



**OPCW**

**Technical Secretariat**

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**NOTE BY THE TECHNICAL SECRETARIAT**

**UPDATE ON THE OPCW FACT-FINDING MISSION IN SYRIA**

The Technical Secretariat hereby provides written responses to the questions submitted in writing by the Syrian Arab Republic (Annex 1) and the Russian Federation (Annex 2) under subitem 6(g) of the agenda of the Ninetieth Session of the Executive Council: “Technical Secretariat’s activities: update on the OPCW Fact-Finding Mission in Syria”.

Annexes:

- Annex 1: Response of the Technical Secretariat to Note Verbale No. 9 Received from the Syrian Arab Republic on 11 March 2019 Entitled “Technical Comments from the Syrian National Authority on the Final Report of the Fact-Finding Mission Regarding the Alleged Incident of 7 April 2018 in Douma (Document S/1731/2019, Dated 1 March 2019”
- Annex 2: Response of the Technical Secretariat to Note Verbale No. 759 Received from the Russian Federation on 26 April 2019 entitled “Commentaries on the Conclusions of the Report of the Fact-Finding Mission on the Use of Chemical Weapons in Syria Regarding the Alleged use of Chemicals Weapons in Douma on 7 April 2018”



## Annex 1

### RESPONSE OF THE TECHNICAL SECRETARIAT TO NOTE VERBALE NO. 9 RECEIVED FROM THE SYRIAN ARAB REPUBLIC ON 11 MARCH 2019 ENTITLED “TECHNICAL COMMENTS BY THE SYRIAN NATIONAL AUTHORITY ON THE FINAL REPORT OF THE FACT-FINDING MISSION REGARDING THE ALLEGED INCIDENT OF 7 APRIL 2018 IN DOUMA (DOCUMENT S/1731/2019, DATED 1 MARCH 2019)”

**Underlined text** below represents the exact text of questions/comments (in English translation) taken from Note Verbale No. 9 of the Syrian Arab Republic dated 11 March 2019

- I. Paragraph 2.4 of the report stated that the Fact-Finding Mission (FFM) collected biomedical samples and that this activity was conducted without knowledge of or coordination with the Syrian experts. If these samples were collected by a third party, they were not shared with the Syrian side, which raises the question as to the type of the samples in question.

#### ***Answer 1.1:***

*The Fact-Finding Mission (FFM) terms of reference (ToR), as agreed through an exchange of letters between the Secretariat and the Syrian Arab Republic, require the Director-General to notify the Government of the Syrian Arab Republic of the time of the arrival of the FFM. There is coordination with the Government of the Syrian Arab Republic for the FFM's deployments to Syria. The Secretariat will continue to uphold its obligations under the ToR.*

*No coordination is required with the Syrian Arab Republic for FFM deployments outside the territory of the Syrian Arab Republic.*

*Since the FFM endeavours to maintain the privacy and protection of witnesses, biomedical samples collected from witnesses cannot be shared, as they can reveal the identity of the witnesses in question.*

In Annex 5, Table A5.2, concerning biomedical samples (plasma): the report did not mention the source of the samples it collected, nor did it mention who delivered them to the FFM. The question is: how credible are these samples, given the absence of the chain of custody?

#### ***Answer 1.2:***

*The sources of all samples can be found in Annex 9, table A9.3. The sources of the plasma samples, which were presented in Table A5.2, were reported in Table A9.3 in entries 87 to 93 and in entries 96 to 99: four of those samples were collected by the FFM and seven samples were received by the FFM from witnesses.*

*Regarding chain of custody, the FFM always upholds this principle from the moment of collection or receipt of evidence, including samples. In the case of samples for which chain of custody could be established from the moment of receipt by the FFM, the FFM analyses and*

*weighs evidentiary value, taking into account the degree of separation between the stated source of collection of the sample and the moment of receipt by the FFM, along with any other information shared by the party providing the sample.*

- II. Paragraphs 2.9 and 8.40 of the report deliberately disregarded any reference to the possession of chlorine and hexamine by armed terrorist groups, although these two substances were found in the warehouse which had been used by the terrorists and which the FFM had visited. It is regrettable that the report diverted attention from the existence of those chemicals to the fact that there was no indication of either facility being involved in their manufacture. Here we point out that the FFM has always adopted a contradictory approach in interpreting the existence of similar chemicals, sometimes considering it to be an evidence of the use of toxic chemicals and sometimes considering it to be normal.

***Answer 2.1:***

*Paragraphs 2.9 and 8.40 of the report provide the summary and the analysis results by the FFM regarding the visited warehouse. Full details regarding the visited warehouse were presented in Annex 8, as mentioned in paragraph 8.40 of the report. Table A8.1 in Annex 8 lists all substances observed by the FFM on labels in the warehouse. Hexamine was one of the chemicals that was listed in Table A8.1. Figure A8.2 showed the yellow cylinder observed by the FFM at the warehouse. The FFM report therefore did not disregard the fact that the yellow cylinder and hexamine were found in the warehouse.*

*The FFM provided its analysis regarding the hexamine and the yellow cylinder in paragraphs 4 to 7 of Annex 8 to the report. It is the combination and the consistency of all the information gathered as a whole throughout the mission, rather than individual items of information taken in isolation, which forms the basis of the analysis results contained in the FFM reports.*

- III. Paragraph 8.34 states that the experts in mechanical engineering, ballistics and metallurgy indicated that the preliminary effect of the cylinder found in Location 4 was due to fact that, after passing through the ceiling and impacting the floor at lower speed, the cylinder continued altered trajectory, until reaching the bed (where it was found). This cannot be explained in a scientific manner and from a ballistic point of view. How did the cylinder impact the ceiling without exploding since it was equipped with a fuse and explosives? Moreover the body of the cylinder was not damaged and the valve which was used to fill the cylinder with gas was not completely destroyed. This is an indication of inaccurate analysis, as illustrated by the photographs contained in the report (Photograph A.7.8, Annex 7, page 63).

*See Answer 3.1 below.*

This confirms the following:

- The aperture on the ceiling of the building (Annex 7, page 60) cannot be caused by the cylinder falling from the air, but rather from the detonation of another projectile.

*See Answer 3.1 below.*

- In view of the fact that the bed was not damaged by the impact of the cylinder, if the cylinder had impacted it from the ceiling, it would have caused the destruction of the bed and the glass items next to it. Instead, the report did not mention this damage, which leads to the fact that the cylinder was deliberately moved and placed on the bed, and then the valve was opened to leak gas. This demonstrated that the incident was fabricated.

See Answer 3.2 below.

- Paragraph 2.16 states that, based on analysis results of the samples taken by the FFM from the cylinders, it is possible that the cylinders were the sources of chemicals containing reactive chlorine. However, paragraph 8.33 states that there was no leakage from the cylinder found in Location 4.

See Answer 3.3 below.

- The equipment used by the team did not detect any chlorine gas leakage from the cylinder in the room at the time the FFM visited the location. The same paragraph, however, stated that a slat of wood, which was found lying under the cylinder, was damp and softened. The laboratory analysis showed that the sample which was taken from the slat of wood had the highest content of chlorinated organic compounds of all wood samples taken. The question is how can these contradictory results be interpreted in the report?

See Answer 3.3 below.

- The fact that this report disregarded the statements and clarifications provided by the Syrian Arab Republic, in the light of the two cylinder's position and impact point, is a clear indication of the numerous gaps in the report.

See Answer 3.4 below

### **Answer 3.1:**

*We refer to the paragraph 8.34 of the report: "The team consulted experts in mechanical engineering, ballistics and metallurgy to provide qualified, competent assessments of the cylinder trajectory." These experts provided three independent scientific ballistic feasibility analyses of possible scenarios. The results of these three separate assessments indicated that the shape of the aperture produced in the modulation matched the shape and damage observed by the team. The report does not state anywhere that the cylinder was "equipped with a fuse and explosives". The experts' assessments further indicated that, "after passing through the ceiling and impacting the floor at lower speed, the cylinder continued altered trajectory, until reaching the position in which it was found." The results reported by the FFM were based on ballistic and scientific grounds, which were the bases of the explanations reported in paragraph 8.34. One example is presented in diagram 12, which indicates the exact possibility that after initial impact, the cylinder could have retained enough energy to continue an altered trajectory at lower speed until final position. Figure A.7.8, together with A7.9 and A7.10, indicate inconsistencies found by the FFM as part of FFM factual findings.*

**Answer 3.2:**

*The FFM visited Location 4 where the cylinder was observed. The FFM documented the damage observed at Location 4, including the damage on the bed, on the body of cylinder, and on the metal frame and fins attached to the body of the cylinder. During its visit to Location 4, the FFM examined the cylinder, which was fitted with a valve; no explosive charge was observed by the FFM.*

**Answer 3.3:**

*We refer to the paragraph 8.33: “From what the team observed, there did not appear to be any leakage from the cylinder at the time the team visited the location. The team noted that a slat of wood was lying under the cylinder on the bed, part of which was taken as a sample. The slat of wood was damp and softened. No chlorine gas was detected in the room by the detection equipment used by the team. The laboratory analysis showed that the wood sample had the highest content of chlorinated organic compounds of all wood samples taken”. The FFM visited Location 4 on 25 April 2018, 19 days after the incident. With due consideration of the time elapsed since the incident, the cylinder was considered partially empty at the time the FFM visited the location, and not leaking. The materials from which the samples were taken from Location 4 were exposed to the reactive chlorine during the period when the cylinder was leaking, prior to the FFM visit to the mentioned location, so the FFM cannot observe any contradiction there.*

**Answer 3.4:**

*The FFM did take into consideration the information (received as listed in Annex 10 to the report, Table A10.2) and the explanation provided by the Syrian Arab Republic on the location, and subsequently requested three independent analyses from experts recognised by their respective institutions and the international community for their knowledge, skills, and experience. Of these analyses, it is to be noted that:*

- (a) the experts consulted came from three different countries and have expertise in engineering, ballistics, metallurgy, construction, and other relevant fields;*
- (b) the experts were provided with all information received or collected by the team from the scenes (photographs, videos, observations, measurements, etc.);*
- (c) the analyses were focused on the damage observed on the industrial cylinders and their surroundings in both locations where they were found in Douma;*
- (d) the experts provided reports and numerical simulations on the impact of steel cylinders on reinforced concrete slabs, in line with the two locations observed by the FFM team members in Douma;*
- (e) the analyses included general descriptions, geometrical data, trajectory calculations, empirical calculations, and numerical simulations;*
- (f) the international experts used different methodologies and approaches for their analyses in order to produce more comprehensive results. Proprietary, commercial referenced software solutions were used for numerical simulations.*

- IV. Paragraph 8.41 stated that interviews were held with 39 witnesses, 13 of which were interviewed in Damascus. The paragraph, however, does not mention where the remaining interviews were conducted and who witnesses were.

**Answer 4.1:**

*It is correct that the paragraph 8.41 does not mention where the remaining interviews were conducted. The FFM maintains the privacy and protection of witnesses. A description and composite summary of the statements from all witnesses interviewed by the FFM is given in paragraphs 8.43 to 8.86.*

- V. The report indicates a disguised accusation of the Syrian Arab Republic through mentioning the testimony of a witness that he “heard the sound of barrels, rockets or projectiles falling”, which contradicts the testimony of the remaining witnesses whose statements were overlooked.

**Answer 5.1:**

*The FFM report contains a composite summary of the statements from all witnesses interviewed by the FFM, which is given in paragraphs 8.43 to 8.86. No statements of the witnesses that were interviewed by the FFM were overlooked in the composite summary.*

- VI. The report points out to the interviews conducted with some witnesses, including medical staff and casualties from the alleged incident who were brought to The Hague. Why did the FFM not interview all of those witnesses although they appeared in the video of the alleged incident which was widely circulated and used in the media?

**Answer 6.1:**

*The FFM maintains the privacy and protection of witnesses and does not confirm or deny whether it interviewed any particular witness. There were individuals who gave statements in open-source media referenced in the FFM report (Annex 2, second bullet point). This material was reviewed and taken into account by the FFM.*

- VII. Paragraph 7.8 implicitly blames the Syrian Arab Republic for the fact that the bodies were not exhumed from their graves. The Technical Secretariat Sent Note Verbale NV/ODG/214827/18, dated 26 April 2018 and the Syrian Arab Republic replied, through Note Verbale 45, dated 4 May 2018, that it would continue to cooperate with the FFM and it was ready to provide all that is necessary to facilitate the work. However, the issue of exhumation is particularly sensitive and requires numerous procedures involving various entities (judicial, religious, medical). The Technical Secretariat, however, did not follow up on this issue with the Syrian National Authority, as mentioned in the same paragraph.

**Answer 7.1:**

*The FFM reported the exchange of notes verbale between the Secretariat and the Syrian Arab Republic in paragraph 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. The Syrian Arab Republic replied in Note Verbale No. 45 on 4 May 2018 and enumerated the conditions to be met in order to conduct the exhumation. With due consideration of the time elapsed since the alleged incident, the possibility was eventually not explored any further.” No blame was understood or implied by the FFM in paragraph 7.8 of the report.*

**Comments by the Syrian Arab Republic during the Ninetieth Session of the Executive Council (and in its margins, during bilateral consultations offered by the Secretariat) which were not covered in the written questions provided by the Syrian Arab Republic**

VIII. The FFM did not conduct activities in line with the procedures stipulated in the Convention or its own terms of reference regarding conducting interviews or sample collection

**Answer 8.1:**

*As mentioned in the FFM reports, all activities of the FFM are undertaken in accordance with the relevant procedures of the Secretariat setting out guidelines for the conduct of inspections in contingency operations, including investigations of alleged use of chemical weapons. The FFM applied the Secretariat's standard methodology and terms of reference in its investigation of incidents in the Syrian Arab Republic.*

IX. Double standard approach concerning statements between subjects interviewed inside/out of the Syrian Arab Republic.

**Answer 9.1:**

*In its report, the FFM presented a composite summary of the statements from witnesses interviewed by the FFM. In each of the paragraphs from 8.43 to 8.69, there was no indication whether the interviewed subjects were interviewed in the Syrian Arab Republic or elsewhere.*

(a) 26 witnesses interviewed outside of the Syrian Arab Republic with unknown relationship to the incident and no transparency

**Answer 9.2:**

*The FFM has reported on the relationship and the location of all interviewed witnesses in paragraph 8.41 and paragraph 8.42, in Table 2, and Figure 4 and Figure 5, as explained in paragraph 8.42: "Of the 39 interviewees, 11 were alleged casualties. Ten of those were alleged primary casualties exposed to a toxic chemical at Location 2, buildings adjacent to Location 2, at the entrance of the vehicle-tunnel of Point One and other locations in the same area, approximately 160 meters south of Location 2 (See Figures 4 and 5). One person purportedly suffered secondary exposure from the bodies of the decedents."*

X. Sometimes the FFM considers the presence of the same information in one report as evidence of toxic chemicals in other reports

**Answer 10.1:**

*The aim of the FFM was to gather facts regarding the use of toxic chemicals as a weapon. The FFM's conclusions on the use of a toxic chemical as a weapon are derived from the analysis of interviews, supporting materials submitted during the interview process, analysis of information and measurements collected on-site, and analysis of environmental and biomedical samples and subsequent cross-reference and comparison of all the evidence. Therefore, the FFM's report on an alleged incident is not based on individual items of evidence taken in isolation. It is the combination and the consistency of all the evidence*



*gathered as a whole throughout the mission, rather than such individual items of evidence taken in isolation, which forms the basis of the conclusions contained in the FFM reports.*

- XI. Interviews with witnesses' mentioned in paragraph 8.41 do not indicate location of interviews outside of SAR.

**Answer 11.1:**

*Regarding the location of the interviews, in accordance with Executive Council decisions EC-M-48/DEC.1 (dated 4 February 2015) and EC-M-50/DEC.1 (dated 23 November 2015); United Nations Security Council resolutions 2209 (2015) and 2235 (2015), the FFM studies all available information related to allegations of the use of chemical weapons in the Syrian Arab Republic, including information obtained from the Syrian Arab Republic, as well as other sources. This permits collection of evidence in countries other than the Syrian Arab Republic, if such evidence is available there. Moreover, no geographic limitations are imposed on where the FFM may obtain such information.*

- XII. In paragraph 7 of annex 8 was reported that one cylinder found in warehouse was similar to those found at incident location. The FFM did not verify or take samples from this cylinder secondary to stated safety issues.

**Answer 12.1:**

*The FFM refers to the aforementioned paragraph 7 of Annex 8: "Although the team confirmed the presence of a yellow cylinder in the warehouse, reported in Note Verbale of the Syrian Arab Republic (Annex 10, point 2) as a chlorine cylinder, due to safety reasons (risk involved in manipulating the valve of the cylinder, see Figure A.8.2) it was not feasible to verify or sample the contents. **There were differences in this cylinder compared to those witnessed at Locations 2 and 4** (emphasis added). It should be noted that the cylinder was present in its original state and had not been altered. Chlorine gas is generally not a common chlorinating agent in the production of chemical weapons agents, except when used in conjunction with phosphorous trichloride, which was not present. Subsequently, the presence of a cylinder reported as containing chlorine gas is not indicative of the production of explosives."*

- XIII. Why did FFM disregard the relation of the cylinder in the warehouse to the cylinders related to the incident?

**Answer 13.1:**

*The aim of the FFM was to gather facts regarding the alleged use of toxic chemicals as a weapon. The alleged use of toxic chemicals as a weapon was reported in Location 2 and Location 4, and the cylinders observed by the FFM in Location 2 and Location 4 were considered. In addition, as it was mentioned in paragraph 7 of Annex 8: "There were differences in this cylinder compared to those witnessed at Locations 2 and 4".*

Annex 2

**RESPONSE OF THE TECHNICAL SECRETARIAT TO NOTE VERBALE NO. 759  
RECEIVED FROM THE RUSSIAN FEDERATION ON 26 APRIL 2019  
ENTITLED "COMMENTARIES ON THE CONCLUSIONS OF THE REPORT OF  
THE FACT-FINDING MISSION ON THE USE OF CHEMICAL WEAPONS  
IN SYRIA REGARDING THE ALLEGED USE OF CHEMICALS WEAPONS  
IN DOUMA ON 7 APRIL 2018"**

**Underlined text below represents the exact text of questions/comments (in English translation) taken from Note Verbale No. 759 of the Russian Federation dated 26 April 2019**

I. The Russian side, having thoroughly examined the "Report of the Fact-Finding Mission Regarding the Incident of Alleged Use of Toxic Chemicals as a Weapon in Douma, Syrian Arab Republic, on 7 April 2018" (S/1731/2019, dated 1 March 2019) (hereinafter "the Report"), and without calling into question the competence of OPCW experts that conducted the investigation, would like to draw the attention of the States Parties to the Chemical Weapons Convention (hereinafter "the Convention") and all stakeholders to a number of discrepancies and questions that arise after an analysis of the Report.

1. **Witness testimonies, sample analysis, and the number of casualties**

The conclusions based on witness testimonies, videos, and sample analyses are probabilistic and, at times, inconsistent, and can be called into question.

(a) Paragraph 2.5 of the Report reads: "All the environmental samples from Douma were collected by the FFM team on Syrian territory in the presence of representatives of the Syrian Arab Republic. Fractions of the aforementioned samples were handed over by the FFM to the Syrian National Authority representative".

However, the document does not indicate that the samples were split in the OPCW central laboratory, the Netherlands, rather than in the Syrian Arab Republic, and fractions of the aforementioned samples were handed over to the Syrian side only under insistent pressure and as late as six months after the Fact-Finding Mission (FFM) had completed its activities in Douma.

***Answer 1.1:***

*The Fact-Finding Mission (FFM) terms of reference (ToR), as agreed through an exchange of letters with the Syrian Arab Republic, authorise the FFM, pursuant to paragraph 14 of the ToR, to collect samples of types and in quantities it considers necessary. Paragraph 14 further indicates that the Government of the Syrian Arab Republic "(1) shall be provided with a duplicate or a portion of each environmental sample collected in the course of the Mission and (2) shall, **to the extent possible**, be provided with a duplicate or a portion of each of the bio-medical samples collected in the course of the Mission" (emphasis added). The Secretariat notes that the ToR do not indicate specifically when and where the provision*

*of a duplicate or a split must take place. The Secretariat's handling and processing of the samples will continue to be guided by the ToR and any relevant decisions of the policy-making organs.*

- II. (b) Paragraph 8.5 of the Report reads: "... 129 samples in total were collected and transported to the OPCW Laboratory. To expedite analysis of those environmental samples considered to be of greatest probative value or of highest susceptibility to degradation, 31 samples were selected for the first round of analysis by the OPCW designated laboratories. An additional batch of 13 samples was sent for a second round of analysis at a later stage".

Out of the 129 samples, 39 were obtained from unidentified individuals staying outside the territory controlled by the Syrian Army. Forty-four samples — 33 environmental samples and 11 biomedical samples — were analysed.

Out of the aforementioned 44 samples, 11 (4 environmental samples and 7 biomedical samples) were obtained from alleged witnesses of the incident. The Report provides neither the circumstances of obtaining the samples by the FFM experts, nor information on the persons from whom the biomedical samples had been taken and whether the chain of custody principle had been complied with for those samples. Therefore, the samples, in our view, cannot be of priority evidentiary value.

**Answer 2.1:**

*As mentioned in previous FFM reports, all activities of the FFM are undertaken in accordance with the relevant procedures of the Secretariat, setting out guidelines for the conduct of inspections in contingency operations, including investigations of alleged use of chemical weapons. The FFM applied the Secretariat's standard methodology in its investigation of incidents in the Syrian Arab Republic. This methodology is illustrated in the FFM reports. One of the underlying principles of this methodology is to ensure chain of custody when collecting evidence. The FFM upheld this principle from the moment of its collection or receipt of evidence, including samples.*

*In reference to the provenance and circumstances of samples, the Secretariat refers to Paragraph 7.3 of the report, which states as follows: "Additional environmental and biological samples were received by the FFM from witnesses (Annex 5). From the moment of receipt, these samples were handled as described above. The FFM team also directly oversaw the drawing of blood samples from witnesses who reported being exposed to toxic chemicals in Douma on 7 April 2018."*

*Furthermore, Table 9.3 in Annex 9 to the report shows whether samples were collected by the FFM or received from a witness. At the same time, the FFM endeavours to maintain the privacy and protection of witnesses from whom samples were collected and/or received.*

*All 81 samples collected by the FFM in Douma, listed in Table 9.3 in Annex 9 to the report, were split in the presence of a Syrian representative and were delivered by the FFM to the Syrian Arab Republic National Authority representative.*

- III. (c) The environmental and biomedical samples were analysed in two unnamed OPCW designated laboratories (paragraph 8.6 of the Report). The analytical results

and techniques may suggest that these OPCW designated laboratories are the laboratories that have already been engaged to investigate earlier incidents involving alleged uses of chlorine.

A question arises: with 20 designated laboratories available, of which 13 have technical agreements with the OPCW, why have the samples from the Syrian Arab Republic been analysed by only two (same) laboratories whose results bring up a number of questions?

For instance, in the analysis of the same samples (33 environmental samples), the results for chlorinated products provided by the two laboratories match in only one case (bornyl chloride in sample 22, see table below).

It should also be noted that the analysed samples from Location 4 (samples 18 to 21 and 23) display the presence of explosive trinitrotoluene. This brings us to the conclusion that the aperture in the roof in Location 4 was made by an explosion rather than a fallen cylinder that did not have serious damage.

**Answer 3.1:**

*The FFM does not select the laboratories where samples are analysed. Information on designated laboratories is confidential, in accordance with the operational procedures of the Secretariat.*

*Table A5.1 in Annex 5 to the report provides the results of the laboratories' analyses. Findings reported by each laboratory are considered factual.*

*With relation to the presence of explosive trinitrotoluene in the locations, it is to be noted that these locations have witnessed intense warfare activity, notably in the weeks preceding the incident. Therefore, the presence of explosive trinitrotoluene is to be expected in a broad range of samples collected from the locations. Table A5.1 in Annex 5 to the report shows that explosive trinitrotoluene was detected in sample numbers 4, 7, 9, 10, 12, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 30, 31, 32, and 33. However, the presence of explosive trinitrotoluene across this broad range of samples does not lead "to the conclusion that the aperture in the roof in Location 4 was made by an explosion rather than a fallen cylinder that did not have serious damage".*

IV. (d) Paragraph 8.72 indicates that the FFM interviewed 39 people (four physicians, seven medical support staff, and 28 witnesses/casualties).

It is also indicated (in the footnote to paragraph 8.43) that the statements from witnesses of events in Douma that had been presented at the briefing held by the Russian Federation at the OPCW Headquarters on 26 April 2018 were dealt with by the FFM as other open-source materials. It is known, however, that out of 16 people who took part in the briefing, 10 had been interviewed by the FFM in Damascus two days earlier.

It is hard to understand why the OPCW experts did not pay due attention to the valuable actual witnesses of the incident who had been unequivocally recognised and identified in the staged videos filmed by the NGO "White Helmets" in Douma hospital (Location 1).

**Answer 4.1:**

*The Secretariat neither confirms nor denies whether it has interviewed any of the people who were present at OPCW Headquarters on 26 April 2018, as any statement to that effect would be contrary to the witness protection principles applied by the Secretariat. The FFM endeavours to maintain the privacy and protection of witnesses. Whether expressly or tacitly, the Secretariat does not disclose the identities of alleged victims and witnesses to State Parties.*

*Paragraphs 8.44 to 8.69 of the report provide a composite summary of the statements from all 39 witnesses interviewed by the FFM.*

- V. (e) Paragraph 8.73 of the Report reads: "The FFM could not establish the precise number of casualties; however, some sources reported that it ranged between 70 and 500. Others sources denied the presence of chemically-related casualties".

However, paragraph 8.74 and, further, conclusions of the FFM activities indicate that the number of dead in relation to alleged chemical exposure is reported by a number of witnesses to be 43, including men, women, adults, and children.

**Answer 5.1:**

*In Annex 1 to the report, the FFM listed all reference documentation and procedures followed during the mission. One of the work instructions listed (QDOC/INS/WI/IAU05) provides the following definitions:*

- (a) *Casualty: A person who has survived an alleged exposure to chemical warfare agents (CWA) and may display clinical features consistent with the physiological effects of CWA.*
- (b) *Victim: A person who may have been exposed to a lethal dose of CWA.*

*Paragraph 8.73 of the report mentions the number of casualties, i.e. persons who survived the alleged exposure, whereas paragraph 8.74 of the report mentions the number of decedents.*

- VI. The Report provides no documentary evidence or grounds for that number of victims.

**Answer 6.1:**

*Paragraph 2.10 of the report provides the above-mentioned documentary evidence and grounds: "Witnesses reported to the FFM team that there were 43 decedents related to the alleged chemical incident, most of whom were seen in videos and photos strewn on the floor of multiple levels of an apartment building and in front of the same building. Additionally, several witnesses reported seeing decedents in the basement of the building, on multiple floors of the building, on the streets and inside the basements of several buildings within the same area. A United Nations agency also reported cases of death by exposure to a toxic chemical. However, the team did not have direct access to examine dead bodies, as it could not enter Douma until two weeks after the incident (see paragraph 2.2), by which time the bodies had been buried."*

*Moreover, the FFM collected and/or received documentary evidence that is listed in Annex 9 to the report and analysed in Annex 11 to the report.*

- VII. Based on interviews of witnesses and compilation of witness interview data, the number of dead/casualties does not correlate with the quantities of the alleged means of use of chlorine that were found.

The cylinders that were allegedly the means of use of chlorine were found on the top levels of buildings (Locations 2 and 4). In Location 4 there were no victims and two casualties that suffered from a burning sensation in the eyes, lacrimation, coughing, and vomiting. In Location 2, where alleged victims had been found, the wall of the building and the part of ceiling allegedly impacted by a chlorine cylinder were destroyed, which would result in good ventilation of the room where the cylinder was found. The cylinder found by the FFM in Location 2 has only slight deformation, and chlorine would have been released from the cylinder through an orifice of about 3 cm in diameter (Annex 6 to the Report — Visit to Location 2).

How could chlorine being released from the cylinder (with a capacity of about 60 to 70 kg), through a three-centimetre orifice, to the well-ventilated room located on the fourth floor have had that strong killing effect on alleged victims who were mainly on the first and second floors?

The FFM report does not explain this.

**Answer 7.1:**

*The FFM presented the information that was collected during its missions, including the reported number of decedents. However, the FFM did not establish any correlation between the number of decedents and the quantity of the toxic chemical used.*

*In order to establish such a correlation, several factors, that were unknown to the FFM, would have needed to be taken into consideration, such as the condition of the building, the architecture of the apartments, air circulation, and the number of persons present at the time of the incident.*

VIII. **2. Computer simulation of falling chlorine cylinders**

A significant part of the FFM report supports the conclusion that the post-impact position of the cylinders in the apartment blocks matches the damage observed. However, no specific calculation is provided, and no information is given on the names of experts involved, nor on their competence or authority.

It should be noted that the experts that developed the simulation and estimated the impact of the cylinder on the building structures did not indicate in the Report what drop height was used for their estimation — which is of critical importance.

- (a) Based on charts and diagrams in the Report (Figure 10 on page 18, Figure A.6.6 on page 56, and Figure A.6.7 (b) on page 57), the calculation was made for the cylinder impacting the barrier at a speed of 30 to 60 m/s, which

relates to a drop height of 45 to 180 metres. Figure 12 (page 19) displays the graphs for the residual velocity of cylinders falling from 150 metres.

In contrast, Syrian Air Force helicopters do not fly at altitudes of less than 2000 metres when cruising over towns, for security reasons. A helicopter flying at 200 metres over an active combat zone will come under fire from small arms at the least, and will be inevitably shot down.

If a cylinder had been dropped from that altitude, it would have developed a vertical speed of about 200 m/s at the point of impact, and would have definitely not only destroyed the 20 cm thick roof, but would have caused more serious damage and would have been significantly damaged itself.

**Answer 8.1:**

*The analyses of the FFM are based on the facts and data collected and corroborated by the team and **not on assumptions**. In this context, the FFM report on the Douma incident does not contain assumptions or statements about the use of a helicopter (or any other craft) and the height of flight. The report does not provide information outside of the mandate and methodology of the FFM. Regarding the ballistics analysis, the methodology of the FFM is based on the collection of information and facts in relation to the physical measurements and properties:*

- (a) dimensions, damage, ruptures, deformations, and other characteristics of objects at the locations (walls, ceilings, windows, furniture, etc.);*
- (b) dimensions, damage, deformations, specific angles, and other characteristics of devices (cylinder(s) in the case of Douma, and munitions or other devices in other cases);*
- (c) photographs and videos taken at the site of an alleged incident;*
- (d) sample collection of different materials (besides looking for proof of toxic chemical exposure) looking for consistency/density/physical characteristics of different objects (walls, ceiling, furniture, various fragments etc.).*

*Based on these facts, modelling from physical measurements on site with reverse scientific calculations is used to determine the range of force, velocities, and trajectories possible for the cylinder to have caused the damage observed at the site. The FFM does not base its modelling or calculations on assumptions about the height from which the cylinder could have been dropped or the height of an aircraft. Therefore, in accordance with its mandate, the FFM did not comment on the possible altitudes of aircraft in any assumed operation modality.*

IX. (b) In the opinion of Russian experts with regard to the calculations conducted by the FFM, we observe in reality the picture described below.

The shape and dimensions of the resulting aperture at Location 2 are more consistent with the penetration of a solid body through the reinforced concrete barrier at an angle of 80 to 90 degrees to the surface. The same is applied to the deformation of the barrier rebar.

The state of the observed cylinder is not consistent with the deformation that a cylinder filled with liquid chlorine could undergo under the above-mentioned conditions of penetration. In such a situation the front end of the cylinder should have been subject to a much more considerable deformation.

When impacting the rooftop, the cylinder was to alter its trajectory and its angle of approach to the barrier, which was not the case judging by the description of the crater in the roof.

The detailed study of the crater in the reinforced concrete barrier (the roof of the building), as well as the presence of smoke-black traces and the destruction of the barrier rebar inside the aperture, are more consistent with an explosion of a 120 mm mortar or an artillery projectile of the same calibre that approached the barrier along the arching trajectory.

This is also evidenced by the traces left by blast fragmentations on the walls of the balcony. The probability of the crater being formed by a mortar/artillery projectile or a similar munition is also supported by the presence of multiple apertures that are very much alike in the concrete plates on the rooftops of surrounding buildings (Figure A.6.3., page 55).

**Answer 9.1:**

*Paragraph 8.31 of the FFM report states as follows: “The analyses indicated that the structural damage to the rebar-reinforced concrete terrace at Location 2 was caused by an impacting object with a geometrically symmetric shape and sufficient kinetic energy to cause the observed damage. The analyses indicate that the damage observed on the cylinder found on the roof terrace, the aperture, the balcony, the surrounding rooms, and the rooms underneath and the structure above, is consistent with the creation of the aperture observed in the terrace by the cylinder found in that location.”*

*Regarding the comments about the presence of smoke-black traces, paragraph 7 of Annex 6 to the FFM report states as follows: “Observing the damage on the roof above the crater, the experts were able to provide an explanation of the cylinder not penetrating completely through the aperture. It can be seen that there was a large impact on the roof and walls above the balcony. The impact would decrease the velocity of the falling cylinder and changed its trajectory while hitting the concrete floor of the balcony causing a hole in it, but without sufficient energy to fall through it.”*

*Regarding further the comments about the presence of smoke-black traces, paragraph 9 of Annex 6 to the FFM Report states as follows: “The FFM team noted the blackening of the ceiling and the rim of the aperture from the room immediately below the point of impact (see photo above). It also noted the blackened sooty walls in the corner of the room, as well as what appeared to be the ashen remnants of a small fire. One interviewed witness stated that a fire had been lit in the room after the alleged incident, reportedly to detoxify it of the alleged chemical.”*



*Regarding the comments about the possibility that a crater was formed by a mortar/projectile or similar munition, paragraph 8 of Annex 6 to the FFM Report states as follows: “The FFM analysed the damage on the rooftop terrace and below the crater in order to determine if it had been created by an explosive device. However, this hypothesis is unlikely given the absence of primary and secondary fragmentation characteristic of an explosion that may have created the crater and the damage surrounding it.”*

- X. (c) The relative dimensions of the crater at Location 4 are not consistent with the relative dimensions of the cylinder found on the bed inside the apartment. The lateral dimensions of the crater supersede the diameter of the cylinder more than twofold, making them contradictory to the estimate and factual results of the piercing effect of solid bodies to the reinforced concrete barrier.

The presence of sticking out rebar elements consisting of soft and loose wires inside the crater is more likely indicative of a crater being widened mechanically from the outside rather than with a crater resulting from a solid body penetration.

**Answer 10.1:**

*Regarding the dimensions of the crater at Location 4, as mentioned in Annex 7 to the FFM Report (page 62): “Considering the proximity of the water tank, the neighbouring buildings, and the surrounding wall adjacent to the hole in the roof, it was concluded that the cylinder impacted the roof as shown in Figure A.7.6. From the shape of the crater and damage on the cylinder, it is likely that the cylinder landed parallel to the ground creating a crater with dimensions of approximately 166 x 105 cm, which is in keeping with the dimensions of cylinder of 140 x 35 cm. It should be noted that the cylinder had an additional structure attached to the body, which is still in line with the dimensions of the crater. The damage observed on site by the FFM team and the possible trajectory of the cylinder based on observed damage and numerical calculations are represented in Figure A.7.7.”*

*Paragraph 8.34 of the FFM report states as follows: “The team consulted experts in mechanical engineering, ballistics and metallurgy to provide qualified, competent assessments of the cylinder trajectory. The results of these assessments indicated that the shape of the aperture produced in the modulation matched the shape and damage observed by the team. The assessments further indicated that, after passing through the ceiling and impacting the floor at lower speed, the cylinder continued altered trajectory, until reaching the position in which it was found.”*

- XI. The state of the observed cylinder is not consistent with the deformation that a cylinder filled with a liquid (chlorine) could undergo in case of flat penetration. Otherwise a cylinder should have been more flat in its shape, and the stabiliser fins, front-end valve and other add-on devices should have been subject to a considerable deformation, or absent altogether.

**Answer 11.1:**

*Paragraph 8.35 of the FFM report states as follows: “In a similar manner, the FFM assessed the consistency between the structural damage appearing on the cylinder against the structural damage to the rebar-reinforced concrete roof through which the cylinder allegedly traversed. Results are presented in Figures 13 and 14” [of the FFM report].*

XII. The conditions under which the cylinder pierced through the roof terrace into the apartment did not allow for its shifting away from the piercing trajectory without causing collateral damage to furniture, the floor, walls, or window glazing, the testimony of which was not observed.

**Answer 12.1:**

*The FFM did observe and record the damage at the Location 4, some of which can be seen in figures A.7.6 and A.7.7 of the FFM report.*

XIII. In the case of dropping of a body similar in shape and with an advanced stabilisation system from a height of 100 m or above from an aircraft, the observed angles of approach are from 45 to 60 degrees from the surface of a barrier. This fact does not allow us to suggest the possibility of the cylinder falling down flat-wise after being dropped from an aircraft.

Therefore, at locations where the cylinders have been detected, the damage to the roof of the building and to the rooms beneath, or the visible deformations of the bodies of cylinders and their final positions, cannot lend credence to a version of the use of chlorine-filled cylinders delivered by an aircraft.

**Answer 13.1:**

*As previously stated in Answer 8.1, the FFM report on the Douma incident does not contain assumptions or statements about the use of an aircraft or the height of flight. The report does not elaborate information outside of the FFM's mandate and methodology.*

XIV. **Conclusion**

The Russian Federation does not challenge the findings contained in the FFM report regarding the possible presence of molecular chlorine on the cylinders. However, the parameters, characteristics and exterior of the cylinders, as well as the data obtained from the locations of those incidents, are not consistent with the argument that they were dropped from an aircraft.

The existing facts more likely indicate that there is a high probability that both cylinders were placed at Locations 2 and 4 manually rather than dropped from an aircraft.

Apparently the factual material contained in the report does not allow us to draw a conclusion as to the use of a toxic chemical as a weapon.

On that basis, the Russian Federation insists on the version that there was false evidence and on the staged character of the incident in Douma.

***Answer 14.1:***

*The FFM report does not refer in any part to “the argument that they were dropped from an aircraft.” Also, the FFM report does not elaborate in any part on the “high probability that both cylinders were placed at Locations 2 and 4 manually rather than dropped from an aircraft”. In fact, this type of information is deemed outside of the mandate and methodology of the FFM. The FFM stands by its report in all aspects, including those regarding conclusions as to the use of a toxic chemical as a weapon.*

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