



U.S. Department of Energy  
Office of Inspector General  
Office of Audits and Inspections

# Audit Report

## Oak Ridge National Laboratory's Waste Diversion Efforts



**Department of Energy**  
Washington, DC 20585

July 20, 2012

MEMORANDUM FOR THE ACTING MANAGER, OAK RIDGE OFFICE

FROM: *Daniel M. Weeber*  
Daniel M. Weeber, Director  
Eastern Audits Division  
Office of Inspector General

SUBJECT: INFORMATION: Audit Report on "Oak Ridge National Laboratory's  
Waste Diversion Efforts"

BACKGROUND

Executive Order (E.O.) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, mandates that each Federal facility maintain a cost-effective waste prevention and recycling program. Further, E.O. 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, requires that Federal agencies achieve a 50 percent diversion rate for construction and demolition materials and debris, and a 50 percent rate for non-hazardous solid waste by the end of Fiscal Year (FY) 2015. Waste diversion includes the prevention and reduction of generated waste through recycling, reusing or composting. Diverting materials from the waste stream generates a host of benefits including conserving energy, reducing disposal costs and contributing to a cleaner, safer environment. The Department of Energy tracks its waste diversion progress via the Pollution Prevention Tracking and Reporting System.

The Oak Ridge National Laboratory (ORNL) Pollution Prevention Program (Program) plays a vital role in the Department's overall waste diversion efforts. During FY 2011, ORNL generated over 9,500 metric tons of non-hazardous solid waste, including debris from construction and demolition projects. Because of the environmental, financial and social benefits of reducing the amount of waste sent to the landfill, we initiated this audit to determine whether ORNL was effectively diverting materials from the waste stream. This is the first in a series of reports on the Department's waste diversion efforts at select sites.

CONCLUSIONS AND OBSERVATIONS

We found that ORNL had an established Program that effectively diverted materials from landfills and contributed to the Department's overall waste diversion effort, primarily through recycling and reusing materials. In our review of ORNL's FY 2011 data, we found that it recycled or reused over 5,100 of its 9,500 metric tons of solid waste, and thus diverted it from landfill disposal. For example, ORNL diverted 62 percent of its construction and demolition debris, thus exceeding the 50 percent target established by E.O. 13514 and meeting the Department's FY 2015 target 4 years earlier than required. Further, ORNL diverted 26 percent

of its non-hazardous solid waste. In an effort to meet the 50 percent target for diversion of non-hazardous solid waste by FY 2015, ORNL also identified the need for additional initiatives and developed plans to execute those strategies.

### ORNL's Pollution Prevention Program

ORNL had a well established Program to facilitate waste diversion activities. Specifically, the ORNL Program incorporated pollution prevention philosophies throughout the organization through employee training, subcontract clauses and corporate commitments. Individual employee responsibility for pollution prevention was described in the Environmental Management System Awareness Training, a requirement for ORNL employees. ORNL also required subcontractors working on-site to adhere to similar standards. ORNL's construction subcontracts, for instance, required that excess construction material be recycled. The Program also reflected a corporate commitment in its pollution prevention plan that described how ORNL intended to achieve Program objectives. The plan documented the development and continuing expansion of the ORNL Program and described ORNL's use of objectives, targets and strategies for conserving resources. For example, according to Program officials, one such strategy was ORNL's recent decision to eliminate the purchase of bottled water, except for instances where staff, such as maintenance workers, did not have access to plumbed water.

ORNL's Program facilitated the diversion of significant portions of waste from the landfill. Specifically, in FY 2011, ORNL diverted 4,620 metric tons of construction and demolition debris, one of its largest waste streams, from landfill disposal through reuse and recycling efforts. The materials diverted from the landfill included metal, wood, drywall and crushed asphalt. As a result of these diversion efforts, ORNL disposed of only 2,850 metric tons in landfills, or 38 percent of the total amount of construction and demolition materials generated. ORNL officials credited its success, in part, to the requirement that construction subcontractors recycle as much debris as possible.

In addition to its successful diversion of construction and demolition debris, ORNL diverted 530 of 2,060 metric tons, or approximately 26 percent, of its non-hazardous solid waste in FY 2011. While ORNL had not yet achieved a 50 percent diversion rate, ORNL officials told us that they had continuously looked for ways to expand its existing Program and improve recycling efforts. For example, Program staff conducted a study in which they sorted through the contents of office trash destined for landfill disposal and found that 30 percent of the waste could have been recycled in established programs. ORNL officials stated that collection containers were subsequently placed in offices or work areas to ensure that employees had access to recycle bins. Further, we noted that ORNL began recycling discarded packing foam, a material not previously part of ORNL's recycling stream.

While ORNL's performance in FY 2011 was notable, we did find several minor inconsistencies between planned activities and actual performance. For example, we found that ORNL had not conducted pollution prevention opportunity assessments despite the fact that the Program emphasized the importance of such assessments in helping to identify waste diversion opportunities. ORNL officials stated that it had been difficult to perform assessments due to the non-routine nature of laboratory work. As an alternative, officials requested selected divisions to

develop, document and implement plans to reduce or eliminate the environmental impacts of its activities. This request permitted divisions to select from a wide-range of activities including commitments associated with waste generation, water or air emissions, and energy efficiency. We noted that this approach resulted in several divisions implementing additional waste diversion activities.

Because of ORNL's progress in this area, formal recommendations are not being made in this report and a response is not required. We appreciate the cooperation of your staff and the various Departmental personnel that provided information or assistance.

Attachment

cc: Deputy Secretary  
Associate Deputy Secretary  
Acting Under Secretary for Science  
Chief of Staff  
Laboratory Director, Oak Ridge National Laboratory

## **OBJECTIVE, SCOPE AND METHODOLOGY**

### **OBJECTIVE**

The objective of the audit was to determine whether Oak Ridge National Laboratory (ORNL) was effectively diverting materials from the waste stream.

### **SCOPE**

The audit was performed from October 2011 through June 2012. We conducted work at ORNL in Oak Ridge, Tennessee, and obtained information from the Office of Health, Safety, and Security in Washington, DC.

### **METHODOLOGY**

To accomplish the audit objective, we:

- Reviewed laws and regulations and policies and procedures relevant to Pollution Prevention and waste diversion;
- Reviewed ORNL's Pollution Prevention Plan, Site Sustainability Plan and selected recycling purchase orders;
- Held discussions with ORNL Pollution Prevention officials;
- Interviewed key personnel at the Department's Office of Health, Safety and Security; and,
- Reviewed selected ORNL FY 2011 Pollution Prevention Tracking and Reporting System entries.

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 objective. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. Accordingly, the audit included tests of controls and compliance with laws and regulations to the extent necessary to satisfy the objective. In particular, we assessed the implementation of the *GPRA Modernization Act of 2010* as it relates to the audit objective and found that the Department had not established performance measures related to pollution prevention. Also, we conducted an assessment of computer-processed data relevant to our audit objective and performed tests to determine that it was sufficiently reliable for our purposes.

Management waived an exit conference on June 14, 2012.

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