

DEPARTMENT OF HOMELAND SECURITY

Office of Inspector General

**Audit of the Federal Emergency
Management Agency's Public
Assistance Grant Funds Awarded to
the Macon Water Authority After
Tropical Storm Alberto**



Office of Audits

OIG-07-06

November 2006



Homeland Security

November 3, 2006

Preface

The Department of Homeland Security (DHS) Office of Inspector General (OIG) was established by the Homeland Security Act of 2002 (*Public Law 107-296*) by amendment to the Inspector General Act of 1978. This is one of a series of audit, inspection, and special reports prepared as part of our oversight responsibilities to promote economy, effectiveness, and efficiency within the department.

This report assesses the eligibility of work funded under the Federal Emergency Management Agency's Public Assistance Program, and the eligibility of costs claimed by the sub-grant recipient, Macon Water Authority. The report is based on interviews with employees and officials of relevant agencies and institutions, direct observations, and a review of applicable documents.

The recommendations herein have been developed to the best knowledge available to our office, and have been discussed in draft with those responsible for implementation. It is our hope that this report will result in more effective, efficient, and economical operations. We express our appreciation to all of those who contributed to the preparation of this report.

A handwritten signature in black ink, appearing to read "David M. Zavada".

David M. Zavada
Assistant Inspector General for Audits

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Abbreviations and Acronyms

Authority	Macon Water Authority, Macon, Georgia
CFR	Code of Federal Regulations
DSR	Damage Survey Report
FEMA	Federal Emergency Management Agency
GEMA	Georgia Emergency Management Agency
OIG	Office of Inspector General
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act

*Department of Homeland Security
Office of Inspector General*

Executive Summary

The Office of Inspector General (OIG) audited public assistance grant funds awarded by the Federal Emergency Management Agency (FEMA) to the Macon Water Authority, Macon, Georgia (Authority) after Tropical Storm Alberto. The objective of the audit was to determine whether the Authority expended and accounted for FEMA funds according to federal regulations and FEMA guidelines. During the audit, we added an objective to determine whether FEMA's decision to fund the replacement of the Authority's Riverside Water Treatment Plant was appropriate.

We determined that FEMA's decision to fund the replacement and relocation of the Authority's Riverside Water Treatment Plant was not a cost-effective or practicable alternative to repairing the existing facility and mitigating the effects of future flooding when considering the \$93.5 million cost of the new plant and the fact that disaster-related repairs had restored the damaged plant to its pre-disaster condition. Further, FEMA's alternatives analysis required by floodplain management regulations was flawed, documentation to support replacing the plant contained gaps, and actions to authorize federal funding to replace and relocate the plant were contrary to federal regulations and a wasteful use of taxpayers' dollars.

FEMA Region IV officials did not concur with our conclusion and said: (1) FEMA acted within its statutory authority and thus, fulfilled the intent of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act, Public Law 93-288, as amended), the purposes of floodplain management, and the aims of mitigation against future critical infrastructure interruption; and (2) approval authority rested solely within FEMA's discretion, and the Authority relied upon FEMA's approval authority and representations and acted in good faith when it relocated its facility from the floodplain.

We also questioned \$88,093 in duplicate expenditures and monies for an uncompleted small project, and identified \$245,708 in interest earned on FEMA-advanced funds. The Region concurred with those findings and indicated that its final decision was dependent on evidence provided by the Authority.

Background

Section 406 of the Stafford Act authorizes federal grants to state and local governments for the repair, restoration, reconstruction, or replacement of public facilities damaged or destroyed by a major disaster. Title 44 of the Code of Federal Regulations (CFR) implements the Stafford Act and among other things provides for floodplain management and wetland protection (Part 9), uniform administrative requirements for grants to state and local governments (Part 13), and rules for federal disaster assistance (Part 206), including public assistance project administration (Subpart G) and public assistance eligibility (Subpart H).

As a result of Tropical Storm Alberto that occurred in July 1994, the Macon Water Authority received a public assistance grant award of \$102.6 million from the Georgia Emergency Management Agency (GEMA), a FEMA grantee, for repairs to and replacement of damaged public facilities. The award relative to FEMA Disaster Number 1033-DR-GA provided 90 percent federal funding for 25 large projects and 60 small projects.¹ The audit covered the period July 1994, to November 2004, and included a review of 24 large projects and 60 small projects with a total award of \$100.1 million.

According to 44 CFR § 13.42, grantees and subgrantees are required to retain all financial and programmatic records, supporting documents, statistical records, and other records for at least 3 years after the grantee submits its final expenditure report. Although the disaster occurred over 12 years ago, one large project remained open at the time of our audit. Therefore, GEMA and the Authority had not submitted final expenditure reports or a final project completion and certification report. As such, Authority records were available for our review.

¹ Federal regulations in effect at time of the disaster set the large project threshold at \$42,400.

Results of Audit

Ineligible Project Costs

The Authority received a \$93.5 million public assistance award to replace the Riverside Water Treatment Plant (facility) at a new location.² Replacement of the facility was not eligible for federal funding because the Authority had already completed FEMA-approved repairs that restored the existing facility to its pre-disaster condition, and FEMA's actions to authorize federal funding to replace the facility at a new location were contrary to federal regulations.

As a result of the July 1994 disaster, FEMA awarded the Authority \$1,001,752 for debris removal and emergency work (Categories A and B) to restore the operation of the facility,³ and an additional \$3,363,844 for permanent work (Category F - Utilities) to restore the facility to its pre-disaster condition.⁴ FEMA records showed that as early as August 1994, the facility was back in operation.⁵ We reviewed Authority records showing that the facility was originally designed and built to produce 48 million gallons per day, but based on demand, it was only producing 29 million gallons of drinkable water per day before the disaster. The Authority's project records showed that following restoration, demand increased and the facility's output and efficiency improved to 31 million gallons per day. Those records also showed that the facility continued operation under the same unrestricted water production permit that was in place prior to the disaster. Both FEMA and the Authority confirmed that the facility's efficiency improved as a result of the disaster repairs. However, in September 1994, design of a "new" 48 million gallon per day water treatment plant began, and in November 1994, FEMA approved replacing the facility at a new site. Construction began in November 1996 and the last of the work was completed in May 2003. In total, FEMA awarded the Authority \$93,466,334 for the engineering and construction of the replacement facility. See Appendix C for the schedule of projects, project purposes, amounts awarded and expended, work start dates, and final inspection dates. In addition to the engineering and construction of

² FEMA Project records indicated that (1) the plant began operation at the turn of the 20th Century, (2) the oldest remaining structures at the time of the disaster were built in the 1930s, and (3) the newest structures were built in the early 1970s. Those records also indicated that at the time of the disaster, the plant could supply 48 million gallons per day during peak demand periods but the typical output was between 30 and 35 million gallons per day. This varied from Authority records that supported a typical output of 29 to 31 million gallons per day.

³ Primary Damage Survey Reports (DSRs) 90854 and 86464.

⁴ Primary DSRs 90855 and 86462.

⁵ FEMA project records indicated that final inspection for debris removal and emergency work was completed by late-March 1995 and facility restoration work was completed in January 1996.

the replacement facility, FEMA also awarded \$2.5 million for the demolition of the previously restored facility.⁶

Section 406 of the Stafford Act authorizes federal assistance for repair, restoration, reconstruction, or replacement of certain public and private nonprofit facilities damaged or destroyed by a major disaster (Public Assistance). According to 44 CFR § 206.226(b) [October 1993], FEMA is authorized to provide federal assistance to restore damaged facilities on the basis of the design of such facilities as they existed immediately prior to the disaster without allowing for non-code required improvements. In addition, § 206.226(d) provides that a decision to replace a damaged facility should be supported with a repair versus replacement analysis showing that repair costs equal or exceed 50 percent of replacement costs. Further, § 206.226(e)(1) states, “The Regional Director may approve funding for and require restoration of a destroyed facility at a new location when: (i) The facility is and will be subject to repetitive heavy damage; (ii) The approval is not barred by other provisions of title 44 CFR; and (iii) The overall project, including all costs, is cost effective.”

FEMA Region IV comments regarding restoration of the old facility. The Region disagreed with our conclusion that repairs to the damaged facility restored it to its pre-disaster condition. The Region asserted that while permanent in nature, the work actually performed restored the plant to the “...minimum level of production necessary to meet the daily demand and to end the three-week-long emergency distribution of drinking water to over 150,000 Macon/Bibb County residents, businesses, and industries.” The Region noted that contemporaneous project notes indicated that only essential facility components were repaired and thus, supported its conclusion that the facility, in total, was not restored to its pre-disaster condition.

OIG comments and analysis. The FEMA and Authority project records we reviewed did not support that the facility was repaired to meet minimal production. In fact, DSR 90855 authorized the Authority to clean, repair, and restore **all** plant machinery, equipment, and control systems to their pre-disaster operating function and condition. In addition, a summary attached to that DSR noted that on August 2, 1994, the plant capacity returned to “...100% of daily demand for water.” We noted that restoration work continued after the 3-week emergency water distribution period and the public assistance completion date indicated in FEMA’s final inspection report was January 7, 1996. Further, as we noted earlier, the facility continued operating under the same unrestricted water production permit before and after the

⁶ DSR 14711 that approved the demolition of the restored facility was in process during our fieldwork and was not included in our sample for review.

disaster, and production did not decline prior to March 29, 2001, when operations transferred to the new facility.

While FEMA funded repairs that restored the Authority's facilities to pre-disaster condition, on July 21, 1994, the Authority authorized a contract to prepare documents requested by GEMA and FEMA for constructing a new water treatment plant at a different location using federal funds.⁷ In an unsigned and undated site assessment, FEMA recommended relocating a new plant outside the floodplain. An unsigned project background and approval document dated November 30, 1994, indicated that based on the design and engineering report prepared by the Authority's contractor, FEMA's National Office approved the relocation project. FEMA supported its decision to replace the facility by erroneously determining that:

- The cost of restoring the damaged facility to pre-disaster condition exceeded 50 percent of the cost to replace it and thus, replacement was appropriate under federal regulations.
- Executive Order 11988 and federal floodplain regulations [44 CFR § 9.11(d)] prohibited FEMA from making major improvements to the damaged facility at its current location.

As discussed in greater detail below, our review of FEMA and Authority records showed that FEMA's repair versus replacement analysis was completed incorrectly, and Executive Order 11988 as implemented by 44 CFR Part 9 did not require FEMA to replace the facility outside the floodplain.

Repair versus Replacement Analysis not Properly Completed

Federal regulations state that a facility is considered repairable when disaster damages do not exceed 50 percent of the cost of replacing a facility to its pre-disaster condition, and it is feasible to repair the facility so that it can perform the function for which it was being used as well as it did immediately prior to the disaster [44 CFR § 206.226(d)(1)]. While the repair versus replacement ratio is simply computed by dividing the estimated repair cost by the estimated replacement cost, subsequent to this disaster, FEMA provided guidance to Regional Offices and Federal Coordinating Officers covering various interpretations of this regulation.⁸ The guidance recognized that disaster damage in some cases had been misinterpreted to include all FEMA

⁷ Authority Board of Directors' meeting minutes dated July 21, 1994. The contractor's report, entitled *Water Treatment Plant at Town Creek Reservoir*, dated September 1994, provided the preliminary scope of work for a 60 million gallon per day facility, and was included with FEMA project documentation.

⁸ Response and Recovery Directorate Guidance No. 4511.61E dated June 1, 1995. This guidance was later incorporated in FEMA's Public Assistance Guide (FEMA 286 – September 1996) and made available to Public Assistance applicants.

eligible costs rather than costs related to the repair of the disaster damage only. FEMA clarified the “50% Rule” as follows:

[T]he determination of a facility for replacement will be calculated by the following fraction: The cost of repair of the disaster damage (repair of the damaged components only, using present day materials and methods) divided by the cost of replacement of the facility with a facility of equivalent capacity, using current codes for new construction. If this calculation is greater than 50%, then replacement is considered to give a better return on the taxpayers’ investment, and is thus eligible for FEMA funding under § 206.226(d)(1).

The guidance specified that the estimated repair costs used for the calculation do not include the costs of any triggered or mandatory upgrades, site work, or applicable soft costs even though these costs may be eligible for FEMA funding.

According to the repair versus replacement requirement of 44 CFR § 206.226(d), FEMA summarized its methodology for determining the ratio of repair and replacement costs in a site assessment document attached to the November 30, 1994 project background and approval document. We reviewed FEMA’s methodology and supporting records and determined that FEMA used incorrect cost estimates and calculated an incorrect ratio. We concluded that the analysis incorrectly supported federal funding for a new facility.

Even though FEMA funded most of the debris removal and emergency and permanent work totaling \$4,365,596 to bring the facility back to its pre-disaster condition by January 1995,⁹ in November 1994, FEMA estimated repair costs at \$26.9 million, including \$7.0 million in facility repairs and \$19.9 million in upgrade/mitigation work to protect the facility against future damages. This repair estimate was then divided by an estimated \$39.4 million replacement cost¹⁰ to arrive at the 68 percent repair versus replacement ratio. As previously stated, FEMA is authorized to provide federal assistance to restore damaged facilities on the basis of the design of such facilities as they existed immediately prior to the disaster without allowing for non-code required improvements (or mitigation to undamaged components of a facility).

⁹ This date represents the latest date that funding was provided to the Authority but as indicated earlier, the plant was operational in August 1994.

¹⁰ In its site assessment, FEMA used a replacement cost of \$39.4 million. The source of this figure was not clear from the information FEMA provided to us during the audit. In its response to this finding, FEMA Region IV provided us an Authority-prepared document entitled *Calculation of Current Value of Existing Water Treatment Plant* that showed a replacement cost of \$39.4 million.

Thus, the disaster damage estimate should have only included estimated facility repair cost. Using FEMA's facility repair estimate (\$7.0 million) and replacement estimate (\$39.4 million) results in repair versus replacement ratio of 17.8 percent, well below the 50 percent required to justify facility replacement.

Review of FEMA records showed that FEMA not only erroneously included upgrade/mitigation work in the disaster damage repair estimate but it did not use the best repair and replacement costs available as discussed below.

- The \$7 million in estimated repair costs was based on an engineering estimate completed 3 months prior to FEMA's repair versus replacement calculation.¹¹ As of November 1994, the restoration of the damaged facility was substantially complete and most of the \$4.37 million in debris removal and emergency and permanent repair costs was already known to FEMA. Using this actual repair cost of \$4.37 million and FEMA's initial replacement cost of \$39.4 million results in a repair versus replacement ratio of 11.1 percent.
- FEMA records supported \$77 million in estimated replacement costs¹² versus the \$39.4 million used to determine the ratio. Using the actual cost of facility repairs (\$4.37 million) and the \$77 million replacement cost results in a repair versus replacement ratio of 5.7 percent.

FEMA Region IV comments regarding estimated and actual repair costs and replacement costs. The Region indicated that the application of the 50% Rule was undertaken after it was determined that relocation of the plant was the most practicable alternative. It indicated that it was not possible to anticipate the replacement cost of the new facility in August 1994 and thus the Region used the best available data for relocation/construction costs. The Authority provided the Region with its *Calculation of Current Value of Existing Water Treatment Plant* (Attachment A to the Region's response) that estimated the replacement cost of the existing plant at \$39.4 million, which was used in the 50% Rule calculation. For the repair side of the calculation, FEMA used a \$7.0 million repair estimate (the \$4.17 million "...actual repair costs did not reflect all the costs that would have been necessary to return the facility to its pre-disaster design and function.") plus \$19.9 million mitigation costs (estimated costs to be in compliance with Executive Order 11988 and Part 9 of 44 CFR). The Region recognized that under current guidance,

¹¹ The engineering estimate was completed in September 1994 and project approval occurred in November 1994 after the ratio was calculated in an unsigned and undated site assessment.

¹² A preliminary engineering report, prepared by the Authority's contractor, estimated the cost of a 60 million gallons per day (MGD) plant at \$94.3 million. Using this preliminary estimate, FEMA estimated that the cost of a 48 MGD plant would be \$77.0 million.

mitigation (or codes and standards upgrades) costs would not be included in the calculation but it was reasonable to add mitigation costs to the estimated repair costs in 1994 to be in compliance with floodplain management orders and regulations. In that regard, the Region pointed out that clarification of FEMA regulations on the 50% Rule occurred a year after the disaster. In total, the Region believed that the repair versus replacement analysis was properly completed based on the information available at the time.

OIG comments and analysis. The project background and approval document we discussed earlier alludes to a previous report that applied federal regulations to the Authority's plant in the floodplain. The undated site assessment applied the preparer's interpretation of the regulations to three alternatives and computed the repair versus replacement ratio at 68% using the figures discussed in the Region's response. This ratio was used as part of the basis for recommending relocation of the existing plant (Alternative 3) that was approved by FEMA Headquarters in November 1994.

As we pointed out in our discussion of permanent repairs to the existing facility, FEMA and Authority project records support that the existing plant was 100 percent operational in August 1994. While all actual repair costs may not have been known in total at that time, FEMA's records do not sufficiently support \$7 million in total estimated repair costs or \$19.9 million in estimated mitigation costs. While the Region commented on the fact that misinterpretations of the 50% Rule were not uncommon in 1994, FEMA's guidance in June 1995, a year after the disaster, only clarified the regulations and did not change them.

Contrary to the Region's response, we concluded that FEMA did not use the best available information at the time to assess repair versus replacement costs. For example, the Authority's own contractor issued a September 1994 report entitled *Water Treatment Plant at Town Creek Reservoir* wherein it estimated that the cost to construct a 60 million gallon per day plant was \$94.3 million. FEMA's November 1994 project background and approval document prorated the contractor's total estimated cost to bring it in line with a 48 million gallon per day facility and arrived at a \$77.02 million replacement estimate. Using this replacement estimate in lieu of the unsubstantiated \$39.4 million replacement cost estimate provided by the Authority results in a repair versus replacement ratio of only 35 percent even if we accept FEMA's unsupported \$7 million repair estimate and unsubstantiated \$19.9 million in estimated mitigation costs.

Relocation of Facility Not Required by Federal Rules

FEMA also justified the replacement of the facility on the premise that the damaged facility was located in a 100-year floodplain, and Executive Order 11988 (implemented by 44 CFR Part 9), related to floodplain management, required FEMA to locate the replacement facility outside the floodplain because a practicable alternative existed to do so. In its summarized analysis, FEMA documented that 44 CFR § 9.11(d) does not allow any new construction or substantial improvements in a floodway or any construction that would result in increased flood levels, with two exceptions not applicable here.

We agree with FEMA's analysis in that Executive Order 11988 requires federal agencies to reduce the risk of floods and to preserve the natural and beneficial values served by floodplains [44 CFR § 9.2(b)(7)]. However, we disagree that federal regulations barred FEMA from replacing or restoring the facility at its original location. According to § 9.9(b), FEMA was required to identify and evaluate practicable alternatives to carrying out a proposed action in floodplains or wetlands. These alternatives included: (1) locating alternative sites outside the floodplains or wetlands, (2) taking alternative actions serving the same purpose of the proposed alternative with less affect on the floodplains or wetlands, and (3) taking no action because the site itself is a practicable location based on such factors as the natural environment, social concerns, economic aspects, and legal constraints.¹³ Further, § 9.11 sets out mitigation actions required if a preliminary determination is made to carry out an action that affects or is in a floodplain or wetland, and § 9.11(d) pertains primarily to new construction or substantial improvements in a floodway. The regulations required FEMA to consider the costs of relocating the facility in determining whether a practicable alternative existed outside the floodplain [44 CFR Part 9] and to ensure that the relocation of the facility was cost effective [44 CFR 206.226(e)]. In our view, the expenditure of \$93.5 million to construct a new facility was not cost effective and therefore, relocation was not a practicable alternative.

FEMA Region IV comments regarding relocating the facility outside the floodplain. FEMA Region IV did not concur with our conclusion that relocation of the facility was not required by federal rules and indicated that based on its review of project records and files, FEMA considered three alternatives that would assist in lessening future damages to the facility. FEMA asserts that two of the alternatives—mitigating at the existing site and constructing a levee—were rejected because they would raise flood elevations. Thus, FEMA considered the third alternative, relocation, as the

¹³ 44 CFR § 9.9(c) requires FEMA to analyze the practicability of taking no action including the costs of space, construction, services, and relocation.

only practicable alternative. FEMA also considered the health, safety, and economic impacts when a community is without potable water.

The Region also points out that in October 2004, we noted that mitigation funds to protect the facility against future damage were not provided and that not mitigating against future damage was a violation of Executive Order 11988. The response concludes that based on the Regional Director's authority to evaluate and implement practicable alternatives, the relocation project was determined by FEMA to be eligible and the project was approved.

OIG comments and analysis. While the Region believes it acted in an appropriate and responsible manner when it recommended project approval to FEMA Headquarters, FEMA has not produced a persuasive analysis showing that relocation outside the floodplain was practicable given its substantial costs. In fact, FEMA's contemporaneous 4-page site assessment and alternatives analysis and its 2-page project background and approval document are minimal at best. The expenditure of \$93.5 million in public assistance funds to construct a new facility was not cost effective and therefore, relocation was not a practicable alternative especially when considering the costs associated with the alternative to mitigate at the existing site identified in FEMA's site assessment document.

Conclusion. FEMA Region IV said that it acted appropriately and within its statutory authority to approve the relocation of the Authority's water treatment plant. Further, the Region asserted that the grantee, GEMA, and the subgrantee, the Authority, complied with their respective responsibilities in administering grant funds as outlined in 44 CFR. The Region did not concur with our initial conclusion that \$93.5 million in costs claimed by the Authority be disallowed and recommended that this finding be removed from the audit report.

The Region's comments have not altered our conclusion that relocation was not a practicable alternative for the reasons discussed above. However, those comments have altered the recommendation we initially made in our August 29, 2006 draft report. While we still question the grant award to replace the Riverside Water Treatment Plant in a new location, we are not recommending that the \$93.5 million in costs associated with construction of the new water treatment plant be disallowed from the Authority's claim. This finding reports on a lost opportunity for FEMA to have put this funding to a better, more practicable use.

In our view, FEMA failed to act as good stewards of public funds in approving this grant especially when one considers that FEMA's decision was based on a contemporaneous 4-page site assessment and alternatives analysis

and a contemporaneous 2-page project background and approval document. FEMA’s failure to document the legitimacy of its funding decision calls into question its propriety.

The lack of, and gaps in, project documentation and the anecdotal nature of FEMA’s decision making process relative to this award lead us to conclude that FEMA must better substantiate its funding decisions such as the one reviewed here. FEMA needs to develop policies and procedures that require grant awarding officials to perform comprehensive analyses of funding options to ensure that disaster assistance funds are spent wisely and effectively. Those policies and procedures should establish record keeping requirements for all analyses and documentation relative to the decision making process. The basis for grant awards should be “transparent” and readily available for external oversight.

Accounting Errors

The Authority’s claim for project 90855 contained \$63,093 in accounting errors consisting of expenditures that were posted in duplicate. According to 44 CFR § 13.20(b)(1), the Authority is required to accurately report the results of financially assisted activities. Table 1, below, identifies the amounts the Authority recorded in duplicate in its accounting system.

Table 1

Source	Cost Claimed	Actual Cost Incurred	Amount Recorded in Duplicate
Contractor Invoice	\$ 15,524	\$ 7,762	\$ 7,762
Contractor Labor	31,200	15,600	15,600
Contractor Invoice	70,332	35,166	35,166
Contractor Invoice	<u>9,130</u>	<u>4,565</u>	<u>4,565</u>
Total	<u>\$126,186</u>	<u>\$63,093</u>	<u>\$63,093</u>

Since the accounting errors resulted in the recording and claiming of the expenditures twice, the \$63,093 is questioned.

FEMA Region IV comments. Region officials concurred with this finding and indicated that subject to receipt of evidence to the contrary from the Authority, and upon its final decision sustaining the finding, FEMA will de-obligate \$63,093.

OIG comments and analysis. Based on the Region’s response, we consider this finding resolved. However, it will remain open for follow up action until we receive the final decision sustaining the finding and the supporting documentation indicating that the de-obligation has occurred.

Small Project not Completed

The Authority claimed \$25,000 for a small project that was not completed. According to 44 CFR § 206.205(a), FEMA may require the Authority to return funds advanced for any small project when the project is not completed in accordance with the approved scope of work. In reviewing the Authority's certification of small project completions, we noted that the Authority did not complete project 90893. This project provided funding to cleanup a diesel spill, a task Authority officials explained was not done. Therefore, the \$25,000 claimed for small project 90893 is questioned.

FEMA Region IV comments. Region officials concurred with this finding. The Region plans to seek confirmation from the Authority that the small project was not completed. Upon its final decision sustaining the finding, FEMA will de-obligate \$25,000.

OIG comments and analysis. Based on the Region's response, we consider this finding resolved. However, it will remain open for follow up action until we receive the final decision sustaining the finding and the supporting documentation indicating that the de-obligation has occurred.

Interest Earned on Federal Funds

The Authority deposited \$46,787,500 of FEMA funds in an interest bearing account and earned interest of \$245,708. However, the Authority did not account for the interest to FEMA as required by Federal regulations.¹⁴

According to 44 CFR § 13.21(c) grantees may advance funds to subgrantees only where adequate procedures are in place to minimize the time elapsed between receipt and disbursement of the funds. GEMA drew down and disbursed FEMA funds to the Authority based upon its practice of funding large projects in 25 percent increments. However, GEMA did not monitor the Authority's activities effectively to ensure that the funds were spent timely. For example, GEMA received a monthly report of expenditures from the Authority; however, the reports were not used to verify that the Authority had disbursed the funds. We determined that the Authority took an average of 83 days to liquidate the advances during which it earned \$245,708 in interest on those advanced funds.

In the absence of an exception under the Intergovernmental Cooperation Act, 44 CFR § 13.21 (i) indicates that grantees and subgrantees are required to remit to FEMA the interest earned on advances at least quarterly. FEMA

¹⁴ 44 CFR § 13.21(i)

Region IV should take appropriate action to determine if the interest earned on advances was properly accounted for under the Intergovernmental Cooperation Act, and if not, should recover the \$245,708 in interest earned on the public assistance funds provided to the Authority; \$235,570 under project 14718 and \$10,138 under project 14719.

FEMA Region IV comments. Region officials agreed with the finding subject to receipt of evidence to the contrary from the Authority, or validated information showing different amounts earned. Upon FEMA's final decision sustaining the finding, the Authority will be directed to remit the interest earned on FEMA funds. In addition, FEMA will instruct GEMA of its requirements to have procedures in place to minimize the time elapsed between subgrantees' receipt and disbursement of federal funds.

OIG comments and analysis. Based on the Region's response, we consider this finding resolved. However, it will remain open for follow up action until we receive the final decision sustaining the finding and the supporting documentation indicating that a bill for collection has been issued or the interest earned on FEMA funds has otherwise been recovered.

Recommendations

We recommend that the Under Secretary, Federal Emergency Management:

1. Develop policies and procedures that require FEMA grant awarding officials to perform comprehensive analyses of funding options to ensure that disaster assistance funds are spent wisely and effectively, and establish record keeping requirements for all analyses and documentation relative to the decision making process.
2. Require FEMA Region IV to: (a) obtain comments from the Authority regarding the accounting errors and the uncompleted small project discussed in this report and (b) disallow and de-obligate \$88,093 in costs claimed by the Authority if appropriate.
3. Require FEMA Region IV to recover \$235,570 (or a validated different amount) in interest earned by the Authority on FEMA funds, if the funds were not otherwise recovered.

Appendix A

Objectives, Scope, and Methodology

The announced objective of the audit was to determine whether the Authority expended and accounted for FEMA funds according to federal regulations and FEMA guidelines. During the audit, we added an objective to determine whether FEMA's decision to fund the replacement of the Authority's Riverside Water Treatment Plant was appropriate.

The Authority received a public assistance grant award of \$102.6 million from the Georgia Emergency Management Agency (GEMA), a FEMA grantee, for repairs to and replacement of facilities damaged as a result of Tropical Storm Alberto in July 1994. The award provided 90 percent federal funding for 25 large projects and 60 small projects. The scope of the audit covered the period July 1994, to November 2004, and included a review of 24 large projects and 60 small projects with a total award of \$100.1 million. One large project remained open at the time of our audit and was excluded from our review. Appendix B provides a schedule of the individual projects we audited.

We performed the audit under the authority of the Inspector General Act of 1978, as amended, and according to *Government Auditing Standards* issued by the Comptroller General of the United States. The audit included a review of FEMA, GEMA, and Authority records, a judgmental sample of project expenditures, and other auditing procedures considered necessary under the circumstances. We held discussions with FEMA, GEMA, and Authority officials throughout the course of the audit and discussed initial audit results with FEMA Region IV officials on November 21, 2005. We provided FEMA Headquarters and FEMA Region IV officials a draft report for comment on August 29, 2006. We received responses to the draft report from the Acting Regional Director, FEMA Region IV on September 12, 2006. We summarized the Region's responses in the body of the report and attached a complete text of the Region's comments as Appendix D to this report.

Major contributors to the audit are identified in Appendix E.

Appendix B

Schedule of Projects Audited, Questioned Costs, and Funds That Could Have Been Put to Better Use

Project Number	Amount Awarded	Amount Claimed	Amount Questioned	Finding
Large Projects				
14718	\$ 66,766,703	\$ 66,766,703	\$66,766,703	A
14714	10,404,981	10,404,981	10,404,981	A
14719	7,650,451	7,650,451	7,650,451	A
14716	3,067,160	3,067,160	3,067,160	A
14717	2,822,761	2,822,761	2,822,761	A
90855	2,527,048	2,527,048	63,093	B
14720	2,269,482	2,269,482	2,269,482	A
86462	836,796	836,796	0	
90854	745,811	745,811	0	
90816	457,002	457,002	0	
90852	341,871	341,871	0	
86464 ¹⁵	255,941	255,941	0	
14713	244,733	244,733	244,733	A
90830	187,672	187,672	0	
14715	240,063	240,063	240,063	A
86465	104,704	104,704	0	
90875	114,095	114,095	0	
90833	76,232	76,232	0	
90821	73,637	73,637	0	
57974	83,388	83,388	0	
90834	63,754	63,754	0	
90832	43,892	43,892	0	
86469	46,906	46,906	0	
86460 ¹⁶	0	0	0	
Subtotal	\$99,425,083	\$99,425,083	\$93,529,427	
Small Projects				
90893	\$ 25,000	\$ 25,000	\$ 25,000	C
Various	605,191	605,191	0	
Subtotal	\$ 630,191	\$ 630,191	\$ 25,000	
Total	<u>\$100,055,274</u>	<u>\$100,055,274</u>	<u>\$93,554,427</u>	

Legend:

Finding A – Ineligible Project Costs (funds that could have been put to better use)

Finding B – Accounting Errors (costs questioned in the Authority’s claim)

Finding C – Small Project not Completed (costs questioned in the Authority’s claim)

¹⁵ DSR 91154 replaced DSR 86464 that was 100 per cent complete in March 1995.

¹⁶ Under project 86460, FEMA de-obligated \$385,699 of funds it had obligated for repair of the Authority’s sewer system. The de-obligation was made to recognize the amount the Authority received from insurance proceeds for those same repairs. We allocated that reduction to the DSRs (90816, 90821, 90830, 90832, 90833, 93834, and 90852) based on their individual ratio of the total awarded the Authority for sewer repairs.

Appendix B
Schedule of Projects Audited, Questioned Costs, and Funds That Could Have Been Put to Better Use

OIG Note: While the first finding in this report questions the grant award to replace the Riverside Water Treatment Plant in a new location, we are not recommending that the \$93.5 million in costs associated with construction of the new water treatment plant be disallowed from the Authority's claim. The finding reports a lost opportunity for FEMA to have put the \$93.5 million to a better, more practicable use. We concluded that FEMA failed to act as good stewards of public funds in approving this grant and its failure to document the legitimacy of its funding decision calls into question its propriety.

Appendix C

Schedule of Funds Awarded for the Replacement of the Riverside Water Treatment Plant¹

Project Numbers	Project Purpose	Amount Awarded and Expended	Date Started	Final Inspection Date
14719	Design engineering –48 million gallons per day water treatment plant	7,650,451	09/07/94 **	01/11/02
14713	Road improvements	\$ 244,733	05/16/96 *	04/17/97
14718	Water treatment plant construction	66,766,703	11/04/96 **	02/01/02
14714	River intake and raw water pump station	10,404,981	01/16/97 *	05/20/03
14716	64” finished water main and 54” raw water main	3,067,160	03/31/97 **	03/05/02
14715	42” finished water main	240,063	09/25/97 **	09/30/98
14717	62” finished water main	2,822,761	01/27/98 **	07/20/00
14720	Other professional engineering services ¹⁷	2,269,482	Various	09/11/01
	Totals	<u>\$93,466,334</u>		

* Based on contract award date

** Based on available billing information

As indicated above, design began in September 1994 and the last project related to the plant was final inspected in May 2003.

¹⁷ Non-design phase engineering including such services as project management and engineering, and services related to the booster pump station building.

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FEMA Region IV's Response to the Draft Report

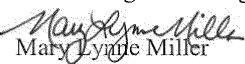
U.S. Department of Homeland Security
Region IV
3003 Chamblee Tucker Road
Atlanta, GA 30341



FEMA

September 12, 2006

MEMORANDUM FOR: Robert J. Lastrico
Director
Grants Program Management Audit Division

FROM: 
Mary Lynde Miller
Acting Regional Director
FEMA, Region IV

SUBJECT: FEMA-1033-DR-GA
Macon Water Authority, 021-91000
Draft Audit Report

The Federal Emergency Management Agency (FEMA) appreciates the opportunity to respond to the recommendations from the Office of Inspector General's above-cited draft report. Our responses to your recommendations are as follows:

Recommendation 1. Disallow the \$93,554,427 in ineligible project costs, duplicate claims, and costs relating to a small project that was not completed. As specified below, we concur with Findings B and C, but do not concur with Finding A.

Finding A – Ineligible Project Costs

The OIG questioned \$93,466,334 awarded to the Macon Water Authority (the "Authority") for the relocation of the Riverside Water Treatment Plant (the "facility"). This finding questioned the entirety of the project.

After reviewing the Draft Audit Report for the Authority, we do not concur with Finding A on two points. First, we believe that FEMA did not err in approving the relocation project and acted within its statutory authority to do so, thereby fulfilling the intent of the Stafford Act, the purpose of floodplain management, and the aims of mitigation against future disruption of critical infrastructure. In support, we have provided a specific point-by-point rebuttal of the OIG's Finding A below. Second, we believe that the approval authority for the project rested solely within FEMA's discretion and that the Authority, in its reliance upon FEMA's approval authority and representations, acted appropriately and in good faith to relocate its facility from the floodplain. Thus, on the basis of this reliance, we believe that a finding against the Authority that would result in a loss of funding for this project is unwarranted and would create an undue hardship for the citizens of Georgia.

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**Audit of FEMA's Public Assistance Grant Funds Awarded to
the Macon Water Authority After Tropical Storm Alberto**

Appendix D

FEMA Region IV's Response to the Draft Report

Rebuttal to Assertions in the Draft Audit Report

In the Draft Audit Report with respect to Finding A, the OIG listed three reasons why it believes the project costs are ineligible:

FEMA's award for the construction of the new facility at a new location was contrary to federal regulations because (1) the existing facility had been restored to its pre-disaster condition, (2) estimated and actual repair costs did not equal or exceed 50 percent of estimated or actual replacement costs, and (3) federal regulations did not require FEMA to relocate the facility outside the floodplain.¹

We do not concur with the OIG's reasons as shown in the following point-by-point rebuttal. Each of the three reasons specified in Finding A is copied below in italic font, and our response follows in plain text.

1. *The existing facility had been restored to its pre-disaster condition.* As the OIG correctly pointed out, FEMA awarded the Authority \$806,357 for emergency work and \$3.2 million for permanent repairs to the damaged facility located in the floodway of the Ocmulgee River.² However, the OIG viewed the repairs as having returned the facility to its "pre-disaster condition" on the basis of resumption of potable water production at levels approximating pre-disaster levels. Prior to the storm, the plant had the capacity to produce 48 million gallons per day (MGD) of potable water, but was only producing on average 29 MGD³ based on demand. Following the storm, the repairs, although permanent in nature, restored the plant only to the minimal level of production necessary to meet the daily demand and to end the three-week-long emergency distribution of drinking water to over 150,000 Macon/Bibb County residents, businesses, and industries. According to contemporaneous notes made part of the project, facility components that were not essential to the production of potable water remained unrepaired in favor of those that were essential. Therefore, it is our opinion that the facility had not been repaired to pre-disaster condition as was asserted.
2. *Estimated and actual repair costs did not equal or exceed 50 percent of estimated or actual replacement costs.* After FEMA identified and evaluated practicable alternatives and determined that relocation from the floodway was the most practicable approach (see discussion in rebuttal to reason 3 below), it undertook to determine whether or not the proposed action prevailed on the so-called 50-Percent Rule. In its analysis, the OIG had the benefit of hindsight and could see cost estimates that improved over time through project completion. However, it was not possible in August 1994—in the very early inception of the relocation project—to anticipate the full costs of relocation. As was standard practice then and now, FEMA used the best available data to assess the replacement cost of the plant facilities proposed for relocation. The Authority provided a document titled *Calculation of Current Value of Existing Water Treatment Plant* (attached as Attachment A) which estimated the total replacement cost of the damaged

¹ See Draft Audit Report, page 5, second paragraph.

² See Draft Audit Report, page 2, Finding A.

³ Figure cited by OIG in Draft Audit Report, page 2, Finding A.

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facilities at \$39,439,600. This sum was used as the replacement side value in the initial repair vs. replacement calculation, or the 50-Percent Rule. To determine the repair side of the calculation, FEMA first used the value of \$7 million.⁴ This cost appeared reasonable at the time, given the significant damages to the plant caused by the flood event. The water intake system was completely blocked with sediments. The settling ponds were completely submerged and filled in with over six feet of deposits. The chemical and filtration buildings had more than 10 feet of water in the structures. The electrical generation and pumping capacity were destroyed. Although the OIG suggested we should have used the actual repair costs of \$4.17 million described earlier in Paragraph 1, we believe that the actual repair costs did not reflect all the costs that would have been necessary to return the facility to its pre-disaster design and function.

FEMA then added to the \$7 million repair estimate the \$19.9 million estimate to "Mitigate on Site," which was actually "Alternative 1" considered in compliance with Executive Order (EO) 11988 and 44 CFR Part 9 (see rebuttal to reason 3 below).⁵ It appears the decision to include it with the \$7 million repair estimate was well founded and based on FEMA's interpretation of prevailing regulations and policy. Because it was known that the Authority could not practicably effect the pre-disaster design and function without including "mitigation" as required in EO 11988 (see discussion in rebuttal to reason 3 below), the mitigation costs were reasonably added to the equation. This position was supported by OIG in its *Audit Discussion Paper* dated October 27, 2004, page 3, paragraph B: "The OIG agrees that FEMA's rehabilitation of the plant to its pre-disaster conditions without providing funds for mitigation purposes violated Executive Order 11988." It should be noted that "mitigation" in the context of EO 11988 and 44 CFR Part 9 is what we would consider a mandatory code and standard upgrade under the Part 206 rules that govern the Public Assistance Program. Under present day guidance, we would not factor the cost of codes and standards upgrades in the repair side of the repair vs. replacement ratio; however, as noted by OIG, it was not uncommon at the time of the disaster to include "all FEMA eligible costs rather than costs related to the repair of the disaster damage only." OIG noted in the draft Audit Report that the official guidance to clarify this sometimes misinterpreted rule was not published until June 1 of the year following the disaster.⁶ Therefore, the repair side of the calculation became \$26.9 million (\$7M + \$19.9M), and the replacement cost (based on documentation provided by the Authority) was \$39.4 million, yielding a repair vs. replacement ratio of 68 percent. Based on our understanding of the 50-Percent Rule at the time, and our interpretation of EO 11988 as requiring mitigation as part of the repairs in the floodway, we believe the repair vs. replacement analysis was properly completed based upon the information available at the time.

3. *Federal regulations did not require FEMA to relocate the facility outside the floodplain.* Based upon our review of the project and files, we do not concur with this finding. The

⁴ OIG's footnote # 7 appears to relate this \$7 million repair estimate to an engineering estimate completed in September 1994, but this connection has not been substantiated. Also, see Attachment B for cost assumptions used herein.

⁵ See Attachment B for cost assumptions used herein.

⁶ See Draft Audit Report, footnote #5.

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44 CFR outlines roles and responsibilities associated with the Public Assistance Program for FEMA, the Grantee and the Subgrantee and the requirements for project approval. These requirements were adhered to in all cases and the decision to relocate the plant was based upon many factors, laws and regulations.

It is the responsibility of the FEMA Regional Director (RD) to ensure that eligible projects are funded for each specific disaster declaration, and that all applicable laws, regulations and policy are followed. As part of these responsibilities, per 44 CFR §206.201(j) under the heading of Project Approval, the RD or designee approves the scope of work and associated costs of eligible projects. Such approval is also an obligation of funds to the Grantee. FEMA, as the Grantor, in determining eligibility of a grant for federal funding, is exercising an inherent Federal responsibility.

The decision to fund this project was based upon a complex series of overlapping requirements and regulations. The first of which is Part 206 which allows FEMA to fund the repair of damaged facilities to pre-disaster condition and to conduct temporary repairs to bring the facility to operational capacity. For the project in question, FEMA inspectors developed the scope of work and related cost estimate and submitted the Disaster Survey Report (DSR) to the RD or designee for approval. The 44 CFR further states in Part 206.202 that for grant approval, "Upon completion of the field surveys the Damage Survey Report – Data Sheets are reviewed and action is taken by the Regional Director (RD)... Following receipt of the SF 424 and 424D, the RD will then obligate funds to the State based upon the approved DSRs. The grantee shall then approve subgrants to the applying entities based upon DSRs approved for each applicant."

DSRs were written in the total amount of \$4,170,201 for the immediate repair of the facility and the related debris removal necessary to bring the facility back into operation. However, based upon the requirements of 44 CFR Part 9, the decision making process could not stop at that point, since the facility supported a critical action and was located in the floodway with a demonstrated history of serious flooding. 44 CFR Part 9 outlines the requirements to evaluate practicable alternatives for floodplain management and related mitigation measures taken to protect against future damages to both the facility and the floodplain. The requirements of this section outline the decision making process for determining and evaluating alternatives to ensure that the most appropriate and responsible action is taken with federal funds in relation to both current and future damages. For facilities that are considered to provide critical actions, the requirements are even more stringent. As such the 44 CFR, Part 9.9, *Analysis and reevaluation of practicable alternatives*, outlines in subpart (d):

Action following the analysis of practicable alternatives. (1) The Agency shall not locate the proposed action in the floodplain or in a wetland if a practicable alternative exists outside the floodplain or wetland. (2) For critical actions, the agency shall not locate the proposed action in the 500 year floodplain if a practicable alternative exists outside the floodplain or wetland.

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In an analysis document incorporated into DSR 76947, FEMA outlined three alternatives that would assist in lessening future damages. Due to constraints on the existing site, the first two alternatives were not practicable and were rejected because they would violate 44 CFR §9.11(d)(4) insofar as they would raise flood elevations. The third alternative, relocation, would provide the required flood protection required for critical actions, and as such, was the only practicable alternative that could comply with the requirements of Part 9.

As the OIG correctly pointed out in its *Audit Discussion Paper* dated October 27, 2004, page 3, under paragraph "B," FEMA did not include any mitigation funds to protect against future damages to the facility. The OIG agreed that "FEMA's rehabilitation of the plant [at its existing location] to its pre-disaster conditions without providing funds for mitigation purposes violated Executive Order 11988." Indeed, this was consistent with FEMA's interpretation of EO 11988 and 44 CFR Part 9, and provides a valid basis for FEMA's decision to approve relocation of the water treatment plant. FEMA could not restore the plant to its pre-disaster condition at its floodway location without considering the "mitigation" requirement of Part 9—in this case, the requirement to minimize "potential harm to lives and the investment at risk from... , in the case of critical actions, the 500-year flood." [44 CFR 9.11(c)(1)]. A water treatment plant is to be considered with Part 9 definitions as a "critical action," or any activity for which even a slight chance of flooding is too great.

Based upon the requirements of the 44 CFR Part 9 in combination with the provisions of Part 206, the RD exercised the authority to fund the relocation after determining that the course of action was appropriate. The decision that the action was practicable was based upon the considerations of the specific situation surrounding this event which included a critical water treatment facility that had repetitive flood damage and the related loss of water service for three weeks to the affected community in the present case.

The loss of water service causes a serious threat to health and safety and has a cumulative negative effect on the recovery of a community. This effect cannot only be measured by the cost of the repair or replacement of the facilities alone but also all other factors, such as the costs of providing water to the affected community and the loss of government services. FEMA frequently spends millions of dollars to provide water and ice through mission assignments after disaster events in order to lessen the health and safety threats associated with the lack of this vital government service.

Therefore, based upon the Regional Director's authority to evaluate and implement practicable alternatives, the relocation project was determined by FEMA to be eligible and the project was approved. The funds were awarded to the Grantee for disbursement to the Authority.

Rebuttal to a Finding against the Authority

We have reviewed the project files and believe that FEMA acted appropriately and within its statutory authority to approve the relocation of the Authority's water treatment plant from its

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threatened location in the floodway. As established above, FEMA complied with the requirements of EO 11988, 44 CFR Part 9 and Part 206, and used reasonable judgment in developing the eligible scope of work, in making eligibility determinations, and in approving and funding the project in question.

We have also determined that the Grantee, Georgia Emergency Management Agency, complied with the requirement outlined in 44 CFR §206.202(b) that states “the Grantee serves as the grant administrator for all funds provided under the Public Assistance grant program. The Grantee’s responsibilities as they pertain to procedures outlined in this section include providing technical advice and assistance to eligible subgrantees, providing State support for damage survey activities, ensuring that all potential applicants are aware of assistance available, and submission of those documents necessary for grants award.” The Grantee did not determine eligibility or approve projects, but ensured successful completion of the approved scope of work, disbursed funds, reported progress, and reviewed and recommended final claim amounts.

Further, we have determined that the Authority, as subgrantee, acted appropriately pursuant to its responsibilities under the 44 CFR [1993] by providing an authorized local representative to accompany the inspection team, representing the applicant, ensuring that all eligible work and costs were identified, completing the approved scope of work and providing final claim information on the project. The Authority did not have the authority to approve the scope of work nor to determine eligibility, and in its reliance upon FEMA’s approval authority and representations, acted appropriately and in good faith to relocate its facility from the floodplain.

It is FEMA’s determination that project approval was completely within FEMA’s purview and both the Grantee and the Authority complied with all requirements of the approved grant. Therefore, based on the above conclusions, FEMA does not concur with the recommendation of the OIG with respect to the questioned cost of \$93,466,334.00 and will not seek recoupment from the Authority on this finding. We recommend that Finding A be removed from the audit report.

Finding B – Accounting Errors

The OIG questioned \$63,093 in duplicate charges in Disaster Survey Report 90855. Subject to receipt of evidence to the contrary from the Authority, FEMA concurs with this finding. Upon FEMA’s final decision sustaining this finding, FEMA will de-obligate \$63,093.

Finding C – Small Project not Completed

The OIG questioned \$25,000 claimed for a small project, DSR 90893, that was not completed. Subject to confirmation by the Authority that the scope of work in DSR 90893 was not completed, FEMA concurs with this finding. Upon FEMA’s final decision sustaining this finding, FEMA will de-obligate \$25,000.

Recommendation 2: Recover \$245,708 of interest earned by the Authority on FEMA funds. FEMA concurs with this recommendation, with comment.

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FEMA Region IV's Response to the Draft Report

Finding D – Interest Earned on Federal Funds

The OIG questioned \$245,708 in interest it claimed the Authority earned on FEMA funds that had been advanced by the Georgia Emergency Management Agency (the “Grantee”) in the course of project completion. OIG stated that \$235,570 in interest had been earned on funds awarded under DSR 14718; and \$10,138 in interest had been earned on funds awarded under DSR 14719. Subject to receipt of evidence to the contrary from the Authority, or validated information showing different amounts earned, FEMA concurs with this recommendation. Upon FEMA’s final decision sustaining this finding, the Authority will be directed to remit an amount equal to the interest it earned on FEMA funds to the FEMA Lockbox. Further, FEMA will instruct the Grantee of its requirement pursuant to 44 CFR § 13.21(c) to have procedures in place to minimize the time elapsed between subgrantees’ receipt and disbursement of Federal funds.

If you have any questions or need additional information, please do not hesitate to contact Mr. Paul W. Fay, Jr., Director, Response and Recovery Division, at (770) 220-5316.

Attachments

- A. Macon Water Authority, *Calculation of Current Value of Existing Water Treatment Plant*
- B. Analysis and Alternative Costing Summary

Appendix D
FEMA Region IV's Response to the Draft Report

**CALCULATION OF CURRENT VALUE OF
EXISTING WATER TREATMENT PLANT
MACON WATER AUTHORITY**

Facility	Year of Construction	% of Cost	Replacement Cost (1994 Dollars)	Current Value (1994 Dollars)
River Intake/Pump Station	1952	100	\$1,771,200	\$283,392
Chemical Feed/Administration Building	1972	100	\$4,428,000	\$2,479,680
Rapid Mix/Flocculation/Sedimentation Basins	1948	33	\$2,706,000	\$216,480
	1972	67	\$5,535,000	\$3,099,600
Filtration/Backwash System	1930	50	\$3,714,600	\$0
	1948	50	\$3,714,600	\$297,168
Clearwell	1948	100	\$738,000	\$59,040
High Service Pump Station	1930	50	\$2,296,000	\$0
	1948	50	\$2,296,000	\$183,680
Yard Piping	1930	25	\$950,000	\$0
	1948	25	\$950,000	\$76,000
	1972	50	\$1,900,000	\$1,064,000
Sludge/Washwater System	1948	100	\$500,000	\$40,000
Site Work	1930	25	\$381,350	\$0
	1948	50	\$762,700	\$61,016
	1972	25	\$381,350	\$213,556
Electrical/Instrumentation	1930	20	\$1,283,040	\$0
	1948	50	\$3,207,200	\$0
	1952	10	\$641,520	\$0
	1972	20	\$1,283,040	\$0
Total			\$39,439,600	\$8,073,612

Service life of all facilities is 50 years except electrical/instrumentation equipment which has a service life of 20 years.

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Attachment A

**Audit of FEMA's Public Assistance Grant Funds Awarded to
the Macon Water Authority After Tropical Storm Alberto**

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FEMA Region IV's Response to the Draft Report

Analysis

Since each of the existing plant facilities sustained major damage and lie in the floodway, the project required a floodplain review mandated by 44 CFR Part 9. This analysis revealed the following:

The site must be examined for protection from the 500 year flood (critical facility) and protection mandated to at least the 100 year flood - 44 CFR 9.5 (d)(4)(i) and (iv).

Three alternatives emerged from the application of the 8 step process. First, the plant should be mitigated if left in its present location - 44 CFR 9.11(d)(3)(i), (ii), (iii), and (4) provides a framework for this approach. The cost of such an action is \$19,900,000. A second alternative to allow the plant to remain on site is to construct a flood wall or levee. An estimate of that approach is \$11,700,000. The third alternative addressed relocation at approximately \$70,000,000.

Alternative Costing Summary (100%)

<u>Physical Damage to Plant:</u>	\$ 7,000,000
<u>Alternative 1, Mitigate on Site:</u>	\$19,900,000
<u>Alternative 2, Levee:</u>	\$11,700,000
<u>Alternative 3, Relocation:</u>	\$70,000,000

EVALUATION OF ALTERNATIVES

A no action alternative was discussed. However, the intent of Part 9 is to protect the Federal investment on all actions within the floodplain. Providing the \$7M to repair the facility without mitigating future damages is a clear violation of E.O. 11988.

Alternative 1; \$7M + \$19.9M = \$26.9M, is the actual physical damage to the plant since mitigation is required to protect the taxpayer investment. This alternative is costly because flood proofing the buildings and clear wells would create a flotation problem that would require significant engineering solutions -anchoring or pumping (details of this mitigation estimate is on file with the Applicant and was validated by FEMA's contract engineer from Dewberry and Davis). Adopting this approach would clearly violate 44 CFR 9.11 (d)(1), "There shall be no new construction or substantial improvement in a floodway." and 9.10 (c)(7) "...would the proposed action result in an increase in the useful life of any structure...maintain the investment at risk...forego an opportunity to restore the natural and beneficial values served by floodplains or wetlands."

D.S.R. No. 76247; Sheet 6 of 9
FEMA 1033, DR 6A; P.A. No. _____

Attachment B

Audit of FEMA's Public Assistance Grant Funds Awarded to
the Macon Water Authority After Tropical Storm Alberto

Appendix E
Major Contributors to this Report

Robert J. Lastrico, Audit Division Director
Humberto Melara, Supervisory Auditor
George Peoples, Supervisory Auditor
Ravinder Anand, Auditor
Homer Johnson, Auditor

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