



**OPCW**

**Technical Secretariat**

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**NOTE BY THE TECHNICAL SECRETARIAT**

**INTERIM REPORT OF THE OPCW FACT-FINDING MISSION IN SYRIA  
REGARDING THE INCIDENT OF ALLEGED USE OF TOXIC CHEMICALS  
AS A WEAPON IN DOUMA, SYRIAN ARAB REPUBLIC, ON 7 APRIL 2018**

**1. INTRODUCTION**

This document contains an update on the work of the OPCW Fact-Finding Mission in Syria (FFM) regarding the alleged use of toxic chemicals as a weapon in Douma, the Syrian Arab Republic, on 7 April 2018. The work of the FFM was conducted in accordance with preambular paragraph 8 and operative paragraphs 5 and 6 of decision EC-M-48/DEC.1 (dated 4 February 2015) and other relevant decisions of the OPCW Executive Council (hereinafter “the Council”), as well as under the Director-General’s authority to seek to uphold at all times the object and purpose of the Chemical Weapons Convention, as reinforced by resolutions 2118 (2013) and 2209 (2015) of the United Nations Security Council as applicable to this investigation. The mandates for the investigation of the alleged incident are referenced in note verbale NV/ODG/214589/18 (dated 10 April 2018) of the Technical Secretariat (hereinafter “the Secretariat”) and note verbale No. 38 of the Syrian Arab Republic (dated 10 April 2018).



## **2. SUMMARY**

- 2.1 On 10 April 2018, the Secretariat and the Permanent Representation of the Syrian Arab Republic to the OPCW exchanged notes verbales regarding the urgent dispatch of an FFM team to Damascus to gather facts regarding the incident of alleged use of toxic chemicals as a weapon in Douma on 7 April 2018. An advance team was dispatched on 12 April and a follow-on team the next day, with the full complement arriving in Damascus on 15 April 2018. A second team deployed to a neighbouring country on 16 April to conduct further activities in relation to the allegation.
- 2.2 The FFM team was not able to enter Douma for almost a week after its arrival, owing to the high security risks to the team, which included the presence of unexploded ordnance, explosives, and sleeper cells still suspected of being active in Douma. On 18 April 2018, during a reconnaissance visit to two sites of interest, the security detail was confronted by a hostile crowd and came under fire from small arms and a hand grenade that exploded. The incident reportedly resulted in two fatalities and one injury.
- 2.3 On 21 April 2018, after security concerns had been addressed, the FFM team conducted its first visit to one of the alleged sites of interest, and it was deemed an acceptable risk to enter Douma. The FFM team deployed four additional times to other sites of interest over the following 10 days, which included on-site visits to a warehouse and a facility suspected by the authorities of the Syrian Arab Republic of producing chemical weapons. There were no further security incidents and the FFM team was at all times isolated from local crowds and media personnel during the on-site visits, thereby allowing it to conduct its activities without interference. At one location, the FFM team was unable to gain access to some apartments at Location 2. The representatives of the Syrian Arab Republic stated that they did not have the authority to enter the locked apartment.
- 2.4 The FFM activities in Douma included on-site visits to collect environmental samples, the conduct of interviews with witnesses, and the collection of data. All of the environmental samples were collected by the FFM team in the presence of representatives of the Syrian Arab Republic, following the Organisation's chain-of-custody procedures. In a neighbouring country (hereinafter "Country X"), biological and environmental samples were gathered or received by the FFM team and interviews with witnesses, including alleged casualties, were conducted.
- 2.5 The results of the analysis of the prioritised samples submitted to OPCW designated laboratories were received by the FFM team on 22 May 2018. No organophosphorus nerve agents or their degradation products were detected, either in the environmental samples or in plasma samples from the alleged casualties. Various chlorinated organic chemicals were found in samples from Locations 2 and 4, along with residues of explosive. These results are reported in Annex 3. Work by the team to establish the significance of these results is ongoing.

- 2.6 The FFM team visited Locations 2 and 4, where it observed the presence of an industrial gas cylinder on a top floor patio at Location 2, and the presence of a similar cylinder lying on the bed of a top floor apartment at Location 4. Close to the location of each cylinder there were crater-like openings in the respective reinforced concrete roofs. Work is ongoing to assess the association of these cylinders with the incident, the relative damage to the cylinders and the roofs, and how the cylinders arrived at their respective locations.
- 2.7 Based on the equipment and chemicals observed during the two on-site visits to the warehouse and the facility suspected by the authorities of the Syrian Arab Republic of producing chemical weapons, there was no indication of either facility being involved in the production of chemical warfare agents.
- 2.8 The FFM team needs to continue its work to draw final conclusions regarding the alleged incident and, to this end, the investigation is ongoing.

### **3. BACKGROUND**

- 3.1 On 7 April 2018, reports began to circulate on social media and in the press regarding an alleged chemical attack that had taken place around 16:00 local time on the same day in Douma, a district of eastern Ghouta in Damascus, the Syrian Arab Republic and another attack the same evening at approximately 19:30. Casualty levels ranging from 40 to 70 deaths, including large numbers of children, and hundreds of chemical-related injuries, were reported. There were mixed reports of what toxic chemicals had been used, with some citing chlorine and others citing sarin, or mixtures of chlorine and sarin. Images and videos posted online showed casualties in a residential building as well as victims being treated at a hospital, reportedly for chemical exposure. Photos and videos of cylinders allegedly used in the two attacks were also posted online.
- 3.2 Widespread condemnation of the incident ensued, with armed opposition groups assigning responsibility for the alleged incident to the forces of the Syrian Arab Republic. The Syrian Arab Republic denied the attack and accused the media wing of Jaysh al Islam of fabricating the incident to incriminate the Syrian Arab Republic Government Forces.
- 3.3 On 10 April 2018, the Secretariat sent note verbale No. NV/ODG/214589/18 to the Syrian Arab Republic expressing its intention to deploy a team to Damascus. This correspondence coincided with note verbale No. 38 from the Permanent Representation of the Syrian Arab Republic to the OPCW requesting that an FFM team be dispatched urgently to visit the town of Douma to verify the information surrounding the alleged use of toxic chemicals on 7 April 2018. On the same day, the Permanent Representative of the Russian Federation to the OPCW submitted a letter to the Secretariat in which he welcomed the request from the Syrian Arab Republic and pledged to facilitate the work of the FFM.
- 3.4 An advance FFM team was mobilised and dispatched on 12 April 2018, with a follow-on team dispatched the next day.

#### **4. AIMS AND SCOPE OF THE FACT-FINDING MISSION**

4.1 The aim of the FFM, as specified in mandate FFM/050/18, was to gather facts regarding the incident of alleged use of toxic chemicals as a weapon on 7 April 2018 in Douma, eastern Ghouta, the Syrian Arab Republic, as reported in the media, and to report to the Director-General upon conclusion of the FFM activities. The sites for investigation included Damascus and any other relevant sites, subject to consultation with the Government of the Syrian Arab Republic and in accordance with paragraphs 12 and 13 of the FFM's terms of reference. All activities of the FFM were to be undertaken in accordance with the relevant Secretariat procedures relating to the conduct of inspections during contingency operations, as applicable. The operational instructions were to:

- (a) review and analyse all available information pertaining to the reported incident of alleged use of toxic chemicals as a weapon;
- (b) collect testimonies from persons alleged to have been affected by the use of toxic chemicals as a weapon, including those who underwent treatment; from eyewitnesses to the alleged use of toxic chemicals; from medical personnel who had provided treatment to or came into contact with persons who may have been affected by the alleged use of toxic chemicals;
- (c) where possible and deemed necessary, carry out medical examinations, including autopsies, and collect biomedical samples of those alleged to have been affected;
- (d) if possible, visit hospitals and other locations as deemed relevant to the conduct of its investigations;
- (e) examine and, if possible, collect copies of the hospital records including patient registers, treatment records, and any other relevant records as deemed necessary;
- (f) examine and, if possible, collect copies of any other documentation and records as deemed necessary;
- (g) take photographs and video recordings and examine and, if possible, collect copies of video and telephone records;
- (h) if possible and deemed necessary, physically examine and collect samples from remnants of munitions, devices, cylinders, containers, etc. alleged to have been used during the incident under investigation;
- (i) if possible and deemed necessary, collect environmental samples at or from the alleged points of the incident and surrounding area; and
- (j) arrange transport for the off-site analysis of the collected samples.

- 4.2 On 20 April 2018, the Syrian Arab Republic submitted a note verbale to the Secretariat formally requesting the Director-General to instruct the FFM team to carry out a visit, within the framework of its mission, to gather facts surrounding the allegations of 7 April 2018, to a warehouse suspected by the authorities of the Syrian Arab Republic of storing chemicals related to the production of chemical weapons.
- 4.3 Two further mandates (FFM/049/18 and FFM/051/18) were issued by the Director-General instructing the FFM team to conduct activities in Country X in relation to the investigation of alleged use of toxic chemicals as a weapon in the Syrian Arab Republic on 7 April 2018.

## **5. PRE-DEPLOYMENT ACTIVITIES AND TIMELINE**

- 5.1 Following reports in the media of the alleged incident on 7 April 2018, the Information Cell of the Secretariat immediately informed the FFM team and initiated a search of open-source information to assess the credibility of the allegation. The major sources comprised news media, blogs, and the websites of various non-governmental organisations. The assessment by the Information Cell was that the credibility of the allegation was high. Based on this information, the Director-General initiated an on-site investigation.
- 5.2 An FFM team comprising nine inspectors and two interpreters was mobilised on 9 April 2018 and pre-deployment activities commenced immediately. Preparations were made to deploy an advance team of three inspectors and an interpreter on 12 April and a follow-on team on the next day. The team was briefed by the Information Cell on all relevant information that had been gathered to date.

## **6. SECURITY AND ACCESS TO THE SITES OF THE ALLEGED INCIDENTS**

- 6.1 Given the recent military activities and the volatile situation in Douma at the time of the FFM deployment, security and safety considerations were of paramount importance. Considerable time and effort were invested in discussions and planning to mitigate the inherent security risks to the FFM team and others deploying into Douma. According to Syrian Arab Republic and Russian Military Police representatives, there were a number of unacceptable risks to the team, including mines and explosives that still needed to be cleared, a risk of explosions, and sleeper cells still suspected of being active in Douma. This assessment was shared by the representative of the United Nations Department of Safety and Security (UNDSS). Moreover, the operation to evacuate residents who had accepted an offer to leave Douma was ongoing, using the same road the team would have to take.
- 6.2 At the outset, the formal position of the FFM team, as instructed by the Director-General, was that security of the mission should be the responsibility of the Syrian Arab Republic. During the initial meetings in Damascus, the FFM team was informed by Syrian and Russian representatives that the Syrian Arab Republic could guarantee the safety of the FFM team only if the security was provided jointly with the Russian Military Police.

- 6.3 Following consultations with OPCW Headquarters it was agreed between the Secretariat, the Syrian Arab Republic, the Russian Military Police, the United Nations Office for Project Services (UNOPS), and UNDSS representatives that security within Douma could be provided by the Russian Military Police. This was formalised on 16 April 2018. Consequently, it was agreed that the Syrian Arab Republic would provide security from the hotel where the inspectors were staying to the final checkpoint at El Wafadin before entering Douma. From that point on, the Syrian Arab Republic would relinquish responsibility for security to the Russian Military Police. It was also agreed that the FFM team would be accompanied by Syrian Arab Republic representatives during the on-site activities, with Russian personnel limited to providing security.
- 6.4 During the reconnaissance visit by UNDSS on 18 April 2018 to assess the first two locations planned to be visited the following day, the security detail was confronted by a hostile crowd and came under fire from small arms and a hand grenade that exploded at Location 2 (see Figure 2 in section 8 below). The incident reportedly resulted in two fatalities and an injury to a Russian soldier.
- 6.5 Following the incident, the planned deployment of the FFM team was postponed until the security situation could be reassessed. Additional measures to mitigate the high security risks were proposed by the UNDSS representative, which included:
- (a) clearing the areas to be visited by the FFM team;
  - (b) securing the areas during the 24-hour period before deployment;
  - (c) increasing the number of escorts and having advance teams from the UNDSS and the Russian Military Police monitor the area prior to the arrival of the team at the sites;
  - (d) using the police force for crowd control;
  - (e) minimising the movement of civilians near the areas of interest given the possibility of suicide bombers getting within close proximity of the inspection team; and
  - (f) deploying snipers on rooftops around the sites of interest.
- 6.6 New routes of access to the locations of interest were identified and modifications to the initial FFM deployment plans were formulated. These included reducing the size of the FFM teams deploying to the field to facilitate better security control and limiting the number of sites to be visited during each deployment. All parties agreed that media reports and public pronouncements on operational aspects of the FFM were compounding the security risk for the team and efforts were made to mitigate this risk element.
- 6.7 Once the security reassessment had been concluded and the proposed additional mitigation measures implemented, the FFM team deployed to the sites of investigation in accordance with the updated priorities and proposed schedule.

- 6.8 For the remainder of the mission, the deployment by the FFM team proceeded without any security incidents. Access was granted to locations identified by the team as soon as adequate security conditions could be assured by the Syrian Arab Republic, the Russian Military Police, and the UNDSS. The Russian Military Police ensured that the team was fully isolated from local crowds and media personnel during the on-site visits, thereby allowing it to conduct its activities without interference.
- 6.9 The FFM visited Location 4 (see Figure 2) on two occasions. During the visit to Location 2, Syrian Arab Republic representatives did not provide the access requested by the FFM team to some apartments within the building, which were closed at the time. The Syrian Arab Republic representatives stated that they did not have the authority to force entry into the locked apartments.

## **7. MISSION ACTIVITIES**

### **Methodological considerations**

- 7.1 The FFM followed the same general methodology outlined in previous FFM reports, with the team adhering throughout its deployment to the most stringent protocols available. Three FFM subteams were deployed to two locations at different time intervals to conduct activities relevant to the respective mandates.
- 7.2 Environmental sampling at the alleged incident sites in Douma was conducted by the FFM team, using its own equipment and ensuring full chain of custody throughout the operation in accordance with OPCW standard operation procedures (SOPs), work instructions (WIs), and guidelines. Samples were collected, sealed, and documented in photos and video recordings in the presence of Syrian Arab Republic representatives, and unpacked at the OPCW Laboratory for splitting and redistribution to the OPCW designated laboratories in the presence of the Permanent Representative of the Syrian Arab Republic to the OPCW.
- 7.3 Some environmental and biological samples were received by the FFM in Country X (see Annex 4). From the moment of receipt, these samples were handled as described above. The FFM team also directly oversaw the drawing of blood samples in Country X from witnesses allegedly exposed to toxic chemicals on 7 April 2018.
- 7.4 Interviews were conducted by inspectors proficient in interviewing techniques, following the strict procedures set out in the OPCW WIs. Prior to commencing the interviews, the process was described to the interviewee, with emphasis on the fact that, with the consent of the interviewee, the interviews would be audio and video recorded. After confirming that the process had been understood, interviewees were requested to sign a consent form. The interview process followed the free-recall approach, with follow-up questions to elicit information of potential evidentiary value and to clarify aspects of the testimony.
- 7.5 Open-source materials including but not limited to videos and photos were used primarily for planning activities, but also for comparative purposes with material collected by the FFM team during the course of the investigation.

### **Activities**

- 7.6 The individual activities of the FFM were conducted in accordance with OPCW guidelines as well as SOPs and WIs (Annex 1).
- 7.7 The activities included:
- (a) collecting environmental samples at sites relevant to the alleged incident, namely Locations 1, 2, and 4, as well as at locations reported by the Syrian Arab Republic as being a suspected chemical weapons production facility and warehouse;
  - (b) receiving and documenting biomedical and environmental samples brought to Country X by alleged casualties or witnesses, as well as overseeing the direct taking of blood samples;
  - (c) taking photographs and collecting data on the cylinders found at Locations 2 and 4, as well as the physical surroundings;
  - (d) taking photographs and collecting data from a facility and a warehouse suspected by the authorities of the Syrian Arab Republic of producing chemical weapons;
  - (e) conducting interviews with medical staff, casualties, first responders and witnesses of the alleged chemical attack in Douma;
  - (f) reviewing open-source materials; and
  - (g) the tagging of two cylinders.
- 7.8 The possibility of exhuming bodies from mass graves to collect biomedical samples and examining bodies reportedly exposed to toxic chemicals from the alleged attack on 7 April 2018 was considered by the Secretariat. The intention to do so was communicated to the Syrian Arab Republic in note verbale NV/ODG/214827/18, and preliminary preparations were undertaken by the Secretariat for this eventuality.

## **8. FACTUAL FINDINGS**

### **Alleged sites**

- 8.1 The sites visited during the FFM deployment included the hospital where victims were allegedly treated for chemical exposure (Location 1), the residential block with the cylinder on the balcony (Location 2), and the apartment with the cylinder lying on a bed (Location 4). Location 3 was initially considered a site of interest but was discarded on the basis of subsequent information. Two other locations, a facility and a warehouse, were visited to gather information to assess any possible connection with the manufacture of chemical weapons.

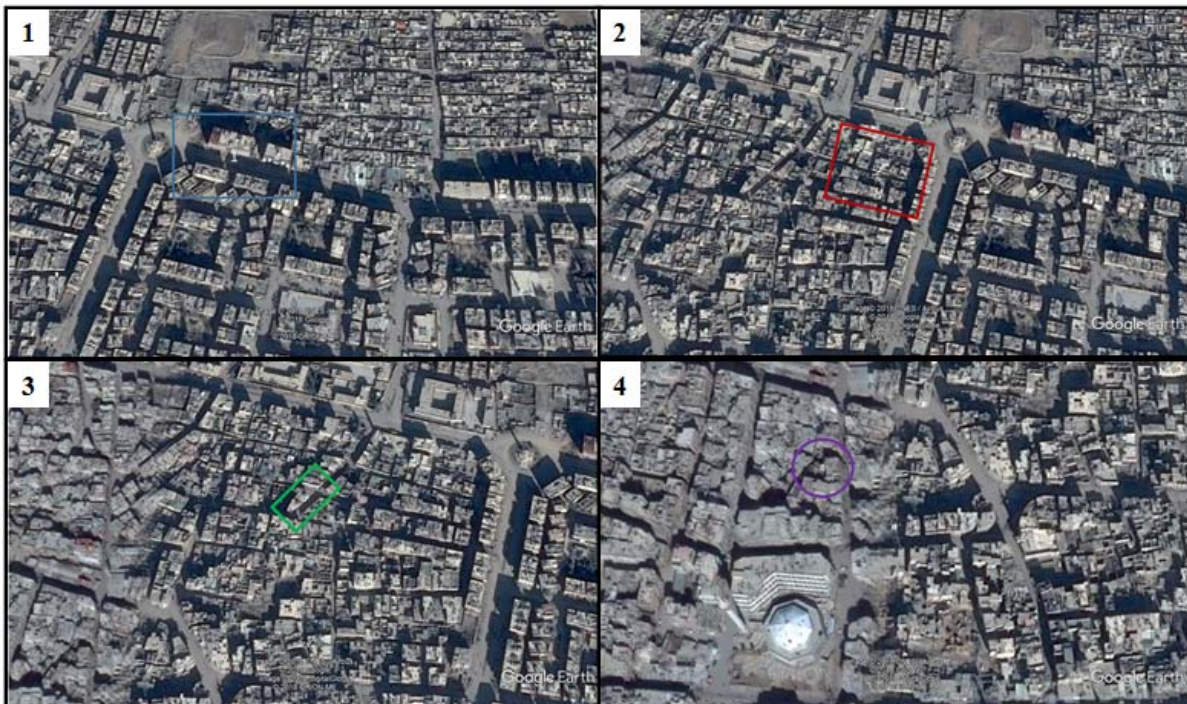


8.2 Locations 1 to 4 are shown on the satellite images of Douma in Figure 2 below.

**FIGURE 1: LOCATION OF DOUMA IN THE SYRIAN ARAB REPUBLIC**



**FIGURE 2: LOCATIONS OF INTEREST FOR THE FACT-FINDING MISSION IN DOUMA**



- 8.3 The local meteorological conditions on 7 April 2018 around the time of the alleged incident, as registered in open sources (darksky.net), are shown in Table 1 below.

**TABLE 1: LOCAL METEOROLOGICAL CONDITIONS ON 7 APRIL 2018**

| Time  | Temperature | Wind Direction | Wind Speed | Precipitation | Clouds   | Humidity |
|-------|-------------|----------------|------------|---------------|----------|----------|
| 19:00 | 26°C        | From SE        | 11 km/h    | 0.0 mm        | overcast | 27%      |

### **Sampling**

- 8.4 The FFM team formulated detailed sampling plans for each site of allegation. The plans relied on robust scientific principles, supported where necessary and possible by peer-reviewed scientific literature or proven experience, to identify sample types and locations of greatest potential probative value to the mission.
- 8.5 The team executed the original sampling plans to the extent possible, adapting to actual conditions on site where necessary.
- 8.6 Given the number of locations visited and the diversity of potential evidentiary material available, over 100 samples in total were collected and transported to the OPCW Laboratory. To expedite the analysis of environmental samples considered at this stage to be of the greatest probative value or of the highest susceptibility to degradation, 31 samples were selected for the first round of analysis by the OPCW designated laboratories. The results of analysis are presented in Annex 3.

### **Analysis results**

- 8.7 The results of analysis of the prioritised samples submitted to the designated laboratories were received by the FFM team on 22 May 2018. No organophosphorus nerve agents or their degradation products were detected, either in the environmental samples or in plasma samples from the alleged casualties. Various chlorinated organic chemicals were found in samples from Locations 2 and 4, along with residues of explosive. These results are reported in Annex 3. Work by the team to establish the significance of these results is ongoing.

### **Physical data collection**

- 8.8 Aside from sampling, a large volume of information was gathered by the FFM team and included photographs, video recordings, detection measurements, dimensions of the cylinders and attached metallic structure, and the spatial arrangement in the environment of the cylinders.

### **Location 2 (cylinder on the roof)**

- 8.9 The team deployed to Location 2 (N 33° 34' 25.6", E 36° 24' 17.3") on 21 April 2018.
- 8.10 During the visit to Location 2, Syrian Arab Republic representatives did not provide the access requested by the FFM team to some apartments within the building, which were closed at the time. The Syrian Arab Republic representatives stated that they did not have the authority to force entry into the locked apartments. This situation was relayed to OPCW Headquarters during the post-deployment debrief that same evening.

- 8.11 The FFM had full access to other areas of interest within the same building, namely the balcony where the cylinder had allegedly impacted, the apartment directly below this, and the basement of the same apartment block.
- 8.12 Work is in progress regarding the location of the cylinder, its provenance, and the damage to both the reinforced concrete balcony and the cylinder. A comprehensive analysis by experts in the relevant fields will be required to provide a competent assessment of the relative damage.

#### **Location 4 (cylinder on the bed)**

- 8.13 The team deployed to Location 4 (N 33° 34' 24", E 36° 23' 41.1") on 25 April 2018. The team gathered a broad selection of sample types, took videos, photos, detection measurements, and relevant dimensions of the location and the cylinder.
- 8.14 Work is in progress regarding the location of the cylinder, its provenance, and the damage to the reinforced concrete roof terrace and the cylinder. It is planned that a comprehensive analysis will be conducted by suitable experts, possibly in metallurgy and structural or mechanical engineering, to provide an assessment of how the cylinders arrived at its location, in addition to the observed damage to the bed and other furniture of the room, the roof, and the cylinder itself.

#### **Location 1 (hospital)**

- 8.15 The FFM team visited Location 1 (N 33° 34' 27.3", E 36° 24' 25") on 1 May 2018. The hospital operates in the basements of two multistorey buildings connected by an underground tunnel. The FFM team was guided through the hospital, including underground access tunnels, and took environmental samples and held discussions with medical personnel.

#### **Warehouse and facility suspected of producing chemical weapons**

- 8.16 At the warehouse and the facility suspected by the authorities of the Syrian Arab Republic of producing chemical weapons in Douma, information was gathered to assess whether these facilities were associated with the production of chemical weapons or toxic chemicals that could be used as weapons. From the information gathered during the two on-site visits to these locations, there was no indication of either facility being involved in the production of chemical warfare agents or toxic chemicals for use as weapons.

#### **Interviews**

- 8.17 The FFM team interviewed a total of 34 individuals; 13 of these interviews were conducted in Damascus and the remainder in Country X. Analysis of the testimonies is ongoing.

Annexes (English only):

- Annex 1: Reference Documentation
- Annex 2: Open Sources
- Annex 3: Analysis Results
- Annex 4: Samples Obtained by the Fact-Finding Mission
- Annex 5: Documents Received From the State Party

**Annex 1****REFERENCE DOCUMENTATION**

| Document Reference                          | Full Title of Document  |
|---|---|
| QDOC/INS/SOP/IAU01<br>(Issue 1, Revision 1) | Standard Operating Procedure for Evidence Collection, Documentation, Chain-of-Custody and Preservation during an Investigation of Alleged Use of Chemical Weapons |
| QDOC/INS/WI/IAU05<br>(Issue 1, Revision 2)  | Work Instruction for Conducting Interviews during an Investigation of Alleged Use   |
| QDOC/INS/SOP/IAU02<br>(Issue 1, Revision 0) | Standard Operating Procedure<br>Investigation of Alleged Use (IAU) Operations   |
| QDOC/INS/SOP/GG011<br>(Issue 1, Revision 0) | Standard Operating Procedure for Managing Inspection Laptops and other Confidentiality Support Materials  |
| QDOC/LAB/SOP/OSA2<br>(Issue 1, Revision 2)  | Standard Operating Procedure for Off-Site Analysis of Authentic Samples   |
| QDOC/LAB/WI/CS01<br>(Issue 1, Revision 2)   | Work Instruction for Handling of Authentic Samples from Inspection Sites and Packing Off-Site Samples at the OPCW Laboratory                                      |
| QDOC/LAB/WI/OSA3<br>(Issue 2, Revision 1)   | Work Instruction for Chain of Custody and Documentation for OPCW Samples On-Site  |
| QDOC/LAB/WI/OSA4<br>(Issue 1, Revision 3)   | Work Instruction for Packing of Off-Site Samples  |

**Annex 2**

**OPEN SOURCES**

To be provided in the final report.



## ANALYSIS RESULTS

TABLE A 3.1: ENVIRONMENTAL SAMPLES RECEIVED OR COLLECTED BY THE FACT-FINDING MISSION

| Entry number | Sample Code | Description  | Evidence Reference Number | DL 02 code | Results DL02   | DL 03 code | Results DL03   |
|--------------|-------------|--|---------------------------|------------|--|------------|--|
| 1.           | 01SLS       | Concrete debris from the street, left side below window (level 0)            | 20180421190901            | B          | Dichloroacetic acid, trichloroacetic acid, chlorophenol, * trinitrotoluene .                 | C01        | No CWC-scheduled chemicals detected.<br>2,4,6-Trinitrotoluene* .                                 |
| 2.           | 03SLS       | Concrete debris from the middle of street opposite to the window (level 0)   | 20180421190903            | C          | Dichloroacetic acid, trichloroacetic acid, chlorophenol, dichlorophenol, * trinitrotoluene . | C03        | No CWC-scheduled chemicals detected.<br>2,4,6-Trinitrotoluene* .                                 |
| 3.           | 10WPS       | Swab from inside the cylinder orifice (level 3)                              | 20180421190910            | D          | No chemicals relevant to CWC have been found.  | E10        | No CWC-scheduled chemicals detected.   |
| 4.           | 11WPS       | Swab with water from inside the cylinder orifice (level 3)                   | 20180421190911            | E          | Dichloroacetic acid, chloride.   | E11        | No CWC-scheduled chemicals detected.   |
| 5.           | 19SLS       | Concrete debris from the crater-edge in front of the cylinder nose (level 3) | 20180421190919            | F          | Dichloroacetic acid, trichloroacetic acid, chloral hydrate, trichlorophenol.                 | C19        | No CWC-scheduled chemicals detected.<br>2,4,6-Trinitrotoluene* .                                 |
| 6.           | 25SDS       | Wood fragment from kitchen door (level 2)                                    | 20180421190925            | G          | Dichloroacetic acid, trichloroacetic acid, chlorophenol.                                     | V25        | No CWC-scheduled chemicals detected.<br>Phenol, 2,4,6-trichlorophenol†, 2,4,6-Trinitrotoluene* . |

| Entry number | Sample Code | Description  | Evidence Reference Number | DL 02 code | Results DL02  | DL 03 code | Results DL03   |
|--------------|-------------|--|---------------------------|------------|---|------------|--|
| 7.           | 30WPS       | Dry wipe from bicycle rear cassette in basement (level -1) | 20180421190930            | H          | No chemicals relevant to CWC have been found.   | S30        | No CWC-scheduled chemicals detected.   |
| 8.           | 32SDS       | Water tank wood support in basement (level -1)             | 20180421190932            | I          | Dichloroacetic acid, trichloroacetic acid.  | V32        | No CWC-scheduled chemicals detected.<br>alpha-Pinene, bornyl chloride <sup>†</sup> , phenol, 2,4,6-trichlorophenol <sup>†</sup> , 2,4,6-Trinitrotoluene <sup>*</sup> . |
| 9.           | 34SDS       | Wood from partition frame in basement (level -1)           | 20180421190934            | J          | Dichloroacetic acid, trichloroacetic acid.  | V34        | No CWC-scheduled chemicals detected.<br>Phenol, 2,4,6-trichlorophenol <sup>†</sup> , 2,4,6-Trinitrotoluene <sup>*</sup> .  |
| 10.          | 35AQS       | Water from water tank in basement (level -1)               | 20180421190935            | K          | No chemicals relevant to CWC have been found.   | W35        | No CWC-scheduled chemicals detected.   |
| 11.          | 04SDS-L4    | Blanket under cylinder                                     | 20180425178804            | L          | Dichloroacetic acid, trichloroacetic acid, chloral hydrate, trichlorophenol <sup>†</sup> , trinitrotoluene <sup>*</sup> , chloride. | TL4        | No CWC-scheduled chemicals detected.<br>2,4,6-Trinitrotoluene <sup>*</sup> .   |
| 12.          | 06SDS-L4    | Wet wood from under the cylinder                           | 20180425178806            | M          | Bornyl chloride <sup>†</sup> , chloride.  | V06        | No CWC-scheduled chemicals detected.<br>alpha-Pinene, bornyl chloride <sup>†</sup> , phenol, 2,4,6-trichlorophenol <sup>†</sup> ,                                      |



| Entry number | Sample Code                  | Description   | Evidence Reference Number | DL 02 code | Results DL02  | DL 03 code | Results DL03  |
|--------------|------------------------------|---|---------------------------|------------|---|------------|---|
| 13.          | 10SDS-L4                     | Pillow cover on the bed , closer to the wall        | 20180425178810            | N          | Dichloroacetic acid, trichloroacetic acid, trichlorophenol, tetrachlorophenol, chloral hydrate, trinitrotoluene , chloride. | T10        | No CWC-scheduled chemicals detected.<br>2,4,6-Trinitrotoluene* .  |
| 14.          | 13WPS-L4                     | Dry wipe from stains on the wall, behind the bed    | 20180425178813            | O          | No chemicals relevant to CWC have been found.   | S13        | No CWC-scheduled chemicals detected.<br>2,4,6-Trinitrotoluene* .  |
| 15.          | 04WPS-PF                     | Swab sample with water from outlet valve on reactor | 20180430150804            | P          | No chemicals relevant to CWC have been found.   | E04        | No CWC-scheduled chemicals detected.  |
| 16.          | S7                           | Grouting from 5-13 c. 1 m out from LHS wall         | 20180501177907            | Q          | No chemicals relevant to CW have been found.  | C07        | No nerve agent related chemicals detected.<br>Triethanolamine <sup>‡</sup> , 2,4,6-                           |
| 17.          | FFM-49-18-SDS04 <sup>1</sup> | Piece of clothes from victim                        | 20180421178219            | S          | Dichloroacetic acid, trichloroacetic acid, dichlorophenol, trichlorophenol.   | T04        | No nerve agent related chemicals detected.<br>Triethanolamine <sup>‡</sup> , 2,4,6-trinitrotoluene* .         |
| 18.          | FFM-49-18-SDS05 <sup>1</sup> | Pieces of timber                                    | 20180421178220            | T          | No chemicals relevant to CWC have been found.   | V05        | No CWC-scheduled chemicals detected.<br>Phenol, 2,4,6-trichlorophenol <sup>†</sup> , 2,4,6-trinitrotoluene* . |

| Entry number | Sample Code                  | Description                            | Evidence Reference Number | DL 02 code | Results DL02                                  | DL 03 code | Results DL03  |
|--------------|------------------------------|--|---------------------------|------------|---|------------|---|
| 19.          | FFM-49-18-SDS07 <sup>1</sup> | Scarf collected from the basement      | 20180422174805            | U          | No chemicals relevant to CWC have been found. | T07        | No nerve agent related chemicals detected.<br>Triethanolamine <sup>‡</sup> ,<br>"Amgard V19" phosphonate <sup>♦</sup> ,<br>malathion, 2,4,6-trinitrotoluene . |
| 20.          | FFM-49-18-SDS08 <sup>1</sup> | Stuffed animal collected from basement | 20180422174804            | V          | No chemicals relevant to CWC have been found. | T08        | No nerve agent related chemicals<br>Triethanolamine <sup>‡</sup> , 2,4,6-trinitrotoluene .  |

Samples in rows 17, 18, 19 and 20 were received by the FFM team from witnesses. \* Explosive, †Chlorinated compounds from wood, ‡Surfactant for textiles ♦ Flame retardant.

**TABLE A 3.2: BIOMEDICAL SAMPLES RECEIVED OR COLLECTED BY THE FACT-FINDING MISSION**

| Entry number | Sample Code | Description | Evidence Reference Number | DL 02 code | Results DL02                | DL 03 code | Results DL03  |
|--------------|-------------|-------------|---------------------------|------------|-----------------------------|------------|---|
| 1.           | 178201      | Plasma      | 20180421178201            | A          | No relevant chemicals found | A          | Nerve agent-adducts of BChE derived nonapeptide (G- and V-type agents):<br>No compound found. |
| 2.           | 178204      | Plasma      | 20180421178204            | B          | No relevant chemicals found | B          |   |
| 3.           | 178207      | Plasma      | 20180421178207            | C          | No relevant chemicals found | C          |   |
| 4.           | 178210      | Plasma      | 20180421178210            | D          | No relevant chemicals found | D          |   |
| 5.           | 178213      | Plasma      | 20180421178213            | E          | No relevant chemicals found | E          |   |
| 6.           | 175704A     | Plasma      | 20180418175704A           | F          | Sample was not analysed     | F          |   |
| 7.           | 175703A     | Plasma      | 20180418175703A           | G          | Sample was not analysed     | G          |   |
| 8.           | 1748PL      | Plasma      | 201804211748PL            | H          | No relevant chemicals found | H          |   |
| 9.           | 1753PL      | Plasma      | 201804251753PL            | I          | No relevant chemicals found | I          |   |
| 10.          | 1770PL      | Plasma      | 201804211770PL            | J          | No relevant chemicals found | J          |   |
| 11.          | 1795PL      | Plasma      | 201804211795PL            | K          | No relevant chemicals found | K          |   |

BChE = butyrylcholinesterase

Annex 4

**SAMPLES OBTAINED BY THE FACT-FINDING MISSION**

**TABLE A 4: LIST OF SAMPLES COLLECTED OR RECEIVED BY THE FACT-FINDING MISSION**

| Entry number | Sample description   | Evidence Reference Number | Source               |
|--------------|--|---------------------------|----------------------|
| 1            | Concrete debris from the street, left side below window (level 0)                  | 20180421190901            | Collected by the FFM |
| 2            | Concrete debris from the street opposite side of the entry of Location 2 (level 0) | 20180421190902            | Collected by the FFM |
| 3            | Concrete debris from the middle of street opposite the window (level 0)            | 20180421190903            | Collected by the FFM |
| 4            | Control sample: debris 20 m west of building's entrance (level 0)                  | 20180421190904            | Collected by the FFM |
| 5            | Swab blank with DCM  | 20180421190905            | Collected by the FFM |
| 6            | Wipe blank with DCM  | 20180421190906            | Collected by the FFM |
| 7            | Swab blank with water  | 20180421190907            | Collected by the FFM |
| 8            | Wipe blank with water  | 20180421190908            | Collected by the FFM |
| 9            | Fabric stuck to metal bars from the balcony with the cylinder is (level 3)         | 20180421190909            | Collected by the FFM |
| 10           | Swab from inside the cylinder orifice (level 3)                                    | 20180421190910            | Collected by the FFM |
| 11           | Swab with water from inside the cylinder orifice (level 3)                         | 20180421190911            | Collected by the FFM |
| 12           | Metal fragment from the balcony (level 3)  | 20180421190912            | Collected by the FFM |
| 13           | Wipe with DCM from the external surface of the cylinder (level 3)                  | 20180421190913            | Collected by the FFM |
| 14           | Wipe with water from the external surface of the cylinder (level 3)                | 20180421190914            | Collected by the FFM |
| 15           | Dry wipe of the cylinder thread (level 3)  | 20180421190915            | Collected by the FFM |
| 16           | Metal object from the balcony (Level 3)  | 20180421190916            | Collected by the FFM |
| 17           | Concrete debris from the base of the cylinder (level 3)                            | 20180421190917            | Collected by the FFM |
| 18           | Metal bar at cylinder nose (Level 3)   | 20180421190918            | Collected by the FFM |
| 19           | Concrete debris from the crater-edge in front of the cylinder nose (level 3)       | 20180421190919            | Collected by the FFM |

| Entry number | Sample description   | Evidence Reference Number | Source               |
|--------------|--|---------------------------|----------------------|
| 20           | Tile from the balcony wall (level 3)   | 20180421190920            | Collected by the FFM |
| 21           | Wipe with water from the burnt wall in the room located under the cylinder (level 2) | 20180421190921            | Collected by the FFM |
| 22           | Wipe with DCM from burnt wall from room under the cylinder (level 2)                 | 20180421190922            | Collected by the FFM |
| 23           | Swab with water from wall plug in the room under the cylinder (level 2)              | 20180421190923            | Collected by the FFM |
| 24           | Dry wipe from kitchen wall above the oven (level 2)                                  | 20180421190924            | Collected by the FFM |
| 25           | Wood fragment from kitchen door (level 2)  | 20180421190925            | Collected by the FFM |
| 26           | Towel from the room located under the cylinder (level 2)                             | 20180421190926            | Collected by the FFM |
| 27           | Exposed electrical wires from room under the cylinder (level 2)                      | 20180421190927            | Collected by the FFM |
| 28           | Lump of concrete from floor-debris from room under the cylinder (level 2)            | 20180421190928            | Collected by the FFM |
| 29           | Soap bar from room under the cylinder (level 2)                                      | 20180421190929            | Collected by the FFM |
| 30           | Dry wipe from bicycle rear cassette in basement (level -1)                           | 20180421190930            | Collected by the FFM |
| 31           | Swab with DCM from bicycle rear cassette in basement (level -1)                      | 20180421190931            | Collected by the FFM |
| 32           | Water tank wood support in basement (level -1)                                       | 20180421190932            | Collected by the FFM |
| 33           | Light bulb from basement(level -1)   | 20180421190933            | Collected by the FFM |
| 34           | Wood from partition frame in basement (level -1)                                     | 20180421190934            | Collected by the FFM |
| 35           | Water from water tank in basement (level -1)   | 20180421190935            | Collected by the FFM |
| 36           | Telephone from basement (level -1)   | 20180421190936            | Collected by the FFM |
| 37           | 2 nails and 2 screws from Basement wall (level -1)                                   | 20180421190937            | Collected by the FFM |
| 38           | Swab with water from electric socket Basement (level -1)                             | 20180421190938            | Collected by the FFM |
| 39           | Swab with DCM from electric socket basement (level -1)                               | 20180421190939            | Collected by the FFM |
| 40           | Damp wall board from basement left of stairs (level -1)                              | 20180421190940            | Collected by the FFM |
| 41           | Wipe with water from basement wall (level -1)  | 20180421190941            | Collected by the FFM |
| 42           | Wipe with DCM from basement wall (level -1)  | 20180421190942            | Collected by the FFM |

| Entry number | Sample description  | Evidence Reference Number | Source               |
|--------------|---|---------------------------|----------------------|
| 43           | Wipe with water from lavatory extractor pipe in basement (level -1) | 20180421190943            | Collected by the FFM |
| 44           | Insect from lavatory in basement (level -1)                         | 20180421190944            | Collected by the FFM |
| 45           | Pillow from bed under the cylinder                                  | 20180425178801            | Collected by the FFM |
| 46           | Metal fragment from bedroom floor                                   | 20180425178802            | Collected by the FFM |
| 47           | Metal object from dresser   | 20180425178803            | Collected by the FFM |
| 48           | Piece of blanket under cylinder                                     | 20180425178804            | Collected by the FFM |
| 49           | Control sample: piece of blanket opposite side of bed, on the floor | 20180425178805            | Collected by the FFM |
| 50           | Wet wood from under the cylinder                                    | 20180425178806            | Collected by the FFM |
| 51           | Insects and dust from tray in bedroom shower                        | 20180425178807            | Collected by the FFM |
| 52           | Bedside lamp on top of mattress                                     | 20180425178808            | Collected by the FFM |
| 53           | Copper wire attached to the roof, hanging from the ceiling lamp     | 20180425178809            | Collected by the FFM |
| 54           | Pillow cover on the bed , closer to the wall                        | 20180425178810            | Collected by the FFM |
| 55           | Dry wipe from nozzle , front part next to thread                    | 20180425178811            | Collected by the FFM |
| 56           | Dry wipe from cylinder thread                                       | 20180425178812            | Collected by the FFM |
| 57           | Dry wipe from stains on the wall, behind the bed                    | 20180425178813            | Collected by the FFM |
| 58           | Chips of paint from wall behind bed .                               | 20180425178814            | Collected by the FFM |
| 59           | Wipe with DCM blank   | 20180425178815            | Collected by the FFM |
| 60           | Wipe with DCM from headboard  | 20180425178816            | Collected by the FFM |
| 61           | Wipe with DCM of cylinder nozzle                                    | 20180425178817            | Collected by the FFM |
| 62           | Calid paper from wall   | 20180425178818            | Collected by the FFM |
| 63           | Gloves from stairs  | 20180425178819            | Collected by the FFM |
| 64           | Wipe with DCM from door threshold, entrance of apartment            | 20180425178820            | Collected by the FFM |
| 65           | Solid sample from white bag under jar labelled as hexamine          | 20180427191401            | Collected by the FFM |

| Entry number | Sample description   | Evidence Reference Number | Source               |
|--------------|--|---------------------------|----------------------|
| 66           | Solid sample from jar labelled as hexamine                               | 20180427191402            | Collected by the FFM |
| 67           | Solid sample from white bag next to jar labelled as hexamine             | 20180427191403            | Collected by the FFM |
| 68           | Solid sample from white bag with Cheminol label and labelled as hexamine | 20180427191404            | Collected by the FFM |
| 69           | Solid sample of unknown blue crystalline solid                           | 20180427191405            | Collected by the FFM |
| 70           | Solid sample of unknown green solid                                      | 20180427191406            | Collected by the FFM |
| 71           | Swab blank with DCM  | 20180430150801            | Collected by the FFM |
| 72           | Swab blank with water  | 20180430150802            | Collected by the FFM |
| 73           | Swab sample with DCM from outlet valve on reactor                        | 20180430150803            | Collected by the FFM |
| 74           | Swab sample with water from outlet valve on reactor                      | 20180430150804            | Collected by the FFM |
| 75           | DCM wipe of wall and floor at hose down area seen in open source video   | 20180501177901            | Collected by the FFM |
| 76           | Water wipe of wall and floor at hose down area seen in open source video | 20180501177902            | Collected by the FFM |
| 77           | Swab blank with DCM  | 20180501177903            | Collected by the FFM |
| 78           | Wipe blank with water  | 20180501177904            | Collected by the FFM |
| 79           | Concrete dust scraping at pillar 51 (control)                            | 20180501177905            | Collected by the FFM |
| 80           | Concrete dust 5-13 on right hand side at wall                            | 20180501177906            | Collected by the FFM |
| 81           | Grouting from 5-13 c. 1 m out from LHS wall                              | 20180501177907            | Collected by the FFM |
| 82           | Piece of clothing from victim  | 20180421178219            | Handed over by 1782  |
| 83           | Piece of wood  | 20180421178220            | Handed over by 1782  |
| 84           | Dark blue vest   | 20180421178215            | Handed over by 1782  |
| 85           | Scarf collected from the basement  | 20180422174805            | Handed over by 1748  |
| 86           | Stuffed toy collected from basement                                      | 20180422174804            | Handed over by 1748  |
| 87           | Plasma samples   | 20180421178201            | Handed over by 1782  |
| 88           | Plasma samples   | 20180421178204            | Handed over by 1782  |
| 89           | Plasma samples   | 20180421178207            | Handed over by 1782  |

| Entry number | Sample description  | Evidence Reference Number | Source               |
|--------------|---------------------|---------------------------|----------------------|
| 90           | Plasma samples      | 20180421178210            | Handed over by 1782  |
| 91           | Plasma samples      | 20180421178213            | Handed over by 1782  |
| 92           | Plasma samples      | 20180418175704A           | Handed over by 1757  |
| 93           | Plasma samples      | 20180418175703A           | Handed over by 1757  |
| 94           | Plasma samples      | 20180418175702A           | Handed over by 1757  |
| 95           | Plasma samples      | 20180418175701A           | Handed over by 1757  |
| 96           | Plasma samples      | 201804211748PL            | Collected by the FFM |
| 97           | Plasma samples      | 201804211795PL            | Collected by the FFM |
| 98           | Plasma samples      | 201804211770PL            | Collected by the FFM |
| 99           | Plasma samples      | 201804251753PL            | Collected by the FFM |
| 100          | Blood cells samples | 20180421178202            | Handed over by 1782  |
| 101          | Blood cells samples | 20180421178205            | Handed over by 1782  |
| 102          | Blood cells samples | 20180421178208            | Handed over by 1782  |
| 103          | Blood cells samples | 20180421178211            | Handed over by 1782  |
| 104          | Blood cells samples | 20180421178214            | Handed over by 1782  |
| 105          | Blood cells samples | 20180418175704B           | Handed over by 1757  |
| 106          | Blood cells samples | 20180418175703B           | Handed over by 1757  |
| 107          | Blood cells samples | 20180418175702B           | Handed over by 1757  |
| 108          | Blood cells samples | 20180418175701B           | Handed over by 1757  |
| 109          | Blood cells samples | 201804211748BC            | Collected by the FFM |
| 110          | Blood cells samples | 201804211795BC            | Collected by the FFM |
| 111          | Blood cells samples | 201804211770BC            | Collected by the FFM |
| 112          | Blood cells samples | 201804251753BC            | Collected by the FFM |



| Entry number | Sample description | Evidence Reference Number | Source               |
|--------------|--------------------|---------------------------|----------------------|
| 113          | Full blood samples | 20180421178203            | Handed over by 1782  |
| 114          | Full blood samples | 20180421178206            | Handed over by 1782  |
| 115          | Full blood samples | 20180421178209            | Handed over by 1782  |
| 116          | Full blood samples | 20180421178212            | Handed over by 1782  |
| 117          | Hair samples       | 20180418175705HS          | Handed over by 1757  |
| 118          | Hair samples       | 20180418175706HS          | Handed over by 1757  |
| 119          | Hair samples       | 20180418175707HS          | Handed over by 1757  |
| 120          | Hair samples       | 20180430178226            | Handed over by 1782  |
| 121          | Hair samples       | 20180430178227            | Handed over by 1782  |
| 122          | Hair samples       | 20180430178228            | Handed over by 1782  |
| 123          | Hair samples       | 20180430178229            | Handed over by 1782  |
| 124          | Hair samples       | 20180430178230            | Handed over by 1782  |
| 125          | DNA samples        | 20180426178221            | Collected by the FFM |
| 126          | DNA samples        | 20180426178222            | Collected by the FFM |
| 127          | DNA samples        | 20180426178223            | Collected by the FFM |
| 128          | DNA samples        | 20180426178224            | Collected by the FFM |
| 129          | DNA samples        | 20180426178225            | Collected by the FFM |

**Annex 5**

**DOCUMENTS RECEIVED FROM THE STATE PARTY**

To be provided in the final report.

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