SIGAR

Special Inspector General for Afghanistan Reconstruction

SIGAR 18-01 Inspection Report

Kabul Military Training Center Phase IV: Poor Design and Construction, and Contractor Noncompliance Resulted in the Potential Waste of as Much as $4.1 Million in Taxpayer Funds

OCTOBER

2017

SIGAR

Special Inspector General for Afghanistan Reconstruction

WHAT SIGAR REVIEWED

On July 18, 2013, the U.S. Army Corps of Engineers (USACE) awarded a $17.1 million firm-fixed-price contract to MegaTech Construction Services (MegaTech), an Afghan company, to complete the Kabul Military Training Center's (KMTC's) Phase IV design and construction of new facilities and renovation of several existing ones. Newly constructed facilities included three barracks, two dining facilities (DFACs), three storage buildings, eight latrines, and seven guard shacks. The KMTC is Afghanistan's primary training base for new Afghan National Army recruits, with about 18,000 receiving training in 2016.

In 2011, SIGAR reported on the Combined Security Transition Command–Afghanistan's (CSTC–A's) $140 million construction project covering Phases I through III of the KMTC. The report noted that construction was completed nearly 2 years behind schedule and project costs increased by $12.5 million. SIGAR could not determine why the project was delayed and costs increased because of incomplete or contradictory documentation. However, SIGAR found that poor contractor performance and inaccurate site information were contributing factors. SIGAR made four recommendations to improve planning and maintenance of contract files, and for the contractor to reimburse the government for costs associated with correcting construction deficiencies. The U.S. Air Force Center for Engineering and the Environment implemented the recommendations, and SIGAR closed them in 2012.

The objectives of this inspection were to determine whether the KTMC's Phase IV facilities (1) were constructed or renovated in accordance with contract requirements and applicable construction standards, and (2) are being used and maintained.

October 2017

Kabul Military Training Center Phase IV: Poor Design and Construction, and Contractor Noncompliance Resulted in the Potential Waste of as Much as $4.1 Million in Taxpayer Funds

SIGAR 18-01 INSPECTION REPORT

WHAT SIGAR FOUND

SIGAR found that the newly constructed and renovated KMTC Phase IV facilities were not completed according to contract requirements. There were instances of poor design and construction, contractor noncompliance, and unauthorized product substitution that resulted in the potential waste of as much as $4.1 million in taxpayer funds. For example, MegaTech—based on USACE's design—placed propane gas cylinders too close to the new DFACs, which could lead to a gas explosion in the kitchens; did not install certified fire-rated doors as required; and installed some counterfeit fire extinguishers. Although the contract required adherence to National Fire Protection Association standards, which specify at least 10 feet of separation between propane gas cylinders and any ignition source or building, USACE designed and approved specifications with "zero clearance" between the cylinders and the DFACs. As a result, despite USACE paying $3.9 million to build two new DFACs, the kitchens have never been used to prepare meals because of gas issues that could lead to explosions.

SIGAR found three additional instances where MegaTech did not comply with contract requirements and safety standards when constructing the two DFACs, all of which also could lead to gas explosions.

- Propane gas pipelines in the DFACs are connected with welded instead of threaded connections, which are more prone to gas leaks.
- Stainless steel gas hoses were not connected to kitchen stoves with quick disconnect devices, making them more susceptible to gas leaks.
- The gas line with a service valve was installed too close to electrical disconnect devices in one DFAC.

MegaTech was also required to install 62 certified fire-rated doors in eight of the Phase IV buildings, including the two DFACs and two of the new barracks. SIGAR found that none of the 62 doors installed was a certified fire-rated door, resulting in an estimated $192,679 overpayment. More specifically, 42 of the doors appeared to have counterfeit fire rating labels; 13 doors had no fire rating labels, and 7 had labels from an Afghan company that was not approved by USACE or certified to manufacture fire-rated doors. The contract required that companies with products approved by a certifying agency, such as Underwriters Laboratory, manufacture the doors and ensure that they have labels with information attesting to their fire protection attributes and about the manufacturer.

The Phase IV contract also required MegaTech to install safety items to protect building occupants during a fire. SIGAR found that none of the required fire stops in the DFACs and barracks was installed; fire stops are used to fill holes in walls when wiring or piping is installed to help prevent fires from spreading quickly. In addition, MegaTech installed exit signs, but they only showed the word "Exit" and did not include the international symbol of a green man running in the direction of the exit, as the contract required.

Furthermore, MegaTech installed noncompliant fire extinguishers and approved faucets that were not compliant with the contract. The contract required MegaTech to install 88 fire extinguishers. SIGAR found that although USACE did not approve MegaTech's request to purchase equipment from Buckeye Fire

Equipment Company (Buckeye), it allowed MegaTech to install 81 Buckeye fire extinguishers, including 17 with counterfeit Buckeye labels and 5 from another nonapproved manufacturer. The use of counterfeit and missing fire extinguishers raises concerns about whether they will work in the event of a fire. USACE overpaid MegaTech by an estimated $1,452 for the fire extinguishers not installed and for counterfeit items. Similarly, USACE approved noncompliant faucets. The contract required MegaTech to install chrome-plated brass or bronze alloy wall-mounted faucets and prohibited the use of gooseneck faucets, except in the DFACs and medical clinics, where gooseneck faucets with wrist blade handles were required. By installing faucets without wrist blade handles in the DFACs and medical clinics, MegaTech failed to comply with the latter requirement. SIGAR determined that USACE overpaid MegaTech by an estimated $10,841 for the substituted items.

The contract required MegaTech to assess the existing water supply and distribution system within the KMTC facility. In March 2014, MegaTech completed its assessment and found two existing water wells capable of providing about 1.18 million liters of water, or about one-third of the 3.36 million liters of water needed daily at the KMTC. MegaTech drilled two new water wells, but they were capable of providing only about 345,600 liters of water daily, increasing the total supply to 1.53 million liters. As a result, the supply of water is about 1.83 million liters short of daily requirements. Even though MegaTech did not find a sufficient amount of water, in its written comments on a draft of this report, USACE stated that the company fully met contract specifications by providing the required two wells with a total drilled depth of 240 meters, and, as a result, it paid MegaTech $604,084. USACE also stated that because water has proven to be scarce in the KMTC area, other alternatives are being researched. KMTC's water shortage has resulted in occupants of the facility having bathing and drinking water for only about 1 hour a day.

SIGAR found that USACE did not conduct adequate oversight of the Phase IV project, as evidenced by USACE's acceptance and transfer of the Phase IV facilities with little oversight and documentation that quality assurance activities occurred, including no evidence that either USACE or CSTC–A participated in inspections of the constructed facilities. Despite three key quality assurance activities—the three-phase inspection process, final inspection, and the 4- and 9-month warranty inspections—USACE failed to discover any of the construction deficiencies identified in this report.

Finally, SIGAR found that most of the Phase IV facilities it inspected were being used and generally well maintained. The two facilities not being used were the DFAC kitchens, as noted earlier, because of concerns about possible gas explosions. However, the latrines were being used but not well maintained, and emergency lighting systems were installed, but almost half were not functioning properly. The KMTC facility manager told SIGAR that the use of the latrines is limited due to the water shortage, and we found that the floor drains and sinks were clogged with dirt and other materials, causing water to pool.

WHAT SIGAR RECOMMENDS

To protect the U.S. taxpayers' investment in the KMTC Phase IV project, and to ensure the safety of Afghan National Army personnel using the facilities, SIGAR recommends that the USACE Commanding General and Chief of Engineers, in coordination with the CSTC–A Commander, take the following actions and report the results back to SIGAR within 90 days:

1. **Eliminate the unsafe conditions at the KMTC and bring all construction into compliance with contract requirements by working with MegaTech to correct instances of contract noncompliance. Specifically,**
    a. **move the propane gas cylinders at least 10 feet away from the walls of DFACs 510 and 511;**
    b. **replace all welded connections used on pipelines 50 millimeters or less in diameter that are supplying propane gas in DFACs 510 and 511 with threaded connections;**
    c. **replace the threaded gas supply line's final connections to the DFAC kitchen stoves with quick disconnect devices;**
    d. **move the gas line service valves and piping in DFAC 511 away from the electrical disconnect devices; and**
    e. **install fire stops and correct the exit signage throughout the KMTC Phase IV facilities.**
2. **Examine all fire extinguishers and direct MegaTech to replace counterfeit or missing extinguishers.**
3. **Determine whether the installed fire door assemblies and faucets meet the contract requirements, and direct**

MegaTech to replace the items that do not or seek reimbursement for the price difference.

4. Work with KMTC officials to identify alternate solutions, other than drilling new wells, to supplying sufficient amounts of water to meet the facility's daily needs.

CSTC–A and USACE provided written comments on a draft of this report. CSTC–A stated that USACE would address the recommendations. USACE concurred with recommendation 1a and 3; did not concur with recommendations 1c, 1d, and 2; and is conducting further reviews of recommendations 1b and 1e.

In a draft of this report, SIGAR included a fourth recommendation to ensure that new water wells are drilled to provide a sufficient supply of water for the KMTC, the water is tested, and the new distribution system is transferred to the KMTC. USACE did not concur with this recommendation, stating that MegaTech met the contract specifications by providing the required two wells with a total drilled depth of 240 meters. However, USACE also stated that it is researching other alternatives to providing water for the facility. SIGAR updated the recommendation to reflect this ongoing effort.

October 10, 2017

The Honorable Jim Mattis
Secretary of Defense

General Joseph L. Votel
Commander, U.S. Central Command

General John W. Nicholson, Jr.
Commander, U.S. Forces–Afghanistan and
Commander, Resolute Support

Lieutenant General Todd T. Semonite
Commanding General and Chief of Engineers
U.S. Army Corps of Engineers

Major General Robin L. Fontes
Commanding General, Combined Security Transition Command–Afghanistan

This report discusses the results of SIGAR's inspection of the Phase IV construction of new facilities and the renovation of some existing facilities at the Kabul Military Training Center (KMTC), located in the Dih Sabz district of Kabul province. The KMTC is Afghanistan's primary training base for new Afghan National Army recruits, with about 18,000 receiving training at the base in 2016. The U.S. Army Corps of Engineers (USACE) awarded a $17.1 million firm-fixed-price contract to MegaTech Construction Services (MegaTech), an Afghan company, to complete the Phase IV construction and renovation activities.

The new facilities under Phase IV included two dining facilities (DFACs), three barracks, a water system, an administration building, three storage buildings, two guard towers, eight latrines, seven guard shacks, four vehicle maintenance shops, and a parking area. The contract also required repairs to the heating, ventilating, and air conditioning system in the troop medical clinic, and renovations to an existing warehouse's maintenance shop. USACE transferred the Phase IV facilities to the Combined Security Transition Command–Afghanistan (CSTC–A) between February and July 2016, and CSTC–A subsequently transferred them to the Afghan Ministry of Defense, with the final facility transferred in July 2016.

We are making four recommendations in this report. We recommend that the USACE Commanding General and Chief of Engineers, in coordination with the Commander of CSTC–A, take the following actions and report the results back to SIGAR within 90 days:

1. Eliminate the unsafe conditions at the KMTC and bring all construction into compliance with the contract requirements by working with MegaTech to correct instances of contract noncompliance. Specifically,
    a. move the propane gas cylinders at least 10 feet away from the walls of DFACs 510 and 511;
    b. replace all welded connections used on pipelines 50 millimeters or less in diameter that are supplying propane gas in DFACs 510 and 511 with threaded connections;
    c. replace the threaded gas supply line's final connections to the DFAC kitchen stoves with quick disconnect devices;

d. move the gas line service valves and piping away from the electrical disconnect devices in DFAC 511; and
e. install fire stops and correct the exit signage throughout the KMTC Phase IV facilities.

2. Examine all fire extinguishers and direct MegaTech to replace counterfeit or missing extinguishers.
3. Determine whether the installed fire door assemblies and faucets meet the contract requirements, and direct MegaTech to replace the items that do not or seek reimbursement for the price difference.
4. Work with KMTC officials to identify alternate solutions, other than drilling new wells, to supplying sufficient amounts of water to meet the facility's daily needs.

We received written comments on a draft of this report from CSTC–A and USACE. CSTC–A stated that USACE would address the recommendations. USACE concurred with recommendation 1a and 3; did not concur with recommendations 1c, 1d, and 2; and is conducting further reviews of recommendations 1b and 1e.

In a draft of this report, we included a fourth recommendation to ensure that new water wells are drilled to provide a sufficient supply of water for the KMTC, the water is tested, and the new distribution system is transferred to the KMTC. USACE did not concur with this recommendation, stating that MegaTech met the contract specifications by providing the required two wells with a total drilled depth of 240 meters. However, USACE also stated that it is researching other alternatives to providing water for the facility. We updated the recommendation to reflect this ongoing effort.

CSTC–A's and USACE's comments are reproduced in appendices III and IV, respectively. USACE also provided technical comments, which we incorporated into this report, as appropriate.

SIGAR conducted this work under the authority of Public Law No. 110-181, as amended, and the Inspector General Act of 1978, as amended; and in accordance with the *Quality Standards for Inspection and Evaluation*, published by the Council of the Inspectors General on Integrity and Efficiency.

John F. Sopko
Special Inspector General
for Afghanistan Reconstruction

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ABBREVIATIONS

ANA	Afghan National Army
CSTC–A	Combined Security Transition Command–Afghanistan
DFAC	dining facility
DFOW	definable feature of work
FAR	Federal Acquisition Regulation
FM	Factory Mutual Engineering and Research
KMTC	Kabul Military Training Center
MegaTech	MegaTech Construction Services
NFPA	National Fire Protection Association
UL	Underwriters Laboratory
USACE	U.S. Army Corps of Engineers
WHI	Warnock Hersey International

The Kabul Military Training Center (KMTC), located in the Dih Sabz district of Kabul province, is Afghanistan's primary training base for new Afghan National Army (ANA) recruits. The number of recruits trained annually at the KMTC has increased from 4,000 in 2006 to about 18,000 in 2016. The base hosts training for soldiers, noncommissioned officers, and officers, and includes classrooms, barracks, and live-fire training ranges.

On July 18, 2013, the U.S. Army Corps of Engineers (USACE) awarded a $17.1 million firm-fixed-price contract to MegaTech Construction Services (MegaTech), an Afghan company, to complete the Phase IV design and construction of new facilities and to renovate some existing facilities at the KMTC.[1] The new facilities included two dining facilities (DFACs), three barracks, a water system, an administration building, three storage buildings, two guard towers, eight latrines, seven guard shacks, four vehicle maintenance shops, and a motor pool parking area. The contract also included repairs to the heating, ventilating, and air conditioning system in the troop medical clinic and renovations to the warehouse's maintenance shop. USACE transferred the Phase IV facilities to the Combined Security Transition Command–Afghanistan (CSTC–A) between February and July 2016, and CSTC–A subsequently transferred those facilities to the Afghan Ministry of Defense, with the final facility transferred in July 2016. The contract warranties covered 1 year, and the end of the warranty periods varied from February through July 2017, depending on when each facility was transferred to CSTC–A.[2]

In 2011, we reported on CSTC–A's $140 million construction project covering Phases I through III of the KMTC.[3] The report noted that construction was completed nearly 2 years behind schedule and project costs increased by $12.5 million. Although we could not determine why the project was delayed and costs increased because of incomplete or contradictory documentation regarding contract modifications. However, we found that poor contractor performance and inaccurate building site information were contributing factors. We recommended that (1) project planning be more detailed, (2) contract and task order files contain complete information regarding modifications, and (3) the contractor reimburse repair costs related to poor contract performance. The U.S Air Force Center for Engineering and the Environment took corrective action, and in 2012, we closed the recommendations as implemented.

The objectives of this inspection were to determine whether the KMTC's Phase IV facilities (1) were constructed in accordance with contract requirements and applicable construction standards, and (2) are being used and maintained.

We conducted our work in Kabul, Afghanistan, from May 2016 through October 2017 in accordance with the *Quality Standards for Inspection and Evaluation*, published by the Council of the Inspectors General on Integrity and Efficiency. The engineering assessment was conducted by our professional engineers in accordance with the National Society of Professional Engineers' *Code of Ethics for Engineers*. Appendix I contains a detailed discussion of our scope and methodology.

[1] The contract number for the Phase IV project is W5J9JE-13-C-0034. The project was funded through the Afghanistan Security Forces Fund.

[2] USACE transferred the Phase IV facilities to CSTC-A on different dates. For example, USACE transferred the ambulatory care clinic on February 24, 2016; 43 other buildings, facilities, and infrastructure—including the DFACs—on March 30, 2016; and the latrines on July 14, 2016.

[3] See SIGAR, *Better Planning and Oversight Could Have Reduced Construction Delays and Costs at the Kabul Military Training Center,* SIGAR Audit 12-2, October 26, 2011.

POOR CONSTRUCTION AND CONTRACTOR NONCOMPLIANCE CREATED SAFETY HAZARDS IN KMTC'S PHASE IV FACILITIES

We initially visited the KMTC on October 15, 2016, made 10 additional visits between October 24 and November 20, 2016, and conducted a final site visit on January 24, 2017. We found that MegaTech's construction and renovation of the Phase IV buildings and support facilities generally did not meet contract requirements. We found instances of poor design and construction, contractor noncompliance, and use of noncompliant products that USACE approved. For example, propane gas cylinders were placed near the kitchen stoves, which could put lives at risk in the event of an explosion; certified fire-rated doors were not installed as required; and some fire extinguishers were counterfeit or not installed. We also found that USACE conducted inadequate oversight of the Phase IV project, which was evident in USACE's acceptance and transfer of the buildings and facilities with little oversight and documentation of required quality assurance activities. This included no evidence of USACE or CSTC–A personnel at final and warranty inspections, and no documentation showing that required propane gas tests were performed.

DFAC Kitchens Were Not Being Used Because of Propane Gas Issues that Increase the Risk of an Explosion

The KMTC facility engineer told us that since the ANA took possession of the new DFACs from CSTC–A in May 2016, he has not allowed personnel to use the kitchens because problems with the placement of the propane gas cylinders and their connection to the kitchen stoves increase the risk of explosions.[4] The kitchens in DFACs 510 and 511 have 18 and 20 stoves, respectively, which are connected by pipes inside the walls to gas cylinders located just outside the walls. During our October 15, 2016, site visit,[5] we found one instance where USACE did not comply with applicable safety standards and codes, and three instances where MegaTech did not comply with the contract requirements or applicable safety standards and codes when constructing DFACs 510 and 511.[6] USACE paid MegaTech $3.9 million to construct these DFACs, which the ANA cannot use to prepare meals because of the potential for gas explosions. Specifically, we found that:

- propane gas cylinders are located too close to the building and ignition sources;
- propane gas pipelines are connected with welded instead of threaded connections;
- stainless steel gas hoses are not connected to the stoves with quick disconnect devices; and
- a gas line with a service valve was installed too close to electrical devices.

Propane Gas Cylinders Supplying the Stoves Were Too Close to Ignition Sources

The propane cylinders that supply gas to the stoves in DFACs 510 and 511 were too close to the building. The contract required adherence to National Fire Protection Association (NFPA) standards, which specify that there be at least 10 feet of separation between propane gas cylinders and any ignition source or any building.[7]

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[4] During our 2016 site visits, the two DFACs were not being used. The KMTC facility manager told us that in January 2017, ANA personnel began eating meals in the DFACs, but the meals were still being prepared in the old DFAC.

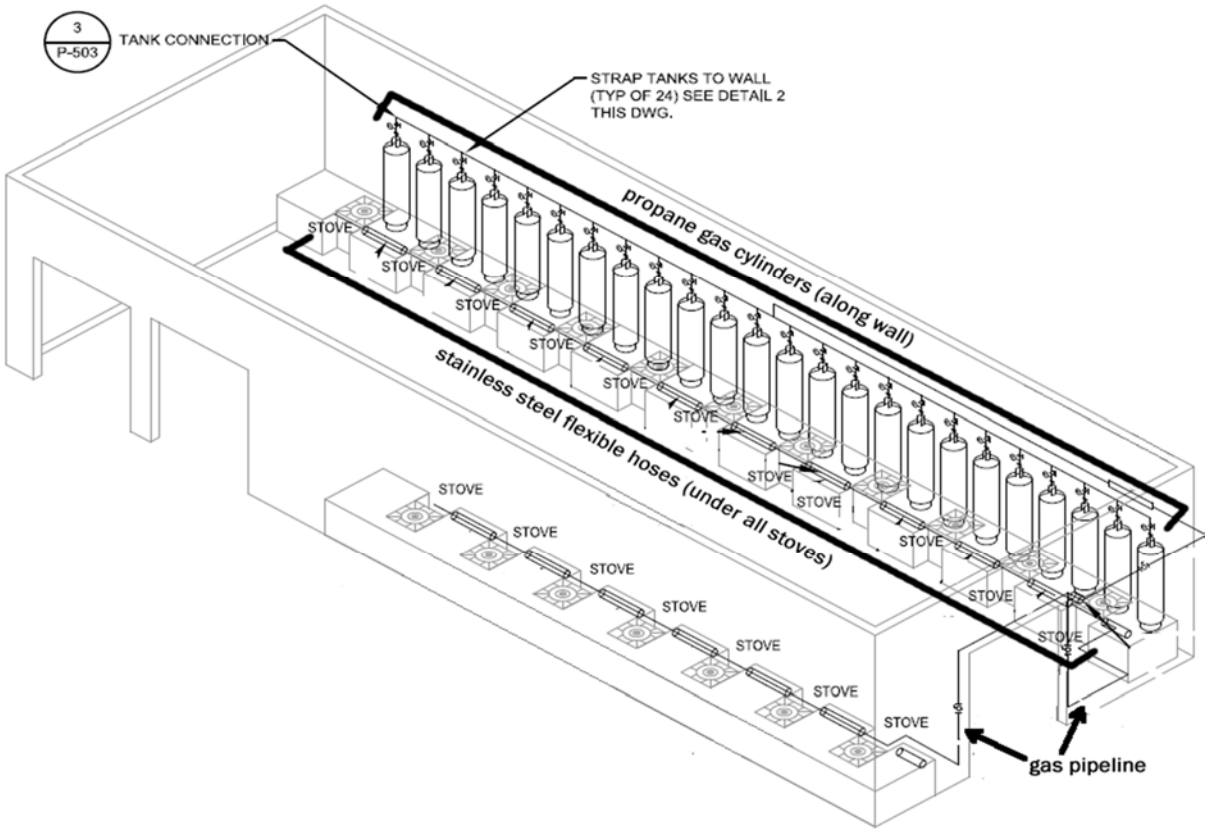
[5] A CSTC-A official accompanied us on our October 15, 2016, site visit. We also met with CSTC–A on October 20, 2016, to discuss our observations, including the DFACs not being used because of the risk of gas explosions in or near the kitchens.

[6] With respect to the DFACs, the contract included requirements from the American National Standards Institute, American Society of Mechanical Engineers International, American Society for Testing and Materials International, Manufacturer's Standardization Society, National Electrical Code, National Fire Protection Association, and the Occupational Safety and Health Administration. These organizations create universally recognized and accepted standards and codes for material safety, process, and procedures in construction, which apply to the two DFAC kitchen gas supply systems.

[7] A minimum of 10 feet of separation is required when the volume of liquid propane gas is at least 721 pounds. Based on the number of propane gas cylinders, the total volume of liquid propane gas for DFACs 510 and 511 was 2,400 and 3,000 pounds, respectively.

However, USACE did not follow the NFPA standards. Specifically, USACE developed and approved technical specifications that called for "zero clearance" between the propane gas cylinders and the DFACs, which violates NFPA requirements.[8] We found that all 54 100-pound gas cylinders—24 for DFAC 510 and 30 for DFAC 511—were located flush against the outside wall of the kitchens where gas stoves were located (see figure 1 for DFAC 510's kitchen configuration). In addition, we found that the gas cylinder storage area contains exterior lights, which are ignition sources and could cause an explosion if gas is released. As a result, the location of these gas cylinders creates a safety hazard to kitchen workers and personnel eating in the DFACs.[9]

Figure 1 - Configuration of the Gas Supply System for DFAC 510's Kitchen



Source: USACE's contract design drawings, January 31, 2012

In March 2017, USACE told us the gas supply system's configuration is a safety issue only if the gas cylinders rupture, thereby allowing gas to escape. USACE also told us that because the gas cylinders are outside the building, air circulation is not a problem. However, NFPA 58 does not make a distinction about whether air circulation negates the requirement for a minimum distance between a building and gas cylinders. Additionally, NFPA 58 prohibits ignition sources within 10 feet of propane gas tanks. Further, USACE did not provide us with any documentation approving a deviation from the NFPA standards or contract requirements. In July 2017, in its written comments to a draft of this report, USACE stated that placing the propane gas cylinders next to the building was a violation, and, as a result, the contract requirements did not comply with NFPA 58.

[8] "Zero clearance" indicates that there is no required minimum distance between the gas cylinders and the DFACs' walls. The gas stoves are located on the other side of the walls from the cylinders.

[9] The KMTC's DFAC life safety plan states that 49 workers will work in DFAC 510 and 68 in DFAC 511.

Propane Gas Pipelines Had Welded Instead of Threaded Connections

The contract's technical specifications and NFPA 58 required that the pipelines supplying propane gas to the DFAC kitchens use threaded connections if the pipe diameter is 50 millimeters or less and welded connections if the diameter is greater than 50 millimeters. Welded connections have a higher potential to crack than threaded connections, and, as a result, have a higher potential for allowing gas to escape. USACE told us the DFAC gas lines varied in size between 13 and 64 millimeters and that because it did not know the location of the welded pipeline in photo 1, it could not comment on whether it was more than 50 millimeters. However, we found that all the propane gas pipelines were welded together inside DFAC 510, and according to the design documents, all of those pipes were 50 millimeters or less and therefore required threaded connections.

Photo 1 - Poorly Welded Gas Pipeline Connection Inside DFAC 510's Kitchen

Source: SIGAR, October 15, 2016

Our inspection of these welds also revealed poor workmanship with MegaTech applying too much welding rod material when connecting the pipes, which can clog the pipes and cause the joint to leak. Photo 1 shows a poorly welded gas pipeline in DFAC 510's kitchen.[10] USACE acknowledged that the welds were "not the highest quality," but added that the performance of a weld is more important than its appearance. In May 2017, USACE told us the propane gas pipelines were pressure-tested and accepted, but it would consider replacing the welded pipes that were less than 50 millimeters. However, USACE has not provided us with any evidence that the gas lines were pressure-tested and accepted.

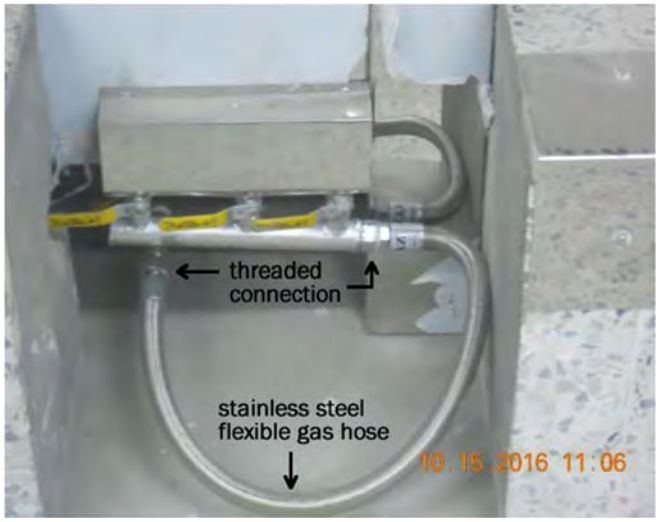
Stainless Steel Gas Hoses Used Threaded Connections Instead of Quick Disconnect Devices to Connect to Stoves

The contract's technical specifications required the gas supply line's final connection to have quick disconnect devices. They safeguard against wear and tear when the hoses need to be cleaned or repaired because they are easier to disconnect and reconnect than threaded lines.[11] However, we found that the gas hoses were installed with threaded connections (see photo 2). Once the hoses deteriorate, which is more likely with threaded connections, they become difficult to reattach, which can result in the threads being stripped away over time. This can lead to gas escaping from the hoses and possibly result in an explosion. In May 2017, USACE said the flexible gas hoses used in the DFACs have one end with a threaded connection and the other end with a quick disconnect device. USACE also said that this configuration allows the entire stove assembly to be removed for cleaning while keeping the threaded connection intact, thereby nullifying safety concerns. However, we found that USACE approved MegaTech's product submittal for stainless steel flexible hoses for gas lines with noncompliant threaded connections on both ends in April 2016. USACE did not provide us with any documentation showing that it approved the deviation from the approved submittal, which required the use of quick disconnect devices instead of threaded connections.

[10] The welding rod material used to join the pipes together is a combination of metals with a lower melting point than the pipe material. During the welding process, the rod material is heated, causing the material to flow like liquid. This allows two similar metals to join quickly.

[11] A quick disconnect device provides an automatic means for shutting off the gas supply when the device is disconnected.

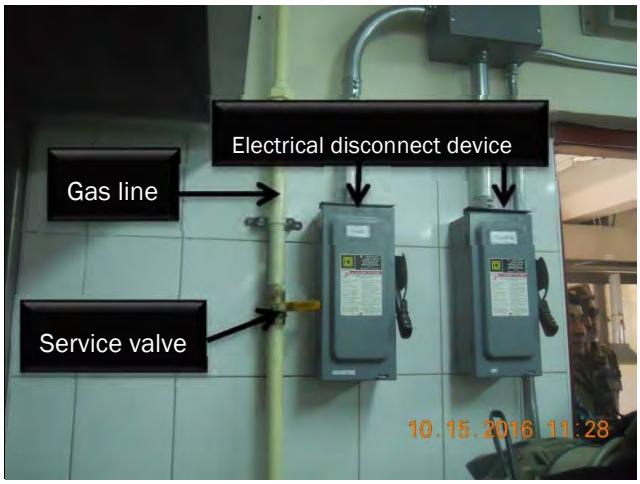
Photo 2 - Stainless Steel Flexible Gas Hose with Threaded Connections on Both Ends



Source: SIGAR, October 15, 2016

Gas Line with Cut-Off Valve Was Installed Inside Instead of Outside DFAC 511 and Next to Electrical Disconnect Devices

Photo 3 - Gas Line Service Valve Installed Inside DFAC 511 and Next to Electrical Disconnect Devices



Source: SIGAR, October 15, 2016

MegaTech installed the gas line service valve for DFAC 511 next to the electrical disconnect devices, which violated the design drawings, NFPA 70, and the National Electrical Code. The placement of the service valve on the gas line inside DFAC 511 and next to electrical disconnect devices creates a safety hazard. Specifically, a gas leak—especially one through the service valve—plus a spark from the electrical disconnect device could cause an explosion. USACE could not provide us with any documentation showing that it approved the deviation from the design drawings. Photo 3 shows the service valve located next to the electrical disconnect devices inside DFAC 511.[12]

USACE told us its standard drawings show service valves inside the building that personnel can use to shut off all gas to the line when maintenance is required. The Phase IV design drawings we reviewed show that the gas line and service valves should be located so they avoid close proximity with the electrical disconnect devices. In March 2017, USACE acknowledged that the service valve could have been placed in a different location to reduce the risk of explosion. Then, in May 2017, USACE told us that

[12] An electrical disconnect device disconnects the conductor of a circuit from the power source. The disconnect device in photo 3 controls the flow of electricity in the DFAC.

placing the gas line service valve next to electrical disconnect devices did not constitute a code violation. USACE said the gas line valve located inside the kitchen is a service valve, and the primary shut-off valve is located on the exterior of the building. However, Section 500.1 of the National Electrical Code prohibits the placement of electrical devices in close proximity to flammable gases and vapors, and it makes no distinction about the type of gas line or valve used.

Despite these deficiencies, USACE documentation shows that it accepted the Phase IV facilities, including the two DFACs, and transferred them to CSTC–A on March 30, 2016. USACE officials told us the facilities were completed in accordance with the contract and accepted "as is." As of May 2017, USACE had not addressed the safety issues that we or the KMTC facility engineer identified.

MegaTech Did Not Install Certified Fire-Rated Doors, Which Could Result in Injury or Death in the Event of Fire

MegaTech was required to install 62 certified fire-rated doors in eight of the Phase IV buildings, including DFACs 510 and 511, and two of the new barracks housing ANA recruits.[13] Fire doors are designed to protect building occupants from the spread of smoke and flames during a fire.[14] However, we found that none of the 62 doors installed was a certified fire-rated door, and 42 appeared to have counterfeit labels.

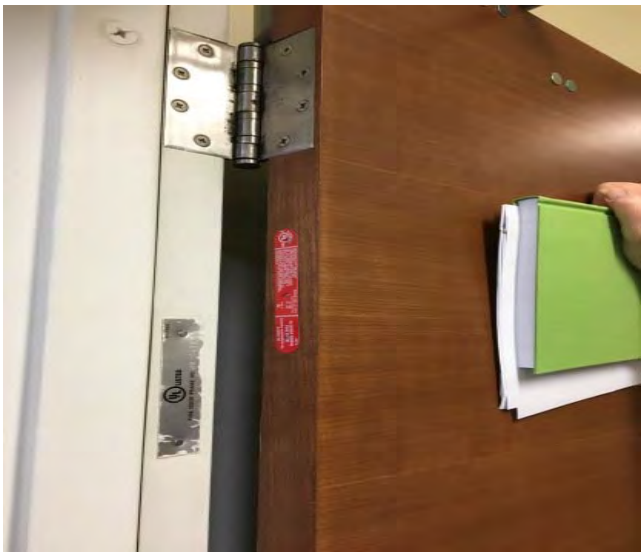
The Phase IV contract required the fire-rated door manufacturer to be certified by Underwriters Laboratory (UL), Factory Mutual Engineering and Research (FM), or Warnock Hersey International (WHI) to ensure that the doors meet UL and NFPA standards for withstanding fire conditions. Once a manufacturer's product passes UL and NFPA tests, the manufacturer is considered approved, and its fire doors and other products that have passed the tests are listed in the certification agency's directory of acceptable fire-rated products.[15]

[13] During our initial review of the KMTC design drawings, we identified 62 certified fire-rated doors, which formed the basis for our analysis. After our analysis was completed, we identified 19 more fire-rated doors that should have been installed in four other buildings, for a total of 81 certified fire-rated doors. Because we identified these 19 additional doors after our site visits to the KMTC, we do not know whether they were installed or are certified, and therefore did not include them in our analysis. We previously found that USACE accepted noncertified fire doors in its construction of the Ministry of Interior headquarters, even though the contract required certified fire doors (see SIGAR, *Fire Doors at the MOI Compound in Kabul*, SIGAR 17-2-AL, October 5, 2016).

[14] A fire door is one component of a fire door assembly, which is any combination of a fire door, frame, hardware, and other accessories that together provide a specific degree of fire protection. For this report, we use the term "fire door" to refer to all components of the fire door assembly.

[15] The contract required MegaTech to follow the International Building Code, which requires fire door manufacturers to have their products tested to fire door performance standards by an independent, third-party testing and certification agency. These independent agencies use NFPA and UL standards to test and certify fire doors to ensure that they are manufactured to fire-resistant specifications.

Photo 4 - Certified Fire Door Label Placed on Door and Doorframe



Source: SIGAR, March 27, 2017

Photo 5 - Door at KMTC with Counterfeit UL Labels

Source: SIGAR, October 15, 2016

The International Building Code also requires that fire doors with proper labeling be installed and that those labels include information attesting to the door's fire rating and the manufacturer's information.[16] Specifically, the International Building Code requires that fire doors labels (1) show the name of the manufacturer; (2) show the name or trademark of the approved certifying agency—either UL, FM, or WHI—and the fire protection rating; (3) be permanently affixed to the fire door; and (4) be applied at the factory or location where the door fabrication and assembly are performed. The Phase IV contract requirements specified that the fire door labels were to be made of metal with raised letters and that the labels be permanently affixed at the factory to the doorframes and to the hinge edge of each door. Photo 4 shows a correctly labeled certified fire-rated door in the U.S. embassy in Kabul.

For the 62 installed doors that did not comply with the contract specifications, we found the following:

- Thirteen doors installed in DFAC 511; storage buildings 520, 521, and 522; and barrack 523 did not have any certification labels attached to them. As a result, we could not determine whether the doors were fire-rated, who manufactured them, or whether one of the authorized agencies had certified the doors.
- Forty-two doors in DFACs 510 and 511, and barracks 303, 304, and 523 had noncompliant labels attached to them. The labels had only the initials "UL" and a fire rating (see photo 5). We determined that the labels were noncompliant because they did not list the name of the manufacturer, Kent Corporation, or have raised letters. In addition, we found that Kent Corporation is not UL-, FM-, or WHI-certified. Because the labels are not compliant with contract requirements and the manufacturer is not certified, we believe that the doors are not certified fire-rated doors and the labels are counterfeit.

[16] Fire door ratings reflect the amount of time that the doors are expected to withstand exposure to fiery conditions. Fire doors are manufactured for time intervals of 20, 45, 60, and 90 minutes, with a maximum rating of 180 minutes.

Photo 6 - DFAC 510 Door with Stated Fire Rating Time of 90 Minutes and No Certification

Source: SIGAR, October 15, 2016

- Seven fire doors in DFACs 510 and 511 had labels that included the name of the manufacturer and a fire rating, but not the name of an authorized certifying agency, specifically UL, FM, or WHI (see photo 6). The doors were manufactured by Tawangaran Metal Industries, an Afghan company, but USACE did not approve them. In addition, Tawangaran Metal Industries did not have any products listed in the UL, FM, or WHI directories of acceptable fire-rated products.

The use of less costly, counterfeit doors in place of the certified fire doors specified in the contract resulted in USACE overpaying MegaTech by an estimated $192,679.[17] USACE could not provide us with any documentation showing that it approved the use of the lower-cost, noncertified fire-rated doors. These counterfeit fire doors put KMTC occupants and visitors at risk should a fire occur because the doors may not provide fire protection for the time the labels specify.

In October 2016, we sent a letter to USACE expressing our concerns about noncertified fire doors installed throughout the Ministry of Interior's headquarters complex.[18] In a May 2017 response, USACE confirmed that the fire doors at the complex were not certified. It added that it has requested additional documentation and proposed corrective action plans from contractors to address the issue and that it is implementing a training program for field personnel to review fire door assemblies to avoid future occurrences.

Use of Possible Counterfeit and Noncompliant Fire Extinguishers Resulted in Safety Hazards and Overpayments to MegaTech

During our site visits, we found that MegaTech did not fully comply with contract requirements when purchasing and installing fire extinguishers at the KMTC. Specifically, MegaTech substituted approved fire extinguishers with less expensive ones. The Phase IV contract required MegaTech to install 88 multipurpose, dry chemical, portable fire extinguishers throughout the KMTC.[19] In addition, the contract required MegaTech to (1) verify the location of each extinguisher prior to installation, (2) ensure that all fire extinguishers were fully charged and ready for use, and (3) provide fire extinguishers with attached inspection tags. Further, although USACE did not formally approve the MegaTech submittal to purchase equipment from Buckeye Fire Equipment Company (Buckeye), a U.S. firm, it allowed MegaTech to install fire extinguishers from Buckeye.

[17] See appendix II for information on substituted items, including the fire doors, and our estimate of how much USACE overpaid MegaTech. Also, we have provided information on the instances of product substitution to our Investigations Directorate for further review.

[18] SIGAR, *Fire Doors at the MOI Compound in Kabul*, SIGAR 17-2-AL, October 5, 2016.

[19] Dry chemical fire extinguishers interrupt the chemical reaction of the fire by creating a barrier between oxygen and the fire's fuel element.

Photo 7 - Authentic Buckeye Fire Extinguisher with "S" Stamped in Label

Source: SIGAR, January 24, 2017

Photo 8 - Counterfeit Buckeye Fire Extinguisher in Storage Building without "S" Stamped in Label

Source: SIGAR, January 24, 2017

During our site visits, we found that only 81 of the 88 fire extinguishers had been installed, including 17 that had counterfeit labels attached to them and 5 that Buckeye did not manufacture. The 17 fire extinguishers had physical characteristics that were not consistent with those made by Buckeye. For example, authentic ones have "S" stamped in the label (see photo 7). If the stamp is not in the label, it indicates that the fire extinguisher is counterfeit. Photo 8 shows a KMTC fire extinguisher with no "S" stamped in the label, indicating that Buckeye did not manufacture it, and, as a result, it is counterfeit.[20]

MegaTech's installation of 17 counterfeit fire extinguishers and 5 extinguishers not manufactured by Buckeye, and its failure to install 7 fire extinguishers resulted in USACE overpaying MegaTech by an estimated $1,452.[21] USACE could not provide us with any documentation showing that it approved a product submittal for fire extinguishers or that it modified the contract to allow the noncompliant ones.

In May 2017, USACE disagreed and stated that it inspected some of the fire extinguishers at the KMTC and found them to be genuine Buckeye products. USACE also stated that its records indicate that all fire extinguishers were installed at the time of facility turnover and that this issue is the responsibility of the facility users and their operation and maintenance program. Although most of the fire extinguishers appeared to be genuine, the 22 counterfeit and otherwise noncompliant ones we found, along with the fact that 7 were missing, raise concerns about whether they will work and whether there will be enough extinguishers in the event of a fire.

[20] Other fire extinguisher characteristics that would identify counterfeit units include curved instead of straight construction on the bottom, visible welding instead of smooth exteriors, incorrect fire gauge colors, and nonaluminum handles.

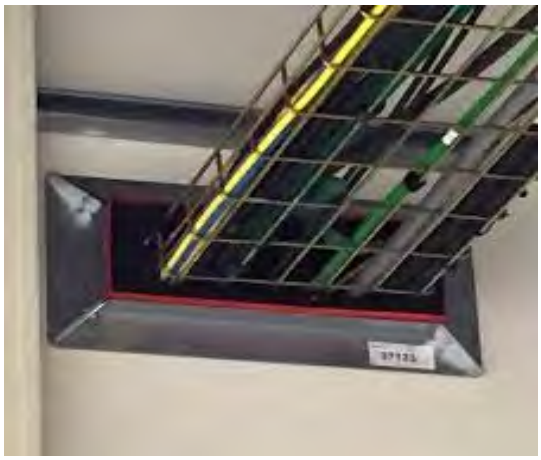
[21] See appendix II for information on substituted items, including noncompliant and missing fire extinguishers, and our estimate of how much USACE overpaid MegaTech.

Life Safety Items Either Did Not Comply with the Contract or Were Not Installed

The Phase IV contract required MegaTech to follow the NFPA standards for installing life safety items. However, we found that two such items—fire stops and exit signs—did not comply with the contract or were not installed, as required.

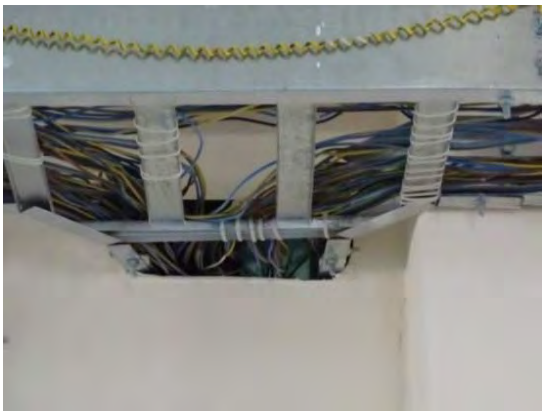
- **Fire stops.** The contract required fire stops to be used in the DFACs and barracks to form an effective barrier against the spread of flames, smoke, and gases, and to maintain the integrity of the fire-rated walls. Fire stops are used when holes are made in the walls to install wiring, air ducts, or other structures. A fire stop consists of foam, latex, or other flame-resistant materials, and it is used to fill the space in the hole so smoke and flames are less likely to travel from room to room. Photo 9 shows a compliant fire stop. We found that MegaTech did not install any fire stops in the new DFACs or barracks; photo 10 shows a wall opening in one of the barracks. In May 2017, USACE stated that the fire stop issue was under review and it was working to resolve the matter.

Photo 9 - Wall Opening with Compliant Fire Stop



Source: SIGAR, October 15, 2016

Photo 10 - Wall Opening with No Fire Stop in a Barrack



Source: SIGAR, October 15, 2016

- **Exit signs.** The contract required exit signs in all KMTC Phase IV facilities to be continuously lit and battery-powered when normal power is not available, such as during a fire. In addition, the exit signs were required to depict the international symbol of a green man running in the direction of the exit. However, we found that MegaTech installed 159 of 185 planned exit signs depicting only the word "Exit"; the signs in the troop medical clinic, DFAC 511, barrack 304, administration building 301, and vehicle maintenance building 309 did not have the international symbol. In addition, only 121 of the exit signs were permanently lit with a backup battery. In May 2017, USACE stated that its design drawings specified only the word "Exit" to be illuminated for exit signage, and that it approved a submittal for this type of signage. Although the design drawings stipulated that exit signage include only the word "Exit," the Phase IV contract required MegaTech to follow International Building Code and NFPA standards, which require that exit signage use the international symbol.

Installed Faucets Did Not Comply with Contract Requirements

MegaTech used faucets in the KMTC Phase IV construction that do not comply with contract requirements. The technical specifications required all faucets installed in Phase IV to be chrome-plated brass or bronze alloy, and specifically prohibited the installation of gooseneck faucets except as noted. The technical specifications added that the faucets installed in the DFACs and medical clinics were required to have the gooseneck design with wrist blade handles, which are encouraged for use at hand-washing stations in medical and food

preparation facilities as part of overall sanitary efforts.[22] However, we found that the faucets MegaTech used did not comply with these requirements. Specifically, MegaTech installed 54 faucets—manufactured by Faisal Sanitary Fixtures, a Pakistani company—in the DFACs and medical clinics, and none complied with contract requirements because they did not have wrist blade handles.

During our inspection, we also found that USACE received a submittal on August 16, 2015, from MegaTech for the Faisal faucet model that was used for all KMTC Phase IV construction. On September 6, 2015, USACE approved the noncompliant faucet submittal. However, USACE noted that MegaTech had sole responsibility to ensure that the submittals complied with contract requirements and that its approval did not relieve MegaTech of its responsibility for complying with the requirements. USACE did not provide us with any documentation showing that the approved faucets met contract requirements. Based on our analysis of the cost of Zurn faucets, which formed the basis for the KMTC's Phase IV construction, versus the cost of the noncompliant faucets installed in the DFAC and medical clinics, USACE overpaid MegaTech by an estimated $10,841 for faucets.[23]

KMTC's Water Wells Do Not Provide Sufficient Water to Its Facilities

The contract required MegaTech to assess the existing water supply and distribution system within the KMTC facility, as well as design and construct a new water system to connect to the existing distribution system. The contract also stated that the contractor should construct water wells inside the compound to provide sufficient supply for the KMTC facility.[24] In March 2014, MegaTech completed its assessment and found two existing water wells capable of providing about 1.18 million liters of water daily, or about one-third of the 3.36 million liters of water needed daily for the KMTC's 18,000 personnel.[25] MegaTech drilled two new wells, but they were capable of providing only about 345,600 liters of water daily, increasing the total supply to 1.53 million liters. As a result, the supply of water the wells provide is still about 1.83 million liters short of the facility's daily requirements. Project documents show that USACE paid MegaTech $604,084 to drill the two new wells. Even though MegaTech did not find a sufficient amount of water, in its written comments on a draft of this report, USACE stated that the company fully met contract requirements by providing the two required wells with a total drilling depth of 240 meters. USACE also stated that because water has proven to be scarce in the KMTC area, other alternatives were being researched.

Further, USACE paid MegaTech $219,813 to design and build a new water distribution system, which it then accepted and turned over to the Ministry of Defense in March 2016.[26] However, according to the KMTC facility manager, MegaTech did not connect the system until March 2017. Because of the daily water shortage, the KMTC facility manager told us, water for bathing and drinking is available for only about 1 hour a day.

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[22] See Facility Guidelines Institute, *Guidelines for Design and Construction of Health Care Facilities,* 2010.

[23] The technical specifications for Phase IV of the KMTC stated that faucets produced by Zurn, an American company, formed the basis for the faucets included in the contract. The contact did not require MegaTech to purchase the Zurn faucets, but the contractor was supposed to use them as the standard for faucet quality. See appendix II for information on substituted items, including noncompliant faucets, and our estimate of how much USACE overpaid MegaTech.

[24] The contract states that the new water distribution system should be designed and constructed to serve all new buildings requiring water service for a population of 2,702 personnel.

[25] The March 2014 assessment of water demand at the KMTC used a base population figure of 18,702 personnel, each using 155 liters of water per day to arrive at an average daily demand of 3.36 million liters of water per day. The 155 liters of water consumed by each individual per day is specified in contract technical specifications.

[26] CSTC–A accepted the water distribution system along with the other facilities transferred by MegaTech and USACE on March 30, 2016.

Because of Inadequate Oversight of the KMTC Phase IV Project, USACE Did Not Identify Construction Issues

According to Department of Defense Directive 4270.5, USACE is the lead construction agent supporting the U.S. Central Command in its area of responsibility, which includes Afghanistan, and is responsible for administering contracts under its authority and overseeing its contractors in accordance with the Federal Acquisition Regulation (FAR).[27] The FAR and USACE regulations state that the government must perform quality assurance to ensure that the contractor's supplies and services conform to contract requirements.[28] The government uses quality assurance to ensure that the contractor's quality control system is functioning and that the specified end products—in this case completed buildings and renovations at the KMTC—are completed in accordance with the contract.[29]

A key element of USACE's quality assurance effort is its three-phase inspection process, which consists of preparatory, initial, and follow-up inspections of individual construction components to ensure that they comply with applicable drawings, specifications, approved submittals, and authorized contract changes.[30] The process includes meetings between USACE and the contractor to discuss each definable feature of work (DFOW).[31] The preparatory phase is conducted before the work starts for each DFOW, and the initial phase is conducted at the beginning of work on each DFOW. The contractor is required to prepare minutes after the preparatory and initial phase meetings, and USACE is required to maintain records of those meetings. Follow-up inspections occur as the work is performed and until each DFOW is complete to ensure that the contractor continues to comply with contract requirements.

The KMTC's Phase IV project consisted of 93 DFOWs, requiring minutes for 186 meetings for the preparatory and initial phases of the quality assurance inspection process. However, USACE could provide us with minutes for the preparatory and initial meetings for only 23 DFOWs, leaving no evidence that required meetings occurred to discuss the remaining 70 DFOWs. All of the deficiencies we identified in this report involve DFOWs. For example, the following deficiencies are all DFOWs: the propane stoves and gas piping found in DFACs 510 and 511; steel doors and frames, which include fire-rated doors; fire extinguishers; fire stops; and bathroom

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[27] FAR 46.104, "Contract Administration Office of Responsibilities," states that contract administration responsibilities include developing and applying "efficient procedures for performing government contract quality assurance actions," performing "all actions necessary to verify whether the supplies or services conform to contract quality requirements," and "maintaining quality assurance records."

[28] FAR 46.4, "Government Contract Quality Assurance," states that government contract quality assurance shall be performed "as may be necessary to determine whether supplies or services conform to contract requirements." FAR 46.1, "General," states that government contract quality assurance consists of various functions "pertaining to quality and quantity." USACE Engineer Regulation 1180-1-6, "Construction Quality Management," dated September 30, 1995, states that quality assurance "is the system by which the government fulfills its responsibility to be certain the [contractors' quality control] is functioning and that the specified end product is realized. It also states, "[Quality assurance] is required on all construction contracts."

[29] Contract Specification Section 01451, "Contractor Quality Control," states that the contractor is responsible for quality control and shall establish a quality control system in compliance with the contract. The system shall consist of plans, procedures, and organization necessary to produce an end product that complies with the contract requirements. The contractor ensures that the construction, to include the subcontractor and suppliers, complies with contract requirements. USACE Engineering Regulation 1180-1-6, "Construction Quality Management," states that the government is responsible for ensuring that the contract clearly defines the quality of materials and workmanship required for a project and that construction contractors produce the required product by verifying the effectiveness and accuracy of the contractor's control system for producing quality work.

[30] The preparatory phase is a review of contract plans and a check to ensure that all materials and equipment have been tested, submitted, and approved. The initial phase is a review of preparatory meeting minutes and a check of preliminary work. Levels of workmanship are also established. The follow-up phase consists of daily checks on work and references back to contract requirements.

[31] DFOWs are distinct tasks that have separate quality control requirements. Contractor quality control and USACE quality assurance personnel rely on the assignment of DFOWs within a project.

accessories, which include faucets; and the water wells. USACE could not provide us with the preparatory or initial meeting minutes for any of those items.

In addition, MegaTech and USACE were required to conduct inspections when construction was finished to ensure that work performed under the contract was complete and acceptable.[32] Their inspections of KMTC Phase IV construction and renovation identified 49 items on the punch list that needed to be addressed, including 4 in DFACs 510 and 511. For example, the punch list noted that installing the kitchen hood exhausts should be completed and that the generators in both DFACs should be tested. However, the final inspection did not identify any of the deficiencies described in this report, such as the gas line and propane gas cylinder issues, which could lead to an explosion. The KMTC Phase IV contract also required that MegaTech conduct gas pressure tests to ensure the integrity of the DFAC kitchens' gas supply systems. In May 2017, USACE told us that MegaTech performed the pressure tests and they were successful. However, USACE could not provide us with any documentation showing that the tests were conducted.

After the follow-up phase of the quality assurance inspection process and transfer of the KMTC Phase IV facilities to CSTC–A—the project customer—USACE was also required to perform 4- and 9-month warranty inspections. We found that the 4-month inspections occurred in June and September 2016, but the two inspection reports CSTC–A provided did not list any of the deficiencies we identified in this report, such as the propane gas issues in the kitchens.[33] In March 2017, we received one 9-month warranty inspection report, and, similar to the 4-month inspection reports, the deficiencies listed did not include the kitchens or other issues we identified in this report. Further, USACE regulations state that USACE and the project customer—in this instance CSTC–A—should perform joint acceptance and transfer and warranty inspections to identify construction defects and plan corrective actions.[34] However, there was no evidence that direct-hire personnel from USACE and CSTC–A attended these inspections.

ALMOST ALL OF KMTC'S PHASE IV FACILITIES WERE BEING USED, EXCEPT FOR DFAC KITCHENS, MOST WERE WELL MAINTAINED, BUT ALMOST HALF OF THE EMERGENCY LIGHTING SYSTEMS DID NOT FUNCTION PROPERLY

During our site visits, we found that almost all of the Phase IV facilities we inspected were being used, and most were well maintained. We found that the barracks, storage buildings, guard towers, and guard shacks were being used and were well maintained. However, as noted earlier, the two DFAC kitchens were not being used because of gas issues that could lead to explosions. We also found that almost half of the emergency lighting systems were not functioning properly. Further, we found that although the eight latrine buildings were being used, the KMTC's facility manager told us water is available in the latrines for only about 1 hour a day.

USACE paid MegaTech $3.88 million to construct the two DFACs, which combined are capable of serving 12,000 meals to 4,000 individuals daily. In January 2017, the KMTC facility manager told us that ANA personnel had been eating meals in the gymnasium, but were being served meals in the new DFACs. However, he said the meals were still being prepared in the old DFAC. He told us he contacted MegaTech about

[32] USACE's contractor quality control requirements call for three completion inspections to be conducted. The contractor conducts a punch list inspection to identify items that do not conform to approved drawings and specifications. Once all deficiencies are corrected, USACE is to perform a pre-final inspection to verify that the facility is complete and ready to be occupied. USACE may develop a pre-final deficiency list because of this inspection, and the contractor must ensure that the items on the list are addressed before the final inspection. Finally, contractor and USACE personnel are to perform a final inspection to ensure that any previously identified items and all remaining work performed under the contract is complete and acceptable.

[33] The 4-month inspection times varied because of differing completion and transfer dates. For example, USACE transferred the DFACs to CSTC–A on March 30, 2016, and transferred the latrines and warehouses on July 14, 2016. The warranty periods for these facilities extend 1 year from the date of transfer.

[34] See USACE Engineer Regulation 415-345-38, "Construction Transfers and Warranties," June 30, 2000.

correcting the kitchen deficiencies, but was told that all of the Phase IV buildings and facilities were turned over and accepted "as is," and that all work complied with contract requirements.

Even though we found that MegaTech installed 420 of the 429 required battery-powered emergency lighting systems in all KMTC Phase IV facilities, only 236 of the systems installed were functioning properly. The NFPA states that battery-powered emergency lighting systems should operate for 90 minutes during a power outage. In May 2017, USACE told us the majority of them were not functioning properly because of voltage and power irregularities that result from the KMTC not having power 24 hours a day. This lack of consistent power causes the batteries to deplete and fail over time. USACE added that this issue was identified during the warranty inspections. As of May 2017, 184 installed systems were not functioning properly.

We also found that all of the Phase IV facilities were being well maintained except for the latrines. In addition to having limited water, we found that the floor drains and sinks were clogged with dirt and other materials, causing water to pool.

CONCLUSION

The KMTC Phase IV construction and renovation project was complete, facilities were largely being used, and most were well maintained. However, multiple facilities were left with deficiencies, and some had safety implications associated with them. Notably, USACE spent $3.9 million for two DFACs, and neither kitchen has been used because the propane gas cylinders are located too close to the stoves, increasing the risk of an explosion. USACE did not follow NFPA standards when it approved technical specifications for "zero clearance" between the propane gas cylinders and the DFACs. Gas explosions could also result from other areas where MegaTech did not adhere to contract requirements by (1) installing gas pipelines in the kitchens with welded instead of threaded connections; (2) using gas hoses connected to the stoves with threaded connections instead of quick disconnect devices; and (3) placing the gas line service valve too close to the electrical disconnect devices, which are ignition sources.

In addition, not only did MegaTech not install certified fire-rated doors, but also some doors have counterfeit labels with fire rating times that may not be accurate, which may give a false sense of security to building occupants. Similarly, counterfeit fire extinguishers may not work in the event of a fire, and other fire extinguishers that may be needed should a fire occur are missing. Further, MegaTech did not install fire stops in some of the Phase IV facilities, which could allow a fire to spread more quickly from room to room. Last, exit signs, while installed, did not meet requirements. It is vital for USACE and MegaTech to address these deficiencies immediately; otherwise, KMTC personnel will remain at risk of injury or death should an explosion or fire occur.

USACE's inadequate project oversight resulted in none of these deficiencies being identified during its three-phase inspection process; the final inspection, before USACE transferred the facilities to CSTC–A and subsequently to the Afghan government; or during the 4- and 9-month warranty inspections. In addition, USACE never discovered three instances of product substitution involving the fire-rated doors, plumbing fixtures, and fire extinguishers, which resulted in overpaying MegaTech by at least $204,972 for those items. Further, USACE paid $823,897 for water wells and a distribution system that do not provide sufficient amounts of water for Phase IV facilities, leaving KMTC with water for only about 1 hour per day. Despite this, the two water wells appear to meet contract requirements. Because of the instances of product substitution and noncompliance with the NFPA standards for the DFAC kitchens' propane gas cylinders, we estimate that USACE potentially wasted as much as $4.1 million in taxpayer funds.

RECOMMENDATIONS

To protect the U.S. taxpayers' investment in the KMTC Phase IV project, and to ensure the safety of ANA personnel using the facilities, we recommend that the USACE Commanding General and Chief of Engineers, in coordination with the CSTC–A Commander, take the following actions and report the results back to SIGAR within 90 days:

1. **Eliminate the unsafe conditions at the KMTC and bring all construction into compliance with contract requirements by working with MegaTech to correct instances of contract noncompliance. Specifically,**
    a. **move the propane gas cylinders at least 10 feet away from the walls of DFACs 510 and 511;**
    b. **replace all welded connections used on pipes 50 millimeters or less in diameter that are supplying propane gas in DFACs 510 and 511 with threaded connections;**
    c. **replace the threaded gas supply line's final connections to the DFAC kitchen stoves with quick disconnect devices;**
    d. **move the gas line service valves and piping away from the electrical disconnect devices in DFAC 511; and**
    e. **install the fire stops and correct exit signs throughout the KMTC Phase IV facilities.**
2. **Examine all fire extinguishers and direct MegaTech to replace counterfeit or missing extinguishers.**
3. **Determine whether the installed fire door assemblies and faucets meet contract requirements, and direct MegaTech to replace items that do not, or seek reimbursement for the price difference.**
4. **Work with KMTC officials to identify alternate solutions, other than drilling new wells, to supplying sufficient amounts of water to meet the facility's daily needs.**

AGENCY COMMENTS

We provided a draft of this report DOD for review and comment. In our draft report, our first recommendation was for the CSTC–A Commander, in coordination with the USACE Commanding General and Chief of Engineers, to eliminate the unsafe conditions at the KMTC and bring all construction into compliance with contract requirements by working with MegaTech to correct instances of contract noncompliance by

a. moving the propane gas cylinders at least 10 feet away from the walls of DFACs 510 and 511;
b. replacing all welded connections used on pipelines 50 millimeters or less in diameter that are supplying propane gas in DFACs 510 and 511 with threaded connections;
c. replacing the threaded gas supply line's final connections to the DFAC kitchen stoves with quick disconnect devices;
d. moving the gas line cut-off valves and piping from inside to outside of DFAC 511 or away from the electrical disconnect devices; and
e. installing fire stops and emergency lighting systems and correct the exit signage throughout the KMTC Phase IV facilities.

Our second and third recommendations did not change from the draft report to the final report. Our draft report included a fourth recommendation to ensure that new water wells are drilled to supply a sufficient amount of water for the KMTC, the water is tested, and the new distribution system is transferred to the KMTC. We also made a fifth recommendation to examine the depth of the paved surface in the motor pool and parking area, and direct MegaTech to apply additional surfacing material to bring all areas, where necessary, up to the required 11.8 inches or seek reimbursement for the price difference.

In its comments on a draft of this report, CSTC–A stated that USACE would address the recommendations. USACE concurred with recommendations 1a and 3; did not concur with recommendations 1c, 1d, 2, 4, and 5; and is conducting further reviews of recommendations 1b and 1e. CSTC–A's and USACE's written comments are reproduced in appendices III and IV, respectively. USACE also provided technical comments, which we incorporated into this report, as appropriate.

USACE concurred with recommendation 1a to relocate the propane gas cylinders at least 10 feet away from the walls of DFACs 510 and 511. USACE stated that the construction design included an error, which resulted in a code violation, and its review concluded that DFAC 510 required a separation distance of 10 feet between the tanks and the building, and DFAC 511 required a separation distance of 25 feet between the tanks and the building. USACE noted that it was performing an engineering and quality analysis to determine the best way to correct this violation, and the results would be included in its follow-up response to this report within 90 days.

With respect to recommendation 1b, USACE stated that it is conducting a review of the welded connections on pipes 50 millimeters or less in diameter inside DFACs 510 and 511 to determine whether replacements are needed. USACE noted that the welded connections were leak- and pressure-tested, and deemed acceptable because it did not find any leaks. However, USACE did not provide the test results and, in July 2017, acknowledged that it did not have the test report. This recommendation will remain open until USACE can provide evidence to support its statement.

USACE did not concur with recommendation 1c to replace the threaded gas supply line's final connection to the DFAC kitchen stoves with quick disconnect devices. USACE stated that the flexible lines have one threaded end and one quick disconnect end. USACE also said it believed that the installed configuration meets safety concerns. Even though the submittal for the flexible connection hoses that USACE approved did not have a quick disconnect device, the contract required quick disconnect devices on both ends of the hoses. This recommendation will remain open until USACE provides evidence that the connections comply with the contract.

USACE did not concur with recommendation 1d to relocate the gas line cut-off valves and piping from inside to outside DFAC 511 or away from the electrical disconnect device. USACE confirmed that MegaTech installed the cut-off valve outside DFAC 511 and a manual service valve inside the building. We reviewed the available documentation and confirmed that a service valve, instead of the cut-off valve, was installed inside. However, a spark from the electrical disconnect device can still result in a gas explosion regardless of the type of valve used. The placement of the gas lines, and the service valve in particular, next to the disconnect device is not consistent with the design drawings and may result in a gas explosion.

USACE also took issue with our reference to NFPA 58, noting that those sections do not state that placing gas lines near electrical disconnect devices is a violation. However, NFPA 58 explicitly defers to NFPA 70 requirements for the use of electrical equipment.[35] NFPA 70 prohibits using electrical equipment in locations where a fire or explosion hazard may exist because of flammable gases or flammable liquid-produced vapors, which is the case in the KMTC DFACs.[36] Based on this, we revised our finding to refer to NFPA 70 and revised recommendation 1d to reflect that the valve adjacent to the electrical disconnect device was a service valve. This recommendation will remain open until the gas service valve is no longer next to the electrical disconnect device.

USACE did not concur with recommendation 1e to install emergency lighting systems and correct exit signs throughout the KMTC Phase IV facilities, and stated that it is still reviewing the fire stops issue. USACE stated that MegaTech installed emergency lighting in all cases and was allowed to install overhead lighting that had emergency back-up capability, in the form of batteries, within the fixtures. USACE also stated that because of the KMTC's voltage and power irregularities, most of the emergency lights do not function properly. USACE noted that the base does not have power 24 hours a day, and without consistent power, the batteries deplete

[35] NFPA 58, section 6.22.2.

[36] NFPA 70, articles 500 through 504.

over time and will likely fail. USACE added that this issue was identified during the 4- and 9-month warranty inspections. Because of the difficulty obtaining consistent power needed to keep the emergency lighting systems operational and the fact that the ANA is responsible for operating and maintaining the systems, we removed the recommendation from the final report and cite the problem as a maintenance issue.

Regarding exit signage, USACE stated that its design drawings show the word "Exit" to be illuminated on the sign similar to signs installed in the United States. USACE noted that MegaTech installed the exit signs in the Phase IV facilities and the installation was verified during building inspections. Although USACE stated that the exit signage installed was approved by submittal, it did not provide us a copy of the approved submittal. Furthermore, the contract required that all exit signs have the international symbol of a green man running in the direction of the exit. Because the signs do not comply with the contract, this part of the recommendation remains open.

USACE did not concur with recommendation 2 to examine all fire extinguishers and direct MegaTech to replace counterfeit or missing extinguishers. USACE stated that based on its records, MegaTech installed the fire extinguishers in accordance with the contract specifications, and they were legitimate fire extinguishers when USACE turned the facility over to CSTC–A. USACE also stated that it inspected some of the fire extinguishers and found them to be Buckeye products.

However, as stated in our report, the 22 counterfeit or otherwise noncompliant fire extinguishers that we found, along with 7 missing fire extinguishers, raise concerns about whether they will work and whether there will be enough fire extinguishers in the event of a fire. As a result, recommendation 2 will remain open until we receive evidence that all 88 fire extinguishers are genuine Buckeye products.

USACE concurred with recommendation 3 to determine whether the installed fire door assemblies and faucets met contract requirements, and direct MegaTech to replace those items that do not comply. USACE stated that it is investigating the installed fire doors for contract compliance. USACE also stated that it plans to finalize its actions and report back to us within 90 days. Regarding faucets, USACE stated that the contract specifications for the design of the sink and lavatory faucets references Zurn model #Z841M1. USACE added that the Zurn model was not a sole-source requirement and the Faisal model MegaTech installed "is of like kind and quality." However, as we noted in this report, MegaTech installed 54 gooseneck faucets without the required wrist blade handles in the DFACs and medical clinics.

USACE did not concur with recommendation 4 to ensure that new water wells were drilled to supply a sufficient amount of water for the KMTC. USACE stated that the contract did not require MegaTech to provide water for the entire KMTC, but instead required the contractor to provide an overall assessment of the water system and drill new wells if the water supply was insufficient. USACE also stated that when it was determined that the water supply was insufficient, MegaTech provided the two required wells with a total drilling depth of 240 meters, which fully met the contract specifications. The technical specifications specified that MegaTech was required to drill two wells each to a maximum of 120 meters or one well to a maximum depth of 240 meters. If water was not found after drilling a total linear depth of 240 meters, MegaTech would still have fulfilled the terms of the contract and be entitled to receive the full contract price for the wells. USACE further noted that because water has proven to be scarce in the KMTC area, alternatives were being researched. Based on USACE's comments, we modified recommendation 4 to recommend that USACE, in coordination with CSTC–A, work with KMTC officials to identify alternate solutions to supplying sufficient amounts of water to meet the daily needs of the KMTC's 18,000 personnel.

USACE did not concur with recommendation 5 to examine the depth of the paved surface in the motor pool and parking area. USACE stated that it examined the depth of the paved surface in both locations and found that it met contract specifications. After reviewing USACE's responses and the relevant contract requirements, we consider the finding addressed and removed recommendation 5 from the final report.

APPENDIX I - SCOPE AND METHODOLOGY

This report provides the results of SIGAR's inspection of the Phase IV construction of new facilities and renovation of some existing at the Kabul Military Training Center (KMTC), located in the Dih Sabz district of Kabul province. The objectives of this inspection were to determine whether the KMTC's Phase IV facilities (1) were constructed in accordance with contract requirements and applicable construction standards, and (2) are being used and maintained. Specifically, we:

- reviewed contract documents, design submittals, and other relevant project documentation;
- conducted an engineering assessment of the project drawings and construction methods used;
- interviewed U.S. and Afghan government officials concerning the project's construction, use, and maintenance; and
- conducted site visits to inspect the Phase IV construction and renovations on October 15, 2016; on 10 days between October 24 and November 20, 2016; and on January 24, 2017.

We did not rely on computer-processed data in conducting this inspection. However, we considered the impact of compliance with laws and fraud risk.

In December 2014, SIGAR entered into a cooperative agreement with Afghan civil society partners. Under this agreement, our Afghan partners conduct specific inspections, evaluations, and other analyses. In this regard, Afghan inspectors and an engineer inspected the KMTC's Phase IV facilities on 10 days between October 24 and November 20, 2016. We developed a standardized engineering evaluation checklist covering items required by the contract and design/specification documents for the buildings constructed or renovated under the contract. The checklist required our partners to analyze the contract documents, scope of work, technical specifications, and design drawings.

We compared the information our Afghan civil society partners provided to accepted engineering practices, relevant standards, regulations, laws, and codes for quality and accuracy. In addition, as part of our monitoring and quality control process, we:

- met with the Afghan engineer to ensure that the approach and planning for the inspection were consistent with the objectives of our inspection and the terms of our cooperative agreement;
- attended periodic meetings with our partners, and conducted our normal entrance and exit conferences with agency officials;
- discussed significant inspection issues with them;
- referred any potential fraud or illegal acts to SIGAR's Investigations Directorate, as appropriate;
- monitored our partners' progress in meeting milestones and revised contract delivery dates as needed; and
- conducted oversight of them in accordance with SIGAR's policies and procedures to ensure that their work resulted in impartial, credible, and reliable information.

We conducted our audit work in Kabul, Afghanistan, from May 2016 through October 2017. This work was conducted in accordance with the *Quality Standards for Inspection and Evaluation*, published by the Council of the Inspectors General on Integrity and Efficiency. The engineering assessment was conducted by our professional engineer in accordance with the National Society of Professional Engineers' *Code of Ethics for Engineers*. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our inspection objectives. We conducted this inspection under the authority of Public Law No. 110-181, as amended, and the Inspector General Act of 1978, as amended.

APPENDIX II - NONCOMPLIANT PRODUCTS INSTALLED DURING PHASE IV RESULTING IN OVERPAYMENTS TO MEGATECH

We identified three instances where the U.S. Army Corps of Engineers (USACE) approved or allowed MegaTech Construction Services (MegaTech) to purchase and install products that did not comply with the Kabul Military Training Center (KMTC) Phase IV construction and renovation contract. Specifically, we found that MegaTech installed noncertified fire-rated doors as well noncompliant fire extinguishers and sink faucets. Based on our analysis of the costs to obtain both the compliant and noncompliant products locally in Kabul, we determined that USACE overpaid MegaTech by an estimated $204,972. Table 2 shows what the Phase IV contract required, what MegaTech installed, and our calculations of how much USACE overpaid MegaTech for the noncompliant items.

Table 1 - Phase IV Instances of Product Substitution Resulting in Overpayments to MegaTech

Item Description	Contract Requirement	What Was Installed	SIGAR Estimate of Overpayments
Fire extinguishers	The contract required MegaTech to install 88 multipurpose, dry chemical portable fire extinguishers throughout the KMTC's Phase IV facilities. MegaTech proposed Buckeye fire extinguishers that USACE did not approve. Cost to obtain a certified Buckeye fire extinguisher locally: $66	MegaTech installed 22 fire extinguishers that appeared to be counterfeit and did not install 7 fire extinguishers. The remaining 59 met contract requirements. Cost to obtain a counterfeit Buckeye fire extinguisher locally: $21	**Total estimated overpayment: $1,452** <u>Cost to USACE</u> 29 certified Buckeye fire extinguishers, including 7 missing fire extinguishers, @ $66 = $1,914 <u>Cost paid by MegaTech</u> 22 counterfeit Buckeye fire extinguishers @ $21 = $462
Faucets	The contract required sink faucets similar to Zurn model number Z841M1. Cost to obtain a compliant faucet unit locally: $229.26	MegaTech installed 54 noncompliant faucets manufactured by Faisal Sanitary Fittings in DFACs 510 and 511 and medical clinics. Cost to obtain a noncompliant Faisal faucet unit locally: $28.50	**Total estimated overpayment: $10,841.04** 54 compliant Zurn faucets @ $229.26 = $12,380.04 54 noncompliant Faisal faucets @ $28.50 = $1,539.00

Fire-rated doors	Fire-rated doors and their manufacturers must be certified by Underwriters Laboratory (UL), Factory Mutual Engineering and Research, or Warnock Hersey International to ensure that the doors meet UL and National Fire Protection Association criteria for withstanding actual fire conditions.* Cost to obtain locally • Single-leaf certified fire-rated doors: $3,925 (90 minutes); $2,767.00 (60 minutes); $1,969 (45 minutes); $3,588 (20 minutes) • Double-leaf fire-rated door: $4,955 (90 minutes)	MegaTech installed 62 doors that did not comply with contract specifications in eight buildings—numbers 303, 304, 510, 511, 520, 521, 522, 523. Cost to obtain a noncertified single- or double-leaf door locally: $150	**Total estimated overpayment: $192,679** Single-leaf fire-rated door 13 certified 90-minute doors @ $3,925 = $51,025 6 certified 60-minute doors @ $2,767 = $16,602 14 certified 45-minute doors @ $1,969 = $27,566 27 certified 20-minute doors @ $3,588 = $96,876 **60 certified doors = $192,069** Less: 60 noncertified doors @ $150 = $9,000 **Estimated overpayments for noncertified single-leaf fire-rated doors: $183,069** Double-leaf fire-rated door 2 certified doors @ $4,955 per door = $9,910 Less: 2 noncertified doors @ $150 per door = $300 **Estimated overpayment for noncertified double-leaf fire-rated doors: $9,610**

Source: SIGAR analysis of USACE data

* A single-leaf door is a single door, and a double-leaf door is a double door.

NON SENSITIVE INFORMATION RELEASABLE TO THE PUBLIC

DEPUTY CHIEF OF STAFF SECURITY ASSISTANCE
COMBINED SECURITY TRANSITION COMMAND – AFGHANISTAN
KABUL, AFGHANISTAN
APO AE 09356

DCOS SA/CSTC-A 12 July 2017

MEMORANDUM THRU

United States Forces – Afghanistan, Audit Cell, APO AE 09356
United States Central Command (CCIG), MacDill AFB, FL 33621

FOR Special Inspector General for Afghanistan Reconstruction, 2530 Crystal Drive, Arlington, VA 22202-3940

SUBJECT: CSTC-A response to Draft Report SIGAR 17-XX-IP, "Kabul Military Training Center Phase IV: Poor Construction and Renovation Work, and Contractor Noncompliance Resulted in Serious Safety Hazards and Contractor Overpayments", dated XX July 2017, (Project Code SIGAR-I-040).

1. Reference: Draft Report (SAB)

2. The purpose of this memorandum is to provide a response to the recommendations outlined in the Draft Report. CSTC-A has completed coordination with the US Army Corps of Engineers (USACE) as recommended in the SIGAR 17-XX Inspection Report, dated July 2017.

3. CSTC-A appreciates SIGAR's efforts to protect U.S. taxpayer's investment in the Kabul Military Training Center, Phase IV project. USACE and CSTC-A agree that the SIGAR recommendations are USACE actions and USACE will provide the required responses. CSTC-A will support USACE, as needed, as they implement SIGAR's recommendations.

4. Point of contact for this memorandum is Mr. Billy Elbert, DSN 318-449-9939, billy.d.elbert.civ@mail.mil or Mr. Jeffrey Zielinski, DSN 318-449-9935, jeffrey.m.zielinski2.civ@mail.mil.

COL John G. Clement
JOHN G. CLEMENT
Colonel, USA
Chief of Staff

NON SENSITIVE INFORMATION RELEASABLE TO THE PUBLIC

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS
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July 19, 2017

SUBJECT: Special Inspector General for Afghanistan Reconstruction (SIGAR) Draft Report, Kabul Military Training Center Phase IV: Poor Construction and Renovation Work, and Contractor Noncompliance Resulted in Serious Safety Hazards and Contractor Overpayments

Mr. John F. Sopko
Special Inspector General for Afghanistan Reconstruction
2530 Crystal Drive
Arlington, Virginia 22202-3940

Dear Mr. Sopko:

The purpose of this letter is to provide the U.S. Army Corps of Engineers (USACE) response to the subject report.

USACE conducted a detailed review, including contract, engineering and construction documents and photographs of completed work on the Kabul Military Training Center (KMTC). As a result, USACE concurs with SIGAR's Recommendations 1.a and 3, and non-concurs with Recommendations 1.c, 1.d, 2, 4, and 5. USACE is in the process of conducting further review of Recommendations 1.a, 1.b, 1.e, and 3 and will conclude our review within 90 days and report back with results to SIGAR. Additional details are provided in the enclosure.

USACE disagrees with SIGAR's report statement that the contractor was overpaid more than $4.3 million for non-compliant incomplete work. SIGAR concludes that $3.8 million of the $4.3 million was for the dining facilities (DFAC) because they are not being used by the Afghans. Our information indicates the DFACs are being used but the Afghans have chosen not to fully use all kitchens for cooking. They are using a central kitchen for cooking and distributing certain prepared foods to each DFAC. Whether this is because of a report identified propane gas issue or some other reason has not been determined as of yet.

My point of contact for this response is Mr. George Sullivan, Internal Review Auditor. He may be reached by e-mail at george.a.sullivan@usace.army.mil, or telephone at 202-761 4573.

E. Scott Lowdermilk
Colonel, U.S.A.
Chief of Staff

Enclosure

U.S. Army Corps of Engineers (USACE) Response to SIGAR Recommendations contained in SIGAR Draft Report I-040, Kabul Military Training Center Phase IV: Poor Construction and Renovation Work, and Contractor Noncompliance Resulted in Serious Safety Hazards and Contractor Overpayments.

Contract W5J9JE-13-C-0034

Recommendation 1: Eliminate the unsafe conditions at the KMTC and bring all construction into compliance with contract requirements by working with Mega Tech to correct instances of contract noncompliance. Specifically,

a. move the propane gas cylinders at least 10 feet away from the walls of the DFACs 510 and 511;
b. replace all welded connections used on pipes 50 millimeters or less in diameter that are supplying propane gas in DFACs 510 and 511 with threaded connections;
c. replace the threaded gas supply line's final connections to the DFAC kitchen stoves with quick disconnect devices;
d. move the gas line cut-off valves and piping from inside to outside of DFAC 511 or away from the electrical disconnect devices; and
e. install the fire stops and emergency lighting systems, and correct exit signs throughout the KMTC Phase IV facilities.

USACE Response:

a. move the propane gas cylinders at least 10 feet away from the walls of the DFACs 510 and 511. **Concur.** USACE's review of this situation determined the construction design included an error which resulted in this code violation. Additionally, our review concluded that DFAC 510 requires a separation distance between the installation and the building of 10 feet, and for DFAC 511 a separation between the tank installation and the building of 25 feet is required. Therefore, contract requirements were not in compliance with NFPA 58. We are performing an engineering and quality analysis to determine the best way to correct this violation. The results of this analysis will be included in our follow-up to this report requested by SIGAR in 90 days.

b. replace all welded connections used on pipes 50 millimeters or less in diameter that are supplying propane gas in DFACs 510 and 511 with threaded connections. **Requires Further Review.** The welded connections were tested for leakage, 200 PSI pressure was applied to the system and all the joints were checked using soapsuds in DFACs 510 and 511. No leakage was found in the system. The required pressure tests were determined to be acceptable; however, we are evaluating the welded connections on pipes 50 millimeter or less in diameter to determine if replacement is needed. Note the

use of threaded vs welded pipe is a contract compliance issue, not a code violation. However, the contract remains open and if it is determined replacement is required the action may be negotiated into the contract. The results of this analysis will be included in our follow-up to this report requested by SIGAR in 90 days.

c. replace the threaded gas supply line's final connections to the DFAC kitchen stoves with quick disconnect devices. **Non-concur.** The flexible lines have one end threaded and one end quick disconnect. SIGAR contends quick disconnects are required on both ends. In our opinion, the installed configuration meets the concerns for safety. With the one quick disconnect, the whole stove assembly can still be removed for cleaning while maintaining the threaded connection intact.

d. move the gas line cut-off valves and piping form inside to outside of DFAC 511 or away from the electrical disconnect devices. **Non-concur.** USACE disagrees with this recommendation. USACE confirmed the installation of the cut-off vale installed on the outside of DFAC 511 building. USACE also confirmed the interior manual service valves were installed. The interior space is not a classified area. SIGAR cited NEC section defers classification of areas to NFPA 58 for LP gas. NFPA 58 6.23.2.1 discusses electrical requirements in unclassified areas. NFPA 58 table 6.23.2.2 defines classified areas. NFPA 58 6.23.2.5 discusses classification in regard to intermittent or constant open flames. None of these point to the referenced concern being a violation. SIGAR needs to cite specific code paragraphs if they still believe there is a violation, not general sections.

e. install the fire stops and emergency lighting systems, and correct exit signs throughout the KMTC Phase IV facilities. **Non-concur on Emergency Lighting and Exit Signs; Fire Stops Require Further Review.** Emergency lighting was installed in all cases. The contractor was allowed to install overhead lighting that had emergency back-up capability integral to the fixtures. DFAC 510 showed wall mounted emergency light packs and the contractor was allowed to install integral fixtures for aesthetic and reduced maintenance. We would like to point out that due to the voltage and power irregularities at KMTC the majority of the emergency lights are not functioning properly. This was a reoccurring issue during the 4 and 9 month warranty inspections since the base does not supply power 24 hours a day. Without consistent power the battery depletes and overtime will fail.

   Our drawings show the word "EXIT" to be illuminated for the sign similar to what is installed in the United States. Exit signs are installed in the facility.

This installation was verified inside the buildings when inspected. This type of sign was approved by submittal 26 5100-1. Exit Sign.

The fire stop issue is under review. The results of this review will be included in our follow-up to this report requested by SIGAR in 90 days.

Recommendation 2: Examine all fire extinguishers, and direct MegaTech to replace counterfeit or missing extinguishers.

Response: Non-concur. The fire extinguishers according to our records were installed in accordance with the contract specifications and were legitimate fire extinguishers at the time of turnover of the facility to our customer and user. As a result of your finding, we inspected a number of fire extinguishers and found them to be genuine Buckeye products. It's noted this is a reoccurring SIGAR finding and in an effort to eliminate this situation after prior reports, we disseminated Construction Bulletins highlighting the need to review fire extinguishers to ensure only authentic fire extinguishers are installed. We believe this issue, at this point, is the responsibility of the facility user and their operations and maintenance program. We believe no further action is necessary on our part for this recommendation.

Recommendation 3: Determine whether the installed fire door assemblies and faucets meet contract requirements, and direct MegaTech to replace items that do not or seek reimbursement for the price difference.

USACE Response: Concur. USACE is investigating the installed fire doors for contract compliance. USACE considers this recommendation open but plans to finalize our actions and report the results back to SIGAR within 90 days.

Faucets. Concur. USACE determined the contract specifications for sink and lavatory faucets (Section 01015 paragraph 6.2.3 (e)) references the basis of design for the faucet is Zurn #Z841M1. The basis of design is not a sole source responsibility by the contractor nor requires them to procure the Zurn brand. The Faisal brand is of like kind and quality to the Zurn brand. In the contract for the shower fixture (Section 01015 paragraph 6.2.3 (g)) it references the design for the assembly is Chicago Faucet Model #CP752. The basis of design is not a sole source responsibility by the contractor nor requires them to procure the Chicago brand. The Faisal brand is of like kind and quality to the Chicago brand. Based on our review we determined the installed faucets met contract requirements and were accepted.

Recommendation 4: Ensure that new water wells are drilled to supply a sufficient amount of water for the KMTC and that the water is tested and the new distribution system is turned over to the KMTC.

USACE Response: Non-concur. The contract does not require Phase IV to provide water for the entire KMTC. The Phase IV contract requires the contractor to provide an overall assessment of the water system, and if it is found to be insufficient to provide wells. The contractor provided the required two wells with a total drilling depth of 240 meters that fully met contract specifications. Because water has proven to be scarce in the KMTC area other alternatives are being researched. Any future decisions on the method to meet overall KMTC water needs as additional and separate work will need to come from the customer.

Recommendations 5: Examine the depth of the paved surface in the motor pool and parking area, and direct MegaTech to apply additional surfacing material to bring all areas, where necessary, up to the required 11.8 inches, or seek reimbursement for the price difference.

USACE Response: Non-concur. We examined the depth of the paved surface in the motor pool and parking area and found them to meet contract specifications. The contract called for scarification of the existing sub-base down to 150mm and then compacting. After compacting to 150mm, a 150mm layer of base course was spread and compacted. Based on our recent field verification, observations and the test reports, the contractor complied by providing a minimum of 300mm of compacted parking area. We believe no further action is necessary on our part for this recommendation.

APPENDIX V - ACKNOWLEDGEMENTS

Steven Haughton, Senior Inspection Manager

Robert Rivas, Inspector-in-Charge

Javed Khairandish, Engineer

Abdul Rahim Rashidi, Program Analyst

Yogin Rawal, Professional Engineer

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This inspection was conducted
under project code SIGAR-I-040.

SIGAR's Mission

The mission of the Special Inspector General for Afghanistan Reconstruction (SIGAR) is to enhance oversight of programs for the reconstruction of Afghanistan by conducting independent and objective audits, inspections, and investigations on the use of taxpayer dollars and related funds. SIGAR works to provide accurate and balanced information, evaluations, analysis, and recommendations to help the U.S. Congress, U.S. agencies, and other decision-makers to make informed oversight, policy, and funding decisions to:

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