



Memorandum from the Office of the Inspector General

February 11, 2009

E. Wayne Robertson, SP 5A-C

**REQUEST FOR FINAL ACTION – AUDIT 2008-11714 – DISPOSAL OF SURPLUS
COMPUTER EQUIPMENT**

Attached is the subject final report for your review and final action. [Redacted] Please notify us when final action is complete.

If you have any questions, please contact Curtis Phillips, Project Manager, at (865) 633-7359 or Phyllis R. Bryan, Director, Information Technology Audits, at (865) 633-7332. We appreciate the courtesy and cooperation received from your staff during the audit.

Robert E. Martin
Assistant Inspector General
(Audits and Inspections)
ET 3C-K

CDP:JP
Attachment
cc (Attachment):

Steven A. Anderson, SP 5A-C
William H. Bonham, WT 3A-K
Samuel S. Boozer, MP 3B-C
Terrell M. Burkhart, WT 3A-K
Frank A. Foster, OCP 2C-NST
Peyton T. Hairston Jr., WT 7B-K
David M. Harrison, SP 3K-C
Tom D. Kilgore, WT 7B-K
Ralph Edward King, WT 5A-K
Melissa A. Livesey, WT 5B-K

John E. Long Jr., WT 7B-K
Charles H. McFall Jr., SP 2D-C
Richard W. Moore, ET 4C-K
Gabrielle A. Ratliff, WT 5B-K
Emily J. Reynolds, OCP 1L-NST
James W. Sample, SP 5A-C
Joyce L. Shaffer, WT 4D-K
Michael T. Tallent, MP 3C-C
Robert B. Wells, WT 4B-K
OIG File No. 2008-11714



Disposal of Surplus Computer Equipment

Audit 2008-11714

February 11, 2009



Synopsis

We found:

- ◆ TVA's process for the disposal of surplus computer equipment does not adequately protect TVA resources or track the disposition of surplus equipment. Specifically, (1) the equipment inventory in [redacted] was not correctly updated when equipment was removed from service; (2) equipment transferred from Information Services (IS) to Technology Initiative (TI) was not tracked to prevent unnecessary storage, loss, or theft; (3) TI did not maintain an inventory of equipment received for disposal or reconcile equipment received with equipment surplused by IS, and (4) the disposition records maintained by TI do not account for the disposition of 6,631, or 63.9 percent, of the computers surplused by IS.
- ◆ TVA's policies, procedures, and practices for cleaning hard drives of surplus computer equipment are generally adequate. Specifically, the hard drives examined during this review had been cleaned; however, documentation for redeployments, donations, and sales did not contain a certification that hard drives had been wiped.



Synopsis (cont.)

- ◆ TVA's handling of surplus computer equipment is not consistent with existing environmental regulations in that used or broken Cathode Ray Tube (CRT) monitors are not always packaged to prevent exposure to the environment or labeled as containing lead during storage or shipment.
- ◆ The current surplus equipment process could be improved by:
 - Coordinating donations with Corporate Contributions.
 - Implementing agreements limiting TVA's liability when disposing of third-party equipment.
 - Reviewing the current process for recycling equipment to reduce the risk of an accidental disclosure of information.

NOTE: Effective November 24, 2008, the responsibility for surplus equipment was transferred from Procurement to IS. The findings in this report relate to the process in place before that change, and the recommendations should be considered as the reorganization is carried out.

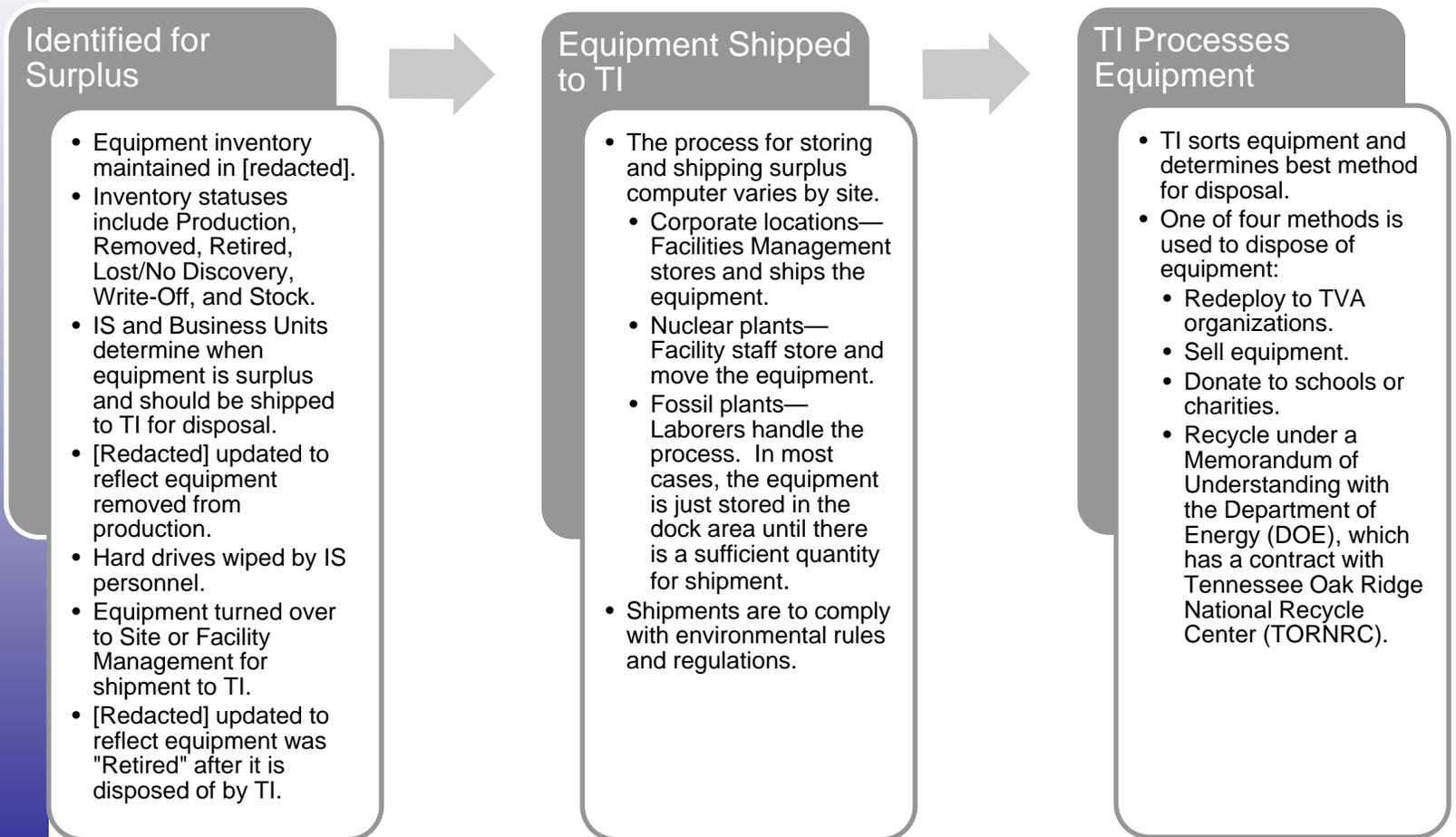


Background

- ◆ This audit was initiated as a follow-up to an Office of the Inspector General report on Lost and Stolen Computers.
- ◆ Surplus computer equipment includes all electronic items such as personal computers, monitors, printers, laptops, servers, routers, switches, cell phones, personal digital assistants, LCD projectors, and some lab equipment.
- ◆ IS is responsible for managing computer equipment and maintaining an inventory.
- ◆ IS, with input from TVA Business Units, determines when to retire equipment.
- ◆ Procurement's TI handled the disposition of surplus computer equipment. Effective November 24, 2008, the TI group transferred to IS Infrastructure Operations.



Surplus and Disposal Process



Objectives, Scope, and Methodology

◆ Objectives

- The purpose was to determine if policies, procedures, and practices for handling surplus computer equipment:
 - ◆ Adequately protected TVA resources.
 - ◆ Prevented the inadvertent disclosure of TVA information.
 - ◆ Complied with existing environmental regulations.

◆ Scope

- Selected the period of October 1, 2007, to March 31, 2008, for the review.

◆ Methodology

- Conducted interviews with TVA personnel involved with or responsible for handling surplus equipment to identify the policies, processes, and practices followed by IS and TI.



Objectives, Scope, and Methodology (cont.)

◆ Methodology (cont.)

- Selected a judgmental sample of 185 items of equipment disposed of by TI to determine whether the status was correctly recorded in [redacted].
- Using the same judgmental sample, determined whether TI followed their procedures for disposing of the equipment.
- Determined whether sales by TI for the period October 1, 2007, to March 31, 2008, were correctly recorded and the receipts correctly deposited in a TVA account.
- Reviewed the transfers from IS to TI of the 185 judgmentally sampled items.
- Forensically examined a judgmental sample of nine hard drives transferred from IS to TI to determine whether they had been cleaned of TVA information by IS.
- Conducted interviews with TVA personnel responsible for environmental compliance.



Objectives, Scope, and Methodology (cont.)

◆ Methodology (cont.)

- Fieldwork was performed between April 16, 2008, and September 24, 2008.
- 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.



Finding 1 – Process Improvements Needed

- ◆ **Information in [Redacted] Does Not Correctly Reflect Status**
 - The information in [redacted] does not correctly reflect the inventory status of computer equipment after it is taken out of service as surplus or disposed of by TI.
 - ◆ Only 11 percent, or 21 items in our sample, was initially classified as "Removed" when taken out of service as required by policy. The majority 89 items, or 48 percent, were initially classified as "Lost/Write-Off/No Discovery" when taken out of service.
 - ◆ Only 18 percent, or 33 items in our sample, had been classified as "Retired" or in "Production" (items redeployed by TI) as required by IS policy.
 - ◆ IS does not track the life cycle of monitors in [redacted]. Our sample included 24 monitors.



Finding 1 – Process Improvements Needed (cont.)

– Transfer of Equipment From IS to TI Not Tracked

- ◆ The process for transferring surplus computer equipment from IS to TI lacks adequate guidelines and controls to ensure appropriate disposal and prevent loss, theft, or destruction of equipment and the information it contains. Currently, equipment transferred is being:
 - Stripped of usable parts.
 - Damaged, lost, or stolen in transfer.
 - Stored for years before being transferred to TI.

– No Inventory Records of Equipment Received for Disposition

- ◆ TI does not document or inventory equipment received for disposal. TI records the disposition of equipment, however, there is no reconciliation of equipment received with equipment surplus by IS. The absence of an inventory or reconciliation elevates TVA's risk for the inadvertent disclosure of information.



Finding 1 – Process Improvements Needed (cont.)

- ◆ The records maintained by TI do not reflect the disposition of 63.9 percent of the computers surplus by IS during the period January 2007 to October 2008. During this period, [redacted] shows IS removed or retired 10,378 computers from service; however, the disposition records maintained by TI show they disposed of only 3,747, or 36.1 percent, of the computers surplus.



Finding 2 – Protection of Information

- ◆ Generally, the policies, procedures, and practices for cleaning hard drives of surplus equipment are adequate to protect TVA information; however, improvement is needed in the following area:
 - The documentation for redeployments, donations, and sales did not contain a certification that hard drives had been wiped. TI's effort to wipe hard drives is a secondary control as IS performs the primary control by wiping hard drives when they are retired. However, if TI is going to perform the control, it should be documented by the technician certifying the drive was wiped and the date the function was performed.



Finding 3 – Environmental Compliance

- ◆ TVA's handling of surplus computer equipment is not consistent with existing environmental regulations. Computer equipment, including used or broken CRTs in storage or transit for recycling, is not regulated as hazardous waste. However, under 40 CFR 261.39, used or broken CRTs in storage or shipment must be packaged in enclosed containers to prevent release to the environment. They must also be labeled or marked indicating they contain lead. We found:
 - CRTs are not always packaged in enclosed containers to prevent release to the environment.
 - They are not labeled as containing lead while in shipment or storage. (Slide 14 is a photo of a typical shipment.)



Photograph of Equipment in Transit



Finding 4 – Additional Process Improvements

- ◆ **Improve Coordination of Donations With Corporate Contributions**
 - TI did not coordinate computer equipment donations with Corporate Contributions. Business Practice 21 requires all TVA donations be processed or approved by Corporate Contributions to ensure they align with TVA's overall business objectives.
- ◆ **Implement an Agreement When Handling Third-Party Equipment**
 - TVA disposes of equipment for certain third parties including distributors and the credit union. However, there are no agreements limiting TVA's liability if sensitive information is inadvertently disclosed or the equipment is not recycled correctly.
- ◆ **Review Process for Recycling Equipment to Reduce Risk of Accidental Disclosure**
 - Equipment considered scrap is disposed of through a Memorandum of Understanding with DOE, Oak Ridge, Tennessee. DOE takes ownership of the equipment, and it is processed for recycling under their contract with TORNRC. TVA personnel believed the equipment shipped to TORNRC was being shredded. However, we found some equipment shipped to TORNRC as scrap was not shredded but shipped to other locations for disposition which includes resale on eBay. According to TORNRC representatives, they wipe the hard drives for the computer equipment resold. However, we were not able to confirm TORNRC wiped the hard drives.



Recommendations

IS should:

- ◆ Improve the process for recording the inventory status of equipment in [redacted].
- ◆ Update the current surplus equipment procedures to (1) reflect the new organizational structure and (2) include instructions for properly packing and labeling CRTs consistent with existing requirements.
- ◆ Establish an inventory system for TI that records all items received and their disposition.
- ◆ Reconcile equipment surplus by IS with equipment disposed of by TI.
- ◆ Require technicians to (1) certify hard drives on resold, donated, or redistributed equipment have been wiped and (2) complete the documentation required by the current procedures.



Recommendations (cont.)

- ◆ Implement a process for coordinating with Corporate Contributions when equipment is donated as required by Business Practice 21 Contributions/ Sponsorships.
- ◆ Implement agreements with third parties to limit TVA's liability if sensitive information is inadvertently disclosed or the equipment is not recycled correctly.
- ◆ Review the process for recycling equipment to reduce the risk of accidental disclosure.



Management Response to Draft

TVA Management's Comments – The Vice President, IS, in general agreed with our facts, conclusions, and recommendations and provided proposed actions to implement our recommendations. IS plans to (1) create a new department charged with the management of TVA's IT assets including receiving, inventory, and the surplus process; (2) evaluate additional technology such as radio-frequency identification (RFID), [redacted], and [redacted] to aid in the management of IT equipment; and (3) provide a common set of work instructions, procedures, and a single system for recording inventory information for use in the management of IT assets. (See the Appendix for the entire response.) Target for completion of actions is May 30, 2009.

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



[REDACTED]

February 6, 2009

Robert E. Martin, ET 3C-K

REQUEST FOR COMMENT - DRAFT AUDIT 2008-11714 - DISPOSAL OF SURPLUS
COMPUTER EQUIPMENT

The attached document contains our comments on the facts, conclusions and recommendations in the above report. We have also included our completed actions and planned actions.

In general, IS agrees with all four findings as found during the review period and the majority of the recommendations, some of which have already been implemented or are no longer needed. Specifically the TI organization has been incorporated into the IS Infrastructure Operations (IO) organization. This change addresses recommendations (1) and (3) by providing a common set of work instructions and procedures, and single common system for recording inventory information [REDACTED]. In addition, IO is in the process of creating a single department for IT Asset Management reporting to the Senior Manager of IT Operations. This group will be responsible for comprehensive management of TVA's IT assets, including receiving equipment, inventory, and the surplus process. This department will be in place by February 28, 2009. The specific actions and commitment dates in response to the audit report recommendations are listed in the attached spreadsheet.

We appreciate Curtis Phillips' diligence and his recognition that both the IS organization and the Procurement organization have made changes to improve the surplus computer process after the review period but before the report was prepared.



E. Wayne Robertson
Vice President
Information Services
SP 5A-C

WRB:BAM

Attachments

cc (Attachments):

Steven A. Anderson, SP 5A-C
William H. Bonham, WT 3A-K
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Robert B. Wells, WT 4B-K
EDMS, WT CA-K

[REDACTED]