April 2005

CURRENCY PAPER PROCUREMENT

Additional Analysis Would Help Determine Whether a Second Supplier Is Needed

GAO-05-368
Additional Analysis Would Help Determine Whether a Second Supplier Is Needed

What GAO Found

To encourage competition for the 1999 and 2003 contracts, BEP modified its solicitations to, among other things, indicate that it would provide bidders with the security thread that is inserted into most currency paper and extend the time for initial deliveries. For the 1999 contract, one additional supplier submitted an initial proposal but later withdrew it, and for the 2003 contract, only the current supplier submitted a proposal. This company remains the sole supplier of U.S. currency paper. According to paper manufacturers, several barriers to competition remain, including the high capital costs of and technological requirements for producing currency paper. BEP said it has not addressed these barriers because the requirements are either essential to preserve the security of currency paper or they are outside BEP’s control (e.g., anticounterfeiting features are recommended by a federal committee). While some of the remaining barriers are outside BEP’s control, BEP’s outreach to paper manufacturers has been limited. For example, BEP does not meet regularly with them, as the Departments of Defense and Homeland Security meet with potential suppliers of their procurements, to identify additional steps that could be taken to encourage competition. To the extent that BEP has reached out to paper manufacturers, it has generally done so in conjunction with other BEP procurements.

For the contracts awarded in 1999 and 2003, BEP took several steps, consistent with the Federal Acquisition Regulation’s requirements, to determine that the prices it paid under these contracts were fair and reasonable. For the 1999 contract, it used price analysis (a comparison of two proposals) to determine that the two proposals it initially received were fair and reasonable. For the 2003 contract, BEP performed several cost analysis activities to ensure that the final agreed-to price was fair and reasonable, since the current supplier was the only company that submitted a proposal. For example, BEP obtained certified cost and pricing data from the current supplier, requested an audit review of the current supplier’s price proposal, and established a technical analysis team to examine steps in the current supplier’s manufacturing process that affect price. BEP also arranged for postaward audits of the current supplier.

BEP has not analyzed the advantages and disadvantages of obtaining a second supplier of currency paper since 1996. At that time, it concluded that the costs would outweigh the benefits, but it did not analyze the long-term effects. As a result, it does not know how a second supplier would affect the costs, quality, security, and supply of currency paper over time. Analyzing the advantages and disadvantages of obtaining a second supplier would help BEP determine the need for one.

What GAO Recommends

GAO recommends that the Secretary of the Treasury direct the Director of BEP to (1) increase outreach to paper manufacturers before issuing solicitations and (2) assess the need for a second supplier of currency paper and if a second supplier is needed, take the necessary action to obtain one. BEP, the Mint, and the Federal Reserve Board generally agreed with the report’s findings and/or recommendations.

April 29, 2005

The Honorable Carolyn B. Maloney
Ranking Minority Member
Subcommittee on Domestic and International Monetary Policy, Trade, and Technology Committee on Financial Services
House of Representatives

The Honorable Peter T. King
House of Representatives

For over 125 years, the U.S. government has relied on one contractor to supply virtually all of the paper for U.S. currency. The Bureau of Engraving and Printing (BEP), which is responsible for printing U.S. currency, is currently under a 4-year contract with this supplier and, according to BEP data, is paying about $115 million a year for currency paper. Although BEP has historically received a steady, timely supply of paper that meets its requirements from its current supplier, having one supplier for currency paper raises a number of concerns. Among these concerns are (1) the lack of competition for the currency paper contract, (2) the fairness and reasonableness of price, and (3) the adequacy of the currency paper supply in the event of an attack or other disruption of the currency supply.

These concerns, combined with the importance of U.S. currency to domestic and international commerce, have led to reviews of this unique situation. For example, in a 1996 report, the Department of the Treasury and BEP concluded that competition was not immediately feasible because the current supplier was the only domestic source that could supply currency paper that met BEP's requirements. At the request of Congress, in 1998 we also completed a review and reported that the optimum situation for the procurement of currency paper would include an active, competitive market with several responsible bidders. However, this situation did not exist because, according to paper manufacturers we surveyed, there were several barriers to competition. These barriers included the large initial capital investment required to produce currency paper and a legislative provision generally precluding foreign-owned companies from competing for the contract. We also reported that BEP

could not determine a “fair and reasonable” price for some of its paper contracts—a requirement in negotiating a federal contract that involves the judgment of the contracting officer based on various defined techniques and established procedures for analyzing proposed prices. To help BEP improve its contract oversight and increase competition, we made several recommendations, most of which BEP has implemented. (See app. I.)

In 1998 we reported that a number of BEP’s actions to encourage competition were too new for us to assess their impact. Since that time, BEP has entered into two additional contracts, in 1999 and in 2003, and has taken further steps to encourage competition. BEP is now scheduled to award another currency paper contract in the fall of 2006. Moreover, the U.S. Mint (the Mint), which is responsible for producing coins, has now had over a decade of experience with having a second supplier for coin metal after having had a single supplier for decades. Given these developments, you asked us to update our 1998 report. To do so, we determined

- the changes BEP made to encourage competition for the 1999 and 2003 currency paper contracts and the results of its efforts,

- the steps BEP took to determine that the prices it paid for currency paper under these contracts were fair and reasonable, and

- the extent to which BEP has analyzed the advantages and disadvantages of obtaining a second supplier for currency paper.

To determine the changes BEP made to encourage competition for the 1999 and 2003 currency paper contracts and the results of its efforts, we reviewed the changes that BEP made to its solicitations and contracts. We also conducted a survey of domestic and foreign paper manufacturers, using a questionnaire similar to the one we used for our 1998 report. Of the 15 manufacturers we identified as having the potential to compete for the currency paper contract, 14 responded to our survey, and 8 of these said they were interested in providing currency paper to BEP. The remaining 6 manufacturers told us that they were not interested in competing for the currency paper contract. We reviewed economic literature to identify barriers to competition for the currency paper market, and we reviewed applicable procurement laws and regulations to identify requirements affecting the procurement of currency paper. Among these are the Conte Amendment, a statute that requires that paper for U.S. currency be manufactured in the United States, and another statute that limits the procurement of distinctive currency paper to 4-year contracts. To
To encourage competition for the 1999 and 2003 contracts, BEP made a number of changes to its contract solicitations to address some of the barriers that paper manufacturers we surveyed had identified. For example, BEP modified the solicitations to indicate that it would provide the security thread that is inserted into most currency paper to other successful bidders as government-furnished property rather than requiring them to obtain the thread themselves. In addition, BEP increased the mobilization period—the time between the contract award and the start of deliveries to BEP—to 24 months. This period had previously been limited to 60 days. In response to the solicitation for the 1999 contract, one additional supplier submitted an initial proposal, but later withdrew it, and for the 2003 contract, only the current supplier submitted a proposal. This company remains the sole supplier of U.S. currency paper today. Although BEP addressed a number of barriers, several other barriers, such as the high costs and the technological difficulties of producing currency paper, still exist, according to paper manufacturers we surveyed for this report. According to BEP, it has not addressed these barriers because they are due to requirements that are outside its control or they are essential to preserve the quality and security of currency paper. For example, the anticounterfeiting features in currency paper are recommended by the Advanced Counterfeit Deterrence Steering Committee, which consists of members from BEP, the U.S. Secret Service, the Federal Reserve System, and the Department of the Treasury. We agree with BEP that some of the remaining barriers are outside its control; however, we found that BEP's outreach to paper manufacturers is limited and is generally done in conjunction with its other procurements. For example, BEP does not conduct industry briefings for potential suppliers. We found that the Departments of Defense and Homeland Security hold industry briefings as frequently as possible to provide potential contractors with information.
Before BEP issues solicitations for currency paper contracts in the future, we recommend that the Secretary of the Treasury direct the Director of BEP to increase outreach activities with paper manufacturers to allow them to provide their views on the barriers to competition, suggest what steps BEP should take to address these barriers, and comment on future solicitations.

For the contracts awarded in 1999 and 2003, BEP took several steps consistent with the FAR's requirements to determine that the prices it paid under these contracts were fair and reasonable. Since BEP initially received two proposals for the 1999 contract, it used price analysis—a comparison of the two proposals—to determine that the prices were fair and reasonable. This analysis was sufficient because BEP determined that adequate price competition existed. For the 2003 contract, BEP performed several cost analysis activities to ensure that the final agreed-to price was fair and reasonable, since the current supplier was the only company that submitted a proposal. For example, BEP obtained certified cost and pricing data from the current supplier, requested an audit review of the current supplier's price proposal, and established a technical analysis team to examine steps in the current supplier's manufacturing process that affect price. BEP also arranged for a postaward audit of the current supplier, as we recommended in 1998, to ensure that the price negotiated for the contract was based on adequate data. In 1998, we reported that BEP had engaged in two procurement practices that could contribute to a higher-than-necessary price for currency paper. For example, BEP did not obtain royalty-free data rights to, or fund the development of, the security thread used in currency paper. Consequently, under the current 4-year contract, BEP is paying about $650,000 in royalties related to obtaining the security thread. Although royalty payments are an allowable expense under FAR, according to the current supplier, these payments will end in December 2006. In addition, to prevent this situation from recurring, BEP plans to purchase royalty-free data rights to new anticounterfeiting features that it obtains in the future from any sources for a cost to be determined. Such an arrangement could enable BEP to use the technology at its discretion, including allowing currency paper contractors to use the technology without having to pay royalty fees.

Although BEP has stated that it favors competition for currency paper and has taken some steps to encourage competition, it has not recently analyzed the advantages and disadvantages of obtaining a second supplier, including the impact on the cost, security, quality, and adequacy of the
supply of currency paper. In its August 1996 currency paper report, BEP concluded that competition was not immediately feasible because the current supplier was the only domestic source that could furnish currency paper that met BEP’s requirements. Moreover, BEP estimated that it would pay an additional $21 million to $37 million per year for currency paper if it purchased the paper from more than one supplier, primarily because the new supplier would have high capital costs. However, BEP’s 1996 report did not analyze the long-term advantages and disadvantages of obtaining a second supplier. Such an analysis would help BEP determine if obtaining a second supplier would be cost effective over the long term, decide whether the benefits of obtaining a second supplier outweigh the potential security and quality concerns associated with a second supplier, and ensure that BEP can maintain an adequate supply of currency paper. We are recommending that the Secretary of the Treasury direct the Director of BEP to determine if there is a need to obtain a second supplier for currency paper by preparing an analysis of the advantages and disadvantages of a second supplier, including the impact on the cost, security, quality, and adequacy of the supply of currency paper. If the analysis determines that there is a need to obtain a second supplier, the Secretary should then determine what steps are necessary to obtain a second supplier for currency paper. We provided BEP, the Mint, and the Federal Reserve Board with draft copies of this report for their review and comment. They agreed with the draft report’s findings and provided some technical comments which we incorporated where appropriate. BEP also agreed with our recommendations and described its plans to implement them. See appendix III for BEP’s comments.

Background

BEP, a bureau of the Department of the Treasury, buys currency paper from a private company and prints the nation’s currency at production facilities in Washington, D.C., and Fort Worth, Texas. According to BEP data, the currency paper contract amounts to about $115 million per year. Currency paper is a highly specialized product that includes cotton and linen fibers as well as anticounterfeiting features to enhance the quality and security of the paper. Several agencies affect the production of currency paper. The Department of the Treasury oversees BEP’s production of currency, including its procurement of currency paper. The U.S. Secret Service, now within the Department of Homeland Security, is responsible for anticounterfeiting activities and works with BEP in assessing the security of BEP’s money production facilities and currency redesign. The Federal Reserve Board sets monetary policy for the nation, obtains new currency from BEP, and issues the new currency to the public through depository
institutions. The Advanced Counterfeit Deterrence Steering Committee, which includes members from BEP, the Department of the Treasury, the U.S. Secret Service, and the Federal Reserve System recommends to the Secretary of the Treasury the anticounterfeiting features to be placed in U.S. currency. If the Secretary of the Treasury accepts these recommendations, they become part of the specifications or requirements for the currency paper.

The procurement of currency paper is subject to an appropriations limitation, called the Conte Amendment, enacted in December 1987. In effect, the Conte Amendment requires that distinctive paper for U.S. currency and passports be manufactured in the United States. The amendment further prohibits the purchase of currency and passport paper from a supplier owned or controlled by a foreign entity unless the Secretary of the Treasury determines that no domestic source exists. The procurement of currency paper is also subject to another statutory limitation that prohibits the Secretary of the Treasury from entering into a contract in excess of 4 years for manufacturing distinctive currency paper.

BEP Changed the Solicitations for the 1999 and 2003 Currency Paper Contracts and Intends to Include These Changes in the Solicitation for the Next Contract, Which Will Be Awarded in 2006. Some of the Changes Addressed Barriers We Reported in 1998. These Changes Included the Following:

- **Switching to a 4-year contract.** Previously, BEP negotiated a 1-year contract with three 1-year options, which meant that manufacturers were not assured that they would receive the contract from one year to the next. According to BEP officials, a 4-year contract creates less risk for manufacturers because the contractor is almost guaranteed to receive the contract for 4 years when the government no longer has the option to renew the contract each year.

- **Allowing multiple awards.** Previously, BEP required any bidder to bid on the entire currency paper contract. BEP divided its total currency paper requirements into several different lots and allowed companies to

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select the parts of the solicitation they would bid on. For example, a company could choose to bid only on the paper for the $1 and $2 bills. Thus, the contract could be awarded to two companies. Potential suppliers told BEP that, in order to begin production, they would need a long-term commitment for at least 40 percent of the contract.

- **Allowing a 24-month mobilization period.** Previously, the mobilization period—the time between the contract award date and the date for starting deliveries to BEP—was no more than 60 days. In 1998 some paper manufacturers told us that the start-up period historically allowed by BEP was not long enough for companies that are not currently manufacturing currency paper.

- **Allowing representative rather than identical samples.** Previously, companies had to produce samples during the bidding process using the same machines they would use to produce currency paper if they received the contract. BEP required these samples, which are called identical samples, so that it could determine whether the companies were capable of manufacturing paper that met its specifications. BEP now allows for representative samples during the bidding process. Representative samples are manufactured on equipment that is similar to what the company would use if it were awarded the contract. Allowing representative samples enables companies that do not currently own the required equipment to produce paper samples on another company’s equipment and avoid purchasing costly equipment until they have been awarded the contract. Domestic paper companies, for example, could use the equipment of European paper companies to produce representative samples and then acquire the appropriate equipment if they were awarded the contract.

- **Agreeing to consider innovative financing and acquisition arrangements.** Previously, solicitations did not provide any help to companies that would have had to make a considerable financial investment to purchase the equipment needed to compete for the contract. To facilitate such an investment, the 1999 and 2003 solicitations stated that BEP would “consider innovative financing and acquisition arrangements” proposed by a potential supplier, but the solicitations did not specify what these arrangements might be. BEP officials told us that these arrangements could include having the government pay for some capital equipment if the contractor repaid the government at the end of the contract. However, two of eight paper manufacturers who said they were interested in competing for the
contract told us that the lack of financial assistance continues to make it difficult for them to compete for the contract.

• *Furnishing the security thread.* Previously, BEP expected potential paper manufacturers to obtain the security thread used in currency paper on their own, which some paper manufacturers cited as a barrier because the sole manufacturer of the security thread is a subsidiary of the current supplier. As a result, potential manufacturers would have had to purchase the thread and make royalty payments to that company. BEP modified the solicitations for the 1999 and 2003 contracts to indicate that it would provide the security thread that is inserted into most currency paper to other successful bidders as government-furnished property rather than requiring them to obtain the thread themselves.

BEP awarded the first contracts with these changes in fiscal years 1999 and 2003. According to documents in BEP’s contract files, one company in addition to the current supplier submitted a proposal for the 1999 contract, but ultimately withdrew because, according to this company, it was unwilling to continue to expend the resources required to produce fully compliant paper samples without a contract. Four other companies expressed interest in the 1999 contract, but did not submit proposals. One company said it did not submit a proposal because it determined that the estimated capital expenditures exceeded any potential profit that might be realized over the 4-year contract period. Another company that had expressed interest in the contract said it did not submit a proposal because it was unable to obtain a commitment for the large capital investment required. Additionally, the company said the contract’s provision for ordering a wide range of paper quantities made it difficult to calculate a return on investment. A third interested company did not submit a proposal because of durability requirements for the currency paper. A fourth interested company did not give a reason for not submitting a proposal. For the 2003 contract, the current supplier was the only company to submit a proposal. Three paper companies other than the current supplier asked to receive the solicitation, but these companies took no further action. The next solicitation for the currency paper contract is expected to be issued in the fall of 2005, and the contract is scheduled to be awarded in 2006. This solicitation will include all the changes that BEP previously made, according to BEP officials.
Despite the changes BEP made to the contract solicitation, paper manufacturers we surveyed in 2004 told us that significant barriers to competition remain. Specifically, the eight paper manufacturers we surveyed who said they would be interested in providing currency paper to BEP told us that the following barriers, which we reported in 1998, still exist:

- **Security requirements for the manufacturing facility.** Three of the eight manufacturers told us that implementing these security requirements—which include ensuring that all waste is accounted for, controlling access to sensitive production areas in the paper mill, and erecting physical barriers around the mill—make it difficult for them to compete for the currency paper contract because of the high costs to upgrade their facilities.

- **Technology required to incorporate anticounterfeiting features.** Three of the eight manufacturers told us that the cost of the equipment and the technical expertise necessary to insert the security thread into currency paper make it difficult for them to compete for the currency paper contract.

- **Requirement for U.S. ownership.** Three manufacturers told us that this legislative restriction, known as the Conte Amendment, continues to be a barrier because it mandates that the company that produces U.S. currency paper be domestically owned—that is, at least 90 percent U.S.-owned, according to the Department of the Treasury.

- **Lack of financial assistance for capital investment.** Although BEP has indicated that it will consider innovative financing proposals from a potential supplier, two of the eight manufacturers told us that the lack of financial assistance for capital investment continues to make it difficult for them to compete for the contract. According to BEP, under the FAR, it can make advance payments to manufacturers for capital investment.

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In the economics literature, these barriers to competition are referred to as “barriers to entry.” Barriers to entry include conditions or circumstances that make it very difficult or unacceptably costly for outside firms to enter a particular market and compete with established firms. Entry barriers generally listed in the economics literature include economies of scale, product differentiation, and capital requirements. Barriers to entry are important in a market because they can ultimately determine how much market power, or influence over price, established firms have in the market.
only if the manufacturer pays the money back to BEP, with interest, during the life of the contract.

- **Length of contract.** One of the eight manufacturers, who said it plans to submit a proposal for the 2006 contract, told us that the length of the contract, which is restricted by statute to 4 years, makes it difficult to compete for the currency paper contract. This manufacturer said that, to make a profit during this contract, it would need a 5-year contract and at least 40 percent of the contract.

According to BEP, these five barriers continue to exist because they either are outside of BEP’s control or are essential components of producing currency paper. For example, the restriction against foreign ownership and the length of the currency paper contract are both legislative provisions that would require congressional action to change. In addition, U.S. Secret Service officials told us that there are tremendous benefits to producing U.S. currency paper inside the United States because, according to the Secret Service, it does not have the authority to oversee the security of personnel or plant facilities in a foreign country. The Secret Service further stated that, although it may be able to make agreements allowing for such oversight, it can be difficult to take quick, decisive action in a foreign country. The Secret Service also pointed out that the logistics of moving currency paper across great distances and borders would pose additional security risks. However, Secret Service officials indicated that, in their view, foreign ownership would not pose a security problem as long as the paper was produced in the United States and the employees who produced the paper had undergone background checks. BEP officials also believe that providing financial assistance for capital investment is outside of their control because, as previously mentioned, under the FAR, BEP can make advance payments to manufacturers for capital investment only if the manufacturer pays the money back to BEP, with interest, during the life of the contract.

Two of the barriers to competition that paper manufacturers identified are within BEP’s control, but these barriers—the security requirements for the manufacturing facility and the technology required to insert anticounterfeiting features, such as the security thread—remain because they are essential for currency paper. Officials from BEP, the Federal Reserve Board, and the Secret Service noted that currency paper is a valuable asset that must be guarded and protected from counterfeiting. Potential security features for U.S. currency are reviewed by the Advanced Counterfeit Deterrence Steering Committee, which is made up of
representatives from BEP, the Department of the Treasury, the Federal Reserve System, and the U.S. Secret Service. This committee recommends which security features should be in U.S. currency, and the Secretary of the Treasury decides which features to incorporate. These security features require that manufacturers of currency paper use advanced technology to insert anticounterfeiting features into paper. Furthermore, to ensure the security of the paper and of the anticounterfeiting features, manufacturing facilities must have greater physical security than paper mills generally.

We agree with BEP that some of the remaining barriers are outside its control; however, we found that BEP's outreach to paper manufacturers is limited and is generally done in conjunction with its other procurements. For example, BEP does not conduct industry briefings for its potential suppliers. We found that the Departments of Defense and Homeland Security hold industry briefings as frequently as possible to provide potential contractors with information and an opportunity to comment on future solicitations and procurements. BEP's outreach to potential paper manufacturers generally consists of publishing its draft currency paper solicitation in *Federal Business Opportunities* and waiting for the paper manufacturers to contact them. One paper manufacturer we surveyed commented that it was unaware of the solicitation for the 2003 contract. In commenting on a draft of this report, BEP stated that, in addition to the outreach efforts we describe, it is pursuing other outreach efforts. For example, BEP stated that it attends fairs and banknote conferences where potential suppliers are consulted to determine if their company has an interest in contracting with BEP for various currency materials, primarily currency paper, inks, and counterfeit deterrent features.

**BEP Took Several Steps, Consistent with the FAR, to Determine Fair and Reasonable Prices for Currency Paper**

The FAR states that an agency’s contracting officer is responsible for evaluating the reasonableness of the offered prices to ensure that the final price is fair and reasonable. The FAR does not define “fair and reasonable,” but establishes various techniques and procedures for a contracting officer to use in evaluating prices. Furthermore, the contract pricing reference guidance available from the Department of Defense (DOD) discusses the application of these requirements. For a price to be fair to the buyer, it must be in line with either the fair market value of the product or the total allowable cost of providing the product that would be incurred by a well-

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5 *Federal Business Opportunities* is a government Web site designed to publicize procurements over $25,000.
managed, responsible firm using reasonably efficient and economical methods of performance, plus a reasonable profit. To be fair to the seller, a price must be realistic in terms of the seller’s ability to satisfy the terms and conditions of the contract. A reasonable price, according to the DOD guidance, is a price that a prudent and competent buyer would be willing to pay, given available data on market conditions, such as supply and demand, general economic conditions, and competition. For the currency paper contract, there is currently only one buyer and one seller, domestically. As a result, pricing is established through negotiation.

The FAR further states that the contracting officer may use any of several analysis techniques to ensure that the final price is fair and reasonable. The techniques the officer uses depends on whether adequate price competition exists. For the 1999 contract, BEP determined that adequate price competition existed because of the expectation that at least one additional meaningful proposal would be submitted. Consequently, BEP used price analysis—a comparison of the two proposals—as a basis for determining that the 1999 contract prices, which totaled $207 million, were fair and reasonable. BEP also compared the proposed prices with an independent government cost estimate, which BEP prepared for the contract.

For the 2003 contract, BEP determined that adequate price competition did not exist because, although several companies requested copies of the solicitation, only the current supplier submitted a proposal. Under such circumstances, the FAR requires agencies to use one or more of several proposal analysis techniques to ensure that the final price is fair and reasonable. BEP took the following steps to determine its prenegotiation pricing objective:

- Obtaining certified cost data from the current supplier, as required by FAR 15.403-4.

- Requesting that the Defense Contract Audit Agency (DCAA) audit the current supplier’s price proposal. DCAA found that the current supplier’s proposal was acceptable as a basis for negotiating a fair and reasonable price. To perform its audit, DCAA used the applicable requirements contained in the FAR, the Treasury’s Acquisition Procurement Regulations, and the Cost Accounting Standards. BEP officials said they also independently reviewed and assessed the current supplier’s proposed costs and did not rely solely on DCAA’s findings.
• Establishing a technical analysis team to examine various aspects of the current supplier's manufacturing process that affect price. The technical analysis concentrated on production yield factors, paper machine speeds and capacity, and labor requirements, among other things. According to BEP, these areas have a major impact on cost and are an essential part of a cost analysis.

• Performing a price analysis using comparison with previous contract prices for currency paper to verify that the overall price offered was fair and reasonable.

In 1998, we recommended that BEP arrange for postaward audits of the current supplier's costs and ensure that the supplier maintains acceptable cost accounting and estimating systems for future contracts. The purpose of a postaward audit is to determine if the price, including the profit, negotiated for the contract was increased by a significant amount because the contractor furnished cost or pricing data that were not accurate, complete, or current. For the 1999 contract, a postaward audit was not required because the supplier was not required to submit cost or pricing data. Following the award of the 2003 contract, BEP requested that DCAA perform a postaward audit of the current supplier. DCAA found that the current supplier's certified cost or pricing data were accurate, complete, and current. DCAA also performed a postaward audit of the subcontractor that provides the security thread for U.S. currency and found that the subcontractor's data were accurate, complete, and current. Finally, DCAA reviewed the current supplier's estimating system and found it to be adequate to provide estimated costs that are reasonable, compliant with applicable laws and regulations, and subject to applicable financial control systems.6

BEP Has Taken Some Action to Address Uneconomical Contracting Practices Identified in 1998

In 1998 we reported that two BEP procurement practices contributed, or could contribute, to higher-than-necessary currency paper costs. These practices included not obtaining royalty-free data rights for the security thread used in currency paper and ordering inconsistent quantities of paper. We found that BEP continues to make royalty payments for the use

6In addition, for the 2003 contract, BEP included a standard FAR clause on defective cost or pricing data, which would provide the government with a refund if it were later determined that the current supplier submitted inaccurate, incomplete, or out-of-date cost or pricing data and that these data resulted in a higher price to the government.
of the security thread and will have to do so until December 2006. We also found that BEP continues to have difficulty in accurately estimating the amount of paper it will require, but inconsistent order sizes have not yet adversely affected the prices it pays.

We previously reported that a subsidiary of the current supplier holds patents for manufacturing the security thread used to deter counterfeiting. This thread is inserted into all U.S. currency denominations greater than $2. According to a BEP official, the current supplier approached BEP with the idea for the security thread in the mid-1980s, and BEP encouraged this company to develop the thread, but BEP neither entered into a research and development contract to help fund the effort, nor did it attempt to negotiate rights to that technology or technical data, according to another BEP official. Because the government did not obtain royalty-free data rights to, or fund the development of the security thread, it does not have any rights to the associated technical data and must pay for any use of the thread. The price BEP currently pays for currency paper includes the cost of royalty payments, which are generally allowable under the FAR. For the 2003 contract, these payments totaled $663,000 over 4 years. According to the current supplier, these royalty payments will end in December 2006. As a result, beginning with the next currency paper contract—which BEP expects to award at the end of 2006—BEP will not have to pay royalties for the use of the current security thread or negotiate a license to provide the thread to a second supplier. In addition, to avoid a recurrence of this situation, BEP plans to purchase, for an undetermined price, royalty-free rights to any new anticounterfeiting features that it obtains in the future from any sources. Properly written, such an agreement could enable BEP to incorporate new technology at its discretion and allow currency paper contractors to use that technology in manufacturing paper to meet the government’s requirements. In addition, BEP included a special provision in the 2003 currency paper contract stating that BEP will not incorporate any new anticounterfeiting feature into U.S. currency paper unless it has negotiated an exclusive license to the feature.
We also reported in 1998 that BEP actually ordered more paper than it estimated during some years. As a result, BEP paid a higher unit cost for the paper, because the price was based on the estimated amount, and therefore the contractor's fixed costs were spread over fewer units than BEP purchased. If BEP had accurately estimated the quantity of paper it ordered, the contractor's fixed costs would have been spread over more units, resulting in a lower per-unit price. We recommended that BEP ensure that its paper estimates more closely reflect the expected amounts needed. BEP responded that its estimates are based on the best available estimate from the Federal Reserve Board.

Since 1999, BEP's currency paper orders have remained inconsistent, but this inconsistency has not yet adversely affected BEP's prices. Specifically, for 4 of the last 6 years, BEP's orders were at or below the estimates the contractor used in setting its price, and therefore the orders should not have resulted in a higher price for currency paper. (See fig. 1.) However, in fiscal years 2003 and 2004, BEP's actual orders were considerably higher than the minimum quantities estimated in the contract. In fiscal year 2003, the minimum quantity was 151 million sheets, and BEP ordered almost 280 million sheets; and in fiscal year 2004, the minimum quantity was 203 million sheets, and BEP ordered 296 million sheets. Although BEP's order amounts exceeded the minimum quantities, the price BEP paid for currency paper was not adversely affected because of the pricing approach used by the contractor in the current contract.

7For every currency paper contract, BEP provides minimum and maximum order quantities, which the contractor uses in setting prices. Because currency paper manufacturing has high fixed costs, a higher quantity of paper equates to a lower unit cost because the fixed costs can be spread over more units.

8We are not disclosing the contractor's pricing approach because it has been designated as source selection information.
In its August 1996 currency paper report, BEP concluded that competition was not immediately feasible because the current supplier was the only domestic source that could supply currency paper that met BEP's requirements. In addition, BEP estimated that it would pay $21 million to $37 million more per year for currency paper if it purchased paper from more than one supplier. These increased costs would result from, among other things, high capital equipment costs for a new supplier, according to BEP. BEP also made several recommendations, including that it continue to improve its relationship with the current supplier by working to resolve problems before they arise; continue to try to identify alternative sources for currency paper, and if a viable source of currency paper is identified, analyze the costs and economic feasibility of having two sources; and review the possible catastrophic occurrences that could interrupt currency paper supplies, and if necessary, increase the inventory of currency paper to mitigate the effects of such an occurrence. Analyzing the advantages and
disadvantages of obtaining a second supplier would help BEP determine if a second supplier would be cost effective over the long term, weigh the benefits of obtaining a second supplier against the potential security and quality concerns associated with a second supplier, and ensure that BEP can maintain an adequate supply of currency paper.

Obtaining a second supplier could have advantages. Economic literature shows that a key advantage of obtaining a second supplier is that it can generate competition, which helps to ensure that the buyer receives the best price possible. In general, with more competition, each individual firm has less control over the final price in the market. In contrast, a single supplier has the potential to restrict output and set market prices above competitive levels. In addition, some economic studies have found that the entry of additional firms into a market lowers prices.\textsuperscript{9} An additional advantage of obtaining a second supplier is that new entrants can stimulate innovation in certain markets, whereas some researchers have found that a single supplier may not be particularly innovative.\textsuperscript{10} Another key advantage of obtaining a second supplier could be greater assurance of a steady supply of currency paper. With more than one supplier and more than one production site, the buyer would have greater assurance of a steady supply of goods even if one site were disrupted by, for example, a strike, natural disaster, bankruptcy, or terrorist attack. This would be an important advantage for BEP, because currency paper is essential to U.S. and world commerce, and an adequate supply must be assured. Some actions have already been taken to avoid these potential problems. To mitigate a disruption to the currency paper supply, the current supplier says it could produce currency paper at two separate locations. In addition, BEP keeps about a 3-month supply of currency paper in reserve.

Obtaining a second supplier could also have disadvantages. First, even though it could create competition, it might not lower prices initially because each new supplier would have expensive start-up costs (such as the capital costs of specialized paper-making equipment) and would therefore need to charge a high price for currency paper. Second, the risk


of changes in product quality and design would increase with more than one supplier in more than one location. For instance, according to a physicist who specializes in paper production, two companies, given the same specifications, could produce paper of consistent strength, but would have much more difficulty adjusting for the texture of the paper, and slight differences could exist within the same specifications. Even slight changes can adversely affect a buyer such as BEP, which requires adherence to very specific technical standards. Federal Reserve Board officials told us that they are concerned that minor differences in the quality of currency paper could diminish the reputation of U.S. currency. Secret Service officials, who are responsible for protecting U.S. currency from counterfeiting, said they would need to be assured that a second supplier had proved that it could produce paper of consistent quality over a period of time because even slight variations between the papers produced by the two manufacturers could hamper their anticounterfeiting efforts and lower confidence in U.S. currency. Finally, increasing the number of suppliers, production locations, or both would increase the potential for security breaches because more people would know about the classified anticounterfeiting features incorporated in currency paper, and more sites could be vulnerable to intrusion. Federal Reserve Board officials, who are responsible for issuing U.S. currency, maintained that awarding the contract to several different suppliers could compromise the secrecy of the paper's anticounterfeiting features because more people would have access to and could potentially disclose information about them.

Finding itself relying on a single supplier in the early 1990s for the clad metal it uses to make coins, the U.S. Mint weighed the advantages and disadvantages of obtaining a second supplier and decided that the advantages outweighed the disadvantages. To obtain a second supplier, the Mint worked closely with a new company and allowed it to begin producing a small amount of material. Initially, the Mint's second supplier had some difficulty producing a product of consistent quality, and the unit costs of the material were higher than the original supplier's unit costs because the second supplier was producing smaller quantities. But as the quality of the material improved, the company began to increase its production for the Mint, and it now produces 55 percent of the metal that the Mint uses to make coins. According to Mint officials, the use of a second supplier enabled the Mint to maintain a steady supply of material when the demand for coins spiked in 1999 and 2000 (because coins were collected for the new millennium) and when each supplier experienced labor strikes. Mint officials also told us that they believe that obtaining a second supplier for clad material initially increased the Mint's costs, but they were not able to
quantify the amount of the increase. Nonetheless, according to Mint officials, the price for clad metal has decreased since the Mint began using a second supplier. In commenting on a draft of this report, the Federal Reserve Board noted that, regardless of price issues, the issues of security and quality are not the same for clad metal and currency paper.

Conclusions

Obtaining effective competition for the currency paper contract continues to be a challenge for BEP, despite the changes it has made and plans to continue making to its contract solicitations. Barriers to competition remain, and the current supplier continues to be the sole supplier of currency paper. We agree with BEP that some of the remaining barriers are outside its control or are essential for security purposes, and we recognize that the current supplier has generally provided BEP with a steady, timely supply of paper that has met its requirements for the past 125 years. However, we believe the uniqueness of the currency paper procurement and the disadvantages of having a single supplier are sufficient to warrant a regular effort on BEP’s part to reach out to paper manufacturers before issuing solicitations to help BEP determine what additional steps should be taken to encourage competition for the currency paper contract.

Although BEP concluded in its August 1996 currency paper study that competition was not immediately feasible because the current supplier was the only domestic source of currency paper that could meet its requirements, BEP has not weighed the advantages and disadvantages of obtaining a second supplier—including the impact on the cost, security, quality, and adequacy of the currency paper supply—since 1996. Consequently, while BEP can demonstrate that it is receiving a fair and reasonable price for currency paper, it is unclear if that price is higher or lower than the price BEP would pay if there were a second supplier. But cost is not the only factor in deciding whether or not to use a second supplier. The security and integrity of the paper, and of U.S. currency, are also important. A second supplier must be able to demonstrate that it can produce paper that contains the same security features and technical specifications as the current paper. Slight changes to the quality and make-up of currency paper have the potential to hamper anticounterfeiting efforts and could result in an overall loss of confidence in U.S. currency. Analyzing the advantages and disadvantages of obtaining a second supplier would help BEP assess whether a second supplier of currency paper is needed to ensure an adequate supply of quality currency paper at a fair and reasonable price.
Recommendations for Executive Action

To obtain the views of paper manufacturers on barriers to competition and to determine if there is a need for a second supplier of currency paper, we are recommending that the Secretary of the Treasury direct the Director of BEP to take the following two actions:

- Before issuing solicitations for currency paper contracts in the future, increase outreach activities with paper manufacturers to allow them to provide their views on the barriers to competition, identify the steps BEP should take to address these barriers, and comment on the solicitations.

- Determine if there is a need to obtain a second supplier for currency paper by preparing an analysis of the advantages and disadvantages of obtaining a second supplier of currency paper, including the impact on the cost, security, quality, and adequacy of the currency paper supply. If the analysis determines that there is a need to obtain a second supplier, the Secretary should then determine what steps are necessary to obtain a second supplier for currency paper.

Agency Comments and Our Evaluation

We provided the BEP, the Mint, and the Federal Reserve Board with drafts of this report for their review and comment. These agencies generally agreed with our findings and provided technical comments, which we incorporated as appropriate. In written comments, BEP commented that our draft report does not recognize all of its outreach efforts to paper manufacturers and that the royalty payments associated with purchasing currency paper are an allowable expense under FAR. We incorporated this additional information in our report as appropriate. BEP also agreed with our recommendations and described its plans to implement them. BEP's comments are provided in appendix III.

We are sending copies of this report to the cognizant congressional committees; the Chairman of the Board of Governors of the Federal Reserve System; the Secretary of the Treasury; the Directors of BEP and the Mint; the Director, Office of Management and Budget; and other interested parties. We will also make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.
If you or your staff have any questions about this report, please contact me at siggerudk@gao.gov or Tammy Conquest at conquestt@gao.gov. Alternatively, I can be reached at (202) 512-2834. Major contributors to this report are listed in appendix IV.

Katherine A. Siggerud
Director, Physical Infrastructure Issues
## Summary of GAO’s Previous Recommendations and Bureau of Engraving and Printing’s Actions

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<th>GAO’s recommendations</th>
<th>BEP’s actions</th>
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<tr>
<td>Ensure that the current supplier maintains acceptable cost accounting and estimating systems for future contracts and that they are periodically audited.</td>
<td>As appropriate, the Bureau of Engraving and Printing (BEP) has the Defense Contract Audit Agency (DCAA) perform audits.</td>
</tr>
<tr>
<td>Arrange for postaward audits of the current supplier’s costs.</td>
<td>When required, BEP has DCAA conduct postaward audits of the current contractor’s costs.</td>
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<tr>
<td>Include data and analyses in the currency paper procurement record that demonstrate the benefits the government is to receive when it approves profit levels that are aimed at recognizing or providing an incentive for capital investments.</td>
<td>When required, BEP plans to comply with the FAR.</td>
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<td>To the extent possible, make more extensive use of price analysis to determine the fairness and reasonableness of prices, including the collection of data from foreign countries on their currency prices and data on similar supplies purchased by other agencies, such as paper for passports and money orders.</td>
<td>BEP stated that a comparison of the price of U.S. currency paper with the price of foreign currency paper or money order and passport paper would not be a valid comparison because of technical differences.</td>
</tr>
<tr>
<td>Ensure that all future currency paper procurements reflect the expected amounts of paper needed and that orders against contracts are for consistent amounts.</td>
<td>BEP bases the amount of paper needed on the best available estimate provided by the Federal Reserve System.</td>
</tr>
<tr>
<td>Ensure that the government obtains royalty-free data rights to any future security measures incorporated into currency paper.</td>
<td>BEP plans to obtain royalty-free data rights to all future security measures that it incorporates into currency paper.</td>
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Source: GAO.
Objectives, Scope and Methodology

To determine the steps the Bureau of Engraving and Printing (BEP) took to encourage competition for the 1999 and 2003 currency paper contracts, we interviewed BEP officials and reviewed the changes BEP made to the contract solicitations. To determine the results of these efforts, we reviewed the solicitations for the 1999 and 2003 contracts and sent a questionnaire to 15 domestic and foreign manufacturers of cotton-based security paper to determine the factors that have made it difficult for them to compete for the currency paper contract. We used a questionnaire that was similar to the questionnaire used for our 1998 report, allowing us to compare responses for the two time periods. Our survey universe consisted of manufacturers we had surveyed for our 1998 report, manufacturers identified by the American Forest and Paper Association, manufacturers identified by BEP as having expressed interest in the currency paper contract, and the current supplier. We received responses from 14 of the 15 manufacturers and made several attempts to obtain a response from the one manufacturer who did not respond to our survey. We also performed structured telephone interviews with all 14 manufacturers to clarify their survey responses. Our primary variable for analysis was interest in providing currency paper to BEP. We considered the eight manufacturers who responded that they were “very interested” or “somewhat interested” in providing currency paper to BEP as our most important group for the purposes of this study because they have a stated interest in supplying paper to BEP. We reviewed economics literature and interviewed several academic experts to determine the relevant barriers to competition. Finally, we analyzed the Conte Amendment, the statute limiting the procurement of distinctive currency paper to a 4-year contract, and other applicable procurement laws and regulations to identify requirements affecting the procurement of currency paper.

To determine the steps BEP took to determine that the prices it paid for currency paper under the 1999 and 2003 contracts were fair and reasonable, we reviewed documents in BEP’s contract files for the 1999 and 2003 contracts. We reviewed the process BEP must follow to determine fair and reasonable pricing. We reviewed the prenegotiation memorandums and negotiation summaries from the contract files and interviewed BEP procurement officials to determine what cost and price analysis activities BEP undertook to establish a fair and reasonable price. We then compared these actions with the requirements for cost and price analysis techniques under FAR part 15.404-1. We also obtained and reviewed audits of the current supplier that BEP requested from the Defense Contract Audit Agency and that have been issued since 1998.
To determine the extent to which BEP has analyzed the advantages and disadvantages of obtaining a second supplier for currency paper, we reviewed BEP’s most recent currency paper study, which was issued in 1996. We also interviewed several industry analysts and academic experts, and reviewed relevant economics literature. Although economic research on competition in government contracting is abundant, it has never been applied to the currency paper market. Therefore, we reviewed economic studies of other markets to determine the advantages and disadvantages of obtaining a second supplier. We also interviewed officials from BEP, the U.S. Secret Service, and the Federal Reserve System to obtain their views on the implications of obtaining multiple suppliers for currency paper. To gain additional perspective on the potential effects of obtaining a second supplier for currency paper, we interviewed former and current officials from the U.S. Mint about their experiences with a second supplier. The Mint was not able to provide us with financial data to demonstrate whether the price it paid for clad material changed after it began using a second supplier.

We performed our work in Washington, D.C., from August 2004 through April 2005 in accordance with generally accepted government auditing standards.
Appendix III

Comments from the Bureau of Engraving and Printing

DEPARTMENT OF THE TREASURY
BUREAU OF ENGRAVING AND PRINTING
WASHINGTON, D.C. 20228

April 11, 2005

Ms. Katherine A. Siggerud
Director, Physical Infrastructure Issues
U.S. Government Accountability Office
441 G Street, N.W.,
Washington, D.C. 20548

Dear Ms. Siggerud:

Thank you for the opportunity to review and comment on the GAO's report "CURRENCY PAPER PROCUREMENT: Additional Analysis Would Help Determine Whether a Second Supplier is Needed." Our comments concern the issues of the Bureau of Engraving and Printing’s (BEP) outreach to paper manufacturers and the purchase of royalty-free data rights to new anti-counterfeiting features. We have also included our plans for implementing your recommendations.

Outreach to Paper Manufacturers

The report presents several statements that the BEP's outreach to paper manufacturers is limited and is generally done in conjunction with other procurements. These statements are found on the GAO Highlights page under the paragraph entitled “What GAO Found,” first paragraph, last sentence, on page 4 under “Results in Brief,” first paragraph, sixth sentence and on page 12 under “BEP Has Not Addressed All Barriers,” the third paragraph, first sentence. These statements do not recognize the various methods of BEP’s outreach efforts. The outreach methods BEP uses include:

- An annual sources sought synopsis is posted at the Federal Business Opportunities web site (www.fedbizopps.gov) and remains open for one year. This announcement advises industry that the BEP is interested in promoting competition for its currency production materials and to continuously improve the quality of U.S. currency through product development of currency production materials. Currency paper is specifically identified as a material in which the BEP is interested in promoting competition.

- BEP subscribes to various paper manufacturing journals to identify sources that potentially possess the capability to manufacture currency paper.

- BEP technical officials attend various trade fairs, bank note conferences and other symposiums where potential suppliers are consulted to determine if their
Appendix III
Comments from the Bureau of Engraving and Printing

The firm has an interest in contracting with the BEP for various currency materials, primarily currency paper, inks and counterfeit deterrent features.

- Firms that express an interest in contracting opportunities for currency paper are invited to a meeting at the BEP to discuss our currency paper requirements and needs. If a firm is interested in developing its product line to include the manufacture of currency paper, it is encouraged to submit material samples for press trials to determine if its material sample is suitable from the standpoint of facility of use, general "feel" and durability.

- Draft solicitations for currency paper are also posted at the Federal Business Opportunities web site (www.fedbizopps.gov) requesting industry's comments in an effort to ensure that the solicitation strategy and structure is as conducive to promoting competition as possible. E-mails are sent to the firms on the source list advising them where they can download the draft currency paper solicitation from the Internet and our request for their concerns and comments.

- BEP technical officials have also directly contacted domestic paper manufacturers to solicit their interest in becoming a supplier of currency paper to the BEP. This effort has resulted in two domestic firms which have aligned their corporate structure to position their firms to effectively compete on the upcoming currency paper solicitation. These firms have obtained corporate support for expanding their product line and have begun development of currency paper through submission of material samples to the BEP for press trials and technical feedback on the performance of their material samples.

Royalty-Free Data Rights

The report discusses the BEP's plans to purchase royalty-free data rights to new anti-counterfeiting features that it obtains in the future. This issue is discussed on page 5 under "Results in Brief," first paragraph, and on page 16 under "BEP Has Taken Some Action to Address Uneconomical Contracting Practices Identified in 1998," first paragraph. The BEP intends to purchase royalty-free data rights to new anti-counterfeiting features, if obtainable, and shall employ all efforts to do so. However, payment of royalties is an allowable cost under the Federal Acquisition Regulation Contract Cost Principles. Therefore, if the BEP is unable to purchase royalty-free data rights, then a determination will be made as to whether or not the future payment of royalties is offset by the anti-counterfeiting value provided by a new feature.

Recommendation: The Secretary of the Treasury should direct the Director of BEP, before issuing solicitations for currency paper contracts in the future, to increase outreach activities with paper manufacturers to allow them to provide their views on the barriers to competition, identify the steps BEP should take to address these barriers, and comment on the solicitations.
Response: The BEP plans to continue pursuing various outreach activities with paper manufacturers and plans to engage in more proactive interaction with the paper industry to obtain not only their views on the competition barriers, but recommendations on how to increase the competitive attraction of the solicitation. These efforts would include a pre-solicitation bidder’s conference to which a wide range of paper manufacturing firms would be invited.

Recommendation: The Secretary of the Treasury should direct the Director of BEP to determine if there is a need to obtain a second supplier for currency paper by preparing an analysis of the advantages and disadvantages of obtaining a second supplier of currency paper, including the impact on the cost, security, quality, and adequacy of the currency paper supply. If the analysis determines that there is a need to obtain a second supplier, the Secretary (Director of BEP) should then determine what steps are necessary to obtain a second supplier for currency paper.

Response: The BEP plans to conduct market research and obtain an independent consultant that is capable of conducting an impact analysis of this magnitude including the advantages and disadvantages of obtaining a second supplier. The results of this analysis will be presented to the Advanced Counterfeit Deterrence Steering Committee to address potential concerns related to counterfeit deterrence and security issues. Additionally, the Federal Reserve Board may be consulted as the study results may impact future costs and pricing. The Bureau will formulate an appropriate policy position taking into consideration the results of the study and these consultations.

If you have any questions about our comments, please call Gregory D. Carper, Associate Director (Chief Financial Officer) on (202) 874-2020.

Sincerely,

Thomas A. Ferguson
Director
# GAO Contacts and Staff Acknowledgments

## GAO Contacts

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## Staff Acknowledgments

In addition to the individuals named above, Robert Ackley, Tim DiNapoli, Elizabeth Eisenstadt, Barbara El Osta, Heather Halliwell, Susan Michal-Smith, Terry Richardson, and John W. Shumann made key contributions to this report.
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