



**SIGAR**

Office of the Special Inspector General  
for Afghanistan Reconstruction

July 9, 2014

Lieutenant General Thomas P. Bostick  
Commanding General and Chief of Engineers  
U.S. Army Corps of Engineers

Dear General Bostick:

I am writing to follow up on my letter of April 4, 2013, in which I raised safety concerns regarding substandard spray polyurethane foam insulation systems (SPFI) used in arch-span type facilities the U.S. Army Corps of Engineers (USACE) is constructing for the Afghan National Army (ANA). My letter was prompted by the significant fire hazards posed by these insulation systems, which did not comply with International Building Code (IBC) standards. In effect, it appears that 1,600 of the nearly 2,000 buildings constructed in this \$1.57 billion program did not meet IBC standards and required remediation. I requested that USACE reconsider its decision to use these noncompliant insulation systems.

I was extremely pleased when in a letter dated April 18, 2013, the Deputy Commander of the USACE Transatlantic Division stated that USACE would stop installing noncompliant insulation systems. He noted that USACE had “already identified instances of contractor application of non-IBC compliant insulation material” and that USACE had “directed the contractors in writing to cease applying the material.” For on-going construction, USACE stated that it was “working towards a solution to ensure IBC compliance and proper resolution of this issue.” For buildings currently occupied by the ANA, USACE stated that it would “identify corrective measures to ensure the insulation systems in these buildings are fully compliant with IBC standards.” Finally, USACE stated that it would verify that all plans for future “insulation systems in the arch-span buildings are IBC compliant.”<sup>1</sup>

After receiving USACE’s letter, I directed SIGAR’s Office of Special Projects to conduct a review to determine why USACE contractors installed noncompliant systems in the first place, the cost of remediation, and whether USACE’s remediation efforts would ensure full IBC compliance. The findings of that review are discussed below. However, given the assurances made by USACE last year, I was surprised to learn that on January 21, 2014, Major General Michael R. Eyre, Commanding General of the USACE Transatlantic Division, issued a memorandum that appears to countermand the representations made in the April 18, 2013 letter.

General Eyre’s memo authorizes the transfer of buildings to the ANA that do not comply with IBC standards. Despite acknowledging that these noncompliant buildings have “an increased risk in the event of a fire,” the memo contends that the operational needs of the ANA justify this change in policy.<sup>2</sup> General Eyre contends that the noncompliant facilities “have an acceptable risk level to support turnover [to the ANA]” because “the typical occupant populations for these facilities are young, fit Afghan Soldiers and recruits who have the physical ability to make a hasty retreat during a developing situation.”<sup>3</sup>

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<sup>1</sup> Letter of Col. John S. Hurley, Deputy Commander, U.S. Army Corps of Engineers – Transatlantic Division (April 18, 2013).

<sup>2</sup> Memorandum of MG Michael R. Eyre (January 21, 2014), see attached.

<sup>3</sup> Id.

I am very troubled by such logic, which seems to argue that fire hazards for a building are somehow remediated by the youthful speed and vigor of the occupants. This logic pales in light of not only the speed with which these building will be consumed by fire as well as the fact that a number of the buildings in question are infirmaries and sleeping quarters. Accordingly, I strongly recommend that USACE rescind the January 21, 2014 decision.

In addition, while I am primarily concerned that people's lives may be at risk, I am also concerned that USACE must now spend millions of taxpayer dollars correcting this problem because USACE did not enforce and properly administer its own contracts. It is my hope that the results of SIGAR's review, which are discussed below, will prompt USACE to take steps to address the significant safety hazards posed by these noncompliant insulation systems and to limit future costs to U.S. taxpayers.

#### I. USACE Failed to Enforce Its Own Contract Requirements

In 2010, USACE began planning for construction of almost 2,000 new ANA buildings using the arch-span method of construction, at a total cost of \$1.57 billion. USACE chose arch-span buildings because USACE believed they would cost less and could be built faster than other types of buildings. The criteria USACE used to design and procure the arch-span buildings required the use of "standard designs which are in accordance with the IBC."<sup>4</sup>

The IBC sets specific requirements for the surface-burning characteristics of SPFI; the requirements are based on generally accepted tests that products must pass in order to meet IBC standards. Additionally, the IBC requires the separation of SPFI from the interior of a building by a thermal barrier. The barrier must also pass tests that measure how quickly the SPFI that the barrier is protecting rises in temperature when exposed to flame, and how long that barrier stays in place. These requirements applied to all arch-span buildings USACE contracted for construction and subsequent occupation by the ANA.

USACE officials told SIGAR staff that personnel tasked with approving contractor construction proposals were not sufficiently familiar with arch-span construction or IBC standards. USACE officials also explained that USACE provided incomplete information in the requests for proposals it supplied to contractors. A technical review conducted by an outside architect-engineering firm of the specifications and drawings USACE supplied to its contractors showed that USACE failed to include the requirement for a thermal barrier in the specifications in 31 out of 58 contracts. Additionally, the drawings supplied by USACE contained no requirements for SPFI and a thermal barrier in seven of the contracts. Two of these seven contracts also failed to mention the SPFI and thermal barrier requirements in the specifications, meaning both the drawings and specifications were silent on the standards for SPFI and a thermal barrier.

Additionally, USACE failed to identify and reject substandard products proposed for use by contractors. Contractors must identify the products they intend to use in submittals to USACE after receiving USACE's request for proposal. USACE officials told SIGAR that, in many cases, contractors compiled their submissions into long documents containing a multitude of products. Some contractors did not submit their proposed foam insulation and thermal barrier products in the same section, which USACE asserts made it more difficult to determine if the products complied with the IBC requirements.

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<sup>4</sup> Letter of Col. John S. Hurley (April 18, 2013).

After fires in October and December 2012 destroyed two buildings under construction, USACE conducted an investigation and determined that 1,600 arch-span buildings completed or undergoing construction were not IBC compliant. On February 25, 2013, USACE staff briefed the Commander of Afghanistan Engineer – District South about the widespread use of noncompliant insulation systems. An information paper prepared for the briefing stated that remediation of the hazardous systems would “cause a disruption of ANA missions and activities or delay contract completions significantly.”<sup>5</sup> On March 10, 2013, a senior USACE official in the Transatlantic Division issued a decision memo allowing contractors to continue installing noncompliant insulation systems despite the safety risk.

On April 4, 2013, SIGAR sent an alert letter to USACE questioning the decision to continue installing insulation systems that did not comply with IBC standards. On April 18, 2013, USACE responded in writing that it had directed its contractors to stop installing noncompliant insulation systems and that it would “ensure IBC compliance and proper resolution of this issue.”<sup>6</sup>

## II. Remediation Could Cost \$50-\$60 Million and USACE Will Not Ensure That All Hazardous Buildings Are IBC Compliant

USACE stated in its April 18, 2013 letter to SIGAR that it would “ensure IBC compliance and proper resolution of this issue.”<sup>7</sup> In December 2013, USACE provided SIGAR staff with an update concerning the progress made in bringing almost 1,600 arch-span facilities into compliance with IBC standards. The update indicated that almost 700 of the original 1,600 buildings identified as noncompliant still required remediation and that the total cost of bringing all buildings into compliance would be \$50 million to \$60 million. According to that update, USACE had still not remediated 15 buildings already occupied by the ANA.

Additionally, SIGAR personnel recently received a copy of a January 21, 2014, Memorandum For Record, signed by Major General Michael R. Eyre, indicating that USACE has reversed its position and will now be turning over buildings to the ANA that it knows are not IBC compliant. The memo states that USACE identified solutions to address all the substandard insulation systems, except those using BASF foam. General Eyre noted that “no engineering solution has been identified and validated through testing that can be carried out on arch span buildings containing BASF foam and in sufficient time to support the turnover of these facilities required to field ANA forces.”<sup>8</sup>

General Eyre’s memo acknowledges that “[f]acilities turned over with the BASF foam and DC 315 system will have an increased risk in the event of fire.” Despite this recognized danger, the memo claims that the buildings using BASF foam insulation “have an acceptable risk level” because they have multiple exits and “the typical occupant populations for these facilities are young, fit Afghan Soldiers and recruits who have the physical ability to make a hasty retreat during a developing situation.”

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<sup>5</sup> USACE Information Paper: Afghanistan Engineer District South, Fire Danger Related to ANA K-Span Foam Insulation and Thermal Barrier (February 25, 2013).

<sup>6</sup> Letter of Col. John S. Hurley (April 18, 2013).

<sup>7</sup> Id.

<sup>8</sup> Memorandum for Record, Major General Michael R. Eyre (January 21, 2014).

USACE identified three categories of buildings with substandard BASF foam that will be turned over to the ANA: “those under contracts where some buildings already contain BASF foam; or contracts where BASF foam has already been purchased for use by the contractor; or contracts where previous letters of direction have been issued to the contractor directing or authorizing the use of BASF foam.” This means that BASF foam will be used in buildings already constructed, currently under construction, or planned for future construction, even though USACE knows the foam poses an increased fire risk. USACE is apparently turning over to the Afghan army buildings it knows are hazardous.

In April 2014, USACE told SIGAR that the decision not to bring all buildings into compliance with the IBC will affect 285 buildings, including 83 barracks buildings, four medical clinics, and two fire stations.



Figures 1 and 2– Fire at Classroom building 906 at Afghan National Army Brigade Camp Saher near Farah Province, Afghanistan on October 17, 2012. Source: US Army Corps of Engineers. The fire incident report noted the building was 85 percent completed and burned in 30 minutes.

The results of this review are troubling in many respects. Although I commend USACE’s efforts to seek cost savings and other efficiencies through the use of arch-span construction, USACE’s apparent failure to enforce its own contract requirements seems to have resulted in tens of millions of dollars in additional costs and significant construction delays. Moreover, I am concerned that the rush to complete these buildings has led USACE to disregard its own safety standards and, in so doing, has jeopardized the lives of ANA personnel.

I am concerned that USACE's answer to a serious fire threat is to rely on the presumed ability of young, fit Afghan soldiers to escape a possible fire. That is unacceptable, but even more disturbing is that the list of buildings facing potential fire hazards includes barracks and medical facilities where soldiers could be sleeping or unable to move rapidly to safety. This dangerous situation was created by USACE's lack of quality control in monitoring construction of these facilities. Immediate action is needed to bring the remaining buildings into compliance with safety standards or to show what actions will be taken to remedy the dangerous conditions, beyond providing additional fire extinguishers and exit signs. The ANA also needs to be alerted to the hazardous buildings, with information about the expected improvements and their timetable.

Additionally, to avoid similar problems in the future, I encourage USACE to consider taking the following actions:

- 1) Rescind the memorandum of January 21, 2014;
- 2) Review the internal procedures that led USACE to adopt contract requirements that it was unable to implement;
- 3) Conduct an impartial evaluation of the arch-span design specifications and construction drawings to determine whether they are consistent with the IBC;
- 4) Identify the remaining steps that need to be taken in order to ensure that all arch-span facilities turned over to the ANA are IBC compliant; and
- 5) Identify those individuals responsible for utilizing substandard material, and provide within 30 days what, if any, corrective or disciplinary actions have been taken in regards to their conduct.

I appreciate the cooperation extended by your staff during the review, as well as their prompt responses to my requests.

I am submitting this letter pursuant to my authority under Public Law No. 110-181, as amended, and the Inspector General Act of 1978, as amended. Should you have any questions concerning this letter, please contact Mr. Jack Mitchell, Director, Office of Special Projects, at [REDACTED] or [REDACTED]. Please do not hesitate to contact him if you have any questions.

Sincerely,



John F. Sopko  
Special Inspector General  
for Afghanistan Reconstruction

Enclosure:

1. Attachment I: BASF Spray Foam Mitigating Actions in Afghan National Army Arch Span Construction – January 21, 2014
2. Attachment II: USACE Response To Draft SIGAR Inquiry Letter – June 20, 2014
3. Attachment III: SIGAR’S Response to USACE’s Comments

# ATTACHMENT I: BASF SPRAY FOAM MITIGATING ACTIONS IN AFGHAN NATIONAL ARMY ARCH SPAN CONSTRUCTION – JANUARY 21, 2014

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DEPARTMENT OF THE ARMY  
UNITED STATES ARMY CORPS OF ENGINEERS  
TRANSATLANTIC DIVISION  
255 FORT COLLIER ROAD  
WINCHESTER VA 22603

CETAD-CE

January 21, 2014

## MEMORANDUM FOR RECORD

SUBJECT: BASF Spray Foam Mitigating Actions in Afghan National Army Arch Span Construction

1. The US Army Corps of Engineers (USACE) Transatlantic Division (TAD) has conducted extensive investigations and executed a material testing program aimed to minimize the risk of potential loss of life if a fire occurred in an Afghan National Army (ANA) occupied arch span building containing foam insulation. During these investigations, engineering solutions sufficient to meet 2009 International Building Code (IBC) requirements were identified for all the various foam insulation systems used in the affected buildings with the exception of BASF foam. These solutions continue to be applied to USACE constructed arch span buildings for the ANA.
2. The BASF Foam with DC 315 system has passed the NFPA 286 test thus demonstrating partial compliance with the IBC. The system, however failed to pass the ASTM E84 test. Of the two tests referenced in the IBC, NFPA 286 is a significantly better representation of how the tested system would perform during an actual fire in a real world situation.
3. USACE has exercised due diligence by conducting an extensive study and material testing effort to identify and evaluate the means to remediate arch spans containing previously applied BASF Foam. To date, no engineering solution has been identified and validated through testing that can be carried out on arch span buildings containing BASF foam in sufficient time to support the turnover of these facilities required to field ANA forces.
4. The operational impacts of delaying turnover of these projects would be significant to the ANA. The need to turn over facilities on time in order field troops during 2014 is critical during this period of transition. Permanent basing enhances the quality of life, readiness, retention, and provides the means to conduct training and security operations. These facilities also provide the means for vehicle maintenance, logistics storage and issue, weapons and ammunition storage, and other critical capabilities required to train and equip a fighting force.
5. Facilities turned over with the BASF Foam and DC 315 system will have an increased risk in the event of a fire. The BASF foam and DC315 system however, has demonstrated partial code compliance by passing the NFPA 286 test and is applied in arch span buildings that have multiple, easily accessible paths of egress. In addition, the typical occupant populations for these facilities are young, fit Afghan Soldiers and recruits who have the physical ability to make a hasty retreat during a developing situation. Considering the operational need along with the above information, these facilities with arch spans containing the BASF Foam and DC315 system have an acceptable risk level to support turnover for use by the ANA.

6. While these facilities have an acceptable risk level to support turnover, additional fire extinguishers and posted warning / exit signs will be incorporated as additional mitigating measures to further off set residual risk.

7. The only facilities with arch spans that contain the BASF Foam with DC315 system will be those under contracts where some buildings already contain BASF foam; or contracts where BASF foam has already been purchased for use by the contractor; or contracts where previous letters of direction have been issued to the contractor directing or authorizing the use of BASF foam.

*Michael R. Eyre*  
MICHAEL R. EYRE  
Major General, USA  
Commanding

CETAD

SUBJECT: BASF Spray Foam Mitigating Actions in Afghan National Army Arch Span Construction

Encl:

1. 27 August 2013 MEMORANDUM FOR RECORD SUBJECT: Assignment of NATO Training Mission/Combined Security Transition Command -Afghanistan (NTM-A/CSTC-A) Senior Engineer as the "Authority Having Jurisdiction (AHJ)"
2. 31 October 2013 MEMORANDUM FOR RECORD SUBJECT: Construction Standards for Afghanistan Security Forces Fund (ASF F) Projects for the Afghan National Security Forces
3. 22 May 13 MEMORANDUM FOR COMMANDER, TRANSATLANTIC DIVISION, SUBJECT: Fire Protection Authority Having Jurisdiction (AHJ) Decision, Afghan Army Facilities Spray Foam Insulation
4. 3 Jul 13 MEMORANDUM FOR DISTRIBUTION SUBJECT: Response to Fire Test Results, July 3, 2013
5. 28 Aug 13 MEMORANDUM FOR DISTRIBUTION SUBJECT: Acceptance of Fire Test Results
6. OPOD 2013-11 (Arch-Span Foam Corrective Action Directive)
7. FRAGO 01 (OPOD 2013-11 (Arch-Span Foam Corrective Action Directive))
8. FRAGO 02 Remedies addressing code deficient Arch Spans for the URGENT (occupied/turned-over buildings and those buildings substantially complete and to be turned over NLT 1 September 2013) category of facilities (TAD OPOD 2013-11)
9. FRAGO 03 Remedies addressing code deficient Arch Spans buildings containing foams manufactured by Bayer with the Bayer name (TAD OPOD 2013-11)

DISTRIBUTION:

U.S. Forces Afghanistan, Joint Engineer and Joint Programs Integration Office  
(USFOR-A JENG and JPIO)

NATO Training Mission-Afghanistan / Combined Security Transition Command-Afghanistan  
(NTM-A / CSTC-A) Combined Joint Engineer (CJENG)

Mr. James Dalton (CECW-CE)



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS  
441 G STREET, NW  
WASHINGTON, DC 20314-1000

CECW-CE

January 18, 2014

MEMORANDUM FOR COMMANDER, TRANSATLANTIC DIVISION, ATTN: MG EYRE  
(CETAD-CG), 255 FORT COLLIER RD, WINCHESTER, VA 22603-5776

SUBJECT: Arch Span Building Spray Foam Insulation Remediation/Completion Issues

1. In my capacity as the USACE Authority Having Jurisdiction (AHJ), I hereby grant the Commander, Transatlantic Division (TAD), without power of redelegation, the authority to deviate from requirements for permanent occupancy set forth in paragraph 4 of CECW-CE Memorandum, dated 22 May 2013, subject: Fire Protection Authority Having Jurisdiction (AHJ) Decision, Afghan Army Facilities Spray Foam Insulation.
2. Such authority may only be exercised in those cases where the TAD Commander determines that operational necessity does not permit strict compliance with the CECW-CE Memorandum. In such cases, the TAD Commander must take all practicable measures to ensure the facilities are safe for their intended occupants.

JAMES C. DALTON, P.E., SES  
Chief, Engineering and Construction  
Directorate of Civil Works

DISTRIBUTION:  
DONN BOOKER, SES TAD  
HOWARD STICKLEY, SES TAD



**DEPARTMENT OF THE ARMY**  
UNITED STATES ARMY CORPS OF ENGINEERS  
TRANSATLANTIC DIVISION  
255 FORT COLLIER ROAD  
WINCHESTER, VIRGINIA 22603

20 Jun 2014

Internal Review Office

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

Dear Mr. Sopko:

Thank you for providing USACE with the opportunity to review the SIGAR draft letter titled SIGAR-14-XX-SP Review Safety of Spray Foam Insulation. USACE would like to express appreciation to SIGAR for working collaboratively and cooperatively with USACE personnel. Although, the meetings and exchanges of information have been helpful in increasing understanding of spray foam insulation, USACE disagrees with some of the interpretations and findings in the letter. Discussed below are our comments on the findings and recommendations.

I. USACE Failed to Enforce Its Own Contract Requirements

The original Request for Proposal packages completed in May 2011 were complete and incorporated IBC requirements pertaining to spray foam insulation. Many of these standard packages were changed and adjusted to meet requirements specific to each individual project / contract. Rapid facility construction to support ANA fielding needs led to a large volume of changes and adjustments made to these standard packages in a short period time. This resulted in inadvertent omissions and incomplete contract packages. Following the technical review by an outside A/E firm referenced in the letter, USACE took the necessary corrective actions to ensure identified contracts were complete and contained correct specifications and drawings.

The letter acknowledges USACE stopping installation of non-compliant foam insulation systems, but fails to fully discuss actions taken by USACE to correct the problems and resume successful contract enforcement. In addition to ceasing all work for spray foam, USACE conducted a full assessment of all efforts that included the use of an outside A/E firm to help determine compliance. Process and procedure deficiencies were identified and corrected to ensure contract requirements would be met prior to resuming work. These corrections included:

See SIGAR  
Comment 1

- All USACE construction personnel and Local National quality assurance representatives completed training on foam installation procedures and safety requirements.

- The foam assembly submittal review process was changed to require review and approval by a fire protection engineer. A database was created to track and report foam assembly submittals to ensure compliance.
- Enhanced quality assurance tools were identified and used by field personnel, including thickness gages and a quantity estimator based on barrier thickness required and type of building.
- Direction was provided to all contractors on the importance of following the manufacturer's recommendations on application of foam and for immediate application of intumescent barriers of a different color than the foam after cure.
- Direction was provided to all contractors that NO hot work is allowed on foamed buildings until the intumescent barriers have been applied.

In addition, the letter misrepresents the number arch span buildings with foam requiring corrective actions. There are 1603 total arch spans, 613 of which have been or are being constructed using foam that is IBC compliant and not requiring remediation.

See SIGAR  
Comment 2

The following statement is not accurate, "On March 10, 2013, a senior USACE official in the Transatlantic Division issued a decision memo allowing contractors to continue installing noncompliant insulation systems despite the safety risk."

See SIGAR  
Comment 3

## II. Remediation Could Cost \$50-\$60 Million and USACE Will Not Ensure That All Hazardous Buildings Are IBC Compliant

The letter misrepresents the evidence used in the process leading to the decision in the memorandum dated January 21, 2014. Further, the letter does not acknowledge the application and intent of the IBC life safety code in the interpretation that the "youth and vigor" of the occupants remediates the code. Contrary to the dismissal of our logic regarding the time to evacuate, the fire safety code takes into consideration a target time period for evacuation, of which the age and physical fitness of potential evacuees would be relevant, and does not assume zero risk.

See SIGAR  
Comment 4

The IBC addresses fire safety with the primary focus on allowing building occupants sufficient time to exit in the event of a fire. Building material requirements are developed to support these exit time requirements. The IBC requires 15 minutes of protection during a fire to allow occupants to exit a building. That requirement is based on the assumption that some of the building occupants are children, elderly, handicapped or infirmed and would require more time to exit than able bodied adults. It should also be clarified that the referenced medical clinics are not designed nor intended to house non-ambulatory patients and are intended to be used for sick call responses.

The IBC does not explicitly prohibit any building material, design or method of construction, and allows for modifications that are in compliance with the intent and purpose of this code. The decision in the referenced memorandum met the intent and purpose of the code to allow ANA soldiers sufficient time to exit in the event of a fire.

The arch spans are single story buildings designed and constructed with areas and occupancy far below allowable sizes to limit travel distances for building occupants to exit. In addition the number of exits provided exceeds the minimum required for the occupancy of each structure.

USACE employed both NFPA 286 and ASTM E84 tests referenced in the IBC for demonstrating material compliance with the IBC life safety code. Results from both tests were evaluated to determine whether BASF foam with DC315 paint was an acceptable alternative building material that provided enough protection to allow occupants to exit during a fire. Of the two tests, the NFPA 286 test provides a more realistic representation of real world conditions and is the ONLY one that can be used to quantify the protective duration of a material. This system passed the NFPA 286 demonstrating it exceeded the IBC required 15 minutes of protection. The system did not pass the ASTM E84 test and E84 test results cannot be used to quantify duration of protection.

This risk based decision was made in order to prevent the significant operational impacts to the ANA by delaying turnover of these projects. The need to turn over facilities on time in order field troops during 2014 is critical for transitioning security operation of Afghanistan to the ANA. Permanent basing enhances the quality of life, readiness, retention, and provides the means to conduct training and security operations. These facilities also provide the means for vehicle maintenance, logistics storage and issue, weapons and ammunition storage, and other critical capabilities required to train and equip a fighting force.

See SIGAR  
Comment 5

Sincerely,



RICHARD J.E. HEITKAMP  
COL, EN  
Deputy Commander

## ATTACHMENT III: SIGAR'S RESPONSE TO USACE'S COMMENTS

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- **COMMENT ONE:** We commend USACE for undertaking these corrective measures but note they were implemented after we sent our letter of April 4, 2013 notifying the agency of our concern, and after two building fires completely destroyed the structures where they originated.
- **COMMENT TWO:** SIGAR's statement that "1,600 of the nearly 2,000 buildings constructed in this \$1.57 billion program did not meet IBC standards and required remediation" is based on a document supplied by USACE on December 13, 2013. The document states that USACE had determined that 80 buildings had non-compliant foam applied and had been turned over to the ANA, 910 buildings had non-compliant foam applied and were under construction, and 613 buildings did not yet have foam applied and were under construction. Of the 1603 buildings accounted for in the document, USACE noted that remediation had begun for 1207 and remediation work remained incomplete for 687.
- **COMMENT THREE:** We disagree that the statement is inaccurate. On March 10, 2013, USACE developed a Decision Paper evaluating courses of action for arch span buildings in various stages of planning and construction. For buildings with a partially installed foam insulation and thermal barrier system, USACE chose to "[a]llow the contractor(s) to install the current system for which submittals have been previously submitted and approved," despite knowing that many products previously submitted and approved failed to comply with the IBC. USACE was aware that if the insulation systems were not done in accordance with the code and the proper safety measures, they "potentially posed a serious fire/life safety hazard." SIGAR first questioned this decision in its April 4, 2013 letter to Lt. Gen. Thomas Bostick, and USACE acknowledged the decision in its reply from Col. John S. Hurley on April 18, 2013.
- **COMMENT FOUR:** We disagree that the letter misrepresents the evidence. As detailed in our report, USACE has repeatedly stated it would ensure IBC compliance of arch span facilities turned over to the Afghan National Army. However, that will not occur since one of the foams USACE has stated it will accept can only pass *one of two tests* required for IBC compliance. Code compliance is not contingent upon the age and physical fitness of the occupants; rather by passing both required tests. Despite the merits of the NFPA 286 test, the system could not pass the ASTM E 84 test and thus is not compliant. Moreover, the ASTM E84 test is not intended to quantify duration of protection; it measures flame spread and smoke-developed indexes. In a December 2012 document circulated to contractors after the building fires, USACE's Chief Engineer, Transatlantic South, Afghanistan Division stated, "Polyurethane spray-on foam insulation poses [sic] a severe fire risk due to the chemical make-up. Once ignited, it creates dense smoke releasing toxic fumes which will make the building inhabitable [sic] in a very short time."

Regardless of USACE's reasons for its change in policy, the memorandum issued January 21, 2014 declares that it will no longer mandate compliance and that USACE will permit the use of products that fail tests necessary in meeting the IBC. The ANA needs to be alerted to the hazardous buildings, with information about the expected improvements and their timetables.

- **COMMENT FIVE:** We note that in the response to our draft letter, sent for comment on June 5, 2014, USACE did not address the 5 actions we encouraged them to take.
  1. Rescind the memorandum of January 21, 2014;
  2. Review the internal procedures that led USACE to adopt contract requirements that it was unable to implement;
  3. Conduct an impartial evaluation of the arch-span design specifications and construction drawings to determine whether they are consistent with IBC;
  4. Identify the remaining steps that need to be taken in order to ensure that all arch-span facilities turned over to the ANA are IBC compliant; and
  5. Identify those individuals responsible for utilizing substandard material, and provide within 30 days what, if any, corrective or disciplinary actions have been taken in regards to their conduct.

We continue to encourage USACE to act on these suggestions.