

**AL SHOFA WATER FACILITY  
NASSRIYA, IRAQ**



**SIGIR PA-08-124  
JULY 23, 2008**

# Report Documentation Page

Form Approved  
OMB No. 0704-0188

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1. REPORT DATE <b>23 JUL 2008</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2008 to 00-00-2008</b>	
4. TITLE AND SUBTITLE <b>Al Shofa Water Facility, Nassriya, Iraq</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Office of the Special Inspector General for Iraq Reconstruction,400 Army-Navy Drive,Arlington,VA,22202-4704</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			



## SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION

July 23, 2008

MEMORANDUM FOR COMMANDING GENERAL, MULTI-NATIONAL FORCES-IRAQ  
COMMANDING GENERAL, JOINT CONTRACTING COMMAND-  
IRAQ/AFGHANISTAN  
COMMANDING GENERAL, GULF REGION DIVISION, U.S.  
ARMY CORPS OF ENGINEERS  
DIRECTOR, IRAQ TRANSITION ASSISTANCE OFFICE

SUBJECT: Report on Construction of the Al Shofa Water Facility, Nassriya, Iraq (Report  
Number SIGIR PA-08-124)

The Office of the Special Inspector General for Iraq Reconstruction is assessing projects funded under the Economic Support Fund to provide real-time relief and reconstruction information to interested parties to enable appropriate action, when warranted.

We are providing this report for your information and use. It addresses the current status of the Al Shofa Water Facility, Nassriya, Iraq and whether intended objectives will be achieved.

This report does not contain any negative findings or recommendations for corrective action. As a result, management comments were not required. Representatives of the Gulf Region Division of the U.S. Army Corps of Engineers reviewed a draft of this report and had no comments.

We appreciate the courtesies extended to our staff. If you have any questions please contact Mr. Brian M. Flynn at [brian.flynn@sigir.mil](mailto:brian.flynn@sigir.mil) or at 914-360-0607. For public queries concerning this report, please contact SIGIR Public Affairs at [publicaffairs@sigir.mil](mailto:publicaffairs@sigir.mil) or at 703-428-1100.

Stuart W. Bowen, Jr.  
Inspector General

# Special Inspector General for Iraq Reconstruction

SIGIR PA-08-124

July 23, 2008

## Al Shofa Water Facility, Nassriya, Iraq

### Synopsis

**Introduction.** The Office of the Special Inspector General for Iraq Reconstruction initiated this project assessment as part of its continuing assessments of selected Economic Support Fund activities. This project assessment was conducted in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included a professional engineer/inspector and two auditors/inspectors.

**Project Objective.** The objective of the Al Shofa Water Facility project was to provide access for the local population to safe drinking water and reduce the incidence of waterborne disease by the design and construction of:

- a new compact-unit water treatment plant, with a capacity of 50 cubic meters per hour
- an above-ground storage reservoir
- a pipe network connecting to the existing water network
- a perimeter fence

**Project Assessment Objectives.** The objective of this project assessment was to provide real-time information on relief and reconstruction projects to interested parties to enable appropriate action to be taken, when warranted. Specifically, SIGIR answered these questions:

1. Were the project components adequately designed before construction or installation?
2. Did the construction or rehabilitation meet the standards of the design?
3. Were quality management programs being adequately used?
4. Was project sustainability addressed?
5. Were the project results consistent with the original objectives?

**Conclusions.** The assessment determined that:

1. Adequate design documentation for project components was not available for the Al Shofa Water Facility project. Specifically, the contractor's design package was not complete and lacked sufficient details. The design package did not provide a system overview detailing the process by which raw river water entered the clarifier, was converted to drinking water, and then was released into the distribution system. In addition, the available design documentation lacked necessary details, such as the sizes of the pipes, the potential need for pipe

reducers, the diameters of the air and outlet nozzles for the high-pressure filters, equipment lists, and diagram scales.

In a proactive approach, the United States Army Corps of Engineers, Gulf Region South is creating a standardized 70% design for the remaining compact-unit water treatment plants to be constructed in the Thi Qar governorate (with the capacity to treat 50 cubic meters of water per hour). Gulf Region South representatives believe that a standardized design will reduce both the completion time for the remaining projects and contract costs.

2. At the time of the site visit, the project was 59% complete. In general, the construction appeared to meet the standards of the Statement of Work. During its two visits to the project site, the inspection team did not observe significant deficiencies. The observed construction work associated with the Al Shofa Water Facility appeared to meet the standards of the contract.
3. The contractor's quality control plan was inadequate to guide the contractor's quality management program. Specifically, the quality control plan lacked explicit details regarding the use of daily quality control reports, identification and correction of construction deficiencies, and testing requirements. The contract also required that the contractor maintain weekly progress reports and construction inspection reports. After reviewing the contractor's daily and weekly quality control reports, SIGIR found them to be insufficient. For example, the contractor provided only five daily and weekly quality control reports. The quality control reports contained project specific information—such as work activities performed, materials received, and testing performed—but the lack of a sufficient number of quality control reports and the fact that the first reports did not originate until the project was almost one year old is inadequate for an effective quality management program.

Despite the weaknesses in contractor quality control, the government quality assurance program was effective in ensuring that the construction of the Al Shofa Water Facility project was adequate. The United States Army Corps of Engineers quality assurance representatives maintained daily quality assurance reports, which documented deficiencies identified at the site. SIGIR found the reports to be sufficiently complete, accurate, and timely. In addition to containing project-specific information to document construction progress and highlight deficiencies, the quality assurance representatives also supplemented the daily quality assurance reports with detailed photographs that reinforced the narrative information provided in the reports. Further, the quality assurance team followed up on any reported deficiencies to confirm that the contractor took the necessary corrective actions. The government's quality assurance program compensated for the inadequate contractor quality control program and is ensuring the successful completion of the Al Shofa Water Facility project.

4. Sustainability was addressed in the contract requirements. The contract specifications required the contractor to provide and certify warranties for all material or equipment—including any mechanical, electrical, and electronic devices—and all operations for one year from the date of transfer to the Water Ministry. In addition, the contract required the contractor to supply spare parts for one year of the plant operations, supply all chemicals and replacement filters for eight weeks of continuous operation, and provide four weeks of training for operators on project operations and maintenance at the new water treatment plant.

5. The objective of the Al Shofa Water Facility project was to design and construct a new compact-unit water treatment plant with a capacity of 50 cubic meters per hour, an above-ground storage reservoir, and a pipe network connecting to the existing water network. To date, the project results are consistent with the original contract objectives. If Gulf Region South maintains the current quality of construction and effective project management, a new compact-unit water treatment plant will be completed that will provide much-needed safe drinking water to the local community. A water unit this size could serve a population of 5,000 or more persons a day.

**Recommendations and Management Comments.** This report does not contain any recommendations for corrective action; therefore, management comments were not required. Representatives of the Gulf Region Division of the United States Army Corps of Engineers reviewed a draft of this report and had no comments.

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# **Introduction**

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## **Objectives of the Project Assessment**

The objective of this project assessment was to provide real-time relief and reconstruction project information to interested parties to enable appropriate action to be taken, when warranted. Specifically, we determined whether:

1. Project components were adequately designed prior to construction or installation;
2. Construction or rehabilitation met the standards of the design;
3. Quality management programs were being utilized adequately;
4. Project sustainability was addressed; and
5. Project results were consistent with original objectives.

## **Pre-Site Assessment Background**

### **Contract, Task Order and Costs**

The Al Shofa Water Facility<sup>1</sup> project was initiated under Contract W917BK-07-C-0016, dated 29 April 2007, a firm fixed price construction contract in the amount of \$348,850. The contract was between the U.S. Army Corps of Engineers (USACE), Gulf Region South (GRS) and a local contractor. After receiving the Notice to Proceed (NTP), the contractor was to complete construction within 150 calendar days. The NTP was issued on 6 August 2007.

### **Project Objective**

The overall objective of the Al Shofa Water Facility project was to provide access for the rural population to safe drinking water and to reduce the incidence of water borne disease. Based on the description of work, the objective of the project was to design and construct a new 50 cubic meter per hour (m<sup>3</sup>/hr) compact unit water treatment plant, an above ground storage reservoir, a pipe network connecting to the existing water network, and a perimeter fence measuring approximately 50 meters (m) by 30-m.

### **Description of the Facility (preconstruction)**

The description of the facility (preconstruction) was based on information obtained from the contract and the USACE project file. The Al Shofa Water Facility project is located in a rural area and inhabited by pastoral grazers and Bedouin and marsh Arab farmers in the Thi Qar governorate (Site Photo 1). The area is typical desert scrubland that has been irrigated from locks cut into the canal where the land has been tilled and harvested for the planting of rotation crops, such as onions and tomatoes. Local houses are the standard single story mud brick type and are walled with a courtyard (Site Photos 2 and 3).

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<sup>1</sup> The Al Shofa Water Supply is also referred to in various documents related to it as the Al Shofa Water Facility and Al Shofa Water Treatment Unit. For consistency within this report, unless used in a verbatim quotation, we refer to it as the Al Shofa Water Facility.



**Site Photo 1. Typical scenery in the vicinity of the Al Shofa Water Facility.**



**Site Photo 2. Local houses in the Thi Qar governorate.**



**Site Photo 3. Local building in the Thi Qar governorate.**

### **Statement of Work of the Contract**

The contract's Statement of Work for the project required the contractor to design, build, and commission a new 50-m<sup>3</sup>/hr compact unit water treatment plant. The Al Shofa Water Facility project consisted of the design and construction of the following:

- raw water inlet structure
- reinforced concrete slab for clarifier
- 50-m<sup>3</sup>/hr compact unit water treatment plant
- sunshade to cover filters
- elevated storage reservoir
- reinforced concrete slab for generator and diesel storage tank

- pipe network connecting to the existing water network
- gate house, operator, and chemical buildings
- 50-m by 30-m perimeter fence with six elevated lighting columns

### **Current Project Design and Specifications**

The contract required the contractor to provide design documents to the USACE resident/project engineer for review and acceptance. The design documents included a topographic survey, a site plan with grading, building layouts, sidewalks, foundations for buildings, perimeter walls, an equipment pad, an intake tower, sunshade steel structures, and a network distribution calculation.

In addition, the contract identified conformance to the standards of the original design where repair and refurbishment is required. However, where new material or equipment has been specified, the contract required conformance to the British or equivalent international codes and standards. For the construction of the 50-m<sup>3</sup>/hour water compact unit, the contract required all items of work to be in compliance with the specifications and standards of the Iraqi Ministry of Water and the Local Directorate General for Water.

The USACE provided SIGIR with copies of the contractor's Al Shofa Water Facility project designs and specifications. The designs included the site layout (Figure 1), which provided the water compact unit layout and the building sizes. Also included in the contractor's design was the wall section design, which showed the expansion joint (Figure 2) and the cross-section of the wall (Figure 3).

After reviewing all available design drawings and specifications, SIGIR determined the design package was not complete and lacked sufficient details. Specifically, the designs did not provide any system overview detailing the process of raw river water entering the clarifier, being converted to drinking water, and then released to the end point (supply). In addition, the designs lacked necessary details, such as the sizes of pipes used, the potential need for pipe reducers, diameters for air and outlet nozzles for the high pressure filters, equipment lists, and diagram scales.

Further, the design package lacked architectural, civil, electrical, mechanical, and structural drawings for the chemical and operator buildings, and a foundation plan and conceptual layout of the elevated storage reservoir.

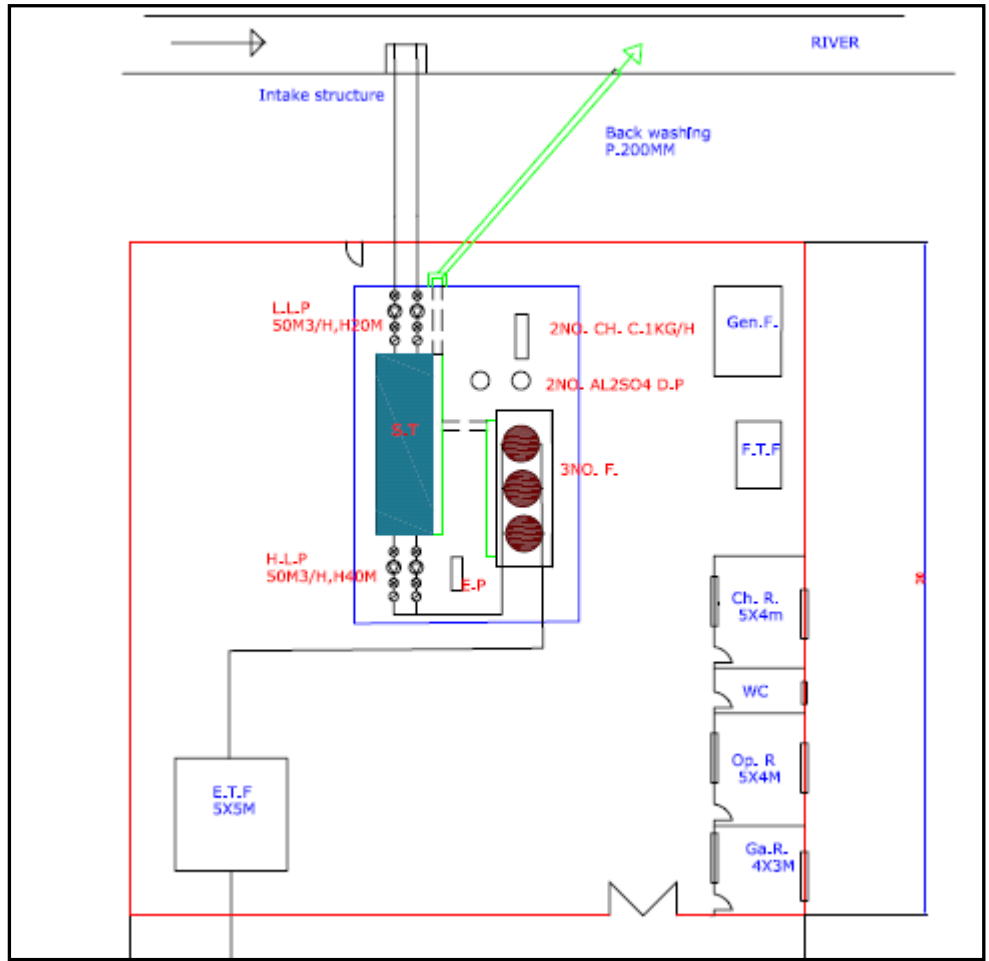


Figure 1. Al Shofa Plan (Courtesy of the USACE)

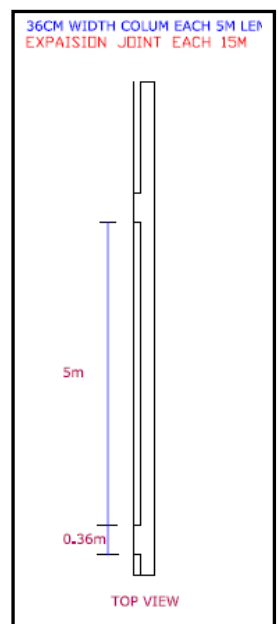


Figure 2. Expansion Joint (Courtesy of the USACE)

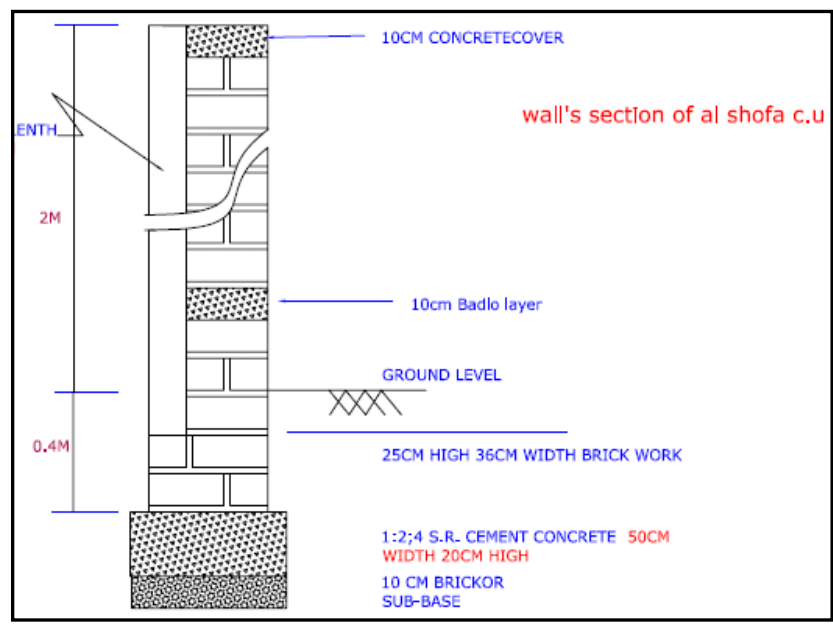


Figure 3. Cross-Section of Wall (Courtesy of the USACE)

## **Gulf Region South Positive Action**

Discussions with the USACE GRS staff identified continuing frustration with local Iraqi contractors over inadequate construction designs and an inordinate amount of time to prepare them. In a proactive response to these problems, the USACE GRS is attempting to standardize a 70% design for the remaining 50-m<sup>3</sup>/hour water compact unit treatment plants to be constructed in the Thi Qar governorate<sup>2</sup>. A GRS engineer, with assistance from the Department of State and the Iraqi Directors General from Muthanna and Thi Qar governorates, has prepared the standardized 70% design. According to GRS representatives, the 70% design will reduce both the completion time for the remaining projects and contract costs. In addition, the standardized designs will provide a consistent layout for the 50-m<sup>3</sup>/hour water compact unit treatment plants, and the Iraqi contractors will provide the finishing details for the 70% designs.

## **Site Assessment**

On 23 February 2008 and 9 May 2008 a SIGIR inspection team, accompanied by the GRS project engineer, performed on-site assessments of the Al Shofa Water Facility project. On our first visit, the contractor had crews working on the project; while on our second site visit, there were no crews working on the project. Due to security concerns, expedited assessments were performed on both site visits. The time allotted for each site visit was approximately 30 minutes.

### **Status of the Project**

According to the Iraq Reconstruction Management System (IRMS) database and the USACE project engineer, the project was 59% complete. The contract required the contractor to complete the project within 150 days of the NTP, which GRS issued on 6 August 2007. GRS representatives were frustrated with the slow progress by the contractor to finish this project.

On 28 August 2007, GRS issued a letter of concern to the contractor for “failing to submit acceptable and timely project submittals in accordance with the contract.” In September 2007, GRS sent several emails to the contractor regarding project delays.

At the time of our second site visit, it was apparent the contractor had not been on site for several days. The GRS project engineer stated a letter of concern to the contractor was forthcoming.

### **Work Completed**

Prior to construction, the contractor excavated and leveled the site. This included filling in holes on the site and achieving satisfactory 95% soil compaction.

The contractor constructed a new reinforced concrete pad for the 50-m<sup>3</sup>/hour compact unit water treatment plant (Site Photo 4). According to a daily QA report, the contractor tested the concrete (Site Photo 5). The structural concrete observed by the SIGIR assessment team did not have any noticeable cracking, segregation, or

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<sup>2</sup> According to GRS representatives, 17 additional water compact unit treatment plants will be awarded to local Iraqi contractors over the next several months.

honeycombing areas. In addition, the contractor constructed a new elevated storage reservoir (Site Photo 6) and a sunshade for the generator and fuel tank (Site Photo 7). SIGIR observed no deficiencies in the completed work by the contractor.

No other significant work elements were completed prior to the site visit for the project.



**Site Photo 4. Reinforced concrete pad for the WTP.**



**Site Photo 5. Concrete testing being performed.**



**Site Photo 6. Elevated reservoir storage.**



**Site Photo 7. Sunshade for the generator and the fuel tank.**

## **Work in Progress**

SIGIR observed significant work underway in the Al Shofa Water Facility construction area. For example, for the security of the plant and its operators, the description of work required exterior site fencing, consisting of brick and topped with three strands of barbed wire. During the second site visit SIGIR determined the exterior site fencing was nearly completed, including the three strands of barbed wire (Site Photo 8).



**Site Photo 8. Finished exterior site fencing**

The contractor's site plan layout (Figure 4) included the following: elevated water tank, chemical building (Site Photo 10), water compact unit, operator building, light poles, and individual sunshades for the water compact unit, generator, and fuel tank.

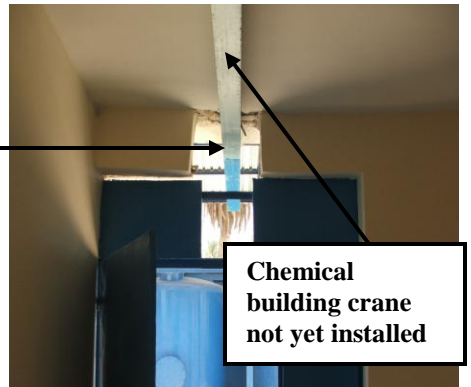
At the time of our second site visit, the contractor had not completed the chemical and operator buildings, water compact unit, light poles, and the sunshade for the water compact unit. For example, electrical work was still required in both the chemical and operator buildings (Site Photo 9). In addition, the contractor had not installed the crane for the chemical building (Site Photo 11). The water compact unit sunshade and individual pieces of equipment still need to be bolted into the concrete slab (Site Photos 12 to 14).



Site Photo 9. Inadequate electrical work



Site Photo 10. Chemical building



Chemical building crane not yet installed

Site Photo 11. Chemical building interior

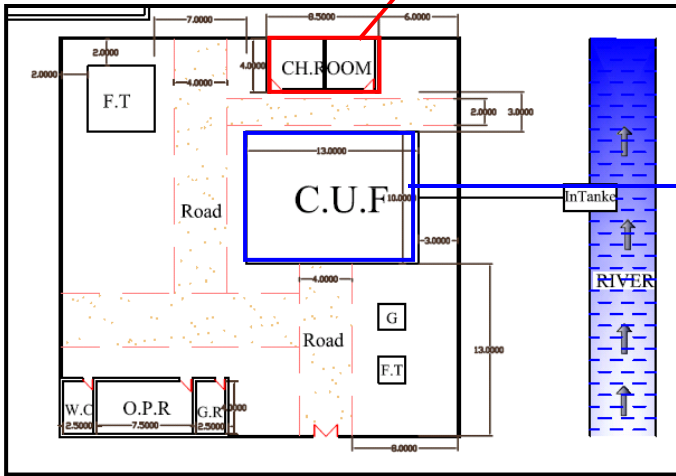


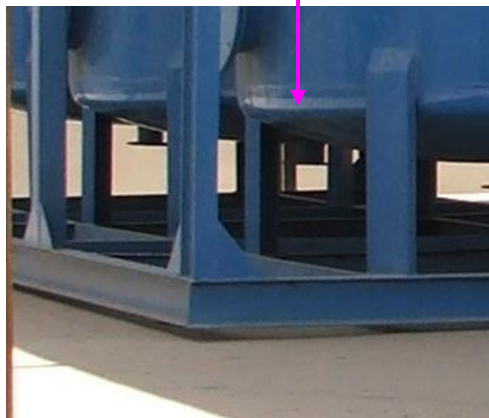
Figure 3. Al Shofa design layout (Courtesy of the USACE)



Site Photo 12. Water compact unit sunshade



Site Photo 13. Unbolted sunshade post



Site Photo 14. Equipment not bolted to slab.

## **Work Pending**

Since the Al Shofa Water Facility project was reported as 59% complete at the time of SIGIR's second site visit, there was still significant work required to complete the project. The contractor still must install and commission several pieces of already delivered equipment, including two raw water submersible pumps, a generator, and a transformer. In addition, the contractor must supply, install, and commission several pieces of equipment, such as the new chlorination equipment, new alum dosing equipment, and two new split case settled water pumps.

After all equipment has been installed and commissioned, the contractor must perform the final systemization, testing, and commissioning of the plant.

## **Project Quality Management**

### **Contractor's Quality Control Program**

Department of the Army Engineering Regulation (ER) 1180-1-6, dated 30 September 1995, provides general policy and guidance for establishing quality management procedures in the execution of construction contracts. According to ER 1180-1-6, "...quality construction is a combined responsibility of the construction contractor and the government."

The contract required that the contractor provide a quality control (QC) plan, which would describe the full extent of QC measures for acceptance and performance of QC throughout the duration of the design, construction, installation, testing, and commissioning of the project. The contractor submitted a four page QC plan, which included a two-phase inspection technique – preparatory and follow-up. A few examples of the preparatory phase are the approval of shop drawings, lift sheets, test reports, mix designs, and a physical check of the material on site against the approvals and contract requirements; while the follow-up inspections determine continuation of compliance and workmanship established during the preparatory phase.

The contract required that the contractor maintain weekly progress reports and construction inspection reports. The contract required the reports to include significant construction activities such as, daily site work; materials procured and received; actual versus planned progress recorded on the schedule; site and progress photos; construction inspection reports; testing and inspection reports; and contractor's manpower schedule, which includes the number of workers and how many workers are women.

Even though the contract required QC reports, the contractor did not provide any QC reports for 2007. Upon arriving at the GRS, the new project engineer attempted to enforce the QC report requirement, which led to the contractor submitting five QC reports this year. The QC reports generally identified the contractor's daily activities, the labor strength, and production of the various trades for the day including photographs, which documented various stages of construction, such as installation of the elevated water tank base, repair to the electrical fixtures, and the installed sunshade. However, the QC reports were far too sporadic to provide meaningful information to the GRS project engineer. In addition, the QC reports did not identify any significant construction deficiencies.

SIGIR's review of the contractor's QC plan and reports determined its overall QC program was inadequate.

### **Government Quality Assurance**

The USACE ER 1110-1-12 and PCO Standard Operating Procedure CN-100 specified requirements for a government quality assurance (QA) program. Similar to the QC program, a crucial oversight technique is presence at the construction site. The USACE GRS, which was responsible for administration of the Al Shofa Water Facility project, had dedicated personnel on site during significant construction activities.

The USACE GRS trained the Iraqi Construction Engineers (ICE), local nationals with engineering backgrounds working for the USACE, and deployed them to the project site to perform QA oversight of the contractor. The ICE were on site during construction events where they monitored field activities and completed daily QA reports, which were forwarded to the USACE GRS project engineer for review. The QA reports documented significant construction activities, such as work performed by building, equipment on site, safety concerns, testing done, and the name and location of the testing facility. In addition, the ICE submitted photographs of construction activities taking place throughout the day. Further, the ICE noted any problems/deficiencies identified and the corrective actions taken via deficiency logs. Examples of problems noted were substandard excavation, substandard concrete pours, and the drain channel patch was not applied.

In addition, the QA program maintained a submittal folder, which documented the review and approval of submittals for definable items, such as split and submersible pumps.

The government's QA program compensated for the inadequate contractor QC program and is ensuring the successful completion of the Al Shofa Water Facility project.

## **Project Sustainability**

### **Commissioning, Training, & Operations and Maintenance**

The contract required the contractor to prepare, for the USACE resident/project engineer's review and approval, a commissioning plan and to provide four weeks of training for operators on project operations and maintenance (O&M) at the new water compact unit.

In addition, the contract required the contractor provide O&M support during the construction, startup, and commissioning phases of the project and that support will continue for 90 days after the issuance of the Letter of Project Completion. Also, the contract required the contractor to provide O&M manuals that include standard operation procedures for all equipment and systems as well as standard maintenance procedures.

### **Warranties and Supplies**

The contract required the contractor to provide and certify warranties for all material or equipment that includes any mechanical, electrical and/or electronic devices, and all operations for one year from the date of transfer to the Water Ministry. In addition,

the contractor is required by the contract to supply spare parts for one year of the plant operations and all chemicals and replacement filters for eight-weeks of continuous operation.

## Conclusions

Based upon the results of our site visit, SIGIR reached the following conclusions for project assessment objectives 1, 2, 3, 4, and 5. Appendix A provides details pertaining to Scope and Methodology.

1. Determine whether project components were adequately designed prior to construction or installation.

Adequate design documentation for project components was not available for the Al Shofa Water Facility project. Specifically, the contractor's design package was not complete and lacked sufficient details. The design package did not provide a system overview detailing the process by which raw river water entered the clarifier, was converted to drinking water, and then was released into the distribution system. In addition, the available design documentation lacked necessary details, such as the sizes of the pipes, the potential need for pipe reducers, the diameters of the air and outlet nozzles for the high-pressure filters, equipment lists, and diagram scales.

In a proactive approach, the U.S. Army Corps of Engineers, Gulf Region South is creating a standardized 70% design for the remaining compact-unit water treatment plants to be constructed in the Thi Qar governorate (with the capacity to treat 50 cubic meters of water per hour). Gulf Region South representatives believe that a standardized design will reduce both the completion time for the remaining projects and contract costs.

2. Determine whether construction met the standards of the design.

At the time of the site visit, the project was 59% complete. In general, the construction appeared to meet the standards of the Statement of Work. During its two visits to the project site, the inspection team did not observe significant deficiencies. The observed construction work associated with the Al Shofa Water Facility appeared to meet the standards of the contract.

3. Determine whether the contractor's quality control plan and the government's quality assurance program were adequate.

The contractor's quality control plan was inadequate to guide the contractor's quality management program. Specifically, the quality control plan lacked explicit details regarding the use of daily quality control reports, identification and correction of construction deficiencies, and testing requirements. The contract also required that the contractor maintain weekly progress reports and construction inspection reports. After reviewing the contractor's daily and weekly quality control reports, SIGIR found them to be insufficient. For example, the contractor provided only five daily and weekly quality control reports. The quality control reports contained project specific information—such as work activities performed, materials received, and testing performed—but the lack of a sufficient number of quality control reports and the fact that the first reports did not originate until the project was almost one year old is inadequate for an effective quality management program.

Despite the weaknesses in contractor quality control, the government quality assurance program was effective in ensuring that the construction of the Al Shofa Water Facility project was adequate. The United States Army Corps of Engineers quality assurance representatives maintained daily quality assurance reports, which documented deficiencies identified at the site. SIGIR found the reports to be sufficiently complete, accurate, and timely. In addition to containing project-specific information to document construction progress and highlight deficiencies, the quality assurance representatives also supplemented the daily quality assurance reports with detailed photographs that reinforced the narrative information provided in the reports. Further, the quality assurance team followed up on any reported deficiencies to confirm that the contractor took the necessary corrective actions. The government's quality assurance program compensated for the inadequate contractor quality control program and is ensuring the successful completion of the Al Shofa Water Facility project.

4. Determine if project sustainability was addressed.

Sustainability was addressed in the contract requirements. The contract specifications required the contractor to provide and certify warranties for all material or equipment—including any mechanical, electrical, and electronic devices—and all operations for one year from the date of transfer to the Water Ministry. In addition, the contract required the contractor to supply spare parts for one year of the plant operations, supply all chemicals and replacement filters for eight weeks of continuous operation, and provide four weeks of training for operators on project operations and maintenance at the new water treatment plant.

5. Determine whether project results were consistent with original objectives.

The objective of the Al Shofa Water Facility project was to design and construct a new compact-unit water treatment plant with a capacity of 50 cubic meters per hour, an above-ground storage reservoir, and a pipe network connecting to the existing water network. To date, the project results are consistent with the original contract objectives. If Gulf Region South maintains the current quality of construction and effective project management, a new compact-unit water treatment plant will be completed that will provide much-needed safe drinking water to the local community. A water unit this size could serve a population of 5,000 or more persons a day.

## **Recommendations and Management Comments**

This report does not contain any recommendations for corrective action; therefore, management comments were not required. Representatives of the Gulf Region Division of the U.S. Army Corps of Engineers reviewed a draft of this report and had no comments.

## **Appendix A. Scope and Methodology**

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SIGIR performed this project assessment from February through June 2008 in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included an auditor/inspector and a professional engineer/inspector.

In performing this project assessment the SIGIR assessment team:

- Reviewed contract documentation to include the following: contract, Statement of Work, and notice to proceed;
- Reviewed the design package (drawings and specifications), quality control plan, contractor's quality control reports, U.S. Army Corps of Engineers quality assurance reports, construction progress photos;
- Interviewed the U.S. Army Corps of Engineers, Gulf Region South Officer In Charge/area engineer and the design engineer; and
- Conducted an on-site assessment of the Al Shofa Water Facility project on 23 February 2008 and 9 May 2008 and documented the results at the Al Shofa Water Facility in Nassriya, Iraq.

## **Appendix B. Acronyms**

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ER	Engineering Regulation
GRD	Gulf Region Division
GRS	Gulf Region South
ICE	Iraqi Construction Engineers
m	meter
m <sup>3</sup> /hr	cubic meters per hour
QA	Quality Assurance
QC	Quality Control
SIGIR	Special Inspector General for Iraq Reconstruction
USACE	United States Army Corps of Engineers

## **Appendix C. Report Distribution**

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### **Department of State**

Secretary of State

Senior Advisor to the Secretary and Coordinator for Iraq

Director of U.S. Foreign Assistance/Administrator, U.S. Agency for  
International Development

Director, Office of Iraq Reconstruction

Assistant Secretary for Resource Management/Chief Financial Officer,  
Bureau of Resource Management

U.S. Ambassador to Iraq

Director, Iraq Transition Assistance Office

Mission Director-Iraq, U.S. Agency for International Development

Inspector General, Department of State

### **Department of Defense**

Secretary of Defense

Deputy Secretary of Defense

Under Secretary of Defense (Comptroller)/Chief Financial Officer

Deputy Chief Financial Officer

Deputy Comptroller (Program/Budget)

Deputy Assistant Secretary of Defense-Middle East, Office of Policy/International  
Security Affairs

Inspector General, Department of Defense

Director, Defense Contract Audit Agency

Director, Defense Finance and Accounting Service

Director, Defense Contract Management Agency

### **Department of the Army**

Assistant Secretary of the Army for Acquisition, Logistics, and Technology

Principal Deputy to the Assistant Secretary of the Army for Acquisition,  
Logistics, and Technology

Deputy Assistant Secretary of the Army (Policy and Procurement)

Commanding General, Joint Contracting Command-Iraq/Afghanistan

Assistant Secretary of the Army for Financial Management and Comptroller

Chief of Engineers and Commander, U.S. Army Corps of Engineers

Commanding General, Gulf Region Division

Chief Financial Officer, U.S. Army Corps of Engineers

Auditor General of the Army

### **U.S. Central Command**

Commanding General, Multi-National Force-Iraq

Commanding General, Multi-National Corps-Iraq

Commanding General, Multi-National Security Transition Command-Iraq

Commander, Joint Area Support Group-Central

## **Other Federal Government Organizations**

Director, Office of Management and Budget  
Comptroller General of the United States  
Inspector General, Department of the Treasury  
Inspector General, Department of Commerce  
Inspector General, Department of Health and Human Services  
Inspector General, U.S. Agency for International Development  
President, Overseas Private Investment Corporation  
President, U.S. Institute for Peace

## **Congressional Committees and Subcommittees, Chairman and Ranking Minority Member**

### **U.S. Senate**

Senate Committee on Appropriations  
    Subcommittee on Defense  
    Subcommittee on State, Foreign Operations, and Related Programs  
Senate Committee on Armed Services  
Senate Committee on Foreign Relations  
    Subcommittee on International Development and Foreign Assistance, Economic Affairs, and International Environmental Protection  
    Subcommittee on International Operations and Organizations, Democracy and Human Rights  
    Subcommittee on Near Eastern and South and Central Asian Affairs  
Senate Committee on Homeland Security and Governmental Affairs  
    Subcommittee on Federal Financial Management, Government Information, Federal Services, and International Security  
    Subcommittee on Oversight of Government Management, the Federal Workforce, and the District of Columbia  
Permanent Subcommittee on Investigations

### **U.S. House of Representatives**

House Committee on Appropriations  
    Subcommittee on Defense  
    Subcommittee on State, Foreign Operations, and Related Programs  
House Committee on Armed Services  
    Subcommittee on Oversight and Investigations  
House Committee on Oversight and Government Reform  
    Subcommittee on Government Management, Organization, and Procurement  
    Subcommittee on National Security and Foreign Affairs  
House Committee on Foreign Affairs  
    Subcommittee on International Organizations, Human Rights, and Oversight  
    Subcommittee on the Middle East and South Asia

## **Appendix D. Project Assessment Team Members**

The Office of the Assistant Inspector General for Inspections, Office of the Special Inspector General for Iraq Reconstruction, prepared this report. The principal staff members who contributed to the report were:

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