

AL KAZIM WATER SUPPLY  
NASSRIYA, IRAQ



**SIGIR PA-08-125**  
**JULY 23, 2008**



## 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 Kazim Water Supply, Nassriya, Iraq (Report  
Number SIGIR PA-08-125)

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 Kazim Water Supply, Nassriya, Iraq and whether intended objectives will be achieved.

This report does not contain any 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-08-125

July 23, 2008

## Al Kazim Water Supply, Nassriya, Iraq

### Synopsis

**Introduction.** The Special Inspector General for Iraq Reconstruction initiated this project assessment as part of its continuing assessments of selected activities of the Economic Support Fund. 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 an auditor/inspector.

**Project Objective.** The objective of the Al Kazim Water Supply 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 the capacity to treat 50 cubic meters of water 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 addressed 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 the quality management programs being used adequately?
4. Was the sustainability of the project addressed?
5. Were the project results consistent with original objectives?

**Conclusions.** The assessment determined that:

1. Adequate design documentation for project components was not available for the Al Kazim Water Supply project. Specifically, the contractor's design package was not complete and lacked sufficient details. The design package did not provide any building layouts or plans for sidewalks, foundations for buildings, or the perimeter wall system.

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, which will have 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 55% complete. In general, the construction appeared to meet the standards of the scope 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 Kazim Water Supply appeared to meet the standards of the contract.
3. The contractor's quality control plan was sufficiently detailed to effectively guide the contractor's quality management program. The contractor provided the Gulf Region South with quality control reports and a weekly work schedule from the early stages of the project. Even though the quality control reports contained the required project and work activity information to document construction progress and identify problems, the reports did not document construction deficiencies. After reviewing the contractor's quality control plan, quality control reports, and submittals, SIGIR determined that the contractor's overall quality control program was adequate.

The government's quality assurance program was effective in ensuring that the construction of the Al Kazim Water Supply project was adequate. The United States Army Corps of Engineers quality assurance representative maintained daily quality assurance reports, which documented deficiencies identified at the site. SIGIR found the quality assurance 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 representative also supplemented the daily 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. Specifically, the quality assurance representative was instrumental in discovering a deficiency in the concrete foundation of the elevated storage tank. The government's quality assurance program is ensuring the successful completion of the Al Kazim Water Supply 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 mechanical, electrical, and electronic devices—and all operations for one year from the date of transfer to the Water Ministry. The contractor will supply spare parts for one year of the plant operations. In addition, the contractor will supply all chemicals and replacement filters for eight weeks of continuous operation. Further, the contractor will provide four weeks of training for operators on project operations and maintenance at the new compact-unit water treatment plant.
5. The objective of the Al Kazim Water Supply project was to design and construct a new compact-unit water treatment plant with the capacity to treat 50 cubic meters of water per hour, an above-ground storage reservoir, and a pipe network connecting to the existing water network. To date, the Al Kazim Water Supply project results are consistent with the original contract objectives. If the current quality of construction and effective project management by the United States Army Corps of Engineers continue, a new compact-unit water treatment plant will be completed, which 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 in order to enable appropriate action, 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 Kazim Water Supply project was initiated under Contract W917BK-07-C-0017, dated 8 May 2007, a firm fixed price construction contract in the amount of \$492,800. The contract was between the Gulf Region Division (GRD) – Southern District (GRS) and a local contractor. After receiving the Notice to Proceed, the contractor was to complete construction within 150 calendar days.

The original contract had one modification, P00001, dated 3 November 2007 that extended the contract's period of performance from 11 October 2007 to 10 December 2007.

### **Project Objective**

The overall objective of the Al Kazim Water Supply 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 an approximately 160 linear meter (m) perimeter fence.

### **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 Kazim Water Supply project is located in a rural part of the Thi-Qar governorate, which is between the Hollandy canal in the west and the highway Route 7 to the east. There is a small network of good tracks and roads that make their way to small villages scattered in this area. The people sustain themselves primarily through crop rotation, and the inhabitants are typically pastoral grazers and Bedouin and marsh Arab farmers.

The land in general is low-lying at approximately 1-2 meters above sea level and can be well irrigated through a system of pump engines, locks, and channels (Site Photos 1 and 2).



**Site Photo 1. Location of the compact unit site (Courtesy of the USACE)**



**Site Photo 2. Compact unit site's water resource (Courtesy of the USACE)**

### **Scope of Work**

The contract's scope 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 Kazim Water Supply 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



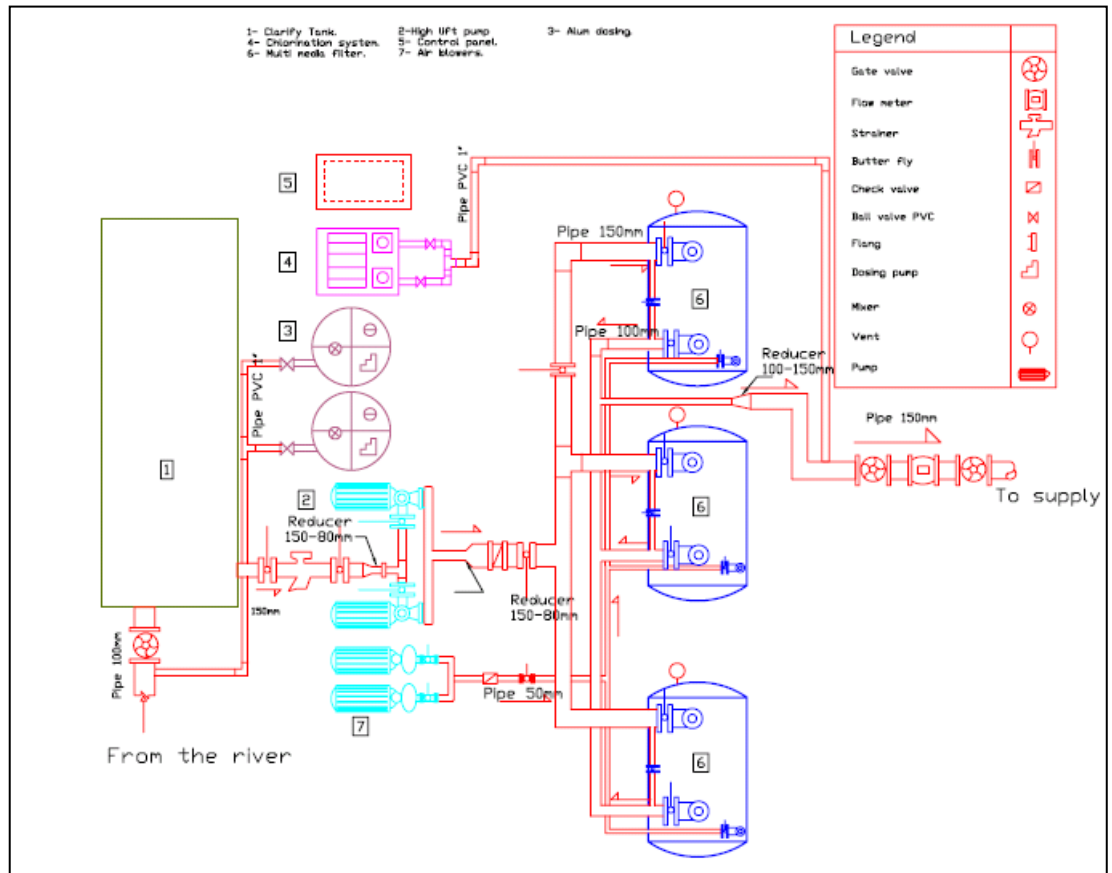
## **Current Project Design and Specifications**

The contract's scope of work stated that the contractor was to include, but not limited to: 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.

The contract also required conformance to the standards of the original design where repair and refurbishment are required. However, where new material or equipment has been specified, the contract required conformance to the British or equivalent international codes and standards. In addition, all items of work should 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 Al Kazim Water Supply project designs and specifications documentation provided by the contractor. The design documentation included the site layout for the 50-m<sup>3</sup>/hr compact unit water treatment plant (Figure 1) that provides the water compact unit layout and the process of raw river water entering the clarifier, being converted to drinking water, and then released to the end point. In addition, the design documents provided 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.

The contractor provided design documents for the equipment pad, intake tower, sunshade steel structures, and network distribution specifications. However, the contractor did not provide design documents for the topographic survey, site plan with grading, building layouts, sidewalks, foundations for buildings, or the perimeter walls. SIGIR's review of the design drawing and specification documents also considered the contract requirements, as well as discussions with the USACE Officer in Charge. Based on SIGIR's review of the contractor's design documentation, we determined that it was not complete and lacked sufficient detail for construction of the 50 m<sup>3</sup>/hr compact unit water treatment plant. The overall design did not take into consideration the sequencing of work for civil and site utilities, architectural, electrical, mechanical, plumbing, and structural drawings. Based on SIGIR's review of the drawing and specification documentation, they did not appear to be complete and consistent with the contract's requirements.



**Figure 1. 50 m<sup>3</sup>/hr Compact unit water treatment plant site layout (Courtesy of the USACE)**

Discussions with the USACE GRS staff identified continuing frustrations 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>1</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>/hr compact unit water 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, SIGIR, accompanied by the GRS project engineer, performed on-site assessments of the Al Kazim Water Supply project. On both of our site visits, the contractor did not have any crews working on the project. Due to

<sup>1</sup> According to GRS representatives, 17 additional water compact unit treatment plants will be awarded to local Iraqi contractors over the next several months.

security concerns, an expedited assessment was 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 database and the USACE project engineer, the project was 55% complete. The contract required the contractor to complete the project within 150 days of the Notice to Proceed, which GRS issued on 14 May 2007. GRS representatives were frustrated with the slow progress by the contractor to finish this project.

On 30 November 2007, GRS issued an email to the contractor stating that a period of performance extension would not be granted.

### **Work Completed**

Prior to construction, the contractor excavated and leveled the site. Site Photo 3 shows the contractor's compaction of the first layer of backfill, and Site Photo 4 shows the contractor testing the compaction of the first layer of backfill.



**Site Photo 3. Compaction of first layer of backfill (Courtesy of the USACE)**



**Site Photo 4. Compaction test of first layer of backfill (Courtesy of the USACE)**

The contractor constructed a new reinforced concrete pad for the 50-m<sup>3</sup>/hr compact unit water treatment plant (Site Photo 5). The structural concrete SIGIR observed did not have any noticeable cracking, segregation, or honeycombing areas.



**Site Photo 5. Reinforced concrete pad for 50-m<sup>3</sup>/hr compact unit water treatment plant**

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

### **Work in Progress**

SIGIR observed significant work underway in the Al Kazim Water Supply 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. At the time of our second site visit, SIGIR observed that the exterior site fencing was nearly completed, including the three strands of barbed wire and perimeter lighting (Site Photo 6).



**Site Photo 6. Site fencing with barbed wire and perimeter lighting**

The contract included the construction of a chemical building (Site Photo 7), a water compact unit (Site Photo 8), an operator building (Site Photo 9), and a generator and fuel tank concrete foundation (Site Photo 10).



**Site Photo 7. Chemical building**



**Site Photo 8. Water compact unit**



**Site Photo 9. Operator building**



**Site Photo 10. Generator and fuel tank concrete foundation**

At the time of our second site visit, the contractor had not completed the chemical building, operator building, and water compact unit. For example, electrical work was still required in both the chemical and operator buildings (Site Photo 11). In addition, the contractor had not installed the crane for the chemical building (Site Photo 12). Further, the water compact unit sunshade and the generator and fuel tank sunshade were not constructed.



**Site Photo 11. Electrical work left unfinished**



**Site Photo 12. Chemical building's crane in progress**

The contractor did finish construction of a new elevated storage reservoir (Site Photo 13).



**Site Photo 13. Elevated storage tank**

During the site visit, the GRS representative stated that the elevated storage tank's concrete foundation had not passed the Hammer (Site Photo 14) and Ultrasonic (Site Photo 15) tests. The elevated storage tank's concrete foundation would not support

the full load of the elevated storage tank when filled completely with water. The contractor provided the GRS a corrective action proposal plan for the concrete foundation. The corrective action plan for the elevated storage tank states that if the concrete foundation fails the core test and the second ultrasonic test, then the steel structure will be taken down, and a new concrete foundation will be constructed. In a follow-up email, the GRS stated that the concrete foundation failed the core test. The contractor would remove the elevated storage tank, and the contractor would use the old foundation as a blind, and the new foundation will be poured on top.



**Site Photo 14. Hammer test for elevated storage tank (Courtesy of the USACE)**



**Site Photo 15. Ultrasonic test for elevated storage tank (Courtesy of the USACE)**

### **Work Pending**

Since the Al Kazim Water Supply project was reported as 55% complete at the time of SIGIR's second site visit, there was significant interior and exterior work remaining on the water compact unit. The other required pending work included civil and site works, an internal road network and perimeter security roads, potable water treatment and distribution systems, a power generation system, sunshades (Site



Photo 16), wastewater collection and treatment systems, electrical systems, and all finishing work.



**Site Photo 16. Water compact unit without sunshade.**

After all equipment has been installed and commissioned, the contractor must perform the final systemization, testing, and commissioning of the Al Kazim Water Supply project.

## **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 six page QC plan, which included a three-phase inspection technique – preparatory, initial, and follow-up. A few examples of the preparatory phase are the review of contract drawings, physical examination of the required materials, discussion of the procedures for constructing the work, and the 24-hour notification process for any required action in the preparatory phase. For the initial phase, the quality control representative reviews minutes of the preparatory meeting, verifies required control inspection and testing, and resolves differences. The follow-up phase, performed daily, checks to assure

compliance with contract requirements. The checks were to be documented in the contractor's QC documentation.

The contract required that the contractor maintain weekly progress reports and construction inspection reports. The reports were to include daily site work, materials procured and received, actual versus planned progress recorded on the schedule, project cash flow on a monthly and cumulative basis, site and progress photos, construction inspection reports, testing and inspection reports, and the contractor's manpower schedule, which includes the number of workers from the district and how many workers are women.

The contractor provided the GRS with QC reports and a weekly work schedule from the early stages of the project. SIGIR reviewed the QC reports for the Al Kazim Water Supply project, which generally documented the contractor's daily activities. The reports documented the labor strength and production of the various trades for the day. In addition, the QC representative had photographs documenting various stages of construction. Photographs showed activities such as the completed compaction process for the site, construction and plastering of the site perimeter fencing, and construction of the chemical and operator buildings. Although the contractor provided QC reports that noted some tests performed and test results, the QC reports did not document any deficiencies discovered by the contractor. The contractor's reports did document corrections to deficiencies discovered by the QA representative. SIGIR's review of the contractor's QC plan, QC reports, and submittals determined the contractor's overall QC program was adequate.

### **Government Quality Assurance Program**

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 Kazim Water Supply 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, and 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 reasons why work was stopped. 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. Problems noted included substandard welding on the clarifier, light poles not fitted with cable conduit, and excessive segregation at the parapet of the administration building. In addition, the QA representative persevered in obtaining the elevated storage tank's test results, which was instrumental in discovering a concrete foundation deficiency. The QA program maintained a folder that documented the review of submittals for definable items, such as the super vortex pump and the dosing pump. The government's QA program, in addition to the contractor managed QC program, is ensuring the completion of the Al Kazim Water Supply project.

# Project Sustainability

## Commissioning, Training, & Operations and Maintenance

The contract stated that the contractor will prepare a commissioning plan to the USACE resident/project engineer. In addition, the contractor will provide four weeks of training for operators on project operations and maintenance (O&M) at the new water compact unit.

The contractor will provide O&M support for the facilities and equipment installed, constructed, or rehabilitated in the description of the project. The operation and maintenance support will be provided during the construction, startup, and commissioning phases of the project and will continue for 90 days after the issuance of the Letter of Project Completion. Also, the contractor will 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 stated that the contractor will 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. The contractor will supply spare parts for one year of the plant operations. In addition, the contractor will supply all chemicals and replacement filters for eight weeks of continuous operation.

# Conclusions

Based upon the results of the 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 Kazim Water Supply project. Specifically, the contractor's design package was not complete and lacked sufficient details. The design package did not provide any building layouts or plans for sidewalks, foundations for buildings, or the perimeter walls system.

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, which will have 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 55% complete. In general, the construction appeared to meet the standards of the scope 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 Kazim Water Supply 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 sufficiently detailed to effectively guide the contractor's quality management program. The contractor provided the Gulf Region South with quality control reports and a weekly work schedule from the early stages of the project. Even though the quality control reports contained the required project and work activity information to document construction progress and identify problems, the reports did not document construction deficiencies. After reviewing the contractor's quality control plan, quality control reports, and submittals, SIGIR determined that the contractor's overall quality control program was adequate.

The government's quality assurance program was effective in ensuring that the construction of the Al Kazim Water Supply project was adequate. The United States Army Corps of Engineers quality assurance representative maintained daily quality assurance reports, which documented deficiencies identified at the site. SIGIR found the quality assurance 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 representative also supplemented the daily 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. Specifically, the quality assurance representative was instrumental in discovering a deficiency in the concrete foundation of the elevated storage tank. The government's quality assurance program is ensuring the successful completion of the Al Kazim Water Supply 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 mechanical, electrical, and electronic devices—and all operations for one year from the date of transfer to the Water Ministry. The contractor will supply spare parts for one year of the plant operations. In addition, the contractor will supply all chemicals and replacement filters for eight weeks of continuous operation. Further, the contractor will provide four weeks of training for operators on project operations and maintenance at the new water compact unit.

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

The objective of the Al Kazim Water Supply project was to design and construct a new compact-unit water treatment plant with the capacity to treat 50 cubic meters of water per hour, an above-ground storage reservoir, and a pipe network connecting to the existing water network. To date, the Al Kazim Water Supply project results are consistent with the original contract objectives. If the current quality of construction and effective project management by the United States Army Corps of Engineers continue, a new compact-unit water treatment plant will be completed, which 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, contract modification, scope 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, reconstruction liaison team reports and emails;
- Interviewed the U.S. Army Corps of Engineers, Gulf Region South Officer In Charge and staff; and
- Conducted on-site assessments of the Al Kazim Water Supply project on 23 February 2008 and 9 May 2008 and documented the results at the Al Kazim Water Supply 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
PCO	Project and Contracting Office
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:

Angelina Johnston

George Baffoe, P.E.