

**THI QAR BEE FARM
THI QAR, IRAQ**

**SIGIR PA-09-188
APRIL 1, 2010**

Report Documentation Page				Form Approved OMB No. 0704-0188	
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1. REPORT DATE 01 APR 2010		2. REPORT TYPE		3. DATES COVERED 00-00-2010 to 00-00-2010	
4. TITLE AND SUBTITLE Thi Qar Bee Farm Thi Qar, Iraq				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Office of the Special Inspector General for Iraq Reconstruction (SIGIR), 400 Army-Navy Drive, Arlington, VA, 22202-4704				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 25	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



SIGIR

Special Inspector General for IRAQ Reconstruction

April 1, 2010

Summary of Report: PA-09-188

Why SIGIR Did this Study

SIGIR is charged to conduct assessments of Iraq reconstruction projects funded with amounts appropriated or made available by the U.S. Congress. SIGIR assessed this project to provide real-time information on relief and reconstruction to interested parties to enable appropriate action, when warranted.

The objective of this project assessment was to determine if:

- project components were adequately designed
- construction complied with design standards
- adequate quality management programs were used
- project sustainability was addressed
- project results were consistent with original objectives

What SIGIR Recommends

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

Management Comments

Though not required, SIGIR received comments on the draft of this report from the Gulf Region South District of the U.S. Army Corps of Engineers indicating that the Gulf Region South District had reviewed the draft report, generally agreed with the facts as stated, and had no comments to provide. Complete management comments are provided in Appendix C.

Thi Qar Bee Farm

What SIGIR Found

On 1 October 2009, SIGIR performed an on-site assessment of the Thi Qar Bee Farm project. Due to scheduling, the total time available on site was approximately two hours. Consequently, a complete review of all the work at the project site was not possible. Although the project was complete and the equipment was present, honey processing operations had not yet begun.

The overall objective of this \$254,960 Economic Support Fund project was twofold: 1) design and construct a new 100 square meter honey processing facility and 2) provide training and materials to local farmers in honey production management. Specifically, the processing facility included an office, store, work room, and bathrooms.

In addition to the processing facility, the U.S. government provided beehive management training materials, three months of training, and distributed beehives in five districts within the Thi-Qar province. The Government of Iraq provided bees and beehive packages to the local farmers. As honeycombs become complete, the farmers transport the honeycombs to the processing facility. After the honey is processed, the farmers have the option of taking all or part of the honey with them or of leaving all or part of the honey to be sold by the processing plant.

Project components were adequately designed prior to construction. Construction was in compliance with the standards of the design. The contractor's quality control and the U.S. government's quality assurance programs were effective. SIGIR reviewed the daily quality assurance reports and found that they were effective in identifying and correcting construction deficiencies at the project site.

Sustainability was addressed in the contract requirements. The contract included sustainability elements to assist the Iraqis in operating this project after turnover.

Project results should be consistent with their original objectives. The Thi Qar Bee Farm project met the objectives of providing a new honey processing facility. Also, the Thi Qar Bee Farm project's beehives will be harvested and used to grow other bee farms, which should assist in natural pollination and restoration of crops and should help sustain future agriculture business.



For more information, contact SIGIR Public Affairs at (703) 428-1100 or PublicAffairs@sigir.mil



SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION

April 1, 2010

MEMORANDUM FOR COMMANDING GENERAL, UNITED STATES CENTRAL
COMMAND
COMMANDING GENERAL, UNITED STATES FORCES-
IRAQ
COMMANDING GENERAL, JOINT CONTRACTING
COMMAND-IRAQ/AFGHANISTAN
DIRECTOR, IRAQ TRANSITION ASSISTANCE OFFICE

SUBJECT: Report on the Thi Qar Bee Farm, Thi Qar, Iraq (SIGIR Report Number
PA-09-188)

We are providing this project assessment report for your information and use. SIGIR assessed the design and construction work performed at the Thi Qar Bee Farm, Thi Qar, Iraq to determine its status and whether objectives intended will be achieved. This assessment was made to provide you and other interested parties with real-time information on a relief and reconstruction project underway and in order to enable appropriate action to be taken, if warranted.

This report does not contain any negative findings. As a result, no recommendations for corrective action were made and management comments were not required. However, the Gulf Region South District of the U.S. Army Corps of Engineers provided a response to a draft of this report indicating that they had reviewed it, generally agreed with the facts as stated in the report, and had no comments to provide.

We appreciate the courtesies extended to our staff by the United States Forces-Iraq and the offices of the Gulf Region District of the U.S. Army Corps of Engineers. If you have any questions please contact Mr. Brian M. Flynn at brian.flynn@sigir.mil or at 240-553-0581, extension 2485. For public queries concerning this report, please contact SIGIR Public Affairs at publicaffairs@sigir.mil or at 703-428-1100.

A handwritten signature in black ink, which appears to read "Stuart Bowen, Jr.", is positioned above the printed name.

Stuart W. Bowen, Jr.
Inspector General

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Introduction

Background

Iraq's Honey Industry

Iraq's once-flourishing honey industry is struggling to revive itself, hit by long-term environmental degradation and six years of unrest that followed the 2003 U.S.-led invasion. Honey production has fallen by almost half since the 1980s. Bee keeping declined sharply after 2003 because of the lack of security in places where the hives were located. Lack of developments in the farming sector and cuts in water supply have destroyed vegetation and fields where bees once gathered pollen and beekeepers face hardships from droughts and lack of financial assistance.¹

Beekeeping in the Fertile Crescent dates back to ancient Mesopotamia. However, beekeeping was virtually unknown in southern Iraq. In 2005, a small group of engineers and farmers in Thi Qar province formed the Iraqi Beekeeping Association of Thi Qar and started to disseminate the culture of beekeeping. The benefits were clear. Honey is a high value food item that is currently imported and sells for \$15 to \$40 dollars a kilogram. Cultivating economically viable domestic production of honey was a natural economic niche. Also, beekeeping has beneficial environmental effects. Bees are great pollinators for fruits and vegetables and, in establishing their territory, decrease insect attacks on plants.²

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, if warranted. Specifically, the Special Inspector General for Iraq Reconstruction (SIGIR) determined whether:

1. Project components were adequately designed prior to construction or installation;
2. Construction or rehabilitation was in compliance with the standards of the design;
3. Adequate quality management programs were being utilized;
4. Sustainability was addressed in the contract or task order for the project; and
5. Project results were or will be consistent with their original objectives.

Pre-Site Assessment Background

Contract, Costs and Payments

Firm-fixed-price contract number W917BK-09-P-0001, funded by the Economic Support Fund in the amount of \$254,960, was awarded to a local Iraqi company on

¹ MNS news article dated 10 October 2009

² U.S. Department of State article dated 27 January 2010

2 November 2008 by the U.S. Army Corps of Engineers (USACE), Gulf Region South Division (GRS).³ The contract contained one modification.

Modification 00001, dated 9 May 2009 extended the construction completion date by an additional 75 days. The modification did not affect the cost of the project.

Project Objective

The overall objective of this project was twofold: 1) design and construct a new 100 square meter (m²) honey processing facility and 2) provide training and materials to local farmers in honey production management. Specifically, the processing facility would include an office, store, work room, and bathrooms. Local farmers would receive beehive management training for 3 months, be supplied with training materials to include lecture notes, books, leaflets, and hives would be distributed in five districts within the province. The Government of Iraq would distribute the bees and beehive packages to the local farmers. As the honeycombs become complete, the farmers will transport the honeycombs to the processing facility. After the honey is processed, the farmers have the option to take all or part of the honey with them or leave all or part to be sold by the processing plant.

Pre-Construction Description

According to the GRS Adder Area Office (AAO) documentation, the Thi Qar Bee Farm project site is located approximately 300 kilometers south-southeast of Baghdad. Prior to construction of the facility the project site was vacant land in the Thi Qar governorate of Iraq (Site Photo 1). The project site is located on relatively flat terrain with a uniform slope across the site. In addition, the site is in a low area when compared to the surrounding terrain. A primary road runs near the site and is several feet higher than the site grade.

Statement of Work

The Statement of Work (SOW) required the contractor to design and construct a new 100-m² honey processing facility. Specifically, the contract required the following:

- design and construct a 100-m², single-story honey processing facility that contains one:
 - office
 - store

³ Formerly, the U.S. Army Corp of Engineers (USACE) organization in Iraq consisted of the Gulf Region Division under which were the Gulf Region North District (GRN), Gulf Region Central District (GRC), and Gulf Region South District (GRS). Each of the Districts had local area, resident, and project offices. The designation of a local office as an area, resident or project office depended on the number of reconstruction projects that it was responsible for overseeing.

Since July 2009, USACE in Iraq has been undergoing reorganization and downsizing as the number of reconstruction projects has diminished. The Gulf Region Division was disestablished. GRN and GRC were combined to form the Gulf Region District. In April 2010, GRS is also to be incorporated into the Gulf Region District. The reduced number of reconstruction projects has also resulted in the closing or reduction in size of many of the local area, resident and project offices. The local offices that have been reduced in size have had their designations changed from area offices to resident or project offices.

In the body of this report, the names of USACE organizations at the time of the actions cited are used. Recommendations are directed to the current designations of the organizations that are able to take corrective action.

- work room
- restroom



Site Photo 1. Initial excavation of site (Courtesy of GRS)

- supply of processing unit that includes:
 - 10 extractor machines
 - 250 liter stainless steel decanters
 - 2200 liter stainless steel decanters
 - 1 stainless steel single phase low revolution pump with in/out-take
 - 1 refrigerator
 - office furniture
- supply initial starter kits
- wood carpentry equipment for training
- training for bee farming and/or processing

Project Design and Specifications

The GRS AAO provided the contractor with a set of contract drawings and specifications. The contractor was to check and compare the drawings and verify the figures. In the case of a discrepancy, the contractor was to notify the contracting officer. In addition, the contractor was required to provide preliminary, 95%, and final design drawings to the contracting officer.

The contract required conformance to the standard Iraqi specifications appropriate to each work activity. In the case of no applicable standards, the contractor was to comply with the 2006 International Building Codes.

The GRS AAO provided SIGIR with the contractor's design documents. Detailed project design drawings were included with the documentation provided by GRS, as well as specifications and technical requirements for project construction.

Architectural Plan

The building size and specific requirements for construction materials and methods were specified in the contract. Also, an architectural plan was included in the contract documents as a general guideline for the contractor.

In addition, the contractor generated architectural plans for the project based on the plans provided in the contract. The plans generally conformed to the overall intent of the plans provided in the contract and meet the contract requirements.

Further, the contractor submitted elevation drawings of the facility based on the architectural floor plans. The elevations were consistent with the floor plans and provided additional detail for the construction of the building, including finish type and material.

Foundation Design

The contractor submitted detailed designs for the foundation of the building. The drawings indicated that the foundation was designed as a continuous reinforced concrete grade beam⁴. The design included information on the overall layout of the foundation, the specific dimensions of the different elements of the design, and the reinforcing details for the foundation.

Structural Design

GRS AAO project documentation included detailed structural drawings for the building. Based on the design drawings, the building was designed as a reinforced concrete frame with masonry infill. The reinforced concrete frame consists of rectangular columns and beams with a structural roof slab.

The structural drawings included information on the reinforced concrete columns, beams, roof slab dimensions, and reinforcing steel. Included with the detailed drawings were structural calculations for the roof slab. Calculations for the columns and beams were not included with the design information, so the adequacy of the design could not be verified.

GRS noted that the contractor's structural design did not contain calculations for seismic loading. No further documentation was provided to address this issue, and SIGIR could not determine if seismic loading was accounted for in the final design of the facility.

Electrical Design

Detailed drawings for the electrical and lighting system for the building were included in the project documentation provided by GRS. In addition to the drawings, calculations for the electrical system were included. The electrical system calculations contained little information and did not appear to adequately explain the system design. However, due to the small size of the facility the contractor should be able to construct the electrical system based on the specifications and code requirements despite the inadequate calculations.

⁴ Grade beams are foundation elements that span between columns. They are designed to span voids in the soil beneath the foundation causing them to act as beams.

Heating, Ventilating, and Air Conditioning Design

A detailed drawing for the heating, ventilation, and air conditioning system was included with the project documentation. The contractor proposed split units placed along the perimeter of the building, eliminating the need for ducting. In a small, relatively open building like this one, the choice of multiple split units seemed reasonable.

Plumbing Design

The contractor provided plumbing plans for the facility. The plans did not include the location of the water source, but did include information on the booster pump and rooftop water tanks. Also, the plans detail the location of the interior plumbing, water heaters, and fixtures. Calculations for the rooftop water tanks were provided by the contractor and indicate that the tanks are adequately sized for the facility.

It was unclear if the water supplied to the building will be used in the processing of the honey, or incorporated into the final product. An analysis of the water source was not provided and the suitability for its use in food processing could not be determined. If the water will be used for processing honey, the suitability should be verified, or an appropriate treatment system should be installed prior to use.

Plans for the sewage system were included in the project documentation. The design for the sewer system includes a 6 cubic meter holding tank with a reinforced concrete bottom slab, masonry sides, and a reinforced concrete lid. This type of system is typical for facilities with low flows that are not convenient to a municipal sewer system. Due to the low anticipated flows from the facility, the design appears adequate.

Based on SIGIR's review of the provided GRS AAO documentation, the contract included detailed requirements and specifications that adequately instructed the contractor on how to design and construct the facility. The contractor provided the design drawings to GRS for review and approval. SIGIR determined that the architectural, structural, electrical, and plumbing design drawings, with the inclusion of additional calculations and design submittals, were adequate to construct the facility.

Project Turnover

On 19 August 2009, a contract closeout document was signed by officials from GRS, the contractor, and the Iraqi government. This document officially turned the honey processing facility over to the Government of Iraq. The document stated: "This document certifies that all work has been inspected, and is accepted as being in accordance with contract requirements. Construction at this facility is complete and no other work is to be performed...." Also, the Director of Agriculture in Thi-Qar Province acknowledged receipt of all beehive starter kits including: bee farmer suits, face masks, gloves, and smokers. The director also stated that these starter kits would be distributed to the local bee farmers.

Site Assessment

On 1 October 2009, SIGIR performed an on-site assessment of the Thi Qar Bee Farm project. During the site visit, the GRS AAO representative and the local security team accompanied SIGIR. Due to scheduling, the total time available on site was

approximately two hours. This afforded the SIGIR assessment team with the ability to collect information for a limited project overview. Consequently, a complete review of all the work at the project site was not possible. Although the project was complete and the equipment was present, honey processing operations had not yet begun.

General Project Description

The project consisted of the construction of a small honey processing facility and supplying beekeeping equipment for distribution to local farmers. The honey processing facility consisted of a work room, office, store, and water closet. The site improvements included grading and fill to raise the site, a perimeter sidewalk, site utilities, and a small parking area. All required utilities were proposed as part of the project including connection to the national power grid and construction of a sanitary sewer holding tank.

During the site assessment, SIGIR observed that construction was complete. The contractor also had provided the operations and maintenance (O&M) manuals and as-built drawings, completed property transfer, completed testing/commissioning of equipment, and provided training to the bee farmers.

General topography of the area was flat with vacant or agricultural land extending for a significant distance from the site (Site Photo 2). Adjacent to the project was land currently used for agricultural research by the Ministry of Agriculture (Site Photo 3). A primary highway extended along the front of the project site; however, the facility was set back approximately 300 meters from the primary highway.



Site Photo 2. Surrounding vacant land



Site Photo 3. Agricultural use of land

Building Exterior

The building was square in shape with a prominent entry. The exterior of the building was finished with plaster and painted in a decorative, horizontal-striped pattern. The horizontal stripes were inset into the plaster finish creating a permanent architectural feature on the exterior of the building. The entryway to the building was finished with ceramic tile to create a contrasting pattern to the building finish (Site Photo 4). The exterior walls were in good condition with no evidence of cracking or settlement. Corners appeared true and plumb and the overall structure appeared sound.

A continuous sidewalk was constructed adjacent to the building and along the exterior wall. Since the building was constructed on approximately one meter of fill material, steps and curbing were constructed at the entrance. Stone was laid behind the curbing and forms a protective surface that prevents erosion of the slopes adjacent to the steps.

Downspouts were constructed along the exterior walls to drain runoff from the roof. The downspouts were in good condition. The downspouts discharge directly onto the perimeter sidewalk adjacent to the building. With the discharge directly onto the sidewalk, the facility will require long-term maintenance.



Site Photo 4. Building front exterior

The contractor installed exterior lighting on all sides of the building. The light fixtures are decorative and suitable for outdoor use. SIGIR observed additional wiring on the building; however, SIGIR could not determine where the wiring went.

The building was constructed with a flat roof. The roof held several of the utilities for the building—including the water storage tanks and the compressor units for the split unit air conditioners. Coolant lines for the air conditioning units were run through the roof overhang and through wall penetrations to the condensers on the interior of the building (Site Photo 5).

A transfer pump was located along the exterior wall of the building (Site Photo 6). Instead of connecting to the municipal system, as detailed on the design drawings, the contractor installed a transfer pump to convey water to the rooftop storage tanks. Based on this configuration, water can be supplied by tanker trucks. Due to the multiple connections and handling that must be performed to supply water to the facility, proper hygiene is critical to ensure that contamination is not introduced into the water supply at any point in the delivery cycle. This is especially important if the water is to be used to process honey.



Site Photo 5. Coolant line penetrating roof and wall



Site Photo 6. Water transfer pump

The septic tank for the facility was located adjacent to the water supply pump. At the time of the site assessment, the tank appeared to be functioning correctly. SIGIR noted there were no odors or vapors coming from the tank and no overflow was observed.

Building Interior

The building was constructed with three primary rooms and one restroom (Figure 1). The finish in all of the rooms was similar—plaster and painted finish for the walls, and ceramic tiles for the flooring. The finishes appeared well applied and in good condition.

When entering the building through the foyer, the office and store are located on the left, the restroom is straight ahead, and the work room is on the right. The store area was equipped for processing honey and was well-maintained (Site Photo 7). Several tables were available for workers to perform the various tasks required for processing, and equipment was located in this area.

The restroom was located immediately ahead of the front door to the facility. The restroom appeared functional at the time of the site assessment, and SIGIR observed no apparent defects with the construction (Site Photo 8). The restroom was clean and maintained by the current occupants.

Also, a work room was located to the right of the front entrance. At the time of the site assessment, the work room contained materials and equipment for the facility (Site Photo 9).

An office for the facility manager was located to the left of the front entrance. At the time of the site visit, the office was furnished (Site Photo 10) and the foyer was adequately sized for the building (Site Photo 11).



Site Photo 7. Store



Site Photo 8. Restroom

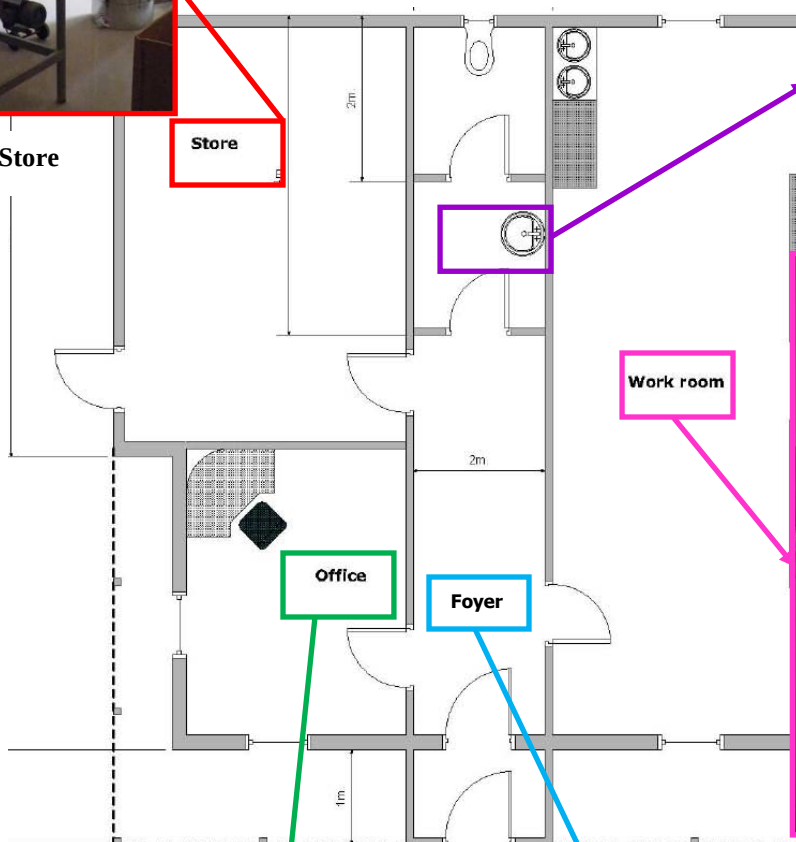


Figure 1. Conceptual design of honey processing facility (Courtesy of GRS)



Site Photo 9. Work room



Site Photo 10. Office



Site Photo 11. Foyer

Equipment

SIGIR was able to verify that the equipment required by the contract was present. Specifically, SIGIR observed the extractors⁵ (Site Photo 12), stainless steel decanters⁶, transfer pump⁷ (Site Photo 13), filling machine⁸ (Site Photo 14), and a refrigerator to store the honey.



Site Photo 12. Extractor



Site Photo 13. Transfer pump



Site Photo 14. Filling machine

⁵ The extractor machine is used to separate combs from honey and uses centrifugal power through manual operation.

⁶ The decanters are containers used to let the honey mature before being further processed.

⁷ Transfer pumps are used to transfer processed honey from various containers.

⁸ A filling machine is used to bottle honey for final delivery to the market for sale.

Apiary (Bee Yard)

The GRS AAO representative and the security team accompanied SIGIR on a tour of a local apiary that received the queen and bees⁹, beehives¹⁰, and personal protective equipment¹¹ under this contract. SIGIR was able to identify the manufactured hives used to house the bees (Site Photo 15).

Due to the current drought conditions in Iraq, there is not enough vegetation to sustain a high concentration of bee colonies. In order to maintain honey production, the beekeepers are providing the bee colonies with sweetened water (Site Photo 16).



Site Photo 15. Bee hives



Site Photo 16. Sweetened water

Project Quality Management

Contractor's Quality Control Program

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

The contract required the contractor to submit an overall quality control (QC) plan that included implementing a three-phase QC control system (preparatory, initial, and follow-up phases) necessary to ensure that the construction complies with the requirements of the contract. The contractor was required to maintain an adequate

⁹ The "package bees" consisted of a queen and bees, which makes up a colony, to start up the bee farming for the first cycle.

¹⁰ The bee hives consisted of the standard 10 wood frame hives.

¹¹ Personal protective equipment consisted of an overall with a veiled hat, gloves, and a smoker.

inspection system and ensure that work performed conformed to contract requirements. In addition, the QC representative was required to provide a daily site work report that included work performed, number of workers on site, managers and supervisors on site, weather, materials procured and received, problems encountered, accidents, photographs, construction inspection reports, and testing and inspection reports.

The GRS AAO project documentation included two contractor QC plans. The submittal form, dated 21 February 2009, documents that a QC plan did not address the requirements. Even though SIGIR was unable to locate any submittal forms showing GRS AAO accepted a contractor QC plan as meeting the standards addressed in ER 1180-1-6, GRS stated that the contractor “...aggressively implemented his QC plan...” and “...provided well prepared and complete...initial plan....”

The QC representatives monitored field activities and completed daily QC reports, which presented a brief background on the weather, number of workers on site, the work activities and testing performed, and documented deficiencies identified. In addition, the QC representatives supplemented the daily QC reports with photographs reinforcing the information provided in the daily reports. In the GRS AAO documentation provided, GRS notes that:

“QC reports were thorough, reported both good and bad information, provided adequate detail, and allowed the AO to have a clear “ground truth” as to work progress and quality.”

Government Quality Assurance

According to the Gulf Region Division, “Quality Assurance (QA) Plan and Standard Operating Procedure,” dated 3 May 2007, the QA verifies the effectiveness and accuracy of the contractor’s control system for producing quality work.

The QA representative (QAR) prepares the reports to ensure that deficiencies are documented with photographs. Also, the QAR assures that the contractor’s QC is effective and producing a product conforming to the construction standards.

GRS AAO, responsible for overseeing the construction of the Thi Qar Bee Farm project, employs local-national Iraqi associate engineers to serve as QARs responsible for visiting the project site and writing QA reports. In addition, GRS AAO representatives visited the project site to verify the contractor’s work.

Local-national QARs monitored field activities and completed daily QA reports. The reports document the number of workers on site and the work performed for the day. Also, the QARs supplemented the daily QA reports with detailed photographs that reinforce the information provided in the reports.

SIGIR reviewed the daily QA reports and found that the QARs performed effectively in identifying and correcting construction deficiencies at the project site. The QA documentation showed the deficiencies noted with photographs, and the deficiencies corrected.

Obtaining quality construction is the combined responsibility of the construction contractor and the government. The mutual goal is a quality product conforming to the contract requirements, and the contract documents establish the quality required

for the project. In the review of the Thi Qar Bee Farm project, SIGIR determined that the execution of the quality management program was effective in obtaining quality construction.

Project Sustainability

The contract included sustainability elements to help maintain the Thi Qar Bee Farm project. The contract specifications require that the contractor provide a twelve-month contractor-certified construction warranty for all material or equipment. Further, the contractor must provide all O&M manuals for all facility equipment, and is responsible for testing and commissioning of all systems. Specific contract requirements include:

As-built Drawings

Upon completion of the project, the contractor must provide as-built drawings (hard and electronic copies).

Warranty of Construction Work

The contract states that the warranty for construction work continues for a period of 12 months from the date of final acceptance of the work. If the government takes possession of any part of the work before final acceptance, this warranty will continue for a period of one year from the date the government takes possession.

The contractor is required to submit O&M manuals that would include standard operating procedures for all equipment and systems, standard maintenance procedures, and recommended spare parts lists for all equipment.

Further, the contractor is required to provide four weeks of training in the O&M of all systems under the contract.

Commissioning

The contractor was required to test and commission all equipment prior to turn-over.

Conclusions

1. Project components were adequately designed prior to construction or installation.

The U.S. government-provided SOW included a set of contract drawings and specifications. The contractor was to check and compare the drawings and verify the figures. In the case of a discrepancy, the contractor was to notify the contracting officer. In addition, the contractor was required to provide preliminary, 95%, and final design drawings to the contracting officer.

The contractor provided the design drawings to GRS for review and approval. SIGIR reviewed the contractor's detailed design drawings for the project, as well as specifications and technical requirements for the construction of the project. SIGIR determined that the contractor's design package, provided by GRS AAO, included detailed requirements and specifications that adequately instructed the contractor on how to design and construct the facility.

2. Construction was in compliance with the standards of the design.

During the 1 October 2009 site assessment, SIGIR observed that construction work for the Thi Qar Bee Farm project was completed and the project was turned over to the Government of Iraq on 19 August 2009. The on-site visit was conducted in approximately two hours.

The project consisted of the construction of a small honey processing facility and supplying beekeeping equipment for distribution to local farmers. The honey processing facility consisted of a work room, office, store, and water closet. The site improvements included grading and fill to raise the site, a perimeter sidewalk, site utilities, and a small parking area.

The building was square in shape with a prominent entry. The exterior of the building was finished with plaster and painted in a decorative, horizontal-striped pattern. The entryway to the building was finished with ceramic tile to create a contrasting pattern to the building finish. The exterior walls were in good condition with no evidence of cracking or settlement. Corners appeared true and plumb and the overall structure appeared sound. A continuous sidewalk was constructed adjacent to the building and along the exterior wall. The contractor installed exterior lighting on all sides of the building.

The building interior was constructed with three primary rooms and one restroom. The finish in all of the rooms was similar with plaster and painted finish for the walls, and ceramic tiles for the flooring. The finishes appeared well applied and in good condition. SIGIR observed no apparent defects with the construction.

SIGIR was able to verify that the equipment required by the contract was present at the facility. Specifically, SIGIR observed the extractors, stainless steel decanters, transfer pump, filling machine, and a refrigerator to store the honey.

GRS AAO representatives and SIGIR went on a tour of a local apiary that received the queen and bees, beehives, and personal protective equipment under this contract. SIGIR also observed the manufactured hives used to house the bees.

3. Adequate quality management programs were being effectively used.

The contract required the contractor to submit an overall QC plan that included implementing a three-phase QC control system (preparatory, initial, and follow-up phases) necessary to ensure that the construction complies with the requirements of the contract.

The GRS AAO project documentation included two contractor QC plans. The submittal form, dated 21 February 2009, documents that a QC plan did not address the requirements. Even though SIGIR was unable to locate any submittal forms showing GRS AAO accepted a contractor QC plan as meeting the standards addressed in ER 1180-1-6, GRS stated that the contractor “...*aggressively implemented his QC plan...*” and “...*provided well prepared and complete...initial plan....*”

The QC representatives monitored field activities and completed daily QC reports, which presented a brief background on the weather, number of workers on site, the work activities and testing performed, and documented deficiencies identified. In addition, the QC representatives supplemented the daily QC reports

with photographs reinforcing the information provided in the daily reports. In the GRS AAO documentation provided, GRS notes that the *“QC reports were thorough, reported both good and bad information, provided adequate detail, and allowed the AO to have a clear “ground truth” as to work progress and quality.”*

According to the Gulf Region Division, “Quality Assurance (QA) Plan and Standard Operating Procedure,” dated 3 May 2007, the QA program verifies the effectiveness and accuracy of the contractor’s control system for producing quality work. GRS AAO was responsible for the construction of the Thi Qar Bee Farm project, and employed local-national Iraqi associate engineers to serve as QARs responsible for visiting the project site and writing QA reports. QARs monitored field activities and completed daily QA reports supplemented with detailed photographs that reinforced the information provided in the reports.

SIGIR reviewed the daily QA reports and found that the QARs performed effectively in identifying and correcting construction deficiencies at the project site.

SIGIR’s review of the Thi Qar Bee Farm project found that the execution of the quality management program was effective in obtaining quality construction.

4. Sustainability was addressed in the contract or task order for the project.

Sustainability was addressed in the contract requirements. The contract included sustainability elements to assist the Iraqi ministry ultimately responsible for operating this project after turnover. The contract specifications required the contractor to provide and certify warranties. In addition, the contractor is required to perform operations and maintenance training appropriate to the facilities and equipment installed or constructed in the scope of this project, along with providing operations and maintenance manuals. Further, upon completion of the project, the contractor must prepare and furnish as-built drawings, which are to be a record of the construction as installed and completed.

5. Project results will be consistent with their original objectives.

The Thi Qar Bee Farm project results meet the objectives of providing a new honey processing facility. Also, the Thi Qar Bee Farm project’s bee hives will be harvested and used to grow other bee farms, which will assist in natural pollination and restoration of crops and help sustain the agriculture business.

Recommendations

This report does not contain any negative findings. As a result, no recommendations for corrective action were made. Therefore, management comments were not required.

Management Comments

Though not required, SIGIR received comments on the draft of this report from the Gulf Region South District of the U.S. Army Corps of Engineers indicating that the GRS had reviewed the draft report, generally agreed with the facts as stated, and had no comments to provide. The complete text of the management comments are provided in Appendix C.

Appendix A. Scope and Methodology

SIGIR performed this project assessment from August 2009 through February 2010 in accordance with the Quality Standards for Inspections issued by the Council of Inspectors General on Integrity and Efficiency. The assessment team included two engineers/inspectors and two auditors/inspectors.

In performing this Project Assessment, SIGIR:

- Reviewed documentation to include the following: contract W917BK-09-P-0001, award letter, and contract amendments and/or modifications;
- Reviewed contractor quality control plan, contractor quality control reports and photographs, government quality assurance reports, and quality assurance photographs;
- Reviewed the design package (plans) and submittals; and
- Conducted an on-site assessment on 1 October 2009 and documented the results of the Thi Qar Bee Farm project in Thi Qar, Iraq.

Scope Limitation. The time allotted for the Thi Qar Bee Farm project site assessment was approximately two hours; therefore, a complete review of all work completed and ongoing was not possible.

Appendix B. Acronyms

AAO	Adder Area Office
ER	Engineering Regulation
GRC	Gulf Region Central District
GRN	Gulf Region North District
GRS	Gulf Region South District
m ²	Square Meter
O&M	Operations and Maintenance
QA	Quality Assurance
QAR	Quality Assurance Representative
QC	Quality Control
SIGIR	Special Inspector General for Iraq Reconstruction
SOW	Statement of Work
USACE	U.S. Army Corps of Engineers

Appendix C. GRS Response to the Draft Report



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
GULF REGION SOUTH DISTRICT
COB ADDER, IRAQ
APO AE 09331



CETAX-DE

06 March 2010

MEMORANDUM FOR Special Inspector General for Iraq Reconstruction, US Embassy Annex II, Room 1013, APO AE 09316

SUBJECT: Draft SIGIR Audit Report PA-09-188, Thi Qar Bee Farm

1. This memorandum provides the US Army Corps of Engineers, Gulf Region South response to the subject draft audit report.
2. The Gulf Region South reviewed the subject draft report and generally agrees with the facts as represented in the report. GRS has no additional comments to the draft report.
3. Thank you for the opportunity to review the draft report and provide written comments for incorporation in the final report.
4. If you have any questions, please contact MAJ Curtis Tait at (540) 542-1507 or via email at Curtis.D.Tait@usace.army.mil.

KNIPPELJEFFRY
.D.1150102479

JEFFRY D. KNIPPEL, Col, USAF
Commanding

Digitally signed by
KNIPPELJEFFRY.D.1150102479
DN: c=US, o=U.S. Government,
ou=DoD, ou=PKI, ou=USAF,
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Date: 2010.03.07 09:04:04 +03'00'

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

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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 of Peace

Congressional Committees

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:

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Kevin O'Connor

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Yogin Rawal, P.E.