

**REHABILITATION OF THE MANSOUR
PUMP STATION**

UNDER THE COMMANDER'S EMERGENCY RESPONSE PROGRAM

BAGHDAD, IRAQ

SUSTAINMENT ASSESSMENT

**SIGIR PA-07-111
JANUARY 24, 2008**



SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION

January 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
DIRECTOR, IRAQ TRANSITION ASSISTANCE OFFICE

SUBJECT: Report on the Rehabilitation of the Mansour Pump Station in the Al Amerea area of Baghdad, Iraq (Report Number SIGIR PA-07-111)

The Office of the Special Inspector General for Iraq Reconstruction is assessing projects funded under the Commander's Emergency Response Program to provide real-time relief and reconstruction information to interested parties to enable appropriate action, when warranted.

We are providing this report for your information and use. It addresses the current status of the Mansour Pump Station in the Al Amerea area of Baghdad, Iraq. The assessment was made to determine whether the project was operating at the capacity stated in the original contract.

The comments received from the Commanding General, Gulf Region Division in response to a draft of this report addressed the recommendations, and the actions taken and planned should address the issues we identified. As a result, comments to this final report are not required. We also received information, documentation, and clarifying comments from the Gulf Region Division and revised the final report as appropriate.

We appreciate the courtesies extended to our staff. If you have any questions please contact Mr. Brian Flynn at brian.flynn@iraq.centcom.mil or at DSN 318-343-9244. For public or congressional queries concerning this report, please contact SIGIR Congressional and Public Affairs at publicaffairs@sigir.mil or at (703) 428-1100.

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Inspector General

Special Inspector General for Iraq Reconstruction

SIGIR PA-07-111

January 24, 2008

Rehabilitation of the Mansour Pump Station Under the Commander's Emergency Response Program Baghdad, Iraq

Synopsis

Introduction. The Office of the Special Inspector General for Iraq Reconstruction is assessing projects funded under the Commander's Emergency Response Program to provide real-time relief and reconstruction information to interested parties to enable appropriate action, when warranted.

The objective of the project was to rehabilitate the Mansour Pump Station in Baghdad, Iraq, to improve the sewer system in the Al Amerea area. In Iraq, the wastewater systems use gravity to transport wastewater from homes and businesses to central treatment facilities. The city of Baghdad has many changes in elevation, which require lift stations to pump wastewater to higher elevations. A sewer lift station pumps the effluent to a collection area ensuring the wastewater from lower elevation areas is processed. According to contract file documentation, before this contract was issued, the Mansour Pump Station was overflowing with raw sewage, which ran through the streets of the neighborhood. On August 23, 2006, a firm-fixed-price contract of \$122,950 for the Mansour Pump Station rehabilitation was awarded to a local contractor.

Project Assessment Objective. The objective of this project assessment was to provide real-time project information on a relief and reconstruction project to interested parties to enable appropriate action, when warranted. Specifically, SIGIR determined whether the project was operating at the capacity stated in the original contract. To accomplish the objective, SIGIR determined whether the project was at full capability or capacity when accepted by the government, when transferred to Iraqi operators, and during our site inspections on November 9, and November 29, 2007. We conducted this limited scope assessment in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included an engineer/inspector and an auditor/inspector.

Conclusions. The project intent was to rehabilitate the Mansour Pump Station to make it fully serviceable and functioning. The rehabilitation of the Mansour Pump Station lacked a comprehensive vision and a thorough facility inspection to identify specific problems before the contract was issued. As a result, four separate contracts, with a total value of \$683,400, were awarded to different contractors to rehabilitate the facility. However, after reviewing the available contracts, SIGIR found that there was duplicative work. For example, the Phase 2 contract required the installation of a 350 millimeter vertical pump, but the Phase 3 contract required the contractor to "disconnect the existing burned 350 [millimeter] vertical pump and install a new pump supplied by the Government..." The contract file lacked any documentation to indicate why the 350 millimeter vertical pump, which was installed in January 2006, needed to be replaced with a new pump less than one year later.

Further, the Phase 4 contract required the contractor to “completely service” the same 350 millimeter vertical pump. Consequently, in less than two years, the 350 millimeter vertical pump has been replaced twice and serviced once.

The apparent duplication of effort and materials within the four awarded contracts appears to be the result of a lack of a comprehensive vision to rehabilitate the pump station. For example, an engineer with the United States Army Corps of Engineers for the Phase 3 contract stated that his Statement of Work was “deficient to achieve robust function of this facility.” Additionally, at the conclusion of the Phase 3 work, the United States Army Corps of Engineers determined that the 600 millimeter and 800 millimeter pumps could not be operated because the “750 kilo-volt ampere generator is not working [and] not covered by this [Statement of Work]” and the “350 [millimeter and] the 500 [millimeter pumps] have mechanical problems which are not covered by this [Statement of Work].” Consequently, at the conclusion of the first three contracts, which were valued at \$432,900, the Mansour Pump Station was still not operational - the objective of all three contracts. As a result, a fourth contract, for \$250,500, was awarded one month after the turnover Phase 3 to correct problems identified in the first three contracts.

The lack of an extensive assessment of the pump station by the United States Army Corps of Engineers resulted in the failure of each of the contracts’ Statements of Work to identify and correct the problems necessary to make it fully serviceable and functioning. Without the fourth contract awarded to address the pump station’s mechanical problems, the pump station would remain non-operational.

SIGIR made two visits to the project site. During the first visit, the team observed that sewer water was backed up in the Al Amerea area; however, the backup did not appear to be as rampant as described before the four contracts were issued. During the first visit, only the 500 millimeter vertical pump was operational. According to the pump station operator, there was not sufficient power to run the other three vertical pumps because of a fuel shortage and a broken transformer.

During SIGIR’s second site visit, sewer water was not backed up on the streets as identified on the previous visit. During the second visit, the 350 millimeter and 500 millimeter vertical pumps were operational.

SIGIR determined that the contractor did not install the 600 millimeter and 800 millimeter vertical pump control panels required by the contract; instead the two vertical pumps and motors are directly tied to the 750 kilo-volt generator for power, creating a potentially dangerous situation. The 750 kilo-volt generator requires a step down transformer to properly power the vertical pumps and motors; however, the current transformer on site does not work. Therefore, the 600 millimeter and 800 millimeter vertical pumps remain non-operational.

SIGIR determined the contractor did not install the 100 millimeter submersible pump required by the contract. Instead SIGIR found a severely rusted and corroded submersible pump approximately 20 to 30 years old.

SIGIR confirmed the operability of the 350 millimeter and 500 millimeter vertical pumps and motors; however, the operability of the 600 millimeter and 800 millimeter vertical pumps and motors could not be determined.

Further, two different contracts required the repair or replacement of check valves and gate valves. SIGIR determined that the contractors simply painted over the pre-existing check valves and gate valves.

The execution of the Phase 3 contract was not consistent with the project objective of rehabilitating the Mansour Pump Station to make it fully serviceable and functional. SIGIR determined that at least two vertical pumps need to be operated concurrently to eliminate backed-up sewer water in the neighborhood. However, the Phase 3 contract failed to provide the pump station with adequate power to operate more than one vertical pump at a time. The Phase 4 contract identified this problem and attempted to correct it by servicing the existing on-site generators. However, the pump station needs appropriate sized step-down transformers to take advantage of both the on-site 750 kilo-Volt Amp generator as well as the 5 to 7 hours of daily grid power available to operate the two large vertical pumps (600 millimeter and 800 millimeter).

During preparation for visits to the Mansour Pump Station, SIGIR observed approximately 20 vertical pumps, motors, and accessories at the Gulf Region Central facility. Gulf Region Central representatives told SIGIR that the equipment had been procured in 2005 for use at other pump stations. While not intended for the Mansour Pump Station, SIGIR is concerned that this critical equipment has been sitting idle at Gulf Region Central since 2005. Pump stations throughout Iraq are in need of vertical pumps and motors. In addition, SIGIR observed that the vertical pump motors lying on their sides, which over time will result in degrading of the equipment. Several million dollars in equipment is not being used for its intended purposes, and it is not protected from the elements.

Recommendations. We recommend that the Commander, Gulf Region Central:

1. Provide and install a step-down 11 kilo-volt /3.3 kilo-volt (850 kilo-volt Ampere) transformer with all required cables, main power panel, breakers, sub-panels, distribution panels and control panels for the Mansour Pump Station to capture and use available power from the national grid to operate the 600 millimeter and 800 millimeter vertical pumps.
2. Determine whether the various existing vertical pumps, motors, and associated components at the Gulf Region Central facility are still functional. If they are functional, house them in an area safe from environmental conditions and determine an appropriate project for them.

Management Comments. SIGIR received comments on the draft report from the Gulf Region Division of the United States Army Corps of Engineers concurring with the recommendations and which provided clarifying information for the final report.

Evaluation of Management Comments. Management comments addressed the issues raised in the report. The Gulf Region Division's planned actions are responsive and should identify and correct any potential problems.

SIGIR reviewed the information, documentation, and clarifying comments provided by the Gulf Region Division and revised the final report as appropriate. Comments received are provided verbatim in Appendix D of this report.

Indications of Potential Fraud. During this inspection, we found indications of potential fraud and referred these matters to the Assistant Inspector General for Investigations, Office of the Special Inspector General for Iraq Reconstruction, for such actions deemed appropriate.

Table of Contents

Synopsis	i
Introduction	
Objective of the Project Assessment	1
Pre-Site Assessment Background	1
Contract, Costs and Payments	1
Project Objective, Pre-Construction Description	1
USACE Pre-Construction Assessment	4
Project Design	5
Prior and Subsequent Work Performed	6
Site Progress During Construction	8
Site Assessment	13
Conclusions	32
Recommendations	34
Management Comments	34
Evaluation of Management Comments	35
Appendices	
A. Scope and Methodology	43
B. Acronyms	44
C. Report Distribution	45
D. Management Comments	47
E. Project Assessment Team Members	55

Introduction

Objective of the Project Assessment

The Office of the Special Inspector General for Iraq Reconstruction (SIGIR) is assessing projects funded under the Commander's Emergency Response Program to provide real-time relief and reconstruction information to interested parties to enable appropriate action, when warranted. The objective of this project assessment was to determine whether the project was operating at the capacity stated in the original contract. To accomplish the objective, we determined if the project was at full capability or capacity when accepted by the government, when transferred to Iraqi operators, and during our site inspections on 9 November 2007 and 29 November 2007.

Pre-Site Assessment Background

Contract, Costs and Payments

Contract W917BG-06-D-0007, awarded on 24 March 2006 to a local contractor, was an indefinite delivery/indefinite quantity (ID/IQ) contract, with a 12-month base year and two 12-month option years. The Not to Exceed amount of the contract was \$20 million.

Delivery Order (DO) 0002 of contract W917BG-06-D-0007 was issued on 23 August 2006. The contract was a firm-fixed-price contract in the amount of \$122,950.

DO 0002 contained one modification. Modification P00001, dated 10 December 2006, changed the project's Statement of Work (SOW), and extended the completion date from 19 November 2006 to 3 January 2007. The changed SOW and time extension resulted in no additional charge to the government.

Based on project file documentation, the Notice to Proceed was issued in September 2006 and the project was completed in March 2007.

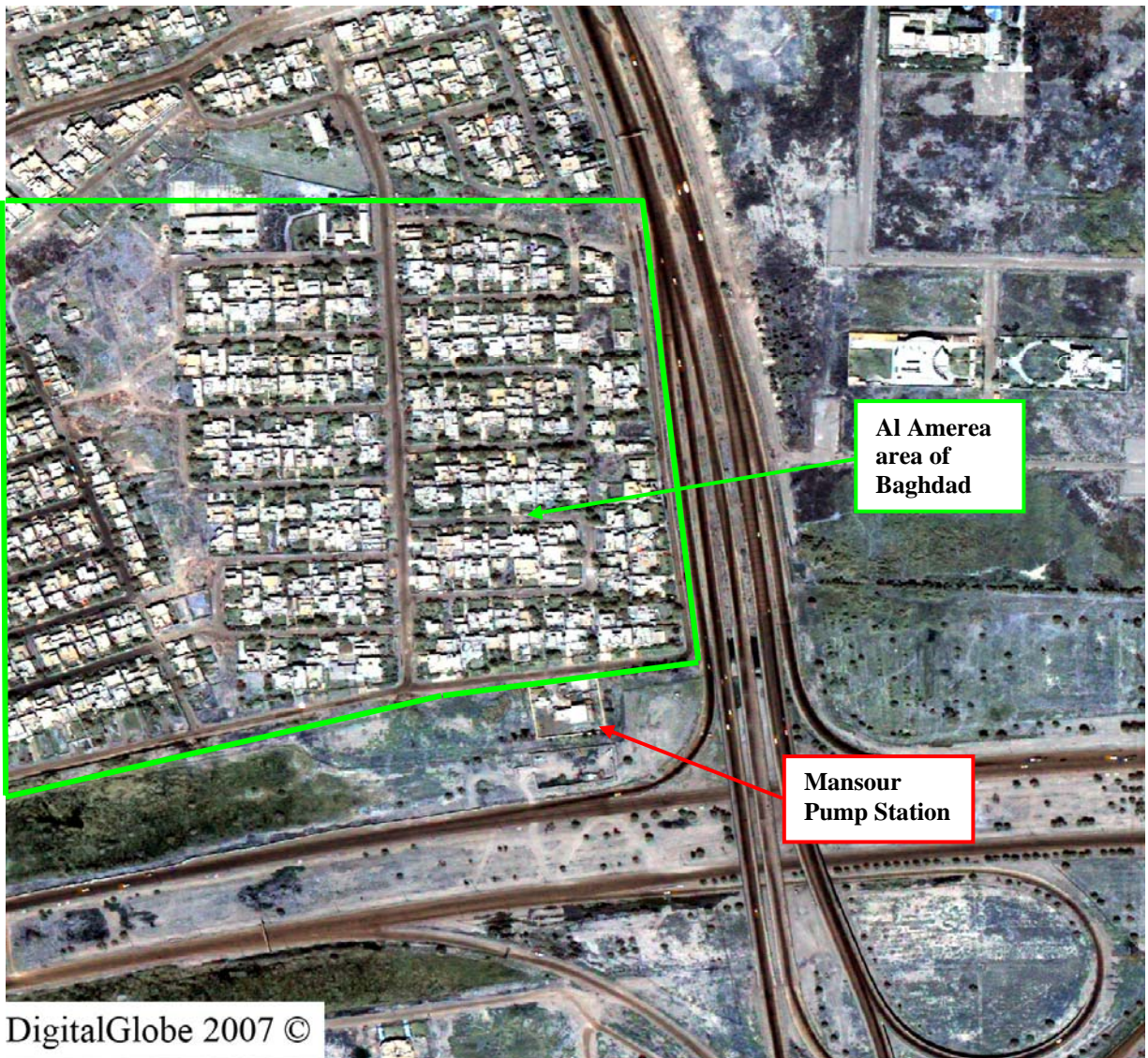
Project Objective, Pre-Construction Description

The description of the facility before construction was based on information obtained from the contract and the United States Army Corp of Engineers (USACE) project file. The objective of the project was to rehabilitate the Mansour Pump Station to improve the sewer system in the Al Amerea area. Specifically, this project was to make the Mansour Pump Station "fully serviceable" and functioning. The Al Amerea area is a predominantly residential neighborhood consisting of approximately 20 blocks of one and two-story houses and some small businesses (Aerial Image 1).

The Mansour Pump Station, located in Baghdad, Iraq, is the sewage water lift station for the Al Amerea area. A sewer lift station is often used to control the sewage treatment across several areas or neighborhoods. In Iraq, the wastewater systems use gravity to transport waste from homes and businesses to provide water treatment at a central facility. In the city of Baghdad, there are many changes in elevation requiring the use of lift stations to pump the wastewater to a higher elevation. A

sewer lift station pumps the effluent to a collection area, ensuring the waste from lower elevation areas is processed.

For this particular pump station, sewer water enters the pump station from the west, settles in the wet well where screens remove large objects which cannot pass through the pumps, and is then lifted (i.e. pumped) out of the station to the east to the next manhole (Figure 1).



Aerial Image 1. Aerial view of the Mansour Pump Station and the Al Amerea Area.



Step 1: Sewer water from the street enters into the wet well, where it is screened for objects too large to pass through the pumps

Step 2: The screened sewer water enters into the pump station

Step 3: Individual motors power the vertical pumps to “lift” the water up and out of the station to the next manhole

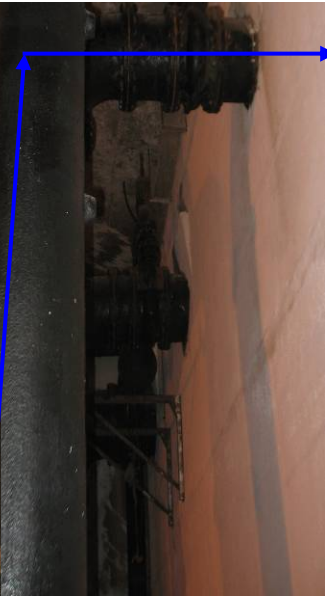
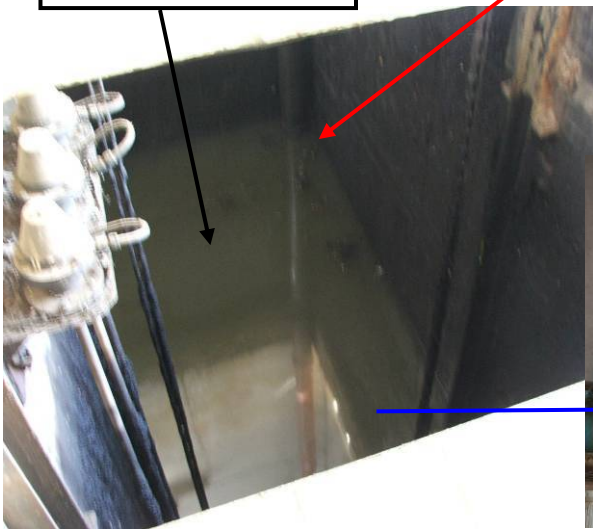


Figure 1. Flow of sewer water into and out of the Mansour Pump Station in the Al Amerea area. Steps 1 through 3 of the pumping process.

The pump station, located within a concrete-gated compound, consists of three buildings, three generators, and four transformers. The pump station is located in the largest building, which is a two-story structure originally constructed in the 1970s. The electrical control panels and motors are located on the ground floor and the basement houses the wet well in one room and the submersible pump in a separate room. The transformers and an office for the pump station operator are located in separate buildings (Figure 2).

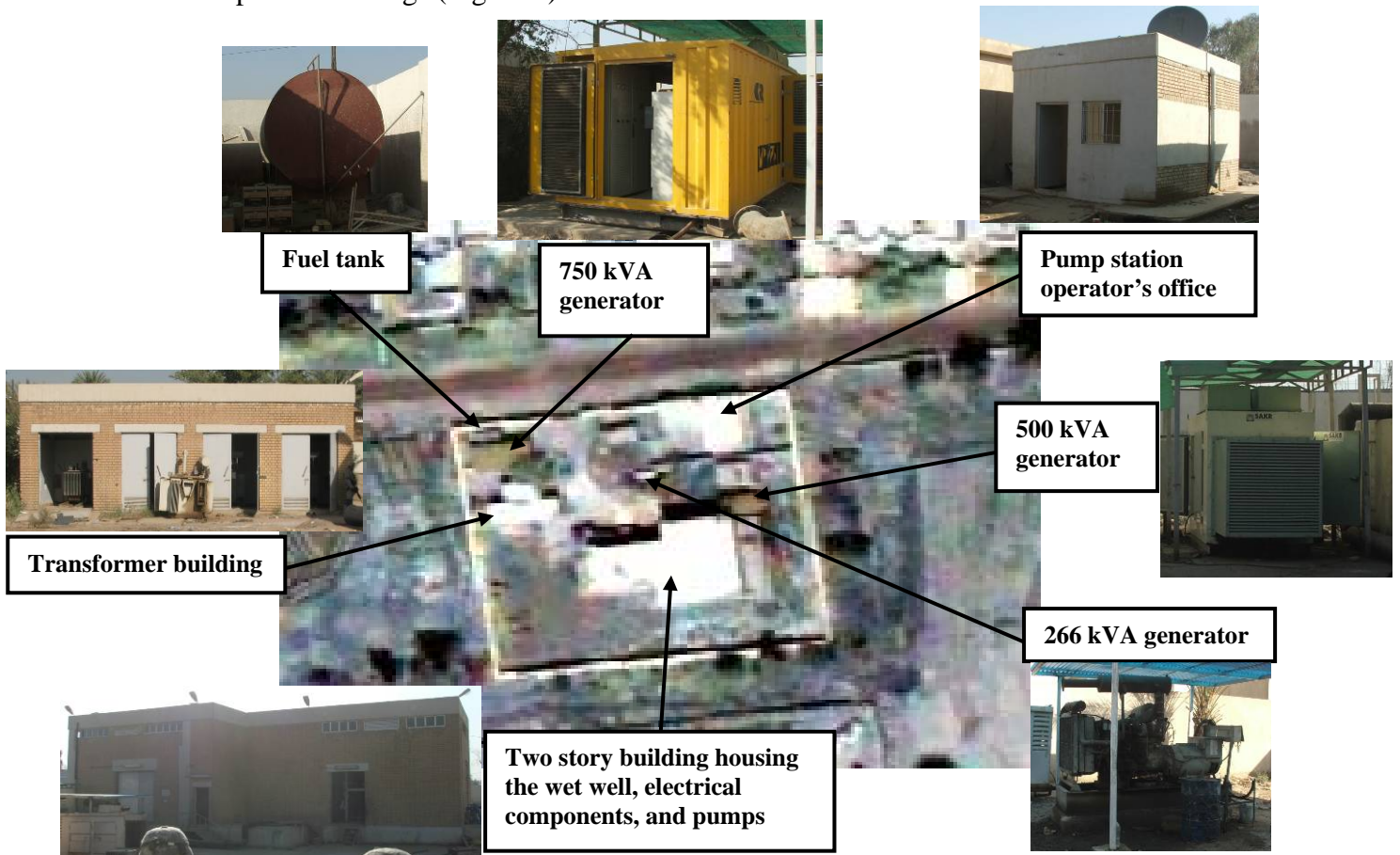


Figure 2. Breakdown of the Mansour Pump Station compound. Aerial Image provided by DigitalGlobe 2007 ©.

USACE Pre-Construction Assessment

Prior to rehabilitation, the Mansour Pump Station suffered from years of little, or no, maintenance. Residents of Al Amerea complained of backed up sewer lines throughout the neighborhood, which required the residents to wade through large pools of sewage water when leaving and entering their homes. Consequently, the situation left the neighborhood residents in constant threat of disease and illness.

According to the ID/IQ contract, the contractor "...shall visit the project site with the COR [Contracting Officer Representative] and/or other Government representatives and may support project scope of work development by performing a site survey or a facility assessment." The project file lacked any documentation to indicate the USACE performed an on-site inspection prior to the start of this project to identify the actual conditions of the pump station. According to contract file documentation, the first recorded visit by a USACE representative to the site was on

5 December 2006. Even though residents had complained of backed up sewer lines throughout the neighborhood, a thorough inspection was necessary to identify if the pump station was responsible or if the neighborhood lines were blocked (or both).

According to USACE documentation, the electrical control panels and components for the existing submersible pumps were in desperate need of replacement. To remedy this situation, the USACE developed a SOW in August 2006; however, in December 2006 the SOW was modified.

Project Design

The SOW required the replacement of non-operational vertical pumps and control panels, which did not require design drawing submittals.

Statement of Work

The USACE's modified SOW to rehabilitate the Mansour Pump Station required the contractor to perform the following:

- Supply and install a control panel to operate the 350 millimeter (mm) vertical pump
- Supply and install a control panel to operate the 500 mm vertical pump with 180 kilowatt (kW) electrical motor
- Supply and install all electrical components only which operate the 800 mm vertical pump, with 315 kW electrical motors, 3,300 volts
- Supply and install a control panel to operate the 600 mm vertical pump, with 200 kW electrical motors, 3,300 volts
- Supply and install a 100 mm submersible pump for dry well, Western original, with control panel and 100 mm discharge galvanized pipe with total length of 15 meters (m) provided with check valve and gate valve
- Supply and install a control panel to operate the 300 mm vertical pump¹
- Supply and install a control panel to operate the main power supply
- Disconnect the existing burned 350 mm vertical pump and install a new pump supplied by the government/9th Engineering Battalion

Adequacy of Statement of Work

The lack of a thorough examination of the pump station prior to the issuance of the contract was obvious after we reviewed the SOW. After reviewing the USACE's original and modified SOWs, it appears the intent was to repair the pump station's electrical system. While the SOW appears adequate to repair the non-operational electrical components, the pump station suffered from additional significant deficiencies. For example, the existing on-site generators needed to power the pumps were non-operational and the pumps were old and in need of repair/replacement. However, it was not until February 2007 that the USACE became aware of this problem. On 21 February 2007, after the contractor indicated the repairs to the electrical system were complete, a local national USACE representative stated there would be "difficulty of testing" the 350 mm, 500 mm, 600 mm, and 800 mm pumps. According to the local national USACE representative, the "600 mm and 800 mm pumps get operated by the H.T. [high tension] panel which can not be operated because the 750 KVA [kilovolt-amp]

¹ The contract called it a "300 mm vertical pump; however, it is actually a 300 mm submersible pump.

generator is not working & not covered by this SOW” and the “350 mm & the 500 mm have mechanical problems which are not covered by this SOW...the 500 KVA generator is not working. Thus no power can be supplied to operate the 500 mm pump.”

Prior and Subsequent Work Performed

During the course of our assessment, we determined at least three additional contracts, worth a total of \$560,450, have been awarded to rehabilitate the Mansour Pump Station. Two contracts, in the amounts of \$122,000 and \$187,950, were awarded in December 2004 and August 2005², respectively; while another contract, in the amount of \$250,500, was awarded in April 2007³.

It appears the rehabilitation of the Mansour Pump Station was to be a four-phase effort. However, the available project files lack a comprehensive vision of the exact overall objective. All four contracts were awarded to different contractors. Since the objective of all four phases was to rehabilitate the pump station, we will partially discuss the adequacy of work of all four projects; however, our main focus is on the contract for the third phase, which was awarded in August 2006.

The contract file for the first phase contract, awarded in December 2004, could not be located. From discussions with the 2nd Brigade, 1st Infantry Division (2-1 ID) personnel, the review of the other project files, and observations made during the site visit, it appears this contract delivered a 750 kilo-Volt Amp (kVA) generator to the Mansour Pump Station.

According to the contract file, the second phase contract, which was awarded in August 2005, required the contractor to perform the following:

- Install the 350, 500, 600, and 800 mm vertical pumps (including pumps, motors, and control panels)
- Complete rehabilitation of the 350, 500, 600, and 800 mm check valves
- Complete rehabilitation of the 350, 500, 600, and 800 mm gate valves
- Complete rehabilitation of motorized screens
- Rehabilitate the 7-ton crane
- Complete rehabilitation of all generator and prime power electrical control panels
- Service the 750 kVA and 350 kVA generators
- Construct reinforced concrete base and supply and install 10 cubic meter fuel tank

According to the project file, the fourth phase contract, which was awarded in April 2007, required the contractor to perform the following:

- Completely service all four vertical pumps (replace all worn or damaged bearings and seals with new components)

² Both contracts were awarded and completed prior to the contract we are inspecting for this assessment.

³ This contract was awarded after the completion of the contract that is the subject of this inspection assessment.

- Supply and install new transmission shafts for the 350, 500, and 600 mm vertical pumps
- Completely repair or replace the check valves for all four vertical pumps
- Supply and install new hoist crane control panel and any other repairs to return the crane to like new working condition
- Completely service and repair the inlet screens
- Service and repair the 750 kVA and 500 kVA generators

Review of All Available Statements of Work

After reviewing the three available SOWs to rehabilitate the Mansour Pump Station, there appears to be duplicative work involved. For example, the Phase 2 contract required the installation of a 350 mm vertical pump; while the Phase 3 contract required the contractor to "...disconnect the existing burned 350 mm vertical pump and install a new pump supplied by the Government..." The contract file lacked any documentation to indicate why the 350 mm vertical pump, which was installed in January 2006, needed to be replaced with a new pump less than one year later. Further, the Phase 4 contract required the contractor to "completely service" the same 350 mm vertical pump. Consequently, in less than two years, the 350 mm vertical pump has been replaced twice and serviced once.

The GRD officials disagreed with our assessment, stating that there was "minimal duplication of work." However, this statement contradicts the reality of the work done at the pump station. An obvious example of the duplication of work within multiple contracts is the installation of the vertical pump control panels. The Phase 2 contract required the contractor to install the four vertical pump control panels. GRD officials determined that at the conclusion of the Phase 2 contract, the "contractor did not provide the control panels" even though the contract was considered 100% complete and the contractor was paid for the installation. Consequently, the Phase 3 contract required a different contractor to supply and install the control panels the previous contractor did not supply or install.

Upon further review, the Phase 4 contract appears to be almost identical to the Phase 2 contract. For instance, the Phase 2 contract required the installation of the four new vertical pumps; while the Phase 4 contract required the contractor to supply and install new transmission shafts for the vertical pumps and "completely service" the pumps. In addition, the Phase 2 contract required the contractor to perform a complete rehabilitation of the motorized screens; while the Phase 4 contract required the contractor to "completely service and repairs [sic]" the inlet screens. The Phase 2 contract required the contractor to rehabilitate the four vertical pump check valves; while the Phase 4 contract required the contractor to "completely repair or replace the check valve" for the four vertical pumps. Finally, the Phase 2 contract required the contractor to "service" two generators; while the Phase 4 contract required the contractor to "service" two generators.

The apparent duplication of effort and materials within the four awarded contracts appears to be the result of a lack of a comprehensive vision to rehabilitate the pump station. For example, a USACE engineer for the Phase 3 contract stated that his SOW was "deficient to achieve robust function of this facility." In addition, at the conclusion of the Phase 3 work, the USACE determined that the "600 mm [and] 800 mm pumps" cannot be operated because the "750 KVA generator is not working & not covered by this SOW" and the "350 mm [and] the 500 mm [pumps] have mechanical problems which are not covered by this SOW." Consequently, at the

conclusion of the first three contracts, valued at \$432,900, the Mansour Pump Station was still not operational, which was the objective of all three contracts. As a result, a fourth contract, in the amount of \$250,500, was awarded one month after the turnover of the third phase to correct problems identified in the first three contracts.

The lack of an extensive assessment of the pump station by the USACE resulted in SOWs for the first three contracts that did not identify and correct the problems necessary to make the pump station fully serviceable and functioning. Without the fourth contract awarded to address the pump station's mechanical problems, the pump station would be non-operational.

Site Progress During Construction

The Phase 3 project file contained progress photographs taken by the contractor and USACE representatives. We reviewed and subsequently relied on selected photographs to document examples of construction practices and techniques employed by this particular contractor prior to the project being turned over in March 2007.

Installation of Control Panels for the Vertical Pumps

The contract required the contractor to supply and install control panels for the four vertical pumps. Neither the ID/IQ contract nor the DO required the contractor to conform to any international or local standards, such as the following:

- International Existing Building Code (IEBC)
- International Electro-Technical Committee (IEC)
- International Fire Code (IFC)
- American Society for Testing and Materials (ASTM)
- International Mechanical Code (IMC)

In addition, the contract did not mention that the equipment enclosure types should be in compliance with the National Electrical Manufacturer's Association or the International Electro-Technical Committee's standards.

The USACE contract file documentation provided photographs of the contractor during installation of the electrical control panels and the finished product (Site Photos 1 and 2).



Site Photos 1 and 2. Contractor installation of the electrical control panels and the installed control panels.
(Photos courtesy of USACE)

Installation of 100 mm Submersible Pump

The contract required the contractor to “...supply and install a 100 mm submersible pump for the dry well, Western original, with control panel and 100 mm discharge galvanized pipe with total length of 15 m provided with check valve and gate valve.”

The USACE contract file documentation provided photographs of the contractor while installing the galvanized pipe for the submersible pump (Site Photos 3 and 4). According to the quality control (QC) report, dated 27 January 2007, the contractor “complete install the Submersible”; however, no quality assurance (QA) reports mentioned the installation of the contract-required submersible pump. The QC report did not provide any photographic evidence to document the installation of the submersible pump.



Site Photo 3 and 4. Contractors installing the galvanized pipe for the submersible pump.
(Photos courtesy of USACE)

Installation of 350 mm Vertical Pump

The contract required the contractor to “...disconnect the existing burned 350 mm vertical pump and install a new pump supplied by the Government/9th Engineering Battalion.”

The USACE contract file lacked documentation that the contractor installed the government-provided 350 mm vertical pump. Several QC reports mentioned the completed installation of the 350 mm vertical pump; however, there were no photographs provided to support this claim. The QC reports documented the delivery of the new motor for the 350 mm vertical pump (Site Photo 5), but there were no photographs of the actual contract-required vertical pump.



**Site Photo 5. Delivery of the new motor for the 350 mm vertical pump.
(Photo courtesy of USACE)**

Lack of Quality Management

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.”

We reviewed the contract files for Phases 2 and 3 to determine the adequacy of the QC reports. According to USACE representatives, no QC reports were completed for the September 2005 contract; while infrequent and inadequate QC reports were completed for the October 2006 contract. The QC daily reports were vague when describing work accomplished (“complete manufactures the first group of border, cable and transformer”); while not a single daily QC report identified a construction deficiency or an international code violated at the pump station. The daily QC reports did not contain any test and/or inspection results. The contractor did not

provide any test results for any of the work done for this project. Therefore, it is uncertain if any of the electrical systems were tested prior to turn over.

USACE ER 1110-1-12 and the Project and Contracting Office (PCO) Standard Operating Procedure (SOP) CN-100 specified requirements for a government QA program. Specifically, PCO SOP CN-100 provides guidance for the USACE Gulf Region Division (GRD) staff to "...ascertain if the contractor CQC [contractor quality control] system is functioning and the specified level of construction quality is being attained."

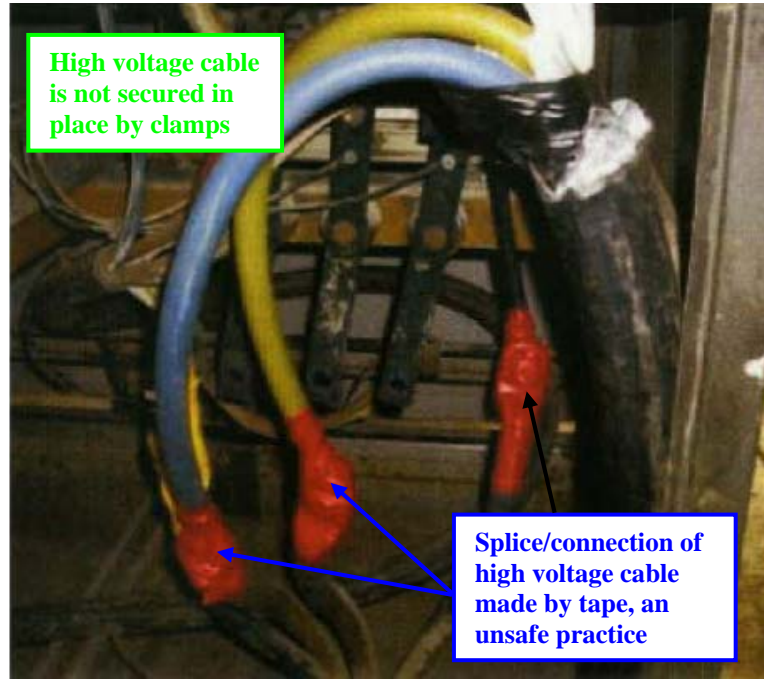
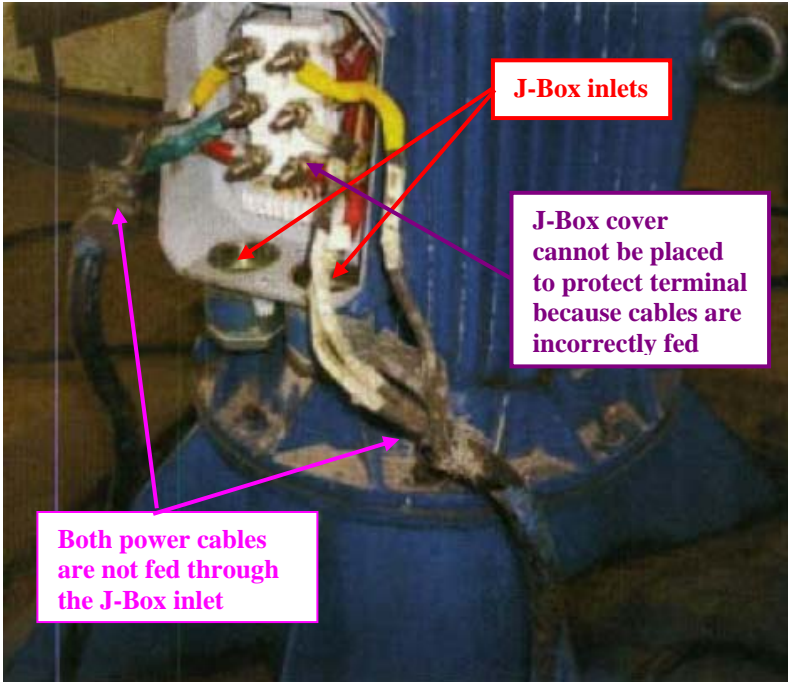
In many cases, the daily QA reports were vague regarding the work performed ("work on install the interior lights wires for the water pump room") and provide little insight into any problems encountered at the site. For example, in the 18 September 2005 daily QA report, the Quality Assurance Representative (QAR) stated the following:

"The location of the fuel tank in the middle of the two generators, the distance between the fuel tank and the 750 KVA generator less than 2.8 m, protection wall may need to construct between the fuel tank and the generator, also fuel spill containment needed to construct for the fuel tank..."

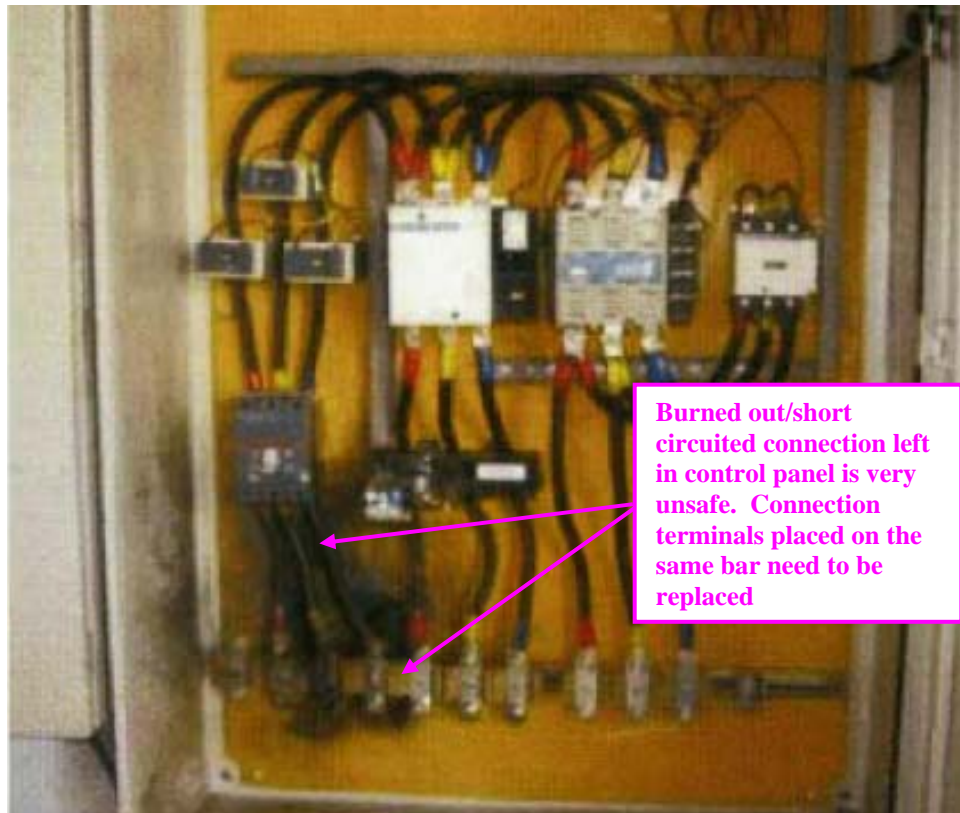
On 17 February 2007, the Phase 3 contractor notified the USACE that he had "finished all job on site." This was confirmed by the USACE QAR, who stated on 15 February 2007 that the pump station "is 100% finished & ready to do final inspection." On 19 February 2007, a final inspection was performed by the USACE, which concluded that the "project does not work" and identified 7 significant deficiencies, such as the motors not properly connected and the 100 mm submersible pump was not connected to the control panel.

According to the GRD officials, the 19 February 2007 final inspection report was its deficiency log. However, the standard practice is to document and track construction deficiencies in a real time mode to ensure corrective actions are taken as the project progresses. Had a daily QA deficiency log been adequately maintained, the 7 significant deficiencies would have been previously identified and corrected prior to the final inspection. Generally, a final inspection determines whether the contractor has satisfactorily completed contract requirements and that final payment can be made. It is not a substitute for the daily QA deficiency log.

A review of the photographs taken during the final inspection provides insight into the installation techniques and practices employed by the Phase 3 contractor. For example, the contractor used very poor and potentially dangerous installation techniques while attempting to connect a vertical pump motor (Site Photo 6) and the 100 mm submersible pump control panel (Site Photo 7). Finally, the USACE representative performing the final inspection had to point out that an electrical fire within the 300 mm vertical pump control panel necessitated repair of the control panel (Site Photo 8). The electrical fire is evidence of poor installation techniques used by the contractor.



Site Photos 6 and 7. Dangerous installation connecting the vertical pump motor and the 100 mm submersible pump control panel.
 (Photos courtesy of USACE)



Site Photo 8. Electrical fire within the 300 mm vertical pump control panel.
 (Photo courtesy of USACE)

Without detailed QC and QA daily reports to document the installation techniques employed by the contractors, we cannot determine if any of the vertical pumps were properly installed. Considering at least one vertical pump, in less than two years, needed to be replaced twice and serviced once, it appears two contractors did not properly install the pump. The contract files do not mention the reason why the new pumps failed.

In addition, the daily QC and QA reports do not mention testing. Some QC reports provided a close-up photograph of a control panel as verification that it was operational. However, the reports do not mention which control panel it was or the situation and duration of any testing. Further, we question any test results, since at the conclusion of the third project, the USACE stated the two generators used to operate the four vertical pumps did not work. There is no explanation as to how the control panels were tested without power.

Warranties

The Phase 2 contract required the contractor provide a warranty for a "...period of 1 year from the date of final acceptance of the work."

The Phase 3 ID/IQ contract required, as the final step of project acceptance by the government, the turnover of deliverables, such as Operations and Maintenance (O&M) documentation and manuals, and warranty information.

The contract file lacked any O&M documentation, manuals, and warranty information for the new equipment purchased and installed for the Phase 3 contract, such as the new 100 mm submersible pump and the 350 mm vertical pump.

The Phase 2 contract required the installation of the 350 mm vertical pump, which, according to GRD documentation, was completed in January 2006; while the Phase 3 contract required a different contractor in August 2006 to "disconnect the existing burned 350 mm vertical pump" and to install a new pump. Considering the 350 mm vertical pump was less than 9 months old at the time of the Phase 3 contract, the Phase 2 contractor should have been required to perform, under the warranty, repair/replace the "burned" vertical pump. However, without any warranty information within the contract files, the warranties for both Phases 2 and 3 cannot be enforced.

Site Assessment

On 9 November 2007 and 29 November 2007, with assistance from 2nd Brigade, 1st Infantry Division (2-1 ID) personnel, we performed on-site assessments of the Mansour Pump Station project. Since the objective of the contracts for all four phases was to rehabilitate the pump station, we will partially discuss the adequacy of work of all four projects; however, our main focus is on the contract for the third phase, which was awarded in August 2006.

Due to security reasons, we had to perform an expedited on-site assessment, with each site visit lasting approximately 30 minutes.

General Observations – 9 November 2007 Visit

During our first site visit, we identified streets in the Al Amerea area with backed up sewer water and streets with no sewer water back up (Aerial Image 2 and Site Photos 9-11). While we conducted our site visit, a concerned resident of the area angrily complained about the backed up sewer water on his street.

At the time of our site visit, only one vertical pump was operating. According to the contractor and pump station operator, the reason the other vertical pumps were not being used was due to a limited allocation of fuel for the generators and the non-operational condition of a transformer. The one operating vertical pump (500 mm) was powered by the on-site 266 kVA generator.



**Aerial Image 2. Overview of the Al Amerea area
(Provided by Digital Globe 2007 ©)**



Site Photo 9. Neighborhood street in Al Amerea



Site Photos 10 and 11. Flooded streets in the Al Amerea area

General Observations – 29 November 2007 Visit

In an effort to determine if backed up sewer water was still affecting the Al Amerea area, we conducted a second site visit. The streets we previously identified with backed up sewer water were dry (Aerial Image 3 and Site Photos 12 and 13).

At the time of the second site visit, two vertical pumps, the 350 mm and 500 mm, were operating via power from the on-site 266 kVA generator.



Aerial Image 3. Overview of the Al Amerea area with the previously flooded section highlighted.



Site Photos 12 and 13. Previously flooded streets in the Al Amerea area are now dry

Installation of control panels for the vertical pumps

During our site visit, we identified the control panels for the 350 mm and 500 mm vertical pumps. The two control panels were locked, so we could not gage the quality of the contractor's work; however, the control panels appeared to successfully operate the two vertical pumps. Earlier in this report, we identified an example of the contractor's dangerous electrical wiring techniques which resulted in an electrical fire. Consequently, we have concerns about the potential state of the electrical wiring in the control panels.

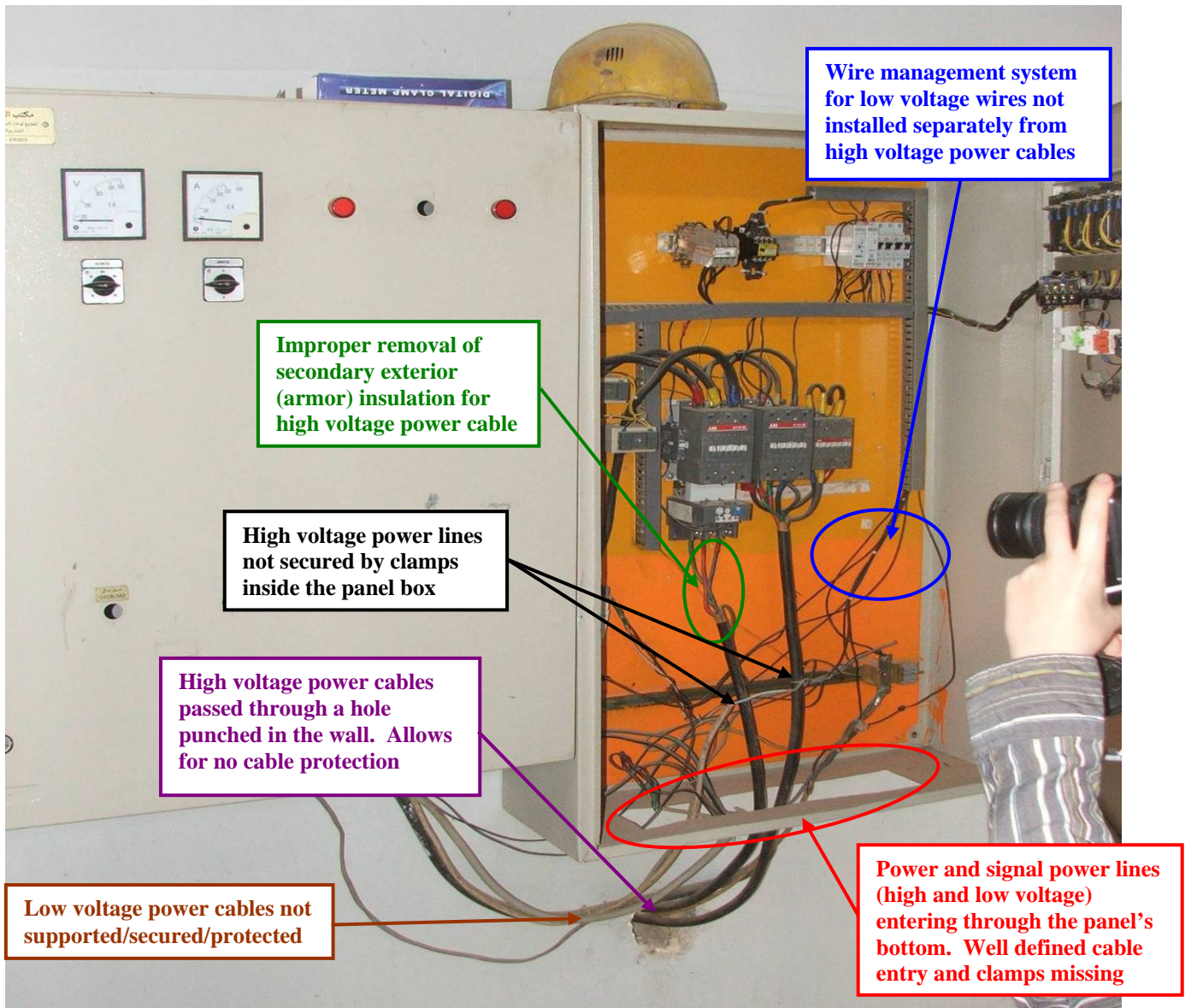
According to GRD officials, the Phase 2 contractor was paid in full even though he neither provided nor installed the four vertical pump control panels. As a result, the Phase 3 contract required the supply and installation of the four vertical pump control panels. However, according to the pump station operator, the Phase 3 contractor never installed the control panels for the 600 mm and 800 mm vertical pumps.

Consequently, two separate contractors were required to supply and install four vertical pump control panels; yet only two control panels were installed, even though each contractor was paid in full.

Further, without control panels, the 600 mm and 800 mm vertical pumps and motors were directly tied to the 750 kVA generator for power, a potentially dangerous situation. In addition, the 750 kVA generator requires a step down transformer to properly power the vertical pumps and motors; however, the current transformer on site does not work. Therefore, the pump station operator stated he was unable to use the 600 mm and 800 mm vertical pumps.

Installation of control panel for the 300 mm submersible pump

We located the control panel for the 300 mm submersible pump (Site Photo 14) and identified potentially hazardous electrical wiring techniques, which leaves the pump station at risk for either a malfunction or a fire. For example, high voltage power cables and low voltage signal cables dangle and cross each other, which increase the chance of pump and/or motor failure via electromagnetic disruption. In addition, one high voltage wire was terminated short, which increases the potential for an electrical fire.

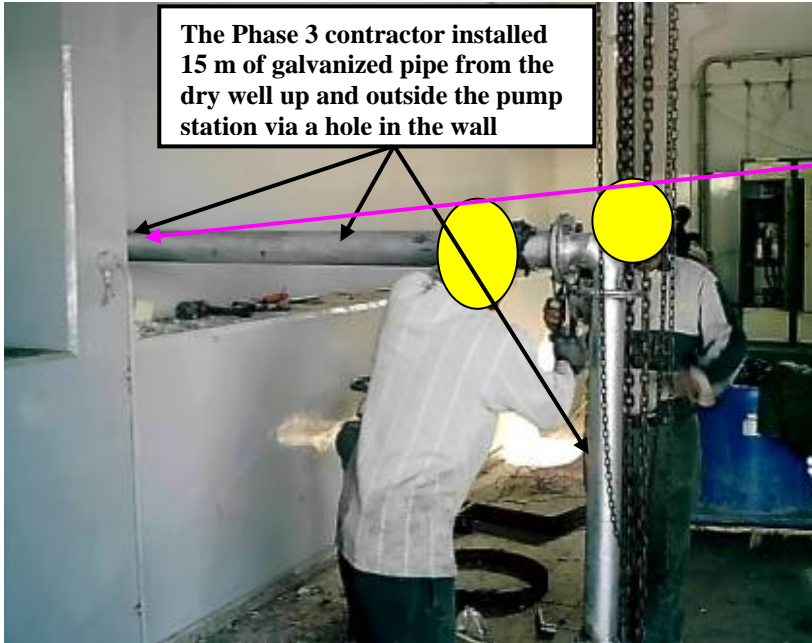


Site Photo 14. Control panel for the 300 mm submersible pump

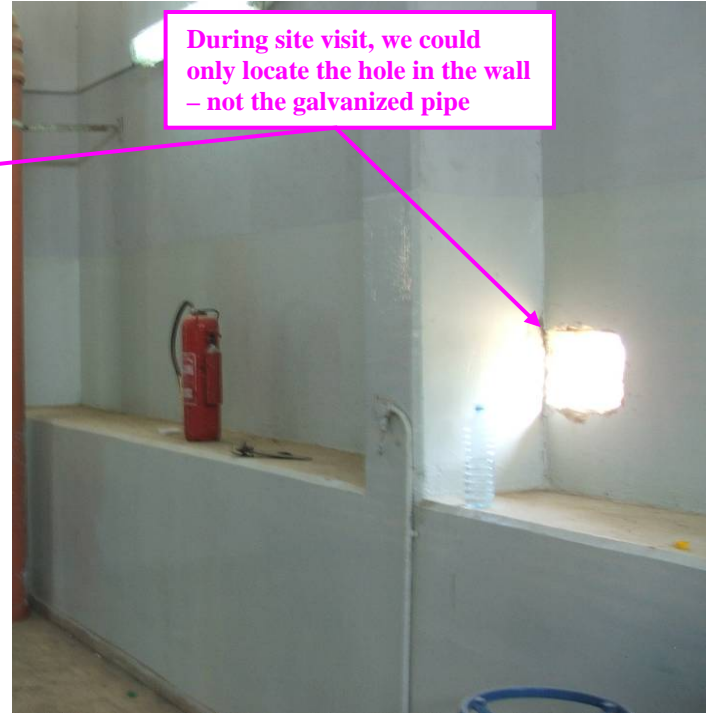
Installation of 100 mm submersible pump

As mentioned in the Site Progress During Construction section, the 27 January 2007 daily QC report stated the contractor installed the 100 mm submersible pump; however, no QA daily reports mention the installation of the submersible pump and no photographic evidence is available in the contract file.

During our site visits, we first noticed that the galvanized pipe for the submersible pump that was installed by the contractor had been removed (Site Photos 15 and 16).



Site Photo 15. Installation of the 15m galvanized pump by the contractor. (Photo courtesy of USACE)



Site Photo 16. Location of where the 15m of galvanized pump and the 100mm submersible pump should be.

Inside the dry well, the pump station operator identified the 100 mm submersible pump (Site Photo 17), which was heavily rusted and corroded. We determined the submersible pump to be approximately 20-30 years old. The pump station operator stated this was the pre-existing submersible pump. Apparently, the galvanized pipe was never “installed” by the contractor; instead it was temporarily used to empty water within the dry well and then removed. The pump station operator stated a new submersible pump was never installed by the contractor and the current location of the galvanized pipes is not known. Consequently, the contractor was paid \$16,900 for a 100 mm submersible pump and 15 m of galvanized pipe not provided for the pump station.



Site Photo 17. Heavily rusted and corroded 100 mm submersible pump

Installation of 350 mm vertical pump

According to GRD officials, the Phase 2 contractor did not supply or install the contract-required control panels for the four vertical pumps, including the 350 mm vertical pump. According to the QA report, after the Phase 2 contractor installed the new 350 mm vertical pump, it was temporarily connected to the low tension board. Within 8 months of this “temporary” connection to the low tension board, the Phase 3 contract described the 350 mm vertical pump as “burned” and in need of replacement. In lieu of any contradictory evidence within the Phase 2 and 3 contract files, it appears the connection of the 350 mm vertical pump to the low tension board caused the pump to short circuit and burn up. Consequently, the failure of the contractor to provide and install the contract-required control panel resulted directly in the irreparable damage to the 350 mm vertical pump.

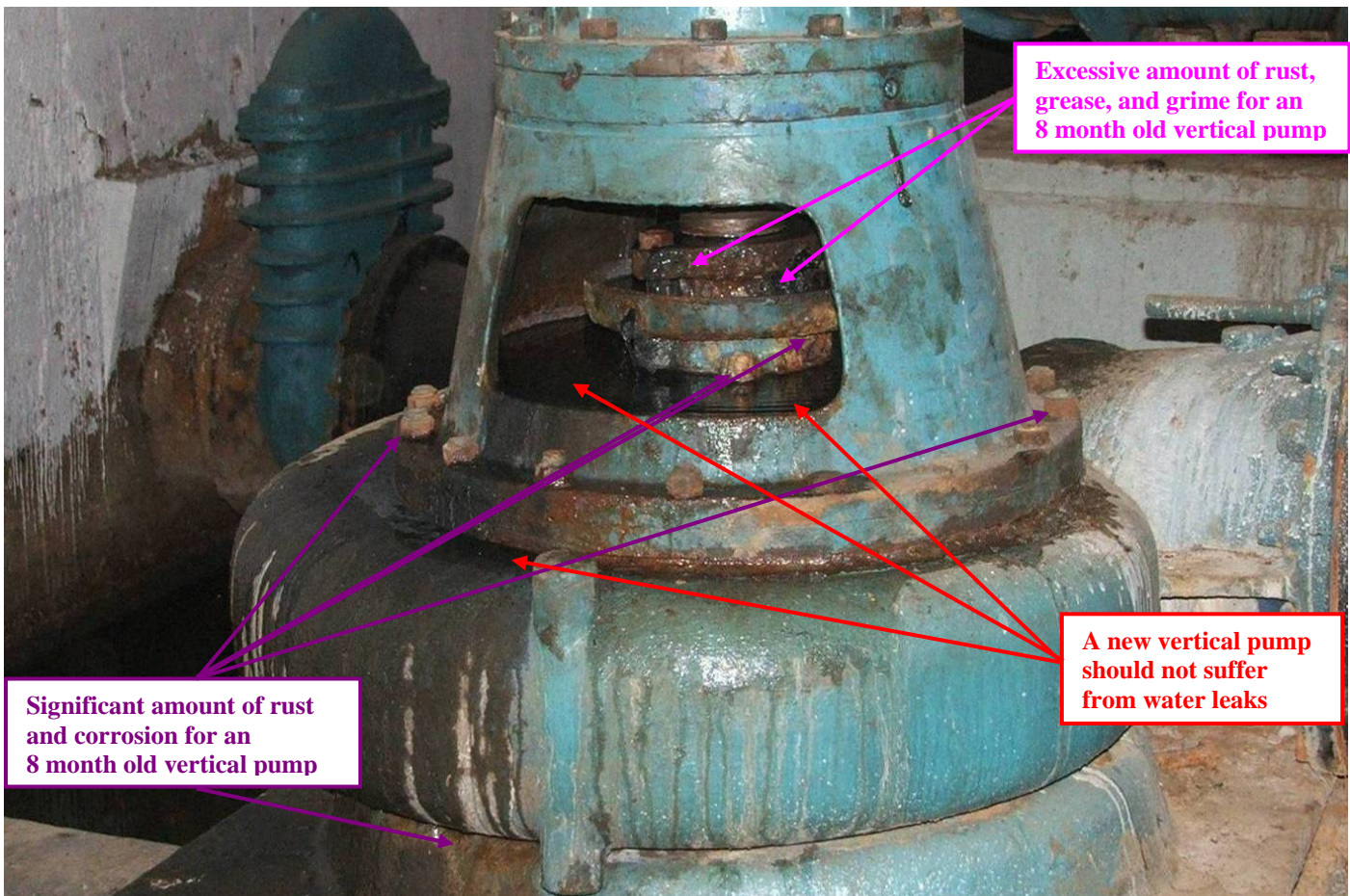
During our site visits, we identified the 350 mm vertical pump (Site Photo 18). During our second site visit, the 350 mm vertical pump was operational and appeared to be working.

The Phase 3 contract file lacked any documentation to identify the government-provided pump, such as a serial number or make and model. We could not conclusively determine the condition of the 350 mm vertical pump prior to installation. According to the contract

file, this pump was installed in March 2007; however, we identified significant amounts of rust and corrosion on this pump, which causes us to seriously doubt the claim this is a new pump. For example, the excessive amount of rust and grease around the nuts and bolts area is highly suspect for a “new” pump installed approximately 8 months ago (Site Photo 19). Also, the significant amount of water leakage from this pump causes us to believe this pump is either not new or not properly installed. A newly and properly installed vertical pump should not suffer from the significant water leakage we witnessed (Site Photo 20).



Site Photo 18. 350 mm vertical pump

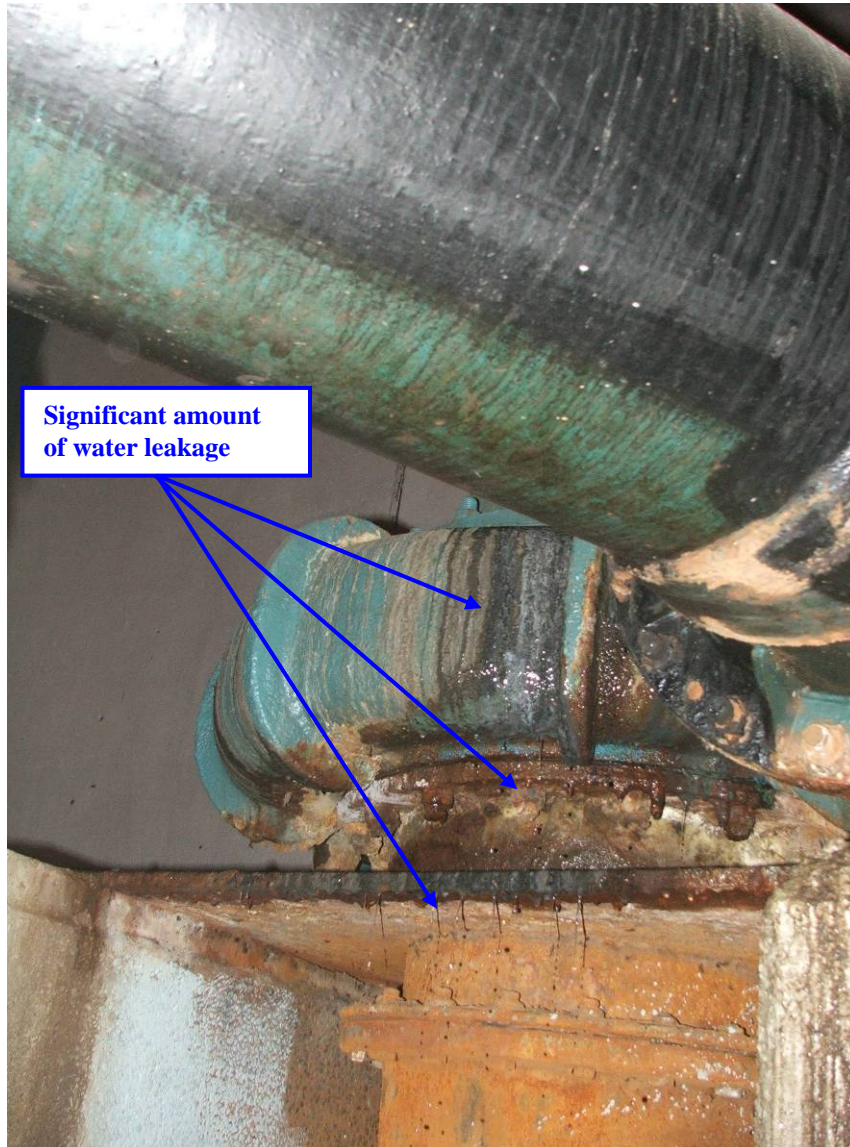


Excessive amount of rust, grease, and grime for an 8 month old vertical pump

A new vertical pump should not suffer from water leaks

Significant amount of rust and corrosion for an 8 month old vertical pump

Site Photo 19. Rust indicates that the 350 mm vertical pump is either not new or not properly installed



Site Photo 20. Significant water leaking witnessed from the 350 mm vertical pump

Other Observations

Installation of 350 mm, 500 mm, 600 mm, and 800 mm vertical pumps

The Phase 2 contract, awarded in August 2005 and “completed” in January 2006, required the installation of the 350 mm, 500 mm, 600 mm, and 800 mm vertical pumps, which included the pumps, motors, and control panels.

Phase 2 contract file documentation showed photographs of the installation of the four vertical pumps. For instance, Site Photo 21, which shows the installation of the 800 mm vertical pump, came from a daily QAR report.

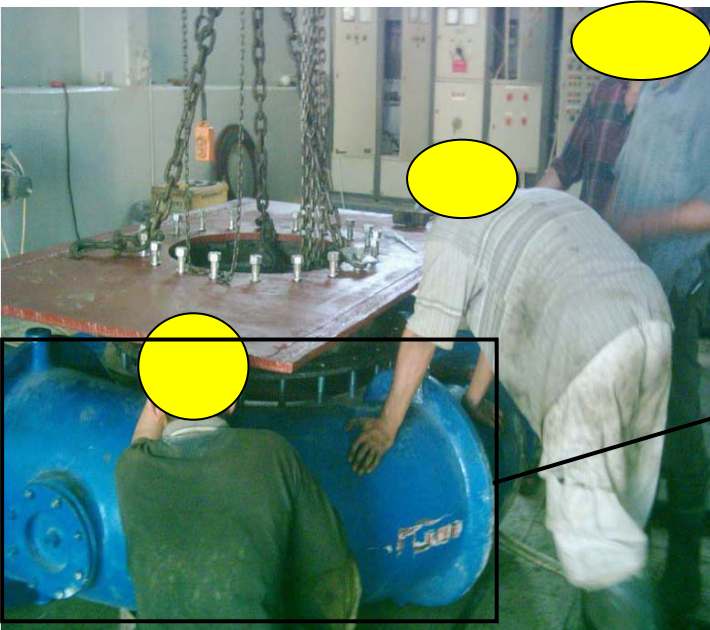
Without any contract file documentation to determine the condition of the vertical pumps prior to installation, we closely reviewed the vertical pumps from the QAR photographs. All we could determine was that, while sometimes cosmetically damaged, the vertical pumps appeared to be in relatively good condition (i.e. no rust or holes) (Site Photo 22).

During our site visits, we identified significant amounts of rust on the bottom of all four vertical pumps and the nuts and bolts connecting the vertical pumps to the outlet pipes. For example, in the case of the 800 mm vertical pump, the bottom of the pump is severely rusted as well as the nuts and bolts connecting it to the outlet pipe (Site Photos 23 and 24). There are only two possible reasons to explain the significant amount of rust on the bottom of the newly installed vertical pumps – either the pumps installed were used (and previously rusted) or the contractor did not properly install the vertical pumps. Poor installation of the vertical pumps would result in water overflowing the pump causing rust to form.

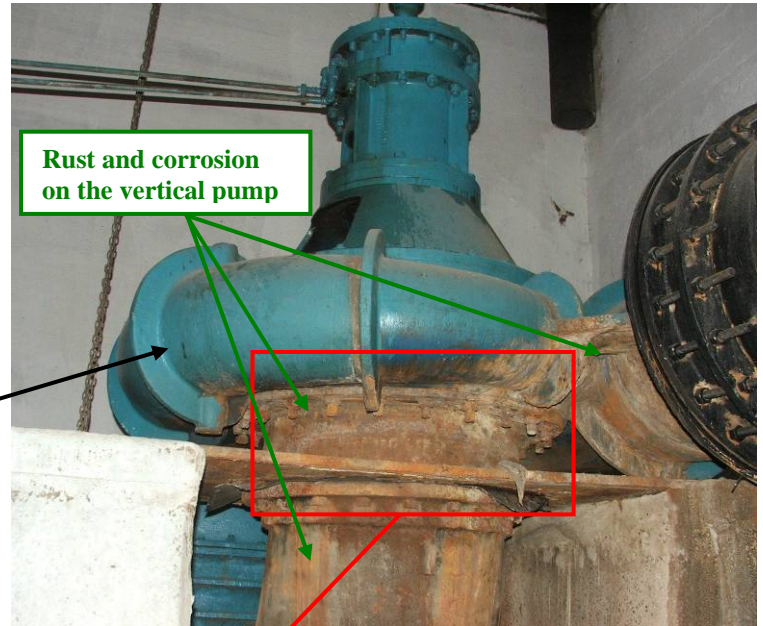
We could not determine if the installed vertical pumps were new because, according to GRD officials, there is “no documentation describing the condition of the pumps, motors, and control panels because they were part of a separate contract from Multi-National Corps-Iraq (MNC-I) (phase 1). USACE cannot attest to the condition of the vertical pumps since this was not a USACE contract.” While the 256th Brigade Combat Team (BCT) provided the four vertical pumps and motors, the USACE, through its QARs should have documented the condition of the equipment because the USACE’s contractor installed the equipment. It is unusual that the equipment was not thoroughly inspected prior to installation by the USACE.



Site Photo 21. Photograph from daily QA report documenting contractor progress installing the 800 mm vertical pump (Photo courtesy of the USACE)



Site Photo 22. View of the condition of 800 mm vertical pump installed by the contractor (Photo courtesy of the USACE)

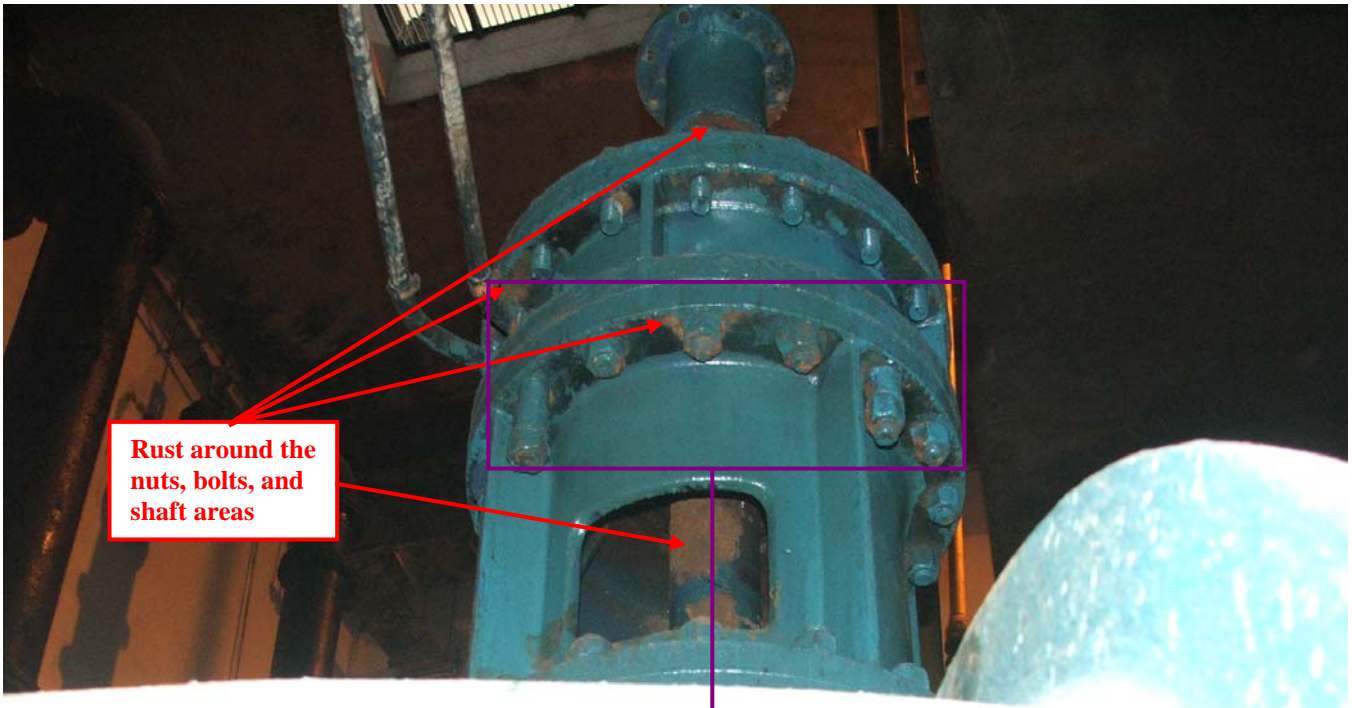


Site Photo 23. View of rust SIGIR Inspectors witnessed on the same vertical pump

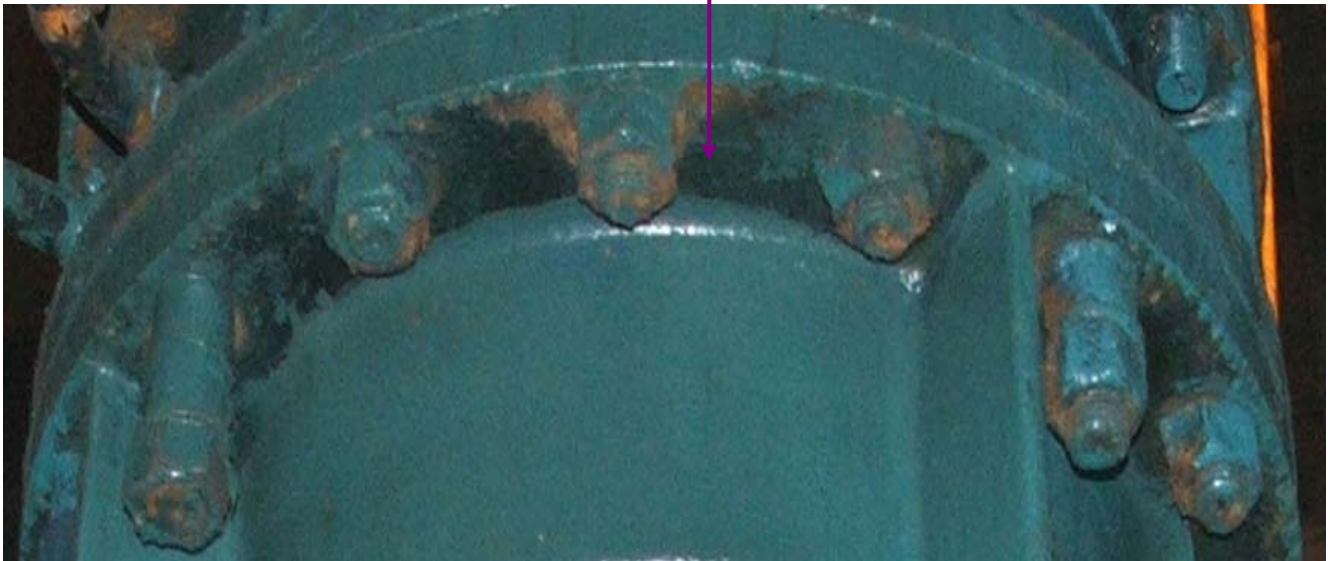


Site Photo 24. Close up view of Site Photo 23

For the 600 mm vertical pump, we also witnessed a significant amount of rust for a pump that was installed in January 2006. The Phase 4 contract required the painting of the vertical pump; however, the excessive amounts of rust are visible through the paint, especially around the nuts and bolts and the shaft areas (Site Photos 25 and 26).

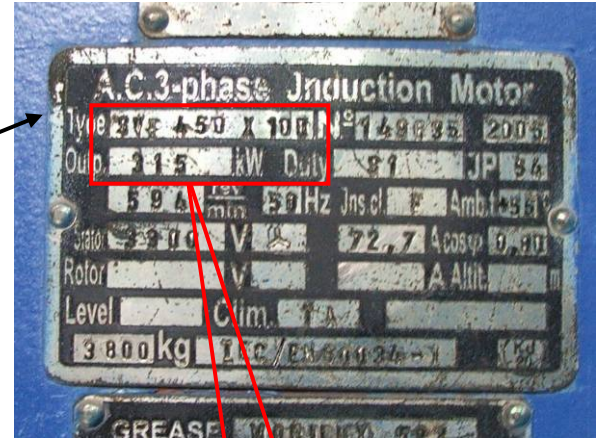


Site Photo 25. View of the 600 mm vertical pump



Site Photo 26. Close up view of Site Photo 25

During our site visit, we recorded the vertical pump motor information to compare against the contract file documentation to determine if new motors had been installed (Site Photos 27 and 28 and Figure 3). Subsequent to the issuance of the draft report, the GRD officials provided a list of the serial numbers for the vertical pumps and motors. For example, we determined that the 800 mm vertical pump motor serial number matched the GRD's documentation.



Site Photo 28. Face plate for vertical pump motor

Site Photo 27. SIGIR recording vertical pump motor information

Item No.	Pump Model	Pump Serial No.	Discharge (mm)	Head (M)	Flow rate m3/h	Motor Model	Power (Kw)
Vertical Pumps/First Project							
1	60F85	88195	600mm with Insert to 900mm	11	5400	SVf450X10C	250
2	60F85	88196	600mm with Insert to 900mm	14	5400	SVf450X10D	315
3	60F85	88197	600mm with Insert to 900mm	14	5400	SVf450X10D	315
4	60F85	88198	600mm with Insert to 800mm	14	5400	SVf450X10D	315
5	60F85	88199	600mm with Insert to 800mm	14	5400	SVf450X10D	315
6	60F85	88200	600mm with Insert to 800mm	14	5400	SVf450X10D	315
7	60F85	88201	600mm with Insert to 800mm	14	5400	SVf450X10D	315
8	60F85	88202	600mm with Insert to 700mm	11	5400	SVf450X10Bs	250
9	60F85	88203	600mm with Insert to 700mm	12	3600	SVf450X12As	180
10	60F85	88204	600mm	14	3600	SVf450X12B	200
11	60F85	88205	600mm	14	3600	SVf450X12B	200
12	60F85	88206	600mm	14	5400	SVf450X10D	315
13	60F85	88207	600mm	14	5400	SVf450X10D	315
14	60F85	88208	600mm with reducer to 500mm	12	3600	SVf450X12As	180

Figure 3. List of serial numbers for the vertical pumps and motors (Courtesy of the USACE)

Rehabilitation of the vertical pump check and gate valves

The Phase 2 contract required the “complete rehabilitation” of the four vertical pumps’ check and gate valves; while the Phase 4 contract required the complete repair or replacement of the check valves.

During our site visits, we identified the replacement of only the 800 mm vertical pump gate valve (Site Photo 29). The replacement gate valve is a different shape and size than the pre-existing gate valves, which required the contractor to reconfigure the connection with the outlet pipe from the vertical pump. According to the Phase 4 contractor, the original gate valve collapsed as a result of years of rust and corrosion (Site Photo 30).



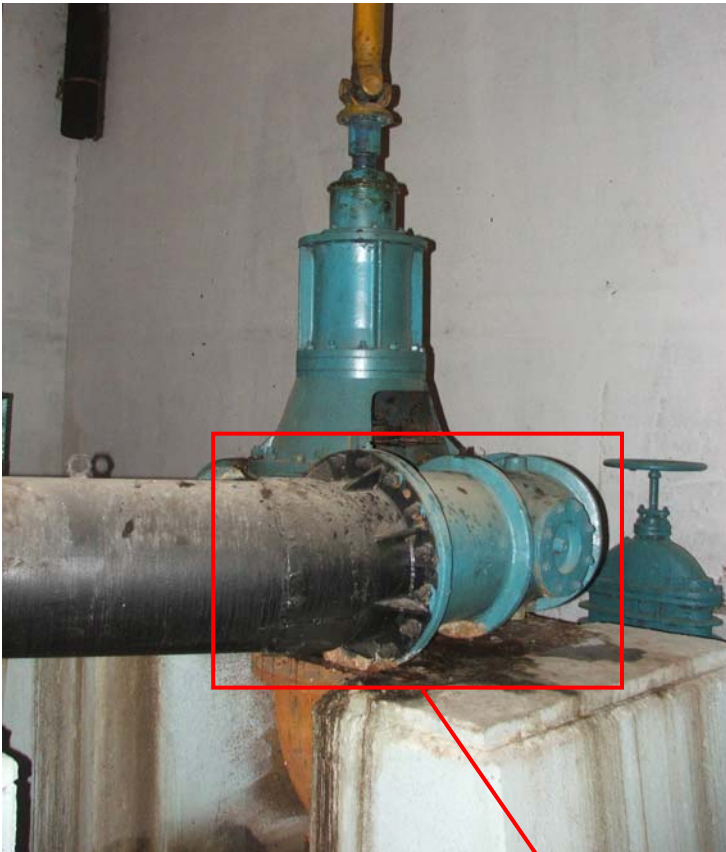
Site Photo 29. View of the vertical pumps within the pump station dry well



Site Photo 30. View of the original gate valve for the 800 mm vertical pump

To make the determination of whether to repair or replace a vertical pump gate valve required the contractor to remove the gate valve and inspect it to see if significant rust and corrosion were present and also determine the quality of the nuts and bolts. We saw no evidence that the contractor attempted to remove the gate valves for the 350 mm, 500 mm, and 600 mm vertical pumps. For example, several nuts and bolts to the 350 mm vertical pump gate valve were so rusted that it would be impossible to remove them without cutting them off (Site Photos 31 and 32). The only work performed by the contractor for these three vertical pump gate valves was painting.

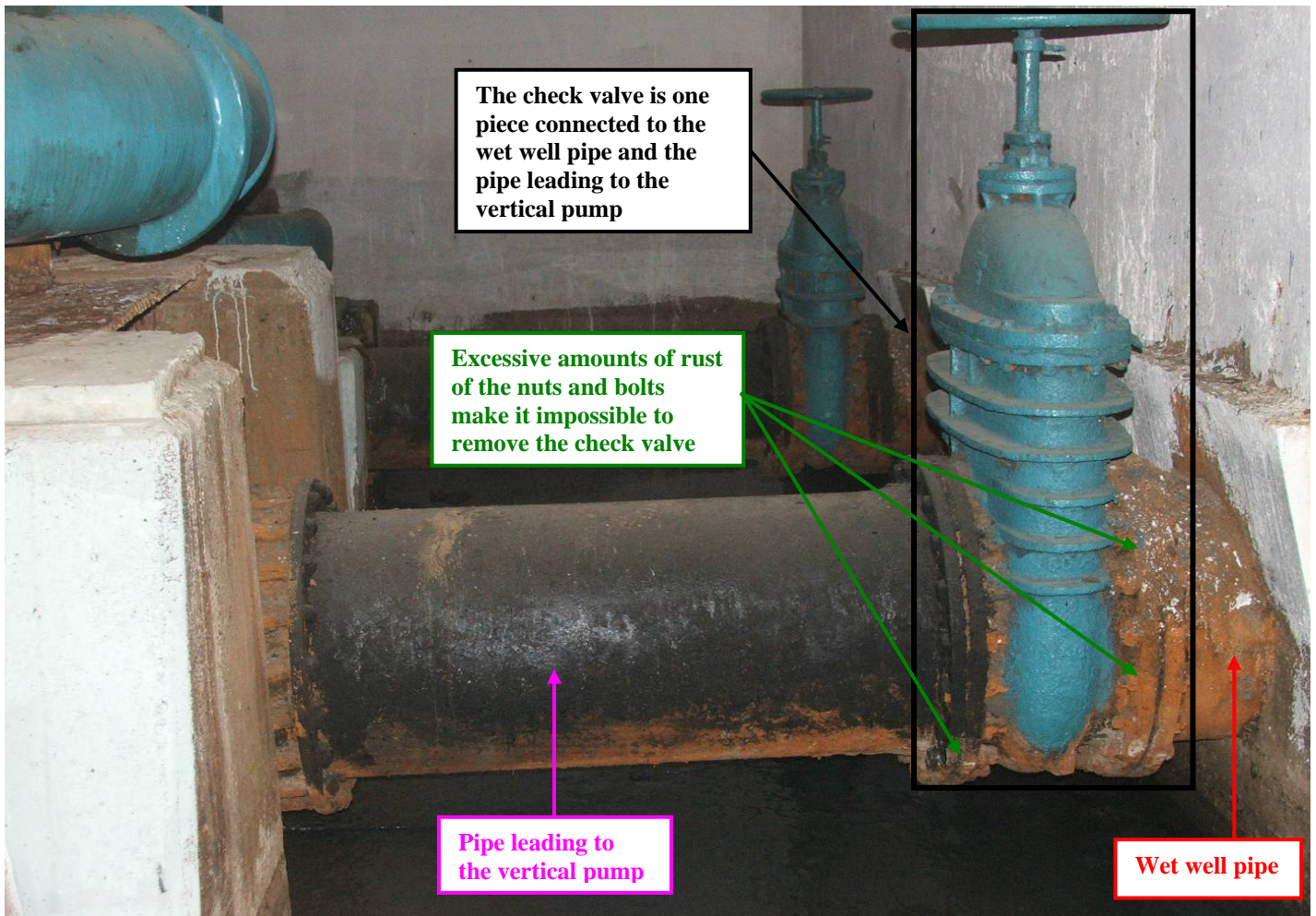
As with the gate valves, the rehabilitation of check valves would require the contractor to remove each one to determine if significant rust and corrosion were present. For the check valves, we also saw no evidence that the contractor did anything except paint over the rust on the existing valves. For example, the 350 mm and 500 mm vertical pump check valves are so significantly rusted onto the inlet and outlet pipes that there is no possible way it could have been removed and inspected (Site Photo 33). It appears the contractor only painted over the rust on the pre-existing check valves.



Site Photo 31. View of 350 mm vertical pump gate valve



Site Photo 32. Close up view of Site Photo 31



Site Photo 33. View of the check valves for the 350 mm and 500 mm vertical pumps

Transformer

During our first site visit, the Phase 4 contractor and pump station operator said the backed up sewer water resulted from a lack of power to operate multiple vertical pumps simultaneously. The contractor stated the Iraqi ministry did not provide enough fuel to run the generators. For example, according to the contractor, the pump station is provided 300 liters of fuel per month; while the 750 kVA generator uses approximately 200 liters per day. The contractor also stated the pump station's transformer does not work because it is old and has not been well maintained (Site Photo 34). According to the contractor, the pump station receives approximately 5-7 hours of electricity per day from the national grid; which would be enough to run the smaller vertical pumps (i.e. 350 mm and 500 mm). However, without an operational step down transformer, the pump station will not have the ability to use the national grid power. The pump station needs a transformer in order to take advantage of the available national grid power, which will also result in less dependence upon fuel to run the generators.

On 18 September 2005, the daily QA report for Phase 2 stated the following:

“...site need to be supplied new transformer (from 11KV to 3.3KV) to feed the new pumps, the existing transformers will not serve the new pumps properly, new transformer will connect to the control panel as well as the generator.”

The Phase 2 contract file did not mention any action to provide the pump station with the needed transformer. In addition, the Phase 3 and 4 contracts did not address this need.

According to 2-1 ID personnel, an 11 kilo-Volt (kV)/3.3 kV (850 kVA) transformer is needed to capture electrical power through the national grid to operate the 600 mm and 800 mm vertical pumps.



Site Photo 34. Pump station's old and poorly maintained transformer.

Fuel Tank

On 12 September 2005, the daily QA report stated the following:

“The fuel tank concrete base have been poured today, the location of the fuel tank was not according to the submitted plans location or according to the BOQ [Bill of Quantities] location (in the BOQ the location specified in the middle of the two generators), also the distance between the fuel tank location & the 750 KVA generator new location less than 2.8 m, fire rated wall may need to construct between the fuel tank & the generator.”

During the site visits, we identified the fuel tank and determined that it was still not located between the two generators and a fire rated wall was not constructed between it and the 750 kVA generator (Site Photo 35). Even though the daily QA report identified an instance when the contractor did not perform according to the contract's requirements, no action was taken against the contractor by the USACE. Consequently, the fuel tank is not located centrally between the two generators and continues to pose a potential fire hazard for the pump station.



Site Photo 35. Location of the pump station fuel tank

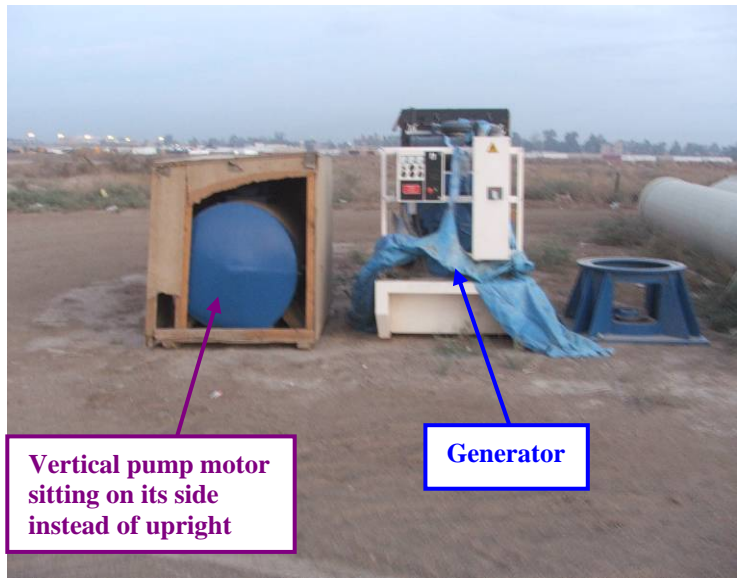
Other Matters of Interest

During a visit to the GRC Headquarters, we located approximately 20 vertical pumps, motors, and accessories (Site Photos 36-39) behind the living quarters. GRD officials stated that this equipment was “not for the Mansour (O2) Pump Station.” According to GRD officials, the “U.S. Army procured the items after a 2005 assessment...for use within other lift and pump stations identified by the Amanat and the U.S. Army.”

While not intended for the Mansour Pump Station, SIGIR is concerned that this critical equipment has been sitting idle at Gulf Region Central since 2005. Pump stations throughout Iraq are in need of vertical pumps and motors. In addition, SIGIR observed that the vertical pump motors were lying on their sides, which over time will result in degrading of the equipment (Site Photo 39). Several million dollars in equipment is neither being used for its intended purposes nor protected from the elements. For example, dirt, sand, and rain may make their way into the motor’s ball bearings, which could result in the failure of the motors. This equipment needs to be housed in a protective environment to eliminate the possibility of further damage. Because this equipment has been sitting outside in the elements for two years, the possibility exists that the equipment has been damaged. Therefore, a thorough inspection of each piece of equipment will be required to determine if the equipment is still functional.



Site Photos 36 and 37. Vertical pumps, motors, and accessories located behind the GRC HQs living quarters



Site Photos 38 and 39. Additional parts and accessories located behind the GRC HQs living quarters

Conclusions

The project intent was to rehabilitate the Mansour Pump Station to make it fully serviceable and functioning. The rehabilitation of the Mansour Pump Station lacked a comprehensive vision and a thorough facility inspection to identify specific problems before the contract was issued. As a result, four separate contracts, with a total value of \$683,400, were awarded to different contractors to rehabilitate the facility. However, after reviewing the available contracts, SIGIR found that there was duplicative work. For example, the Phase 2 contract required the installation of a 350 millimeter vertical pump, but the Phase 3 contract required the contractor to “disconnect the existing burned 350 [millimeter] vertical pump and install a new pump supplied by the Government...” The contract file lacked any documentation to indicate why the 350 millimeter vertical

pump, which was installed in January 2006, needed to be replaced with a new pump less than one year later.

Further, the Phase 4 contract required the contractor to “completely service” the same 350 millimeter vertical pump. Consequently, in less than two years, the 350 millimeter vertical pump has been replaced twice and serviced once.

The apparent duplication of effort and materials within the four awarded contracts appears to be the result of a lack of a comprehensive vision to rehabilitate the pump station. For example, an engineer with the United States Army Corps of Engineers for the Phase 3 contract stated that his Statement of Work was “deficient to achieve robust function of this facility.” Additionally, at the conclusion of the Phase 3 work, the United States Army Corps of Engineers determined that the 600 millimeter and 800 millimeter pumps could not be operated because the “750 kilo-volt ampere generator is not working [and] not covered by this [Statement of Work]” and the “350 [millimeter and] the 500 [millimeter pumps] have mechanical problems which are not covered by this [Statement of Work].” Consequently, at the conclusion of the first three contracts, which were valued at \$432,900, the Mansour Pump Station was still not operational - the objective of all three contracts. As a result, a fourth contract, for \$250,500, was awarded one month after the turnover Phase 3 to correct problems identified in the first three contracts.

The lack of an extensive assessment of the pump station by the United States Army Corps of Engineers resulted in the failure of each of the contracts’ Statements of Work to identify and correct the problems necessary to make it fully serviceable and functioning. Without the fourth contract awarded to address the pump station’s mechanical problems, the pump station would remain non-operational.

SIGIR made two visits to the project site. During the first visit, the team observed that sewer water was backed up in the Al Amerea area; however, the backup did not appear to be as rampant as described before the four contracts were issued. During the first visit, only the 500 millimeter vertical pump was operational. According to the pump station operator, there was not sufficient power to run the other three vertical pumps because of a fuel shortage and a broken transformer.

During SIGIR’s second site visit, sewer water was not backed up on the streets as identified on the previous visit. During the second visit, the 350 millimeter and 500 millimeter vertical pumps were operational.

SIGIR determined that the contractor did not install the 600 millimeter and 800 millimeter vertical pump control panels required by the contract; instead the two vertical pumps and motors are directly tied to the 750 kilo-volt generator for power, creating a potentially dangerous situation. The 750 kilo-volt generator requires a step down transformer to properly power the vertical pumps and motors; however, the current transformer on site does not work. Therefore, the 600 millimeter and 800 millimeter vertical pumps remain non-operational.

SIGIR determined the contractor did not install the 100 millimeter submersible pump required by the contract. Instead SIGIR found a severely rusted and corroded submersible pump approximately 20 to 30 years old.

SIGIR confirmed the operability of the 350 millimeter and 500 millimeter vertical pumps and motors; however, the operability of the 600 millimeter and 800 millimeter vertical pumps and motors could not be determined.

Further, two different contracts required the repair or replacement of check valves and gate valves. SIGIR determined that the contractors simply painted over the pre-existing check valves and gate valves.

The execution of the Phase 3 contract was not consistent with the project objective of rehabilitating the Mansour Pump Station to make it fully serviceable and functional. SIGIR determined that at least two vertical pumps need to be operated concurrently to eliminate backed-up sewer water in the neighborhood. However, the Phase 3 contract failed to provide the pump station with adequate power to operate more than one vertical pump at a time. The Phase 4 contract identified this problem and attempted to correct it by servicing the existing on-site-generators. However, the pump station needs appropriate sized step-down transformers to take advantage of both the on-site 750 kilo-Volt Amp generator as well as the 5 to 7 hours of daily grid power available to operate the two large vertical pumps (600 millimeter and 800 millimeter).

During preparation for visits to the Mansour Pump Station, SIGIR observed approximately 20 vertical pumps, motors, and accessories at the Gulf Region Central facility. Gulf Region Central representatives told SIGIR that the equipment had been procured in 2005 for use at other pump stations. While not intended for the Mansour Pump Station, SIGIR is concerned that this critical equipment has been sitting idle at Gulf Region Central since 2005. Pump stations throughout Iraq are in need of vertical pumps and motors. In addition, SIGIR observed that the vertical pump motors lying on their sides, which over time will result in degrading of the equipment. Several million dollars in equipment is not being used for its intended purposes, and it is not protected from the elements.

Recommendations

We recommend that the Commander, Gulf Region Central:

1. Provide and install a step-down 11 kilo-volt /3.3 kilo-volt (850 kilo-volt Ampere) transformer with all required cables, main power panel, breakers, sub-panels, distribution panels and control panels for the Mansour Pump Station to capture and use available power from the national grid to operate the 600 millimeter and 800 millimeter vertical pumps.
2. Determine whether the various existing vertical pumps, motors, and associated components at the Gulf Region Central facility are still functional. If they are functional, house them in an area safe from environmental conditions and determine an appropriate project for them.

Management Comments

We received comments on the draft report from the Gulf Region Division of the United States Army Corps of Engineers concurring with the recommendations and which provided clarifying information for the final report.

Evaluation of Management Comments

Management comments addressed the issues raised in the report. The Gulf Region Division's planned actions are responsive and should identify and correct any potential problems. Comments received are provided verbatim in Appendix D of this report.

We reviewed the information, documentation, and clarifying comments provided by the Gulf Region Division and revised the final report as appropriate. Our detailed response to the comments received from GRD follows.

Draft Report. Page 5, "Adequacy of Statement of Work." "For example, the existing on-site generators needed to power the pumps were non-operational and the pumps were old and in need of repair/replacement."

GRD Comments. "GRC does not agree with the SIGIR statement. There is not enough fuel to operate the generators. The Baghdad Amanat [city government] -Baghdad Sewage Department is responsible for supplying and delivering generator fuel to the pump station but is not delivering enough fuel to operate all the generators. Thus, station management elected to operate the smaller generator to provide power to the smaller pump for a longer period. Supplying diesel fuel to operate the larger generators is the responsibility of the Amanat and not part of the USACE contract."

SIGIR Response. Regardless of whether the Amanat is providing an adequate amount of diesel fuel for the generators, the Phase 3 contract SOW did not address the additional significant deficiencies at the Mansour Pump Station. At the completion of the Phase 3 contract, the local national USACE QAR stated there would be "difficulty of testing" the 350 mm, 500 mm, 600 mm, and 800 mm vertical pumps because "the 600 mm and 800 mm pumps get operated by the H.T. [High Tension] panel which can not be operated because the 750 KVA generator is not working & not covered by this SOW" and the "350 mm & the 500 mm have mechanical problems which are not covered by this SOW...the 500 KVA generator is not working." The USACE QAR correctly identified that the Phase 3 contract SOW did not cover the generator issues at the pump station. Consequently, the Phase 4 contract was awarded to address the generator issues.

Draft Report. Page 6, "Prior and Subsequent Work Performed." "It appears the rehabilitation of the Mansour Pump Station was to be a four phase effort. However, the available project files lack a comprehensive vision for the exact overall objective."

"Since the objective of all four phases was to rehabilitate the pump station, we will partially discuss the adequacy of work for all four projects; however, our main focus is on the contract for the third phase, which was awarded in August 2006.

GRD Comments. "GRC does not agree with the SIGIR statement. The original intent was to have a two phase contracting effort between the US Army and the USACE. The US Army purchased the equipment and USACE performed project management and quality assurance for the equipment installation. Here is a summary of each contract.

First Contract – (Phase 1) The U.S. Army was responsible for purchasing and supplying pumps, motors and control panels for the 350 mm, 500 mm, 600 mm, and 800 mm vertical pumps, a 750 KVA generator and a fuel storage tank.

Second Contract – (Phase 2) USACE, awarded the second contract for the receipt transport, and installation of the Government Furnished Material (GFM) procured under the first contract. During the installation of the equipment, the USACE quality assurance representative (QAR) reported that the contractor did not provide the control panels. The QAR documented this fact in a USACE QA report dated 18 Sept. 2005.

Third Contract – (SIGIR identifier Phase 3) The third contract specifically provided for the procurement and installation of various electrical control panels (for vertical pump sizes 350 mm, 500 mm, 600 mm, and 800 mm), dry well pump 100 mm, and included the following options:

- Option 1 – Procurement and installation of a control panel for a 300 mm submersible pump
- Option 2 – Procurement and installation of a control panel for the Main Power Supply
- Option 3 – Procurement and installation of a control panel for actuators, exhaust fans and lighting.

Fourth Contract – (Phase 4)

The fourth contract included:

- Supplying and installing a new transmission shaft for the 350 mm vertical pump
- Removing the transmission shaft from the 500 mm pump and relocating it to the 600 mm pump
- Servicing all pumps
- Replacing all exhaust fans, inlet and outlet gate valves
- Supplying and installing a new hoist crane control panel
- Other serving and repairs of plant equipment”

SIGIR Response. As noted throughout this report, the lack of an extensive assessment of the pump station by the USACE resulted in each of the contracts’ SOWs not identifying and correcting the problems necessary to make it fully serviceable and functioning. The Phase 3 contract SOW addressed deficiencies in the Phase 2 contract SOW; while the Phase 4 contract SOW addressed deficiencies in the Phase 3 contract SOW.

The U.S. Army performed an analysis after the completion of the Phase 3 contract and noted the following:

“The United States Army Corps of Engineers completed a project at the site but did not address the issues raised by Dagger Brigade Projects Office. Although the pump station functions it does so at a reduced capacity that allows sewage to flood the streets.”

Without the fourth contract awarded to correct the pump station’s mechanical problems, the pump station would remain non-operational.

Draft Report. Pages 7 and 8, “Review of All Available Statements of Work”. “After reviewing the three available SOWs to rehabilitate the Mansour Pump Station, there appears to be an excessive amount of duplicative work involved.”

“The apparent duplication of effort and materials within the four awarded contracts appears to be the result of a lack of a comprehensive vision to rehabilitate the pump station.”

“The lack of an extensive assessment of the pump station by the USACE resulted in the failure of each contract’s SOW to identify and correct the problems necessary to make the pump station fully serviceable and functioning.”

GRD Comments. GRC does not agree with the SIGIR statement. In comparing the three contracts and determining what each provided, there was minimal duplication of work. Comprehensive vision existed in the development of each contracting action necessary to meet the SOW intent and each contract supported the previous work effort towards the overall vision of rehabilitating the Mansour (O2) Pump Station.”

SIGIR Response. We compared the four contracts awarded for the Mansour Pump Station and found excessive duplication of work. For example, the Phase 2 contract required the installation of a 350 mm vertical pump, while the Phase 3 contract required the contractor to “disconnect the existing burned 350 [mm] vertical pump and install a new pump supplied by the Government...” Further, the Phase 4 contract required the contractor to “completely service” the same 350 mm vertical pump. Consequently, in less than two years, the 350 mm vertical pump has been replaced twice and serviced once.

Duplication of work was also evident for the installation of control panels for the vertical pumps. The Phase 2 contract required the contractor to install the control panels for the four vertical pumps. However, since the Phase 2 contractor did not provide or install the control panels (even though the contractor was paid in full), the Phase 3 contract required the contractor to supply and install the control panels for the four vertical pumps.

Further, the Phase 2 contract required the installation of four new vertical pumps, which according to the daily QAR reports, included the installation of new transmission shafts for each pump. However, the Phase 4 contract required the contractor to supply and install new transmission shafts for the vertical pumps and “completely service” the pumps. In addition, the Phase 2 contract required the contractor to perform a complete rehabilitation of the motorized screens; while the Phase 4 contract required the contractor to “completely service and repairs [sic]” the inlet [motorized] screens. The Phase 2 contract required the contractor to rehabilitate the four vertical pump check valves; while the Phase 4 contract required the contractor to “completely repair or replace the check valve” for the four vertical pumps.

In view of the fact that the Phase 2-4 contracts were awarded between August 2005 and August 2006, in our opinion, a significant amount of duplicative work was authorized.

Draft Report. Page 9, “The USACE contract file lacked documentation that the contractor installed the government provided 350 mm vertical pump. Several QC reports mentioned the completed installation of the 350 mm vertical pump; however, there were no photographs provided to support this claim. The QC reports documented the delivery of the new motor for the 350 mm vertical pump (Site Photo 5), but there were no photographs of the actual contract-required vertical pump.”

GRD Comments. “GRC does not agree with the SIGIR statement. GRC has Quality Assurance Report (QAR) photos documenting the installation of the motor to the vertical pump. During the final inspection on 26 February 07, the 350 mm pump supplied by the US Army’s 9th Engineer Battalion (9th ENG Bn) was operational.”

SIGIR Response. GRD’s comment does not address the draft report’s statement that the USACE contract file lacked independent verification that the contractor installed the 350 mm vertical pump. In the draft report, we acknowledged the existence of

photographs of the vertical pump motor; however, there are no photographs or serial numbers for the new Phase 3 350 mm vertical pump. The fact that the final inspection determined the 350 mm vertical pump was operation on 26 February 2007 does not verify a new 350 mm vertical pump was installed (as required by the contract).

Draft Report. Page 15, “According to the pump station operator, the contractor never installed the control panels for the 600 mm and 800 mm vertical pumps. Instead the 600 mm and 800 mm vertical pumps and motors are directly tied to the 750 kVA generator for power...The contractor was paid for the installation of four vertical pump control panels, even though only two were actually installed.”

GRD Comments. “GRC does not agree with the SIGIR statement as it mixes two work efforts together. USACE contract (Phase 2) included the installation of four pumps with motors, a 750 kva generator and a fuel tank. The contractor installed control panels under the Phase 3 contract. Ten months elapsed between the Phase 2 and Phase 3 contracts. It is not clear whether the plant personnel elected to connect the pump motors to the new 750 kva generator due to the absence of control panels. The SOW for the Phase 3 contract included supplying and installing electric control panels for the four pump motors and addressing other equipment issues.”

SIGIR Response. GRD’s comment does not address the issue raised in the draft report. The Phase 2 contract required the contractor to supply and install the control panels for the four vertical pumps. However, according to GRD officials, the “contractor did not provide the control panels” (even though the contractor was paid in full). Consequently, the Phase 3 contract required the installation of the control panels for the four vertical pumps; however, the contractor only installed the control panels for the 350 mm and 500 mm vertical pumps. According to the pump station operator, the contractor failed to install the control panels for the 600 mm and 800 mm vertical pumps (even though the contractor was paid in full).

The GRD comment does not address the fact that two separate contractors failed to install the control panels for the 600 mm and 800 mm vertical pumps; yet each contractor was paid in full. Since the Phase 4 contract did not mention the control panels, the pump station personnel apparently decided to directly tie the 600 mm and 800 mm vertical pumps and motors to the 750 kVA generator for power.

Draft Report. Page 4, “The project file lacked any documentation to indicate the USACE performed an on-site inspection prior to the start of this project to identify the actual conditions of the pump station. According to contract file documentation, the first recorded visit by a USACE representative to the site was on 5 December 2006.”

Page 10, “no QC reports were completed for the September 2005 contract, while infrequent and inadequate QC reports were completed for the October 2006 contract.”

“The daily QA reports were vague regarding the work performed...and provide little insight into any problems encountered at the site.”

GRD Comments. “GRC agrees that there were fewer QA visits and reports were limited in number due to the extremely volatile insurgent activity which directly resulted in limited visitations and QA reports. When contracting personnel issued the Notice to Proceed (NTP) on 1 October 2006, the Army considered Al Amerea one of the most violent areas in Baghdad. Terrorists killed the station operator just before work started and two other operators over the course of the project. Terrorists were threatening to kill anyone coming near the station. Therefore, USACE had to depend on the 9th ENG Bn

(the customer and maneuver unit for the Al Amerea Area) to visit the site in order to confirm work progress. The USACE QAR often found it impossible to reach the site. A USACE representative completed a site visit on 5 Dec 06. Because of this visit, USACE modified the contract on 10 December to allow changes to the scope of work at no additional cost.”

SIGIR Response. We agree that the security threat is real and should never be underestimated. However, we do not understand why a contract was awarded to rehabilitate the Mansour Pump Station without even visiting the site to identify the problems/issues that need to be addressed. The Phase 3 contract was awarded in August 2006 and the NTP was issued to the contractor in September 2006. In view of the fact the original contract completion date was 19 November 2006, by the time a USACE representative first visited the site on 5 December 2006, the project should have already been completed. As a result of the initial site visit, the SOW had to be modified and the completion date extended another 6 weeks.

In addition, we are concerned about the effectiveness of the USACE QARs on the occasions when site visits were permissible. For example, on 15 February 2007, the USACE QAR stated that the pump station “is 100% finished [and] ready to do final inspection.” However, the final inspection performed by the USACE on 19 February 2007 concluded that the “project does not work” and noted 7 significant deficiencies, such as the motors not being properly connected. In addition, the USACE QAR failed to notice that the contractor did not install the contract required 100 mm submersible pump in the dry well; instead the contractor had left the existing heavily rusted and corroded submersible pump in the pump station’s dry well (Site Photo 17).

According to Phase 3 contract file documentation, the USACE QAR made at least 13 site visits to the Mansour Pump Station without identifying the 7 significant deficiencies which caused this project to “not work” or the fact the contractor did not install the contract required 100 mm submersible pump.

Further, we are concerned about the instances when the USACE QAR identified deficiencies within the daily QA reports, yet no action was taken to correct the deficiencies. For example, the 18 September 2005 daily QA report stated the following:

“The location of the fuel tank in the middle of the two generators, the distance between the fuel tank and the 750 KVA generator less than 2.8 m, protection wall may need to construct between the fuel tank and the generator, also fuel spill containment needed to construct for the fuel tank...”

During both site visits, we determined that the distance between the fuel tank and the 750 kVA generator was still less than 2.8 m and no protection wall was constructed.

Draft Report. Page 11, “The standard practice is to document construction deficiencies and corrective actions taken by the subcontractor through the use of a QA deficiency log. However, no deficiency log was maintained by the QAR.”

“On 19 February 2007, a final inspection was performed by the USACE, which concluded that the project does not work and identified 7 significant deficiencies, such as the motors not being properly connected and the 100 mm submersible pump was not connected to the control panel.”

GRD Comments. “GRC does not agree with the SIGIR statement. USACE maintained a QAR Site Deficiency and Non-Conformance Report log dated 19 February 2007. The

QA deficiency log contained seven deficiencies and included pictures. The contractor corrected all the deficiencies within a couple of weeks. Both USACE and the 9th ENG Bn (the customer) took photos of the completed repairs.”

SIGIR Response. GRD’s comment does not address the issue raised in the draft report. The Phase 3 USACE QAR did not maintain a deficiency log, which is the standard practice for documenting and tracking construction deficiencies in a real time mode to ensure corrective actions are taken as the project progresses. The QAR Site Deficiency and Non-Conformance Report log referenced by the GRD comment was actually done by the USACE Project Engineer (PE) (not the QAR) during the final inspection. The USACE QAR, on 15 February 2007, stated that the pump station project was “100% finished & ready to do final inspection.” The final inspection performed by the USACE PE identified significant deficiencies that should have been previously recognized by the QAR during his multiple site visits. In addition, according to GRD’s comment, the lack of a QAR maintained deficiency log caused the project to be delayed “a couple of weeks” while the contractor corrected the deficiencies identified by the USACE PE during the final inspection.

Further, as mentioned earlier by GRD officials, this area of Baghdad is “extremely volatile” and the lack of a deficiency log by the USACE QAR unnecessarily jeopardized the lives of other USACE employees visiting the site for the final inspection when the pump station was obviously not “100% finished.” A properly kept deficiency log by the USACE QAR would have resulted in the identification and correction of deficiencies prior to the final inspection, reducing the number of visits by the USACE PE.

Draft Report. Page 22, “For example, there are no photographs of the old vertical pumps and motors being lifted out with a crane from the bottom of the dry well. In addition, if the old vertical pumps and motors were removed, there is no mention of what happened to this equipment. Considering the vertical pumps are extremely heavy and the contract did not require or compensate the contractor for disposing the equipment, it is highly unlikely the contractor disposed of the equipment. Consequently, the equipment should have been somewhere at the pump station; however, we could not locate the equipment.

GRD Comments. “GRC does not agree with the SIGIR statement. QAR photos show a crane lifting equipment out of the site and subsequent disposal at the Baghdad Municipality. The photos are dated 12 Sept and 2 Oct 05.”

SIGIR Response. The QAR photographs mentioned in the GRD comments were previously requested during the course of the inspection. GRC and Transatlantic Division (TAC) stated QAR photographs were not available. Subsequent to the issuance of the draft report, the QAR photographs were provided to us for our review. The QAR photographs document the removal and installation of vertical pumps. We have revised the final report to reflect this new information.

Draft Report. Page 22, “The contractor was paid \$42,000 to install four new vertical pumps; however, all available evidence indicates the contractor did not install any vertical pumps.”

GRD Comments. “GRC does not agree with the SIGIR statement. The US Army paid the contractor to install pumps, motors, and control panels supplied by the 256th Brigade Combat Team (BCT) in accordance with the statement of work and the BOQ [Bill of Quantities]. We have no documentation describing the condition of the pumps, motors, and control panels because they were part of a separate contract from MNC-I (phase 1).

USACE cannot attest to the condition of the vertical pumps since this was not a USACE contract.

QAR reports including photographs taken from 5 Sep through 1 Dec 05 provide photographic evidence showing the day to day progress of the removal and install pumps and motors.”

SIGIR Response. The Phase 2 contract, awarded by the GRC office, required the contractor to install the four vertical pumps provided by the 256th BCT. At the time of the issuance of the draft report, there was no available evidence to verify the contractor installed the Phase 2 contract required four vertical pumps and motors. While the 256th BCT provided the four vertical pumps and motors, the USACE, through its QARs should have documented the condition of the equipment. The USACE’s contractor installed the equipment, so it is unusual that the equipment was not thoroughly inspected prior to installation by the USACE.

The QAR photographs mentioned in the GRD comments were previously requested during the course of the inspection; however, GRC and TAC stated QAR photographs were not available. Subsequent to the issuance of the draft report, the QAR photographs were provided to us for our review. The QAR photographs document the removal and installation of vertical pumps. We have revised the final report to reflect this new information.

Draft Report. Page 8, “Only the contract file for Phase 3 contained progress photographs taken by the contractor and USACE representatives.”

GRD Comments. “GRC does not agree with the SIGIR statement. QAR report files provide photographic evidence that the contractor completed the eight tasks included in the contract. The photographs were taken between 5 Sep – 1 Dec 05 and document the contractor’s progress.”

SIGIR Response. The QAR photographs mentioned in the GRD comments were previously requested during the course of the inspection. GRC and TAC stated QAR photographs were not available. Subsequent to the issuance of the draft report, the QAR photographs were provided to us for our review. The QAR photographs document the removal and installation of vertical pumps. We have revised the final report to reflect this new information.

Draft Report. Page 19, “In our opinion, it appears the contractor simply painted over the rust of the pre-existing 350 vertical pump and then proclaimed it as new.”

Page 20, “it appears the contractor painted over the pre-existing pumps in an attempt to cover the significant amounts of rust and corrosion.”

Page 27, “The only work performed by the contractor for these three vertical pump gate valves was painting.”

“For the check valves, we also saw no evidence that the contractor did anything, except paint over the rust on the existing valves.”

GRD Comments. “GRC does not agree with the SIGIR statements. The Phase 4 contract included various tasks; painting was one of these tasks. GRC believes that the contractor performed all tasks included in the SOW and BOQ. The statement of work requirements included:

- Complete rehabilitation of main gates to the pump station to include painting
- Paint the wet well and pump well of the pump station with oil based paint
- Paint all piping using oil based paint
- Perform O&M, including replacement or repair of all identified requirements related to gaskets, valves, etc. for all four pumps and motors”

SIGIR Response. While one aspect of the Phase 4 contract required painting, more significant tasks were included in the Phases 2 and 4 contracts. The Phase 2 contract required the “complete rehabilitation” of the four vertical pumps’ check and gate valves; while the Phase 4 contract required the complete repair or replacement of the check valves. To make the determination of whether to repair or replace a vertical pump gate valve required the contractor to remove the gate valve and inspect it to see if significant rust and corrosion was present and also determine the quality of the nuts and bolts. We saw no evidence that the contractor attempted to remove the gate valves for the 350 mm, 500 mm, and 600 mm vertical pumps. For example, several nuts and bolts to the 350 mm vertical pump gate were so rusted, it would be impossible to remove them without cutting them off (Site Photos 31 and 32). In our opinion, the only work performed by the contractor for these three vertical pump gate valves was painting.

As with the gate valves, the rehabilitation of check valves would require the contractor to remove each one to determine if significant rust and corrosion was present. For the check valves, we also saw no evidence that the contractor did anything, except paint over the rust on the existing valves. For example, the 350 mm and 500 mm vertical pump check valves are so significantly rusted onto the inlet and outlet pipes that removal and inspection without cutting the fastening nuts and bolts was not possible (Site Photo 33).

Draft Report. Page 23, “During a visit to the Gulf Region Central (GRC) Headquarters, we located approximately 20 vertical pumps, motors, and accessories (Site Photos 36-39) behind the living quarters. Since the Phase 2 contract file does not contain any identification information for the vertical pumps, we could not conclusively determine if the vertical pumps we located at GRC Headquarters were the vertical pumps and motors meant for the pump station.”

GRD Comments. “GRC does not agree with the SIGIR statement. The approximately 20 vertical pumps, motors, and accessories located on the GRC Headquarters Compound are not for the Mansour (O2) Pump Station. The U.S. Army procured the items after a 2005 assessment. In coordination with the Baghdad Amanat-Baghdad Sewer Department, the items are for use within other lift and pump stations identified by the Amanat and the U.S. Army.”

SIGIR Response. While not intended for the Mansour Pump Station, SIGIR is concerned that this critical equipment has been sitting idle at Gulf Region Central since 2005. Pump stations throughout Iraq are in need of vertical pumps and motors. In addition, SIGIR observed that the vertical pump motors lying on their sides, which over time will result in degrading of the equipment. Several million dollars in equipment is neither being used for its intended purposes nor protected from the elements.

Indications of Potential Fraud. During this inspection, we found indications of potential fraud and referred these matters to the Assistant Inspector General for Investigations, Office of the Special Inspector General for Iraq Reconstruction, for such actions deemed appropriate.

Appendix A. Scope and Methodology

We performed this project assessment from November 2007 through January 2008 in accordance with the Quality Standards for Inspections issued by the President's Council on Integrity and Efficiency. The assessment team included an engineer/inspector and two auditors/inspectors.

In performing this Project Assessment we:

- Reviewed contract documentation to include the following: Contract, Contract Modification, and Statements of Work;
- Reviewed the quality control reports, quality assurance reports, construction progress photos, final situation report, and invoices; and
- Conducted on-site assessments on 9 November 2007 and 29 November 2007 at the Mansour Pump Station and documented the results in Baghdad, Iraq. Due to security reasons, we had to perform expedited on-site assessments, with each site visit lasting approximately 30 minutes.

Appendix B. Acronyms

2-1 ID	2 nd Brigade, 1 st Infantry Division
BCT	Brigade Combat Team
ASTM	American Society for Testing and Materials
COR	Contracting Officer Representative
CQC	Contractor Quality Control
DO	Delivery Order
ER	Engineering Regulation
GRD	Gulf Region Division
HQs	Headquarters
HT	High Tension
ID/IQ	Indefinite Delivery/Indefinite Quantity
IEBC	International Existing Building Code
IEC	International Electro-Technical Committee
IFC	International Fire Code
IMC	International Mechanical Code
kVA	Kilo-Volt Amps
m	Meters
mm	Millimeters
MNC-I	Multi-National Corps-Iraq
NTP	Notice to Proceed
O&M	Operations and Maintenance
PCO	Project and Contracting Office
PE	Project Engineer
QA	Quality Assurance
QAR	Quality Assurance Representative
QC	Quality Control
SOP	Standard Operating Procedure
SOW	Statement of Work
TAC	Transatlantic Division of the United States Army Corps of Engineers
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. Management Comments



REPLY TO
ATTENTION OF

CEGRD-CG

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
GULF REGION DIVISION
BAGHDAD, IRAQ
APO AE 09346

28 December 2007

MEMORANDUM FOR Special Inspector General for Iraq Reconstruction, US Embassy Annex,
M-202, Old Presidential Palace, APO AE 09316

SUBJECT: SIGIR Draft Project Assessment Report – Rehabilitation of the Masour Pump
Station under the Commander's Emergency Response Program, Baghdad, Iraq
(SIGIR PA-07-111)

1. This memorandum provides the U.S. Army Corps of Engineers, Gulf Region Division response to the subject draft project assessment report.
2. We appreciate the opportunity to comment on the draft report. The Gulf Region Division and the Gulf Region Central District reviewed the draft report and our comments are enclosed.
3. We identified a number of statements in the report that aren't totally accurate. Therefore, I request that you carefully review our comments and make the appropriate revisions before publishing this report. To aid your effort, we prepared a CD with additional supporting documentation and delivered it to your Baghdad staff.
4. If you have any questions, please contact Mr. Robert Donner at (540) 665-5022 or his email robert.l.donner@usace.army.mil.

Encl

JEFFREY J. DORKO
Brigadier General, USA
Commanding

COMMAND REPLY
SIGIR Draft Sustainment Assessment Report –
Rehabilitation of the Mansour (O2) Pump Station
PA-07-111

The Gulf Region Division (GRD) and the Gulf Region Central District (GRC) provide the following comments to the SIGIR report.

Recommendations and Command Comments. GRD and GRC provide the following comments in response to the recommendations.

Recommendation 1. Provide and install a step down 11 kilo-volt / 3.3 kilo-volt (850 kilo-volt Ampere) transformer with all required cables, main power panel, breakers, sub-panels, distribution panels and control panels for the Mansour Pump Station in order to capture and utilize available power from the national grid to operate the 600 millimeter and 800 millimeter vertical pumps

GRD Response. Concur. USACE will work with MNC-I to fund the purchase and installation of the step down 11 kilo-volt / 3.3 kilo-volt (850 kilo-volt Ampere) transformer with all required cables, main power panel, breakers, sub-panels, distribution panels and control panels for the Mansour Pump Station in order to capture and utilize available power from the national grid to operate the 600 millimeter and 800 millimeter vertical pumps.

Recommendation 2. Determine if the various existing vertical pumps, motors, and associated components outside the Gulf Region Central living quarters are still functional. If they are functional, house them in an area safe from the environmental conditions and determine an appropriate project for them.

GRD Response. Concur. USACE will work with MNC-I to find a customer to fund the refurbishment and storage of the equipment to use on the customer's projects. The vertical pumps, motors, and associated components outside the Gulf Region Central living quarters are not part of the Mansour O2 Pump Station project. The U.S. Army procured these items in 2005 to use in future projects.

Enclosure

Additional Comments.

GRD Overall Comment. The O2 Pump Station, located in Al Mansour Baghdad, Iraq, is a sewage water lift (or pump) station for the Amerca area. This station controls the flow of sewage across several neighborhoods or Mahallas. The design of sewerage systems in Iraq typically includes gravity fed lines (first) and force main. The systems transport waste water from homes and businesses to a central waste water treatment plant. The O2 (Mansour) Pump Station is a gravity flow system. Thus, the sewer line must maintain a downward slope to allow proper sewage movement through the pipe line. This downward slope is only effective for a given distance until the pipe gets to a depth where it needs raising to reestablish its proper slope to maintain sewage flow. A pump station raises the flow to a higher elevation.

The O2 Pump Station represents a successful attempt by the U.S. Army and the U.S. Army Corps of Engineers (USACE) Gulf Region Division-Central District (GRD) to rehabilitate this vital sewage lift station. Unfortunately, through unforeseen conditions after the completion of the rehabilitation of the O2 Pump Station, the final project has yet to operate at full capacity due to lack of diesel fuel in order to operate the generators that supply power to the large lift station pumps. The station management elected to operate the smaller generator to run only the smaller pump. If there were sufficient diesel fuel supplies to operate the larger pumps, the system would operate as designed and installed. The supply of diesel fuel is not part of the USACE contract.

a. Draft Report. Page 5, "Adequacy of Statement of Work".

"For example, the existing on-site generators needed to power the pumps were not operational and the pumps were old and in need of repair/replacement."

GRD Comments. GRD does not agree with the SIGIR statement. There is not enough fuel to operate the generators. The Baghdad Amanat-Baghdad Sewage Department is responsible for supplying and delivering generator fuel to the pump station but is not delivering enough fuel to operate all the generators. Thus, station management elected to operate the smaller generator to provide power to the smaller pump for a longer period. Supplying diesel fuel to operate the larger generators is the responsibility of the Amanat and not part of the USACE contract.

b. **Draft Report.** Page 6, "Prior and Subsequent Work Performed". "It appears the rehabilitation of the Mansour Pump Station was to be a four phase effort. However, the available project files lack a comprehensive vision for the exact overall objective."

"Since the objective of all four phases was to rehabilitate the pump station, we will partially discuss the adequacy of work for all four projects; however, our main focus is on the contract for the third phase, which was awarded in August 2006."

GRD Comments. GRC does not agree with the SIGIR statement. The original intent was to have a two phase contracting effort between the US Army and USACE. The US Army purchased the equipment and USACE performed project management and quality assurance for the equipment installation. Here is a summary of each contract.

First Contract - (Phase 1) The U.S. Army was responsible for purchasing and supplying pumps, motors and control panels for the 350mm, 500mm, 600mm and 800mm vertical pumps, a 750 KVA generator and a fuel storage tank.

Second Contract - (Phase 2) USACE, awarded the second contract for the receipt, transport, and installation of the Government Furnish Material (GFM) procured under the first contract. During the installation of the equipment, the USACE quality assurance representative (QAR) reported that the contractor did not provide the control panels. The QAR documented this fact in a USACE QA report dated 18 Sept. 2005.

Third Contract - (SIGIR identifier Phase 3) The third contract specifically provided for the procurement and installation of various electrical control panels (for vertical pump sizes 350mm, 500mm, 600mm and 800mm), dry well pump 100mm, and included the following options:

- Option 1 - Procurement and installation of a control panel for a 300mm submersible pump
- Option 2 - Procurement and installation of a control panel for the Main Power Supply
- Option 3 - Procurement and installation of a control panel for actuators, exhaust fans and lighting.

Fourth Contract - (Phase 4)

The fourth contract included:

- Supplying and installing a new transmission shaft for the 350mm vertical pump
- Removing the transmission shaft from 500mm pump and relocating it to the 600mm pump
- Servicing all pumps
- Replacing all exhaust fans, inlet and outlet gate valves
- Supplying and installing a new hoist crane control panel
- Other servicing and repairs of plant equipment

c. **Draft Report.** Pages 7 and 8, "Review of All Available Statements of Work". "After reviewing the three available SOWs to rehabilitate the Mansour Pump Station, there appears to be an excessive amount of duplicative work involved."

"The apparent duplication of effort and materials within the four awarded contracts appears to be the result of a lack of a comprehensive vision to rehabilitate the pump station."

"The lack of an extensive assessment of the pump station by the USACE resulted in the failure of each contract's SOW to identify and correct the problems necessary to make the pump station fully serviceable and functioning."

GRD Comments. GRC does not agree with the SIGIR statement. In comparing the three contracts and determining what each provided, there was minimal duplication of work. Comprehensive vision existed in the development of each contracting action necessary to meet the SOW intent and each contract supported the previous work effort towards the overall vision of rehabilitating the Mansour (O2) Pump Station.

d. **Draft Report.** Page 9: "The USACE contract file lacked documentation that the contractor installed the government provided 350 mm vertical pump. Several QC reports mentioned the completed installation of the 350 mm vertical pump; however, there were no photographs provided to support this claim. The QC reports documented the delivery of the new motor for the 350 mm vertical pump (Site Photo 5), but there were no photographs of the actual contract-required vertical pump."

GRD Comments. GRC does not agree with the SIGIR statement. GRC has Quality Assurance Report (QAR) photos documenting the installation of the motor to the vertical pump. During the final inspection on 26 Feb 07, the 350 mm pump supplied by the US Army's 9th Engineer Battalion (9th ENG Bn) was operational.

e. **Draft Report.** Page 5 "According to the pump station operator, the contractor never installed the control panels for the 600 mm and 800 mm vertical pumps. Instead the 600 mm and 800 mm vertical pumps and motors are directly tied to the 750 k VA generator for power.The contractor was paid for the installation of four vertical pump control panels, even though only two were actually installed. "

GRD Comments. GRC does not agree with the SIGIR statement as it mixes two work efforts together. USACE contract (Phase 2) included the installation of four pumps with motors, a 750 kva generator and a fuel tank. The contractor installed control panels under the Phase 3 contract. Ten months elapsed between the Phase 2 and Phase 3 contracts. It is not clear whether plant personnel elected to connect the pump motors to the new 750 kva generator due to the absence of control panels. The SOW for the Phase 3 contract included supplying and installing electric control panels for the four pump motors and addressing other equipment issues.

f. **Draft Report.** Page 4, "The project file lacked any documentation to indicate the USACE performed an on-site inspection prior to the start of this project to identify the actual conditions of the pump station. According to contract file documentation, the first recorded visit by a USACE representative to the site was on 5 December 2006.

Page 10, "no QC reports were completed for the September 2005 contract, while infrequent and inadequate QC reports were completed for the October 2006 contract."

"The daily QA reports were vague regarding the work performed... and provide little insight into any problems encountered at the site."

GRD Comments. GRC agrees that there were fewer QA visits and reports were limited in number due to the extremely volatile insurgent activity which directly resulted in limited visitations and QA reports. When contracting personnel issued the Notice to Proceed (NTP) on 1 October 2006, the Army considered Al Amerca one of the most violent areas in Baghdad. Terrorists killed the station operator just before work started and two other operators over the course of the project. Terrorists were threatening to kill anyone coming near the station. Therefore, USACE had to depend on the 9th ENG Bn (the customer and maneuver unit for the Al Amerca Area) to visit the site in order to confirm work progress. The USACE QAR often found it impossible to reach the site. A USACE representative completed a site visit on 5 Dec 06. Because of this visit, USACE modified the contract on 10 December to allow changes to the scope of work at no additional cost.

g. **Draft Report.** Page 11, "The standard practice is to document construction deficiencies and corrective actions taken by the subcontractor through the use of a QA deficiency log. However, no deficiency log was maintained by the QAR."

"On 19 February 2007, a final inspection was performed by the USACE, which concluded that the project does not work and identified 7 significant deficiencies, such as the motors not being properly connected and the 100 mm submersible pump was not connected to the control panel."

GRD Comments. GRC does not agree with the SIGIR statement. USACE maintained a QAR Site Deficiency and Non-Conformance Report Log dated 19 February 2007. The QA deficiency log contained seven deficiencies and included pictures. The contractor corrected all deficiencies within a couple of weeks. Both USACE and the 9th ENG Bn (the customer) took photos of the completed repairs.

h. **Draft Report.** Page 22, "For example, there are no photographs of the old vertical pumps and motors being lifted out with a crane from the bottom of the dry well. In addition, if the old vertical pumps and motors were removed, there is no mention of what happened to this equipment. Considering the vertical pumps are extremely heavy and the contract did not require or compensate the contractor for disposing the equipment, it is highly unlikely the contractor disposed of the equipment. Consequently, the equipment should have been somewhere at the pump station; however, we could not locate the equipment.

GRD Comments. GRC does not agree with the SIGIR statement. QAR photos show a crane lifting equipment out of the site and subsequent disposal at the Baghdad Municipality. The photos are dated 12 Sep and 2 Oct 05.

i. **Draft Report.** Page 22, "The contractor was paid \$42,000 to install four new vertical pumps; however, all available evidence indicates the contractor did not install any vertical pumps."

GRD Comments. GRC does not agree with the SIGIR statement. The US Army paid the contractor to install pumps, motors, and control panels supplied by the 256th Brigade Combat Team (BCT) in accordance with the statement of work and the BOQ. We have no documentation describing the condition of the pumps, motors, and control panels because they were part of a separate contract from MNC-I (phase I). USACE cannot attest to the condition of the vertical pumps since this was not a USACE contract.

QAR reports including photographs taken from 5 Sep through 1 Dec 05 provide photographic evidence showing the day to day progress of the removal and install pumps and motors.

j. **Draft Report.** Page 8, "Only the contract file for Phase 3 contained progress photographs taken by the contractor and U.S.A.C.E. representatives "

GRD Comments. GRC does not agree with the SIGIR statement. QAR report files provide photographic evidence that the contractor completed the eight tasks included in the contract. The photographs were taken between 5 Sep - 1 Dec 05 and document the contractor's progress.

k. **Draft Report.** Page 19, "In our opinion, it appears the contractor simply painted over the rust of the pre-existing 350 vertical pump and then proclaimed it as new."

Page 20, "It appears the contractor painted over the pre-existing pumps in an attempt to cover the significant amounts of rust and corrosion."

Page 27, "The only work performed by the contractor for these three vertical pump gate valves was painting."....

"For the check valves, we also saw no evidence that the contractor did anything, except paint over the rust on the existing valves."

GRD Comments. GRC does not agree with the SIGIR statements. The Phase 4 contract included various tasks; painting was one of these tasks. GRC believes that the contractor performed all tasks included in the SOW and BOQ. The statement of work requirements included:

- Complete rehabilitation of main gates to the pump station to include painting
- Paint the wet well and pump well of the pump station with oil based paint
- Paint all piping using oil based paint
- Perform O&M, including replacement or repair of all identified requirements related to gaskets, valves, etc. for all four pumps and motors

l. **Draft Report.** Page 23, "During a visit to the Gulf Region Central (GRC) Headquarters, we located approximately 20 vertical pumps, motors, and accessories (Site Photos 27-30) behind the living quarters. Since the Phase 2 contract file does not contain any identification information for the vertical pumps, we could not conclusively determine if the vertical pumps we located at GRC Headquarters were the vertical pumps and motors meant for the pump station."

GRD Comments. GRC does not agree with the SIGIR statement. The approximately 20 vertical pumps, motors, and accessories located on the GRC Headquarters Compound are not for the Mansour (O2) Pump Station. The U.S. Army procured the items after a 2005 assessment. In coordination with the Baghdad Amanat-Baghdad Sewer Department, the items are for use within other lift and pump stations identified by the Amanat and the U.S. Army.

Appendix E. 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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