HAI TISEEN PRIMARY HEALTHCARE CENTER
TAMEEM PROVINCE, IRAQ

SUSTAINMENT ASSESSMENT

SIGIR PA-08-158
APRIL 16, 2009
Summary of Report: PA-08-158

Why SIGIR Did This Study

SIGIR is charged to conduct assessments of Iraq reconstruction projects funded with amounts appropriated or made available for the reconstruction of Iraq. SIGIR is assessing projects funded under the Iraq Relief and Reconstruction Fund to provide real-time information on relief and reconstruction to interested parties to enable appropriate action, when warranted.

The objective of this sustainment assessment was to determine whether the project is operating at the capacity stated in the original contract. The overall objective of this project was to complete the partially constructed Type B Hai Tiseen Primary Healthcare Center (PHC). When completed, this facility is expected to accommodate approximately 100 patients daily. The facility was partially completed by Parsons Delaware, Inc., prior to the termination of Parsons in March 2006.

What SIGIR Recommends

The U.S. Army Corps of Engineers (USACE) has initiated a $16.5 million sustainment contract for health care facilities. The contract will include a preventive maintenance program and repair/troubleshooting dockets for the re-commissioning of individual pieces of equipment. USACE will contract with Iraqi companies to perform the preventive maintenance and training according to a prioritization listing.

SIGIR recommends that the Commanding General, Gulf Region Division, direct that all installation of and training on the medical equipment currently at the Hai Tiseen Primary Healthcare Center be performed according to the prioritization listing.

GRD concurred in part with the recommendation. GRD concurred that the Hai Tiseen PHC could be evaluated and that deficiencies noted and training required could be planned and executed based on Ministry of Health (MOH) prioritization when proper funding is available. SIGIR considered the GRD comments responsive in view of the transfer of this PHC to the Iraqi MOH on 18 July 2007 and available funding.

What SIGIR Found

On 15 December 2008, SIGIR performed an on-site assessment of the $465,015 Hai Tiseen PHC project. Due to security concerns, the time allotted for the site visit was approximately 30 minutes, and access to the roof was prohibited; therefore, a complete review of all work was not possible.

SIGIR found that the requirement to formally document all deficiencies with estimated completion dates during the pre-final inspection was not fulfilled. The project file lacked a pre-final or final inspection of the PHC. The file did contain a 19 July 2007 note, which stated that “x-ray machine will be installed later.” SIGIR’s site visit confirmed that the contractor corrected this deficiency. However, SIGIR noticed that the x-ray room’s exterior doors and darkroom door appeared to be standard wooden doors, not the lead-lined doors required by the design. The contractor had delivered and connected the x-ray equipment but did not verify that the equipment was operational. Also, the facility’s staff does not have the technical capability to operate the x-ray equipment; consequently, the facility cannot offer any x-ray services.

Finally, one of the two installed dental chairs appeared to have a plugged drain and was not operational.

The walls above the support beams over the portico to the building had vertical cracks that aligned with the support beams below. The area engineer was aware of this issue. The solution was to use two reinforced concrete columns beneath the free ends of the support beams.

SIGIR did not observe any other noticeable signs of structural failure or distress. The primary reinforced concrete structural members that were visible did not show any indicators of failure. The floors appeared even and level, and there were no apparent signs of settlement or displacement.

During the site visit, SIGIR observed doctors attending to patients and pharmacists dispensing medication. According to the administrator, the PHC facility serves approximately 200 patients daily; 30 to 40 of those received dental services. Overall, the facility was moderately clean and well organized, and the personnel were performing minor maintenance functions, such as cleaning and repairing minor items.
MEMORANDUM FOR COMMANDING GENERAL, UNITED STATES CENTRAL COMMAND
COMMANDING GENERAL, MULTI-NATIONAL FORCE-IRAQ
COMMANDING GENERAL, GULF REGION DIVISION, U.S. ARMY CORPS OF ENGINEERS
COMMANDING GENERAL, JOINT CONTRACTING COMMAND-IRAQ/AFGHANISTAN
DIRECTOR, IRAQ TRANSITION ASSISTANCE OFFICE

SUBJECT: Report on the Hai Tiseen Primary Healthcare Center, Kirkuk, Iraq (SIGIR Report Number PA-08-158)

We are providing this report for your information and use. It addresses the current status of the Hai Tiseen Primary Healthcare Center, Kirkuk, Iraq. The assessment was made to determine whether the project was operating at the capacity stated in the original contract.

We received comments on a draft of this report from the Gulf Region Division of the U.S. Army Corps of Engineers, which addressed the issues raised in the report and recommendations made. The planned actions are responsive and addressed the issues we identified. As a result, comments to this final report are not required.

We appreciate the courtesies extended to our staff. If you have any questions please contact Mr. Brian Flynn via e-mail at brian.flynn@iraq.centcom.mil or at DSN 318-239-2485. For public affairs queries concerning this report, please contact SIGIR Public Affairs at publicaffairs@sigir.mil or at 703-428-1100.

Stuart W. Bowen, Jr.
Inspector General
Introduction. The Special Inspector General for Iraq Reconstruction is assessing projects funded under the Iraq Relief and Reconstruction Fund (IRRF) to provide real-time information on relief and reconstruction to interested parties to enable appropriate action, when warranted.

Project Assessment Objective. The objective of this project assessment was to determine whether the project is operating at the capacity stated in the original contract. To accomplish the objective, the assessment team determined whether the project was at full capability or capacity when accepted by the U.S. government, when transferred to Iraqi operators, and during the site inspection on 15 December 2008. The Special Inspector General for Iraq Reconstruction (SIGIR) conducted this limited scope assessment in accordance with the Quality Standards for Inspections issued by the Council of the Inspectors General on Integrity and Efficiency. The assessment team comprised an engineer/inspector and two auditors/inspectors.

Project Objective. The overall objective of the project was to complete the partially constructed Type B Hai Tiseen Primary Healthcare Center (PHC). When completed, this facility should accommodate approximately 100 patients daily. The facility was partially completed by Parsons Delaware, Inc. (Parsons), prior to the termination of Parsons in March 2006.

Conclusions. After the U.S. government terminated Parsons in March 2006, an IRRF-funded contract to complete the partially constructed Hai Tiseen PHC was awarded to a local contractor.

During construction, the Gulf Region North (GRN) Kirkuk Area Office performed routine site inspections of the facility to determine the status and quality of the contractor’s work. GRN Kirkuk Area Office personnel documented construction progress via quality assurance reports and photographs taken during visits to the site.

The contract required a pre-final inspection to develop a “punch list” of all deficiencies noted. These deficiencies were to be formally documented, along with the estimated dates of correction; the final inspection was to be completed after the punch list.

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1 The Hai Tiseen PHC project is also referred to in various documents as the KE03 Hai Tiseen PHC, the KE03 PHC, and the Tiseen PHC. This SIGIR report refers to the project as the Hai Tiseen PHC, except when the term is used in a verbatim quotation.

2 According to project file documentation and discussions with GRN Kirkuk Area Office representatives, the facility’s approximate percentage completed by Parsons was not known at the time of termination.

3 GRN is one of three districts under the United States Army Corps of Engineers (USACE) Gulf Region Division (GRD). GRD and its three districts provide construction management services, as well as, assist the capacity of the Government of Iraq to maintain its own construction, operation, and maintenance program of essential services, and national infrastructure.
deficiencies were corrected. The project file lacked documentation of a pre-final or final inspection of the PHC. However, the project file did contain the acceptance letter of the PHC, which was signed on 18 July 2007 by the Iraqi Ministry of Health Director General and the U.S. government. In the “notes” to the final acceptance, the letter stated that the “x-ray machine will be installed later.” The acceptance document did not identify the estimated correction date for the item.

SIGIR’s site visit confirmed that the contractor corrected the outstanding deficiency. However, SIGIR noticed that the x-ray room’s exterior doors and darkroom door appeared to be standard wooden doors, not the lead-lined doors required by the design. Further, the contractor delivered and connected the x-ray equipment; however, according to the PHC administrator, the contractor did not verify that the equipment was operational. Also, the facility’s staff does not have the technical capability to operate the x-ray equipment; consequently, the facility cannot offer any x-ray services to its patients.

SIGIR noticed that the heating, ventilation, and air-conditioning (HVAC) units were installed and operational; however, the PHC administrator stated that the air conditioning in the HVAC units did not work. The HVAC units appeared to be equipped with the ability to provide air conditioning; however, because of time limitations on site, SIGIR could not identify the cause of the failure of the air conditioning system.

The contractor installed the reverse osmosis (RO) unit and the dental chairs provided by the U.S. government. According to the administrator, the contractor-installed RO unit malfunctioned, but the PHC maintenance staff repaired it and it is now operational. SIGIR observed that one of the dental chairs was being used; however, the second dental chair appeared to have a plugged drain and was not operational.

SIGIR did not observe any noticeable signs of structural failure or distress. The primary reinforced concrete structural members that were visible did not show any indicators of failure. The floors appeared even and level and no signs of settlement or displacement were apparent. With the exception of the cracking in the walls above the failed portico beams at the front of the building, interior partition walls did not exhibit the cracking that is typical of structural movement or settlement. The walls above the cantilever (support) beams over the portico to the building had vertical cracks that aligned with the beam supports below. The GRN Kirkuk Area Office engineer was aware of this issue and explained the resulting solution—the construction of two reinforced concrete columns beneath the free ends of the cantilever beams.

During the site visit, SIGIR observed doctors attending to patients and pharmacists dispensing medication. According to the administrator, the PHC facility has been operating for 15 months and serves approximately 200 patients daily; 30 to 40 of those patients receive dental services. The staff includes three doctors, two dentists, and various support personnel. Overall, the facility was moderately clean and well organized, and the personnel were performing minor maintenance functions, such as cleaning and repairing minor items.

**GRD’s Corrective Actions for the Sustainment of Health Projects.** The Gulf Region Division (GRD) recognized that, in many cases, the contractors that were awarded the contracts to complete the PHCs nationwide did not properly install the medical equipment or train the available personnel on the use of the equipment. In addition, throughout the history of the IRRF program, once the U.S. government turned over facilities to the Iraqi ministries, little preventive maintenance was performed for items such as generators. Consequently, the facilities and equipment were failing much more quickly than what would be expected if normal preventive maintenance was being
performed. Considering the importance of PHCs to the local Iraqi population and the specialized equipment provided to each PHC, preventive maintenance and training are imperative for the overall operation and long-term sustainment of each PHC.

As a result, the U.S. Army Corps of Engineers Transatlantic Center initiated a $16.5 million contract on behalf of the Iraq Transition Assistance Office for the sustainment of health care projects funded by the U.S. government. For designated PHCs, a facility assessment survey is completed, which identifies the actual physical condition of the facility and the equipment. This survey is turned into preventive maintenance works or repair/trouble-shooting dockets for the re-commissioning of individual pieces of equipment. The preventive maintenance program will then be loaded into a computerized system, which will identify the need for a contractor to perform recurring maintenance on facilities and bio-medical equipment. The repair work orders will be addressed on a case-by-case basis and prioritized according to the system criticality of each PHC.

GRD will contract with multiple Iraqi companies throughout the country to perform the preventive maintenance and training. In addition, this contract provides for coaching and mentoring Iraqi companies in operation and maintenance, which GRD believes will slowly improve the Iraqis’ ability to ultimately sustain their own facilities and equipment.

**Recommendations.** SIGIR recommends that the Commanding General, Gulf Region Division, direct that all installation of and training on the medical equipment currently at the Hai Tiseen Primary Healthcare Center be performed according to the prioritization listing.

**Management Comments.** SIGIR received comments on the draft of this report from the Commanding General, GRD, concurring in part with the recommendation. GRD concurred that the Hai Tiseen PHC could be evaluated and that deficiencies noted and training required could be planned and executed based on Ministry of Health (MOH) prioritization when proper funding is available. The Commanding General, GRD, would not have to direct such an action.

However, GRD also informed SIGIR that the Hai Tiseen PHC is not on the current list of priority PHCs prepared by the MOH. The currently funded appraisal and rehabilitation program should continue using the recently approved MOH prioritization list. Until such time that the MOH changes its priority listing or additional funds are available, this PHC will not be evaluated, and its personnel will not receive training.

Specific comments were also provided to clarify or correct technical aspects of the report.

**Evaluation of Management Comments.** SIGIR appreciates the clarifying information GRD provided in response to the draft report and considers the comments responsive in view of the transfer of this PHC to the MOH on 18 July 2007 and available funding. As a result, comments to this final report are not required.

SIGIR modified the draft report as appropriate to include additional information and clarifying comments received from GRD.

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Introduction

Objective 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, the Special Inspector General for Iraq Reconstruction (SIGIR) determined whether the project was operating at the capacity stated in the original contract. To accomplish this, SIGIR determined if the project was at full capability or capacity when accepted by the U.S. government, when it was transferred to Iraqi operators, and during the site inspection.

Pre-Site Assessment Background

Primary Healthcare Centers

Prior to 2003, Iraq’s health care system was in a fragile state following over 20 years of conflict and sanctions. Specifically, the Iraqi health care system previously suffered from being systematically underfunded, which led to severe declines in the health status of the population, the most vulnerable being children.

Contract W914NS-04-D-0006 awarded to Parsons Delaware, Inc.

In an effort to rectify the poor condition of the Iraqi health care system, the Coalition Provisional Authority awarded multiple task orders (TOs) under Contract W914NS-04-D-0006. Contract W914NS-04-D-0006, dated 25 March 2004, was a design build, cost-plus-award-fee, indefinite delivery/indefinite quantity contract funded with U.S. appropriated Iraq Relief and Reconstruction Fund awarded to Parsons Delaware, Inc (Parsons).

Three specific TOs required Parsons to design and construct 150 primary healthcare centers (PHCs) throughout Iraq. However, the program to design and construct the 150 PHCs was riddled with poor performance, increased costs, and untimely completions. Ultimately, on 3 March 2006, the U.S. government terminated the approximately $243 million contract with Parsons for convenience.

After terminating the Parsons PHC TOs, the U.S. government decided to use available funding to contract directly with local Iraqi contractors to complete the partially-built PHCs. The Hai Tiseen PHC was one of the PHCs Parsons partially completed (prior to Parsons’ contract being terminated).

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4 The three TOs were 4, 11, and 12.
5 Approximately $186 million was spent on the PHC project.
6 The Hai Tiseen PHC project is also referred to in various documents as the KE03 Hai Tiseen PHC, the KE03 PHC, or the Tiseen PHC. This SIGIR report refers to the project as the Hai Tiseen PHC, except when the term is used in a verbatim quotation.
7 According to project file documentation and discussions with GRN Kirkuk Area Office representatives, the facility’s approximate percentage complete by Parsons was not known at the time of termination.
Medical Equipment

In addition to the design and construction of the 150 PHCs, Parsons’ three TOs also required the delivery and installation of medical and dental equipment at each PHC. The medical equipment included x-ray equipment, hematology analyzers, exam tables, patient beds, defibrillators, electroencephalogram machines, ventilators, incubators, and other equipment; while the dental equipment included dental chairs, lights, cabinets, instruments, supplies, and other equipment. Included in the total definitized cost for the medical equipment was the requirement to install and test the equipment, train clinic personnel on the use of the equipment, and provide a 12-month warranty on the installed equipment.

Prior to being terminated in March 2006, Parsons procured and delivered the medical equipment for the 150 PHCs, which the United States Army Corps of Engineers (USACE) Gulf Region Division (GRD) arranged to have stored in warehouses at Abu Ghraib.

Letter of Instruction for Delivery of Primary Health Clinics

In order to properly complete and turnover the PHCs, GRD created a standard operating procedure (SOP) entitled, “Letter of Instruction (LOI) for Delivery of Primary Health Clinics (PHC’S).” The purpose of this SOP was to “outline as clearly as possible the key items and responsible parties in delivering PHCs to the Iraqi Ministry of Health.” According to the SOP, PHCs will be provided with modern medical equipment, office equipment, furniture, and three months of medical equipment and consumables. Specifically,

“GRD will deliver quality, complete, functional Primary Health Clinics to the Ministry of Health as close to schedule and within the allotted budget. ‘Complete’ includes working electrical generators, installed and commissioned medical equipment, and furniture & consumables.”

Type B PHC

There are three different types of PHCs – Types A, B, and C. The Type B PHC is a two-story, 1,327 square meter facility providing space for medical/dental examination and treatment as well as offering medical and x-ray capabilities, vaccination, testing lab, pharmacy, public education, and additional medical training space that includes lecture halls, instructor offices, and a library. Figure 1 provides an illustration of a completed Type B facility.

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8 The total definitized cost of the equipment for the 150 PHCs plus a medical training academy was approximately $70.4 million.

9 GRD and its three districts provide construction management services, as well as, assist the capacity of the Government of Iraq to maintain its own construction, operation, and maintenance program of essential services, and national infrastructure. Gulf Region North (GRN) is one of three districts under the United States Army Corps of Engineers (USACE) Gulf Region Division (GRD).
Contract, Costs and Payments

The Gulf Region North (GRN), on 17 July 2006, awarded Contract W917BE-06-P-0087, a firm-fixed-price-contract in the amount of $440,950, to a local contractor. There were two modifications to the base contract.

Modification P0001, dated 12 October 2006, modified the Bill of Quantities (BOQ) to re-balance the pricing. The cost, terms, and conditions of the contract remain unchanged.

Modification P0002, which GRN was unable to provide to SIGIR, increased the contractual cost by $24,065 for a total cost of $465,01510.

The contract listed the following two options (and associated costs):

- Option 1 – provide the items stated in the BOQ, and install the government furnished equipment11 ($360,950).
- Option 2 – install the exercised option for heating, ventilation, and air conditioning (HVAC) units ($80,000).

The contract required the contractor to complete the entire project within 210 calendar days from the Notice to Proceed.

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10 According to GRN Kirkuk Area Office representatives, this contract modification required the contractor to construct reinforced concrete columns to support the cantilever beams at the portico over the front entrance to the facility. The columns are required to correct an error in the original PHC design, which specified inadequate reinforcing for the cantilever beams.

11 The original Parsons PHC TOs provided for the purchase and installation of medical and dental equipment for each PHC. Prior to being terminated, Parsons purchased the medical and dental equipment and delivered it to the Abu Gharib warehouse, located in Baghdad, Iraq.
Project Objective and Pre-Construction Description

The overall objective of the project was to complete the partially constructed Type B Hai Tiseen PHC. Specifically, the contract required the following:

“The work covered by this Statement of Work (SOW) consists of furnishing all labor, equipment, materials, security, housing, travel, testing, inspection and permits required to complete construction of KE03 (Al Teseen) Healthcare Center, including connections to all utilities, in Kirkuk Governorate.”

The description of the facility (pre-construction) is based on information obtained from the contract and GRN Kirkuk Area Office personnel and documentation. The PHC site is located in Kirkuk, Iraq, which is approximately 230 kilometers north of Baghdad. The city of Kirkuk, with a population estimated at 710,000, is a mixture of Kurdish, Assyrian, Turkomen, and Arab. Kirkuk oilfields dominate the region; however, the area around Kirkuk also has rich agricultural output, such as grains and fruits.

The GRN project file contained limited information regarding the extent of the construction or the condition of the facility when Parsons was terminated. Consequently, SIGIR relied on project file photographs from the approximate time of contract award to determine the condition of the partially completed facility (Site Photo 1). Based on these photographs, SIGIR determined that Parsons completed the following items:

- structural concrete columns and beams
- interior and exterior concrete block walls

Site Photo 1. Condition of partially constructed PHC when the new contract was awarded
(Courtesy of GRN)
Statement of Work

The SOW for this project consisted of minimum design and completion of the partially constructed Hai Tiseen PHC. Specifically:

Design Requirements
- check all drawings furnished immediately upon receipt
- compare all drawings and verify the figures before laying out the work

Site Work/Preparation
- construct parking areas at the front of the building and access roads inside the site
- construct and install concrete sidewalks
- provide and install curbs and gutters
- provide, install, and test exterior perimeter lighting
- construct retaining walls were necessary

Civil and Architectural Construction
- provide materials and construct the septic tank and cesspool according to the drawings
- provide and complete the installation of the marble tiles
- supply and install the granite steps for the interior stairs
- provide utilities, including, but not limited to air conditioning, exhaust air, water and electricity, for equipment furnished and installed by others
- provide exterior and interior signage
- provide water tanks for storage
- complete and construct piping system for domestic water, sanitary sewer, storm sewer, water treatment equipment, and plumbing fixtures and fittings.

The requirements to complete this project were further outlined in a detailed BOQ, which contained 55 sub-items that provided sufficient detail for the construction of the PHC.

Current Project Design and Specifications

The SOW required the contractor to update Parsons’ original design drawings based on changes identified in the assessment phase. In addition, the contractor was responsible for completing and submitting the 100% design drawings.

Parsons presented GRD with a consistent design for all Type B PHCs. Parsons previously submitted 30%, 65%, 95%, and 100% design drawings and specifications to GRD for review and approval. Parsons’ design drawings for a Type B facility included architectural, structural, mechanical, plumbing, and electrical plans. For example, the architectural design drawings included detailed exterior views of the facility (Figure 2).
The Type B PHC design drawings included the following rooms for a fully functioning PHC:

- reception area and lobby
- exam rooms
- doctors offices
- bathrooms
- laboratory
- x-ray room
- records room
- mechanical room
- electrical room
- classroom
- dental services
- pharmacy
- storage rooms

SIGIR previously reviewed Parsons’ design drawings while performing assessments of PHC work done while Parsons was still under contract. SIGIR found Parsons’ design drawings and specifications to be complete and consistent with the contract requirements.

The SOW required the contractor to design and construct the facility in accordance with the technical specifications and the international or Iraqi building code, as specified. Specifically, where repair and refurbishment are required, the standards of the original design are to be used. Materials and equipment to be replaced will be replaced with equipment that meets the original design intent of the facility.

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However, where new material or equipment has been specified in this project, or if the original material or equipment is determined to be inadequate for the proposed service, new items will be specified to Iraqi or equivalent international codes and standards.

Detailed technical specifications were provided by GRN with the contract documents. These specifications covered all items and materials that were to be incorporated into the project. In addition to the technical specifications, the Statement of Work also required conformance to the following codes and standards for the design and construction:

- International Building Code,
- International Electro-technical Commission,
- National Fire Protection Association,
- Sheet Metal and Air Conditioning Designer’s National Association,
- International Mechanical Code,
- International Plumbing Code,
- International Health Codes,
- Joint Commission on the Accreditation of Healthcare,
- Operations Environmental Relevant international environmental standards for the Standards given area

The contractor was also required to provide operations and maintenance (O&M) support for all facilities and equipment installed, constructed, or rehabilitated. The support was to be provided during the construction, startup, and commissioning phases of the project, and was to continue for 90 days after the issuance of the Letter of Project Completion.

The SOW required the contractor to provide an O&M manual, written in Arabic and English, which includes standard operating procedures for all equipment and systems, standard maintenance procedures, and recommended spare parts lists for all equipment.

The SOW also required the contractor to provide as-built drawings, including details of location of work and existing site conditions.

Based on the detailed technical specifications and the inclusion by reference of other applicable codes and standards, there was sufficient information provided to complete the construction of the facility.

**Site Progress During Construction**

The contract required the contractor to submit weekly progress reports with visual pictures to verify progress and completion of work. The contractor did not provide weekly construction reports or document quality control activities performed. The GRN Kirkuk Area Office’s evaluation of the contractor’s performance was the following:

“Contractor’s QC [quality control] manager did not perform the required 3 phase control program. Contractor did not perform all the required testing of mechanical, electrical and plumbing system. Contractor has failed to fix noted construction deficiencies on time...Contractor completed this project with bad workmanship, hard time to convince to fix noted deficiencies. I recommend not to include this contractor again in future projects.”
However, the GRN Kirkuk Area Office documented construction progress via daily quality assurance (QA) reports and photographs taken during site visits. For example, one QA representative observed cracks in the concrete masonry unit partition walls. Upon further inspection, the QA representative noted that the reinforced concrete beams had failed (i.e. cracked completely through).

According to GRN Kirkuk Area Office representatives, a contract modification required the contractor to construct reinforced concrete columns to support the cantilever beams at the portico over the front entrance to the facility. The columns are required to correct an error in the original PHC design, which specified inadequate reinforcement for the cantilever beams.

Since the beams were not sufficiently reinforced, deflection and resulting cracking of the second story walls occurred during construction. Construction of the columns was required to prevent further deflection, cracking, and possible failure of the beams under the design load.

A review of the QA reports and photographs identified an issue with the quality of the connection between the newly constructed column and the original structure. Site Photo 2 shows the exposed connection prior to placement of the finish tile. The column contact area at the connection appears to be significantly less than the cross sectional area of the column. The void area at the connection is also asymmetric and may induce off-center loading of the column that was not anticipated in the design.

![Site Photo 2. Apparent poor quality of beam/column connection](image)
In addition to the poor quality concrete work, the QA representative identified an issue with the reinforcing steel splice. The QA report, dated 7 March 2007, identified Site Photo 3 as “overlap is not good.” After reviewing the photograph, SIGIR agreed with this assessment.

![Site Photo 3. Poor quality reinforcing splice (Courtesy of GRN)](image)

The poor quality concrete and the reinforcing steel splice would result in a connection with very little shear capacity. This would severely limit the amount of lateral load transfer at the connection and could result in complete failure of the connection under a lateral load caused by wind or seismic activity.

**Condition of Hai Tiseen PHC at Turnover**

*Final Inspection*

According to the contract, the pre-final inspection will develop a “punch list” of all deficiencies noted, and will be formally documented along with the estimated dates of correction. The final inspection will be completed after the contractor has corrected the punch list deficiencies. The final inspection would document corrected deficiencies and the overall condition of the facility.

According to project file documentation, on 18 July 2007, the Iraqi Ministry of Health Director General accepted the Hai Tiseen PHC from the U.S. government. The project
file did not contain the final inspection punch list; however, the only notation to the acceptance letter was “x-ray machine will be installed later.”

The project file’s QA folder did not contain a final inspection report and lacked the final three months of daily QA reports. In addition, the QA photographs stopped in April 2007, three months prior to the acceptance letter on 18 July 2007. Since the project file photographs occurred more than three months prior to the acceptance of the PHC, SIGIR did not rely on them to gauge the condition of the facility at the time of turnover. However, the available project file photographs do not document the correction of any previously identified deficiency nor do they document the condition of the PHC at the time of turnover.

The contract required project completion in 210 days; however, the acceptance letter was signed at the one-year anniversary of the contract award.

**Site Assessment**

On 15 December 2008, SIGIR performed an on-site assessment of the Hai Tiseen PHC (Site Photo 4). A GRN Kirkuk Area Office engineer and the PHC’s administrator accompanied SIGIR during the site visit. Due to security concerns, the time allotted for the site visit was approximately 30 minutes and access to the roof was prohibited. Consequently, SIGIR performed an expedited assessment of the areas available; therefore a review of all work completed was not possible.
During the site visit, SIGIR observed doctors and dentists attending to patients and pharmacists dispensing medication. According to the administrator, the PHC has been operating for fifteen months and serves approximately 200 patients daily with 30 to 40 of the patients receiving dental services. The PHC is open for approximately eight hours per day and has a staff of three doctors, two dentists, and various support staff. The PHC functions as a primary care facility providing general medical and dental services with an in-house pharmacy. Due to the unavailability of qualified staff to operate the x-ray equipment, x-ray services and surgeries are not performed. According to the administrator, there are no local hospitals in the immediate area where more serious cases can be referred.

The PHC administrator stated that there were multiple issues with the facility. The GRN Kirkuk Area Office engineer provided a list of deficiencies prepared at turnover. SIGIR found items that were on the list that were still unresolved at the time of the inspection.

**Status of Medical Equipment**

**Generators**

The Hai Tiseen PHC is connected to the national grid; however, the national grid is unreliable and provides approximately four hours of electricity per day. The primary source of electricity for the facility is provided from one of the two generators located on site (Site Photo 5). The larger generator, 1-megawatt (MW), is used for primary power; while the smaller generator, 500-kilovolt (kV), is for emergency backup. During the site visit, the generators appeared to be relatively clean and in working order. SIGIR verified the generators’ specifications via the faceplates.

Since the Hai Tiseen PHC is connected to national grid power, an automatic transfer switch is critical to transfer to generator power once electricity from the national grid is lost. The PHC design incorporated the use of an automatic transfer switch. SIGIR verified the installation of the automatic transfer switch, which according to the administrator, was functioning correctly.

SIGIR noticed evidence of a minor fuel leak from the 500-kV emergency backup generator (Site Photo 6). The minor fuel leak was near the connection of the fuel line to the emergency generator and had spread into the soil in front of the generator. This leak presents a potential fire hazard and the PHC’s maintenance staff needs to investigate the cause and repair the problem.
Site Photo 5. Two generators providing primary and emergency backup power for the PHC

Site Photo 6. Minor fuel leak from 500-kV emergency backup generator
Reverse Osmosis Unit

The contractor installed the U.S. government-provided reverse osmosis (RO) unit. The RO unit is a filtration device used to remove contaminants in the water. Typically in a medical facility, an RO unit would be configured to remove contaminants and waterborne pathogens, rendering the filtered water sterile.

The RO unit appeared to be installed correctly and the administrator stated that the RO unit was functioning properly (Site Photo 7). According to the administrator, a part in the RO unit had failed initially; however, the PHC facility staff dismantled and repaired the RO unit.

Dental Chairs

According to USACE’s SOP, “Contractors will install/set up medical equipment and commission. USACE representatives shall ensure that commissioning is performed.”

During the site visit, SIGIR observed that the dental chairs were installed. While one dental chair appeared to be in use (Site Photo 8), the second dental chair appeared to have a plugged drain with stagnant water in the rinse basin (Site Photo 9). During the inspection, SIGIR observed a dentist treating a patient while using the working dental chair.

The contractor’s installation of the dental chairs, while functional, did not appear to conform to any known plumbing or electric code. The drain for each chair was placed directly into the floor drain with a significant gap between the floor drainpipe and the chair discharge hose. Also, the air lines were not connected for the dental chairs.
Site Photo 8. Dental chair and tools

Site Photo 9. Second dental chair with stagnant water

Stagnant water in the rinse basin

Unconnected cable from dental chair
**X-ray Imaging System**

The PHC contract included medical imaging capabilities, specifically an x-ray room and equipment. SIGIR observed that the x-ray equipment was installed (Site Photo 10); however, according to the administrator, the contractor did not verify the equipment was operational. In addition, the administrator stated the facility’s staff did not have the technical capability to operate the x-ray equipment; consequently, the facility cannot offer any x-ray services to its patients. Currently, the PHC uses the x-ray room as a medical supply storage room.

Due to the x-ray equipment emitting low levels of radiation, radiation shielding is required to protect the PHC’s personnel and patients. The initial design required mass concrete walls with lead lining, lead lined doors, and a leaded glass observation window to provide radiation shielding.

In the 18 July 2007 acceptance letter, one of the noted deficiencies was “x-ray machine,” which was to be “installed later.” SIGIR noted that the contractor did install the x-ray machine; however, the contract-required installation of a leaded-glass observation window was not installed nor was it noted as a deficiency on the acceptance letter (Site Photo 11). In addition, SIGIR noticed that the contractor installed x-ray room exterior door and darkroom doors appeared to be standard wooden doors. The inspection team could not verify the presence of lead lining on the concrete walls.

![Site Photo 10. X-ray room used as a medical supply storage room](image1.png)

![Site Photo 11. Missing leaded glass observation window](image2.png)
General Facility Observations

Heating Ventilation and Air Conditioning System
According to the administrator, the HVAC’s air conditioning system was not working for a majority of the ground floor. PHC maintenance personnel believe the air was reaching the main duct, but the individual rooms were not receiving the cool air. The administrator did not indicate any problems with the HVAC’s heating system.

The HVAC units were situated on the PHC roof; however, due to security concerns, SIGIR was denied access to the roof. Consequently, SIGIR could not inspect the HVAC units in an effort to identify the problem.

Plumbing and Water Heaters
SIGIR inspected the restrooms, which appeared to be relatively clean and well maintained. SIGIR did not notice any plumbing leaks in the restrooms. However, the administrator stated that the hot water heaters in the restrooms and the rest of the facility did not function. Due to time limitations, SIGIR could not inspect all the PHC’s hot water heaters. Of the hot water heaters SIGIR examined it appeared that, in some cases, power was not available to the receptacles for the heaters to function, while in other cases, it appeared that the hot water heaters had failed.

Electrical
The administrator mentioned several issues with the PHC’s electrical system. For instance, the administrator took SIGIR to several of the rooms where outlets and/or lights did not work. Due to time limitations, SIGIR could not determine the exact cause of the non-functioning outlets and lights. It should be noted that the PHC staff had occupied the facility for over a year and the extent of any modifications to the electrical system by the PHC staff is unknown.

Fire Protection
During the site visit, the GRN Kirkuk Area Office engineer pointed out that the dust caps were still present on several of the ground floor smoke detectors. The contractor used red caps during construction to keep small particle debris out; however, until the red caps are removed, the fire detection system will remain inoperable.

The contractor installed smoke alarms, manual pull boxes, and fire extinguishers throughout the facility. According to the administrator, the fire detection system was functioning. However, the PHC staff did not keep any records to document that the fire extinguishers were tested or routinely serviced (recharged as required); therefore, SIGIR could not verify the condition of the fire extinguishers.

Structural
Except in one instance, SIGIR did not notice any obvious signs of structural failure or distress. The primary reinforced concrete structural members that were visible did not show any indication of failure. The floors appeared even and level, with no apparent signs of settlement or displacement.

The walls above the cantilever beams over the portico to the building had vertical cracks that aligned with the beam supports below. The cracking was divergent away from the support indicating excessive deflection of the cantilever beams. The GRN Kirkuk Area Office engineer was aware of this issue, explained the problem, and the resulting
solution. During construction, a QA representative saw cracks in the concrete masonry unit partition walls. Upon further inspection, the QA representative noted that the reinforced concrete beams had failed (i.e. cracked completely through). The GRN Kirkuk Area Office engineer stated that an analysis was performed, which determined that the original designer of the beams neglected to incorporate the weight of the concrete masonry unit partition walls into the design. The beams were specified with 20 millimeter reinforcing steel, instead of the required 32 millimeter reinforcing steel. This inadequacy was determined to exist in all PHCs built from the original Parsons’ design.

GRD identified a solution for this problem, which consisted of the construction of two reinforced concrete columns beneath the free ends of the cantilever beams (Site Photo 4). According to GRN Kirkuk Area Office representatives, a contract modification added two support columns beneath the cantilever beams over the entrance to the building. The columns were constructed and finished to match the exterior of the building. In addition, the full bearing between the columns and the existing beams was obtained by the placement of non-shrink grout between the top of the concrete columns and the bottom of the existing beam.

With the exception of the walls supported by the overhanging beams at the front of the building, interior partition walls did not exhibit cracking typical of structural movement or settlement.

*General Maintenance Observations*

SIGIR’s site visit determined that PHC personnel were taking some initiative to maintain the facility. The PHC was generally clean and well organized, and the staff was performing some of the minor maintenance functions, such as cleaning and repairing minor items. The PHC maintenance personnel also performed landscaping of the grounds and were attempting to grow flowers and decorative plantings.

SIGIR did observe an issue with insects inside the PHC; specifically, SIGIR noticed several deceased insects beneath cabinets and on the floor in the dentist’s room (Site Photo 12). The presence of vectors in a healthcare facility is unacceptable, since vectors introduce pathogens to patients through direct contact, or secondary contact with contaminated equipment and instruments.
Conclusions

After the U.S. government terminated Parsons in March 2006, an IRRF-funded contract to complete the partially constructed Hai Tiseen PHC13 was awarded to a local contractor.

During construction, the Gulf Region North (GRN)14 Kirkuk Area Office performed routine site inspections of the facility to determine the status and quality of the contractor’s work. GRN Kirkuk Area Office personnel documented construction progress via quality assurance reports and photographs taken during visits to the site.

The contract required a pre-final inspection to develop a “punch list” of all deficiencies noted. These deficiencies were to be formally documented, along with the estimated

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13 According to project file documentation and discussions with GRN Kirkuk Area Office representatives, the facility’s approximate percentage completed by Parsons was not known at the time of termination.
14 GRN is one of three districts under the United States Army Corps of Engineers (USACE) Gulf Region Division (GRD). GRD and its three districts provide construction management services, as well as, assist the capacity of the Government of Iraq to maintain its own construction, operation, and maintenance program of essential services, and national infrastructure.
dates of correction; the final inspection was to be completed after the punch list deficiencies were corrected. The project file lacked documentation of a pre-final or final inspection of the PHC. However, the project file did contain the acceptance letter of the PHC, which was signed on 18 July 2007 by the Iraqi Ministry of Health Director General and the U.S. government. In the “notes” to the final acceptance, the letter stated that the “x-ray machine will be installed later.” The acceptance document did not identify the estimated correction date for the item.

SIGIR’s site visit confirmed that the contractor corrected the outstanding deficiency. However, SIGIR noticed that the x-ray room’s exterior doors and darkroom door appeared to be standard wooden doors, not the lead-lined doors required by the design. Further, the contractor delivered and connected the x-ray equipment; however, according to the PHC administrator, the contractor did not verify that the equipment was operational. Also, the facility’s staff does not have the technical capability to operate the x-ray equipment; consequently, the facility cannot offer any x-ray services to its patients.

SIGIR noticed that the heating, ventilation, and air-conditioning (HVAC) units were installed and operational; however, the PHC administrator stated that the air conditioning in the HVAC units did not work. The HVAC units appeared to be equipped with the ability to provide air conditioning; however, because of time limitations on site, SIGIR could not identify the cause of the failure of the air conditioning system.

The contractor installed the reverse osmosis (RO) unit and the dental chairs provided by the U.S. government. According to the administrator, the contractor-installed RO unit malfunctioned, but the PHC maintenance staff repaired it and it is now operational. SIGIR observed that one of the dental chairs was being used; however, the second dental chair appeared to have a plugged drain and was not operational.

SIGIR did not observe any noticeable signs of structural failure or distress. The primary reinforced concrete structural members that were visible did not show any indicators of failure. The floors appeared even and level and no signs of settlement or displacement were apparent. With the exception of the cracking in the walls above the failed portico beams at the front of the building, interior partition walls did not exhibit the cracking that is typical of structural movement or settlement. The walls above the cantilever (support) beams over the portico to the building had vertical cracks that aligned with the beam supports below. The GRN Kirkuk Area Office engineer was aware of this issue and explained the resulting solution—the construction of two reinforced concrete columns beneath the free ends of the cantilever beams.

During the site visit, SIGIR observed doctors attending to patients and pharmacists dispensing medication. According to the administrator, the PHC facility has been operating for 15 months and serves approximately 200 patients daily; 30 to 40 of those patients receive dental services. The staff includes three doctors, two dentists, and various support personnel. Overall, the facility was moderately clean and well organized, and the personnel were performing minor maintenance functions, such as cleaning and repairing minor items.

**GRD’s Corrective Actions for the Sustainment of Health Projects.** The Gulf Region Division (GRD) recognized that, in many cases, the contractors that were awarded the contracts to complete the PHCs nationwide did not properly install the medical equipment or train the available personnel on the use of the equipment. In addition, throughout the history of the IRRF program, once the U.S. government turned over facilities to the Iraqi ministries, little preventive maintenance was performed for items such as generators. Consequently, the facilities and equipment were failing much more
quickly than what would be expected if normal preventive maintenance was being performed. Considering the importance of PHCs to the local Iraqi population and the specialized equipment provided to each PHC, preventive maintenance and training are imperative for the overall operation and long-term sustainment of each PHC.

As a result, the U.S. Army Corps of Engineers Transatlantic Center initiated a $16.5 million contract on behalf of the Iraq Transition Assistance Office for the sustainment of health care projects funded by the U.S. government. For designated PHCs, a facility assessment survey is completed, which identifies the actual physical condition of the facility and the equipment. This survey is turned into preventive maintenance works or repair/trouble-shooting dockets for the re-commissioning of individual pieces of equipment. The preventive maintenance program will then be loaded into a computerized system, which will identify the need for a contractor to perform recurring maintenance on facilities and bio-medical equipment. The repair work orders will be addressed on a case-by-case basis and prioritized according to the system criticality of each PHC.

GRD will contract with multiple Iraqi companies throughout the country to perform the preventive maintenance and training. In addition, this contract provides for coaching and mentoring Iraqi companies in operation and maintenance, which GRD believes will slowly improve the Iraqis’ ability to ultimately sustain their own facilities and equipment.

Recommendations

SIGIR recommends that the Commanding General, Gulf Region Division, direct that all installation of and training on the medical equipment currently at the Hai Tiseen Primary Healthcare Center be performed according to the prioritization listing.

Management Comments

SIGIR received comments on the draft of this report from the Commanding General, GRD, concurring in part with the recommendation. GRD concurred that the Hai Tiseen PHC could be evaluated and that deficiencies noted and training required could be planned and executed based on Ministry of Health (MOH) prioritization when proper funding is available. The Commanding General, GRD, would not have to direct such an action.

However, GRD also informed SIGIR that the Hai Tiseen PHC is not on the current list of priority PHCs prepared by the MOH. The currently funded appraisal and rehabilitation program should continue using the recently approved MOH prioritization list. Until such time that the MOH changes its priority listing or additional funds are available, this PHC will not be evaluated, and its personnel will not receive training.

Specific comments were also provided to clarify or correct technical aspects of the report.

Evaluation of Management Comments

SIGIR appreciates the clarifying information GRD provided in response to the draft report and considers the comments responsive in view of the transfer of this PHC to the MOH on 18 July 2007 and available funding. As a result, comments to this final report are not required.
SIGIR modified the draft report as appropriate to include additional information and clarifying comments received from GRD.
Appendix A. Scope and Methodology

SIGIR performed this project assessment from November 2008 through March 2009 in accordance with the Quality Standards for Inspections issued by the Council of the Inspectors General on Integrity and Efficiency. The assessment team comprised one engineer/inspector and two auditors/inspectors.

In performing this Project Assessment SIGIR:

- Reviewed contract documentation to include items such as: contract, modification P0001, quality assurance reports, and project closeout documentation;
- Reviewed the design package (plans) and photographs documenting construction progress;
- Interviewed the U.S. Army Corps of Engineers Gulf Region North personnel; and
- Conducted an on-site assessment on 15 December 2008 and documented results at the KE03 Hai Tiseen Primary Healthcare Center project, in Tameem, Iraq.

Scope Limitation. Due to security concerns, SIGIR performed an expedited assessment. The time allotted for the primary healthcare center was approximately 30 minutes; therefore, a complete review of all work completed was not possible.
## Appendix B. Acronyms

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<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>BOQ</td>
<td>Bill of Quantities</td>
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<tr>
<td>GRD</td>
<td>Gulf Region Division</td>
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<tr>
<td>GRN</td>
<td>Gulf Region North</td>
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<tr>
<td>HVAC</td>
<td>Heating, Ventilation, and Air Conditioning</td>
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<td>IRRF</td>
<td>Iraq Relief and Reconstruction Funds</td>
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<td>kV</td>
<td>Kilovolt</td>
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<td>LOI</td>
<td>Letter of Instruction</td>
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<td>MW</td>
<td>Megawatt</td>
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<td>O&amp;M</td>
<td>Operation and Maintenance</td>
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<td>PHC</td>
<td>Primary Healthcare Center</td>
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<td>QA</td>
<td>Quality Assurance</td>
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<td>QC</td>
<td>Quality Control</td>
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<td>RO</td>
<td>Reverse Osmosis</td>
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<td>SIGIR</td>
<td>Special Inspector General for Iraq Reconstruction</td>
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<td>SOP</td>
<td>Standard Operating Procedure</td>
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<td>SOW</td>
<td>Statement of Work</td>
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<td>TO</td>
<td>Task Order</td>
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<td>USACE</td>
<td>United States Army Corps of Engineers</td>
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MEMORANDUM FOR Special Inspector General for Iraq Reconstruction, US Embassy Annex II, Room 1013, APO AE 09316

SUBJECT: SIGIR Draft Project Assessment Report – Hai Tiseen Primary Healthcare Center, Tameen Province, Iraq (PA-08-158)

1. The Gulf Region Division reviewed the subject draft report and partially concurs with the recommendation. GRD provides its comments for clarity and accuracy in the enclosure.

2. Thank you for the opportunity to review the draft report and provide our written comments for incorporation in the final report.

3. If you have any questions, please contact Mr. Robert Donner at (540) 665-5022 or via email Robert.L.Donner@usace.army.mil.

Encl

as

Michael R. Eyré
Maj Gen
Commanding
GULF REGION DIVISION
COMMAND REPLY

to
SIGIR Draft Project Assessment Report –
Hai Tiseen Primary Healthcare Center, Tameem Province, Iraq
SIGIR Report Number PA-08-158
(SIGIR Project PA-08-158)

Recommendation:

SIGIR recommends that the Commanding General, Gulf Region Division, direct that all installation of and training on the equipment currently at the Hai Tiseen Primary Healthcare Center be performed according to the prioritization listing.

Concur in part. GRD concurs that the Hai Tiseen PHC could be evaluated and that deficiencies noted and training required could be planned and executed based on MoH prioritization when proper funding is available. The Commanding General, Gulf Region Division would not have to direct such action.

Additional Comments:

Draft Report, page iii, second paragraph. As a result, GRD initiated a $16.5 million contract for the sustainment of health projects funded by the U.S. government. For each PHC, a facility assessment survey is completed, which identifies the actual physical condition of the facility and the equipment.

Command Comment. The USACE Transatlantic Center (TAC) awarded a $16.5 million task order on behalf of the Iraq Transition Assistance Office (ITAO) for the sustainment of health projects funded by the U.S. government. The contract amount is limited to the $16.5 million of available funds and will not provide assessments for all PHCs.

Draft Report, page iii, fourth paragraph. GRD representatives stated that this PHC is on the list for prioritization for future installation of and training on medical equipment—specifically the RO unit, dental chairs, and x-ray machine.

Command Comment. The Hai Tiseen Primary Healthcare Center (PHC) is not on the current list of priority PHCs prepared by the Ministry of Health (MoH). The currently funded appraisal and rehabilitation program should continue using the recently approved MoH prioritization list. Until such time that the MoH changes its priority listing or additional funds are available, this PHC will not be evaluated and its personnel will not receive training.

Enclosure
Appendix D. Report Distribution

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
Senate Committee on Armed Services
Senate Committee on Foreign Relations
Senate Committee on Homeland Security and Governmental Affairs

U.S. House of Representatives

House Committee on Appropriations
House Committee on Armed Services
House Committee on Oversight and Government Reform
House Committee on Foreign Affairs
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
Kevin O’Connor
Shawn Sassaman, P.E.