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# FDIC Headquarters Laser Printer Cartridges

Office of Inspector General  
Office of Congressional Relations and Evaluations  
August 19, 1999  
Evaluation Report No. 99-006



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**DATE:** August 19, 1999

**MEMORANDUM TO:** Michael J. Rubino  
Associate Director, Acquisition and Corporate Services Branch  
Division of Administration

**FROM:** Stephen M. Beard  
Director, Office of Congressional Relations and Evaluations

**SUBJECT:** *FDIC Headquarters Laser Printer Cartridges (EVAL-99-006)*

The Office of Congressional Relations and Evaluations (OCRE) has completed a comparative analysis of the prices currently paid by FDIC Headquarters (HQ) for laser printer cartridges to prices available through other sources. We initiated this review as a result of our recent *Evaluation of the FDIC Headquarters Copier Administration Program (EVAL-99-004)*. During the course of the copier evaluation, we identified an alternative supplier that offered remanufactured laser printer cartridges. Accordingly, we decided to analyze FDIC Headquarters (HQ) laser printer cartridge pricing and purchasing practices.

The objectives of our review were to:

- Determine the total amount spent by FDIC HQ on laser printer cartridges in 1998 and the prices paid for individual cartridges, and
- Identify alternative sources for laser printer cartridges that could reduce printer cartridge costs.

## **Scope and Methodology**

To accomplish our work, we interviewed HQ Division of Administration (DOA) and Division of Information Resource Management (DIRM) personnel to gather information about FDIC HQ laser printer cartridge use and purchases. We obtained printer cartridge usage reports for 1998 and the first quarter of 1999 from FDIC's supplier, Boise Cascade Office Products Corporation (Boise). We also obtained current pricing information for selected products.

To identify alternative sources for purchasing printer cartridges, we interviewed representatives from the Department of the Treasury's Franchise Business Activity – East (FBAE) and obtained printer cartridge pricing information. We also obtained and reviewed pricing information from the General Services Administration (GSA) Federal Supply Schedule (FSS). Finally, we interviewed Office of Thrift Supervision (OTS) personnel and contacted three manufacturers used by the agency to understand more about OTS' use of remanufactured printer cartridges. We did not

review the reliability and quality of printer cartridges. We did, however, solicit comments from OTS and DIRM staff regarding their satisfaction with various new and remanufactured cartridges.

We conducted our review from May to July 1999 according to the President's Council on Integrity and Efficiency's *Quality Standards for Inspections*.

## **Results in Brief**

We found the printer cartridge pricing that FDIC HQ received from Boise to be generally competitive. Boise's pricing for selected Hewlett Packard (HP) products was lower than pricing from GSA or other sources that we reviewed. This was largely due to a substantial discount that FDIC HQ received for designating HP printer cartridges as high-use products.

Nevertheless, we determined that FDIC HQ could reduce costs by continuing to use Boise as its supplier, but by purchasing HP-compatible cartridges made by other manufacturers. DIRM has used one of the manufacturer's products before and indicated it was satisfied with the quality of those products. We estimated that FDIC HQ could save \$31,000 to \$41,000 annually by purchasing HP-compatible products from Boise.

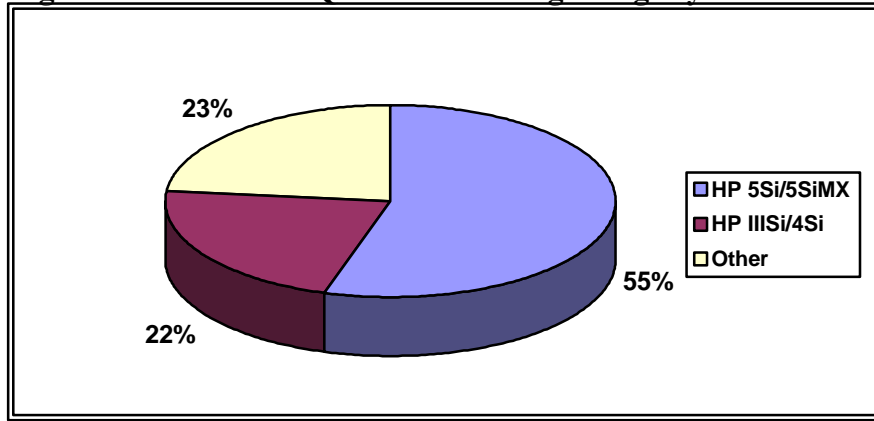
Further, FDIC HQ could achieve greater savings by using remanufactured printer cartridges. Boise, GSA, and numerous other sources offer remanufactured cartridges. DIRM has tried remanufactured cartridges on at least two occasions, but concluded the print quality was not sufficient. However, OTS has used remanufactured cartridges in its printers with positive results for several years. We estimated that FDIC HQ could save up to \$84,000 annually and reduce printer cartridge costs by one-half by using remanufactured printer cartridges.

On August 9, 1999, the Associate Director, Acquisition and Corporate Services Branch (ACSB), provided FDIC's written response to a draft of this report. The response also included an attached memorandum from DIRM responding to the draft report. The Associate Director agreed with one of our recommendations and explained the Corporation's decision for disagreeing with the second recommendation. The Associate Director's response provided the requisite elements of a management decision for both recommendations. The Corporation's written response is included in its entirety as Appendix I to this report. Appendix II presents our assessment of management's responses to the recommendations and shows that we have a management decision for each of the recommendations.

## **Background**

FDIC HQ purchased its printer cartridges from Boise in 1998. FDIC HQ spent \$216,615 on 3,363 printer cartridges in 1998, according to Boise billing data. Almost all cartridges purchased by Headquarters in 1998 were new HP printer cartridges. None of the printer cartridges purchased in 1998 were remanufactured. Most of the laser printer cartridges purchased were for HP IIISi/4Si and 5Si/5SiMX printers (4Si and 5Si). As shown in Figure 1 on the following page, purchases for HP 4Si and 5Si products comprised 77 percent of the FDIC HQ's 1998 printer cartridge cost.

**Figure 1: 1998 FDIC HQ Printer Cartridge Usage by Cost**



Source: Boise 1998 invoicing data.

Boise granted a 56 percent discount to items that FDIC HQ included on its “Standard Stock List” (List). The List included any items stored in FDIC HQ supply rooms. Boise allowed FDIC HQ to place 330 standard items on the List and to designate as many manufacturers per product, as necessary. HQ designated HP cartridges as "high-use" products. Accordingly, FDIC HQ received a 56 percent discount from catalog prices on all HP cartridges. FDIC HQ received a 45 percent discount from catalog prices on cartridges from other manufacturers whose products did not carry the high-use designation.

## Review Results

The prices that FDIC HQ paid for most of its printer cartridges were generally competitive. We compared prices for HP 4Si and 5Si from Boise to prices available under the GSA FSS. We also performed a general internet search to identify other sources and pricing for HP-compatible products. Table 1 presents selected price quotes for 4Si and 5Si cartridges.

**Table 1: Selected Pricing for Cartridges Compatible with HP 4Si and 5Si Printers**

Printer Cartridge Prices								
Manufacturer	Boise <sup>1</sup>		GSA		FBAE		OTS Vendors	
	4Si	5Si	4Si	5Si	4Si	5Si	4Si	5Si
<b>HP</b>	\$73	\$106	\$93	\$135	-	-	-	-
<b>Lexmark</b>	60	87	77	112	-	-	-	-
<b>Verbatim</b>	52	82	71	112	-	-	-	-
<b>Remanufactured<sup>2</sup></b>	42	79	54	50	\$72	\$119	\$54	\$57

Source: Boise supply catalog, GSA Advantage Website, and interviews with FBAE and OTS representatives.

Note 1: All Boise prices presented reflect the 56 percent high-use discount.

Note 2: Boise, GSA, FBAE, and OTS offered or purchased remanufactured printer cartridges from several different sources. We selected the least expensive manufacturer for presentation purposes.

As shown, we found the HP printer cartridge pricing that FDIC HQ received from Boise to be 21 to 22 percent lower than pricing from the GSA FSS, including GSA volume discounts. Likewise, Boise

pricing for HP-compatible cartridges produced by Lexmark and Verbatim were 22 to 27 percent lower than GSA prices. We performed a general search for HP cartridge prices on the Internet and found no sources offering HP 4Si or 5Si-compatible products at prices lower than those available through Boise.

**HP-Compatible Products Could Reduce Printer Cartridge Costs**

Nevertheless, we determined that FDIC HQ could reduce costs by continuing to use Boise as its supplier, but by purchasing HP-compatible cartridges made by other manufacturers, such as Lexmark and Verbatim. Both manufacturers offered HP-compatible cartridges for 4Si and 5Si printers. Assuming that Boise granted Lexmark and Verbatim products the high-use designation, their prices for the 4Si and 5Si cartridges would be 18 to 29 percent lower than Boise prices for HP cartridges. As shown in Table 2, we estimated that FDIC HQ could save \$31,000 to \$41,000 annually by purchasing HP-compatible products from Boise.

**Table 2: Estimated Annual Savings of Using HP-Compatible Manufacturers**

<b>Annual Savings over HP Current Costs Based on 1998 Usage</b>	
<b>Manufacturer</b>	<b>Annual Savings</b>
<b>Lexmark</b>	\$30,978
<b>Verbatim</b>	41,362

Source: OIG analysis based on 1998 FDIC HQ printer cartridge usage and current Boise prices.

During the course of our review, we learned that DIRM was testing Lexmark printer cartridges. A DIRM representative acknowledged that Lexmark cartridges were less expensive than HP products and indicated that DIRM had not incurred any quality problems with the Lexmark cartridges. The representative also indicated that DIRM would be willing to test Verbatim cartridges.

The DIRM representative was concerned whether using non-HP cartridges would impact or void HP’s 1-year printer warranty. We researched HP’s website and found the terms of HP’s 1-year On-Site Limited Warranty for 5Si printers. The website indicated the warranty would not apply to defects resulting from the use of non-HP toner cartridges. However, the warranty clarified that:

“The use of non-HP or refilled toner cartridges alone does not affect either your warranty or any maintenance contract you may have purchased. However, if an HP LaserJet printer failure or damage is found to be attributable directly to the use of a non-HP toner cartridge, HP will not repair the printer free-of-charge.”

## Remanufactured Printer Cartridges Could Provide Additional Savings

A number of suppliers including Boise, GSA, and FBAE also offered remanufactured printer cartridges. We analyzed the costs of remanufactured cartridges for selected manufacturers and found the prices for such products varied greatly. For example, 4Si remanufactured cartridges from GSA were actually more expensive than newly manufactured Verbatim cartridges from Boise. Further, the prices for remanufactured cartridges from FBAE either approximated or exceeded the costs for new HP brand-name cartridges available through Boise.

However, we found that prices for certain remanufactured cartridges under the GSA FSS were less expensive than newly manufactured cartridges. For example, a remanufactured cartridge from the GSA FSS for a 5Si printer was 53 percent lower than a newly manufactured HP printer cartridge from Boise and 39 percent lower than a newly manufactured Verbatim printer cartridge. Table 3 presents the estimated savings associated with purchasing remanufactured printer cartridges.

**Table 3: Estimated Annual Savings of Using Remanufactured Cartridges**

Annual Savings over HP Current Costs Based on 1998 Usage	
Supplier	Annual Savings
Boise	\$51,690
GSA	\$76,481

Source: OIG analysis based on 1998 FDIC HQ printer cartridge usage and current Boise and GSA prices.

DIRM tested remanufactured cartridges on at least two occasions. A DIRM representative indicated that DIRM recently tested six remanufactured printer cartridges. The representative reported that print quality for four cartridges was gray instead of black and one cartridge leaked into a printer. During a previous remanufactured printer cartridge test, the DIRM representative indicated that the cartridge failure rate was 50 to 80 percent.

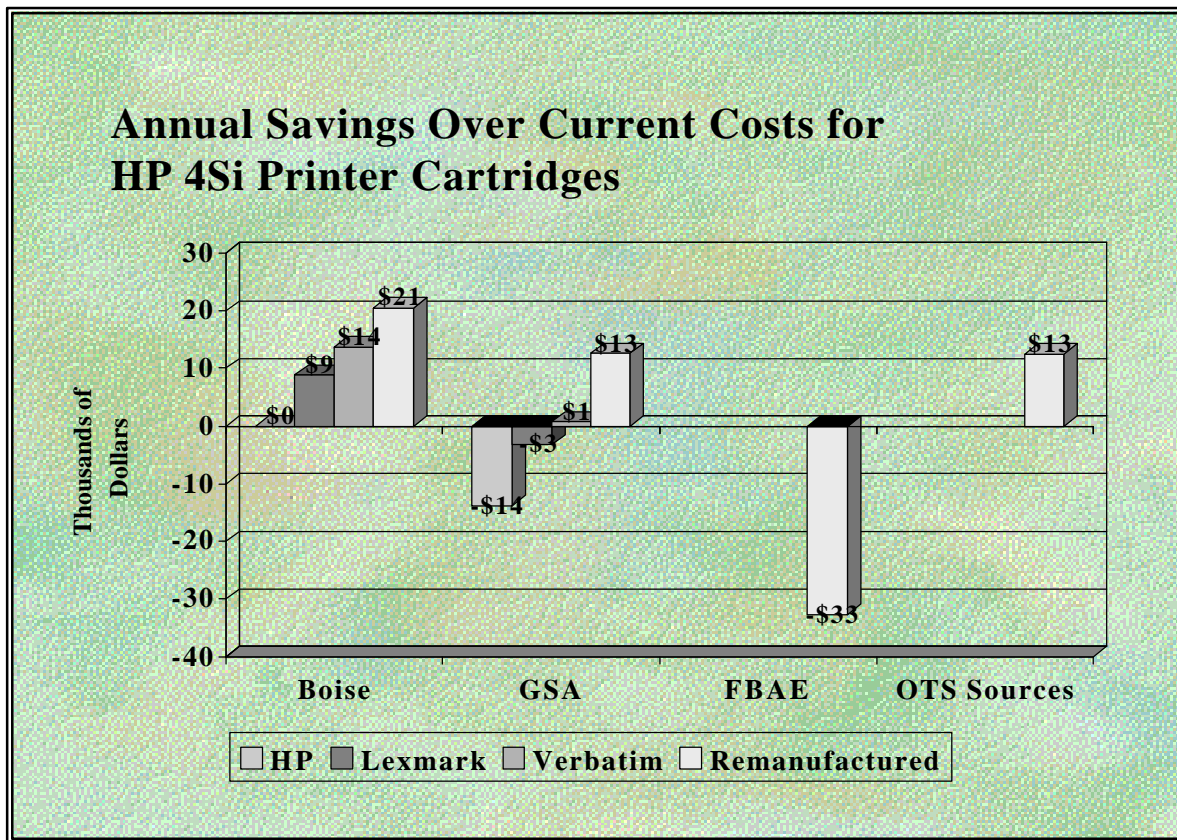
Conversely, OTS has used remanufactured cartridges for more than 5 years. An OTS official indicated that remanufactured laser printer cartridges have provided good results for OTS and estimated a failure rate of about 2 percent. OTS has a purchase agreement with a number of remanufactured printer cartridge manufacturers. The agency periodically contacts its manufacturers for pricing quotes and then orders cartridges from the source with the best price. OTS provided the name of three remanufactured printer cartridges sources. All three sources provided prices for 4Si and 5Si cartridges that were less expensive than newly manufactured HP cartridges from Boise.

Given the potential cost savings and OTS' success, we recommended in our draft report that ACSB evaluate the feasibility of using remanufactured cartridges in conjunction with DIRM. We suggested that the study be sufficiently broad to include remanufactured products from multiple sources and include discussions with OTS and/or other agencies to ascertain the potential benefits and tradeoffs of using remanufactured printer cartridges.

## Summary Analysis of Potential Savings

To determine potential savings from printer cartridge alternatives, we multiplied FDIC HQ's 1998 printer cartridge usage by the current prices for products discussed in this report. As shown in Figure 2 below, for HP 4Si printer cartridges, FDIC HQ could save up to \$14,000 annually by purchasing HP-compatible cartridges through Boise. This would be a 28 percent reduction in the amount that FDIC HQ paid for this printer cartridge model during 1998. Further, FDIC HQ could save almost \$21,000 annually by purchasing remanufactured 4Si cartridges from Boise. This would result in a 42 percent reduction in the amount that FDIC HQ paid for this printer cartridge model during 1998.

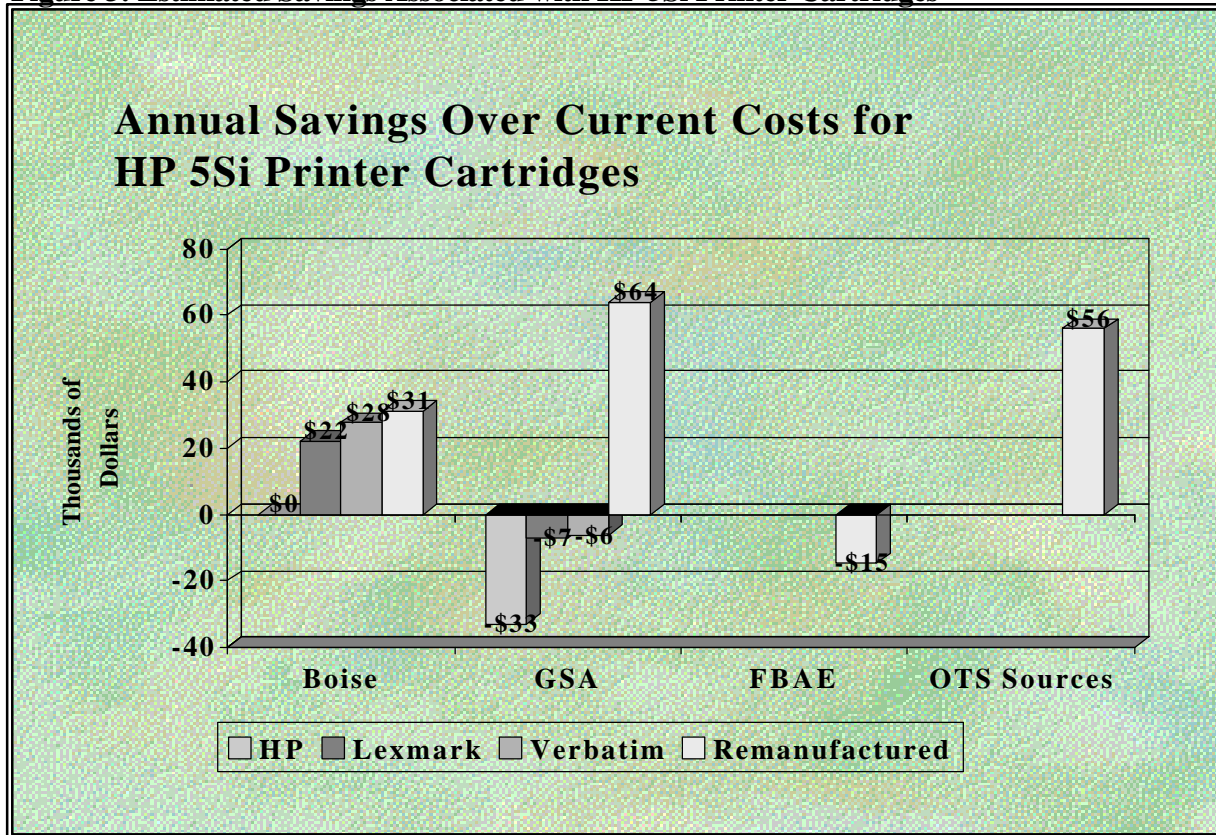
**Figure 2: Estimated Savings Associated with HP 4Si Printer Cartridges**



Source: Boise-Cascade, GSA Advantage Website, and discussions with FBAE and OTS.

With respect to HP 5Si printer cartridges, FDIC HQ could save almost \$28,000 annually by purchasing HP-compatible cartridges through Boise. This alternative would result in a 23 percent reduction in the amount that FDIC HQ paid for this printer cartridge model during 1998. Moreover, FDIC HQ could save almost \$64,000 annually by purchasing remanufactured printer cartridges from the GSA FSS for its 5Si printers. These savings would result in a 53 percent reduction in the amount that FDIC HQ paid for this printer cartridge model during 1998. These estimated savings are presented on the following page in Figure 3.

**Figure 3: Estimated Savings Associated with HP 5Si Printer Cartridges**



Source: Boise-Cascade, GSA Advantage Website, and discussions with FBAE and OTS.

Overall, FDIC HQ could achieve the greatest savings by purchasing remanufactured 4Si printer cartridges from Boise and remanufactured 5Si printer cartridges from the GSA FSS. We estimated that FDIC HQ could save over \$84,000 annually through this option and FDIC HQ could reduce printer cartridge costs by 50 percent.

### Conclusion and Recommendations

We found that FDIC HQ generally received competitive pricing for printer cartridges from Boise. Nevertheless, we concluded that FDIC HQ could achieve savings by purchasing HP-compatible printer cartridges from Boise rather than name brand HP products. Moreover, FDIC HQ could reduce printer cartridge costs by as much as 50 percent by purchasing remanufactured printer cartridges instead of newly manufactured cartridges.

Accordingly, we recommended that the Associate Director, ACSB evaluate:

- (1) Whether ACSB could fulfill FDIC HQ’s printer cartridge needs more economically by purchasing HP-compatible printer cartridges made by other manufacturers through Boise, and
- (2) The feasibility of purchasing remanufactured printer cartridges to meet FDIC HQ’s printer cartridge needs.



## Corporation Comments and OIG Evaluation

On August 9, 1999, the Associate Director, ACSB, provided FDIC's response to a draft of this report. The response also included an attached memorandum from DIRM responding to the draft report. These responses are presented in Appendix I to this report. ACSB agreed with one of our report recommendations. ACSB disagreed with the second recommendation based on DIRM's technical evaluation of the recommendation. However, ACSB and DIRM's response adequately supported the Corporation's position. Accordingly, ACSB's written response provided the requisites for a management decision on both recommendations. A summary of these recommendations follow.

**Evaluate whether ACSB could fulfill FDIC HQ's printer cartridge needs more economically by purchasing HP-compatible printer cartridges made by other manufacturers through Boise (recommendation 1):** ACSB agreed with this recommendation. ACSB indicated that DIRM is testing Lexmark and Verbatim cartridges and expects to receive a recommendation from DIRM by September 15, 1999. Accordingly, as of the date of this final report, we cannot determine whether there will be funds put to better use resulting from this recommendation. We will report such monetary benefits in our next *Semiannual Report to the Congress* should DIRM recommend and ACSB procure less expensive cartridges.

**Evaluate the feasibility of purchasing remanufactured printer cartridges to meet FDIC HQ's printer cartridge needs (recommendation 2):** ACSB disagreed with this recommendation based on DIRM's technical evaluation and recommendation. DIRM responded that it had already investigated the use of remanufactured printer cartridges in the FDIC environment several times and cited conclusions from two information technology firms that questioned the benefits of remanufactured printer cartridges. DIRM did not concur with the recommendation to perform an additional study into the use of remanufactured printer cartridges.

We discussed the feasibility of using remanufactured printer cartridges with DIRM representatives during our review and asked specific questions about DIRM's efforts to test remanufactured printer cartridges. The results of these discussions are included in the body of this report. Further, we provided DIRM an opportunity to comment on the summary results of the review before we issued the draft report. In its response to our draft report, DIRM provided additional information about its past efforts to test remanufactured printer cartridges. These efforts were much more extensive than those described to us during our review. Had DIRM provided this information during our review, our conclusions and recommendation with respect to remanufactured printer cartridges may have been different.

ACSB and DIRM's response is sufficient to reach a management decision on this recommendation. However, the response did not address the disparity between OTS' and FDIC's experiences. To that end, if FDIC decides to reassess remanufactured printer cartridges we suggest that DIRM contact OTS or other agencies to ascertain their level of satisfaction with remanufactured printer cartridges.

## Appendix I: Corporation Comments



**FDIC**  
Federal Deposit Insurance Corporation  
550 17th Street, NW, Washington, DC 20429

Division of Administration

**DATE:** August 9, 1999

**MEMORANDUM TO:** Stephen M. Beard, Director  
Office of Congressional Relations and Evaluations

**FROM:** Michael J. Rubino, Associate Director  
Acquisition and Corporate Services Branch

**SUBJECT:** Management Response to Draft Report: FDIC Headquarters  
Laser Printer Cartridges

The Division of Administration's Acquisition and Corporate Services Branch (ACSB) has completed its review of the draft report issued by the Office of the Inspector General (OIG) entitled *FDIC Headquarters Laser Printer Cartridges*. This review was initiated as a spin off from the OIG's recent in-depth evaluation of the FDIC Headquarters Copier Administration Program.

In order to provide a comprehensive response to the draft report, we solicited input from the Division of Information Resources Management (DIRM).

### Management Decision

**Recommendation 1:** Evaluate whether ACSB could fulfill FDIC Headquarters' printer cartridge needs more economically by purchasing HP-compatible printer cartridges made by other manufacturers through Boise Cascade.

**Management Response 1:** ACSB is pleased to see that the OIG found the FDIC is currently receiving prices that are below GSA and other sources for the Hewlett Packard (HP) printer cartridges. However, given that the OIG report identified alternative sources for printer cartridges that could lead to potential further cost savings to the corporation, ACSB will evaluate and determine whether it would be more advantageous to procure such items through these other recommended manufacturers. In order to make this type of decision, ACSB must rely on the technical expertise of the Division of Information Resources Management (DIRM).

DIRM is in the process of completing its current tests of Lexmark printer cartridges and will then proceed to test the Verbatim cartridges. Both are potential substitutes for HP cartridges. DIRM will also investigate the impact of using non-HP cartridges on HP's one-year printer warranty. DIRM expects to complete its evaluation, and will make its recommendation to ACSB by September 15, 1999. ACSB will use the results of DIRM's testing to determine the direction for future printer cartridge procurements.

**Recommendation 2:** Evaluate the feasibility of purchasing remanufactured printer cartridges to meet FDIC Headquarters' printer cartridge needs.

**Management Response 2:** As stated in our response to recommendation one, ACSB must rely on the technical expertise of DIRM to determine the corporate technology needs and direction. ACSB agrees with the OIG that printer cartridge price is one of the major factors in the decision making process; however, the total operational cost and impact must also be considered in the evaluation.

Based on the technical evaluation and recommendation made by DIRM, ACSB does not believe that procuring remanufactured printer cartridges is the direction the corporation should take at this time. DIRM has conducted tests of a variety of remanufactured cartridges over the last five years, most recently in 1998. The results of these tests showed cartridge failure rates of 50 to 80 percent. In addition, the remanufactured cartridges allowed excessive toner to be dumped into the printer, the print quality was gray instead of black, paper jams occurred, and the print resolution was not crisp. DIRM also cited the results of two leading IT research firms. Both firms concluded that remanufactured toner cartridges could cause increased maintenance and labor charges that exceed any potential cost savings. See attached copy of DIRM memorandum for additional details.

We thank you for this opportunity to respond to the report. If you have any questions regarding the response, our point of contact for this matter is Andrew O. Nickle, Audit Liaison for the Division of Administration. Mr. Nickle can be reached at (202) 942-3190.

Attachment

cc: Vijay Deshpande, OICM  
Janet Roberson, DIRM  
Rack Campbell, DIRM

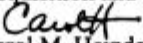
**FDIC****Federal Deposit Insurance Corporation**

Division of Information Resources Management

Office of the Director

August 3, 1999

MEMORANDUM TO: Michael J. Rubino, Associate Director  
Acquisition and Corporate Services Branch

FROM:   
Carol M. Heindel  
General Deputy Director

SUBJECT: Input for the Response to the Office of Inspector General,  
Office of Congressional Relations and Evaluations (OIG/OCRE)  
Draft Report: FDIC Headquarters Laser Printer Cartridges

The Division of Information Resources Management (DIRM) has completed its review of the subject draft report. For clarity, we have incorporated our comments immediately following each of the findings and recommendations below:

**Finding: HP-Compatible Products Could Reduce Printer Cartridge Costs**

"...we have determined that the FDIC HQ could reduce costs by continuing to use Boise as its supplier, but by purchasing HP-compatible cartridges made by other manufacturers, such as Lexmark and Verbatim. Both manufacturers offered HP-compatible cartridges for 4Si and 5Si printers. Assuming that Boise granted Lexmark and Verbatim products the high-use designation, their prices for the 4Si and 5Si cartridges would be 18 to 29 percent lower than Boise prices for HP cartridges." "...we estimated that FDIC HQ could save \$31,000 to \$41,000 annually by purchasing HP-compatible products from Boise."

**Recommendation:**

Associate Director, ACSB evaluate: Whether ACSB could fulfill FDIC HQ's printer cartridge needs more economically by purchasing HP-compatible printer cartridges made by other manufacturers through Boise.

**DIRM Comment:**

Page 2 of the draft evaluation report states, "We did not review the reliability and quality of printer cartridges." As such, the OIG/OCRE recommendation appears to be based solely on price. In addition, that recommendation assumes, "...that Boise granted Lexmark and Verbatim products the high-use designation." To assist the Acquisition and Corporate Services Branch (ACSB) in the purchase decision, DIRM will complete its current tests of Lexmark printer cartridges, will test Verbatim cartridges, and will further investigate the impact of using non-HP cartridges on HP's 1-year printer warranty. Based on the results of that testing and investigation,

DIRM will make a recommendation to the Associate Director, ACSB on the use of HP-compatible printer cartridges made by other manufacturers by September 15, 1999.

**Finding: Remanufactured Printer Cartridges Could Provide Additional Savings**

Overall, FDIC HQ could achieve the greatest savings by purchasing remanufactured 4Si printer cartridges from Boise and remanufactured 5Si printer cartridges from the GSA FSS. We estimated that FDIC HQ could save over \$84,000 annually through this option and FDIC HQ could reduce printer cartridge costs by 50 percent.

Given the potential cost savings and OTS' success, the Acquisition and Corporate Services Branch (ACSB) should evaluate the feasibility of using remanufactured cartridges in conjunction with DIRM. The study should be sufficiently broad to include remanufactured products from multiple sources and include discussions with OTS and/or other agencies to understand the potential benefits and tradeoffs of using remanufactured printer cartridges.

**Recommendation:**

Associate Director, ACSB evaluate: The feasibility of purchasing remanufactured printer cartridges to meet FDIC HQ's printer cartridge needs.

**DIRM Comment:**

Over the last five years, DIRM has tested a variety of remanufactured cartridges on at least two occasions. The most recent testing was done in 1998. During these tests, the cartridge failure rate was 50 to 80 percent. The remanufactured cartridges allowed excessive toner to be dumped into the printer, the print quality was gray instead of black, paper jams occurred and the print resolution was not crisp.

DIRM's Client Services Branch accumulated comments from a number of network support managers. Every one of them has had poor experiences in using remanufactured toner cartridges. Problems included higher toner leakage, reduced page count and more frequent parts replacement. These problems were particularly acute in the lower priced cartridges.

Specifically:

Recycled cartridges increase maintenance costs.

- The recycled cartridges are subject to a greater frequency of leaks. If you open up a printer running original toner cartridges you will see white paper dust particles. A printer running

recycled cartridges will have white and black dust particles. The black particles settle on the drum roller resulting in streaks across the pages, and clog the fusers. The end result is more calls from the clients, more parts, and new fusers. This increases the cost of labor to clean the printers and the cost of additional parts.

- Recycled cartridges have a higher rate of failure than original cartridges. The recycled cartridges have a lower unit cost but we need to purchase more due to the failure rate. This also translates into more calls for service to install the cartridges thereby increasing labor costs.
- Recycled cartridges produce a lower page count vs. original cartridges. Since the recycled cartridges print fewer pages you use more cartridges and they need to be replaced more frequently thereby increasing costs for additional cartridges and for the labor to replace them.

In addition, both Gartner Group and the Giga Information Group IT research firms have provided information which concluded that inexpensive toner cartridges can cause increased maintenance and labor charges, which are more costly than the product. As mentioned under recommendation one, the draft evaluation report, "...did not review the reliability and quality of printer cartridges." As such, the OIG/OCRE recommendation appears to be based solely on lowest price. Research from Gartner and Giga indicates that the price of toner cartridges should not be the sole criteria driving the purchase decision. Since there are many different laser print engines, each requiring different toner cartridges, it is difficult to produce a quality remanufactured toner cartridge for each product in the marketplace.

Conversely, Gartner states that "High quality consumables can reduce the instances of malfunction, and thus lower the need for operator or user intervention" Gartner concludes, "Maintenance also involves the cost of loading paper and toner or clearing jams. The labor associated with these tasks can exceed the cost of the supplies."

Given that DIRM has already investigated the use of remanufactured printer cartridges in the FDIC environment several times and given the supporting evidence of two leading IT research firms, DIRM does not concur with the recommendation to do an additional study into the use of remanufactured printer cartridges.

Please address any questions to DIRM's Audit Liaison, Rack Campbell at (703) 516-1422.

cc: Vijay Deshpande, OICM



## Appendix II –Management Responses to Recommendations

This table presents the management responses that have been made on recommendations in our report and the status of management decisions. The information for management decisions is based on DOA management's written response to our draft report.

Rec. Number	Corrective Action: Taken or Planned / Status	Expected or Actual Completion Date	Documentation that will confirm final action	Monetary Benefits	Management Decision: Yes or No
1	DIRM is currently testing Lexmark and Verbatim printer cartridges as an alternative to HP cartridges. DIRM will provide a recommendation to ACSB at the end of the test period .	9/15/99	DIRM recommendation to ACSB	To be determined	Yes
2	DIRM responded that it has already tested a variety of remanufactured printer cartridges on at least two occasions. DIRM reported poor results from these tests. At this time, DIRM does not intend to perform additional testing of remanufactured printer cartridges.	N/A	N/A	N/A	Yes