office (CPO)?

**Conclusion:** The division did not submit revised monitoring plans to CPO to inform and document when the department was unable to complete the originally approved monitoring plans (see **Finding 8**).

**3. Audit Objective:** Did the division issue monitoring reports to subrecipients within the required timeframe?

**Conclusion:** We found that management did not always issue monitoring reports within the required timeframe (see **Finding 8**).

### Methodology to Achieve Objectives

We interviewed the department's Internal Audit Director and internal audit staff. We reviewed the Division of Internal Audit's monitoring plans for federal fiscal years 2016, 2017, and 2018, as well as monitoring guides and monitoring reports. We reviewed CPO Policy 2013-007 and interviewed CPO staff. From the total contract monitoring population of 549 contracts from federal fiscal year 2016, we compared the population to monitoring plan selections for federal fiscal years 2016, 2017, and 2018 for those contracts still active in federal fiscal year 2018. We reviewed the total population of 163 monitoring reports issued by the division during federal fiscal years 2016 and 2017, and through August 29, 2018, and compared fieldwork dates to report issue dates to determine if monitoring reports were issued timely.

**Finding 8 – As noted in the prior two audits, the Division of Internal Audit did not complete all required subrecipient monitoring reviews and did not submit accurate subrecipient populations in its monitoring plans; as noted in the current audit, the division did not issue reports timely, which increases the risk that subrecipients will fail to properly administer the grants as the department intended**

Results of Current Audit Work

*Not All Subrecipient Monitoring Was Performed*

In the current audit, we compared all completed subrecipient monitoring reviews (reports) to the monitoring plans submitted to the Central Procurement Office (CPO) for each year and found that the Division of Internal Audit did not complete all monitoring reviews based on the approved plans. We found the following based on our testwork of the three monitoring years reviewed (see **Table 6**):

**Table 6  
Subrecipient Grant Contract Monitoring Review Results  
For Federal Fiscal Years 2016, 2017, and 2018**

<b>Federal Fiscal Year (10/1–9/30)</b>	<b>Total Contract Population-Monitoring Plan</b>	<b>Total Contracts Requiring Monitoring</b>	<b>Total Contracts Monitored</b>	<b>Total Contracts Not Monitored</b>	<b>% Not Completed</b>
2016	549	46	33	13	28%
2017	407	119	45	74	62%
2018	895 <sup>31</sup>	480	74 <sup>32</sup>	406*	85%

\*As of August 29, 2018, because the division monitors on the federal fiscal year, the 2018 monitoring year will end on September 30, 2018.

Source: Division of Internal Audit and auditor analysis.

Additionally, when division management did not complete all subrecipient monitoring in accordance with its approved subrecipient monitoring plan, it did not revise and submit its subrecipient monitoring plan to CPO for approval. According to the CPO grants manager, when an agency does not perform all monitoring on its approved monitoring plan, the agency should update and resubmit its plan to reflect which subrecipient contracts were not monitored and the reason for not completing the monitoring reviews. However, division management told us they had discussed with the CPO grants manager what changes in a plan are expected to be reported to CPO and were assured that non-completion of the monitoring plan does not have to be reported.

Division management stated that subrecipient grant contracts that are not monitored in accordance with the plan are placed in the following year’s monitoring plan. According to management and staff, any subrecipient grant contracts of three years or longer will remain on the

<sup>31</sup> This population includes 178 expired contracts.

<sup>32</sup> During the fiscal year 2018 monitoring year, the division also monitored 13 additional Clean Water State Revolving Fund loans as a corrective action to a 2016 Single Audit finding. This increases the total number of contracts monitored for 2018 to 88.

plan until they are monitored, along with some one- or two-year term subrecipient grant contracts. As a result, some of those subrecipient grant contracts may expire before they are monitored but still be included in the monitoring population.

Furthermore, many of the Department of Environment and Conservation's one-year subrecipient grant contracts are renewed year after year with the same subrecipient. We confirmed with the CPO grants manager that the policy's intent and CPO's expectation is that the department is required to monitor subrecipients at least once every three years, no matter the length of the subrecipient grant contract term. According to division management, they have typically included low-risk, one-year grant contracts in monitoring plans less frequently and prioritized monitoring three-year contracts over the past several years, but have since included more one- and two-year contracts in the 2019 monitoring plan.

According to division management, they have struggled to complete the required number of monitoring reviews along with the other tasks assigned to them. Management also stated that the division lost two experienced employees to retirement in January and May 2017, with another staff auditor absent for the majority of 2016 due to illness. In addition to the retirees' replacements, one additional full-time employee, who reports administratively to the Division of Water Resources, was hired early in 2018 to monitor only State Revolving Fund loans. According to management, they have strategized to increase the number of grant contracts monitored per year. The Director of Internal Audit has previously requested additional staff to help complete monitoring reviews, along with other duties of the division, but that request has not been fulfilled. As required under the Financial Integrity Act, he included in the department's risk assessment that the department was at an increased risk that the division could not provide adequate audit coverage for Policy 2013-007 monitoring and other audit work.

#### *Submitted Monitoring Plan Populations Were Not Accurate*

We found problems with the total population of subrecipient grant contracts that the division submitted in its monitoring plans, particularly in the population for fiscal year 2018. We specifically found the following:

- for the 2018 monitoring plan, the total population of 895 subrecipient grant contracts incorrectly included approximately 178 contracts with expired terms;
- from a cursory review of the 2018 contract population, we noted 19 duplicate subrecipient grant contracts;
- four subrecipient grant contracts in the monitoring population for 2016 were not monitored in 2016, 2017, or 2018; and
- four contracts included in the 2016 total subrecipient grant contract population were actually vendors, not subrecipients, and should not have been included in the total population for subrecipient grant contracts.

According to division management, they included expired contracts in the yearly monitoring plan when staff were not able to monitor the grant contract while it was active. Policy 2013-007 does not provide guidance on prioritizing among older, unmonitored grant contracts

versus the current subrecipient population. According to the CPO grants manager, risk factors would play a part in determining prioritization; with risks being equal, the priority would go to a current contract over an expired grant contract.

### Monitoring Reports Were Not Issued Within the Required Timeframe

From our review of monitoring reports issued by the division, we found that 53 of 163 monitoring reports (33%) were issued late when compared to the reported fieldwork end date. The reports were issued between 1 to 179 business days late, with an average of 12 days late. According to CPO's Policy 2013-007,

Grantor State Agencies should issue reports summarizing any findings or observations identified during monitoring activities within thirty (30) business days of completing all field work.

Division staff provided the following explanations for late reports:

- Nine of the audit reports appeared to have exceeded the timeframe because the field exit date was misreported or because the report did not mention that a request for additional information had extended the timeframe.
- Four reports that were longest overdue were the work of the division's auditor, who retired before completing the reports; these were subsequently completed 21, 27, 120, and 179 days late.
- The late reports issued in 2018 required additional discussion and revisions, which resulted in reports issued after the 30-day deadline.

### Overall Effect

When the Division of Internal Audit does not complete the required monitoring of subrecipients in its approved monitoring plans, it increases the risk that grant and loan subrecipients may fail to abide by laws, policies, or grant contract terms, and this failure will go undetected. Even if the division is tracking its own progress toward completing required monitoring, when management does not submit accurate subrecipient populations and does not submit revised monitoring plans to the CPO as required, neither management nor the CPO can ensure subrecipients are performing as required by the grant contracts.

### Recommendation

The Commissioner of the Department of Environment and Conservation should evaluate the department's subrecipient monitoring activities and implement the changes necessary to ensure subrecipient grant contracts are monitored as required.

The Division of Internal Audit should work with the Division of Grants and Contracts Administration to ensure that it submits an accurate subrecipient population in its annual subrecipient monitoring plan to CPO. The division should report to the CPO all changes made to

annual subrecipient monitoring plans, including when planned monitoring is not completed in accordance with the plan. The division should strive to complete monitoring reports within 30 business days of fieldwork as required by policy.

### **Management's Comment**

We concur with the finding. We will evaluate the department's subrecipient monitoring activities to identify changes necessary to ensure subrecipient grant contracts are monitored as required and that the division strives to complete monitoring reports within 30 business days of fieldwork. We will ensure that the division works with the Division of Grants and Contracts Administration to submit accurate populations in its annual monitoring plans and that all changes are timely communicated.

### **COMPLIANCE ADVISORY PANEL**

The federal Clean Air Act requires states to implement a three-component program to help small businesses comply with the requirements of the Act. The three components include the Small Business Environmental Assistance Program, the Small Business Ombudsman, and the Compliance Advisory Panel.

The Compliance Advisory Panel is required to have no less than seven members:

- two non-business owners/representatives appointed by the Governor;
- two small business owners/representatives appointed by the State Senate (one each by majority and minority leadership);
- two small business owners/representatives appointed by the State House of Representatives (one each by majority and minority leadership); and
- one appointment by the Commissioner of the Department of Environment and Conservation.

Members have no term limits. The panel is responsible for providing advisory opinions about the technical assistance provided to small businesses by the Small Business Environmental Assistance Program and for making periodic reports to the U.S. Environmental Protection Agency about the state program's compliance with the Paperwork Reduction Act, the Regulatory Flexibility Act, and Equal Access to Justice Act.<sup>33</sup> The panel also reviews the information the program provides to small businesses to ensure the public can understand the information. (See **Appendix 1** for a list of members).

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<sup>33</sup> The federal Paperwork Reduction Act is designed to reduce the total amount of paperwork burden the federal government imposes on private businesses and citizens. The federal Regulatory Flexibility Act ensures that regulatory programs do not unduly burden small businesses. The Equal Access to Justice Act allows small businesses to be compensated by the federal government for attorney fees in successful cases against the federal government.

## Audit Results

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**Audit Objective:** Did the Compliance Advisory Panel address the prior audit finding concerning lack of meetings and unfilled vacancies?

**Conclusion:** The prior audit finding is partially resolved. The panel met 10 times during the scope of the audit;<sup>34</sup> however, the appointments by the Senate Majority and the House Minority were vacant and not filled as of June 30, 2018 (see **Observation 4**).

### Methodology to Achieve Objective

We interviewed the Small Business Ombudsman and obtained information about the meetings of the Compliance Advisory Panel and its appointments. We obtained and reviewed panel meeting minutes for the period July 1, 2015, through June 30, 2018.

### Observation 4 – As noted in the prior audit, the Compliance Advisory Panel still lacked the same two member appointments for the majority of the audit period

For the majority of the audit period, except between February 2015 and March 2016, the same two appointment vacancies existed as of June 30, 2018. The Department of Environment and Conservation sent letters to the appointing authorities in July 2018 to request them to fill the vacancies. The department should continue efforts to obtain panel appointments from the appropriate appointing authority, comply with federal law, and enable the panel to carry out its responsibilities.<sup>35</sup>

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<sup>34</sup> The panel met 2 times between July 1, 2015, and December 31, 2015; 3 times each in 2016 and in 2017; and, as of June 30, 2018, 2 times in 2018.

<sup>35</sup> After the conclusion of audit fieldwork, the Senate Majority Leader appointment was filled on October 1, 2018.

Division of  
Archaeology and  
Tennessee  
Geological Survey  
Records



## ARCHAEOLOGY AND GEOLOGY RECORDS

### Division of Archaeology

The Department of Environment and Conservation's Division of Archaeology is dedicated to documenting and preserving Tennessee's historic and prehistoric archaeological resources. The division's responsibilities include

- 1) maintaining the official state archaeological site file and information archive;
- 2) working with other state agencies to protect and manage archaeological sites on state lands;
- 3) surveying the state to identify and record archaeological sites;
- 4) protecting and preserving archaeological sites; and
- 5) conducting archaeological research, the results of which are published in professional journals and other formats.

#### Archaeological Site Dig

The division maintains records of more than 26,000 known archaeological sites in the state. The division's Federal Programs Archaeologist works with the Tennessee State Historic Preservation Office to review federally funded, licensed, or permitted construction projects in the state and assess their potential to affect archaeological sites. In addition, the division provides general archaeological assistance to state and local agencies, law enforcement, municipalities, the development community, colleges and universities, and the general public. According to division staff, this assistance can include reviewing projects by state and local governments, as well as private developers; helping with human burial discoveries; providing academic resources; and responding to questions from the public.



Source: Division of Archaeology.

Section 11-6-101, *Tennessee Code Annotated*, established the Division of Archaeology. Its duties under the statute include recording and excavating archaeological sites, researching, publishing its findings, maintaining artifacts and other results of its activities, and educating the public.

The division maintains records back to its creation in the 1970s, as well as amateur archaeology records that date back to the 1950s. Additional copies of records are housed at other facilities, such as the National Archive, dating back to the 1800s. Most of the division's records, however, were created in the last 50 years through archaeological projects.

Archaeological records maintained by the division include

- site forms as part of site information files, which can include information such as field notes, drawings, correspondence, newspaper articles, and other archaeological forms, depending on the site;
- report files, which are actual reports prepared by the division, other professional archaeologists, universities, and consultants (many of these are already digitized because they are submitted on a CD or in PDF);
- oversized maps, figures, or illustrations from reports;
- archaeological permits and applications required for archaeological investigations carried out on state lands, which already exist in electronic form; and
- images, including photographic slides and black-and-white photographic negatives.

#### Archaeological Files to be Scanned



Source: Auditor photo.

Most of the paper files are stored in metal file cabinets at the division's Nashville office, although some files are kept in cardboard boxes. The photographic slides are stored in binders, while negatives are stored in acid-free sleeves. Additional paper files, along with artifacts and human remains, are stored at an off-site location. To help protect its records, the Nashville office has locked doors, climate control, and pest control. Digitized files are stored on servers within the department on two external hard drives, one of which is kept off-site.

#### Tennessee Geological Survey

The Department of Environment and Conservation's Geological Survey's<sup>36</sup> (the survey) mission is to encourage and promote the prudent development and conservation of Tennessee's geological, energy, and mineral resources by developing and maintaining databases, maps, and

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<sup>36</sup> The department's website refers to this function as the Tennessee Geological Survey. *Tennessee Code Annotated* refers to it as the Division of Geology. According to the state geologist, due to its reorganization within the department during fiscal year 2013, the Commissioner changed the name from the Tennessee Division of Geology to the Tennessee Geological Survey to distinguish it from other primarily regulatory divisions within the Bureau of Environment and to better reflect its legislative mandate, since sister organizations in most other states bear the name of that state followed by "geological survey." Most of its printed publications still bear the former name.

technical services; providing accurate geologic hazard assessments; and disseminating geologic information through publications and educational outreach activities.

The survey was established in 1831, making it one of the oldest geologic service and research organizations in the country to advise other state agencies, federal agencies, and local organizations on matters relating to Tennessee geology.

According to Section 11-5-103, *Tennessee Code Annotated*, among other duties, the survey is charged with the following:

- (9) The preparation, in accordance with the rules, regulations, policies and procedures of the state publications committee, of special geologic, topographic, and economic maps to illustrate the structure, relief, and natural resources of the state.

The survey's records include information on mineral exploration and production, including books, charts, manuscripts, mineral production reports, maps, and research. Although the survey has been producing digital maps using geographic information software since 2000, it has geologic map packages that were created with older technology to produce black-and-white maps and mineral resources summaries. The map packets include a variety of information, such as

- fieldwork on geology, mineral resources, and environmental geology;
- blue-line mylar maps (maps printed in blue on sheets of polyester film);
- stratigraphic columns (which describe the locations of rocks in a vertical column);
- legend descriptions;
- mineral resource write-ups;
- structure contour maps;
- overlays for mineral resources, solid line segments, and symbols; and
- geologic and mineral resource checklists.

The survey has maps located at the Knoxville Environmental Field Office and at Ellington Agricultural Center in Nashville. One map packet at the Ellington facility and eight at the Knoxville location have not been digitized. According to survey staff, the maps were not digitized due to the lack of time and loss of federal funding in 2018. The survey received federal funding through the U.S. Geological Survey to assist in offsetting the cost of digitizing maps.

**Rock Formation Along Highway**



Source: Tennessee Geological Survey.

The Ellington storage facility, which is not occupied full-time, has climate control but no pest control due to a lack of noticeable pests. The doors have locks and the windows are covered with metal grates, and the building is behind a locked gate and has perimeter security lighting. Maps are kept in metal map cabinets. Since the building is in a flood plain and has flooded in the past, to mitigate against potential flood damage, maps and other documents are stored on shelving units at least two feet off the floor. The Knoxville field office has climate control and fire suppression, and the maps are stored in metal cabinets. Digitized maps are stored on two external hard drives, one of which is kept off-site. The files are also stored on the U.S. Geological Survey's servers.

#### Geological Maps Stored at Ellington



Source: Auditor photo.

#### Digitization of Records

Preparing and maintaining complete records is not only important to fulfill statutory requirements, but it is also vital in preserving the state's archaeological and geological history. Because of the importance of maintaining complete archaeological and geological records, both the division and the survey implemented physical safeguards to protect their physical records and began the process of converting the physical records to digital records.

According to Division of Archaeology staff, the division has recognized for many years that its records were vulnerable to destruction by natural and/or man-made forces. The division noted that concern as part of its risk assessment documentation initiated by the department in 2007. In 2015, the division was finally able to allocate staff time and equipment funds to develop a dedicated digitization protocol for its site information files. The state archaeologist initiated the site information file digitization as performance plan work outcomes for two staff members beginning with the 2015-2016 fiscal year cycle. He estimates perhaps another four to five years at least for digitizing the site information files because although the two staff members conducting the digitizing are making progress, they also have other job duties and responsibilities. The division is also in the process of obtaining funding through a program with the Tennessee Valley Authority, which will help fund labor and equipment to digitize the division's report files and site forms.

According to survey staff, the digitization process for its records, including maps and other records, began from a need to convert the paper records to media that is less affected by exposure to time or physical hazards such as moisture, insects, and animals. The survey began digitizing the records in 2007 with funding assistance from the U.S. Geological Survey's National Geological and Geophysical Data Preservation Program. According to the state geologist, the survey has received a total of nearly \$164,000 in federal matching funds through this program, and the survey

has created approximately 13,500 metadata records<sup>37</sup> and over 12,000 scanned documents. He noted that most of the survey's activity to date has consisted of creating metadata records for most of the documents, which are then uploaded to a National Digital Catalog.<sup>38</sup> After the metadata records are created, the survey's next step is to scan all the remaining documents to upload into FileNet, the department's file sharing portal. FileNet allows anyone with access to view and download the documents. The state geologist estimated that this process could conceivably take another 10 years or more to complete.

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### Audit Results

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**1. Audit Objective:** Did the Division of Archaeology and the Tennessee Geological Survey management establish proper internal controls over the storage and preservation of non-digitized documents? What is the status of the digitization of those records?

**Conclusion:** Yes, management has established proper controls over the storage and preservation of non-digitized documents. The division's digitization process is less than 50% complete, while the survey's digitization process is nearly complete (see **Observation 5**).

**2. Audit Objective:** Do the records disposition authorizations (RDAs) for the division and the survey accurately reflect their current practices?

**Conclusion:** No, the RDAs do not reflect current practices, specifically those related to storage locations of records (see **Observation 5**).

#### Methodology to Achieve Objectives

To achieve our objectives, we interviewed personnel at both entities to gain an understanding of the types of records that were being digitized, the internal controls over the storage and preservation of those records, and the process for digitizing the records. We reviewed the RDAs for both entities. We also observed the physical storage of the non-digitized records located in Nashville and obtained descriptions of the physical storage in Knoxville. In addition, we reviewed the department's risk assessment and applicable statutes, and we researched best practices for preserving and storing archaeological records and geological maps.

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<sup>37</sup> According to survey staff, metadata records include a list of all the records associated with a project. The metadata record can include links to the associated project records.

<sup>38</sup> According to the U.S. Geological Survey's website, the National Digital Catalog serves as a metadata repository for geoscientific physical samples inventoried and archived by state geological surveys.

**Observation 5 – The Division of Archaeology and the Tennessee Geological Survey should update their records disposition authorizations to reflect current practices and should prioritize their efforts to digitize paper documents to ensure state records are properly preserved**

#### Division of Archaeology

We discussed with management and staff the status of the Division of Archaeology's digitization process and were told that about half of the archaeological site information files have been scanned, along with approximately 30% of the site forms and 25% of the division's reports. Currently, the scanning process requires staff to remove photographs and oversized items from the files to scan later.

We reviewed the division's records disposition authorization (RDA) and found the RDA does not address digitization of the records or alternatives for storage. The RDA lists the location of the records as 1216 Foster Avenue in Nashville. The division also stores records at an off-site location that is not included in the RDA. The division's RDA 2164, "Archaeology Records," describes the records as

Archaeological site and information records, (field notes, artifact inventories, press clippings, cultural type, period, location) survey report files, and map files (USGS quadrangle site location and field maps).

The Division of Archaeology is the official archive for permanent archaeological records in the state. We are an active repository for a variety of permanent records (such as reports, correspondence, field notes, field forms, maps, photos, slides, etc.), and our inventory will increase through the years rather than decrease.

When we spoke with the state archaeologist about the digitization and additional record locations not included in the RDA, he stated that it was an oversight and could be addressed through a revised RDA.

#### Tennessee Geological Survey

The Tennessee Geological Survey's digitization process is nearly complete. We reviewed the survey's RDA and found that it is not storing records at the locations listed in the RDA. The survey's current RDA, 2222, "Geology Records," states,

The records are to be maintained in the agency until the completion or discontinuance of the State geological survey, then paper and electronic records will be transferred to UT [the University of Tennessee] Records Center for permanent retention.

When we spoke with the state geologist about the record locations not included in the RDA, he stated that it was an oversight and that he would work to add the additional locations to its RDA.

## Guidance on Record Storage

The division's and the survey's RDAs address the length of time to store records and where the records are to be kept, but they do not address physical safeguards for the records. Both division and survey staff stated that the Department of Environment and Conservation does not have any rules or requirements regarding physical safeguards over archaeological and geological records, so they use the best practices of their respective professions. The division and the survey should consider creating a policy that states they will use the best practices of their professions to properly safeguard and store their records.

The division should update its RDA to include information about digitizing its records, as well as information on the off-site storage. The survey should update its RDA to reflect the storage of records at the Ellington Agricultural Center and the Knoxville Field Office. Both the division and the survey should consult with the Records Management Division of the Tennessee Secretary of State for assistance with completing the digitization process.

Air Pollution Control  
Board and Board of  
Ground Water  
Management



## AIR POLLUTION CONTROL BOARD

### Board Responsibilities

The Tennessee General Assembly created the Air Pollution Control Board pursuant to Chapter 367 of the Public Acts of 1967, codified in Section 68-201-104 et seq., *Tennessee Code Annotated*. The board's responsibilities include promulgating rules and regulations that define ambient air quality standards; setting emission standards; establishing general policies or plans; overseeing a permit system and a schedule of fees for reviewing plans and specifications; issuing or renewing permits; and inspecting air contaminant sources. The board is also authorized to hold hearings and issue orders and determinations to enforce these rules and regulations.

### Board Membership

The board is composed of the Commissioner of the Department of Environment and Conservation (TDEC); the Commissioner of the Department of Economic and Community Development (ECD); and 12 Governor-appointed members who represent a variety of fields related to air pollution, including engineering, medicine, academia, government, business, agriculture, conservation, and the environment. Statute also requires that at least 1 person appointed to serve on the board be 60 years of age or older and that at least 1 person be a member of a minority. The 12 Governor-appointed members serve 4-year terms. The other 2 members, the Commissioners of TDEC and ECD, or their designees, are ex-officio members. The commissioner of TDEC serves as chair. At the first meeting of each calendar year, the board elects a vice-chair. The director of TDEC's Division of Air Pollution Control serves as the board's technical secretary. (See **Appendix 1** for a list of members).

### Meetings

The board is required to meet at least twice each calendar year.<sup>39</sup> Eight members must be present for a quorum. To comply with the Tennessee Open Meetings Act, Section 8-44-101 et seq., *Tennessee Code Annotated*, the board's technical secretary submits information about the date, place, and time of board meetings to the department's Office of General Counsel for posting on the board's website. A court reporter provides transcription services for the meetings, and the board's technical secretary finalizes and distributes draft meeting minutes to the members. After the board votes on and approves the minutes, the board's technical secretary makes copies for the public upon request.

Members are reimbursed for travel expenses by TDEC and are allowed a per diem of \$50, but the per diem is only paid to members for meetings at which a quorum is present. For the period of July 2016 through June 2018, TDEC reported that board members received a total of \$19,875.75 in travel and per diem payments.

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<sup>39</sup> The board met two times between July 1, 2015, and December 31, 2015; six times in calendar year 2016; eight times in calendar year 2017; and, as of June 2018, the board met two times in 2018.

## Conflict-of-interest Disclosures

Section 68-201-105(e), *Tennessee Code Annotated*, requires the board to create for board members a conflict-of-interest policy with annual written disclosures.<sup>40</sup> The members sign conflict-of-interest statements annually at the first meeting of each calendar year. When new members join the board, they sign the conflict-of-interest form at their first meeting.

Board rules require that a majority of members must represent the public interest, meaning that members should not derive any significant portion of their income from people or organizations subject to permits under the rules of the board. At the first meeting of the year, each board member completes and signs a form used to determine if they represent the public interest. The determination is based on whether the member has an investment in, receives income from, or is an officer of entities subject to permits for which the board promulgates rules. An attorney with the TDEC Office of General Counsel explains both forms to members and then reviews the forms after they are signed.

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### **Audit Results**

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**1. Audit Objective:** Did the Air Pollution Control Board meet its statutory responsibilities?

**Conclusion:** Board meeting minutes record discussion of monitoring the Clean Air Act and promulgating rules and regulations.

**2. Audit Objective:** Did the board members meet statutory requirements for membership composition?

**Conclusion:** Yes, the board members met the requirements in statute. As of June 30, 2018, one Governor-appointed member's term had expired, but the member is serving until a successor is appointed.

**3. Audit Objective:** Did the board have a quorum at its meetings?

**Conclusion:** Yes, the board had a quorum at its meetings. However, one Governor-appointed board member did not attend 8 of 14 meetings between July 1, 2016, and June 30, 2018.

**4. Audit Objective:** Did the board comply with the Tennessee Open Meetings Act for public notice and meeting minute requirements?

**Conclusion:** Yes, the board provided adequate public notice and recorded minutes of its meetings as required by the Clean Air Act.

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<sup>40</sup> The federal Clean Air Act, Title 42, *United States Code*, Section 7401 et seq., sets the requirements for the conflict-of-interest policies.

**5. Audit Objective:** Did the board have a conflict-of-interest policy, and did members sign the disclosures?

**Conclusion:** In March 2018, at the board’s first meeting of the calendar year, members were provided the financial conflict-of-interest forms and the determination of public interest form. All current Governor-appointed members and ex-officio members completed the conflict-of-interest forms.

#### Methodology to Achieve Objectives

We reviewed board membership; board meeting minutes for the period July 1, 2015, through June 30, 2018; and the board’s conflict-of-interest policy and the members’ disclosures, and we attended board meetings in December 2017, March 2018, and May 2018. We reviewed board minutes from July 1, 2015, through June 30, 2018, for evidence of activities to show that the board was meeting its statutory responsibilities. We interviewed the chair and the technical secretary of the board and reviewed the board’s process for public notices of its meetings. We obtained expense reimbursement information from TDEC’s Controller.

#### **EMERGING ISSUE: POTENTIAL EMISSIONS TESTING CHANGES**

In the early 1990s, as part of the federal requirements of the Clean Air Act, Tennessee developed air regulations for mobile sources, such as vehicles, to help control pollution from harmful ozone in the state’s air. When the regulations were implemented, counties not meeting federal standards for air quality were required to implement emissions testing. The owner of a vehicle must show proof that the vehicle passed emissions testing prior to registering a vehicle in these counties. These counties were Davidson, Hamilton, Rutherford, Sumner, Williamson, and Wilson. The state has used vehicle emissions testing to improve air quality and meet federal air quality standards (National Ambient Air Quality Standards, or NAAQS) in the counties that have vehicle emissions testing.

Public Chapter 953, which Governor Haslam signed on May 15, 2018, amended Section 68-201-119 and Section 55-4-104, *Tennessee Code Annotated*, to effectively eliminate emissions testing in applicable counties.<sup>41</sup> However, before this measure is implemented, the Tennessee Department of Environment and Conservation must demonstrate to the federal Environmental Protection Agency (EPA) that the state will maintain acceptable ozone emission levels without the need to test vehicles. In August 2017, the EPA announced that all counties are now in attainment status for the NAAQS related to ozone; however, the state is required to maintain air quality. It must demonstrate to the EPA that eliminating the vehicle emissions testing program will not interfere with Tennessee meeting the NAAQS. The state must go through this process, or potentially lose federal transportation highway funds.

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<sup>41</sup> The law eliminated testing in Hamilton, Rutherford, Sumner, Williamson, and Wilson counties. It gave Metropolitan Nashville/Davidson County a choice whether to continue its testing program, and the Metropolitan Council voted to keep the program.

From our discussion with department staff, the extent of future testing depends on the outcome of the demonstration, and as a result, any changes in the testing program could take up to three years to go into effect.

## BOARD OF GROUND WATER MANAGEMENT

The Tennessee General Assembly created the Board of Ground Water Management pursuant to Chapter 325 of the Public Acts of 1963, codified in Section 69-10-107, *Tennessee Code Annotated*. The board assists the Department of Environment and Conservation with preparing rules for groundwater management. In addition, the board reviews applicants for well driller or installer licenses and recommends applicants for licensure to the department's Commissioner for those candidates the board has found qualified because they have met the requirements in department rules.<sup>42</sup>

The Tennessee Water Well Act of 1963 requires all persons drilling a water well to be licensed.

Statute requires the board to meet once a year and three members to be present at a meeting for a quorum. The board is required to promulgate rules and regulations for a conflict-of-interest policy for board members and establish the criteria used by the board to make licensing recommendations.

### Board Membership

The board has five members. The Governor appoints three members, one from each grand division of the state, who were actively engaged in the drilling of wells five years prior to their appointment. These members are limited to two consecutive, three-year terms. The other two members, the Commissioner of the Department of Environment and Conservation and the Director of the Division of Water Resources, or their designees, are ex-officio. (See **Appendix 1** for a list of members).

### Meetings

The board interviews and recommends applicants for licensure and advises the department on proposed continuing education classes for licensees and other issues brought before the board.

To comply with the Tennessee Open Meetings Act, Section 8-44-101 et seq., *Tennessee Code Annotated*, the board's technical secretary submits meeting information to the department's Office of General Counsel for posting of public notice. A court reporter provides transcription services for all board meetings, and the technical secretary finalizes and distributes draft meeting

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<sup>42</sup> The Tennessee Water Well Act, Section 69-10-101 et seq., *Tennessee Code Annotated*, requires all persons drilling a water well to be licensed. A water well is any well that produces water for beneficial use such as domestic use, irrigation, livestock watering, etc. A person installing a pump or water treatment device on a water well must also be licensed.

minutes to the members. After the board votes on and approves the minutes, copies are made available to the public if requested.

### Conflict-of-interest Disclosures

The board has adopted a conflict-of-interest policy that requires acknowledgement and disclosures as required in Section 69-10-107(d), *Tennessee Code Annotated*, and board rules in 0400-45-10-.03. The policy requires that every calendar year at the board's first meeting or the first meeting a member attends, the technical secretary make available disclosure documents and ask each member to acknowledge receipt and complete the form.

The policy includes a description of what constitutes a conflict of interest, and each of the appointed board members annually signs the acknowledgment portion of the policy after reading the policy and completing a list of disclosures of specific items related to potential conflicts. All current Governor-appointed members and ex-officio members must sign the policy and complete the disclosure forms.

### Recommendations for Licensure

Persons applying for a license can access the application online or contact the board's technical secretary for an application package that will also contain information on study guides. Applicants can also access information regarding water wells, including locating, constructing, and disinfecting a well and pump installation, on the board's webpage.

The board has promulgated rules that include the criteria used by members when making licensing recommendations to the commissioner. If an applicant meets the age, education, and experience requirements and passes a written exam, the applicant must attend a board meeting and be interviewed by board members to determine the quality and quantity of the applicant's experience. **Table 7** contains the number of license decisions issued by the board for the period July 2015 through June 2018.

**Table 7**  
**Board of Ground Water Management**  
**Board Licensure Decisions by License Type**  
**For July 2015 Through June 2018**

License Type	Recommended	Not Recommended
Water Well Driller <sup>43</sup>	12	1
Monitor Well Driller <sup>44</sup>	9	0
Geothermal Well Driller <sup>45</sup>	5	1
Pump Installer <sup>46</sup>	17	5
Water Treatment Installer <sup>47</sup>	5	1
Well Closure License <sup>48</sup>	1	0
<b>Total</b>	<b>49</b>	<b>8</b>

Source: Board of Ground Water Management.

### Audit Results

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**1. Audit Objective:** Did the board members meet the requirements for membership composition as set forth in Section 69-10-101 et seq., *Tennessee Code Annotated*?

**Conclusion:** Yes, board members met the requirements set forth in statute for board members.

**2. Audit Objective:** Did the board meet the statutorily required number of meetings? Was there a quorum at the meetings?

**Conclusion:** The board met the number of meetings required by statute, and the board had a quorum at its meetings.

**3. Audit Objective:** Did the board comply with public notice and meeting minute requirements established in *Tennessee Code Annotated*?

**Conclusion:** The board provided adequate public notice and recorded minutes of its meetings as required by *Tennessee Code Annotated*.

**4. Audit Objective:** Did board members complete conflict-of-interest disclosure statements?

**Conclusion:** Board members completed conflict-of-interest disclosure statements.

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<sup>43</sup> A water well driller is an individual, firm, or corporation engaged in the business of constructing wells.

<sup>44</sup> Monitor well drillers are licensed to drill to obtain information on groundwater or to recover groundwater for treatment.

<sup>45</sup> Geothermal well drillers are licensed to drill to add or remove British Thermal Units from the earth for heating or cooling.

<sup>46</sup> Pump installers install or repair well pumps.

<sup>47</sup> Water treatment installers install or repair well water treatment systems.

<sup>48</sup> Well closures are licenses to close wells no longer in service to prevent groundwater problems.

**5. Audit Objective:** Are board members using the criteria in board rules when interviewing licensure applicants to determine whether they qualified for licensure recommendation?

**Conclusion:** We observed the board using the criteria in rules while interviewing licensure candidates at the January and April 2018 board meetings.

#### Methodology to Achieve Objectives

We reviewed statutes and rules applicable to the board. We obtained board membership information from the board's technical secretary and the Secretary of State website. We obtained and reviewed board meeting minutes for the period July 1, 2015, through June 30, 2018.<sup>49</sup> We obtained and reviewed the board's conflict-of-interest policy and board members' signed disclosure forms for the period July 1, 2015, through June 30, 2018. We attended the January and April 2018 board meetings and observed the board interviewing candidates for licensure. We interviewed the chair and the technical secretary of the board. We reviewed the board's website for information on applying for and obtaining a license.

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<sup>49</sup> The board held three meetings each year in calendar years 2015 and 2016. In calendar year 2017, the board met four times. As of June 30, 2018, the board has met twice in 2018.

## APPENDICES

### APPENDIX 1 Board Members As of June 30, 2018

#### Compliance Advisory Panel

Member Name	Appointed By	Representing
Peter Avisto	House Majority Leader	Small business owners
Lacey Hardin	TDEC Commissioner	N/A
James B. Hill	Governor	Non-business owners
Alan Sparkman	Senate Minority Leader	Small business owners
<i>Vacant</i>	Senate Majority Leader	Small business owners
<i>Vacant</i>	House Minority Leader	Small business owners
Robert Wingfield	Governor	Non-business owners

Source: The Small Business Ombudsman, the Small Business Environmental Assistance Program, the Department of Environment and Conservation (TDEC), and the department's website.

#### Air Pollution Control Board

Governor-appointed Members	Representing	Term Expiration
Dr. John Benitez	Licensed physician with experience in health effects of air contaminants	8/31/2021
Karen Cisler	Environmental interests	4/30/2020
Dr. Wayne T. Davis, PhD <sup>50</sup>	Conservation interests	4/30/2018
Dr. Joshua Fu, PhD	Involved with institution of higher learning on air pollution evaluation and control	4/30/2022
Stephen R. Gossett	Working for industry with technical experience	8/31/2019
Mike Haverstick	Working in management in private manufacturing	8/31/2022
Dr. Shawn A. Hawkins	Working in field related to agriculture or conservation	8/31/2020
Richard Holland	Working for industry with technical experience	8/31/2019
Caitlin Roberts Jennings	Small generator of air pollution	6/30/2022
The Honorable Ken Moore	Working in municipal government (City of Franklin)	8/31/2021
Amy Spann, PE	Registered professional engineer	8/31/2022
The Honorable Larry Waters	County mayor (Sevier County)	8/31/2020

Source: Department of Environment and Conservation's Director of Internal Audit and the department's website.

<sup>50</sup> Per statute, this member serves until a successor qualifies.

### **Air Pollution Control Board**

Ex-officio Board Member	Department	Designee
Shari Meghreblian, PhD	TDEC Commissioner	Dr. Ronnè Adkins, PhD
Bob Rolfe	Economic and Community Development Commissioner	Jimmy West

Source: Department of Environment and Conservation's Director of Internal Audit and the department's website.

### **Board of Ground Water Management**

Governor-appointed Members	Grand Division Representing	Term Expiration
Brian Campbell	West	6/30/2019
Tim Hawn	East	6/30/2020
James Watson <sup>51</sup>	Middle	6/30/2018

Ex-officio Board Member	Department/Division	Designee
Shari Meghreblian	TDEC Commissioner	Anna R. Sarters
Jennifer Dodd	TDEC Division of Water Resources Director	Robert Hall

Source: Board of Ground Water Management.

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<sup>51</sup> Term expired June 30, 2018; continuing to serve until successor is appointed.

**APPENDIX 2**  
**Financial Information<sup>52</sup>**

<b>Budget and Actual Expenditures and Revenues</b>		
<b>Fiscal Year Ended June 30, 2017</b>		
	<b>FY 2017 Recommended Budget*</b>	<b>FY 2017 Actual Expenditures and Revenues**</b>
<b>Expenditures</b>	Payroll	\$146,661,800
	Operational	\$240,684,400
	<b>Total</b>	<b>\$387,346,200</b>
<b>Revenues</b>	State	\$182,237,000
	Federal	\$ 87,667,900
	Other	\$117,441,300
	<b>Total</b>	<b>\$387,346,200</b>

\*Source: Tennessee State Budget, Fiscal Year 2016-2017.

\*\*Source: Tennessee State Budget, Fiscal Year 2018-2019.

<b>Budget and Estimated Expenditures and Revenues</b>		
<b>Fiscal Year Ended June 30, 2018</b>		
	<b>FY 2018 Recommended Budget*</b>	<b>FY 2018 Estimated Expenditures and Revenues**</b>
<b>Expenditures</b>	Payroll	\$153,225,500
	Operational	\$243,889,900
	<b>Total</b>	<b>\$397,115,400</b>
<b>Revenues</b>	State	\$189,802,000
	Federal	\$ 84,392,800
	Other	\$122,920,600
	<b>Total</b>	<b>\$397,115,400</b>

\*Source: Tennessee State Budget, Fiscal Year 2017-2018.

\*\*Source: Tennessee State Budget, Fiscal Year 2018–2019.

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<sup>52</sup> The fiscal year ending June 30, 2018, was not closed during the time of our audit; therefore, we presented the estimated revenues and expenditures for that time period.

**APPENDIX 3**  
**Number of X-ray Tubes Registered by Classification and Description With Fees and**  
**Inspection Cycle**  
**As of April 2018**

<b>Classification</b>	<b>Description</b>	<b>Annual Registration Fee</b>	<b>Number of Tubes</b>	<b>Inspection Cycle</b>
Class I	Dental Radiation Machines: Includes all diagnostic equipment used exclusively for dental diagnostic procedures.	\$85	10,539	4 years
Class II	Priority Two Medical Radiation Machines: Includes all diagnostic X-ray equipment not in Class III used exclusively for medical or veterinary diagnostic procedures.	\$195	2,875	2 years
Class III	Priority One Medical Radiation Machines: Includes all diagnostic X-ray equipment used in radiologists' offices, orthopedic surgeons' offices, and hospitals exclusively for medical diagnostic procedures.	\$286	3,773	1 year
Class IV	Therapy Medical Radiation Machines: Includes all X-ray equipment with energies less than 0.9 MeV used for medical or veterinary radiation therapy.	\$390	14	1 year
Class V	Priority Two Industrial and Educational Radiation Machines: Includes closed-beam analytical radiation machines, gauges and industrial radiation machines used in shielded room or cabinet radiography.	\$780	1,023	2 years
Class VI	Industry Priority One Industrial and Educational Radiation Machines: Includes all X-ray machines used for industrial radiography and all open-beamed analytical X-ray machines not specifically included in Classes I, II, III, IV, V or VII.	\$1,170	247	1 year
Class VII	Accelerator includes equipment designed for and used only for the production of X-rays of 0.9 MeV or greater and equipment capable of discharging nuclear particles into a medium external to the accelerating device.	\$2,600	132	1 year
<b>Total Number of Tubes</b>			<b>18,603</b>	

Source: Division of Radiological Health Rules and DRH Track computer application. (See **Finding 1.**)

**APPENDIX 4**  
**Registered Inspector Education and Experience Qualifications**  
**Rule 0400-20-10-.27 (4) (d)**

Formal Education or Certification	Plus Experience
Bachelor's degree in a physical science or mathematics, <b>and</b> 	4 years of applied health physics experience in a program with similar radiation safety problems as those in the program to be surveyed.
Bachelor's degree in a physical science or a biological science with a physical science minor and 1 year of graduate work in health physics, <b>and</b> 	3 years of applied health physics experience in a program with similar radiation safety problems as those in the program to be surveyed.
Master's degree in health physics or radiological health, <b>and</b> 	2 years of applied health physics experience in a program with similar radiation safety problems as those in the program to be surveyed.
Doctor's degree in health physics or radiological health, <b>and</b> 	1 year of applied health physics experience in a program with similar radiation safety problems as those in the program to be surveyed.
Certification by the American Board of Health Physics or by the American Board of Radiology or a Fellow, Canadian College of Physicists in Medicine, <b>and</b> 	1 year of applied health physics experience in a program with similar radiation safety problems as those in the program to be surveyed.
2 notarized letters of reference from persons registered to provide inspections for reduction in fees and meeting any of the above sets of criteria certifying to the individual's capabilities to perform the necessary inspections, <b>and</b> 	5 years of applied health physics experience in a program with similar radiation safety problems as those in the program to be surveyed.

Source: Division of Radiological Health Rule 0400-20-10-.27(4)(d), effective 1983.

**APPENDIX 5**  
**Business Unit Codes**

32701	Administrative Services
32703	Recreation Educational Services
32706	Land and Water Conservation Fund
32704	Historical Commission <sup>53</sup>
32708	Division of Archaeology
32711	Division of Geology
32712	Tennessee State Parks
32714	Natural Areas
32715	Tennessee State Park Maintenance
32717	Elk River Resource Management
32718	Maintenance of Historic Sites
32719	Local Parks Acquisition Fund
32720	State Lands Acquisition Fund
32722	State Lands Compensation Fund
32723	Used Oil Collection Program
32724	West Tennessee River Basin Authority Maintenance
32726	West Tennessee River Basin Authority
32728	Tennessee Dry Cleaner Environmental Response Fund
32730	Environment Administration
32731	Air Pollution Control
32732	Radiological Health
32733	Clean Water and Drinking Water State Revolving Fund
32734	Division of Water Resources
32735	Solid Waste Management
32736	Department of Energy Oversight
32737	Abandoned Lands Program
32738	Hazardous Waste Remedial Action Fund
32741	Underground Storage Tanks
32742	Solid Waste Assistance Fund
32743	Environmental Protection Fund
32744	Fleming Training Center
32745	Office of Sustainable Practices
32750	Tennessee Heritage Conservation Trust Fund
32751	Conservation Compensation Fund
32752	Office of Energy Programs
32753	Energy Loan Programs

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<sup>53</sup> The Tennessee Historical Commission is not included in this audit. The commission is administratively attached to the department. The commission's performance audit report covering the period July 1, 2015, through June 6, 2018, was released in August 2018.

**APPENDIX 6**  
**Grant and Loan Programs**  
**As of June 30, 2018**

PROGRAM NAME
Clean Tennessee Energy Grant
Convenience Center Grant
Education and Outreach Grant
Federal Historic Preservation Grant
Household Hazardous Waste Grant
Land and Water Conservation Fund Grant
Local Parks and Recreation Fund Grant
Measurement Grant
Old Closed Landfill Grant
Organics Management Grant
Recreational Trails Program Grant
Recycling Equipment Grant
Recycling Hub & Spoke Grant
Recycling Rebates Grant
State Revolving Fund Clean Water Loan
State Revolving Fund Drinking Water Loan
Technical Assistance Grant
Tennessee Historical Commission Operations Grant
Tennessee Historical Commission Publication Grant
Tire Environmental Act Program Grant
Used Oil Grant
Waste Reduction Grant
Waste Tire Cleanup Grant

Source: Division of Grants and Contracts Administration.