

**SUMMARY OF
PROJECT ASSESSMENTS
THROUGH APRIL 2008**



**SIGIR PA-08-139
JULY 24, 2008**

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SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION

July 24, 2008

MEMORANDUM FOR COMMANDING GENERAL, MULTI-NATIONAL FORCES-
IRAQ
COMMANDER, JOINT CONTRACTING COMMAND-
IRAQ/AFGHANISTAN
COMMANDER, GULF REGION DIVISION, U.S. ARMY
CORPS OF ENGINEERS
ASSISTANT SECRETARY OF STATE, BUREAU OF
INTERNATIONAL NARCOTICS AND LAW
ENFORCEMENT AFFAIRS
DIRECTOR, IRAQ TRANSITION ASSISTANCE OFFICE

SUBJECT: Summary Report on Project Assessments through April 2008 (Report
Number SIGIR PA-08-139)

The Office of the Special Inspector General for Iraq Reconstruction assesses projects to provide real-time relief and reconstruction information to interested parties to enable appropriate action, when warranted.

This report is being provided for your information and use. It is a summary of all completed project assessments from the SIGIR Inspections Directorate during the period July 2005 through April 2008. Therefore, this report does not contain any new findings or recommendations for corrective action. Management comments were not requested.

If you have any questions please contact Brian Flynn at brian.flynn@iraq.centcom.mil or at DSN 318-343-9244. For public queries concerning this report, please contact SIGIR Public Affairs at publicaffairs@sigir.mil or at (703) 428-1100.

Stuart W. Bowen, Jr.
Inspector General

Special Inspector General for Iraq Reconstruction

SIGIR PA-08-139

July 24, 2008

Summary of Project Assessments through April 2008

Synopsis

Introduction. This report is a compilation of all assessments completed by the SIGIR Inspections Directorate during the period July 2005 through April 2008. It was made in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency.

Project Assessment Objective. The overall objective of this report is to provide an objective summary by sector of all assessments published through April 2008. The introduction will provide overall results of SIGIR's findings, followed by short synopses of published assessments presented by sector. Each assessment will have a brief summary of results.

Conclusions. This compilation disclosed that:

1. As of April 2008, the Special Inspector General for Iraq Reconstruction has issued 115 project assessment reports that provide a snapshot of reconstruction activities throughout Iraq. The assessments were conducted in six sectors:
 - Energy: 29 reports and one special assessment, with contract costs of \$644 million
 - Health: 11 reports, with \$22 million in contract costs
 - Military: 14 reports, with contract costs of \$306 million
 - Security and Justice: 25 reports, with \$252 million in contract costs
 - Transportation and Communication: 19 reports, with \$42 million in contract costs
 - Water: 17 reports, with \$373 million in contract costs

Also, two summary reports covering 96 limited inspections were issued.

2. Project Assessment reports through April 2008 cover reconstruction project sites in Iraq valued at over \$1.6 billion--89 construction assessments and 26 sustainment assessments. Random selection of project assessment sites was not practicable. SIGIR sought to select a representative cross-section of projects. To do this, projects were selected for assessment from each sector, from large and small contractors in different sections of Iraq, involving each of the major U.S. agencies, as well as from ongoing and completed projects. In addition, site visits were based on the availability of secure transportation to and from the project site and the security of the area. Therefore, projections for all reconstruction projects should not be made based on the results of this report.
3. The assessments yielded a variety of results, ranging from well-constructed and successful projects to projects that had serious deficiencies. The deficiencies were largely the result of inadequate contractor performance and insufficient government oversight.

4. Different types of funds have been used to reconstruct Iraq. Most of the projects assessed were funded with the Iraq Relief and Reconstruction Fund. Other assessments were accomplished on the Commander's Emergency Response Program, Iraq Security Forces Fund, Development Fund for Iraq, and the Department of State's International Narcotics and Law Enforcement Fund.
5. Several agencies provide oversight of U.S.-funded reconstruction projects in Iraq. The bulk of the oversight is handled by the United States Army Corps of Engineers, Gulf Region Division which is subdivided into three subordinate units: Gulf Region Central, Gulf Region North, and Gulf Region South. Other agencies that provided oversight are the Air Force Center for Engineering and the Environment and the Multi-National Division. Also, the Coalition Provisional Authority had contract oversight during the beginning of reconstruction until 28 June 2004
6. Of the 115 project assessments, SIGIR found that 47 had significant deficiencies, and 27 had minor deficiencies. These deficiencies resulted from inadequate design, construction, quality control and assurance, and planning for Iraqi sustainment.
7. Conversely, the 41 projects with no deficiencies and successful results were due to effective quality management by the contractor and government. Further, complete engineering designs and detailed architectural drawings were instrumental in projects that met contract specifications. Finally, early planning and adequate funding enhanced project sustainment.
8. A common theme among the projects with deficiencies was the inability to produce a product that met the specifications required by the contract, as well as the lack of compliance with the standards referenced in the contract. Inadequately trained/unqualified contractor personnel, inferior materials, and the lack of oversight on the part of the contractor and government led to substandard project results. Also, in some instances, indications of potential fraud were found. This information was turned over to SIGIR's Investigations Directorate for further action.

Recommendations and Management Comments. This report does not contain any new findings or recommendations for corrective action; therefore management comments were not required.

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Introduction

Project Assessment Overview through the First Quarter 2008

As of April 2008, the Special Inspector General for Iraq Reconstruction (SIGIR) has issued 115 project assessment reports (PAs) that provide a snapshot of reconstruction activities throughout Iraq. The assessments are divided into six sectors. The six sectors are: Energy, Health, Military, Security and Justice, Transportation and Communication, and Water. In the energy sector, 29 PAs and one special assessment were issued with contract costs of over \$664.8 million (M); the health care sector had 11 PAs with \$21.3M in contract costs; in the military sector, 14 PAs were completed with contract costs of \$306.9M; the security and justice sector had 25 PAs with \$252.6M in contract costs; the transportation and communication sector had 19 PAs with \$42.2M in contract costs; and the water sector covered 17 PAs with \$374.5M in contract costs. Also, two summary reports covering 96 limited inspections were issued. Figure 1 shows contract costs of reviewed projects in each sector and Figure 2 depicts the number of completed assessments within each sector.

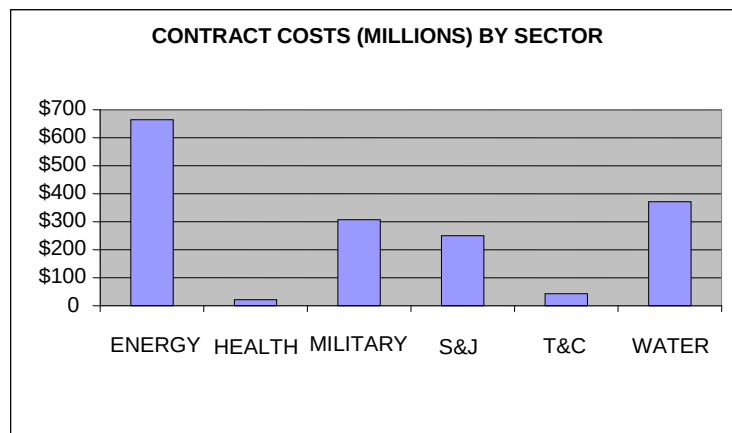


Figure 1. SIGIR Reviewed Contract Costs by Sector

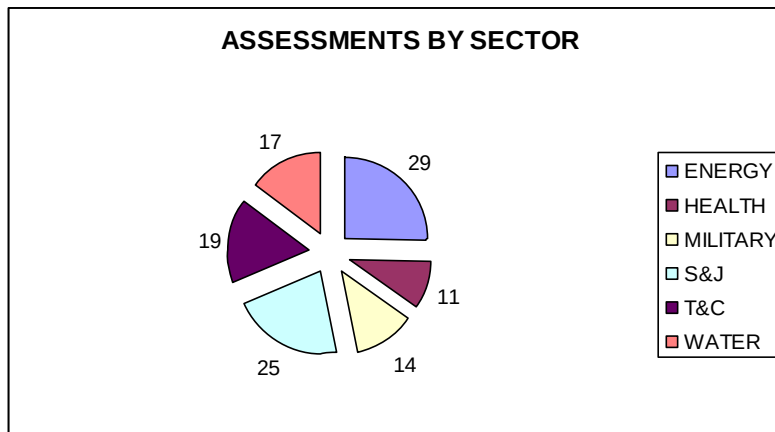


Figure 2. Number of completed assessments by sector

Project Assessment reports through April 2008 cover reconstruction project sites in Iraq valued at over \$1.6 billion; 89 construction assessments and 26 sustainment assessments. Random selection of project assessment sites was not practicable. SIGIR sought to select a representative cross-section of projects. To do this, projects were selected for assessment from each sector, from large and small contractors, in different sections of Iraq, involving each of the major U.S. agencies, as well as from on-going and completed projects. In addition, site visits were based on the availability of secure transportation to and from the site and the security of the area. Therefore, projections for all reconstruction projects should not be made based on the results of this report. The assessments yielded a variety of results, ranging from well-constructed and successful projects to projects that have serious deficiencies. The projects with deficiencies were largely the result of inadequate contractor performance and insufficient government oversight.

Different types of funds have been used to reconstruct Iraq. The majority of the projects assessed were funded with the Iraq Relief and Reconstruction Fund (IRRF). Other types of funds reviewed were the Commander's Emergency Response Program (CERP), Iraq Security Forces Fund (ISFF), Development Fund for Iraq (DFI), and Department of State's International Narcotics and Law Enforcement Fund (INL).

Of the 115 assessments, 47 had significant deficiencies and 27 had minor deficiencies. The majority of deficiencies resulted from inadequacies in design, construction, quality control and assurance, and planning for Iraqi sustainment.

Conversely, the 41 projects with no deficiencies and successful results were due to effective quality management on the part of the contractor and government. Further, complete design and detailed architectural drawings were instrumental in construction being correct and complete. Finally, early planning and adequate funding enhanced project sustainment.

Common deficiency characteristics of the projects inspected were the inability to produce a product that met the specifications required by the contract and not complying with the international standards referenced in the contract. Also, inadequately trained and unqualified contractor personnel, inferior materials, and the lack of oversight on the part of the contractor and government led to substandard project results. Further, in some instances, indications of potential fraud were found. This information was turned over to SIGIR Investigations for review. Figure 3 shows the number assessments with major, minor, and no deficiencies, respectively.

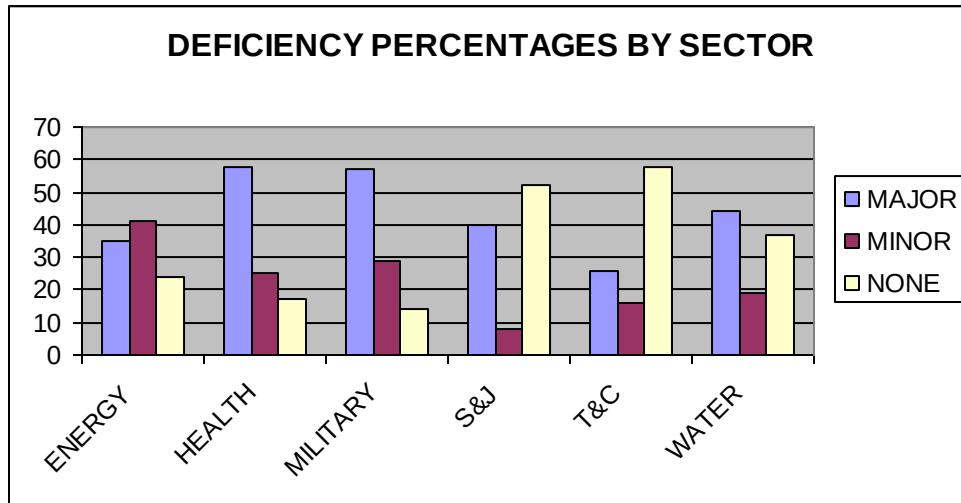


Figure 3. Deficiencies by sector for Projects Assessed by SIGIR

Several agencies provide oversight. The bulk of the oversight is handled by the United States Army Corps of Engineers (USACE), Gulf Region Division (GRD) which is subdivided into three subordinate units: Gulf Region Central (GRC), Gulf Region North (GRN), and Gulf Region South (GRS). Other agencies that provided oversight are the Air Force Center for Engineering and the Environment (AFCEE), and the Multi-National Division. Also, the Coalition Provisional Authority (CPA) had contract oversight during the beginning of reconstruction until 28 June 2004. Figure 4 breaks down completed assessments by the projects oversight agency. Figure 5 is a map of the locations where on-site Project Assessments were conducted.

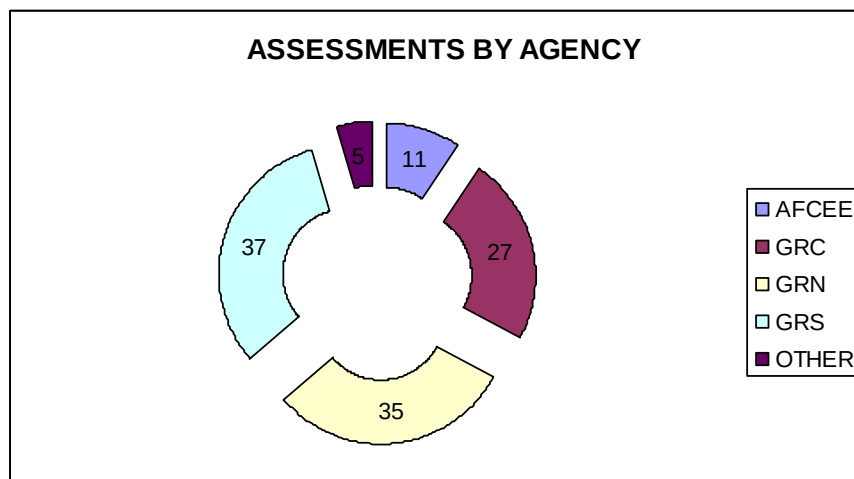


Figure 4. Completed assessments by oversight agency

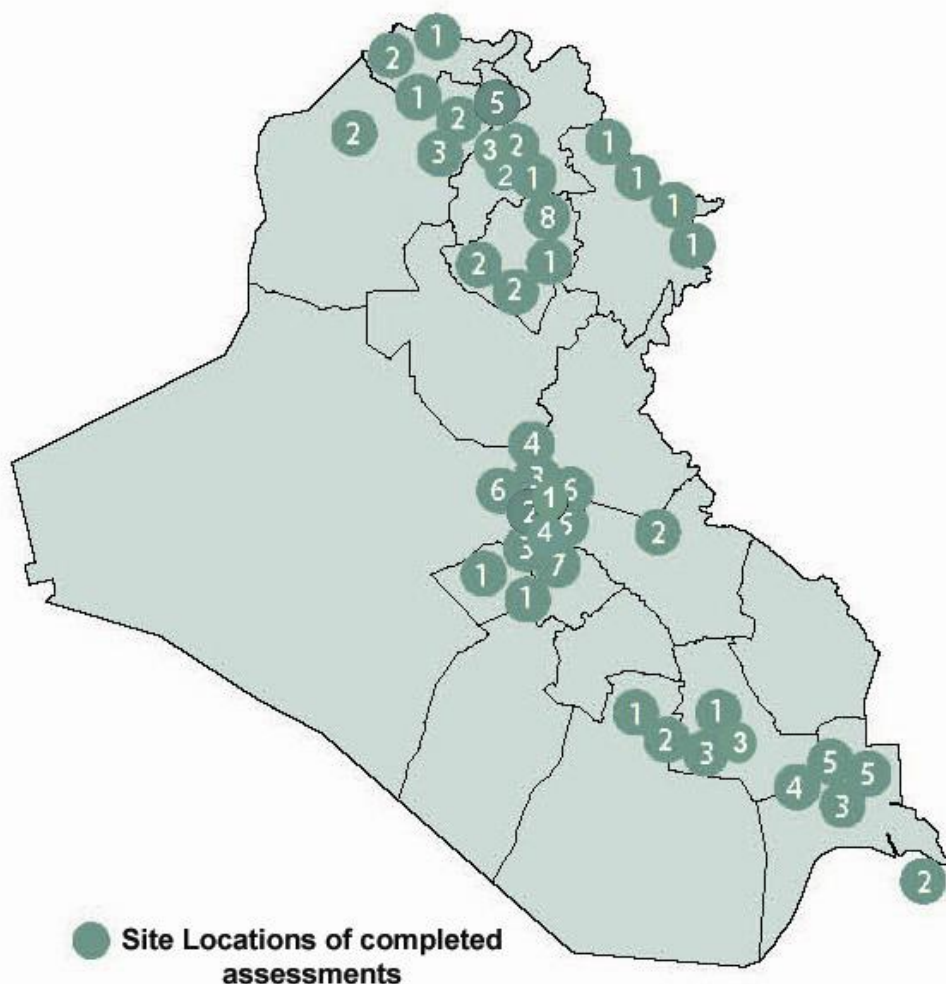


Figure 5. Locations of on-site Project Assessments completed by SIGIR

The assessments are organized by sector and summarized below.

Project Assessments by Sector

Energy Sector

SIGIR has published 29 project assessments within the energy (electricity and oil) sector totaling \$664.8M in contract costs of which 20 of the 29 projects had deficiencies.

- PA-05-005 to 009 Electrical Substations—Al Hakima, Hamdan, Al Kaffat, Al Seraji, Shut Al Arab (Contract—\$27.8M, Funding source—IRRF, Perini Corporation): The objective was to improve the reliability of the substations' existing power distribution system. Specifically, the substation

projects were to provide transformers, switchgear, relays, disconnect switches, battery system, communications equipment, offices, buildings, restrooms, parking lots, site security, and all associated equipment required for a functional substation. The completed project should meet objectives because the design package was complete and specific and facility construction and equipment installation met the standards of the design. One minor deficiency was noted—the electrical distribution lines were not connected to the power grid.

- PA-05-010 to 012 Al Fatah Pipe Crossing, Kirkuk Canal Crossing, and Al Fatah River Crossing Tie-Ins (\$39.9M, IRRF, Parsons Iraq Joint Venture): The objective was to install, restore, and enhance all remaining sections of the 40-inch crude oil pipeline from the Kirkuk oil fields to the pipeline from Iraq to Turkey. The completed project should meet the objective because of proper planning and design. Engineering and design reviews conducted prior to construction found that a trenching or dragline method could be used to effectively and efficiently install a pipeline below the river.
- PA-05-029 Project Phoenix—Restore Gas Turbines (\$12.6M, IRRF, FluorAMEC, LLC): The objective was to inspect, evaluate, restore, and startup six gas turbine generators to produce electricity for the Iraqi grid. The contract also addressed some sustainability issues such as spare parts, warranty service, operations and maintenance training and manuals, and preventive maintenance plans. Although generators were restored, sustainability issues were not fully addressed. Maintenance manuals were not readily available, preventative maintenance was not performed, the types and quantities of functional and emergency spare parts were not identified or purchased, and local workers did not regularly attend training sessions.
- SA-05-001 Pipeline River Crossing Al Fatah (\$75.7M, DFI, Kellogg, Brown and Root and Parsons Iraq Joint Venture): The objective was to restore connection to the oil pipeline at the Al Fatah river crossing using Horizontal Directional Drilling (HDD). HDD was considered the best permanent solution because the pipes would be routed safely under the river, would require minimum long-term maintenance, and could be installed quickly. The project did not meet the objective. Subsurface geologic conditions such as loose, unconsolidated gravels and cobbles made it impossible to retain open boreholes for large diameter pipelines. The government and contractor did not adequately research, plan, design, and manage the project. The project was terminated to prevent additional cost overruns.
- PA-05-013, 05-014, and PA-06-063 Kirkuk to Baiji Pipeline (\$86.9M, IRRF, Kellogg, Brown and Root and Parsons Iraq Joint Venture): These three assessments were published in one report. The project was to replace 50 kilometers of the 40-inch pipeline from Kirkuk to Baiji. The objectives of this project were not fully met. The pipeline was not fully connected and

numerous leaks still existed at the time of the assessment. Significant deficiencies were noted that included inadequate design, construction, and contractor quality control and government quality assurance.



Inspector measuring pipe diameter



Oil leakage along the Kirkuk to Baiji pipeline

- PA-06-037 Erbil City Transformers (\$3.3M, IRRF, Washington International, Inc.): The objective was to upgrade transformers and connect to medium and low voltage conductors providing service for the population of Erbil. The project results were consistent with the original objective of designing, procuring, constructing, and commissioning the Erbil Governorate Distribution network. This occurred primarily because the resident engineer and quality assurance representative effectively managed the project.
- PA-06-073 Bab Eshtar Substation 11 kV Feeder Cable (\$1.2M, IRRF, local contractor): The objective was to provide an underground cable feeder system for the new substation. The project results were consistent with the project objective. This successful outcome occurred because project oversight of construction activities by contractor and government personnel was effective. In addition, the project was adequately planned and designed before construction started.
- PA-06-080 Al Basrah Oil Terminal (\$48.2M, IRRF, Parsons Iraq Joint Venture): The objective was to increase the terminal's loading capacity and to enhance the reliability and safety of terminal operations. Of the five projects assessed, three did not meet contract specifications. Specifically, the lifeboat deployment system and boats supplied were not sufficient. For example, the design package did not properly identify the specific type of life raft needed nor did it establish the exact material composition of the life raft. Also, the safety and environmental management program was incomplete because it did not address the possibility of a large scale fire on the terminal.



Al Basrah Oil Terminal

- PA-06-082 to 086 Electrical Substations (\$28.2M, IRRF, Perini Management and Construction): These sustainment assessments were performed to determine if incoming transmission lines and outgoing distribution lines were connected. Also, other sustainment issues involving employee training, spare parts, drawings, and operational manuals were reviewed. Four of the five substations were operational while the fifth was waiting completion of the incoming transmission line connection. Personnel had adequate skills to manage and operate the equipment. Spare parts, drawings, and operating manuals were provided. Although the substations were capable of distributing power to the grid at the time of the second assessment, they were operating at only 36% capacity partially because of insufficient input from upstream transmission substations and partially because of excess switching capability designed into the substations to meet long term demand.
- PA-07-097 Baghdad International Airport Power System Enhancement (\$11.8M, IRRF, Bechtel National, Inc): A sustainment assessment, the original objective was to purchase and install 18 megawatts (MW) of electrical generation, and the objective was met. The contractor installed 17 new generator sets with a total capacity of approximately 22-MW. The contractor turned the generator sets over to the U. S. government, who, in turn, transferred the generator sets to the Iraqi government on 11 September 2005. However, the Iraqi government did not sign any turnover documentation. During the site visit, 10 of the 17 newly installed generators were not operational because they were not properly maintained.

- PA-07-101 and 07-104 Qudas Power Plant Turbine Restoration and Expansion (\$238M, IRRF, Fluor AMEC, LLC and URUK Engineering Services): The projects had two main objectives—the restoration of previously installed turbines and sustainability of operations and maintenance of the restored turbines. Engine restoration successfully met the objectives. This occurred because requirements were adequately specified and construction management practices enforced compliance with specifications and requirements. SIGIR PA-07-101, the sustainability assessment, found that sustainability was adequately planned and addressed. The U.S. government implemented a program to mentor ministry staff in the managerial skills required and obtain the resources needed to properly operate and maintain the electric utility system and sustain operations in the short term.



Qudas Power Plant

- PA-07-103 Doura Power Station Units 5 & 6 (\$90.8M, IRRF, Washington International, Inc.): A sustainment assessment, the objective of which was to determine whether the project was operating at full capacity and whether sustainability for full-capacity operations was adequately planned and likely to continue. The original contract was to rehabilitate and commission two generators. After contract completion, operational control was placed under the authority of the Ministry of Electricity in April 2006. The site visit was conducted on 10 June 2007. After turnover, one engine experienced failures in August 2006 and April 2007. Both times, the engine shut down because of exciter flashover which was the result of repeated “hard tripping”, which is the interruption or disconnection of an electrical circuit caused by power surges. Most hard tripping could have been avoided if Ministry of Electricity operational procedures would have allowed plant operators to isolate the generator unit and protect it from frequent deterioration of the incoming 132-kilovolt line to the switchyard. The engine was tripped approximately 100 times during the 12

months prior to the first failure. The second engine had not been operational because in August 2006 the exciter was removed from the engine and was placed into the first engine to expedite restarting after its failure. This was due to the lack of any formal maintenance program that included procedures to inspect equipment, schedule necessary non-emergency maintenance, and expedite critical repairs. In addition, plant-level managers and plant engineers did not perform emergency maintenance or repairs to help prevent large scale system failures.



Delivered new part for the Doura Power Plant

Energy Sector Summary

Deficiencies noted in the energy sector were due to a variety of causes. The major cause was ineffective contractor quality control programs and inadequate government quality assurance. Also, design errors were found in many of the projects. These errors consisted of a lack of technical and necessary details, incomplete information, and inadequate design planning. Sustainability either was not addressed or funded, or was ineffectively implemented after turnover. Specifically, consumables were not always on hand and were not readily available. Although training was given, workers migrated in and out of jobs and many only attended a few training sessions, which significantly reduced the number of qualified workers available to operate and maintain the equipment.

Health Sector

Eleven project assessments were completed in the Health sector. The contract costs for these 11 projects totaled \$21.3M. Nine of the eleven projects had deficiencies noted.

- PA-05-016 Al Hilla Maternity and Children's Hospital (\$7.4M, IRRF, Parsons Delaware Inc.): The project was to provide required water, sewer, and plumbing systems; mechanical systems; electrical systems; structural; elevator refurbishment/replacement; security; architectural work;

cleaning/demolition; centralized control and maintenance system; and any recommended building additions. Although only a limited site assessment could be conducted, the renovation appeared to meet the standards of the design. However, minor deficiencies were noted. The renovation work on the elevator did not meet contract specifications and the contractor quality control plan was generic.

- PA-05-017 Hai Al Imam Clinic (\$0.44M, IRRF, Parsons Delaware Inc.): The objective was to design and construct a primary health care center. The project was adequately planned and the design package was complete. At the time of the site assessment, it was too early in the construction phase to determine if the objective would be met. The renovation appeared to meet the standards of the design but a minor deficiency with load bearing beams was noted.
- PA-06-042 to 046 Primary Health Care Centers—Hai Tis’een, Hai Al Wasity, Hai Alasra Wa Al Mafqodeen, Hai Alhajjaj, and Shiqaq Hai Musalla (\$2.7M, IRRF, Parsons Delaware Inc): The objective was to design and construct primary health care centers and supply and install associated medical equipment. Project results were not consistent with the objective. All projects had significant construction deficiencies. For example, reinforced concrete did not appear to be constructed according to contract specifications and needed to be evaluated to determine if corrective actions were required. Deficiencies were caused by inadequate quality control and quality assurance.



Ongoing construction work at the Shiqaq Hai Musalla Primary Health Care Center



Poor concrete work and ductwork at the Hai Alasra Wa Al Mafqodeen Primary Health Care Center

- PA-06-064 Al Alwaiya Maternity Hospital and PA-06-065 Al Alwaiya Children’s Hospital (\$3.2M, IRRF, Parsons Delaware, Inc): The objective was to renovate two hospitals. Project results were consistent with the original contract objective. The contractor’s quality control plan was sufficiently detailed to effectively guide the contractor’s quality management program and the government quality assurance program was effective in monitoring the projects. Although both hospitals were

approximately 75% complete when inspected, inspection results indicate that they will be modern facilities providing a healthy and safe environment for its patients, visitors, and employees.



Construction work at the Al Alwaiya Children's Hospital

- PA-06-066 Ibn Al Bitar Hospital Critical Care Unit (\$0.58M, IRRF, local contractor): The objective was to design and construct a critical care unit. The completed project met the standards of the contract. The design, coupled with a consistent bill of quantities, provided adequate information and details to construct the unit. A minor deficiency was noted concerning a lack of detail in the contractor's quality control plan. However, the contractor did submit daily reports containing information such as work accomplished each day with the location, activity, test results, deficiencies and corrective actions, equipment utilized, and material received on site. The result will be a new and functional critical care unit.
- PA-06-094 Erbil Hospital (\$6.8M, IRRF, Parsons Delaware Inc.): The project's sustainment objective was not accomplished. SIGIR found that the original rehabilitation work on the hospital and installation of new equipment met specifications and the project was complete and signed for by the Erbil Governorate on 1 May 2006. However, sustainment to keep the hospital functional had significant deficiencies. The sewer system was clogged and caused waste water to back up through floor drains into some sections of the hospital. Also, large amounts of medical waste products were in the sewer system's traps, manholes, and septic tank. The new incinerator was not used because trained personnel were no longer employed at the hospital. In addition, a boiler was not operating and was

used for parts, a circuit breaker was broken causing a switch gear not to function, and the water purification and the water softener systems were not operating. The new oxygen generator and distribution system were used only as a back-up system, while hospital staff continued to use oxygen tanks.



Medical waste at the Erbil Maternity and Pediatric Hospital

Health Sector summary

The health sector deficiencies noted were similar to those of the energy sector, including: design packages not specific and not consistent with contract requirements and construction deficiencies, in particular work completed, did not meet the standards required by the contract, and the quality of work was sometimes inferior. Contractor quality control plans were generic—lacking any site or task specific details. Sustainability was ineffectively implemented after turnover; the U.S. government did not provide adequate oversight; and quality assurance programs were insufficient by not providing consistent reviews of contractor quality control reports which resulted in not properly identifying and correcting construction deficiencies.

Military Sector

Fourteen assessments of military facilities with total contract cost of \$306.9M are summarized in the paragraphs below. Nine of the fourteen projects had deficiencies.

- PA-05-025 Umm Qasr Ammunition Supply Point (\$0.25M, IRRF, local contractor): The objective was to design and construct an ammunition supply point. The completed project was consistent with the contract

objectives. The design and construction of a combined armory/ammunition supply point was completed and in compliance with contract specifications because the project engineer and the quality assurance representative effectively managed the project.

- PA-06-039 Zakho Military Academy (\$5.8M, IRRF, local contractor): The Zakho Military Academy construction and renovation project results were consistent with the objectives. This occurred because the design had architectural compatibility with new and existing buildings, the contractor's workmanship was high quality, and project management by the project engineer and quality assurance representative was effective.
- PA-06-040 Aviation Base Building (\$13.1M, IRRF, Environmental Chemical Corporation): The restoration, improvement, and construction of the Kirkuk Military Base were consistent with objectives. Minor deficiencies in quality of construction were noted and the quality assurance program required improvement. A review of the aviation hangar and barracks/operations center building showed they were operating in accordance with the objectives.
- PA-06-041 2nd Brigade Base (\$44.6M, IRRF, Environmental Chemical Corporation): The objective was to renovate, replace, and construct facilities and provide infrastructure repair and the completed project was consistent with the objective. The design was sufficient to complete the project, the construction quality control plan was satisfactory and included a health and safety plan, and the U.S. government's quality assurance program was adequate due to a representative being on site during construction activities.



2nd Brigade base DFAC building

- PA-06-056 609th Iraqi National Guard Garrison (\$10.6M, IRRF, local contractor): The project to construct a garrison was consistent with the objective. The completed project work observed met the standards of the

design, quality management was effective, and the project engineer and the local national quality assurance representative ensured that all deficiencies cited during inspections were corrected. Although some of the finished work was marginal in quality, the completed project work resulted in a fully functional garrison for the Iraqi military.

- PA-06-075 51st Brigade Iraqi Army Barracks (\$0.99M, IRRF, local contractor): The objective was to construct new buildings and facilities, and to upgrade utilities. The majority of the construction of new buildings and facilities and utilities upgrades appeared to meet the standards of the Statement of Work and design. Minor construction problems in the motor pool were noted. The stairs leading to the maintenance pits were not level with voids in the concrete along the rise of the steps.
- PA-06-077 402nd Battalion Iraqi Army HQ Barracks (\$0.74M, IRRF, local contractor): In general, the objective to construct new facilities and renovate existing facilities appeared to meet the standards of the Statement of Work and design. Minor deficiencies included: the design did not show sufficient details for the water tank construction, drawings were dimensionless, and a crack in the classroom building exterior was noted.
- PA-06-087 and 088 Tallil Military Base (\$119M, IRRF, Weston Solutions, Inc): In general, the sustainment objectives to support the brigade and regional training center were met. Construction started 23 April 2004 and concluded in November 2005. The contractor turned over the completed project to the U.S. government on 29 January 2006. Warranty work commenced in January 2006 and was completed in June 2006. The U.S. government transferred the base to the Government of Iraq on 24 June 2006. Maintenance of the facilities was generally adequate with exceptions noted regarding the barracks and sidewalks. The misuse and lack of maintenance on sinks and toilets led to significant deterioration; sidewalk and storm drain damage had not been repaired; some air conditioning units were not operational; and an inoperable generator was not repaired.



Barracks building exterior at Tallil Military Base



Tallil Military Base-broken drain cleanout hole

- PA-06-089 Tallil Recruitment and Training Center (\$1.8M, IRRF, Weston Solutions, Inc): A sustainment assessment, the contractor turned over the completed project to the U.S. government on 7 December 2005. On 13 June 2006, the U.S. government transitioned the facility to the Iraqi Armed Forces. In general, the construction quality adequately met the objectives of the recruiting center. However, sustainment deficiencies were identified that could significantly shorten the useful life of the facility if left unresolved. The assessment disclosed water damage to bathrooms, un-evacuated sewage tanks, improper wiring of the external water pumps, and a deteriorated guard house roof.
- PA-07-098 Al Rasheed Brigade Set (\$64M, IRRF, Tetra Tech, Inc): A sustainment assessment, the original project objective required the contractor to plan and construct the Al Rasheed Brigade facilities and the objective was met with deficiencies noted. During the site visit the facilities were functional. Post turnover equipment and building operations and maintenance practices were effective. One deficiency noted was that not all electrical generation equipment could be utilized because there was insufficient fuel supplied by the life support contractor.



Generator located at the Al Rasheed Brigade Set

- PA-07-099 Iraqi C-130 Base (\$30.8M, IRRF, Toltest, Inc.): A sustainment assessment of a project that met contract objectives and was at full capacity when accepted by the U.S. government in October 2005. At the time of the site visit (31 May 2007), the Iraqi Government had not signed turnover documentation for the base. The sustainment assessment noted significant deficiencies. Operability and sustainability for some of the facility improvements might not be realized over the long term if the equipment and facility are not properly used and maintained. Six of the eight generators were not functional; the storm water collection pond and connecting

drainage ditch contained sewage; and the Reverse Osmosis system was not adequately functioning because regular filter changes were not performed, its pressures were not within the recommended range, and chlorine dosing did not meet requirements.



Interior of an aircraft hangar at the Iraqi C-130 Base



Exterior of an aircraft hangar at the Iraqi C-130 Base

- PA-07-100 Baghdad International Airport (BIAP) Special Forces Barracks (\$5.2M, IRRF, local contractor): A sustainment assessment, construction was completed and the U.S. government accepted the facility on 10 September 2005. Subsequently, the facility was occupied by Iraqi Special Forces personnel. Overall construction met the requirements and the facility was operating at full capacity during both site visits on 3 and 17 March 2007. However, some sustainability issues were noted that negatively impacted the capacity and capability of the barracks complex. The more significant sustainability issues included: bathroom floor drains were plugged or drained very slowly, which caused flooding in the bathrooms; electrical generators not operational with missing batteries and

low engine oil levels; and roofs leaked at several places where water accumulated around drain basins.

- PA-07-114 Iraqi Army Facilities in Diyanah and Debecha (\$9.3M, ISFF, Toltest, Inc.): The objective was to provide services to plan, construct, renovate, and improve facilities. Planning for construction and sustainment was adequate. The mix between renovation and new construction appeared to be reasonable in terms of using structurally sound buildings when practical, while providing for new construction when applicable to meet capacity or operational requirements. Although both facilities were under construction at the time of the site visit, completed work was in compliance with contract specifications.

Military Sector Summary

The predominate deficiency noted in the military sector was sustainability. Insufficient sustainability procedures negatively impacted newly constructed projects leaving many facilities in disrepair. Sustainability was either inadequately addressed or not addressed at all in the contract, or funding shortages resulted in insufficient facility and equipment maintenance. Sustainability for many of the projects may not be realized over the long term if the equipment and facilities are not properly used and maintained. Inadequate design contributed to construction deficiencies. Lastly, contractor quality control plans and government quality assurance oversight practices were sometimes inadequate.

Security and Justice Sector

Twenty-five assessments at a contract cost of \$252.6M were conducted in the Security and Justice sector, with 13 having deficiencies. One project had a major deficiency with indications of fraud and all information and documents related to that project assessment were turned over to SIGIR Investigations.

- PA-05-015 Al Balda Police Station (\$0.13M, IRRF, local contractor): The objective was to renovate and reconstruct the Al Balda Police Station. The completed project was consistent with the original objectives. The rehabilitation work, which included the renovation and construction of buildings and all associated equipment required for a functional police station, was completed according to and in compliance with contract specifications.
- PA-05-018 Hilla SWAT Police Station (\$2.2M, IRRF, local contractor): The objective was to demolish and remove existing damaged facilities, renovate existing facilities, and design and construct office and training buildings. The completed project was consistent with original objectives. However, minor construction deficiencies during the site assessment were noted.
- PA-05-020 Seif Sa'ad Police Station (\$0.15M, IRRF, local contractor): The objective was to renovate and reconstruct the police station. The completed project was consistent with the original objective. The rehabilitation work,

which included the renovation and construction of buildings and installation of all associated equipment required for a functional police station, was completed according to and in compliance with contract specifications.

- PA-05-021 to 024 Border Forts (\$1.1M, IRRF, Parsons Delaware Inc.): The objective was to build new border denial points along the Iraq-Iran border. The completed projects did not meet the original objective. The border forts were not constructed with the perimeter security requirements. The jail facility, generator units, fuel tanks, and water system were not secured and no physical restrictions were in place to prevent access to the walls. Undersized and under strength support beams were used in construction that resulted in requiring a design modification and retrofit of the support beams for proper roof support.
- PA-05-026 Umm Qasr Operations Center and PA-05-027 Umm Qasr Security Upgrades (\$0.41M, IRRF, local contractor): The project objective was to renovate the operations center building and the administration kiosk area and construct a secure perimeter. Operational effectiveness was met through the use of proper design, quality construction and oversight.
- PA-05-032 Al Hillah Police Academy (\$23.6M, DFI and IRRF, SBIG Logistics and Technical Services, Inc.): The contract was to construct an additional 600-man, semi-permanent facility which included student and instructor billeting, a laundry room, classrooms, a dining facility, and new gates. These components were constructed or installed. However, there were multiple problems identified during construction as documented by two cure notices, one show cause letter, and the partial contract termination of the force protection component of the project. Further, ongoing problems were identified during the site visit that included: cracks in the walls, no backup power capability, poorly constructed sidewalks, and roof leaks in the dining facility. The DFI contract required the construction of security walls and gates. The completed project was not consistent with objectives because gaps still existed in the walls. A foundation for the walls was not constructed and the three electric sliding metal gates were never delivered or installed.



Guard tower at the Al Hillah Police Academy

- PA-06-051 Safwan Police Station (\$2.5M, IRRF, First Kuwaiti Contracting): The objective was to construct a 404-person operating facility to include administrative and barracks facilities. The completed project met the objective. One minor deficiency was noted—the barracks structural supporting walls were made of brick instead of the required stronger reinforced concrete normally used to support beams, concrete floors, and roof slabs.
- PA-06-054 Nassriya Prison Facility (\$49M, IRRF, Parsons Global Services Inc.): The original objective required a prison with a capacity to house 4,400 inmates, but scope changes reduced the prison requirements to a prison with space for 800 inmates, with capability for later expansion. Design and construction were consistent with objective requirements. Plans and specifications provided an accurate depiction and adaptation of the design to existing site conditions, and the project engineer took an active role in managing the project to ensure the quality of workmanship complied with the requirements. However, construction delays during the course of the project resulted in a 410 day schedule slippage and a projected cost overrun of \$23 million. On 12 July 2006, the U. S. government initiated actions to terminate the task order because of the contractor's failure to achieve critical completion dates.
- PA-06-069 Al Kut Training Academy (\$22.9M, IRRF, Environmental Chemical Corporation International): The objective was to design and construct an operational training academy. All but one of the major components was sufficiently designed to construct a fully operational training academy. The one deficiency was the inadequate design of the septic system. The septic tank system was not large enough given the soil conditions and daily volume input.



Exterior of the Al Kut East barracks building

- PA-06-070 Dahuk Rehabilitation Center (\$5.6M, IRRF, Biltek Construction LTD): Project results were consistent with the objective of finishing the

discontinued construction of a modern, self-contained prison facility designed to house 1,490 inmates. The success of this project was due to proper design and project management prior to construction. Also, contractor quality control and U.S. government quality assurance practices were effective.

- PA-06-072 Ninewa Provincial Police Station (\$1.0M, IRRF, local contractor): The project objective was to repair and reconstruct facilities associated with the Ninewa Provincial Police Headquarters. This project did not meet contract specifications; the design was insufficient, construction was deficient, and the quality control and assurance were inadequate. Defects and poor workmanship were noted throughout the project site and substantial work will be necessary to correct defective workmanship and uncompleted objective requirements.
- PA-06-076 Hilla Firing Range (\$0.43M, IRRF, local contractor): The objective was to construct a combined rifle and pistol range for the Iraqi Police at the Al Hilla Police Academy. The project results were consistent with the contract objective. This was because firing range components were adequately designed prior to construction, construction met the standards of the design, and the project engineer and local national quality assurance representative were engaged in construction activities to ensure quality and compliance with the contract requirements.
- PA-06-078.1 & 079.1 and PA-06-078.2 & 079.2 Baghdad Police College (\$72.5M, IRRF, Parsons Delaware, Inc.): The objective was to design, renovate, and construct the Baghdad Police College, to include classrooms, dormitories, dining facilities, administrative offices, and firing ranges. The existing facility had the capacity to house and train approximately 1,200-1,500 cadets; while the ultimate goal of the project was to provide housing and training facilities for approximately 4,000 cadets and 500 instructors. SIGIR visited the Baghdad Police College on 6 separate occasions – 22 August 2006, 4 September 2006, 21 September 2006, 10 November 2006, 1 December 2006, and 8 December 2006. The project did not meet contract specifications. Construction deficiencies of such magnitude were identified as to require prompt attention and separate reporting.
 - Design. All project components were not adequately designed prior to construction. The contractor did not provide and the government did not review the required number of design drawings for 30% and 60% submittals. For the design drawings reviewed, the government determined the submittals were generally incomplete and inadequate.
 - Construction. The majority of work did not meet the standards of the contract and task orders. Significant construction deficiencies were identified such as poor plumbing installation, expansion cracks, concrete segregation and honeycombing, reinforcement bar exposure, and poor brickwork. In addition, the construction and equipment installation was performed at a low level of workmanship and did not comply with the international standards required by the contract.

- Quality Management. The contractor's quality control program implementation failed to identify significant construction deficiencies, such as poor plumbing installation practices and substandard expansion joints. The government quality assurance program was essentially non-existent in monitoring the contractor's quality control program. Neither the project engineer nor the quality assurance representative reviewed the contractor's daily reports.
- Sustainability. Sustainability was addressed in the contract requirements but not adequately administered by the U.S. government. A majority of the buildings were transferred to the Baghdad Police College without testing the adequacy and functionality of the basic utilities installed. At the time of the transfer, the electrical, fire alarm and communication systems, and plumbing for the potable and the waste water systems were not tested in several of the buildings.

The Baghdad Police College construction and renovation project results were not consistent with the original contract and task order objectives because the project was poorly designed, constructed, and the contractor and the U.S. government project engineer and quality assurance representatives did not effectively manage the project. During this inspection, indications of potential fraud were found and these matters were referred to SIGIR Investigations for appropriate action.



Large settlement crack running down the Baghdad Police College building



Inferior craftsmanship with plumbing installation

- PA-06-090 Iraqi Civil Defense Headquarters (\$3M, IRRF, Parsons Delaware, Inc.): The objective was to renovate buildings to a fully operational and usable facility for the Iraqi Civil Defense Ministry. Additional work was added to expand the interior and exterior of the facilities to accommodate additional room space. The design was insufficient; construction was unsatisfactory; quality control and assurance

were deficient; and sustainability was not addressed. As a result, project results were not achieved.

- PA-06-091 Bab Shams Police Station (\$0.35M, IRRF, local contractor): The objective was to repair and reconstruct the Bab Shams' Police Station. The project work was finished 31 October 2005, the U.S. government accepted the facility on 22 October 2005 and the Iraq government took possession on 24 October 2005. This sustainment assessment was made to determine whether the project was operating at the capacity stated in the contract, was adequately planned, and was likely to continue. Although most key construction appeared to meet requirements, major deficiencies were noted. Contract specifications were not met regarding the waste water culvert/pipeline. The concrete was not uniformly mixed, was cast too thin, and was cast without rebar or wire to improve tensile strength. Razor wire was not properly secured on the perimeter walls. Rather, it was held in place with unevenly spaced sand bags. These conditions occurred because quality control and quality assurance activities and design submittal and approval processes were not effective during construction and were not addressed before the final payment was made.
- PA-06-092 Gaugli-Ashur Police Station (\$0.88M, IRRF, local contractor): The objective was to repair and reconstruct the Gaugli-Ashur Police Station. Although the project was not completed until 31 October 2005, the U.S. government accepted the facility on 22 October 2005 and the Iraq government took possession on 24 October 2005. Post turnover equipment, operations and maintenance management, and facility/building maintenance practices by Iraqi Police personnel appeared effective. As a result, full capacity operations over the long term will likely result if Iraqi Police personnel continue to properly use and effectively maintain the equipment and the facility.
- PA-07-102 Ministry of Defense Building (\$31.4M, IRRF, Laguna Construction Company, Inc.): The objective of this renovation project was to renovate and improve the Ministry of Defense Headquarters complex. The sustainment assessment confirmed a fully functioning office building. This occurred because the design was adequate prior to construction, quality and detailed workmanship was accomplished, and adequate quality management oversight was performed, which enforced the contract specifications in terms of construction quality and completeness. In addition, post-turnover equipment, operations and maintenance management, and facility/building maintenance practices were effective.



Entrance to the Iraqi Ministry of Defense Headquarters

- PA-07-115 Erbil Police Academy (\$10M, ISSF, Tigris Muh Musavirlik Eletrik): The objective of the project was to design and construct a police training academy to accommodate 650 students. Work requirements were detailed, understandable, and could be used as a management tool, ensuring that contractor and government personnel had the same point of reference, and the design-build process was effectively managed with timely contractor submittals and government approval. Contract execution and construction management practices were adequate because an effective quality management process was implemented.



Framework of the Erbil Police Academy

- PA-08-123 Nassriya Prison Expansion (\$6.2M, IRRF, local contractor): The objective required the contractor to design, build, and commission a new maximum security building to house 400 inmates. The design package was complete, construction satisfactory, contractor's quality control plan was sufficiently detailed, and U.S. government quality assurance program

was effective. The Nassriya Prison Expansion project should result in a functional and modern prison.

- PA-08-131 Nassriya Prison Facility Follow-up (\$15.5M, IRRF, local contractor): A sustainment assessment, the objective of the Nassriya Prison Facility was to increase the bed count of the Iraqi Corrections Service for the Ministry of Justice through the construction of a new secure prison facility. An in-depth review of the design of the whole facility was done in SIGIR Assessment Report PA-06-054. The objective of the project was to continue the construction on the maximum/medium security prison facility located in Nassriya. Project engineers took an active role in managing the project to ensure quality workmanship and compliance with the contract requirements. Contractor and government quality management was effective because daily quality control reports contained required project and work activity information, and the project engineer and the Iraqi construction engineers ensured all deficiencies cited during quality assurance inspections were corrected.

Security and Justice Sector Summary

The major causes of the noted deficiencies were ineffective contractor quality control and U.S. government quality assurance. The contractor quality control reports lacked detail and the government reviews were not consistent, which resulted in not properly identifying and correcting construction deficiencies. The quality of some equipment was substandard and, in some cases, was missing from the project site, and design flaws contributed to construction errors. Cost overruns caused projects to be de-scoped and the lack of proper sustainability procedures continued to cause project deficiencies.

Transportation & Communications Sector

These 19 project assessments accounted for \$42.1M in contract costs. Eleven of the nineteen projects had no deficiencies.

- PA-05-019 Babil Railway Station (\$0.27M, IRRF, local contractor): The objective was to rehabilitate the Babil Railway Station to include the repair of security, electrical, mechanical, architectural, and structural systems. Although work was not completed at the time of the site visit, the work performed was consistent with the objective. The rehabilitation of the Babil Railway Station met the standards of the contract because the project engineer and quality assurance representative effectively monitored and supervised the rehabilitation efforts of the contractor.
- PA-05-033 Karbala Library (\$1.2M, DFI, Global Business Group): The objective was to provide construction and repair of the existing building, landscape the library grounds, purchase new furniture, and obtain new computers with internet connections. The minor construction and repairs were not adequate because required ceiling fans and glass panels were not installed, window sealing was not done, and the building repairs were not accomplished. Landscaping work was not satisfactory because dead trees

were not removed and new trees were not planted; furnishings used were not new and some were broken; and 54 of the required 68 computers were not provided along with the hardware and software for the installation of the internet service and internet connections.

- PA-06-034 Mosul Tower and Navigation Aids (\$10.3M, IRRF, EMTA Construction Company): The project objective was to design and construct an air traffic control tower and install navigational and visual aids at the Mosul Airport. The project results were consistent with the original project objective. The design package was sufficiently complete, the contractor's quality control plan was adequate, and the government quality assurance was effective.



Air traffic control tower under construction at the Mosul Airport

- PA-06-035 Ninewa Village Roads (\$1.1M, IRRF, local contractor): The objective was to construct paved roads from the village of Nimrud to the village of Balawat and from the village of Balawat to the village of Al Hamdaniya. The completed project should result in a paved two-lane asphalt concrete road connecting the Villages of Al Hamdaniya, Balawat, and Nimrud. Minor deficiencies, such as drawings that only included basic cut and fill roadway cross sections and no details and contractor quality control reports that were only submitted monthly and contained only a listing of items of work completed, were noted.
- PA-06-036 Ainkawa Fire Station (\$1.3M, IRRF, Parsons Global Services Inc.): The objective was to design and construct a fire station in Ainkawa, Iraq. The site assessment found three major deficiencies. The contractor did not certify that the structural elements achieved full design strength as required; the adequacy of the rich cement-sand mortar mix for patching the honeycomb areas within the structural concrete did not meet specifications; and the contract did not clearly state if the contractor was responsible for construction of the driveways, sidewalks, and perimeter walls.

- PA-06-038 Sheile Primary School (\$0.46M, IRRF, local contractor): The objective was to construct a 12-classroom primary school. The construction was consistent with the objectives and in accordance with the standards and specifications of the contract because the contractor followed the design and specifications and obtained government approval for any deviations. The lack of water shutoff capabilities in the event of an emergency water break in the building was the only minor deficiency noted.
- PA-06-049 Basrah Terminal and Tower (\$5M, IRRF, NANA Pacific): The objective of the Basrah Terminal Renovation Project was the renovation and repairs that will bring the facilities up to an acceptable level of comfort, safety, and functionality. Renovation locations included the air traffic control tower, airport terminals, plant facility, fire station, and their supporting facilities. Work was consistent with the contract requirements and the objective was contractually met. The water treatment facility was not included in the renovation project and was not operational at the time of the site visit because numerous pumps and systems had operational issues such as alum clogging outlets of the filter systems. The heating and air conditioning systems as well as the potable water supply for the airport were not functioning because the water treatment plant that generates the required processed water was non-operational.



Basrah International Airport

- PA-06-050 Basrah Air Side Power Supply to NAVAIDS and VISAIDS (\$0.38M, IRRF, local contractor): The objective was to define the scope and costs of future construction activities required to provide reliable power to the medium voltage electrical network, special equipment to be installed during upcoming aviation projects, and other critical aviation infrastructure. The review of the interim and final preliminary design report showed the submitted reports were consistent with the contract requirements. The preliminary design reports, associated photos, test data, and schematics were detailed and specific enough to guide future contracting actions.

- PA-06-053 Nassriya Fire Station (\$0.5M, IRRF, local contractor): The objective was to construct a fire station to accommodate 20 firefighters and 11 administrative staff members. The assessment team did not visit the project site because security officials determined it not safe to travel there. Therefore, the evaluation of the project construction was based on a review of the contract files. Although the contract file lacked a design review, the design package contained sufficient detail. When problems were encountered, government personnel quickly identified the deficiencies and actively managed the contractor's corrective actions until the deficiencies were corrected. As a result, the project provided the Iraq Civil Defense Directorate with a functional fire station.
- PA-06-055 Muthanna Village Roads (\$2.9M, IRRF, local contractor): The objective was to construct 34 kilometers of paved village roads in the northern part of the Muthanna Governorate for use by the local population. If the current level of oversight continues, the completed project should result in a paved two-lane road. The quality assurance representative identified and documented construction deficiencies as they occurred, the contractor took immediate corrective action, the contractor's quality control plan was sufficiently detailed to effectively guide the contractor's quality management program, and the U.S. government quality assurance program was effective in monitoring contractor performance.



Muthanna village roads under construction

- PA-06-057 Baghdad Railway Station (\$5.9M, IRRF, Contrack, AICI, Orascom, and Arhirodon): The objective was to rehabilitate the Baghdad Railway Station and restore the sanitary and other utility systems at the station for health, safety, operations, and public convenience. Most of the project components were adequately designed. Minor design deficiencies were noted with the landscape plan, passenger platform, drainage plan, and the utility drawings for the basement. The renovation of the railway has work spaces that offer a much safer and healthier environment for its

employees and visitors. Further, the station's structures and utility systems have been modernized and contract requirements were met.



View of the Baghdad Railway station and railroad tracks

- PA-06-058 Al Karkh Courthouse (\$2.2M, IRRF, local contractor): The objective was to construct a new courthouse in the Al Karkh District of Baghdad. The majority of the project components were sufficiently designed to construct the courthouse complex buildings and facilities and the design package contained site, architectural, plumbing, mechanical, and electrical drawings, as well as detailed specifications. The contractor's quality control plan was sufficiently detailed to effectively guide the contractor's quality management program and the U.S. government quality assurance program was effective in monitoring the contractor. The Al Karkh Courthouse construction was consistent with the objective.
- PA-06-059 Thi-Qar Village Roads (\$1.4M, IRRF, local contractor): The objective was to construct a 7.1-kilometer paved village road in the Thi Qar Governorate for use by the local population. Due to security conditions a site visit was not permitted. The assessment was based on the review of contract documentation. The contract drawings included basic cut and fill roadway cross sections, as well as typical details on reinforced concrete pipe culverts and the quality assurance reports sufficiently documented the quality assurance activities to include photographs reinforcing the information provided in reports. The project met the contract objectives.
- PA-07-107 Showairrej to Tak Harb Road (\$1.1M, CERP, local contractor): The objective of the project was to construct a new 11-kilometer asphalt road, with shoulders, from the main rural road to the villages of Showairrej, Taq Meka'ael, and Tak Harb, in the Ninewa Governorate. This sustainment assessment was made to determine whether the project was operating at the capacity stated in the contract. The new asphalt road was operating at the capacity stated in the contract and contributed to economic activity, emergency response, law enforcement, and safe pedestrian travel.

- PA-07-108 Bartilla New Road Paving (\$0.14M, CERP, local contractor): This sustainment assessment was made to determine whether the project was operating at the capacity stated in the original contract. The site visit disclosed that the project objective was met and the six municipal road segments were operating as fully functioning roads, replacing the existing unpaved dirt roads.
- PA-07-110 Al Escanddrona School (\$0.08M, CERP, local contractor): The objective was to renovate, repair, and upgrade existing architectural features, plumbing, and mechanical and electrical systems for the Al Escanddrona School. This sustainment assessment was made to determine whether the project was at full capability or capacity when accepted by the U.S. government and when transferred to the Iraqi government. Due to security conditions a site visit was not permitted. The limited quality assurance reports and photographs recorded the various stages of construction activities that occurred at the Al Escanddrona school project and documented the final project inspection. One deficiency regarding the contractor not providing any test results for any of the completed work was noted. Based on the contract documentation reviewed, contract provisions were met and the school was operational.
- PA-08-119 Kurdistan Ministry of Interior Complex (\$5.8M, CERP, Tigris Muh Musavirlik Elektrik): This objective was to repair and reconstruct the building complex and the old security building. Project planning, design, construction, and installation were adequate. The quality of the workmanship and materials used in construction were satisfactory. The partnership between the U.S. government, the Kurdistan Regional Government (KRG), and the contractor provided an effective management team that resulted in quality contract execution and construction management. The project, when completed, should meet and be consistent with the objectives.
- PA-08-120 Sarwaran Primary School (\$0.69M, CERP, local contractor): The construction project was to support the heightened demand for schools caused by an increased population in the area. Although the completed project should result in a functioning primary school, deficiencies were noted. Contract execution and construction management were not optimal because project management left quality issues unresolved. Also, sustainment planning was not apparent. Contract award was done by Coalition Forces of the Republic of Korea, but the Korean contracting officer could not provide any documentation showing that he was a warranted contracting officer authorized to award contracts on behalf of the United States. Finally, the contract required that the bathroom fixtures be produced in Iran, which is currently under United States trade sanctions.
- PA-08-121 Binaslawwa Middle School (\$0.65M, CERP, local contractor): This school construction project was to support the heightened demand for schools caused by the increased population in the area. Although the

completed project should result in a functioning primary school, deficiencies were noted. Fire-sensing, fire-alarm, and fire-fighting systems were not installed in the facility and were not required by the contract. The septic tank and cesspool area were not secured to prevent students from entering the area. The cesspool access-door structure showed inferior workmanship and was susceptible to collapse. Contract award was done by Coalition Forces of the Republic of Korea, but the Korean contracting officer could not provide any documentation showing that he was a warranted contracting officer authorized to award contracts on behalf of the United States. Finally, the contract required that the bathroom fixtures be produced in Iran, which is currently under United States trade sanctions.

Transportation and Communications Summary

Over 58% of the projects in this sector were completed without deficiencies. Effective quality management which included the contractor quality control plans and government quality assurance programs played a key role in the successful completion of these projects. However, deficiencies continue to have a “common thread”. Incomplete designs, inadequate construction and repairs, and equipment not installed or improperly installed, persisted through some of the projects. Also, de-scoping due to funding shortages was another problem.

Water Sector

The 17 water project assessments had contract costs of \$374.5M with 13 having deficiencies.

- PA-05-001 Al Wahda Water Treatment Plant (\$7.4M, IRRF, FluorAMEC LLC): The objective included refurbishment or replacement of chlorination systems, clarifier tanks, settling tanks, gravity rapid sand filters, pressure filters, alum system, and sludge holding tanks. The design package was incomplete, the contractor quality control plan was insufficient, and the U.S. government quality assurance was not effective. Although construction met the standards, the project was significantly de-scoped, and project results were not achieved.
- PA-05-002 Al Wathba Water Treatment Plant (\$7.4M, IRRF, FluorAMEC LLC): The objective was to increase the amount of potable water through the design and construction of a chemical, administrative, and pressure filter building and for the renovation of two clarifier and settling tanks and two sludge pits. Deficiencies noted included one clarifier tank was drained and cleaned but not sealed; the settling tank collapsed during refill; and the chemical building’s concrete floor was rough and uneven. However, the completed project should increase the amount of potable water.



Construction work on the new chemical building at Al Wahda Water Treatment Plant



Construction work at Al Wathba Water Treatment Plant

- PA-05-003 Al Nahrwan Water Treatment Plant (\$0.28M, IRRF, local contractor): The objective was to construct a pipeline supplying potable water directly to fifty homes in the City of Al Nahrwan. Project oversight and documentation of the monitoring and review activities were effective. Quality assurance practices were effective, adequately documented, and materially compliant with applicable operational guidance. The project was in compliance with contract requirements.
- PA-05-004 Al Sumelat Water Network (\$0.74M, IRRF, SIMA International): The objective was to design and construct a potable water pipeline from an existing water main located on the old Falluja to Baghdad Road to the Village of Al Sumelat. Project objectives were not met due to the following significant deficiencies: numerous sections of the pipeline were not installed; a lack of soil compacting during backfilling operations was found; surface grading was not completed; proper elbow fittings were not always used; and gaps in the pipe connections were visible. The deficiencies were due to inadequate quality control, quality assurance, and design, as well as instances in which work performed was inconsistent with the contract specifications.
- PA-05-028 Umm Qasr Water Scheme (\$10.5M, IRRF, Washington International/Black and Veatch): The objectives were to provide immediate repairs to the existing canal, provide permanent power supply to the pump station, develop the capability of local Iraqi Ministry staff to take responsibility for canal maintenance, and to develop and implement part of the intermediate term solution (defined as a ten year period) for the canal. Due to substantial de-scoping of the project, permanent power supply to the pump station was not completed and the implementation of the intermediate

solution was de-scoped to a geotechnical survey of the 20-km section of deteriorated canal and there was no evidence of maintenance activities being done. The original objectives and also the de-scoped objectives were not met.



Port of Umm Qasr water canal in use

- PA-06-067 Baghdad Municipal Solid Waste Landfill (\$28.8M, IRRF, FluorAMEC, LLC): The objective was to design and construct a solid waste landfill. The completed project work met the standards of the design. The project was closed out in November 2005 prior to completion because of security issues that presented a health threat and security risk to Coalition Forces and Iraqis working at the site.



Aerial Imagery of the SIGIR-verified Baghdad landfill and the surrounding area

- PA-07-071 Al Kasik Water Storage Tanks (\$4.9M, IRRF, AMEC Earth and Environmental, Inc.): The objective was to construct a potable water storage tank system with a capacity of no less than 7.7-million liters. Oversight of construction was effective and the project was adequately planned and designed. Adequate quality control and assurance ensured effective quality management during construction. As a result, the water storage tanks should operate efficiently and improve overall water distribution within the service area.
- PA-06-074 Al Kasik Waste Water Treatment Plant (\$2.7M, IRRF, Shaw Environmental Inc.): The objective was to plan and construct a waste water treatment plant compliant with World Health Organization 2000 specifications. The project did not meet contract specifications because the sweep arm failed which effectively shut the plant down. Also, the construction was inadequate and sustainability was not addressed. As a result, the waste water treatment plant was operationally ineffective.
- PA-07-096 Sadr City Water Pump Station (\$4.2M, IRRF, Comet Company): The objective was 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 Water Pump Station. The raw water pump station should meet its intended objective of providing required water levels to the Sadr City and Shark Dijala water treatment plants due to adequate design, effective quality management, and sufficient contractor quality control and U.S. government quality assurance.



Sadr City Al Qana'at water pumping station

- PA-07-105 Mosul Dam (\$27.1M, IRRF, multiple contractors): The project was in two phases. Phase I was to evaluate the existing conditions of Mosul

Dam; define the problems and identify conditions needing correction; define potential alternate solutions; and recommend one (or more) solutions that will resolve the conditions. Phase II was to purchase special grouting equipment and seismic monitors to sustain Mosul Dam stabilization efforts to reduce the risk of dam failure and maintain sufficient water to generate 320 megawatts of electricity and irrigation for farmers. Construction was inadequate as demonstrated by deficient installation of foundation bolts. Of the 144 bolts installed, 43 that were cast into the concrete columns had insufficient thread available to properly fasten the connecting nuts. The project did not have required design drawings, an adequate quality management program was not utilized for the delivery and construction of materials and equipment, no contractor quality control plan was present, and execution of the 21 contracts awarded was inconsistent with the original project objectives. During this inspection, indications of potential fraud were found and these matters were referred to SIGIR Investigations for appropriate action.



SIGIR Inspector at the grout mixing plant at the Mosul Dam

- PA-07-106 Right Bank Water Treatment Plant (\$1.7M, CERP, local contractor): The objective was to rehabilitate and upgrade an existing 182,000 cubic meters per day drinking water treatment plant, including the repair of pumps, mixers, settling tanks, pressure filters, and chlorine dosing units. Documentation confirmed that contract provisions were met, and the water treatment plant was operational at the time of turnover to the Mosul Water Company. In addition, the contractor and the government performed adequate quality management oversight, which enforced contract provisions and ensured construction quality and completeness.

- PA-07-109 Bartilla Booster Pump Station (\$0.23M, CERP, local contractor): The objective was to repair the booster pump station and provide potable water at a rate of 200 cubic meters per hour to the residents of Bartilla. This sustainment assessment determined whether the project was operating at the capacity stated in the original contract after turnover to the Iraq government on 17 May 2007. The assessment team observed that electrical power was not available and the pump station was not operating during the site visit. Further, the assessment team could not determine if there were any post-turnover equipment operations, maintenance management, and facility maintenance practices in place.
- PA-07-111 Mansour Pump Station (\$0.12M, CERP, local contractor): The sustainment objective was to make the Mansour Pump Station fully serviceable and functioning. Sewer water was backed up and only the 500 millimeter vertical pump was operational during the site visit. Sufficient power was not available to run the other three vertical pumps because of a fuel shortage and a broken transformer. Project planning and design were inadequate. This created excessive amounts of duplicate work, the majority of which was inferior or incorrect. Also, government oversight was ineffective. The contract was not consistent with the project objective of rehabilitating the Mansour Pump Station to make it fully serviceable and functional.
- PA-07-112 Mahalla Sewer Project (\$0.62M, CERP, local contractor): The objective was to tear down the existing sewer and replace it with a new sewer. Construction appeared to be consistent with the intent of the project objective. However, minor deficiencies such as the contractor not maintaining deficiency logs and the government quality assurance program not effectively monitoring the contractor's quality control program were noted. When completed, the project should meet and be consistent with the original contract objectives.
- PA-07-116 Nassriya Water Treatment Plant (\$277M, IRRF, FluorAMEC): This was a sustainment assessment. The objective of the delivery order was to design and construct a new water supply system consisting of a new water treatment plant capable of producing 240,000 cubic meters per day of potable water and approximately 110 kilometers of transmission piping for five cities within the Thi Qar governorate. In addition, the delivery order required a period of operations and maintenance by the contractor after successful performance testing and three training classes, both classroom and on-the-job training, for Iraqis identified by the Ministry of Municipalities and Public Works.

The Nassriya Water Treatment plant is a cost-sharing project with the U.S. government funding the water supply project. The Government of Iraq is responsible for funding the power from the national grid required to operate the Water Treatment Plant; repair of leaks in the distribution system to allow potable water to flow from the conveyance lines to the end user; and

providing a qualified and motivated staff to be trained by the contractor to operate and maintain the facility after the project was turned over to the Government of Iraq.

Construction began in August 2004, commissioning was completed in June 2007, and the project was officially turned over to the Government of Iraq on 12 September 2007. However, at the time of turnover, the Government of Iraq had failed to provide reliable power from the national grid, repair the leaks in the distribution system, or provide a qualified and motivated staff to be trained. During commissioning, the contractor was unable to test the total operating output of the facility because the Government of Iraq had not established reliable power from the national grid to the water treatment plant. Sustainment was not realized.

The amount of potable water was only enough for three of the five cities. The citizens of the cities of Ad Diwayah and Suq Al-Shoyokh did not have access to the finished water because of illegal taps into the transmission lines and poor distribution systems. Consequently, at the time of the site visits, the water treatment plant was producing only 20% of its designed output, operating only one eight hour shift a day, and serving only 60% of the intended cities. This was due to the lack of reliable power from the national grid; old distribution system afflicted with leakages and unable to withstand the higher pressures and flows; illegal taps in the water transmission line to Ad Diwayah; and unqualified and unmotivated Ministry of Municipalities and Public Works staff unwilling to attend the contractor provided training.

- PA-07-118 Al Ghazaliyah G-7 Sewage Lift Station (\$0.32M, CERP, local contractor): The objective was to repair and renovate the existing sewage lift station. The project results did not meet objectives. The contract file contained insufficient design drawings and calculations. Construction deficiencies, such as the inadequate installation of the main distribution panel located outside, exposed to environmental factors such as wind, rain, and excessive heat were identified. Quality control and assurance were inadequate.
- PA-07-118.1 Al Ghazaliyah G-6 Sewage Lift Station (\$0.32M, CERP, local contractor): The objective was to repair and renovate the existing sewage lift station. The project results did not meet objectives. The contract file did not contain documentation of component design. The contractor's work was incomplete. For example, one submersible pump was not connected to the generator or national power grid, and the piping connection was not completed, the ampere meter for the generator was not working, and poor quality work was noted in the service building. Finally, the contract was terminated because the deteriorated security situation in the area prohibited the contractor from completing work.

Water Summary

Of the seventeen water projects inspected, only four were found without deficiencies. Again, the same type of deficiencies existed as identified in the previous sector summaries. The absence or inadequacy of contractor quality control and government quality assurance programs were the main reasons why projects did not meet objectives. Design errors, and construction and equipment problems could have been caught with proper quality management plans. Due to funding being moved from one project to another, work was de-scoped and critical work was sometimes not accomplished. Sustainability deficiencies such as consumables not purchased, maintenance not performed, or training not completed, caused projects to be susceptible to failure after turnover.

Conclusions

The compilation disclosed that:

1. As of April 2008, the Special Inspector General for Iraq Reconstruction has issued 115 project assessment reports that provide a snapshot of reconstruction activities throughout Iraq. The assessments were conducted in six sectors:
 - Energy: 29 reports and one special assessment with contract costs of \$644 million
 - Health: 11 reports, with \$22 million in contract costs
 - Military: 14 reports, with contract costs of \$306 million
 - Security and justice: 25 reports, with \$252 million in contract costs
 - Transportation and communication: 19 reports, with \$42 million in contract costs
 - Water: 17 reports, with \$373 million in contract costs

Also, two summary reports covering 96 limited inspections were issued.

2. Project Assessment reports through April 2008 cover reconstruction project sites in Iraq valued at over \$1.6 billion: 89 construction assessments and 26 sustainment assessments. Random selection of project assessment sites was not practicable. SIGIR sought to select a representative cross-section of projects. To do this, projects were selected for assessment from each sector, from large and small contractors, in different sections of Iraq, involving each of the major U.S. agencies, as well as from on-going and completed projects. In addition, site visits were based on the availability of secure transportation to and from the project site and the security on the area. Therefore, projections for all reconstruction projects should not be made based on the results of this report.
3. The assessments yielded a variety of results, ranging from well-constructed and successful projects to projects that had serious deficiencies. The projects with deficiencies are largely the result of inadequate contractor performance and insufficient government oversight.
4. Different types of funds have been used to reconstruct Iraq. Most of the projects assessed were funded with the Iraq Relief and Reconstruction Fund. Other assessments were accomplished on the Commander's Emergency Response

Program, Iraq Security Forces Fund, Development Fund for Iraq, and the Department of State's International Narcotics and Law Enforcement Fund.

5. Several agencies provide oversight of US-funded reconstruction projects in Iraq. The bulk of the oversight is handled by the United States Army Corps of Engineers, Gulf Region Division which is subdivided into three subordinate units: Gulf Region Central, Gulf Region North, and Gulf Region South. Other agencies that provided oversight are the Air Force Center for Engineering and the Environment and the Multi-National Division. Also, the Coalition Provisional Authority had contract oversight during the beginning of reconstruction until 28 June 2004.
6. Of the 115 project assessments, 47 had significant deficiencies and 27 had deficiencies that were minor. These deficiencies resulted from inadequate design, construction, quality control and assurance, and planning for Iraqi sustainment.
7. Conversely, the 41 projects with no deficiencies and successful results were due to effective quality management on the part of the contractor and government. Further, complete engineering designs and detailed architectural drawings were instrumental in projects meeting contract specifications. Finally, early planning and adequate funding enhanced project sustainment.
8. A common theme among the projects with deficiencies was the inability to produce a product that met the specifications required by the contract and the lack of compliance with the standards referenced in the contract. Inadequately trained/unqualified contractor personnel, inferior materials, and the lack of oversight on the part of the contractor and government led to substandard project results. Also, in some instances, indications of potential fraud were found. This information was turned over to the Investigations Directorate of the Special Inspector General for Iraq Reconstruction for further action.

Recommendations and Management Comments

This report does not contain any new findings or recommendations for corrective action; therefore management comments were not required.

Appendix A. Scope and Methodology

This project assessment was performed from February through July 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 an imagery and data analyst/inspector.

In performing this Project Assessment SIGIR:

- Reviewed all 115 previously published project assessment reports (SIGIR PA-05-001 through SIGIR PA-08-131); and
- Conducted detailed analyses regarding the various projects assessed to provide accurate findings for a Summary Report.

Appendix B. Acronyms

AFCEE	Air Force Center for Engineering and the Environment
BIAP	Baghdad International Airport
CPA	Coalition Provisional Authority
CERP	Commander's Emergency Response Program
DFI	Development Fund for Iraq
GRC	Gulf Region Central
GRD	Gulf Region Division
GRN	Gulf Region North
GRS	Gulf Region South
HDD	Horizontal Directional Drilling
INL	International Narcotics and Law Enforcement Fund
IRRF	Iraq Relief and Reconstruction Fund
ISSF	Iraq Security Forces Fund
KRG	Kurdistan Regional Government
M	Million
MW	Megawatt
PA	Project Assessment
SIGIR	Special Inspector General for Iraq Reconstruction
USACE	United States Army Corps of Engineers

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

U.S. House of Representatives

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

Appendix D. Project Assessment Team Members

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

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