

**UNCLASSIFIED  
MEMORANDUM**

13 February 2008

TO: OBO/OPS/FIR - [REDACTED]  
OBO/PE/DE/FPE - [REDACTED]

THRU: OBO/OPS/FIR - [REDACTED]

FROM: OBO/OPS/FIR - [REDACTED]  
Schirmer Engineering - [REDACTED] (representing OBO/PE/DE/FPE)

CC: OBO/EPCO - [REDACTED]

SUBJECT: Assessment of Fire Protection Systems at the NEC-Baghdad, Iraq

Personnel

Contacted: Facilities Manager - [REDACTED]  
Management Counselor - [REDACTED]  
Deputy Management Counselor - [REDACTED]  
Member, NEC Transition Coordination Team - [REDACTED]  
Member, NEC Transition Coordination Team - [REDACTED]  
Project Director - [REDACTED]  
NEC Security Manager - [REDACTED]  
FKTC Liaison - [REDACTED]

**EXECUTIVE SUMMARY**

[REDACTED] of OBO/OPS/FIR/FPS and [REDACTED] of Schirmer Engineering (representing OBO/PE/DE/FPE) visited the NEC-Baghdad compound to: (1) assess all fire protection systems installed under contract; (2) determine the status of major deficiencies identified during the Division's previous visits in August 2007 and October 2007; and (3) formulate recommendations and follow-on processes. Arrival at Post was 25 January 2008.

- A. First Kuwaiti Trading Company (FKTC) (Contractor) continues to work on the fire protection systems without OBO/FIR approved shop drawings. The systems are not complete or ready for final commissioning. Critical infrastructure deficiencies preclude OBO from performing any commissioning activities at the time of this report.
- B. Significant work has been performed by the Contractor since the Division's previous site visits in August and October 2007. However, at the time of this inspection, there still

remain deficiencies, both critical and non-critical, in most of the buildings. There are also major deficiencies in the infrastructure that would preclude a final sign off on commissioning for any of the buildings on site at this time.

The team departed Post on 06 February 2008 for Camp Sully (BIAP) and arrived in CONUS on 08 February 2008.

## MEETINGS

The following formal meetings took place during the team's visit at the NEC–Baghdad:

### In-Brief at NEC

A meeting was held at approximately 1015 on 25 January 2008 at the NOX first floor conference room. In attendance were [REDACTED]. The following issues were discussed:

1. [REDACTED] stated that the fire sprinkler system in all buildings were under pressure at approximately 10 bar. A few broken sprinklers had been discovered in the NOB and replaced satisfactorily.
2. [REDACTED] requested copies of all fire sprinkler system hydrostatic test reports and fire alarm system certification reports. [REDACTED] asked that smoke control system test reports also be included. The purpose for these documents was to establish that these tests had been performed and the extent of the testing activities. This request was made because of the current inaccessibility of OBO/EPCO files at site. [REDACTED] said he would forward the request to FKTC.
3. [REDACTED] stated that [REDACTED], representing Hughes Associates, Inc., was due in the day before. It was believed that his visit was to assure that the deficiencies noted in the 04 September 2007 OBO/OM/FIR report were addressed.
4. [REDACTED] explained that the scope of work for the visit was for fact finding, not to commission the fire protection systems. The goal was to: (1) assess the status of system installation; (2) back check corrective measures concerning the OBO/OM/FIR report dated 04 September 2007 and the Schirmer Engineering (OBO/PE/DE/FPE) reports dated 22 October, 27 October, and 01 November 2007; and (3) make recommendations for follow-on activities.
5. A discussion took place regarding T.L. Services (TLS), a commissioning contractor at post conducting system testing. [REDACTED] asked for the qualifications of the two employees responsible for fire alarm functional testing and who, as a representative of the USG, was to witness such tests. Additionally, it was requested that OBO/OM/FIR review the commissioning documents to be used for compliance with the codes and specifications.
6. A discussion took place regarding the substantial completion signed by Mary French on 16 December 2007 which started a forty-five (45) day clock in which PAE will evaluate

the compound and take over responsibility for the maintenance and operation of all NEC buildings. This places a time burden on the USG to test and commission all systems.

7. A follow-up meeting was scheduled for 1300 to review the requested testing documentation.

### **Follow-Up Meeting with NEC**

A follow-up meeting was held at 1300 on 25 January 2008 at the NOX first floor conference room. All attendees reconvened. The following discussions took place:

1. ██████████ conveyed FKTC's reluctance to provide any or all documentation regarding previous testing at that time.
2. ██████████ provided copies of the forms to be used by TLS in their commissioning process. These forms were administrative in nature. ██████████ noted that the functional testing requires that forms approved by OBO/FIR be attached to the test documents and that the testing itself should be witnessed by a representative of OBO/FIR (see attachments).
3. ██████████ reiterated that review of the requested documents was essential to performing a thorough assessment and to allow adequate reporting to support the dispatch of an OBO/FIR commissioning team.

### **Meeting with Contractors**

A meeting was held at approximately 0930 on 26 January 2008 at the NOX first floor conference room. In attendance were ██████████, several representatives from FKTC, including ██████████ and ██████████, and several representatives from TLS, including ██████████ and ██████████. A copy of the attendance sheet was provided via e-mail on the last day of the visit. The following discussions took place:

1. ██████████ explained the agenda for this meeting, the scope of work for the team's visit to Post, and a tentative schedule for the work that needed to be accomplished. ██████████ further explained that the scope of work for the visit was for fact finding only, not to commission the fire protection systems. Visual spot checks and possibly some sample functional testing would be performed. Based on this assessment, recommendations would be made for follow-on activities including final commissioning of the systems.
2. ██████████ stated that all systems were complete and all systems were 100% tested. However, minor modifications were being done to add battery boxes at each fire alarm panel, and additional strobes were being added to the laundry rooms in the SDAs at the recommendation of Hughes Associates.
3. ██████████ requested from FKTC copies of all fire sprinkler system hydrostatic test reports, fire alarm system certification reports, smoke control testing reports, as-built drawings, and Hughes Associates recommendations. ██████████ stated that FKTC would provide all documentation, as requested, through ██████████.

4. Based on the above statements by [REDACTED], [REDACTED] suggested that FKTC submit a request for final commissioning of these systems to OBO/FIR through [REDACTED] (COR).
5. [REDACTED] noted that representatives from Hughes Associates were on site for approximately one month, but that their final report has not been issued pending a follow-on site visit to occur this week. [REDACTED] asked that OBO/FIR be provided with the Hughes-generated modifications to the systems that FKTC is working from.
6. A follow-up meeting was scheduled for immediately after this meeting to further discuss the requirements for testing and commissioning.
7. Another follow-up meeting was scheduled for 1300 on 27 January 2008 to review the requested testing documentation. FKTC indicated they would provide copies for OBO/FIR of all requested documents.

#### **Follow-Up Meeting with Contractors**

A follow-up meeting was held at 1045 on 26 January 2008 at the NOX first floor conference room. In attendance were [REDACTED] and other representatives from FKTC and the fire alarm subcontractor. The following issues were discussed:

1. A discussion took place regarding the recommendations for modifications from Hughes Associates for the fire protection system, fire alarm system and underground fire mains. [REDACTED] explained that Hughes' work included verifying as-built drawings, scanning OBO/FIR comments for corrective measures, and recommending modifications to the systems for compliance with the code. Updated voltage drop and battery calculations have been performed for the fire alarm systems. Flow tests and flushing of the underground fire mains was also performed.
2. [REDACTED] stated that a request for the following documents would be made through [REDACTED]: (1) Hughes-generated recommendations for modifications; (2) voltage drop and battery calculations; (3) test reports for the fire alarm systems; (4) hydrostatic test reports for the fire sprinkler systems and underground fire main; (5) as-built drawings for the fire sprinkler and fire alarm systems for each building; (6) test certificates for each system; and (7) test procedures for each system.
3. A meeting was scheduled for 1300 on 27 January 2008 at the NOX first floor conference room where FKTC would present the requested documents.

#### **Documentation Review Meeting**

A meeting was held at 1300 on 27 January 2008 at the NOX first floor conference room. In attendance were [REDACTED]. The following took place:

1. FKTC presented documents for review, which included: (1) unsigned test sheets and equipment information for the fire alarm systems in most, but not all, of the buildings; (2) hydrostatic test reports for the sprinkler system for each building; (3) documentation regarding the flow tests and flushing of the underground fire mains; (4) fire alarm power calculations; (5) as-built drawings; and (6) material cut-sheets.

2. ██████████ asked that copies of these documents be provided for OBO/FIR's use. He also asked that copies of all documents previously requested be provided to OBO/FIR.

### **Out-Brief with Post**

A meeting was held at approximately 1415 on 05 February 2008 in the Management Office at the Palace. In attendance were ██████████ and other Embassy staff. The following issues were discussed:

██████████ explained the current status of fire alarm and sprinkler systems at the NEC. A summary explanation of the critical deficiencies affecting all buildings was given. ██████████ explained the status and observations of the team regarding the underground and fire pump. ██████████ and ██████████ entertained several questions and concerns from Post, and explained the team's reporting requirements. ██████████ recommended that Post transmit to OBO/FIR plans for the additional SDA bedrooms, fire alarm panel information and power calculations (when provided by FKTC) for each SDA. OBO/FIR will then evaluate the equipment and power requirements for additional sounder bases and smoke detectors. ██████████ explained that a time period for OBO/FIR to return to site has not yet been determined.

### **Out-Brief at NEC**

A meeting was held at approximately 1730 on 05 February 2008 in the GSO building. In attendance were ██████████. A memorandum was given to ██████████ which included the initial assessment reports for each building. ██████████ summarized the team's findings and recommended that a commissioning team not be dispatched until the Contractor can assure that all systems are complete, functioning properly, and ready for final testing.

## **OBSERVATIONS, KEY FINDINGS AND COMMENTS**

The OBO/FIR team performed a progressive building by building assessment of the fire protection and associated infrastructure for all buildings within the NEC, beginning on 26 January 2008. The assessment for each building included a visual inspection of the installation progress for the fire alarm system, fire sprinkler system, and life safety features. A detailed report of the initial assessment for each building is attached to this report.

The initial assessment inspections identified a snapshot status of the condition of the systems on the day of inspection (noted at the top of each assessment report). Ongoing work continued to be performed in many of the buildings thereby changing the status of the buildings each day. Time did not allow for any subsequent re-inspections of the buildings after the initial assessment. The basis for the inspections was the spreadsheet of deficiencies prepared by OBO/FIR during the August 2007 site visit. The findings are based on random spot inspections of each system. These items are not to be construed as a complete list of deficiencies. Refer to the assessment reports for specific findings in each building. All fire protection systems and supporting infrastructure must be 100% complete, tested and fully functional for commissioning activities to commence.

On 01 February 2008, the team performed some limited functional testing of the fire alarm systems in SDA-1, SDA-5, and SDA-6. However, these tests resulted in unexpected alarm and trouble conditions.

A demonstration of the commissioning process was performed on 02 February 2008 at the MSGQ. OBO/FIR requested that representatives from FKTC, the fire alarm subcontractor, and Hughes Associates (contracted by FKTC) be present for the inspection and testing so that the Contractor could become fully informed of the commissioning process and the expectations associated with commissioning a building for acceptance of the fire protection and life safety systems. However, representatives from Hughes were not present for the commissioning. A detailed report of this exercise is attached to this report. Several issues, both critical and non-critical, were noted during the commissioning. Due to these outstanding issues, the building could not be commissioned.

On-going work continues to be performed throughout the complex, primarily on the fire alarm systems. The fire alarm network is not functioning properly. The two main fire alarm panels (at the Fire Truck Bay and in the SCC in NOB) do not show the same conditions of the fire alarm network. Numerous network node failures do not allow for a complete network reset.

The diesel engine fire pump is run several times a day while work on the fire sprinkler systems is being performed by the Contractor. It appears that the jockey pump start/stop settings have been altered and are set too low which allows for the fire pump and diesel engine to continually start when there is a drop in system pressure. The diesel engine runs for 30 minutes each time, as required. However, fire pump room roll-up door does not automatically open to provide ventilation for the engine. The fire pump controller is not being monitored for engine running, controller main switch turned to the OFF or MANUAL position, or trouble signals on the controller or engine.

The two major infrastructure concerns noted above (fire alarm network and fire pump) would preclude a final sign off on commissioning for any of the buildings on site.

The underground fire main system was covered and not accessible for visual inspection. The team initially attempted to flow a fire hydrant on 01 February 2008, but found minimal system flow pressure. It was discovered that the fire pump was in the OFF position. However, because the fire pump controller is not monitored, this condition was not known until visually inspecting the controller. The team did flow two fire hydrants on 05 February 2008 with the fire pump in AUTO which confirmed adequate residual pressure within the system. Water discharged from the hydrant nearest to the Water Treatment plant was initially discolored. The most remote hydrant (west side of compound) ran clear during the total discharge.

Fire pump controller data was downloaded to disk on 05 Feb 08 and is now being analyzed by OBO, Patterson Fire Pump, and Firetrol. The data supports that the fire pump has been in the "Off" position from the end of August 2007 until it was placed in "Auto" at the time of this visit. The data has been attached for reference.

Most of the documentation requested from FKTC in the 26 January 2008 meeting and throughout the site visit was not received by OBO/FIR before departing post. The assessment team received a meeting attendance sheet and samples of T.L. Services test procedures and forms. Completed T.L. Services' Prefunctional Checklist forms for all but the NOB were transmitted to [REDACTED] on 05 Feb 08.



## RECOMMENDATIONS

A commissioning team consisting of USG representatives should perform final inspections and commissioning of the NEC–Baghdad fire protection systems. However, a commissioning team should not be dispatched until the Contractor can assure that all work meets the specifications, codes, and standards set forth in the contract, and that all buildings, all fire protection systems, all supporting infrastructure such as the fiber optic network, fire pump, power supplies and controls are 100% complete, 100% tested, 100% functional, and ready for commissioning.

## CONCLUSION

In general, the fire protection systems at NEC–Baghdad are not ready for final commissioning. Critical issues and ongoing work were noted that would not be expected at a point where substantial completion has been met. Diligence in completing the corrective measures is required by the Contractor to ready the buildings for commissioning testing and subsequent occupancy. The Contractor has now walked through an OBO commissioning process and should be able to perform an evaluation of their readiness to commission all fire and life safety systems

## ATTACHMENTS

### Photographic Documentation

OBO/FIR Memorandum - Initial Assessment documentation, dated 05 Feb 08

OBO/FIR Memorandum - MSGQ scheduled commissioning, dated 03 Feb 08

Fire Pump Controller data, downloaded 05 Feb 08

T.L. Services Prefunctional Checklists, various dates (NOB & GSO not transmitted)

### Miscellaneous Documentation

Mary French E-mail (Seismic), dated 16 Jan 07

Charles E. Williams Memorandum (Guidance), dated 21 Sep 07

Mary French Memorandum (Underground), dated 12 Dec 07

Charles E. Williams Memorandum (Underground), dated 16 Dec 07

Certificate of Substantial Completion, dated 16 Dec 07

Pump Acceptance Test Data, dated 23 May 07

Meeting Attendance Sign In, dated 26 Jan 08

[REDACTED] E-mail (Fire Pump), dated 03 Feb 08

[REDACTED] E-mail (Documentation), dated 03 Feb 08

[REDACTED] Letter, dated 06 Feb 08

Warehouse Work Request, for work on 27 Jan 08

IOB Work Request, for work for 31 Jan 08 – 01 Feb 08

CST surveillance notes, dated 28 Jan 08

IOB Work Request, for work on 29 Jan 08