

**AL QAIM 33/11KV ELECTRICAL  
MOBILE SUBSTATION  
AL QAIM, IRAQ**

**SUSTAINMENT ASSESSMENT**

**SIGIR PA-09-191  
APRIL 12, 2010**



# SIGIR

Special Inspector General for IRAQ Reconstruction

April 12, 2010

## Al Qaim 33/11kV Electrical Mobile Substation

### Summary of Report: PA-09-191

#### Why SIGIR Did this Study

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

The objective of this sustainment assessment was to determine whether the project is operating at the capacity stated in the original contract. To accomplish the objective, the assessment team determined whether the project was at full capability or capacity when accepted by the U.S. government, when transferred to Iraqi operators, and during the site inspection.

#### What SIGIR Recommends

To protect the U.S. government's investment of approximately \$6.5 million, SIGIR recommends that the Iraq Transition Assistance Office (ITAO) Director continue communication with Iraqi officials in an effort to utilize the mobile substations.

#### Management Comments

SIGIR received official comments on a draft of this report from the United States Forces-Iraq (USF-I) and the Gulf Region District (GRD) of the US Army Corps of Engineers and unofficial comments from an ITAO representative.

The USF-I and GRD generally agreed with the facts as presented in the report but clarified that an additional contract modification provided to SIGIR on 14 March 2010 resulted in a cost savings of \$193,878. This final report was changed to reflect that fact.

ITAO also generally agreed with the facts as presented in the draft report, but asserted that two additional mobile substations were to be delivered in April and noted that ITAO was working with the Iraqi Ministry of Electricity to utilize the mobile substations. This final report was changed to reflect the ITAO comments.

#### Evaluation of Comments

The management comments addressed our recommendations and provided additional clarifying information for this final report.

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

#### What SIGIR Found

The project's objective was to manufacture, transport, and install six trailer mounted 33/11kV mobile substation units to various locations within the Al Anbar province. Further, the contractor was to construct a concrete pad, service buildings, and perimeter wall and gates for each substation. This \$10 million Economic Support Fund project was awarded on 29 April 2007 and terminated due to the non-responsiveness of the contractor on 10 December 2008 after almost \$6.5 million was spent.

At the time of contract termination, the contractor had delivered four of the six contract-required mobile substations and five trailers to the Ministry of Electricity's outdoor warehouse facility, and installed one trailer at the Haditha project site. The contractor also provided a 3-day operations and maintenance training course and manuals to 23 mobile substation operators.

On 1 November 2009, SIGIR performed a limited on-site assessment. SIGIR identified four mobile substations that had been sitting idle at the warehouse facility for at least seven months that were factory-equipped/ installed/ assembled and mounted on trailers approximately 50 feet long by 11 feet wide. They were complete and adequately assembled with the required cables, transformer, power management units, and circuit components. Since the substations were not connected to the national grid, SIGIR could not determine their operational status.

SIGIR identified five trailers at the warehouse facility which were to serve as the service buildings. Each trailer was in poor condition with wheels either missing or having flat tires, interior lights broken, circuit panels not connected, and debris scattered throughout. Since no file documentation or photographs existed, SIGIR could not conclude whether the contractor delivered poorly constructed trailers or that they were damaged/ vandalized since their delivery.

Considering the significant financial investment of the U.S. government, SIGIR inquired into the planned use of the four mobile substations and found that U. S. government officials have been in communication with Iraqi officials as to the use of the substations but Iraqi officials have not yet come to a decision. Until this situation is remedied, \$6.5 million in U.S. Economic Support Funds can be considered wasted.





## SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION

April 12, 2010

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

SUBJECT: Report on the Al Qaim 33/11kV Electrical Mobile Substation, Al Qaim, Iraq  
(SIGIR Report Number PA-09-191)

We are providing this report for your information and use. It addresses the current status of the Al Qaim 33/11kV Electrical Mobile Substation, Al Qaim, Iraq. This assessment was made to provide you and other interested parties with real-time information on a relief and reconstruction project underway and in order to enable appropriate action to be taken, if warranted.

SIGIR received comments on a draft of this report from the United States Forces-Iraq and the Gulf Region District of the U.S. Army Corps of Engineers and unofficial comments from the Iraq Transition Assistance Office. The United States Forces-Iraq and Gulf Region District generally agreed with the facts as presented in the report and provided additional clarifying information. The unofficial comments from the Iraq Transition Assistance Office also generally agreed with the facts as presented in the draft report, but asserted that two additional mobile substations were to be delivered in April and noted that ITAO was working with the Iraqi Ministry of Electricity to utilize the mobile electrical substations.

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

A handwritten signature in black ink, appearing to read "Stuart W. Bowen, Jr.", followed by a period.

Stuart W. Bowen, Jr.  
Inspector General

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# Introduction

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## Background

Electrical power is normally generated in power stations at voltages from 11 to 25 kilovolts (kV). In order to most efficiently transmit this power over long distances, it is stepped-up from 132 to 400kV. Power is then carried over long distances by the high voltage 132 to 400kV transmission lines. Substations step-down electrical power for eventual distribution to homes and business as shown below (Figure 1).

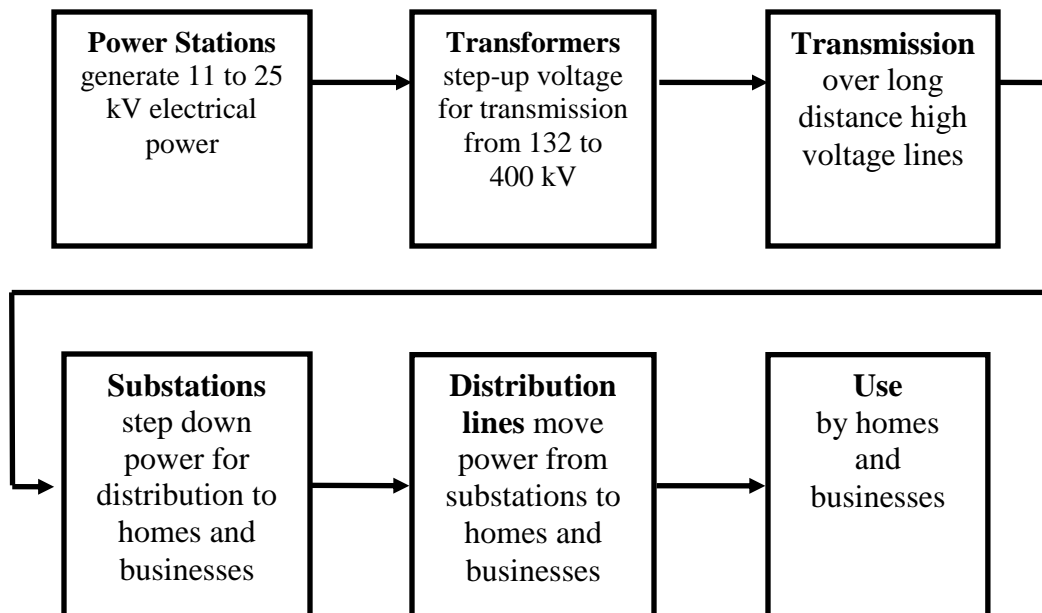


Figure 1. Diagram of the electrical generation, transmission and distribution process.

## Iraq's Power System

Prior to the first Gulf War, Iraq's power system was considered the best in the Middle East with a total installed generating capacity of 9,295 megawatts (MW) and approximately 87% of the population having access to electricity. However, a combination of wars, sanctions, looting, and vandalism over the past 20 years has significantly affected Iraq's entire power system infrastructure. For example, during the first Gulf War, several electrical transmission lines were destroyed and substations damaged, which significantly affected the entire electrical system. In addition, power generation equipment was severely damaged, which resulted in a capacity reduction to 2,325MW, power cuts up to 15 hours a day, and, in some areas, no power supply at all<sup>1</sup>. For example, three 132kV interconnections to the three northern governorates<sup>2</sup> were removed; thereby isolating the three governorates from the national grid<sup>3</sup>.

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<sup>1</sup> United Nations/World Bank, Joint Iraq Needs Assessment, Electricity Working Paper, October 2003.

<sup>2</sup> The three northern governorates were Erbil, Sulaymaniyah, and Dahuk.

<sup>3</sup> Erbil and Sulaymaniyah had to rely on power from the hydro power stations at Dokan and Derbandikhan; while Dahuk obtained limited power from Mosul.

While Iraq was able to repair some of the electrical damage sustained in the first Gulf War (with approximately 4,500MW of generating capacity available in 2002), the power supply remained unreliable throughout the 1990s with load shedding<sup>4</sup> and unplanned power outages frequent occurrences.

The entire power system currently suffers from a significant backlog of required maintenance, a lack of spare parts, and very little capital investment in new plants during the rule of Saddam Hussein. Since the early 1980s, the application of optimum preventative maintenance practices and the construction of new lines were severely limited. Today, the most recently constructed line is approximately 15 years old with the average age between 25 to 30 years old.

A 2003 United Nations study of Iraq's electrical network concluded the following:

*“the [existing] 33/11kV substations and 33kV lines are all relatively old. There has been minimal capital investment for a number of years. The design life of the 11KV [sic] circuit breaker mechanisms has in most cases been exceeded due to repeated load shedding operations...the majority of the distribution networks are in a highly deteriorated condition. The system needs immediate rehabilitation or replacement.”*

In an effort to combat this problem, the U.S. government purchased mobile electrical substations to take advantage of available higher voltage electricity and to reduce the voltage or step it down for individual customers.

## **Objective of the Project Assessment**

The objective of this project assessment was to provide real-time information on relief and reconstruction to interested parties to enable appropriate action to be taken, when warranted. Specifically, the Special Inspector General for Iraq Reconstruction (SIGIR) determined whether the project was operating at the capacity stated in the original contract. To accomplish this, SIGIR determined if the project was at full capability or capacity when accepted by the U.S. government, when it was transferred to Iraqi operators, and when SIGIR inspected the site.

## **Pre-site Assessment Background**

### **Contract, Costs and Payments**

Firm-fixed-price contract number W917BG-07-C-0063, funded under the Economic Support Fund in the amount of \$9,960,000, to supply all equipment, machines, and labor necessary to complete the installation of six mobile electrical substations in the cities of Al Qaim, Anah, Bahdadi, Haditha, Hit, and Ramadi in Anbar province, Iraq was awarded to a local Iraqi company on 29 April 2007 by the U.S. Army Corps

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<sup>4</sup> When an electrical supplier receives more demand for electrical power than its generating or transmission or installed capacity can deliver, the supplier has to resort to rationing of the available electricity to its customers. This act is called load shedding.

of Engineers, Gulf Region Central District (GRC).<sup>5</sup> The period of performance for this project was 270 calendar days from the date of the contract. Consequently, the project was to be completed by 24 January 2008. This contract had one modification.

Modification P0001, undated, changed the location of all six mobile electrical substations<sup>6</sup> and required an additional 11kV output for each substation (for a total of three outputs per substation). This modification increased the total cost of the contract by \$440,580 to \$10,400,580 and extended the completion date by 210 calendar days.<sup>7</sup>

On 10 December 2008, the GRC contracting officer issued a termination for default to the contractor *“due to the result of your non-responsiveness in providing resolution to non-performance, non-responsiveness and failure to submit the required submittals.”*

An April 2009 memorandum for record documented a different GRC contracting officer’s belief that the previous contracting officer’s termination for default letter to the contractor resulted in *“confusion and potential liability to the [U.S.] Government.”* This contracting officer organized a meeting with Gulf Region Division’s Acting Chief of Contracting and Office of Counsel representative, which concluded the following:

*“...we agreed that the issued letter (Attachment A)<sup>8</sup> was inadequate and confusing. A review of the circumstances of the contract showed that the contractors [sic] overall performance was marginal at best and he was substantially late in delivery. On the positive side, somehow, the contractor had actually purchased and delivered four of the mobile substations. Also, a review of the contract itself showed that War Risks (War Risks – Iraq and the Middle East – Firm Fixed Price Contracts) clause was in the contract<sup>9</sup>...It was discussed and*

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<sup>5</sup> Formerly, the U.S. Army Corp of Engineers (USACE) organization in Iraq consisted of the Gulf Region Division under which were the Gulf Region North District (GRN), Gulf Region Central District (GRC), and Gulf Region South District (GRS). Each of the Districts had local area, resident and project offices. The designation of a local office as an area, resident or project office depended on the number of reconstruction projects that it was responsible for overseeing.

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

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

<sup>6</sup> The Provincial Director General for Electricity requested the site location changes due to the security situation in the original locations.

<sup>7</sup> A Memorandum for Record, dated 19 November 2007, detailed the rationale for the additional 210 calendar days to complete the project. The contracting officer originally negotiated an additional 135 calendar days; however, “due to the length of time required to obtain funding” for the modification, an additional 75 calendar days were included.

<sup>8</sup> GRC’s 10 December 2008 termination for default letter issued to the contractor.

<sup>9</sup> According to the memorandum for record, the “presence of the War Risk clause in the contract would give the contractor ample opportunities to provide a rebuttal of a termination for default and make it difficult to defend on appeal.”

*unanimously agreed upon that it would be appropriate to terminate this contract for convenience rather than default.”*

On 22 April 2009, the GRC issued a letter to the contractor to “clarify the earlier correspondence...dated 10 December, 2008.” GRC advised the contractor that contract W917BG-07-C-0063 was now “terminated for the Government’s convenience.”

At the time of termination, the contractor had delivered four of the six contract-required mobile substations<sup>10</sup> to unsecured sites throughout Anbar province<sup>11</sup>. GRC was concerned that the four substations were at risk for theft and/or vandalism. GRC debated the idea of awarding another contract to complete the remaining unfinished tasks by the original contractor. However, the Iraq Transition Assistance Office (ITAO), the official “customer” for this project, decided that the termination of this contract was in the best interests of the U.S. government.

Modification P00003, issued 5 March 2010, changed the contract requirements from masonry perimeter fences to chain link fences at the six mobile substation locations. This modification decreased the total contract amount by \$193,878 – from \$10,400,580 to \$10,206,702.

### **Project Objective**

The overall objective of this project was to increase the availability of electricity to local users throughout the Anbar province using multiple mobile electrical substations. In order to accomplish this, six strategic locations were identified to place the mobile electrical substations to receive 33kV power from the national grid and transform it to 11kV for local distribution as needed.

The contract required the manufacture, transport, and installation of six trailer-mounted 33/11kV 16 mega-volt ampere (MVA) mobile substations in the cities of Al Qaim, Anah, Bahdadi, Haditha, Hit, and Ramadi in Anbar province, Iraq.

### **Pre-construction Description**

Covering almost all of western Iraq, Anbar is geographically the largest province in Iraq; yet it is also the most sparsely populated with approximately 3 million citizens. Anbar shares its borders with Syria, Jordan, and Saudi Arabia. Anbar’s landscape is dominated by desert land, particularly in the Rutba district. Anbar is divided into seven districts – Ramadi, Al Qaim, Falluja, Ana, Rutba, Hit, and Haditha – with Ramadi serving as the capital.

The name of the province is Persian and means the “warehouse,” since this region was the warehouse of the Persian Sassanid troops. Most of Anbar’s citizens are Sunni Muslims from the Dulaim tribe. This province was referred to as Dulaim until 1962 when the name was changed to Ramadi. In 1976, the province became officially known as Anbar.

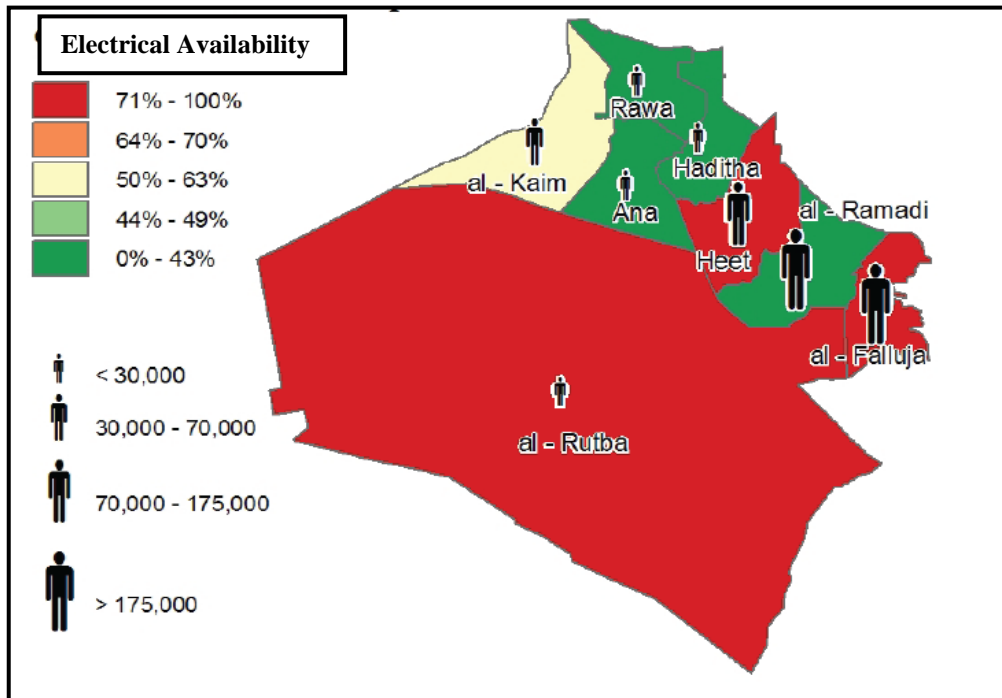
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<sup>10</sup> According to ITAO representatives, the remaining two mobile substations are scheduled for delivery in April 2010.

<sup>11</sup> The contractor was paid \$6,460,630.14 for the delivery of the four mobile substations and miscellaneous construction activities.



By April 2007, Anbar suffered from some of the highest concentrations of poverty within Iraq as well as poor electrical power availability. Specifically, electric power supply was erratic, with over half of all households experiencing daily outages (Figure 2). In approximately 25% of all households, the power was off more than it was on. This requires citizens to supplement power from the national grid with power from diesel-powered generators, which are shared with neighbors, operated by a neighborhood cooperative, or run by a private local company.



**Figure 2. Percentage of households per district with more than 11 hours of power cuts or not connected to the electricity network (as of 2007) (Courtesy of the United Nations Office for the Coordination of Humanitarian Affairs)**

The district of Al Qaim is situated along the Euphrates River; about 400 kilometer (km) northwest of Baghdad near the Syrian border, and has a population of approximately 138,000. This area of Anbar province has some of the richest soil in the entire Middle East. The Euphrates River water at this point carries less salt and minerals, which results in significantly less water needed to sustain crops.

According to a 2007 United Nations study, 50-63% of Al Qaim’s households either suffered from more than 11 hours of power cuts per day or were not connected to the electricity network (Figure 2).

### **Statement of Work**

The Statement of Work (SOW) required the following:

- manufacture, transport, and install six trailer-mounted 33/11kV, 16 MVA mobile substations, including SCADA<sup>12</sup> and communication equipment
- construction of service buildings, perimeter wall, and gates

<sup>12</sup> SCADA stands for supervisory control and data acquisition. It refers to an industrial control system: a computer system monitoring and controlling a process.

- connection to national power grid, existing substation, and city distribution system

The contract required that each mobile substation be factory assembled, wired, tested, and transported to the previously identified sites throughout Anbar province. After connecting to the national grid and earthings (groundings) are completed, the substation units will be energized, tested, and commissioned.

The SOW required the contractor to furnish design manuals and operations and maintenance (O&M) manuals for all systems, equipment, and components. In addition, the contract required the contractor to provide training to Iraqi Ministry of Electricity (MOE) personnel on the O&M of the mobile substation.

Further, the SOW required the construction of a concrete pad, service buildings, and perimeter wall and gates for each substation (Figure 3).

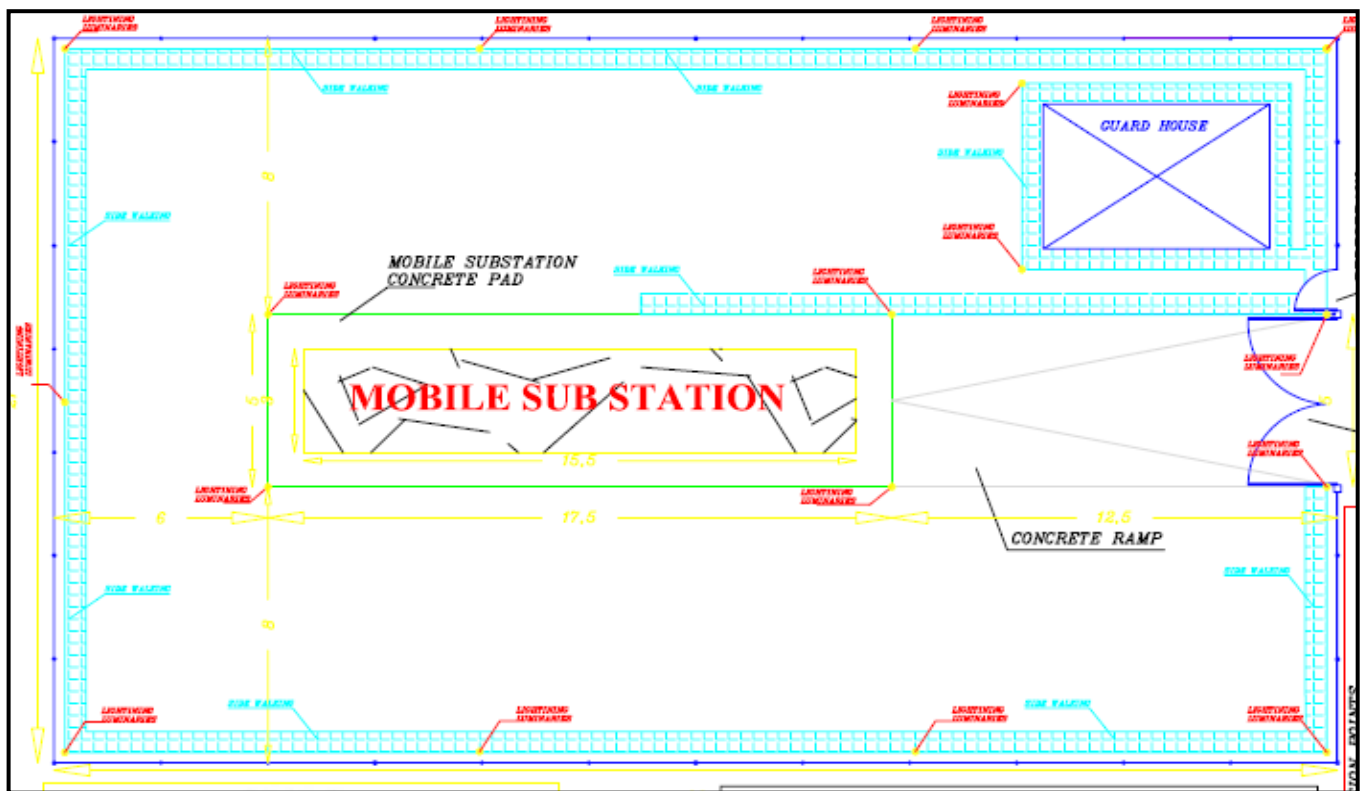


Figure 3. SOW requirement for concrete foundation pad, fence, and guard house (Courtesy of GRC)

### Project Design and Specifications

The contractor provided technical specifications for the mobile substations. The mobile substations are factory assembled units, made in Turkey, consisting of the following:

- trailer
- 16MVA, 33/11kV power transformer
- 50kVA, 11/0, 4kV auxiliary
- 33kV switchgears
- 11kV switchgears

- control and protection panel
- AC/DC<sup>13</sup> auxiliary system
- SCADA and communication equipment
- cables and accessories

The trailer features are the following:

- semitrailer with 4 axles
- 15.5 meters (m) in length
- 3.0 m in width
- 4.5 m in height
- total weight of 57,000 kilograms
- maximum speed of 40 km per hour

The contractor provided the following design drawings:

- general plan (site layout)
- mobile substation on trailer (Figures 4 and 5)
- medium voltage and low voltage switchgears
- perimeter lighting
- guard/operator house

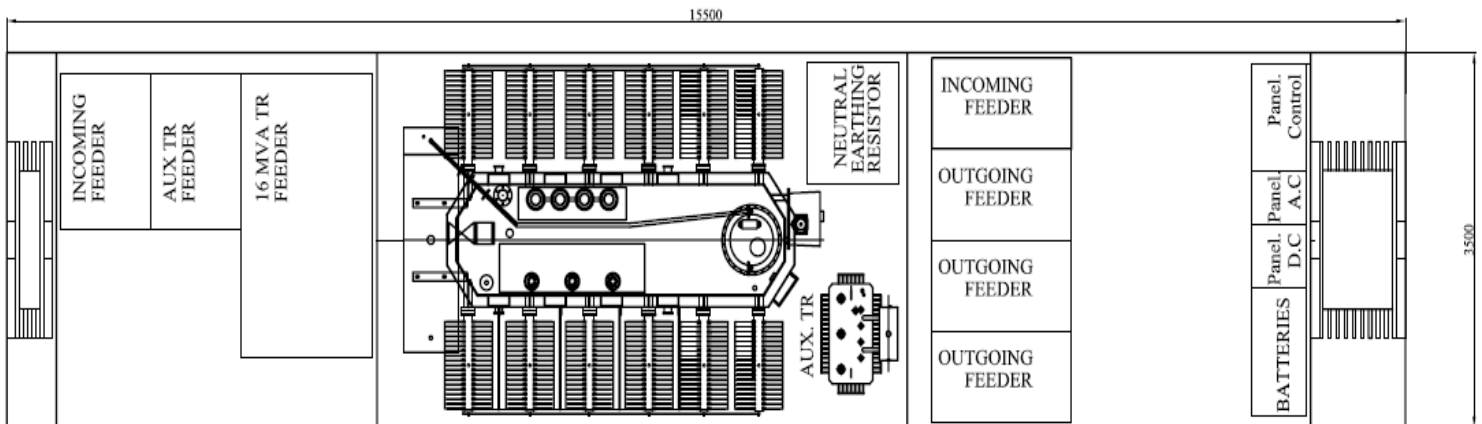
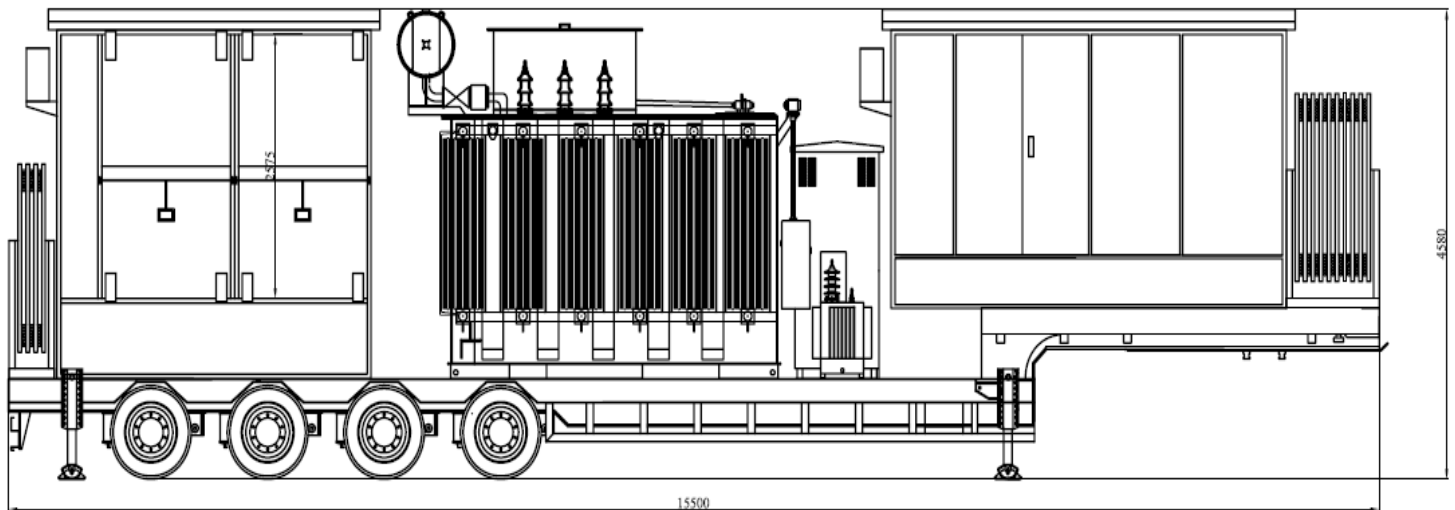


Figure 4. Top view of mobile substation on trailer (Courtesy of GRC)

<sup>13</sup> The designation AC/DC refers to equipment that may be operated using either alternating current (AC) or direct current (DC) power.



**Figure 5. Front view of mobile substation on trailer (Courtesy of GRC)**

SIGIR reviewed the contractor’s specifications and design drawings and found them to be in accordance with the requirements of the contract. The mobile substations, as designed, will provide the necessary mechanism to transfer and distribute electrical power from the national grid to local communities within Anbar province.

## Site Progress During Construction

Aside from the procurement of the mobile substations, GRC documentation indicated that the contractor performed construction work at the six sites prior to the termination of the contract. For example, at the Haditha site, the contractor poured the concrete foundation for the substation, installed a service building, and erected the perimeter fence and gate.

During the course of this project, the contractor provided limited quality control oversight, which consisted of daily reports documenting the number of workers on site, schedules, and on occasion, photographs. The GRC documented construction progress via quality assurance (QA) reports and photographs taken during site visits. SIGIR reviewed and subsequently relied on selected photographs to document examples of construction performance before GRC terminated the project in December 2008.

The daily QA reports documented numerous construction deficiencies on the part of the contractor, such as the following:

- *“the quality of the concrete used to make the fence posts is poor”*
- *“the fence posts were able to be shaken and broken by hand”*
- *“barbed wire secured poorly”*
- *“water supply to guard house not buried at the appropriate depth”*
- *“sanitary sewer pipe is pitching the wrong way”*
- *“hot water tank installed outside of trailer”*
- *“excessive cable from electrical panel is unsecured and not in conduit”*

Site Photos 1-3 document various construction deficiencies the daily QA reports identified. After reviewing the daily QA reports and photographs, SIGIR agreed with GRC’s concerns regarding the construction practices, which led directly to the deficiencies identified.



**Site Photo 1. Cables unsecure and not in conduit  
(Courtesy of GRC)**



**Site Photo 2. Water supply to guard house not buried  
(Courtesy of GRC)**



**Site Photo 3. A rock used to improperly pitch the sanitary line  
(Courtesy of GRC)**



## Condition at Acceptance and Turnover

At the time of contract termination, the contractor had delivered four mobile substations and five trailers (to be used as service buildings) to the MOE's outdoor warehouse facility, and installed one trailer at the Haditha project site.

SIGIR reviewed project file documentation to determine the condition/status of the equipment at the time of the contractor's termination. The Iraqi Director of Anbar Electrical Distribution organized a committee of four engineers to receive and inspect the contractor-provided mobile substations. The project file included the receipt of all four mobile substations and inspection reports documenting that each mobile substation was tested and successfully passed. Site Photo 4 shows testing performed on the mobile substations.

In addition, project file documentation included a MOE memorandum, dated 17 November 2009, stating that the contractor had provided three days of training to 23 MOE operators on the O&M of the mobile substations. Site Photo 5 documents contractor training on the use of specific mobile substation equipment. Further, this memorandum confirmed that the contractor provided the mobile substation O&M manuals to the MOE.



Site Photo 4. Testing of mobile substations after delivery  
(Courtesy of GRC)



Site Photo 5. Contractor-provided training of MOE operators  
(Courtesy of GRC)

## Site Assessment

On 1 November 2009, SIGIR performed a limited (1 hour) on-site assessment of the Al Qaim 33/11kV project. In April 2009, GRC terminated the contractor for convenience and required the four delivered mobile substations be moved to a secure facility to avoid looting and/or damage. The contractor delivered the four mobile substations to the MOE's outdoor warehouse facility, located in Ramadi, Iraq. Consequently, SIGIR's site assessment of this project did not occur in Al Qaim, but rather in Ramadi where the mobile substations were located.

The MOE's outdoor warehouse facility is secured by a perimeter block fence with concertina wire and protected by several guards to ensure the security of the mobile substation equipment.

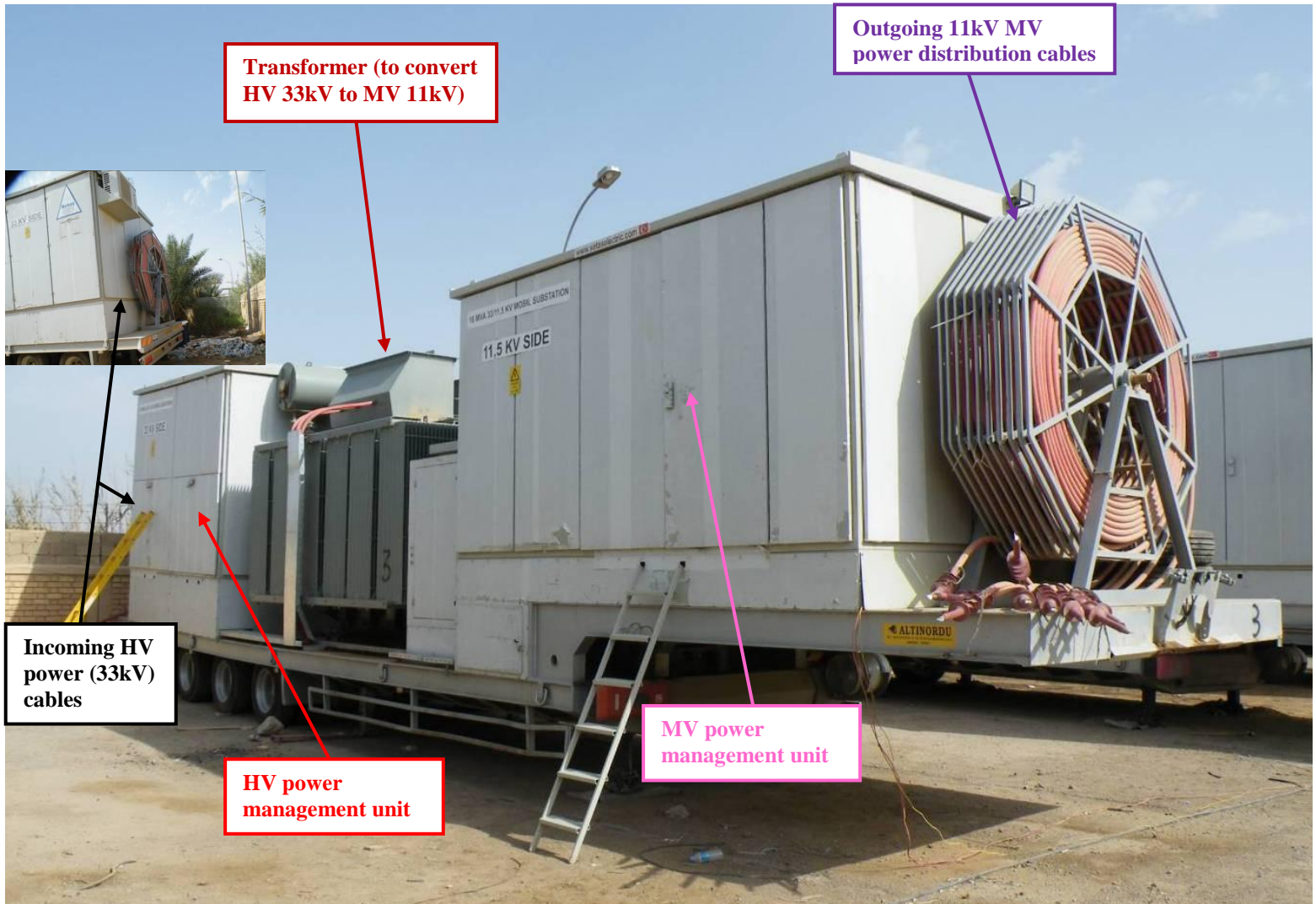
### Mobile Substations

SIGIR identified four mobile substations within the MOE's outdoor warehouse facility (Site Photo 6). Each 33/11kV 16 MVA mobile substation was factory-equipped/installed/assembled and mounted on trailers approximately 50 feet long by 11 feet wide. It appeared that the mobile substations were complete and adequately assembled with the required cables, transformer, power management units, and circuit components (Site Photo 7).

However, since the contractor did not connect any of the substations to the national grid, SIGIR could not determine the current operational status of the substations.



**Site Photo 6. Four mobile electrical substations at the MOE's Ramadi outdoor warehouse facility**

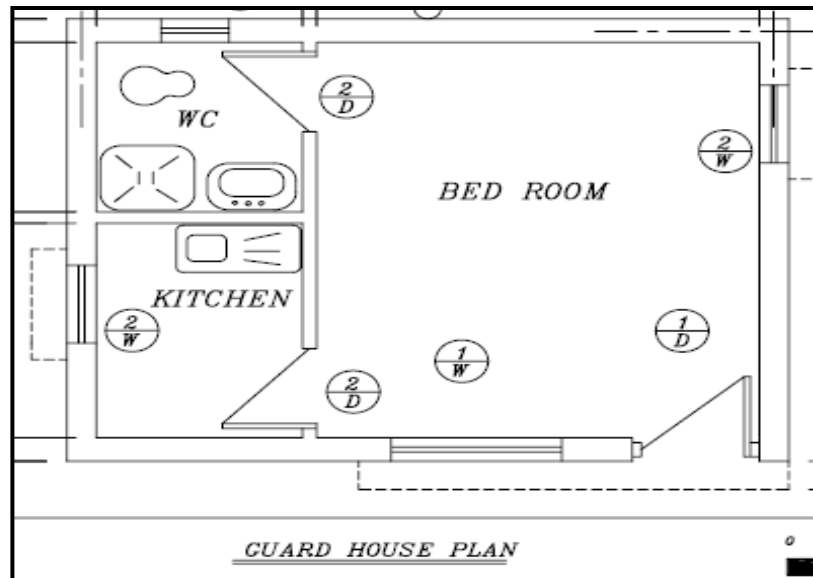


Site Photo 7. Fully assembled mobile electrical substation

### Housing Units for Mobile Substations

The SOW required the contractor to provide “service buildings” for each mobile substation. The intent of the service buildings is to provide living accommodations for guards protecting the mobile substations from vandalism and/or theft. The contractor’s service building design consisted of a bedroom, bathroom (water closet), and kitchen, including an air-conditioning unit and lights (Figure 6).





**Figure 6. Design of the service buildings/trailers (Courtesy of GRC)**

SIGIR identified five trailers within the MOE’s outdoor warehouse facility, which were to serve as the service buildings for the substations (Site Photo 8). SIGIR found each trailer in poor condition. Specifically, trailer wheels either missing or having flat tires, interior lights broken, circuit panels not connected, and debris scattered throughout (Site Photos 9 and 10). It appeared the trailers had been vandalized; however, the project file documentation lacked photographs of the condition of each trailer upon arrival at the MOE’s warehouse facility. Consequently, SIGIR could not conclude whether the contractor delivered poorly constructed trailers or that they were damaged/ vandalized since their delivery.



**Site Photo 8. Exterior condition of trailers at the MOE’s Ramadi outdoor warehouse facility**



Site Photos 9 and 10. Examples of interior condition of trailers, including disconnected circuit boards, debris, and broken lights

## ITAO Efforts to Utilize the Mobile Substations

The MOE representatives from the outdoor warehouse facility did not know the long-term plan for the four mobile substations. Therefore, SIGIR contacted ITAO representatives who interact with the MOE daily on various electrical issues, such as generation, transmission, and distribution. At the time of the site visit, the four mobile substations had been sitting idle at the warehouse facility for at least seven months<sup>14</sup>. Considering the significant financial investment on the part of the U.S. government to deliver four mobile substations, SIGIR asked ITAO if the MOE planned to utilize them. ITAO representatives have engaged the local MOE regarding the use of the four delivered mobile substations. According to ITAO representatives, MOE officials have expressed frustration with efforts to have the Anbar Governor efficiently utilize the mobile substations. ITAO representatives are concerned that the Anbar Governor's desire is to use the mobile substation to connect new load to the system and not shed the new load in the normal rotation (as is done with the existing permanent substations).

In addition, ITAO requested at least one of the delivered mobile substations for a substation project in the Missan province. According to ITAO representatives, the decision on the use of the mobile substations is the responsibility of the Anbar Governor, who refused to release any of the four mobile substations for use outside of Anbar province.

ITAO representatives stated that they are still in constant contact with the local and national MOE representatives in an effort to seek the most equitable and efficient utilization of the four delivered mobile substations.

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<sup>14</sup> At the time of the issuance of this draft report, the four mobile substations had been sitting idle for at least eleven months.

# Conclusions

The contract required the manufacture, transport, and installation of six units of trailer-mounted 33/11kV 16MVA mobile substations to various locations within the Anbar province. The contract required the contractor to complete the project within 270 calendar days; however, a contract modification changed the original locations for the mobile substations and extended the period of performance by an additional 210 calendar days.

On 10 December 2008, after 591 calendar days, the U.S. Army Corps of Engineers GRC issued a termination for default to the contractor “*due to the result of your non-responsiveness in providing resolution to non-performance, non-responsiveness and failure to submit the required submittals.*” On 22 April 2009, the GRC issued a letter to the contractor to “clarify the earlier correspondence...dated 10 December, 2008.” GRC advised the contractor that contract W917BG-07-C-0063 was now “terminated for the Government’s convenience.”<sup>15</sup>

At the time of termination, the contractor had delivered four of the six contract-required mobile substations<sup>16</sup> to unsecured sites throughout Anbar province. In an effort to protect the delivered mobile substations from potential vandalism and theft, GRC had the contractor relocate them to an outdoor warehouse facility in Ramadi belonging to the MOE. GRC then debated the idea of awarding another contract to complete the remaining unfinished tasks by the original contractor. However, ITAO, the official “customer” for this project, decided that the termination of this contract was in the best interests of the U.S. government.

Aside from the procurement of the mobile substations, the contractor performed limited construction work at one of the six sites prior to the termination of the contract. At the Haditha site, the contractor poured the concrete foundation for the substation, installed a service building, and erected the perimeter fence and gate. However, GRC documented numerous construction deficiencies on the part of the contractor, such as the following:

- “*the quality of the concrete used to make the fence posts is poor*”
- “*the fence posts were able to be shaken and broken by hand*”
- “*barbed wire secured poorly*”
- “*water supply to guard house not buried at the appropriate depth*”
- “*sanitary sewer pipe is pitching the wrong way*”
- “*hot water tank installed outside of trailer*”
- “*excessive cable from electrical panel is unsecured and not in conduit*”

After reviewing the daily QA reports and photographs, SIGIR agreed with GRC’s concerns regarding the construction practices, which led directly to the deficiencies identified.

SIGIR reviewed project file documentation to determine the condition/status of the equipment at the time of the contractor’s termination. The Iraqi Director of Anbar Electrical Distribution organized a committee of four engineers to receive and inspect the

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<sup>15</sup> An April 2009 memorandum for record documented a different GRC contracting officer’s belief that the original contracting officer’s termination for default letter to the contractor resulted in “confusion and potential liability to the [U.S.] Government...It was discussed and unanimously agreed upon that it would be appropriate to terminate this contract for convenience rather than default.”

<sup>16</sup> According to ITAO representatives, the remaining two mobile substations are scheduled for delivery in April 2010.

contractor-provided mobile substations. The project file included the receipt of all four mobile substations and inspection reports that documented each mobile substation was tested and successfully passed. In addition, project file documentation included a MOE memorandum, dated 17 November 2009, stating that the contractor had provided three days of training to 23 MOE operators on the O&M of the mobile substations. Further, this memorandum confirmed that the contractor provided the mobile substation O&M manuals to the MOE.

On 1 November 2009, SIGIR performed an on-site assessment of the Al Qaim 33/11kV project at the MOE's outdoor warehouse facility in Ramadi. SIGIR identified four mobile substations within the MOE's outdoor warehouse facility. Each 33/11kV 16MVA mobile substation was factory-equipped/installed/assembled and mounted on trailers approximately 50 feet long by 11 feet wide. It appeared that the mobile substations were complete and correctly assembled with the required cables, transformers, power management units, and circuit components. However, since the contractor did not connect any of the substations to the national grid, SIGIR could not determine the current operational status of the substations.

SIGIR identified five trailers within the MOE's outdoor warehouse facility, which were to serve as the service buildings for the substations<sup>17</sup>. SIGIR found each trailer in poor condition. Specifically, trailer wheels either missing or had flat tires, interior lights broken, circuit panels not connected, and debris scattered throughout. It appeared that the trailers had been vandalized; however, the project file documentation lacked photographs of the condition of each trailer upon arrival at the MOE's warehouse facility. Consequently, SIGIR could not conclude whether the contractor delivered poorly constructed trailers or that they were damaged/ vandalized since their delivery.

At the time of the site visit, the four mobile substations had been sitting idle at the warehouse facility for at least seven months<sup>18</sup>. Considering the significant financial investment on the part of the U.S. government to deliver four mobile substations, SIGIR asked ITAO if the MOE planned to use them. ITAO representatives have engaged the local MOE representative regarding the use of the four delivered mobile substations. ITAO representatives are concerned that the Anbar Governor's desire is to use the mobile substation to connect new load to the system and not shed the new load in the normal rotation (as is done with the existing permanent substations). ITAO representatives stated that they are still in constant contact with the local and national MOE representatives in an effort to seek the most equitable and efficient utilization of the four delivered mobile substations.

The contractor has been paid \$6,460,630.14 for the delivery of the four mobile substations, accompanying service buildings, and miscellaneous construction activities. Until the mobile electrical substations and accompanying service buildings are available for use, almost \$6.5 million in U.S. Economic Support Funds can be considered wasted.

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<sup>17</sup> The intent of the service buildings/trailers is to provide living accommodations for guards protecting the mobile substations from vandalism and/or theft.

<sup>18</sup> At the time of the issuance of this draft report, the four mobile substations have been sitting idle for at least eleven months.

## **Recommendations**

To protect the U.S. government's investment of approximately \$6.5 million, SIGIR recommends that the ITAO Director continue engagement with Iraqi officials in an effort to utilize the mobile substations.

## **Management Comments**

We received official comments on a draft of this report from the United States Forces-Iraq and GRD and unofficial comments from an ITAO representative.

The official comments from the United States Forces-Iraq generally agreed with the facts as presented in the report but clarified that an additional contract modification provided to SIGIR on 14 March 2010 resulted in a cost savings of \$193,878. This final report was changed to reflect that fact.

The unofficial comments from an ITAO representative also generally agreed with the facts as presented in the draft report, but asserted that two additional mobile substations were to be delivered in April and noted that ITAO was working only with the MOE, not the governor of Anbar, to utilize the mobile substations. This final report was changed to reflect the ITAO comments.

## **Evaluation of Management Comments**

SIGIR appreciates the concurrences by the United States Forces-Iraq and ITAO with the draft report and its recommendation. Their comments addressed our recommendations and provided additional clarifying information for this final report. As a result, no additional comments are required.

## Appendix A. Scope and Methodology

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

In performing this Project Assessment SIGIR:

- Reviewed documentation that included the contract, contract modifications, Statements of Work, and quality assurance/quality control reports;
- Reviewed the design package (plans) and photographs documenting construction progress;
- Interviewed U.S. Army Corps of Engineers Gulf Region Central, Iraq Transition Assistance Office, and Ministry of Electricity personnel; and
- Conducted an on-site assessment and documented results at the Ministry of Electricity's Ramadi outdoor warehouse facility in Ramadi, Iraq.

**Scope Limitation.** Due to security concerns, the time allotted for the site visit was approximately 1 hour. Consequently, SIGIR performed an expedited assessment of the areas available; therefore, a complete review of all work completed was not possible.

## **Appendix B. Acronyms**

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GRC	Gulf Region Central
GRN	Gulf Region North District
GRS	Gulf Region South District
ITAO	Iraq Transition Assistance Office
km	kilometer
kV	kilo-volt
m	Meter
MOE	Ministry of Electricity
MW	Mega-watt
MVA	Mega-volt ampere
O&M	Operations and Maintenance
QA	Quality Assurance
SCADA	Supervisory Control And Data Acquisition
SIGIR	Special Inspector General for Iraq Reconstruction
SOW	Statement of Work
USACE	U.S. Army Corps of Engineers

# Appendix C. United States Forces-Iraq Provided Comments by GRD to Draft Report



REPLY TO  
ATTENTION OF

CETAG

DEPARTMENT OF THE ARMY  
GULF REGION DISTRICT  
ARMY CORPS OF ENGINEERS  
APO AE 09342



22 March 2010

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

SUBJECT: Draft SIGIR Audit Report – Al Qaim 33/11kV Electrical Mobile Substation (SIGIR PA-09-191)

1. This memorandum provides the U.S. Army Corps of Engineers, Gulf Region District, Transatlantic Division response to the subject draft audit report.
2. The Gulf Region District reviewed the subject draft report and generally agrees with the facts as presented in the report. Gulf Region District provided one additional comment for clarity in the enclosure.
3. Thank you for the opportunity to review the draft report and provide written comments for inclusion in the final report.
4. If you have any questions, please contact Robert Jones at (540) 678-2996 or via email [Robert.A.Jones@usace.army.mil](mailto:Robert.A.Jones@usace.army.mil).

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## Appendix C. United States Forces-Iraq Provided Comments by GRD to Draft Report

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GULF REGION DISTRICT

COMMAND REPLY

to

SIGIR Draft Audit Report – Al Qaim 33/11kV Electrical Mobile Substation  
(SIGIR Project PA 09-191)

**Comment:** Page three of the draft report states, “Modification P0001...changed the location of all six mobile electrical substations...This modification increased the total cost of the contract by” 4.2%.

On 14 March 2010, Gulf Region District sent SIGIR an additional modification that resulted in contract cost savings of \$193,878. In the modification, signed by the contracting officer on 5 March 2010, Gulf Region District changed the fencing material from masonry to chain link.

## **Appendix D. Report Distribution**

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### **Department of State**

Secretary of State

Senior Advisor to the Secretary and Coordinator for Iraq

Director of U.S. Foreign Assistance/Administrator, U.S. Agency for  
International Development

Director, Office of Iraq Reconstruction

Assistant Secretary for Resource Management/Chief Financial Officer,  
Bureau of Resource Management

U.S. Ambassador to Iraq

Director, Iraq Transition Assistance Office

Mission Director-Iraq, U.S. Agency for International Development

Inspector General, Department of State

### **Department of Defense**

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 of Peace

## **Congressional Committees**

### **U.S. Senate**

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

### **U.S. House of Representatives**

House Committee on Appropriations  
House Committee on Armed Services  
House Committee on Oversight and Government Reform  
House Committee on Foreign Affairs

## **Appendix 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:

Angelina Johnston

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