

SADR CITY AL QANA'AT  
RAW WATER PUMP STATION  
BAGHDAD, IRAQ

**SIGIR PA-07-096**  
**JULY 12, 2007**

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## **SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION**

July 12, 2007

MEMORANDUM FOR DIRECTOR, IRAQ TRANSITION ASSISTANCE OFFICE  
COMMANDING GENERAL, GULF REGION DIVISION,  
U.S. ARMY CORPS OF ENGINEERS

SUBJECT: Report on Project Assessment of the Sadr City Al Qana'at Raw Water Pump Station, Baghdad, Iraq (Report Number SIGIR-PA-07-096)

We are providing this project assessment report for your information and use. We assessed the design and construction work being performed at the Sadr City Al Qana'at Raw Water Pump Station, Baghdad, Iraq to determine its status and whether objectives intended will be achieved. This assessment was made to provide you and other interested parties with real-time information on a relief and reconstruction project underway and in order to enable appropriate action to be taken, if warranted. The assessment team included an engineer/inspector and a program analyst/inspector.

This report does not contain any negative findings. As a result, no recommendations for corrective action were made and further management comments are not requested.

We appreciate the courtesies extended to our staff. If you have any questions please contact Mr. Brian Flynn at [brian.flynn@sigir.mil](mailto:brian.flynn@sigir.mil) or at 914-360-0607. For public or congressional queries concerning this report, please contact SIGIR Congressional and 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-07-096**

**July 12, 2007**

## **Sadr City Al Qana'at Raw Water Pump Station Baghdad, Iraq**

### **Synopsis**

**Introduction.** SIGIR initiated this project assessment as part of our continuing assessments of selected sector reconstruction activities. The overall objectives were to determine whether reconstruction contractors were complying with the terms of their contracts or task orders and to evaluate the effectiveness of the monitoring and controls exercised by administrative quality assurance and contract officers. We conducted this project assessment in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included an engineer/inspector and a program analyst/inspector.

**Assessment Objectives.** This report provides project information to interested parties to enable timely and appropriate action to be taken, when warranted. To address our objectives, we reviewed contract documentation, met with responsible project officials, and visited the site. Specifically, we sought to determine whether:

1. Project components were adequately designed prior to construction or installation;
2. Construction or rehabilitation met the standards of the design;
3. The contractor's quality control program and the U. S. government's quality assurance program were adequate;
4. Sustainability was addressed in the contract or task order for the project; and
5. Project results will be consistent with original objectives.

**Project Objectives.** The project objective is to complete the rehabilitation, installation, and testing of the rehabilitated pumps and motors, and to complete the fabrication, delivery, installation, and testing of new pumps, at the Sadr City Al Qana'at raw water pump station.

### **Conclusions.**

1. This project did not alter the original design of the Sadr City Al Qana'at raw water pump station. It provided for the rehabilitation of four pumps and five motors, the replacement of six pumps, equivalent to the pumps which were replaced, and the replacement of five old motors with new motors from the original manufacturer or a dimensionally and functionally similar replacement motor. The Sadr City Al Qana'at raw water pump station has been in operation for more than 20 years. Our review of the existing design of the Sadr City Al Qana'at raw water pump station determined it to be adequate.
2. Rehabilitation work was in-progress at the time of our assessment. According to U.S. Army Corps of Engineers oversight representatives, work on the project was approximately 34 percent complete. In general, the renovation work we observed met the standards of the contract's Statement of Work. We did not identify deficiencies in the work completed.

3. The contractor provided a quality control plan for this project. The contractor is using the quality control plan to ensure the quality and performance of the work being done. The U.S. Army Corps of Engineers Gulf Region Central did not provide a formal written quality assurance plan. However, the U.S. Army Corps of Engineers Gulf Region Central project quality assurance personnel at Forward Operating Base Loyalty demonstrated that a quality assurance process was in place. For example, when their initial inspection of a shipment of spare parts indicated that it might contain counterfeit or inferior parts and replacement pumps listed as new were not new, quality assurance personnel took the appropriate action and promptly reported the matter to the contracting officer. Further inspection of the parts and new equipment determined that the parts and equipment met contract requirements and were acceptable.
4. Sustainability is not addressed in the contract for this project. Since the Baghdad City Government requested that pumps and motors identical to the pumps and motors in place be used in the rehabilitation of the Sadr City Al Qana'at raw water pump station, we concluded that sustainability should not be an issue in the success of this project.
5. When completed, the Sadr City Al Qana'at raw water pump station should meet its intended objective of providing required water levels to the Sadr City and Shark Dijala water treatment plants. A desirable outcome will likely result because of the adequacy of the design and because project management, contractor quality control and government quality assurance practices during construction have been effective. However, at the time of our assessment the contract was only approximately 34 percent complete.

**Recommendations and Management Comments.** This report does not contain any negative findings or recommendations for corrective action. The U.S. Army Corps of Engineers Gulf Region Division reviewed a draft of this report and had no comments or additional information.

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# Introduction

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## Objective of the Project Assessment

This report is being made to provide project information to interested parties to enable timely and appropriate action to be taken, when warranted. To address our objectives, we reviewed contract documentation, met with responsible project officials, and visited the site. Specifically we sought to determine whether:

1. Project components were adequately designed prior to construction or installation;
2. Construction or rehabilitation met the standards of the design;
3. The contractor's quality control program and the U. S. government's quality assurance program were adequate;
4. Sustainability was addressed in the contract or task order for the project; and
5. Project results will be consistent with original objectives.

**Project Objectives.** The project objective is to complete the rehabilitation, installation and testing of rehabilitated pumps and motors, and complete the fabrication, delivery, installation, and testing of the new pumps at the Sadr City Al Qana'at raw water pump station (RWPS).

## Background

The Sadr City Al Qana'at RWPS (located in north Baghdad, Iraq) provides raw water to the non-potable water piping network to East Baghdad for agricultural purposes (Site Photos 1-3). In addition, the Sadr City Al Qana'at RWPS currently provides raw water to the Shark Dijala potable water treatment plant. When the pump station is operating at 100 percent capacity, the RWPS will also provide water to the Sadr City Russafa 3 water treatment plant and provide six million people with raw and/or treated water.



Site Photo 1. Sadr City Al Qana'at raw water pump station.



**Site Photo 2. Sadr City Al Qana'at RWPS**



**Site Photo 3. Sadr City Al Qana'at RWPS piping**

The Sadr City Al Qana'at RWPS houses 10 vertical turbine pumps (Site Photo 4) with below floor discharges. The original pumps were manufactured by Jeumont Schnieder and included eight large and two smaller units. Four large pumps are currently operational (two have already been rehabilitated).



**Site Photo 4. Vertical turbine pumps.**

**Renovation Contracts.** In September 2005, the U.S. Army Corps of Engineers (USACE) Gulf Region Division (GRD) awarded a Commanders Emergency Response Program (CERP) contract (URI 23287) to the Sager Manar Company to rehabilitate or replace the pumps and motors at the Sadr City Al Qana'at RWPS. In October 2005, the contractor informed the USACE resident office that the contract could not be completed and through mutual agreement, in February 2006, the USACE terminated the contract for convenience.

The USACE subsequently split the requirements of the initial contract and awarded two contracts. A CERP contract (URI 25086) to install and/or rehabilitate the electrical system was awarded to Trans Mediterranean Group and an Iraq Relief and Reconstruction Fund (IRRF) supply contract (URI 25887) to install and rehabilitate the pumps and motors was awarded to Comet Company. The USACE terminated the Trans Mediterranean Group contract for default. That contract was advertised for bid and is in the process of being awarded by the USACE. The Statement of Work for the contract (URI 25887) with Comet Company for the Sadr City Al Qana'at RWPS included:

- Supply, install, and test four new vertical type wet well Flowserve pumps with a flow rate of 3800 cubic meters per hour. New pumps must be equivalent to the pumps they are replacing.
- Rehabilitate and test four existing vertical type wet well Flowserve pumps that have a flow rate of 3800 cubic meters per hour.
- Supply, install, and test two new vertical type wet well Flowserve pumps with a flow rate of 1800 cubic meters per hour. New pumps must be equivalent to the pumps they are replacing.
- Rehabilitate and test four motors, type 840 kilowatt (kW), 1000 revolutions per minute (rpm). Supply and install ball bearings from the original manufacturer. Pressure clean and test each cooling exchanger.
- Rehabilitate and test one motor, 460 kW, 1500 rpm. Supply and install ball bearings from the original manufacturer. Pressure clean and test each cooling exchanger.
- Supply, install, and test four new motors, type 840 kW, 1000 rpm. Supply and install motors from the original manufacturer or a dimensionally and functionally similar replacement motor.
- Supply, install, and test one new motor, type 460 kW, 1500 rpm. Supply and install motor from the original manufacturer or a dimensionally and functionally similar replacement motor.

## Site Assessment

We visited the Sadr City Al Qana'at RWPS in March 2007. The team met with the RWPS manager and the Shark Dijala water treatment plant area manager. The facility was being used to provide non-potable water to Sadr City and was reported to be operating at 60 percent capacity. The URI 25887 contract requires rehabilitation of four pumps and five motors, and the replacement of six pumps and five motors. At the time of the site visit, the team observed that spare parts for the rehabilitation of the pumps and motors were on hand and that rehabilitation work was on-going (Site Photos 5 and 6).



**Site Photo 5. Spare parts for rehabilitation.**



**Site Photo 6. Rehabilitating pumps.**  
(Picture courtesy of USACE)

The Sadr City Al Qana'at RWPS project was requested by the Amanat (Baghdad City Government) and required the replacement or rehabilitation be dimensionally and functionally accurate and similar to the original pumps and motors. The USACE Gulf Region Central (GRC), a district office of the USACE GRD which administers the contract, stated that initially the project was delayed when shipments took from October through December 2006 to get the parts across the border. The work was delayed another 45 days while the Amanat verified the inventory of spare parts to ensure they were the correct parts. The Amanat gave final approval for the rehabilitation work in early February 2007 and work on the project was immediately initiated.

According to the GRC, the contractor ceased site work in April 2007 when the Amanat withdrew permission to work on the 3rd and 4th pump and for non-payment from GRD. The GRC resolved all major issues after holding a joint meeting with the contractor, the Amanat, and GRD. The GRC stated that the payment issues were resolved and the contract work is moving forward.

## **Project Quality Management**

The contractor provided a quality control (QC) plan, but the GRC did not provide a formal written quality assurance (QA) plan. The contractor is using the QC plan to ensure the quality and performance of the work being done. However, the USACE GRC project QA personnel at Forward Operating Base Loyalty demonstrated that a QA process was in place. For example, when their initial inspection of a shipment of spare parts indicated that it might contain counterfeit or inferior parts and replacement pumps listed as new that were not new, quality assurance personnel took the appropriate action and promptly reported the matter to the contracting officer. Further inspection of the parts and new equipment determined that they met contract requirements and were acceptable. The project is on-going and according to the GRC, is approximately 34 percent complete. Rehabilitation of two of the four pumps is complete.

## **Project Sustainability**

Sustainability is not addressed in the contract for this project. Since the Baghdad City Government requested that the new pumps and motors, identical to the pumps and motors currently in place, be used in the rehabilitation of the Sadr City Al Qana'at RWPS, we concluded that sustainability should not be an issue in the success of this project. The current contract (URI 25887) requires the contractor to provide drawings for the new pumps and motors, and operating & maintenance manuals. The Amanat office provided drawings for the original 1981 pumps. According to USACE officials, these drawings will be adequate for sustaining the existing pumps. According to the contract, drawings and manuals will be supplied with the replacement motors. When the pump station is operating at 100 percent capacity, raw water will be provided to the Shark Dijala and Sadr City Russafa 3 potable water treatment plants and supply

approximately six million Sadr City residents with adequate raw and/or treated water to improve their quality of life.

## Conclusions

Based upon the results of our review of contract documentation, meetings with responsible project officials, and our site visit, we reached the following conclusions for the assessment objectives. Appendix A provides details pertaining to Scope and Methodology.

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

This project did not alter the existing design of the Sadr City Al Qana'at raw water pump station. It provided for the rehabilitation of four pumps and five motors, the replacement of six pumps equivalent to the pumps which were replaced, and the replacement of five old motors with new motors from the original manufacturer or a dimensionally and functionally similar replacement motor. The Sadr City Al Qana'at raw water pump station has been in operation for more than 20 years. Our review of the existing design of the Sadr City Al Qana'at raw water pump station determined it to be adequate.

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

Rehabilitation work was in-process at the time of our assessment. According to U.S. Army Corps of Engineers oversight representatives, work on the project was approximately 34 percent complete. In general, the renovation work we observed met the standards of the contract's Statement of Work. We did not identify deficiencies in the work completed.

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

The contractor provided a QC plan for this project but the USACE GRC did not provide a formal written QA plan. The contractor is using the QC plan to insure quality and performance of the work being done. However, the USACE GRC project quality assurance personnel at Forward Operating Base Loyalty demonstrated that a QA process was in place. For example, when their initial inspection of a shipment of spare parts indicated that it might contain counterfeit or inferior parts and replacement pumps listed as new that were not new, quality assurance personnel took the appropriate action and promptly reported the matter to the contracting officer. Further inspection of the parts and new equipment determined that they met contract requirements and were acceptable.

4. Determine if project sustainability was addressed in the contract or task order for the project.

Sustainability is not addressed in the contract for this project. Since the Baghdad City Government requested that pumps and motors identical to the pumps and motors in place be used in the rehabilitation of the Sadr City Al Qana'at raw water pump

station, we conclude that sustainability should not be an issue in the success of this project.

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

When completed, the Sadr City Al Qana'at raw water pump station should meet its intended objective of providing required water levels to the Sadr City and Shark Dijala water treatment plants. A desirable outcome will likely result because of the adequacy of the design and because project management, contractor QC and government QA practices during construction have been effective. However, at the time of our assessment the contract was only approximately 34 percent complete.

## **Recommendations and Management Comments**

This report does not contain any negative findings or recommendations for corrective action. The U.S. Army Corps of Engineers Gulf Region Division reviewed a draft of this report and had no comments or additional information.

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

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SIGIR performed this project assessment from March through May 2007 in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included an engineer/inspector and a program analyst/inspector.

In performing this project assessment we:

- Reviewed contract documentation to include the contract, contract modifications, and Statement of Work;
- Reviewed available documents (e.g., drawings, spare parts list, USACE documents and pictures, etc.);
- Interviewed representatives from the USACE GRC Forward Operating Base Loyalty, GRD Water Sector, and Sadr City Al Qana'at RWPS personnel; and
- Conducted an on-site inspection at the Sadr City Al Qana'at RWPS in March 2007.

## Appendix B. Acronyms

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CERP	Commanders Emergency Response Program
GRC	Gulf Region Central, a division of the Gulf Region Division, USACE
GRD	Gulf Region Division, USACE
IRRF	Iraq Relief and Reconstruction Fund
kW	Kilowatt
QA	Quality Assurance
QC	Quality Control
RPM	Revolutions per minute
RWPS	Raw Water Pump Station
SOW	Statement of Work
URI	Unique Record Identifier
USACE	U.S. 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**

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Under Secretary of Defense (Comptroller)/Chief Financial Officer

Deputy Chief Financial Officer

Deputy Comptroller (Program/Budget)

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Security Affairs

Inspector General, Department of Defense

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Director, Defense Contract Management Agency

### **Department of the Army**

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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**

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Commanding General, Multi-National Corps-Iraq

Commanding General, Multi-National Security Transition Command-Iraq

Commander, Joint Area Support Group-Central

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President, Overseas Private Investment Corporation  
President, U.S. Institute for Peace

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Senate Committee on Appropriations  
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    Subcommittee on State, Foreign Operations and Related Programs  
Senate Committee on Armed Services  
Senate Committee on Foreign Relations  
    Subcommittee on International Operations and Organizations, Democracy and  
    Human Rights  
    Subcommittee on International Development and Foreign Assistance, Economic  
    Affairs and International Environmental Protection  
    Subcommittee on Near East 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  
    Permanent Subcommittee on Investigations  
    Subcommittee on Oversight of Government Management, the Federal  
    Workforce, and the District of Columbia

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    Subcommittee on State, Foreign Operations, and Related Programs  
House Committee on Armed Services  
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 Middle East and South Asia  
    Subcommittee on International Organizations, Human Rights, and Oversight

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

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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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