

**A REVIEW OF THE ORGANISATION  
FOR THE PROHIBITION OF CHEMICAL  
WEAPONS FACT-FINDING MISSION  
REPORT INTO THE ALLEGED USE OF  
CHEMICAL WEAPONS IN DOUMA,  
SYRIA, IN APRIL 2018: *EVIDENCE  
OF MANIPULATION, BIAS AND  
CENSORSHIP***

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By Berlin Group 21

Submitted to Mick Wallace and Clare Daly MEPs, Independents 4  
Change as a contribution to the discussions around the OPCW and  
the alleged chemical weapons attack in Douma, Syria, April 7 2018



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**Authors:** Berlin Group 21

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Forewords by Professor Theodore Postol (Emeritus MIT) and Katharine Gun  
(former UK GCHQ)

**The Berlin Group 21 (BG21) BG21** is comprised of Dr.h.c. Hans-C. von Sponeck (former UN Assistant Secretary-General and Humanitarian Coordinator for Iraq), José Bustani (first Director-General of the OPCW), Professor Richard Falk (Emeritus Professor of International law, Princeton University) and Dr Piers Robinson (co-Director Organisation for Propaganda Studies and former Chair/Professor, University of Sheffield). A Statement of Concern, signed by internationally known persons, was published on 12 March 2021. The Berlin Group's central objectives are to uphold the truth, restore the credibility of the OPCW through ensuring that it is an independent, objective and scientifically rigorous organisation and, most importantly, to prevent further misery for the Syrian people and all those suffering in war.

**José Mauricio Bustani:** Ambassador of Brazil to France and Ambassador of Brazil to the UK. First Director-General of the Organization for the Prohibition of Chemical Weapons (OPCW); Director-General, Department for Technological, Financial and Development Policy, Ministry for Foreign Relations, Brasilia; Senior diplomatic assignments in Brazilian embassies in Montreal, Montevideo and the Brazilian Mission to the UN, New York. Head of Delegations to the first six sessions of the Multilateral Fund for the Implementation of the Montreal Protocol and the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer.

**Professor Richard Falk:** Albert G. Milbank Professor Emeritus of International Law at Princeton University; Chair of Global Law, Faculty of Law, at Queen Mary University London; Director of the project on Global Climate Change, Human Security and Democracy at the University of California in Santa Barbara; UN Special Rapporteur on Human Rights in Occupied Palestine; Author of major publications including books on the Vietnam War, Nuclear Weapons, De-nuclearization, Demilitarization and Disarmament, Religion and Humane Global Governance. His memoir 'Public Intellectual. The Life of a Citizen Pilgrim' was awarded by Loyola Marymount University as the 'best book of 2021.

**Dr Piers Robinson:** is a co-director of the Organisation for Propaganda Studies and was Chair/Professor in Politics, Society and Political Journalism, University of Sheffield, 2016-2019, Senior Lecturer/Lecturer in International Politics (University of Manchester 2005-2016) and Lecturer in Political Communication (University of Liverpool, 1999-2005). He is convenor of the Working Group on Syria, Propaganda and Media. He has published articles in many academic journals and is author of *The CNN Effect: the myth of news, foreign policy and intervention* (Routledge, 2002), lead author of *Pockets of Resistance: British news media, war and theory in the 2003 invasion of Iraq* (University of Manchester Press, 2010) and co-editor of the *Routledge Handbook of Media, Conflict and Security* (2016).

**Dr.h.c. Hans-C. von Sponeck:** 32 years UN service including postings as Director of the UNDP's European Office in Geneva and UN Coordinator in Botswana, Pakistan, India and Iraq, the latter with the rank of Assistant Secretary-General. Following this period were ten years of assignments at the UN System Staff College in Torino and faculty membership at the Conflict Research Centre of the University of Marburg in Germany.

This review **has been submitted to** Members of the European Parliament (MEPs) in the hope that it will encourage the EU Parliament to review and debate this serious Douma controversy and lead the OPCW State Parties and OPCW management to resolve the current controversy in accordance with the CW Convention and the Charter of the United Nations.

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# FOREWORD

**BY PROFESSOR THEODORE POSTOL  
MIT (MASSACHUSETTS INSTITUTE  
OF TECHNOLOGY)**

*AN ATTACK ON THE FUTURE OF  
INTERNATIONAL LAW AND THE  
CHEMICAL WEAPONS CONVENTION*

This document should be deeply disturbing to anyone who believes that the UN should be promoting respect for international law as a means to reduce global violence.

In the case of the Syrian civil war, the world has rightfully recoiled in horror from numerous human rights atrocities against civilians and in combat – particularly those associated with the use of internationally prohibited chemical weapons. None of the numerous belligerents in this conflict appear to be free of legitimate accusations of human rights violations.

Unfortunately, the process of ascribing blame for these atrocities has been complicated by policy objectives of the United States and its allies, Great Britain, France, Germany, all of whom want to see the government of Bashar Hafez al-

Assad removed from power. Whether or not the achievement of this goal could produce a more stable and just society in Syria is a complicated matter that is not, nor should be, the subject at issue with regard to the assessment of specific cases of human rights violations.

Instead, the subject here is whether the applications of international law should be free of biases and external political motives when war crimes are being investigated. When the impartiality of investigations are compromised, the result can only be the undermining of international law as a means for finding justice. In the case of compromised investigations of possible violations of the Chemical Weapons Convention, this will surely result in a seriously diminished future global reliance on both the Chemical Weapons Convention and international law.

False accusations not only create concerns about the improper use of international law, but they also result in guilty parties going free, and can even encourage vicious actors to engage in further atrocities, as appears to have happened in Syria.

The document that follows this foreword shows that the UN and OPCW have constructed a record of investigative claims about chemical weapons attacks that will, if not corrected, seriously undermine the future of international law and the Chemical Weapons Convention.

It shows this by exposing how the OPCW investigation of the alleged chlorine gas cylinder attack in Douma, Syria, on 7 April 2018, completely and systematically ignored and distorted a vast body of evidence related to toxicology, chemical analysis, witness testimony and ballistics analysis. Regarding ballistics, observations were interpreted via arbitrary and often contradictory assumptions which defied the basic laws of physics and mechanics.

For example, in location one in Douma, a chlorine cylinder supposedly fell in a vertical orientation, hit a rooftop constructed from steel rebars and concrete, and then came to rest over a hole in the roof. The hole in which the cylinder sat was twice the diameter of the cylinder, and the steel rebar embedded in the concrete roof was splayed out from the ceiling in the room below like the petals of a flower. Any knowledgeable observer would have immediately recognized that the splaying out of the steel rebar could only have occurred from a contact explosion on the roof by some form of explosive munition. The intense propagating shock wave from the rapidly expanding explosive gases at the top of the concrete slab crushes the concrete below and splays the steel rebar into a petal structure. Even

the OPCW's own computer simulation showed that the diameter of the hole produced by the cylinder should be the same as that of the cylinder – which is exactly what all similar high-impact penetration calculations show for brittle concrete slabs. The observational data for this event was completely at odds with the interpretation of events by the OPCW.

In yet a second location, the OPCW report concludes that the cylinder hit the rooftop at over 130 mph in a perfectly horizontal orientation! It then penetrated the roof and fell an additional 3 meters to the floor in the room below. Upon hitting the floor, the cylinder then took a lateral bounce of 3.5 meters and landed on top of a bed at a height of 0.6 meters above the floor. Newton's laws of mechanics simply did not explain the scene, so the OPCW report invented its own laws of mechanics! In spite of all this observable and analyzable evidence, the OPCW declared that this scene was instead actual evidence of a chlorine cylinder attack.

The future legitimacy of the UN and OPCW as enforcers of international law will simply cease to exist, if this level of overtly unprofessional and amateurish analysis are allowed to stand without being corrected. This will then be an unfortunate legacy left to the world by those who are now claiming to be the guardians of the truth.

**FOREWORD BY KATHARINE GUN,  
FORMER GCHQ (GOVERNMENT  
COMMUNICATIONS  
HEADQUARTERS)**

In 2019, I was travelling around Europe and the United States attending film festivals premiering the film *Official Secrets* which recounted the story of my Iraq War whistleblowing experience. It was an exciting time for all of us involved in the film as the issue of whistleblowing appeared to be gaining greater attention and focus. Then and now, I hope for real standards of whistleblower acknowledgement and protection to be integral across public and private sectors. This report details procedural and scientific flaws as well as concerted efforts to thwart an impartial investigation of events that occurred in Douma in April 2018. What particularly concerns me is the silencing and smearing of technical experts working for the OPCW.

Whilst *Official Secrets* was receiving critical acclaim, OPCW documents leaked in 2019 indicated that expert's findings on the 7th April, 2018 Douma incident were suppressed and that the FFM Final Report produced by the OPCW was markedly different to the original report. Various courageous researchers, journalists and organisational insiders like first OPCW Director General (DG) Jose Bustani and former UN Assistant Secretary General Hans von Sponeck, have tried repeatedly to raise the serious issues of transparency, open dialogue and accountability with the OPCW and the relevant UN bodies but have been

met with silence and worse, obstruction and smears.

This comprehensive review outlines in detail the timeline of events, explains the complexity and manipulation of the various OPCW reports, recounts the various exchange of emails between senior management and the technical experts expressing grave concerns, details the specific technical, toxicological and ballistic anomalies and, finally, documents the repeated attempts to have these concerns recognised and discussed.

It is deeply worrying that an international organisation such the OPCW, with the express purpose of providing independent and impartial investigations, should have had no whistleblower protection policy in place. In the 21st century, where financial institutions, government organisations and NGOs are scrambling to include such protections into their policy frameworks, is it not essential that these protections should always have been an integral part of the OPCW?

I commend the authors of this review for their thorough and precise record of the disturbing series of events in Douma from April 2018 onwards and for the historic background and timeline of events leading to it, in order to better understand this episode with clarity and impartiality and hopefully to bring remedial attention to the inspectors and to the grave concerns outlined.



## ABBREVIATIONS

<b>CSP</b>	<b>Conference of States Parties (OPCW)</b>
<b>CWC</b>	<b>Chemical Weapons Convention</b>
<b>BG21</b>	<b>Berlin Group 21</b>
<b>DG</b>	<b>Director General (OPCW)</b>
<b>FFM</b>	<b>Fact Finding Mission</b>
<b>IIT</b>	<b>Investigation and Identification Team</b>
<b>ITL</b>	<b>Inspection Team Leader</b>
<b>JIM</b>	<b>Joint Investigative Mechanism</b>
<b>OPCW</b>	<b>Organisation for the Prohibition of Chemical Weapons</b>
<b>SAB</b>	<b>Scientific Advisory Board (OPCW)</b>
<b>SCD</b>	<b>Syrian Civil Defence known as the “White Helmets”.</b>
<b>UNGA</b>	<b>United Nations General Assembly</b>
<b>UNHRC</b>	<b>United Nations Human Rights Council</b>
<b>UNSC</b>	<b>United Nations Security Council</b>

**ALL IMAGES FRAMED IN BLACK ARE  
SCREENSHOTS TAKEN OF ORIGINAL DOCUMENTS**



# INTRODUCTION

This review is concerned with the Organisation for the Prohibition of Chemical Weapons (OPCW) and its investigation of an alleged chemical weapons attack which occurred in the suburb of Douma, six miles northeast of the Syrian capital of Damascus, on 7 April 2018. On that date, it is claimed that two yellow cylinders containing chlorine gas were dropped from Syrian Air Force helicopters onto residential buildings in Douma, killing over 40 civilians at locations in the area.

In 2019, an OPCW Fact-Finding Mission (FFM) reached an official conclusion that there were 'reasonable grounds' chemical weapons were used in Douma. However, in the immediate aftermath, and continuing to the present day, the credibility of the OPCW's official conclusion has been caused to become significantly questioned due to information emanating from OPCW whistleblowers and others, which has raised substantive doubts over the Douma investigation and the organisation's independence and impartiality. To date, as will be highlighted in this review, these issues

remain unresolved and, indeed, are made even more important because of the OPCW Investigation and Identification Team (IIT) report published on 27 January 2023 which, drawing upon the FFM report, has now attributed responsibility for the alleged Douma attack to the Syrian government.<sup>1</sup>

Multiple calls for transparency and accountability including the 2019 Courage Foundation panel<sup>2</sup> and reviews by the Berlin Group 21 (BG21), as well as other issues of impropriety raised by multiple experts and leading international voices,<sup>3&4</sup> have so far been ignored by the OPCW's Director General (DG) Fernando Arias. Meanwhile OPCW inspectors and others who have spoken out and who continue to voice concern have been subjected to ongoing harassment and disrespect. Governments, parliamentary foreign affairs committees and the public must realise that the serious, and to-date unresolved, Douma controversy has profound implications for global peace and security and geopolitical relations.

This review finds that the OPCW's claim that there were 'reasonable grounds' the alleged chemical attack in Douma occurred is based upon a fundamentally flawed FFM final report, and, as such, is untenable. Fundamental flaws have now been carried through to the 2023 IIT Report. This review therefore calls on senior OPCW management to acknowledge these failings and immediately provide an opportunity for all the inspectors involved with the Douma Fact-Finding Mission (FFM) to date to jointly re-assess available data from the Douma FFM.

There is a threefold urgency to resolve the issue of the flawed 2019 OPCW's fact finding mission:

*Firstly*, justice and accountability are demanded for the families of the 40 or more civilian victims which included infants and children.

*Secondly*, it is beyond dispute that the world's top chemical weapons watchdog needs to be independent, impartial, and have the confidence of all its Member States to effectively fulfil its mandate to identify possible uses of chemical weapons as well as those responsible for such heinous atrocities. Indeed, the imperativeness of having a demonstrably independent and impartial OPCW has been further highlighted by recent allegations of threats of chemical weapons use from both sides following the invasion of Ukraine by Russia. Moreover, the recent publication of the OPCW's IIT report, which builds upon the FFM report, has now attributed

responsibility for the alleged attack in Douma to the Syrian government.

*Thirdly and finally*, whistleblowers play a courageous and critical role in ensuring that malpractice and corruption is brought to light when institutions, for whatever reason, fail to carry out their mandates. And yet whistleblower protection is at best uncertain and tenuous. Sometimes overwhelming pressures are brought to bear in order to silence or deter them. Allowing the voices of the OPCW whistleblowers to be heard is essential not only for the OPCW to begin a transparent re-examination of its organisation and conduct, but also to ensure that whistleblowers more widely receive the acknowledgment and protection they so deserve.

Director-General Arias and his Technical Secretariat are duty bound to strictly comply with the provisions of the Chemical Weapons Convention in carrying out their responsibilities. The OPCW's official vision declares that the organisation manages 'through empowerment with accountability, equality, fairness and transparency', encourages its staff to 'say what they think' and conducts itself 'with integrity at all times'.<sup>5</sup> This review demonstrates unequivocally that in the case of Douma the OPCW failed to do so.

In light of this failure, this review provides the OPCW Executive Council as well as the Conference of State Parties with the information needed to review in earnest the Douma case by providing an objective and documented account

of the allegations of scientific flaws and malpractice during the Douma FFM investigation. These claims are examined by studying the considerable number of documents that have been leaked from the organisation.

In a wider context, this review refers to the role the United Nations has played in dealing with the OPCW and the Douma controversy. UN Charter law gives the UN General Assembly (UNGA) the right to 'call attention of the UN Security Council (UNSC) to situations likely to endanger international peace and security'.<sup>6</sup> The UNGA has not done so in the case of Douma. Individual Permanent Members of the UN Security Council did not 'refrain from the use of force against the territorial integrity or political independence'<sup>7</sup> of Syria. The US/UK/French airstrikes of 14 April 2018 following the alleged Douma attack serve as one of several available examples. The General Assembly, the Security Council and also the Secretary-General have the right to request the International Court of Justice to give Advisory opinions on legal issues. None of them has made use of this option.

This review was commissioned Members of the European Parliament (MEPs) in the hope that it will encourage the EU Parliament to review and debate this serious Douma controversy and lead the OPCW State Parties and OPCW management to resolve the current controversy in accordance with the CW Convention and the Charter of the United Nations.

The central objective of this review is to document and evaluate the claims by OPCW scientists, and reported by the *Courage Foundation* panel, that the OPCW FFM investigation's *Final Report* was fundamentally flawed. The review also documents key issues concerning procedural flaws, intentional bias and organisational bias related to the Douma FFM and draws primarily upon a substantial body of material that is now publicly available.

It is important to emphasise that this review does not attempt to cover all issues and aspects of the events in question. Beyond the scope of this review there has been a large volume of media commentary, both in mainstream media and independent media, whilst a number of governments have been involved in multiple and sharply worded exchanges over the last four years. Nor does this review provide a detailed analysis of FFMs or the two attribution mechanisms—the Joint Investigative Mechanism (JIM) and the Investigation and Identification Team (IIT)—as these are beyond the review's remit. However, regarding the IIT Douma report published in January 2023, because of its direct relevance to this BG21 review, an assessment is provided as to whether or not fundamental issues identified regarding the 2019 FFM report are carried through to the IIT report. The aim here is not to provide a review of the entire IIT Report, but rather to assess whether it has presented any new evidence or analysis that resolves fundamental

issues identified with respect to the FFM investigation and report.

As such the focus of this review is on providing an assessment of the key scientific issues raised by OPCW inspectors and the context in which they occurred. The key scientific issues are examined via a systematic review of four OPCW reports connected with the Douma FFM investigation and other relevant publicly available documents. The review of the four reports focuses primarily on the task of evaluating key claims raised through OPCW whistleblowers, and reported via the *Courage Foundation* panel, and involved multiple readings of the reports and cross-checking with relevant material including official OPCW documents, written staff communications and meeting minutes. The results of this review are summarized in Section Three whilst the full review is presented in annexes 1-4. Due consideration is given to whether these issues are carried through to or, alternatively, resolved in the 2023 IIT report.

With respect to context, events relevant to understanding the Douma/OPCW controversy, including the historical background to the FFMs, the course of events from 2018 through to present and the procedural flaws identified by OPCW inspectors, are described by drawing upon the primary sources—official and leaked documents and testimonies—necessary to accurately document what has occurred in this case. This includes documenting the ways in which the OPCW and the UN System have

responded. In the main, media reports, both mainstream and independent, have been used as sources only when they themselves contain primary information such as leaked documents or official statements.

This approach, overall, allows substantive conclusions to be reached regarding both the veracity of claims made regarding the scientific flaws and the extent to which they can be understood to have been a consequence of actions, intended or otherwise, and structures that have prevented a full, objective and transparent investigation. The approach also allows an assessment of the extent to which the 2023 IIT report repeats the findings of the FFM report without resolving the key issues originally identified with respect to the FFM investigation and report.

The sections are as follows:

**Section One** provides a brief background to alleged chemical weapons attacks in Syria and identifies key aspects of the UN/OPCW investigations relating to their reliance upon intermediaries for information and evidence as well as the organisational structure of the Syria FFMs.

**Section Two** presents a chronology of key events starting with the commencement of the Douma FFM in April 2018 and the deployment of inspectors to Syria and Turkey. The chronology then documents key events that occurred after the FFM team returned to the OPCW headquarters in The Hague

including the circumstances surrounding a suppressed *Original Interim Report*, a *Redacted Interim Report* which made false claims suggesting a chemical attack, an *Interim Report* published in July 2018 and the publication of the *FFM Final Report* in March 2019. Emergence of dissent from OPCW inspectors and other leaks including the *Courage Foundation* panel are detailed. Key events from 2020 onwards including the response of the OPCW and the UN are also detailed. The description of events includes information that emerged from the OPCW whistleblowers regarding a series of procedural flaws and is based upon primary sources including leaked and official documents.

**Section Three** provides a summary review of the scientific issues raised by OPCW inspectors, and reported by the *Courage Foundation* panel, in relation to the four Douma investigation reports now publicly available: the *Original Interim Report*, the *Redacted Interim Report*, the *Published Interim Report* and the *FFM Final Report*. It is based on the full, detailed and comprehensive review provided in the four annexes and reaches substantive conclusions as to whether the *FFM Final Report* conclusions are flawed. Also considered is whether these issues now impact upon the IIT report.

**Section Four** concludes by drawing upon the three preceding sections in order to reach substantive conclusions regarding the accuracy of the *FFM Final Report* as well as whether the investigation was subject to research, organisational and deliberate biases leading it to reach a

preordained conclusion. Consequences for the 2023 IIT report are also identified. Emerging from this are a series of actions points which now need to be undertaken in order to establish an accurate account of what happened in Douma as well as, more widely, to restore the credibility of the OPCW.

**Annexes 1-4** contain the detailed review of the four reports across the key issue areas upon which Section Three is based.

**Appendixes and endnotes** including links to the published and leaked reports as well as to a number of key documents.



# SECTION ONE

## A BRIEF BACKGROUND TO ALLEGED CHEMICAL WEAPONS ATTACKS IN SYRIA AND THE ESTABLISHMENT OF THE OPCW FFM AND THE ROLE OF THE UN IN THIS PROCESS

### INTRODUCTION

Allegations of chemical weapons attacks and the involvement of UN-linked organisations in their investigation dates back to 2013. This section outlines this history and includes the mass casualty sarin attack in Ghouta on 21 August 2013, after which the Syrian Arab Republic joined the CWC, and then subsequent allegations regarding chlorine attacks when the first Syria FFM were initiated. Attention is paid to FFM reliance on alleged witnesses and information provided by intermediaries as well as the organizational structure of the FFMs.

### EVENTS LEADING UP TO GHOUTA 2013

During 2013 a series of allegations regarding chemical weapons use, involving the use of sarin or sarin-like nerve agent, were made to the United Nations and which lead to the establishment of the *United Nations Mission to Investigate Allegations of the Use of Chemical Weapons in the Syrian Arab Republic*. This mission was headed by Professor Åke Sellström along with Mr Scott Cairns (Head of the OPCW

component) and Dr Maurizio Barbeschi (Head of the WHO component). These events occurred in the context of US President Obama having previously issued a warning that the use of chemical weapons in Syria constituted a 'red line' with respect to intervention as well as a drive by 'regime-change' proponents to overthrow the Syrian government.<sup>8</sup>

The first allegation was delivered to the UN Secretary-General and the President of the Security Council in a letter dated 19 March 2013 and was sent by the Permanent Representative of the Syrian Arab Republic. The allegation related to an attack in Khan Al Asal (19 March 2013) and in a 'letter dated 20 March 2013, the Deputy Prime Minister of the Syrian Arab Republic requested that the Secretary-General establish a specialized, impartial independent mission to investigate the alleged incident'.<sup>9</sup>

On 21 March 2013, the Secretary-General established the United Nations Mission. On the same day France and the United Kingdom requested investigation of three alleged chemical weapons incidents. This was swiftly followed by

further allegations from the governments of France, the United Kingdom, Qatar and the United States of America regarding a number of alleged attacks involving the use of the nerve agent sarin including in Sheik Maqsood (13 April 2013) and Saraqueb (29 April 2013). In general, the Syrian Arab Republic accused opposition groups of initiating the chemical attacks whilst the US, UK, French and Qatar governments accused the Syrian government of responsibility.

It was during this period that the OPCW stated it would only become involved in determinations regarding chemical weapons use if they were able to access sites first hand and gather samples and information directly. In April 2013 OPCW spokesman Michael Luhan stated '[t]his is the only basis on which the OPCW would provide a formal assessment of whether chemical weapons have been used'. He went on to say: '[t]he OPCW would never get involved in testing samples that our

own inspectors don't gather in the field because we need to maintain chain of custody of samples from the field to the lab to ensure their integrity'.<sup>10</sup>

On 18 August 2013 the first deployment of the United Nations Mission arrived in Damascus with the objective of investigating 'the reported allegations of the use of chemical weapons in Khan Al Asal, Saraqueb and Sheik Maqsood'.<sup>11</sup> On 21 August, however, whilst the UN team was on the ground in Damascus, a large-scale sarin nerve agent attack was reported in Damascus involving multiple rocket launches and the deaths of many civilians. At this point the UN mission refocused its immediate fact-finding efforts in order to first investigate the Ghouta attack.

In December 2013 the UN Mission's final report on all of these alleged incidents was published and concluded the following:

1 That there was 'clear and convincing evidence' that chemical weapons were used against civilians, including children, on a relatively large scale in the Ghouta area of Damascus on 21 August 2013.<sup>12</sup>

2 That there was 'credible information that corroborates' allegations that chemical weapons were used against soldiers and civilians in Khan Al Asal on 19 March 2013. It is noted also that there was an absence of 'primary information on delivery systems and of environmental and biomedical samples collected and analysed under the chain of custody'.<sup>13</sup>

3 That the UN collected evidence consistent with a 'probable' use of chemical weapons against soldiers in Jobar on 24 August 2013. Absence of 'primary information on the delivery system(s) and environmental samples collected and analysed under the chain of custody' was again noted.<sup>14</sup>

- 4 That evidence 'suggests' that chemical weapons were used in Saraqueb on 29 April 2013 against civilians. Absence of 'primary information on the delivery system(s) and environmental samples collected and analysed under the chain of custody' was again noted.<sup>15</sup>
- 5 That evidence 'suggests' that chemical weapons were used in Ashrafiah Sahnaya on 25 August 2013 against soldiers. Absence of 'primary information on the delivery system(s) and environmental samples collected and analysed under the chain of custody' was again noted.<sup>16</sup>
- 6 That allegations of chemical weapon use in Bahhariyeh 22 August 2013 and Sheik Maqsood 13 April 2013 could not be corroborated.<sup>17</sup>

Across all of these events, other than the 21 August Ghouta attack, the inability to access sites and obtain evidence first hand reduced the confidence with which conclusions were reached, as can be seen in the language used.

With respect to the alleged mass casualty attack at Ghouta, which occurred within days of the UN mission arriving in Damascus, whilst the main Ghouta report from the UN Mission (see above) confirmed that surface-to-surface sarin rockets had been launched against civilian targets in Damascus,<sup>18</sup> the UN Independent Commission of Inquiry on the Syrian Arab Republic states the perpetrators are unknown.<sup>19</sup>

**POST ACCESSION TO THE  
CHEMICAL WEAPONS  
CONVENTION: ALLEGED CHLORINE  
ATTACKS FROM 2014 ONWARDS  
AND THE ESTABLISHMENT OF THE  
SYRIA FFM**

In September 2013, the Syrian Arab Republic joined the CWC and agreed that its arsenal of chemical weapons, including its sarin stockpiles, would be eliminated. In 2014, however, reports alleging the use of chemical weapons involving chlorine gas started to emerge.<sup>20</sup> On 29 April 2014 the OPCW Fact Finding Mission (FFM) was established with a mandate to 'establish the facts surrounding allegations of the use of toxic chemicals, reportedly chlorine, for hostile purposes in the Syrian Arab Republic.'<sup>21</sup> It was recognised that site visits 'at the locations of the alleged incidents were considered a key source for gathering as much evidence and as many facts surrounding the allegations as possible.'<sup>22</sup> Accompanying the FFMs have been the OPCW-UN

Joint Investigative Mechanism (JIM) (2015-2017) and the Investigation and Identification Team (IIT) (2018-present). Broadly speaking, both of these entities draw upon the FFM conclusions as to whether an alleged attack is likely to have occurred, and then search for evidence related to the likely perpetrator.

### FFM RELIANCE ON NGOS FOR INFORMATION AND EVIDENCE

On 22 May 2014 the first onsite deployment of the newly established FFM was intended to be to Harasta. On that same day, however, allegations of an attack at Kafr Zeyta emerged and it was decided to travel there instead for an on-site visit. According to the OPCW FFM report, '[t]his decision was welcomed by the opposition'.<sup>23</sup> During this first attempt to travel to a site of an alleged chemical attack, the OPCW FFM was attacked shortly after leaving Syrian government-controlled territory. A lead vehicle in a convoy was hit by an improvised explosive device and, while attempting to recover to a safer location, the remaining convoy was attacked with small arms fire.<sup>24</sup> According to the OPCW, the 'two occupants of the two remaining vehicles, who were briefly detained by some gunmen, were later released following the intervention of the main opposition group with whom the ceasefire and security arrangements had been negotiated.'<sup>25</sup>

Following this incident, in which opposition group(s) were involved in attacking the FFM team, the OPCW

stated that it did not envisage field visits in the immediate future but that it would, nevertheless, continue investigating alleged chemical weapons incidents:

*The attack on the Team and the resulting denial of access to the FFM prevents it from presenting definitive conclusions. It is nonetheless the considered view of the FFM that the available information cannot be dismissed as unconnected, random, or of a nature attributable to purely political motives. This information lends credence to the view that toxic chemicals, most likely pulmonary irritating agents such as chlorine, have been used in a systematic manner in a number of attacks.*

*The Director-General has taken the decision for the FFM to continue its work "by closely monitoring the situation and using all possible means to gather information and data in order to establish the facts surrounding allegations of the use of chlorine in Syria". The Mission is now planning the next steps. On a preliminary basis, the FFM will continue its interactions with all interested parties in order to advance the objectives of a logical and systematic inquiry.*

*While field visits are not envisaged for the immediate future, these remain an option.<sup>26</sup>*

In parallel with these events a so-called CBRN task force, that had been established in 2013<sup>27</sup> with the involvement of a former British military commander

Hamish de Bretton-Gordon,<sup>28</sup> started to supply information on alleged chemical weapon attacks to the OPCW FFM. This task force was referred to in the second FFM report:

*Based on the Director-General's decision and the guidance provided by the Council, the FFM commenced preparations to conduct the second phase of its work. A key objective for the FFM was to carry out some of the activities that it had been unable to perform because of the attack on its convoy while heading for Kafr Zita on 27 May 2014. Such activities would have included on-site collection of samples and other evidence and, more significantly, the acquisition of the testimony of victims, treating physicians, first responders, and eye-witnesses...*

*In organizing the interviews, the FFM worked closely with the organisation "Violations Documentation Center in Syria"*

*...Independently of the individuals from the three villages who were interviewed, the FFM interviewed and received information from members of the "CBRN1 Task Force", who had performed a systematic collection of data in the field following reported attacks in Talmenes and Kafr Zita.<sup>29</sup>*

Hamish de Bretton-Gordon states he became involved in gathering samples in 2013, prior to the Ghouta mass casualty sarin attack. During this period two British newspapers reported the existence of

an MI6 sample-gathering operation in Syria<sup>30</sup> whilst de Bretton-Gordon states he was involved with a Times newspaper journalist, Anthony Lloyd, in gathering samples from the 13 April 2013 incident at Sheik Maqsood.<sup>31</sup> The British Prime Minister later, it is reported, referred to these alleged incidents noting that samples had been tested at the UK's Porton Down laboratory from Sheikh Maqsood and that '[w]e believe the scale of the use is sanctioned by the Assad regime, ...[t]hat is the picture described to me by the joint intelligence committee'.<sup>32</sup>

With respect to his activities in 2014, de Bretton-Gordon stated during a 2016 presentation at the UK Houses of Parliament that:

*I have covertly been in Syria collecting evidence of chemical weapons attacks and have been giving it to the OPCW and the UN. They cannot get to the places the chemical weapons attacks have happened because they're in rebel held areas. When I present evidence with our teams from UOSSM [Union of Medical Care and Relief Organizations], we are not an international body etcetera etcetera. We provided the evidence of the chemical weapons attack in a town called Talmenes in April 2014, on the 29th of April 2014, three weeks after the attack; two weeks ago, two years later, the UN Security Council announced to the world that they had conclusive evidence that the regime had attacked Talmenes in April 2014 with chemical weapons.<sup>33</sup>*

Hence, almost as soon as the FFM was set up, a pattern was established whereby site visits were deemed to be too risky and that, instead, there would be a need to be reliant upon information arranged and supplied via intermediaries. As such, at this stage, the OPCW had altered its position set out in 2013, that it would not become involved in determinations unless it had first-hand access to sites and evidence. Subsequent FFMs have come to rely upon information supplied via NGOs including the above noted *CBRN taskforce*, the *Violations Documentation Center*, the *UOSSM* and the *Syrian Civil Defence* (a.k.a 'The White Helmets').

The White Helmets are a first responder NGO established with the support of UK and US allied states and which, according to a UK government document, "provide an invaluable reporting and advocacy role" which "has provided confidence to statements by UK and other international leaders made in condemnation of Russian actions [in Syria]."<sup>34</sup> They are not the officially recognized Syrian Civil Defence, which operates within the structure of the existing Syrian government. Supporters of the organisation maintain that the White Helmets are a neutral organisation serving an invaluable 'first responder' role; critics maintain they are aligned with opposition groups and belligerent nations and have been involved in the staging of alleged chemical weapon attacks.<sup>35</sup>

Regarding their role in relation to OPCW investigations, in 2018 the Executive Director of the Mayday Rescue Foundation that underpinned

the White Helmets, herself a former British diplomat, explained that in 2015 training and equipment was provided to OPCW standards regarding collecting samples from the scenes of alleged uses of chemical weapons and she refers to 'in terms of the physical capture of evidence ....some of the more high-profile work that they have done in support of the OPCW and in collecting evidence around chlorine and sarin'.<sup>36</sup> By 2017 a White Helmets/SCD 'chemical sampling unit' was being referred to in OPCW FFM reports.<sup>37</sup> It is also known that the White Helmets, including its ex British military founder, played an important role with respect to supplying witnesses to the OPCW FFM, for example with respect to the alleged chemical weapon attack in Khan Shaykhun in 2017.<sup>38</sup>

Reliance upon information supplied via intermediaries with respect to chemical weapon allegations remained the case up until the 7 April 2018 alleged attack in Douma when the area was retaken by Syrian Arab Republic forces within days of the alleged attack. Here, for the first time since Ghouta 2013, investigators had the opportunity to collect evidence and information first hand.

## ORGANIZATIONAL STRUCTURE OF THE FFMS

It is important to note that the OPCW's Office of the Director General (ODG), essentially comprising just the DG and his deputy and the Chief of Cabinet and his deputy, and which has neither technical nor scientific expertise, controls

the investigative and reporting aspects of the FFM and, unlike the case of routine verification inspections, excludes scientific scrutiny and formal peer review by the technical departments, namely the Inspectorate and Verification Divisions. As such the Syria FFM operates under managerial not scientific control. This arrangement was confirmed in an email sent by a senior OPCW official to one of the authors of this review.<sup>39</sup> This arrangement is inconsistent with sound scientific practices and creates the opportunity for undue political influence to be exerted on the FFMs. For example, during the Douma investigation discussed in the next section, the serving Chief of Cabinet in the ODG was Robert Fairweather, a career British diplomat who was subsequently awarded an OBE in 2018 for 'services to international relations'. At the time of the *FFM Final Report* on Douma being issued in March 2019, the Chief of Cabinet was Sebastián Braha, a career French diplomat. From 2009 until 2018 the DG of the OPCW was Ahmet Üzümcü, a Turkish career diplomat, whilst his replacement, Fernando Arias, is a Spanish career diplomat. In the cases of Fairweather, Braha and Üzümcü, they each come from states that are belligerents to the war in Syria.

allegations have emerged from both sides in the conflict and persisted after the Syrian Arab Republic acceded to the CWC in 2013. A brief examination of investigations to date highlights the reliance upon NGOs for information gathering as well as the involvement of state-linked actors in facilitating this. Reliance upon information supplied via such routes, with respect to a matter that has strategic implications for the conflict, is problematic. Also, the organisational structure of the OPCW FFMs established in 2014 is sub-optimal due to the sidelining of its scientific divisions and control at the bureaucratic level via staff linked to key belligerents in the Syrian War. These organisational arrangements cannot be described as impartial.

## SUMMATION

The United Nations and the OPCW have become closely involved with respect to the investigation of allegations of chemical weapons use during the 2011-present war in Syria. These



# SECTION TWO

## THE ALLEGED CHEMICAL ATTACK IN DOUMA 2018 AND THE OPCW FFM INVESTIGATION: EVENTS FROM APRIL 2018 TO DECEMBER 2019 AND THEREAFTER

### INTRODUCTION

This section details the course of events following the alleged attack including the OPCW FFM deployment from April through May 2018, events subsequent to the team returning to The Hague including the circumstances surrounding the publication of an interim report in July 2018, the publication of the *FFM Final Report* in March 2019, and the controversy that then emerged throughout the course of 2019. This description of events documents the information that emerged from OPCW whistleblowers in relation to a series of procedural flaws which included the sidelining of the inspectors deployed to Damascus, an attempt to publish a falsified dossier, an attempt by the US to influence the investigation, and the failure of OPCW management to adequately address substantive concerns raised by two senior inspectors involved with the Douma FFM. Events subsequent to 2019 are also outlined.

### THE DOUMA INCIDENT AND US/UK/FRENCH MILITARY RETALIATION

On 7 April 2018 the first reports emerged of an alleged chemical weapon attack in Douma, Syria. At the time the area was held by an opposition group (Jaish al Islam) and there were ongoing Syrian government and Russian Federation military operations aimed at retaking the area which lies on the outskirts of Damascus. A report from the White Helmets late in the evening of the 7th stated an attack had occurred at 20.22 hrs<sup>40</sup> whilst one from Dr Zaher Sahloul (Syrian American Medical Society) in the early hours of the 8th stated the attack occurred at 21.00 hrs, killing 180 civilians and involving sarin nerve agent.<sup>41</sup>

Images from a hospital scene (referred to as *Location 1* in FFM reports) showing civilians being doused with water and receiving treatment, and from a building showing 33 deceased civilians—most on the first (ground) and second floors of the building but also four outside on the street—circulated across media. In the following days images of two yellow cylinders also emerged. One of these was on a balcony at the building where

the 33 deceased had been filmed and the cylinder had apparently created a hole in the ceiling before coming to rest poised over that hole (This site is referred to as *Location 2* in the FFM reports). The other was a cylinder that had been filmed on a bed at another apartment block after having apparently broken through a ceiling, hit the floor below, and then bounced across a room to land on the bed (This site is referred to as *Location 4* in the FFM reports).

By 12 April the area had been retaken by Syrian government and Russian Federation forces whilst a large number of opposition members and their families were evacuated to Idlib. A significant number of prisoners/hostages who had been held by opposition forces (Jaish al Islam) were released during these events whilst a number are understood to have remained missing.<sup>42</sup>

In the following days US and French officials were quoted as stating that it was likely that a nerve agent attack had occurred. For example, at an emergency UNSC meeting held on 9 April the French UN representative is reported to have stated that:

*... thousands of videos and photos emerging from Douma in recent days showed victims foaming at the mouth and convulsing, all symptoms of a potent nerve agent combined with chlorine. There was no doubt as to the perpetrators, as the Syrian Government and its allies alone had the capability of developing such substances.*<sup>43</sup>

On 13 April, CNN reported that: '[b]iological samples from the area of the alleged chemical attack in Syria have tested positive for chlorine and a sarin-like nerve agent, according to a US official familiar with the US analysis of the test results.'<sup>44</sup> On 14 April, A US official was reported by CNN as stating:

*"While the available information is much greater on the chlorine use, we do have significant information that also points to sarin use," a senior administration official said on a call with reporters, citing reports from media, nongovernmental organizations and other open sources. "They do point to miosis -- constricted pupils -- convulsions and disruptions to central nervous systems. Those symptoms don't come from chlorine. They come from nerve agents. ... It's a much more efficient weapon, unfortunately, the way the regime has been using it, and it's resulted in higher deaths, it resulted in terrible pictures."*<sup>45</sup>

Finally, on 16 April a British newspaper reported that:

*Ibrahim Reyhani, a White Helmet civil defence volunteer, said anyone who touched the bodies started getting sick, and said he believed a mixture of sarin and chlorine had been used. ... Hamish de Bretton-Gordon, a former British army officer and chemical weapons expert, said: 'What they're describing is chlorine and what we suspect is a nerve agent mixed with chlorine.'*<sup>46</sup>

The Syrian government and the Russian Federation denied these allegations and accused opposition groups of having staged the event.

On 14 April 2018 the US, UK and France carried out retaliatory military strikes against the Syrian Arab Republic, before the OPCW FFM investigation had begun, and during which a number of locations, allegedly connected with a chemical weapons programme, were hit. According to the Pentagon, these sites were the Barzeh research facility and two sites at Him Shinsar near Homs.<sup>47</sup> This action occurred without UNSC authorization and, with respect to the UK, in the absence of parliamentary authorization.

**THE OPCW FACT FINDING  
MISSION (FFM) DEPLOYMENT  
AND INVESTIGATION: ON-SITE  
ACTIVITIES**

An advanced team was dispatched to Damascus on 12 April and the full team arrived on 14 April, the day of the retaliatory strikes carried out by the US, UK and France. A second team deployed to Turkey (referred to as 'Country X' in FFM reports) on 16 April. The team in Damascus were involved with interviewing witnesses arranged by Syrian authorities as well as conducting on-site investigations which involved collecting samples and taking measurements as well as collating photos and videos at the sites where the cylinders had been found (Locations 2 and 4) and the hospital (Location 1)

where civilians had received treatment. The team in Turkey were involved with interviewing witnesses arranged by the Syrian Civil Defence/White Helmets and also accepting samples supplied by these witnesses. It is presumed that the witnesses in Turkey were comprised of people who had been evacuated to the Idlib province of Syria (bordering Turkey) during the Syrian government operations to retake Douma. On 17 April, shortly after arrival in Damascus, the FFM Team Leader left to join the team in Turkey and never returned to Damascus.

The OPCW reported that between 15 April and 12 May, 34 interviews were conducted by the FFM, 'including 13 in Damascus'.<sup>48</sup> It was during this period that the Russian Federation brought 17 witnesses to The Hague and on 26 April held a briefing at the OPCW headquarters and, following this, a press conference during which it was claimed that no chemical attack had occurred and that the Location 1 hospital scenes widely shown across media were not authentic and had been staged.<sup>49</sup>

On-site inspections in Damascus commenced on 21 April and the FFM departed on 2 May 2018. Between the 9 and 15 of May, there was a redeployment to conduct interviews of witnesses in Turkey. There was also a later redeployment, 14-22 October, to conduct interviews and which, again, related to witnesses in Turkey.

**FOLLOW-ON INVESTIGATION  
CONDUCTED AT OPCW  
HEADQUARTERS**

**PROCEDURAL FLAW 1: EXCLUSION  
OF INSPECTORS WHO HAD BEEN  
TO SYRIA/DOUMA**

When members of the Advance Team returned in early May to the OPCW HQ in The Hague, it is reported by OPCW Inspector Brendan Whelan that they were marginalised whilst the organisation of the continuing investigation was poor.<sup>50</sup> Whelan had an extensive role in the Douma FFM which included oversight of scientific planning, analysis of data gathered during the investigation, and involvement with a toxicological assessment. He was responsible for the keeping of records of discussions, writing progress reports and updates for the Office of the Director General, and he was chief drafter of the *Original Interim Report*.<sup>51</sup> He explained in a letter to the OPCW DG, sent on 25 April 2019, that:

*(w)hen the FFM team returned to The Hague on 3 May, the team members naturally expected instructions on how to proceed with the investigation, as for most it was their first FFM mission. Instructions were never forthcoming, however. I continued working on the draft FFM report in the absence of alternative instructions and since there was no plan that any of the team members, at least those who were in Douma, were aware of.*

*Bizarrely, there were no team meetings, either formal or informal*

*(during the seven-week period after the team returned from Damascus to the time the interim report was issued) to discuss the mission, analyse the data collected, exchange views, or plan on how to proceed with the investigation. There was simply no communication between the 'Douma' team and the team leader. This was particularly concerning given the team leader had left Damascus after three days and had little opportunity for discourse with the team during the on-site deployment.<sup>52</sup>*

The marginalization detailed by Whelan meant that most of the inspectors who were on the ground in Douma were not even consulted on their views or observations on-site or even met with the team leader after returning from Syria, despite the fact that the team leader was not in Syria for the investigation. They in effect had no input into the investigation except to gather evidence on site.

On 22 May, chemical analysis results were received from OPCW designated labs (DL) and which showed that no evidence of nerve agents had been found. This finding was a surprise, as Whelan explained:

*When the results of the analysis of samples were received from the designated labs on 22 May, the team leader was, as were others, surprised that no nerve agents had been detected, given the symptoms described by witnesses and observed in videos and photos were considered more commensurate with nerve agent*

poisoning. The conclusion from one of the DLs was that samples had been exposed to a "reactive chlorine-containing chemical" possibly chlorine. This finding didn't seem to square however with the signs and symptoms of exposure to chlorine.<sup>53</sup>

Sarin or sarin-like nerve agent had been suspected because it explained the large number of rapid or almost instantaneous deaths at Location 2, whereas chlorine gas is not normally associated with such a scenario.

In order to understand this incongruity it was decided to solicit opinion from relevant experts. Whelan states:

*'... with the authorisation of the then Chief of Cabinet, on 6 June a team that included myself, the Team Leader, Head of Lab and Head of H&S branch travelled to a State Party to consult with specialists in toxicology/pharmacology in the area of chemical weapons to get their expert opinions'<sup>54</sup>*

As will be detailed in Section 3 and Annexes 1-4, an important result of this discussion was the conclusion that chlorine gas had not caused the deaths of the civilians at Location 2. Another significant matter concerned the need to obtain expert forensic advice. The FFM team leader was presented with the opportunity early in the investigation to consult with a forensic pathologist from the nearby Netherlands Forensic Institute in The Hague. However, leaked internal OPCW emails indicate

the FFM team leader turned down the opportunity<sup>55</sup> without justification and as a result forensic pathology played no part in the Douma investigation.

It was at this stage that it was decided the Douma report, which inspector Brendan Whelan had been coordinating and drafting for over a month, would be issued as an 'interim report' (the *Original Interim Report*)<sup>56</sup>. Within this report issues were to be raised, implicitly or explicitly, about multiple matters relating to *chemical analysis results, toxicology and forensic pathology, ballistics and witness testimony*: In addition to the toxicology finding that the deaths were not caused by chlorine gas poisoning at Location 2, the report noted the absence of evidence for chlorine gas release, the seeming incompatibility between the damage observed on the two cylinders and that which was observed at the alleged impact sites, and the divergent witness testimony with Damascus witnesses reporting no attack had occurred and the Turkey witnesses reporting the attack had occurred (See Section 3 and Annexes 1-4 for full details). The *Original Interim Report* also noted the need for expert forensic advice.

The report reached no conclusion as to whether or not the alleged attack had occurred, but suggested two possibilities for the unexplained findings: 1) that there was some highly toxic chemical that still had not been found that could explain the findings 2) that the victims died as a result of a non-chemical related incident. Noting that work was ongoing, the interim report was finalized and agreed

for publication in June 2018.

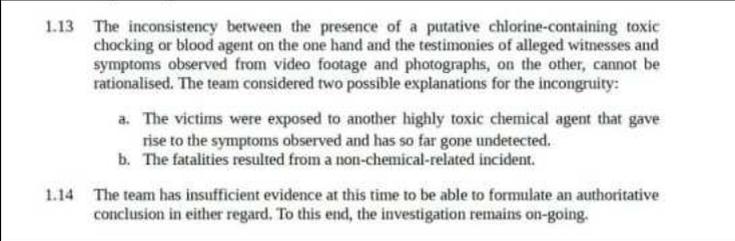
**PROCEDURAL FLAW 2: CREATION OF, AND ATTEMPT TO PUBLISH, A REDACTED INTERIM REPORT CONTAINING UNFOUNDED CLAIMS**

On 21 June 2018 Whelan was informed by the FFM Team Leader that the report had 'come back from the editors with virtually no corrections'.<sup>57</sup> But as Whelan discovered the report being referred to was not the original team report. The original was never submitted to the editors. It had been substituted with an alternative version (the *Redacted Interim Report*)<sup>58</sup> that had been redrafted by making substantial alterations and adding unfounded claims to the *Original Interim Report* in order to draw

unsupported conclusions that pointed to a chlorine attack (see Images 1 and 2).<sup>59</sup>

In drawing these unsupported conclusions the redacted report also omitted the fact that chlorine gas had been ruled out by toxicologists as the cause of death of the 40 or more victims as well as the issues, regarding *ballistics* (relating to understanding how the two yellow cylinders had arrived at the locations they were found out and explaining the damage observed) and *witness testimony*, that had been raised in the *Original Interim Report* and which had caused doubts over whether or not the alleged attack had actually occurred.

Upon discovering this deception, Whelan sent an email headed 'Grave Concern' to the OPCW Chief of Cabinet on 22 June

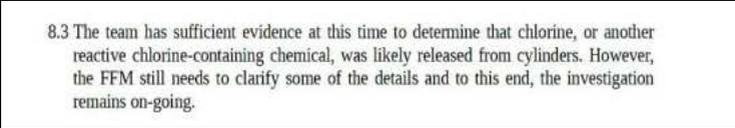


1.13 The inconsistency between the presence of a putative chlorine-containing toxic chocking or blood agent on the one hand and the testimonies of alleged witnesses and symptoms observed from video footage and photographs, on the other, cannot be rationalised. The team considered two possible explanations for the incongruity:

- a. The victims were exposed to another highly toxic chemical agent that gave rise to the symptoms observed and has so far gone undetected.
- b. The fatalities resulted from a non-chemical-related incident.

1.14 The team has insufficient evidence at this time to be able to formulate an authoritative conclusion in either regard. To this end, the investigation remains on-going.

Image 1



8.3 The team has sufficient evidence at this time to determine that chlorine, or another reactive chlorine-containing chemical, was likely released from cylinders. However, the FFM still needs to clarify some of the details and to this end, the investigation remains on-going.

Image 2

These excerpts show the *Original Interim Report* conclusion (1.13-1.14), which made clear that it was not yet established whether or not an attack had occurred, and the contrasting *Redacted Interim Report* conclusion (8.3) which suggested that a chlorine gas attack had occurred.

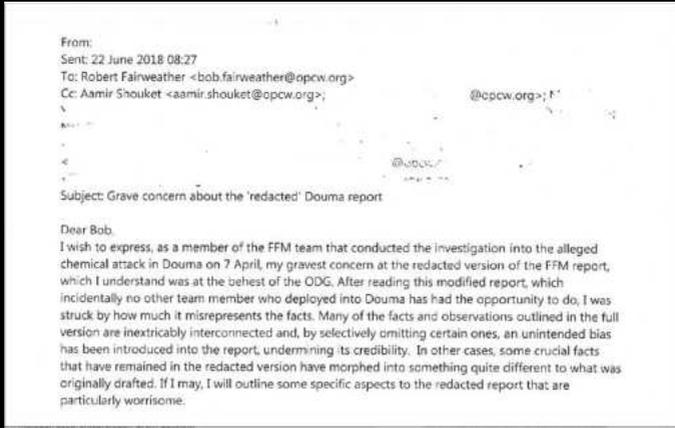


Image 3

Opening paragraph of the 'Grave Concern' email sent 22 June 2018.

2018 and copied it to the deputy Chief of Cabinet and the FFM team (see Image 3).<sup>60</sup>

## PREPARATION OF AN AGREED INTERIM REPORT

Publication of the *Redacted Interim Report* was prevented by Whelan's intervention and, following this, the FFM team was asked to prepare a new report for publication (*the Published Interim Report*).<sup>61</sup> Although senior management denied responsibility for redacting the report, it is not known if they initiated any investigation into who *had* done so. On 22 June an email from Chief of Cabinet Robert Fairweather stated that '[t]he report was not redacted at the behest of ODG' whilst another email from him that day requested the 'recall' of Whelan's

'Grave concern' email, implying it could be in some way be unsent although it is unclear whether this was technically possible.<sup>62</sup> It is also known that one senior OPCW director praised Whelan's actions. Regarding the 'Grave Concern' email, the director wrote:

*'My respect, I think your email is very carefully crafted, without emotions, not accusing anybody but laying out the facts and concerns very clearly... Really well done.'*<sup>63</sup>

And:

*Let's see what happens next. In any case, you took all the steps to maintain your moral and professional integrity and that's what matters most.'*<sup>64</sup>

The director also tacitly acknowledged

there were issues about lack of professionalism and transparency in the FFM's operations.

*...1[t] should serve as an encouragement to future FFM members that it is important to get engaged in drafting and insist that their findings and possible concerns be adequately considered and that simply ignoring mission member's views is not an acceptable way of doing business. Through your action, you could actually be making the first step toward having a more professional transparent and sound fact-finding mission.<sup>65</sup>*

According to Whelan, a superficial attempt was made at this stage to improve the management and coordination of the investigation:

*Following the CoCs instructions a meeting was then held between the team leader and the team members who were in the HQ at the time. For some this had been the first time to meet with other members of the team or the team leader since returning from Damascus seven weeks earlier. The meeting resulted in little clarification on what was to be the way forward. I proposed to the ITL [Inspection Team Leader] that he should at least draw up a written plan so that everyone would know their respective tasks.<sup>66</sup>*

However, the Douma team continued to be marginalized:

*After several days the ITL sent a*

*Powerpoint presentation (entitled Summer Activities Plan) to selected team members on broad areas of responsibility for some individuals, but still without a clear strategy for moving forward. Quite astonishingly however, most of the 'Douma' team were not assigned any tasks, and the team continued to be dominated by team members who had been to Country X [Turkey].<sup>67</sup>*

**PROCEDURAL FLAW 3: VISIT BY  
US DELEGATION 2 DAYS PRIOR  
TO PUBLICATION OF THE INTERIM  
REPORT**

It was reported<sup>68</sup> that a US delegation, unknown to the investigation team and without prior notice, was allowed to brief them just days before the *Published Interim Report* was issued (two weeks after the attempt to publish the *Redacted Interim Report* had been prevented) to promote their assessment that a chemical weapon, specifically chlorine, had been used by the Syrian government. In a BBC podcast entitled *Mayday*, an unidentified individual, allegedly from the OPCW, claimed that such meetings were normal between delegations and members of the FFM.<sup>69</sup> However, while it is understood that a Member State may offer data or intelligence to the OPCW to help an investigation, a State Party seeking to influence the inspectors in this manner would appear to be a violation of Article VIII (paragraph 47) of the CWC. This states that '[e]ach State Party shall respect the exclusively international character of

the responsibilities of the Director General, the inspectors and the other members of the staff and not seek to influence them in the discharge of their duties'.<sup>70</sup>

The interim report was published on 6 July 2018 and was stripped back to focus on the chemical results only, in expectation that the toxicology, forensics and ballistics issues identified in the *Original Interim Report* would be resolved come the *FFM Final Report*. Its most significant finding was that no evidence of nerve agent had been found, thus ruling out the likelihood of there having been a sarin attack as had been widely claimed. Whilst the report corrected the overclaim regarding chlorine gas release made in the *Redacted Interim Report*, there were continued attempts to interfere with the report by unknown individuals and critical data concerning quantitative levels of chemicals detected was excluded at the last minute (see Section 3 and Annex 3 for full details).

**EVENTS BETWEEN ISSUING OF  
THE PUBLISHED INTERIM  
REPORT ON JULY 6 2018 AND  
PUBLICATION OF THE FFM FINAL  
REPORT ON 1 MARCH 2019.**

Between the issuing of the *Published Interim Report* and the *FFM Final Report* the exclusion of most of the team who had deployed to Damascus became more pronounced. During the course of the summer little work was carried out on the Douma investigation and

the Team Leader was away on holiday until September. Whelan departed the OPCW on 3 September 2018 at the end of his contract and the FFM investigation carried on throughout the Autumn and early 2019. Whelan's final performance appraisal included the statement:

*I can say without being unfair to others that you have been the professional in the TS [Technical Secretariat] that has contributed the most to the knowledge and understanding of CW [Chemical Weapons] chemistry applied to inspection...*

*I want to commend you as well for your character and strong values, which have stood firm at times when it would have been easier to simply "let it go" without fighting for what you believe was right. Thank you for everything, it will be difficult to replace you, now that your tenure is about to end.<sup>71</sup>*

In terms of work done during this period, 13 additional samples were analysed,<sup>72</sup> compared to 31 in the first two weeks of the investigation, and only a further 5 interviews (in Turkey) out of a total of 39 were conducted and analysed.<sup>73</sup> As such 70% of samples had already been analysed prior to the *Published Interim Report* as had 87% of the interviews. A further consultation with toxicologists, in addition to that conducted in June with the German toxicologists, occurred in September and October whilst consultation with three independent engineering experts occurred from October through December.<sup>74</sup> These

activities notwithstanding, the bulk of work had been completed at the point of the *Published Interim Report*. This can be seen when comparing the 113-page sidelined *Original Interim Report* with the 106-page *FFM Final Report* with the latter repeating most of the content of the original. Furthermore, no additional bibliography had been added to the *FFM Final Report* indicating that there was no further scientific research conducted.

It was also during this Autumn period that Inspector Ian Henderson carried out an engineering assessment in order to evaluate the questions raised in the *Original Interim Report* regarding ballistics (how the two yellow cylinders had arrived at the locations they were found and explaining the damage, or lack thereof, observed). Henderson had deployed with the FFM to a factory suspected of producing chemical weapons and deployed two further times, once to take additional measurements at Location 4 (the site of the second alleged cylinder impact) and then to the hospital at Location 1. Originally tasked with assessing the need for external assessment regarding the ballistics issue, Henderson persisted

with this work but it was not considered prior to the publication of the *FFM Final Report*.<sup>75</sup>

On 13 February 2019, just three weeks before the *FFM Final Report* was published, BBC producer Riam Dalati stated over social media that both 1) 'The *ATTACK DID HAPPEN*', but without specifying whether or not he believed it was a *chemical attack*, and 2) that '[a]fter almost 6 months of investigations, I can prove without a doubt that the Douma Hospital scene was staged. No fatalities occurred in the hospital. All the #WH [White Helmets], activists and people I spoke to are either in #Idlib or #EuphratesShield areas. Only one person was in Damascus'.<sup>76</sup>

**EVENTS FOLLOWING  
PUBLICATION OF THE FFM FINAL  
REPORT ON 1 MARCH 2019.**

The *FFM Final Report* concluded that there were reasonable grounds the alleged chemical attack had occurred (See Image 4)

Following the publication of the *FFM*

2.17 Regarding the alleged use of toxic chemicals as a weapon on 7 April 2018 in Douma, the Syrian Arab Republic, the evaluation and analysis of all the information gathered by the FFM—witnesses' testimonies, environmental and biomedical samples analysis results, toxicological and ballistic analyses from experts, additional digital information from witnesses—provide reasonable grounds that the use of a toxic chemical as a weapon took place. This toxic chemical contained reactive chlorine. The toxic chemical was likely molecular chlorine.

Image 4

*Conclusions of the FFM Final Report: paras 2.17, p. 4 and 9.12: pp. 31-32*

Final Report an OPCW inspector who had not been involved in the Douma FFM provided a briefing on it whilst a request from the Russian Federation to allow all of the FFM team to provide a briefing on the investigation was voted down by the OPCW Executive Council.<sup>77</sup>

**PROCEDURAL FLAW 4: IGNORING ATTEMPTS BY SENIOR INSPECTORS TO ALERT MANAGEMENT REGARDING PROBLEMS WITH THE DOUMA INVESTIGATION AND FFM FINAL REPORT**

On 14 March, Inspector Ian Henderson drafted a memo of complaint to the DG though it is understood that the memo never reached him. In the memo Henderson stated:

*At the conclusion of the in-country activities in the Syrian Arab Republic, the consensus within the FFM team was that there were indications of serious inconsistencies in findings. After the exclusion of all team members other than a small cadre of members who had deployed (and deployed again in October 2018) to Country X [Turkey], the conclusion appears to have been turned completely in the opposite direction. The FFM team members find this confusing, and are concerned to know how this happened.<sup>78</sup>*

On 25 March and again on 25 April, Inspector Brendan Whelan sent a detailed letter<sup>79</sup> to the DG setting out serious defects in the conduct of the Douma investigation:

*Overall, the FFM mission to Douma has been characterised by poor planning and execution, an absence of communication between the team leader and the team, a monopolisation of certain information by the team leader, an intolerance for views on alternative hypotheses, and a general exclusion from the investigative process of the FFM team members who had been to Syria for the duration of the field mission.*

The memo concluded:

*I am fully aware of the seriousness of the claims I am making, but I stand ready to defend them if given that opportunity. In such case I will gladly make myself available to do so. Despite their seriousness, it is, I believe, a simple matter to establish their veracity if so desired.*

*Moreover, should the entire FFM team be given an audience with senior management, and provided there are clear and unequivocal guarantees that team members are permitted to speak freely and without fear of repercussions, a clear picture of the conduct of the investigation into the Douma incident will, I believe, emerge.<sup>80</sup>*

Both of these requests were ignored despite attempts to arrange a meeting between Whelan and the DG. One senior OPCW official, referring also to another sceptical OPCW official, wrote in sympathy with Whelan but was pessimistic anything could be done to

resolve the issues about the report.

*He [a senior OPCW official] is also full of skepticism but...I fear there is little one can do since the report is final and out – unless one wants to feed in the Russian narrative and that I would never do as they really are not bona fide friends of this organisation, that's for sure.<sup>81</sup>*

Henderson also passed in May a dossier to the Office of Internal Oversight and a request for an investigation into the *FFM Final Report* to which he received no response until months later.<sup>82</sup> In May 2019 an executive summary of the engineering assessment authored by OPCW inspector Ian Henderson on the two gas cylinders from the Douma incident was leaked and published online by the Working Group on Syria, Propaganda and Media.<sup>83</sup> The assessment concluded that the cylinders had been placed by hand. The OPCW stated later that Henderson was never assigned to do any such study and that his report was a 'personal document created with incomplete information and without authorisation'.<sup>84</sup> Nonetheless, the DG stated in May 2019 that the engineering report should be submitted to the IIT as part of its investigation to identify the perpetrators of the alleged attack, and also that an 'investigation to clarify the situation' had been authorised.<sup>85</sup> Starting in July 2019, this was to become an investigation into 'possible breaches of confidentiality' in relation to the leaked engineering report as opposed to an investigation of the issues raised by the inspectors.

Two months later, in June 2019, the DG sent a short letter in response to Inspector Whelan.<sup>86</sup> In his response the DG did not address the detailed concerns raised and misleadingly claimed that the bulk of the Douma investigation occurred after Whelan's departure from the OPCW; as detailed earlier, the bulk of the analysis had occurred by the time of the *Original Interim Report* before Whelan's departure. More generally, there is no indication that OPCW senior management displayed any interest in listening to the issues raised by the Inspectors.

## **INADEQUATE WHISTLEBLOWER POLICIES**

It is important to note that the OPCW did not have a whistle-blower policy and has been criticized by auditors for this failure: In June 2018 the OPCW's Advisory Board on Administrative and Financial Matters (ABAF) stated:

*...the External Auditor indicated that implementation of some recommendations had been outstanding for a long period of time. The External Auditor referenced as examples long-standing recommendations related to whistleblowing and anti-fraud policies, for which the recommendations were made in 2015 but had not been implemented. The ABAF suggested that such recommendations should not be ignored and that their implementation needed to be expedited.<sup>87</sup>*

In 2020 the ABAF again reminded the DG of the importance of the development of a whistle-blower policy noting it would have 'expected more detail on this important topic in the Director General's note' and that it 'emphasized that the whistle-blower policy was an integral part of a comprehensive anti-corruption and occupational health and safety policy that ensured trust on the part of Organisation's staff and prevented possible retaliation'.<sup>88</sup>

Beyond the OPCW, the UN and its subsidiaries over the years have adopted a range of measures to protect whistleblowers against retaliation. The UN itself has identified its Ethics Office and the Office of Internal Oversight Services to function as contact hubs. However, a 2018 UN review acknowledged that there was a need to replace loosely applied protection criteria and ad hocism involving individual cases with a mandate that ensures comprehensive protection, arbitration and full oversight with direct reporting links to the UN General Assembly.<sup>89</sup>

In sum, senior OPCW management ignored substantial concerns raised by members of the FFM investigation team and who acted without the support of adequate whistleblower protection either at OPCW or UN level. It is clear that highly experienced inspectors working on the Douma FFM made multiple attempts to raise their concerns internally. These attempts included requests to meet with the DG of the OPCW and for an internal inquiry by the OPCW's Office of Internal Oversight. All

were rejected.

### **SUBSEQUENT EVENTS IN 2019: THE COURAGE FOUNDATION PANEL AND FURTHER DOCUMENT LEAKS**

In October 2019, at an event arranged under the auspices of the *Courage Foundation*, an OPCW official with knowledge of the Douma investigation presented evidence to a panel of experts, which included José Bustani who was the first DG of the OPCW,<sup>90</sup> about key concerns relating to the Douma investigation. A statement from the Panel together with key analytical issues concerning chemical analysis, toxicology, ballistics and witness testimony was published by the *Courage Foundation*.<sup>91</sup> In their 'Analytical Points' the panel stated:

*'A critical analysis of the final report of the Douma investigation left the panel in little doubt that conclusions drawn from each of the key evidentiary pillars of the investigation (chemical analysis, toxicology, ballistics and witness testimony,) are flawed and bear little relation to the facts'.<sup>92</sup>*

In their Statement the panel reported that:

*Based on the whistleblower's extensive presentation, including internal emails, text exchanges and suppressed draft reports, we are unanimous in expressing our alarm over unacceptable practices in the investigation of the alleged*

*chemical attack in Douma, near the Syrian capital of Damascus on 7 April 2018. We became convinced by the testimony that key information about chemical analyses, toxicology consultations, ballistics studies, and witness testimonies was suppressed, ostensibly to favor a preordained conclusion.*<sup>93</sup>

And they called upon the OPCW to act: *'we therefore call on the OPCW to permit all inspectors who took part in the Douma investigation to come forward and report their differing observations in an appropriate forum of the States Parties to the Chemical Weapons Convention'*<sup>94</sup>. An accompanying statement from Bustani read:

*The convincing evidence of irregular behaviour in the OPCW investigation of the alleged Douma chemical weapon attack confirms doubts and suspicions I already had. I could make no sense of what I was reading in the international press. Even official reports of investigations seemed incoherent at best. The picture is certainly clearer now, although very disturbing.*

*I have always expected the OPCW to be a true paradigm of multilateralism. My hope is that the concerns expressed publicly, in its joint consensus statement, will catalyse a process by which the Organisation can be resurrected to become the independent and non-discriminatory body it used to be.*<sup>95</sup>

In the following weeks an open letter signed by a large number of experts and influential voices was addressed to the OPCW and its Conference of States Parties (CSP) supporting the *Courage Foundation* panel: *'We hereby call on you to support the Panel's request and facilitate efforts to allow all members of the FFM team to speak freely and without risk of censure at an appropriate forum'*.<sup>96</sup>

A series of documents corroborating many of the issues presented to the *Courage Foundation* panel were published by *Wikileaks* in November and December 2019.<sup>97</sup>

The response from the DG at the November CSP ruled out any engagement on the calls for transparency or re-examination of the case with his own inspectors. He defended the conclusions of the Douma report, telling member countries it was in "the nature of any thorough inquiry for individuals in a team to express subjective views. While some of these diverse views continue to circulate in some public discussion forums, I would like to reiterate that I stand by the independent, professional conclusion [of the investigation]." The DG was supported by the French ambassador, Luis Vassy, who said "the Syrian investigation was impartial, professional and rigorous".<sup>98</sup>

## EVENTS FROM 2020 ONWARDS

On 6 February 2020, the OPCW published its investigation into breaches of the Organisation's confidentiality regime which had been initiated back in

July 2019 and concerned the leaking of Henderson's engineering assessment.<sup>99</sup> This occurred shortly after a UNSC Arria-Formula meeting (20 January) arranged by the Russian Federation and at which, at the invitation of China, a recorded statement by Inspector Ian Henderson was presented.<sup>100</sup> The DG's statement attached to the investigation report accused 'Inspector A' and 'Inspector B' (Henderson and Whelan respectively) of serious breaches of confidentiality<sup>101</sup> despite being exonerated from leaking the engineering summary. The DG used the investigation report as a platform to defend the integrity of the Douma investigation and claimed that 'the majority of work' was conducted after Inspector Whelan had left the OPCW and that he did not have access to 'the large body of evidence that had been considered by the FFM'. This claim is misleading because, as described earlier, the bulk of results and analysis was completed prior to the *Published Interim Report*. Furthermore, at no point, either in the report or public statement, is there an attempt to address the multiple issues that had been raised with respect to the Douma FFM. A detailed point-by-point rebuttal by the inspectors of the multiple inaccuracies in the breach of confidentiality investigation report was published by UK journalist Peter Hitchens<sup>102</sup> whilst the written responses from the inspectors to the DG were also published.<sup>103</sup>

Since then there have been repeated calls for transparency and accountability with respect to the Douma FFM investigation and for all the Douma FFM

inspectors to be heard. On 5 October 2020 the first DG José Bustani was invited by the President of the Security Council, who at the time was the Ambassador of the Russian Federation to the UN, to address the Council with respect to the Douma investigation.<sup>104</sup> This followed shortly after a second Russian Federation Arria-formula meeting (28 September 2020) regarding the Douma investigation which had included OPCW inspector Ian Henderson but which had been summarily dismissed as a 'stunt' and 'disinformation' by US delegate Kelly Craft<sup>105</sup> whilst two weeks earlier UK delegate Jonathan Allen referred to 'conspiracy theories' and 'disinformation' with respect to questions about alleged chemical attacks in Syria.<sup>106</sup> The appearance at the UNSC by Bustani on 5 October was, however, blocked by the US and its allies on the grounds that, according to UK delegate Jonathan Allen, Bustani had no 'relevant knowledge or information'; he argued that because Bustani had left the OPCW more than a decade before the Syrian chemical weapons conflict, he was therefore not in a position to provide relevant knowledge or information on the topic of the meeting.<sup>107</sup> This was surprising given the fact that it was Bustani who was responsible for the development of protocols to conduct investigations of alleged uses of chemical weapons and was more than familiar with how such investigations should be conducted.<sup>108</sup> Although blocked from appearing, Bustani's statement was read out by the President of the UNSC and the pre-recorded statement by Bustani on video was published.<sup>109</sup>

In 2021 BG21 undertook the preparation of a Statement of Concern<sup>110</sup> to call out the OPCW investigation and invited credible and renowned scientists, Middle East specialists, political figures, individuals with legal, military and intelligence backgrounds, and investigative journalists, to support the statement. The Statement signatories included two former UN assistant Secretary Generals, four former OPCW Team Leaders and the former OPCW Director-General José Bustani, and was published on 11 March 2021.<sup>111</sup> The Statement called for all OPCW inspectors' concerns to be heard, asked for transparency and accountability, and warned of the danger of the OPCW having its reputation and credibility damaged were this not to happen.<sup>112</sup> It was sent by BG21 to the OPCW Director General Fernando Arias, to all 193 OPCW member states, and to high-level officials of the UN including: the President of the UN General Assembly Volkan Bozkir; the President of the UN Security Council at the time US Ambassador Linda Thomas-Greenfield; the President of the UN Human Rights Council (UNHCR) Nazhat Shameem; the UN Secretary-General António Guterres; and other senior UN officials including the Under Secretary-General for Disarmament Affairs, Izumi Nakamitsu. The OPCW Director-General saw fit to return to the BG21 sender, *unopened*, the registered letter containing the Statement of Concern he had received. There was also no response from the United Nations. None of the high-level officials felt compelled to share civil society's concern. Only the Chair of

the UNHRC Independent Syria Commission confirmed receipt although he failed to comment on the Statement.<sup>113</sup>

Failing to get any response to the Statement of Concern, particularly from the OPCW, another proposal was then put by BG21 to the Conference of States Parties suggesting that the OPCW's own Scientific Advisory Board (SAB) might be drawn upon in order to facilitate an objective and transparent review of the Douma investigation.<sup>114</sup> On 3rd June 2021, in his address<sup>115</sup> to the 8785th meeting of the UNSC, OPCW DG Arias refused the proposal that the OPCW Scientific Advisory Board meet with all the Douma inspectors to review the investigation whilst simultaneously denigrating the OPCW inspectors who had raised concerns. The DG's grounds were that the SAB was not authorised by its terms of reference to take on such a task.<sup>116</sup> The claim is unfounded as the CWC specifically grants authority to the SAB to set up Working Groups to deal with important scientific issues.<sup>117</sup> The OPCW DG also made a series of misleading and false claims which were listed and communicated in a further correspondence from BG21 to Ambassador Khan (UN Human Rights Council) and copied to Nakamitsu and Paulo Pinheiro (Chairman of the Independent Commission on Syria) on the 8th of June 2021.<sup>118</sup> To date, there has been no response whilst Pinheiro has failed to respond to questions that followed his Commission's statement that it did not at that time include Douma in its list of 'confirmed' attacks.<sup>119</sup>

Most recently, in January 2023, the OPCW's IIT report on Douma was published. Drawing upon the analysis and evidence provided by the FFM investigation and report, and adding its own analysis, the IIT concluded that responsibility for the alleged chemical weapon attack lay with the Syrian military. In line with the conduct of the OPCW over the preceding 4 years, there is no explicit acknowledgement of the OPCW scientists or the procedural and scientific issues raised although the report does implicitly attempt to resolve some of the scientific issues they raised (see section three and Annexes 1-4). Otherwise, reference to the events since 2019 are dismissed as apparent 'attempts to spread disinformation and to undermine efforts to reach evidence-based findings.'<sup>120</sup>

## SUMMATION

Following the FFM return to headquarters after deploying to Syria to collect evidence of the 7 April alleged chemical attack a series of problems occurred. The first clear signs of procedural problems appeared when the majority of those inspectors who deployed to Douma were sidelined from the investigation (Procedural Flaw 1). Here, the failure to allow inspectors involved with the FFM, in particular those who were actually on the ground in Douma, to provide their views and observations on the investigation, is not compatible with a thorough investigation. The second clear sign (Procedural Flaw 2) appeared when the *Original Interim Report*, which

raised doubts about a chlorine attack, was altered without the knowledge of the team members and an unsuccessful attempt was made to publish a modified version, the *Redacted Interim Report*: the modified report indicated the alleged attack had occurred despite there being no evidence thereof. This attempt to publish a modified version is scientifically fraudulent and incompatible with the expected behaviour of a trusted international organization. Following this a US delegation was allowed to meet the investigation team and inform them that the 'Syrian Regime' had used chlorine gas in Douma (Procedural Flaw 3). An intervention of this nature runs counter to the Chemical Weapons Convention which states that a State Party shall 'not seek to influence [the inspectors] in the discharge of their responsibilities'. Following the publication of the *FFM Final Report*, attempts made by two senior inspectors to alert senior management with respect to serious procedural and scientific issues were ignored (Procedural Flaw 4). Refusal to hear the concerns of two highly experienced inspectors is incompatible with a scientific, objective and transparent investigation. During the subsequent course of 2019 a series of leaks occurred and testimony was given to the *Courage Foundation Panel*. OPCW senior management, however, continued to defend its *FFM Final Report* and deny opportunity for open and transparent dialogue. Since 2020, multiple attempts to have the Douma issue addressed have been met with continued avoidance and blocking by the OPCW and supporting states and non-responses from United Nations

agencies. The new IIT Douma report, building upon the FFM investigation, has now attributed responsibility for the alleged attack to the Syrian military.

As shall be detailed in the next section, at the heart of the issues raised by the OPCW's own inspectors, starting with Whelan's 'Grave Concern' email, were substantive concerns regarding the scientific rigor and accuracy of the investigation in relation to chemical analysis, toxicology, ballistics and witness testimony.

# SECTION THREE

**SUMMARY REVIEW OF THE ORIGINAL INTERIM REPORT (JUNE 2018), THE REDACTED INTERIM REPORT (JUNE 2018), THE PUBLISHED INTERIM REPORT (JULY 2018) AND THE FFM FINAL REPORT (MARCH 2019)**

## INTRODUCTION

On the day the inspectors were returning from their investigation in Douma, the organisation's then DG Ahmet Üzümcü told the Financial Times 'it could be a month until the OPCW's fact-finding mission publishes its report on Douma'.<sup>121</sup> Thirty days is the maximum time prescribed in the CWC<sup>122</sup> for finalizing a report on an investigation of alleged uses of chemical weapons. The *FFM Final Report* on Douma however did not appear until ten months after the on-site investigation was completed.

As shown in Section Two, there were in fact four different reports set for publication over the 10-month period - the *Original Interim Report*, the *Redacted Interim Report* that made unsupported claims supporting a chlorine attack, the stripped back *Published Interim Report*, and the *FFM Final Report*. The *FFM Final Report* claimed, based on witnesses' testimonies, environmental and biomedical sample analysis results, toxicological and ballistic analyses from experts and additional digital information from witnesses, that there were 'reasonable grounds' an attack had occurred. However, substantive issues

had been raised regarding *toxicology analysis, witness testimony, chemical analysis and ballistics analysis*. Section Three, which is based upon the full review presented in Annexes 1-4, now summarises these issues that lie at the heart of concerns raised by OPCW inspectors and others and explains why the *FFM Final Report* conclusions of 'reasonable grounds' is untenable. Due consideration is also given as to whether these issues are carried through to, or otherwise resolved, in the 2023 IIT Douma report.

**TOXICOLOGY AND FORENSIC PATHOLOGY: HOW COULD 40 OR MORE CIVILIANS HAVE COLLAPSED AND DIED IMMEDIATELY DUE TO CHLORINE GAS WHILST EXHIBITING PROFUSE DISCHARGE OF FOAM?; UNJUSTIFIED ELIMINATION OF THE ORIGINAL TOXICOLOGY CONCLUSION AND FAILURE TO EXPLORE SIGNIFICANT EVIDENCE INDICATING ALTERNATIVE CAUSE OF DEATH (SEE ANNEX 1 FOR FULL REVIEW)**

When the initial lab results indicated no nerve agents had been found in samples from Douma, the FFM team were faced

with trying to understand how 40 or more civilians at Location 2—most on the first and second floors of the building but also four outside on the street—were killed by chlorine gas, the only other toxic chemical that seemed was possibly present. As noted in Section Two, it was widely thought that sarin nerve agent had been used as this would explain the large number of rapid deaths, whereas chlorine gas is not normally associated with a large number of almost instantaneous fatalities.

The *Original Interim Report* had identified incongruities or anomalies regarding the circumstances surrounding

the deaths which led to the conclusion that chlorine gas from the cylinder on the roof was not the cause. Specifically, it was noted that the rapid death of civilians who were close to cleaner air and escape coupled with profuse discharge of foam from the mouth and nose, the onset of which was according to some witnesses almost immediate, were not consistent with poisoning by chlorine gas (see Images 5, 6 and 7). This finding had been supported by the three specialists in toxicology/pharmacology in the area of chemical weapons whom the FFM investigators had travelled to meet in early June 2018.



Image 5



Image 6

Image 7

*Images uploaded to Internet by activists. The first shows how civilian victims were found gathered in piles. The second and third images show one example of the profuse foaming found on some of the victims, in this case apparently appearing after an earlier picture where no foam can be seen.*

The *Original Interim Report* presented a detailed section on epidemiology which addressed issues of plausibility, temporal relationship, and alternative explanations regarding the observed and reported symptoms.<sup>123</sup> The *Original Interim Report* stated:

*'The rapid, and in some reported cases, immediate onset of frothing described by victims is not considered consistent with exposure to chlorine-based choking or blood agents. The opinion of a number of toxicologists, specialists in chemical-weapons-*

*related intoxication supported this assessment'.<sup>124</sup>*

In the *Redacted Interim Report* this assessment was gone. In the *FFM Final Report*, the unequivocal conclusion contained in the *Original Interim Report* was absent and instead it stated that: 'it is not currently possible to precisely link the cause of the signs and symptoms to a specific chemical' (see Images 8, 9 & 10).<sup>125</sup>

As such, the *FFM Final Report* substituted a clear and unequivocal opinion ruling

1.10 Some of the signs and symptoms described by witnesses and noted in photos and video recordings taken by witnesses, of the alleged victims are not consistent with exposure to chlorine-containing choking or blood agents such as chlorine gas, phosgene or cyanogen chloride. Specifically, the rapid onset of heavy buccal and nasal frothing in many victims, as well as the colour of the secretions, is not indicative of intoxication from such chemicals.

1.11 The large number of decedents in the one location (allegedly 40 to 45), most of whom were seen in videos and photos strewn on the floor of the apartments away from open windows, and within a few meters of an escape to un-poisoned or less toxic air, is at odds with intoxication by chlorine-based choking or blood agents, even at high concentrations.

Image 8

1.13 The inconsistency between the presence of a putative chlorine-containing toxic choking or blood agent on the one hand and the testimonies of alleged witnesses and symptoms observed from video footage and photographs, on the other, cannot be rationalised. The team considered two possible explanations for the incongruity:

- a. The victims were exposed to another highly toxic chemical agent that gave rise to the symptoms observed and has so far gone undetected.
- b. The fatalities resulted from a non-chemical-related incident.

Image 9

Extracts from *Original Interim Report* (paras 1.10, 1.11 and 1.13) and *FFM Final Report* (para 2.11—see following page) showing the original conclusion regarding incompatibility between symptoms/observations and chlorine gas poisoning and the *FFM Final Report* where the original conclusion is absent.

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page 4

- 2.11 Many of the signs and symptoms reported by the medical personnel, witnesses and casualties (as well as those seen in multiple videos provided by witnesses), their rapid onset, and the large number of those reportedly affected, indicate exposure to an inhalational irritant or toxic substance. However, based on the information reviewed and with the absence of biomedical samples from the dead bodies or any autopsy records, it is not currently possible to precisely link the cause of the signs and symptoms to a specific chemical.

Image 10

out chlorine gas, supported by experts in chemical weapons poisoning, with an unspecific and unattributed statement. Critically, the formulation of words used avoided committing to any explicit statement either ruling out or affirming chlorine use, thus leaving the possibility that chlorine might have been a cause. These alterations between the *Original Interim Report* and the *FFM Final Report* were made without any explanation other than brief mention of toxicology consultations conducted in September and October 2018. No information was provided as to why the original toxicology conclusion was excluded and, critically, no reference was made to the original consultation with the specialists in toxicology/pharmacology visited in early June 2018.

## REJECTION OF FORENSIC PATHOLOGY EXPERTISE

An investigative area that is important to understanding how the Douma victims died is forensic pathology. Whilst

toxicologists can provide an assessment of whether a particular toxic chemical was involved or not, forensic pathology is an important science to determine the time and the cause of death. This area was overlooked in the OPCW's Douma investigation. The *Original Interim Report* had noted that some of the victims had wet hair and unusual discoloration around the eyes whilst some of the deceased had been re-positioned throughout the course of the night of 7/8th April. Notably, buckets of dirty water and wet rags could be seen in the videos near the victims, raising the possibility that the wet faces were not due to sweating but because the victims had been washed after death. Attempts to obtain expert forensic advice had been, however, turned down by the FFM team leader (see Section 2 and Annex 1) and the *Original Interim Report* noted the continued need to obtain such advice:

*Although many of the bodies in Location 2 present signs of rigor mortis, it is difficult to determine*

from the video the time of death. To establish this and the origin of certain features identifiable on many of the bodies, the team considers that an expert in forensic pathology would be required to provide an authoritative assessment.<sup>126</sup>

In the *FFM Final Report*, however, these anomalies remained unresolved noting only that to determine the cause of discoloration around the eyes would 'require additional steps'<sup>127</sup>, and then speculating that the wet hair might be due to diaphoresis: 'The presentation of wet hair in an otherwise dry environment is difficult to assess and is possibly due to profound diaphoresis shortly before death.'<sup>128</sup> However, profuse sweating is a symptom of nerve agent poisoning and not a sign of chlorine exposure. Also, the observation that some of the deceased had been re-positioned throughout the course of the night was obscured in the *FFM Final Report*. The failure to resolve the forensic pathology issues demonstrates a clear reluctance to address alternative explanations for the deaths at Location 2 and the blocking of such expert advice by the FFM team leader in May 2018 indicates this was intentional.

The 2023 IIT Report incorporates the flaws identified in the *FFM Final Report* – the original toxicology conclusion is still absent whilst the *FFM Final Report* assessment is replaced with opinion from a single toxicologist who concludes that the 'accounts of the victims and medical personnel are consistent with the rapid release of a high dosage of chlorine gas

which led to the rapid and high fatality rate seen at Location 2'.<sup>129</sup> Although results of gas dispersion models and other information is reported to confirm presence of lethal (within minutes) gas concentrations inside the building and suggest that victims were trapped, the IIT's analysis is flawed and misleading because it does not explain how victims found on the ground floor, who were within a few steps of escape, became trapped. Furthermore, no adequate explanation is offered in order to resolve the originally identified key anomalies regarding rapid collapse and death combined with rapid discharge of foam from the mouth and nose; also unexplained by the IIT are the four deceased found outside the building and who are, in fact, never mentioned in their report. Although stating that it specifically explores alternative scenarios,<sup>130</sup> there is no forensic pathology examination in order to resolve the unexplained observations on the deceased.

**WITNESS TESTIMONY: WHY WERE THERE WIDELY DIVERGING ACCOUNTS OF WHAT HAPPENED IN DOUMA?; INSUFFICIENT INFORMATION REGARDING CORROBORATION OF WITNESS TESTIMONIES; OBSCURING, ELIMINATION OF OR FAILURE TO RESOLVE ANOMALOUS WITNESS CLAIMS; AND ANALYTICAL ERRORS REGARDING GAS DISPERSION PATTERNS. (SEE ANNEX 2 FOR FULL REVIEW)**

A total of 39 witnesses were interviewed during the course of the Douma FFM

investigation. Of these 39, 13 were interviewed in Damascus and had been provided by the Syrian authorities whilst the remaining 26 were interviewed in Turkey ('Country X' in OPCW reports) and who were generally either members of the White Helmets, or were brought to the inspectors by the White Helmets. The FFM team returned on two occasions to conduct further interviews, in May and October 2018<sup>131</sup>; on both occasions it was witnesses in Turkey who were interviewed.

The *Original Interim Report* clearly identifies that there were diametrically opposing narratives of what had happened depending on the country group. Those interviewed in Turkey supported the narrative that there had been a chemical attack. On the other

hand, those interviewed in Damascus reported seeing no evidence of a chemical attack. The *Original Interim Report* also noted that it was only Turkey witnesses who reported symptoms compatible with a chemical attack and with some of them reporting anomalous symptoms – indicating a nerve agent attack – including the nerve agent specific symptom of 'constricted pupils'. Other anomalous witness testimony included reports of large numbers of deceased in basements including the one at Location 2: this was considered unexplained in the *Original Interim Report* because there was no clear mechanism by which gas concentrations might have built up to dangerous levels in basements and because there was no video footage or photos showing bodies in the basement or being removed from there.

7.52 Most of the medical staff present in the emergency department on the 7 April, who were interviewed, emphasised that the symptoms of the casualties were not consistent with those expected from a chemical attack. They also reported not having experience treating casualties of chemical weapons and some witnesses mentioned not being aware of any chemical attacks in Douma or Syria. Some interviewees stated that no odour emanated from the patients, while other witnesses declared that they perceived a smell of smoke on the patients' clothes.

Image 11

8.54 A number of the interviewed medical staff who were purportedly present in the emergency department on 7 April emphasised that the presentation of the casualties was not consistent with that expected from a chemical attack. They also reported not having experience in the treatment of casualties of chemical weapons. Some interviewees stated that no odour emanated from the patients, while other witnesses declared that they perceived a smell of smoke on the patients' clothes.

Image 12

Extracts from *Original Interim Report* (para 7.52) and *FFM Final Report* (para 8.54) showing an example of the downgrading of Damascus witnesses by introducing the qualifier 'purportedly present'.

Nearly all of this important information was removed from the Redacted Interim Report whilst in the *FFM Final Report* the fact of there being strikingly divergent witness testimony is apparently resolved with the Turkey Group witness claims accepted as true and the Damascus Group witness testimony downgraded and, to all intents and purposes, rejected (see Images 11 and 12).

No information, however, is provided as to how the Turkey Group testimony was corroborated whilst the anomalies identified in the *Original Interim Report* – unexplained reports of sarin/nerve agent symptoms, location of deceased in basements and unexplained gas concentration levels – are either obscured or omitted, and left unresolved in the *FFM Final Report*. Remarkably, new witness testimony is introduced regarding injured and deceased far to the South of Location 2 and which, in addition to analytical errors regarding wind direction, raises further and even more significant issues regarding the feasibility of the implied gas concentration levels.

Regarding the recently published IIT Report, key flaws identified in the *FFM Final Report* – failure to provide the necessary information to demonstrate how differing claims were either corroborated or discounted; and the omission, obscuring or failure to resolve anomalies from Turkey group witnesses – are carried through unresolved to the IIT Report which, to all intents and purposes, reiterates the narrative that emerged from the Turkey-based witnesses,

further conceals contrary testimony from Damascus group witnesses, and leaves anomalies with respect to Turkey group witnesses unresolved. It is particularly notable that the IIT Report actually makes no mention of anomalous witness testimony regarding deceased in basements, on the street and across the area south of Location 2: these are absent without explanation or justification. Also, whilst stating it considered 'alternative scenarios' including the allegations of staged hospital scenes at Location 1, there is no further mention of this in the report.

**CHEMICAL ANALYSIS:  
MISREPRESENTATION OF THE  
EVIDENCE FOR THE RELEASE OF  
CHLORINE GAS AT LOCATIONS  
2 AND 4; INSUFFICIENT  
INFORMATION TO SUBSTANTIATE  
CLAIMS, ANALYTICAL ERRORS,  
AND FAILURE TO EXPLORE  
ALTERNATIVE EXPLANATION  
FOR FINDINGS AT LOCATION 4  
(SEE ANNEX 3 FOR FULL REVIEW)**

As already noted, the initial chemical analysis results did not find any evidence of nerve agent. This was unexpected given the symptoms reported, and also contradicted the claims made by, for example, the US and French governments at the time of the alleged attack. Attention then turned to the possibility of whether it was instead chlorine gas that was responsible for the deaths of the 40 or more civilians at Location 2. The results for whether chlorine gas had been released were

inconclusive. There was evidence some kind of chlorine-based chemical, which could have included household chlorine bleach, had been in contact with samples but the *Original Interim Report* clearly stated that '[t]he actual chemical was not identified'.<sup>132</sup> Moreover, the report stated that '[a]lthough the cylinders might have been the sources of the suspected chemical release, there is insufficient evidence to affirm this'.<sup>133</sup>

In the *Redacted Interim Report*, however, conclusions were reversed most notably

in the claim that '[t]he team has sufficient evidence at this time to determine that chlorine, or another reactive chlorine-containing compound, was likely released from the cylinders'<sup>134</sup> (see Images 13, 14 & 15).

Following discovery of this falsification by Inspector Whelan and his subsequent 'Grave Concern' email, the *Published Interim Report* stated simply what had been found without interpretation of the results: '[v]arious chlorinated organic chemicals were found in samples from

1.6 Based on the levels of chlorinated organic derivatives, which are not naturally present in the environment, detected in environmental samples gathered at the sites of alleged use of toxic chemicals (Locations 2 and 4), the FFM concludes that the materials from which the samples were taken at both locations had been in contact with one or more substances containing reactive chlorine. Examples of such chemicals include, molecular chlorine, phosgene, cyanogen chloride, hydrochloric acid, hypochlorous acid and sodium hypochlorite. The actual chemical was not identified.

Image 13

8.3 Two industrial gas cylinders with dimensions of approximately 1.4 x 0.35 meters were observed by the FFM team, one at each of the two locations where the alleged chemical attacks took place. Although the cylinders might have been the sources of the suspected chemical release, there is insufficient evidence to affirm this.

Image 14

8.3 The team has sufficient evidence at this time to determine that chlorine, or another reactive chlorine-containing chemical, was likely released from cylinders. However, the FFM still needs to clarify some of the details and to this end, the investigation remains on-going.

Image 15

Extracts from *Original Interim Report* (paras 1.6 and 8.3) and *Redacted Interim Report* (para 8.3) showing reversal of finding to claim chlorine gas was likely released

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.

Image 16

2.17 Regarding the alleged use of toxic chemicals as a weapon on 7 April 2018 in Douma, the Syrian Arab Republic, the evaluation and analysis of all the information gathered by the FFM—witnesses' testimonies, environmental and biomedical samples analysis results, toxicological and ballistic analyses from experts, additional digital information from witnesses—provide reasonable grounds that the use of a toxic chemical as a weapon took place. This toxic chemical contained reactive chlorine. The toxic chemical was likely molecular chlorine.

Image 17

Image 16: Extract from *Published Interim Report* (para 2.5). Image 17: Extract from *FFM Final Report* (para 2.17)

locations 2 and 4. These results are reported in Annex 3. Work by the team to establish the significance is ongoing<sup>135</sup> (see Image 16).

In the *FFM Final Report*, however, the unjustified highlighting of chlorine gas seen in the *Redacted Interim Report* was reinserted and strengthened further with the claim that chlorine gas had likely been used as a weapon: it states there are 'reasonable grounds that the use of a toxic chemical as a weapon took place. This toxic chemical contained reactive chlorine. The toxic chemical was likely molecular chlorine'<sup>136</sup> (see Image 17).

This conclusion was reached without

presenting any clear supporting evidence or reasoning from the chemical results and analysis. The *FFM Final Report* omitted information - quantitative levels and control samples - to show whether the chemicals detected in samples were abnormal or unnatural for the area. The *FFM Final Report* also unscientifically discarded other possible benign reactive chlorine sources (*hydrochloric acid*, *sodium hypochlorite* (household bleach) and *hypochlorous acid* (disinfectant)) that could have generated the detected chemicals. It did so through analysis involving *omission, fabrication, and fallacious reasoning* which unfairly suggested chlorine gas as the most 'likely' chemical. As such, the *FFM Final Report's*

contention that chlorine gas was likely released rests, at least in part, on biased analysis of the chemical analysis results. In addition, the *FFM Final Report* failed to explore anomalies which indicated the possibility that staging had occurred: specifically, a pair of discarded gloves at Location 4, covered in a liquid that was observed on surfaces throughout the location, showed the highest readings of the chemical chloride. This indicated the possibility that a chemical had been manually spread throughout the room at Location 4.

The recent IIT report presents new evidence and argumentation regarding evidence for chlorine gas release including the ruling out of an alternative scenario in which other chemicals were spread in order to stage a chlorine gas attack. In doing so, the IIT tacitly acknowledges the validity of the above described criticisms that unsubstantiated claims regarding evidence for chlorine gas release were made in the *Final FFM Report*.

The additional analysis and argumentation is, however, problematic. First, the IIT Report does not report full details – levels across samples and control samples – of chemical analysis results and as such perpetuates a key flaw identified regarding the *FFM Final Report*. Second, false and misleading claims, contradicted by the OPCW FFM's own chemical analysis results, are made regarding the significance of a chemical, TeCP (tetrachlorophenol), which, in turn, was identified in a sample supplied by an unknown third party and inexplicably

used to replace a sample originally collected by the OPCW itself. Third, an unjustified assumption regarding the presence of two chemicals – BC (Bornyl Chloride) and TCP (trichlorophenol) – is made in order to misleadingly suggest their presence in wood samples is strong evidence of chlorine gas release. Fourth, although claiming to fully assess 'alternative scenarios' including staging with chemicals to simulate chlorine release, the IIT's analysis ignores the obvious possibility that chlorine gas might have been released as part of staging. Fifth, new argumentation based upon experiments with wood samples (IIT Report: paras 6.62-6.63; p. 34) contains no reference to necessary information regarding quantitative levels or control samples. Also unexplained is why a copper wire sent for analysis, apparently showing signs of corrosion attributable to chlorine gas (IIT Report: para 6.65), was not originally sent for analysis in 2018 (if it originally showed such corrosion it would have presumably been sent for analysis in 2018). Furthermore, the IIT Report makes no mention of the anomalies regarding the gloves and chloride readings and, as such, fails to consider what is direct evidence of possible staging at Location 4.

**BALLISTICS: HOW COULD THE TWO CYLINDERS HAVE CAUSED SO MUCH DAMAGE WHILST REMAINING RELATIVELY UNSCATHED?: INSUFFICIENT INFORMATION TO SUBSTANTIATE KEY CLAIMS, ANALYTICAL ERRORS AND FAILURE TO ADEQUATELY ADDRESS SIGNIFICANT INFORMATION INDICATING ALTERNATIVE EXPLANATION FOR THE HOLE AT LOCATION 2 (SEE ANNEX 4 FOR FULL REVIEW)**

Two yellow cylinders at Locations 2 and 4 were alleged to have been the source of chlorine gas and to have been dropped onto the buildings from the air. The cylinder at Location 2 was photographed poised over a hole in a balcony ceiling, having allegedly punched a hole in the metal bar reinforced ceiling but failing to fall through it (see Image 18); the cylinder at Location 4 was reported by witnesses interviewed by the FFM to have been

found on a bed after it had allegedly penetrated a metal bar reinforced ceiling, hit the floor below, and then bounced 3 metres sideways across a room to land on the bed (see Image 19). Key concerns raised in the *Original Interim Report* related to the compatibility between the damage observed on the cylinders and that observed at the two locations and, in view of these observations, whether it was plausible that the cylinders had in fact fallen from a height onto the buildings.

Specifically, in the *Original Interim Report* questions were raised about the lack of damage on the cylinders with respect to the metal bar reinforced concrete ceilings: 'the FFM team is unable to provide satisfactory explanations for the relatively moderate damage to the cylinders allegedly dropped from an unknown height, compared to the destruction caused to the rebar-reinforced concrete roofs'<sup>137</sup> (see Images 20 and 21). Also questioned was the



Image 18



Image 19

Left shows cylinder on balcony at Location 2<sup>138</sup> and right image shows cylinder on bed at Location 4<sup>139</sup>

way in which the cylinder at Location 4 had apparently broken through the ceiling at an angle perpendicular to the ceiling, then, after hitting the floor, took a sideways bounce across the room to land on the bed.

These concerns were obfuscated in the Redacted Interim Report and then apparently resolved come the *FFM Final Report* following assessments by three reportedly independent experts

who, it is repeatedly stated across the body of the *FFM Final Report*, found the damage on the cylinders and the metal bar reinforced ceilings to be compatible (see Image 22). However, no detailed description of methodology nor sufficiently clear outcomes of simulations or calculations are presented in the *FFM Final Report* and it is, therefore, not possible to evaluate the conclusions reached by the three independent experts.



Image 20



Image 21

Location 2; Hole in ceiling and cylinder head<sup>140</sup>

- 2.14 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-top terrace, the aperture, the balcony, the surrounding rooms, 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.
- 2.15 At Location 4, the results of the studies indicated that the shape of the aperture produced in the modulation matched the shape and damage observed by the team. The studies further indicated that, after passing through the ceiling and impacting the floor at lower speed, the cylinder continued an altered trajectory, until reaching the position in which it was found.

Image 22

Extract from the *FFM Final Report* (paras 2.14 and 2.15) both of which are repeated verbatim two times across the Report.

Most importantly, although multiple images are presented of computer simulations in the *FFM Final Report*, the information presented does not show the predicted deformation to the cylinders from these impacts which should have been the primary output of any impact study. As such, no information is presented to resolve concerns raised in the *Original Interim Report* regarding lack of damage observed on the cylinders and its incompatibility with the damage observed on the metal bar reinforced ceilings. A scientifically flawed attempt was made to explain the cylinder bounce at Location 4 whilst anomalies indicating that an artillery/mortar shell caused the damage at Location 2, a plausible alternative explanation, are summarily dismissed in the *FFM Final Report*.

Finally, the recently published IIT Report claims to provide a full and detailed assessment of the cylinders and their impact on the ceilings. Despite this claim, the IIT Report actually provides

no new information or analysis regarding the impact damage observed on the cylinders and the ceilings. Just as with the *FFM Final Report*, this critical issue continues to be avoided. This omission is made even more remarkable because, as part its consideration of 'alternative scenarios', the IIT Report claims to have ruled out the possibility the cylinders were placed by hand. The results of impact studies showing the predicted deformation of the cylinders following impact with the metal bar reinforced ceilings would be central to establishing whether the cylinders had been dropped from a helicopter or were placed by hand. The IIT Report does not provide these impact study results and provides no explanation for this critical omission.

Regarding the bouncing cylinder at Location 4, and as part of ruling out 'alternative scenarios', the IIT presents a new theory to explain the cylinders movements by way of a bounce off its tail end (see Image 23).

FIGURE 48: POSSIBLE MOTION OF THE CYLINDER IN THE VERTICAL PLANE

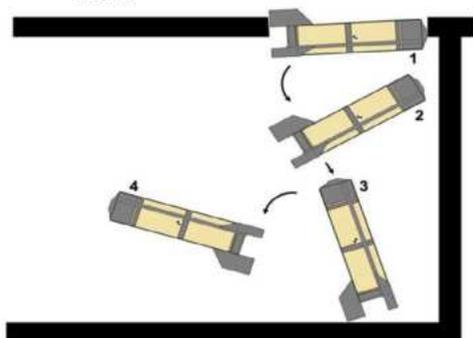


Image 23

Scenario to explain bouncing cylinder in the IIT Report: p. 99.

It is unclear from this presentation how the cylinder could have bounced in such a manner without the protruding fins being completely flattened. Regarding, the possibility the hole at Location 2 was caused by an explosive device, no explanation is provided for the profoundly deformed rebars and, as per the point above, the IIT fails to provide the results of impact studies which would be central to establishing whether the cylinder at Location 2 caused the damage observed on the ceiling.

## SYNTHESIS

To recap, the FFM Final Report states the following:

*Regarding the alleged use of toxic chemicals as a weapon on 7 April 2018 in Douma, the Syrian Arab Republic, the evaluation and analysis of all the information gathered by the FFM—witnesses' testimonies, environmental and biomedical samples analysis results, toxicological and ballistic analyses from experts, additional digital information from witnesses—provide reasonable grounds that the use of a toxic chemical as a weapon took place. This toxic chemical contained reactive chlorine. The toxic chemical was likely molecular chlorine. (Conclusions of the FFM Final Report: paras 2.17, p. 4 and 9.12: pp. 31-32.)*

As such, the OPCW FFM's Douma investigation conclusion is based upon information drawn from the toxicology assessment, witness testimony,

chemical analysis and ballistics analysis. Furthermore, the report conclusions imply there was sufficient evidence across these areas of inquiry to support the conclusion of there being 'reasonable grounds' the alleged attack - involving the dropping of cylinders from a height onto the two locations which then released chlorine gas that killed 40 or more civilians at Location 2 - actually occurred. (Conclusions of the *FFM Final Report*: paras 2.17, p. 4 and 9.12: pp. 31-32.)

However, as demonstrated via review of the four reports, summarised here and detailed in full in Annexes 1-4, there is an observable pattern of flaws which include: unjustified elimination of the original toxicology conclusion; obscuring, unjustified elimination of or failure to resolve significant anomalies; insufficient information to substantiate claims; analytical errors; and failure to explore significant information indicating alternatives explanations. Specifically, come the *FFM Final Report*:

**A ]** information, supported by specialists in toxicology, that chlorine gas did not cause the fatalities at Location 2 is removed without explanation or rationalisation in the *FFM Final Report* whilst the failure to consult forensic pathologists left other significant anomalies unresolved and alternative possible explanations for the deaths unexplored.

**B ]** despite the original witness testimony showing sharply diverging claims from the two groups of witnesses, as well as

significant anomalies, the group alleging the attack (Turkey Group) occurred is favoured over the Damascus Group which claimed no attack had occurred but without the necessary information to demonstrate how the differing claims were either corroborated or discounted. The fact there were anomalous claims from Turkey Group witnesses was either omitted or obscured and left unresolved whilst, in the *FFM Final Report*, new witness claims introduce fresh anomalies and analytical errors.

**C]** because of the omission of quantitative levels and control sample results, the chemical analysis lacks the information necessary to demonstrate that chemicals detected during the analysis were not simply naturally or normally present in the background. The impression is created that alternative benign sources for the results can be ruled out but this is achieved through analysis involving a combination of omission, fabrication and fallacious reasoning. In fact, the chemical analysis does not confirm the presence of chlorine gas. Information regarding the glove and observed liquid at Location 4 is left unresolved thus leaving alternative explanations, i.e. staging, for the observations at Location 4 unaddressed.

**D]** the ballistics analysis does not present the analysis and results necessary to show the supposed damage caused to the two cylinders as a result of their impacting metal bar reinforced ceilings whilst an attempt to explain the bouncing cylinder at Location 4 is erroneous. Information regarding the possibility a mortar shell had caused the damage at Location 2 is

summarily dismissed.

With respect to the recently published IIT report flaws identified in the *FFM Final Report* are carried through and remain largely unresolved especially with regard to toxicology and forensic pathology, witness testimony and ballistics. New attempts to evidence chlorine gas release are tacit acknowledgement that criticism the *FFM Final Report* did not justify its conclusion of likely chlorine gas use was in fact correct. However, the new chemical analysis continues to fail to present full details—levels across samples and control samples—whilst there are obvious issues with significant parts of the analysis (see Annex 3). As such, whether or not substantive new evidence in support of chlorine gas release has been provided by the IIT is unclear. Also, despite claiming to fully consider alternative scenarios including staging, it is clear the IIT has not done so.

The implications of this pattern of flaws are twofold. First, they mean that key issues indicated in the *Original Interim Report* – e.g. uncertainties over cause of death, divergent and anomalous witness testimony, inability to confirm chlorine gas release, and incompatibility between slight damage to cylinders and severe damage to ceilings – are not actually resolved in the *FFM Final Report* which instead gives the misleading impression it has done. At the same time significant information indicating plausible alternative explanations regarding cause of death, staging of chemical evidence at Location 4 and the hole in the roof at Location 2, are either

unaddressed or summarily dismissed. Second, and consequently, the *FFM Final Report* creates the impression of having presented stronger evidence than it actually has done regarding toxicology, witness testimony, chemical analysis and ballistics. This, in turn, enables its overall conclusion to be biased towards claiming that there are 'reasonable grounds' the alleged attack occurred.

## SUMMATION

Across the four reports, and as reported by the OPCW inspectors, there is an identifiable pattern of flaws which means that the *FFM Final Report* actually gives the misleading impression that it has resolved key issues indicated in the *Original Interim Report* and, consequently, an exaggerated impression is given regarding the strength of evidence regarding toxicology, witness testimony, chemical analysis and ballistics. This, in turn, enables the conclusion to be biased towards claiming that there are 'reasonable grounds' that the attack occurred. As such, the 'reasonable grounds' assertion made by the *FFM Final Report* is untenable. These issues have now been carried through largely unresolved to the recently published IIT Report.

# SECTION FOUR

## SYNTHESIS, CONCLUSIONS AND KEY ACTIONS

### INTRODUCTION

The *Courage Foundation* panel was confident the Douma FFM was flawed and that it had been manipulated. Analytical points presented by the panel stated that *'conclusions drawn from each of the key evidentiary pillars of the investigation (chemical analysis, toxicology, ballistics and witness testimony,) are flawed and bear little relation to the facts'*.<sup>141</sup> The Panel statement read that they *'became convinced by the testimony that key information about chemical analyses, toxicology consultations, ballistics studies, and witness testimonies was suppressed, ostensibly to favor a preordained conclusion'*.<sup>142</sup> This concluding section draws together the evidence presented in Sections one through three in order to evaluate the extent to which this was the case. In particular, the evidence of flaws found during the examination of the four reports is set in the context of the course of events and associated procedural flaws, as well as the wider context relating to the organizational structure of the FFMs. The review findings have implications for the recent IIT Douma report, our understanding of other FFMs, and all alleged chemical weapon attacks

in Syria. Accordingly, it is necessary that a number of actions are now undertaken and these are set out at the end of this concluding section.

### THE FFM FINAL REPORT CONCLUSION IS BASED ON FLAWED ANALYSIS AND IS UNTENABLE

As just summarized in Section 3 and detailed in Annexes 1-4, the *FFM Final Report* reaches an untenable conclusion regarding there being 'reasonable grounds' the alleged chemical attack occurred. Analysis of the four reports showed a pattern of flaws including: unjustified elimination of the original toxicology conclusion; obscuring, unjustified elimination of or failure to resolve significant anomalies; insufficient information to substantiate claims; and analytical errors. Because of these flaws, substantive questions surrounding the plausibility of events presented at Douma – uncertainties over cause of death including the apparent rapid death of 40 civilians from chlorine gas, divergent and anomalous witness testimony, inability to confirm chlorine gas release, and incompatibility between the slight damage to the cylinders and

severe damage to the ceilings at both locations – were effectively erased come the *FFM Final Report* which instead created a misleading impression it had resolved them. At the same time significant information indicating alternative scenarios or explanations – including the cause of death, the staging of chemical evidence at Location 4 and alternative and highly plausible explanations for the hole in the roof at Location 2 - were left unaddressed or summarily dismissed. A request to obtain expert forensic pathology advice in order to determine cause of death was turned down by the Inspection Team Leader (ITL). Consequently, the *FFM Final Report* creates an exaggerated impression regarding the strength of evidence it has presented regarding toxicology, witness testimony, chemical analysis and ballistic which, in turn, enables its conclusion to be biased towards claiming there are 'reasonable grounds' the attack occurred. As such the 'reasonable grounds' assertion is not tenable.

Critically, these flaws have now been carried through, largely unresolved, to the recently published IIT report. In particular the most significant flaws regarding toxicology and forensic pathology, witness testimony and ballistics remain in the IIT report. New evidence and findings regarding the chemical analysis contains obvious shortcomings. Meanwhile, the IIT's claim to have carefully and fully evaluated 'alternative scenarios' is clearly incorrect.

Furthermore, it's important to understand

that the flaws identified, and which are relevant to both the FFM and IIT Report, are fundamental to the tenability of the claim that there are 'reasonable grounds' the alleged attack occurred. If the circumstances surrounding the deaths at Location 2 are not consistent with chlorine gas, contradicting and anomalous witness testimony has been censored without explanation, flawed chemical analysis has repeatedly been used to suggest the likelihood of chlorine gas release, and there has been no attempt to demonstrate that the cylinders were the cause of the holes in the ceilings, then there are no objective grounds for concluding the alleged attack occurred. As such, the central claims of both the *Final FFM Report* and the IIT Report are untenable.

## WHAT IS THE CAUSE OF THESE FLAWS?

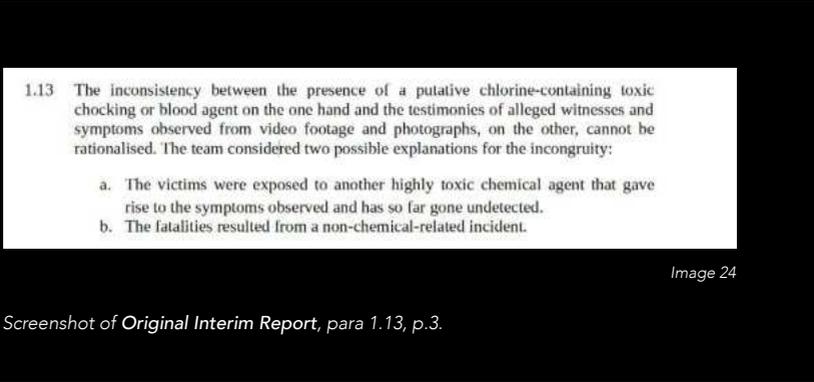
### BIASED RESEARCH APPROACH

In the first instance it appears that the research approach adopted by the drafters of the *FFM Final Report* involved prioritising information that supported the claim that the alleged attack had occurred and not seriously addressing other plausible explanations. Such bias is indicated by the unexplained elimination of the toxicology advice ruling out chlorine gas, the biased chemical analysis which presented a misleading impression regarding the strength of evidence for chlorine release, the favouring of information provided via the White Helmets and alleged witnesses (Turkey-based group) over testimony

from Damascus-based witnesses, and the failure to explain the limited impact damage to the cylinders. This bias is also indicated by the three clear instances in which significant information indicating alternative explanations was not properly explored in the *FFM Final Report*: 1) the turning down of a forensic pathology investigation into the cause of death and unexplained features (wet hair and periorbital discoloration) observed on the victims at Location 2 with the former indicating the possibility that victims had been washed prior to photographing and filming; 2) the extremely high chloride reading found on gloves at Location 4 which, in tandem with visual observations, indicated the possibility that a chemical had been manually spread throughout the room at Location 4; and 3) the failure to fully explore the possibility that the damage at Location 2 was the result of a mortar/ artillery shell similar to the hole seen on a neighbouring building. It is notable here that the IIT report, although claiming to fully consider alternative scenarios, fails to properly address these three issues and, in

addition, excludes analysis of the widely reported allegation that hospital scenes had been staged.

The existence of such bias is also indicated by the fact that the Original Interim Report had identified the importance of considering alternative scenarios in its summary and epidemiology sections<sup>143</sup> (see Image 24). However, in the *FFM Final Report* there is no mention of alternative scenarios. Such bias is also indicated by a footnote in the *FFM Final Report*. In reference to paragraph 7.1 relating to 'methodological considerations' and a statement that '[t]he FFM followed the same general methodology outlined in previous FFM reports',<sup>144</sup> it is noted that findings were based on: *[w]hether there were reasonable grounds to believe that chemical weapons were used, based on a reliable body of evidence consistent with other information tending to show that an incident or event happened.*<sup>145</sup> This statement can be interpreted as supporting the idea that the *FFM Final Report* drafters were concerned



primarily with information that provided reasonable grounds to believe the alleged attack had occurred.

It should also be noted that these indications of research bias are consistent with Inspector Whelan's statement to the DG regarding 'an intolerance for alternative hypotheses.'

<sup>146</sup> It is also notable that the issue of bias was recently identified with respect to the Joint Investigative Mechanism (JIM), (described in Section One) on alleged chemical weapon attacks in Syria. Professor Åke Sellström, former head of UN/OPCW investigations, stated:

*The second problem, encountered particularly during the JIM's initial work, was the difficulty of performing a proper investigation when the guilty party was already obvious to many of the investigators from the outset. Some investigators even refused to consider alternative scenarios.*<sup>147</sup>

## **BIASED MANAGEMENT OF THE DOUMA FFM INVESTIGATION**

Beyond biased research approach, evidence of organisational bias with respect to the Douma investigation can be seen in relation to the procedural flaws documented in Section Two. To recap, throughout the course of the Douma investigation those inspectors who were on the ground in Syria were sidelined from the investigation thus excluding their first-hand on-site observations and views and their input with respect to technical and scientific peer-review of

the investigation report (Procedural Flaw 1). It is also noteworthy that, as detailed in Section Two, the FFM team leader was redeployed to Turkey and spent almost no time in Syria. This persistent and systematic sidelining of inspectors who were actually on the ground in Syria, indicates that management were trying to keep tight control over the investigation and its report. As noted in Section Two, the failure to allow inspectors who were actually on the ground in Douma to provide their views and observations on the investigation is incompatible with a thorough investigation.

Remarkably, the *Original Interim Report* was modified without the knowledge of the investigation team and then an attempt was made to publish what amounted to a falsified report which indicated a chlorine chemical attack had occurred when there was no evidence to support such a claim (Procedural Flaw 2). Critically, this event indicates that one or more officials within the OPCW were willing to allow a deception to occur by way of publication of a false and misleading report. This event is scientifically fraudulent and incompatible with the behaviour expected of a trusted international organisation. The briefing by US officials shortly after this event, during which they informed the Douma FFM team that the Syrian government had carried out the alleged attack, indicates that OPCW senior management were willing to tolerate a potential breach of the CWC by allowing members of a State Party to influence an investigation (Procedural Flaw 3).

Finally, even when presented with clear and detailed testimony regarding the procedural and scientific flaws from senior inspectors, senior management simply refused to talk with them (Procedural Flaw 4). One senior official, remarkably, even suggested that the issues could not be raised because they would 'feed in the Russian narrative.'<sup>148</sup> Such refusal is a strong indication of a deliberate attempt to suppress the concerns of the senior inspectors in the knowledge that, as they claimed, things had gone awry with the investigation.

### **ORGANISATIONAL BIAS OF THE OPCW FFMS AND THE UN SYSTEM**

More widely, the biases observable during the Douma FFM investigation reflect a broader organisational bias identified in Section One which described how the OPCW FFMs were controlled via the Office of the Director General (ODG) rather than the scientific divisions whilst, since 2013, missions were reliant upon information supplied by NGOs connected with governments seeking the overthrow of the Syrian government. The fact that key positions in the FFMs have been occupied by individuals who are career diplomats from countries that are belligerents in the Syrian war raises further concerns about the politicisation of the FFM investigations.

These problems have been compounded by the subsequent conduct of both the OPCW senior management and supporting states, including the US, UK and France. In the face of a large number of credible voices and experts

calling upon the OPCW to allow all the inspectors involved in the Douma investigation to be heard, the OPCW simply responded with either silence, refusal to allow all the inspectors to be heard or, on occasions, disseminating misleading and false information. At the same time the only substantive response from the OPCW was to launch an investigation into the leaked engineering assessment (see Section Two).

The conduct of the UN is significant and has included a failure to respond by the UN Secretary-General Guterres, the President of the UN Human Rights Council Ambassador Nazhat Shameem, the UN High Commissioner for Human Rights Michelle Bachelet, Chair of the Independent Commission of Inquiry on the Syrian Arab Republic Paulo Pinheiro, President of the UNHRC Ambassador Shameem Khan, and the UN High Representative for Disarmament Affairs Itzumi Nakamitsu, as well as three additional UN entities with responsibilities for ethics, oversight and ombudsman functions. Serious consideration should have been given and action taken regarding the well-documented and justified concerns - shared by both the inspectors close to the investigation and the 28 credible and eminent citizens from different parts of the world including a former OPCW Director General, four former OPCW senior scientists<sup>149</sup> and former senior UN colleagues - about the danger of an OPCW that lacked credibility, independence and impartiality. Instead, there has been UN silence.

## CONCLUSION

Overall, the documented flaws in the *FFM Final Report* in tandem with identified procedural flaws and overall pattern of events corroborates the conclusions of the *Courage Foundation* panel in 2019 that ‘conclusions drawn from each of the key evidentiary pillars of the investigation (chemical analysis, toxicology, ballistics and witness testimony,) are flawed’<sup>150</sup> and that the investigation was manipulated ‘ostensibly to favor a preordained conclusion’.<sup>151</sup> One event in particular, the attempted publication of a falsified interim report, provides clear and direct evidence of malfeasance on the part of the OPCW. Other procedural flaws, in addition to the turning down of a forensic pathology investigation, clearly indicate the Douma FFM was biased whilst the organisational structure of the FFM explains the underlying conditions that enabled this bias. The pattern of blocking and non-response from responsible parties, including the OPCW and other UN agencies, has served to compound the problems identified with the Douma FFM and prevented objective and transparent reappraisal of the FFM investigation of the alleged attack. Dissemination of false and misleading claims at international forums such as the UN Security Council and refusal to respond to eminently reasonable requests for dialogue and transparency are entirely incompatible with the expected conduct of an organisation that is supposed to be objective, neutral and committed to rigorous science. Moreover, the unwillingness to engage in straightforward rational

discussion, and instead blocking, censoring or remaining silent, confirms OPCW senior management and their supporters have deliberately sought to close down legitimate discussion on this issue. Finally, with the attribution of responsibility now having been made by the IIT, which has drawn heavily on the findings of the FFM report, it is clear that key flaws/issues identified in this review are now integrated with the IIT investigation report.

In light of these conclusions, a number of steps should now be taken.

## KEY ACTIONS

1 ] This review will be distributed to the OPCW DG, Executive Council and Scientific Advisory Board and all State Parties. It will also be distributed to selected foreign affairs committees, the United Nations Security Council, General Assembly and the UNHRC, including its Independent Commission on Syria. UN Secretary General Guterres will be asked to react to this review and offer concrete thoughts on how to proceed. On this point it should be noted that, as confirmed at the 2022 December UNSC meeting, there continues to be deadlock with respect to the Syria chemical weapons file. It is essential for all to abandon their position of denial and agree to a reassessment of the Douma FFM.

## ASSESSMENT OF THE OPCW DOUMA INVESTIGATION

**2 ]** We call on the OPCW to make available, as would be reasonable for any scientific publication, all of the evidence, documentation, and scientific studies drawn upon during the investigation (duly redacted to protect the identities of individuals, institutions, witnesses and so forth):

**A ]** The complete and detailed expert assessments provided by all the toxicologists consulted to assess whether chlorine gas could have been the cause of death of the victims at Location 2. These should include the toxicologists consulted in June 2018 and those consulted in October 2018.

**B ]** Full transcripts of all witness interviews in keeping with the spirit of paragraph 25 Part XI of the Verification Annex (Investigations in Cases of Alleged Uses of Chemical Weapons) of the CWC.<sup>152</sup>

**C ]** All the raw data and findings of the qualified experts<sup>153</sup> who conducted the engineering studies so they can be scrutinized by independent experts.

**D ]** Full analytical reports from the Designated Laboratories that conducted the analysis of environmental and biological samples collected in Douma, in accordance with paragraph 25 (b) of Part XI of the Verification Annex A (Investigations in Cases of Alleged Uses of Chemical Weapons) of the CWC.<sup>154</sup>

**E ]** All other documents examined by

the inspection team (in accordance with paragraph 25 (b) of Part XI of the Verification Annex of the CWC).<sup>155</sup>

The above documentation should be published as an Addendum in the form of an Annex to the *FFM Final Report* on Douma issued on 1 March 2019 or as a separate publication.

**3 ]** We again call on the Director General to use the authority given to him under Article VIII of the CWC,<sup>156</sup> to seek the scientific advice of the Organisation's Scientific Advisory Board to examine the documentation presented (above) together with the *FFM Final Report*. A panel of experts, convened on the basis of relevant expertise and equitable geographic distribution, should be drawn from the SAB that is acceptable to all members of the Executive Council. The scientific panel would then examine all the evidence available and individually sign off on their agreement with the findings, conclusions, and recommendations to the DG.

In the process of conducting their inquiry, the SAB Panel should be obliged to hear from individual inspectors (current and former) who are willing to meet with the Panel and who were listed on the so-called mission warning order for the Douma inspection.

The individual inspectors who meet with the Panel, should be permitted to attach their differing observations, if any, to the Panel's findings in accordance with the right of inspectors given in paragraph 62, Part II of the Verification Annex of the

CWC to do so in inspection reports.<sup>157</sup>

**4 ]** Further action would depend on the outcome of the SAB Panel inquiry which should be published in full together with the rationale for the conclusions of the report.

## **INVESTIGATION OF PROCEDURAL FLAWS**

**5 ]** In parallel to revisiting the Douma investigation, it is incumbent on the OPCW to investigate the malpractices reported by its own inspectors in the conduct of the Douma investigation. In particular, the suppression of the team's original interim report and the thwarted attempt to publish a secretly manipulated version in its place on 22 June 2018 (the so-called 'Redacted' report) which made unsupported claims indicating a chlorine attack had occurred, must be thoroughly investigated with transparency and impartiality. This event should be investigated as a suspected breach of confidentiality in accordance with the OPCW Policy on Confidentiality (OPOC)<sup>158</sup> Part IX, Para 1.2<sup>159</sup>, 1.3b<sup>160</sup>, and 1.20.<sup>161</sup>

# ANNEXES

## **FULL ANALYSIS OF THE FOUR REPORTS - *ORIGINAL INTERIM REPORT (JUNE 2018), THE REDACTED INTERIM REPORT (JUNE 2018), THE PUBLISHED INTERIM REPORT (JULY 2018) AND THE FFM FINAL REPORT (MARCH 2019)***

### INTRODUCTION

In October 2019 a panel of internationally renowned individuals convened in Brussels under the auspices of the *Courage Foundation* to hear testimony from a member of the OPCW Douma fact-finding mission. Based on the scientist's extensive presentation, the *Courage Foundation* published a statement from the panel expressing alarm over what were described as 'unacceptable practices' during the Douma investigation. The Panel, which included the first Director General of the OPCW, Ambassador José Bustani, expressed concern over the four principal areas of investigation, - toxicology, witness testimony, chemical analysis and ballistics – and explained that '[a] critical analysis of the final report of the Douma investigation left the panel in little doubt that conclusions drawn from each of the key evidentiary pillars of the investigation...are flawed and bear little relation to the facts.'<sup>162</sup> The panel concluded that 'key information' was suppressed 'ostensibly to favour a pre-ordained conclusion'.<sup>163</sup>

Based on documents since leaked from the OPCW we are in a position to examine the *Courage Foundation* panel's findings. This has been done by conducting a review of the findings in the four principal areas of investigation across the four Douma investigation reports; the *Original Interim Report*, the *Redacted Interim Report*, the *Published Interim Report* and the *FFM Final Report*.

The review involved multiple readings of the reports and cross-checking with relevant material which included official OPCW documents, written staff communications and meeting minutes. The review identified substantive flaws involving: Unjustified elimination of the original toxicology conclusion; obscuring, unjustified elimination of, or failure to resolve, significant anomalies; insufficient information to substantiate claims; analytical errors; and failure to explore significant information indicating alternative scenarios. The review also evaluates the recent IIT report on Douma and considers whether or not it has resolved these flaws. The results of this review are presented here and evidenced through quotation and referencing.



# ANNEX ONE

## TOXICOLOGY AND FORENSIC PATHOLOGY; UNJUSTIFIED ELIMINATION OF THE ORIGINAL TOXICOLOGY CONCLUSION AND FAILURE TO EXPLORE SIGNIFICANT EVIDENCE INDICATING ALTERNATIVE CAUSE OF DEATH

### WHAT THE COURAGE FOUNDATION PANEL SAID:

*The toxicological studies also reveal inconsistencies, incoherence and possible scientific irregularities. Consultations with toxicologists are reported to have taken place in September and October 2018 (para 8.87 and Annex 3), but no mention is made of what those same experts opined or concluded. Whilst the final toxicological assessment of the authors states "it is not possible to precisely link the cause of the signs and symptoms to a specific chemical" (para 9.6) the report nonetheless concludes there were reasonable grounds to believe chlorine gas was the chemical (used as a weapon).*

*More worrying is the fact that the panel viewed documented evidence that showed other toxicologists had been consulted in June 2018 prior to the release of the interim report. Expert opinions on that occasion were that the signs and symptoms observed in videos and from witness accounts were not consistent with exposure to molecular chlorine or any reactive-chlorine-containing chemical. Why no mention of this critical assessment, which contradicts*

*that implied in the final report, was made is unclear and of concern'.<sup>164</sup>*

### INTRODUCTION

The central issue regarding toxicology relates to the fact that most of the victims found at the Location 2 building appeared to have collapsed and died very rapidly, gathering in piles on the floor and displaying in some cases profuse foam discharge from the mouth and nose. Four decedents were also photographed on the street outside the building. Such a scenario was considered to be more consistent with a fast-acting nerve agent such as sarin and this was indeed the expected finding with respect to the chemical analysis.<sup>165</sup> These photographs (see images 1, 2 and 3) supplied by activists and opposition groups show some of the Location 2 victims.

When the chemical analysis came back in May 2018, however, it showed no evidence of nerve agents but left open the possibility that chlorine gas or similar had been used. Investigators were confronted with having to reconcile how chlorine gas could have caused



Image 1



Image 2

Image 3

*Images uploaded to Internet by activists. The first shows how civilian victims were found gathered in piles. The second and third images show one example of the profuse foaming found on some of the victims, in this case apparently appearing after an earlier picture where no foam can be seen.*

so many civilians to collapse in place rapidly and close to an escape route to cleaner air. They also had to rationalize how chlorine gas could have caused the copious discharge of foam displayed by victims as well as its immediate onset as reported by some witnesses. The investigators were skeptical of the possibility that chlorine was the cause but arranged for further expert opinion. OPCW experts flew to Germany in early June 2018 to meet with external German toxicologists/pharmacologists expert in chemical warfare poisoning. From the OPCW side the meeting was attended by Dr. Whelan, the FFM team leader, the

Head of the OPCW Lab, and the Head of the OPCW Health and Safety Branch. The recorded minutes of this meeting were agreed among the OPCW officials (see Appendix 2.c June 2018 Toxicology Meeting).

Summarizing the toxicology analysis, the observations of rapid collapse and foam discharge were not considered to be explicable through reference to chlorine gas. If killed by chlorine gas damaging the victims' lungs and leading, via pulmonary oedema, to the oral and nasal foamy discharge, some length of time would have been necessary for this

to occur during which there would have been time to escape and victims would not therefore have collapsed on the spot, gathering in piles. If, alternatively, the victims were killed through, for example, asphyxiation via extremely high concentrations of chlorine gas, there would not have been time for profuse discharge at the mouth and nose to have occurred. As such two principal anomalies were identified: 1) the almost instantaneous occurrence of pulmonary oedema and associated copious foam discharge at the mouth and nose, and 2) the apparent immediate collapse and death of the victims who were within meters of an escape route.

The agreed meeting minutes conclude by stating 'that the key "take-away message" from the meeting was that the symptoms observed were inconsistent with exposure to chlorine, and no other obvious candidate chemical causing the symptoms could be identified' (Appendix 2.c June 2018 Toxicology Meeting).

## ANALYSIS OF THE FOUR FFM REPORTS

### ORIGINAL INTERIM REPORT

#### TOXICOLOGY

The expert assessments of the German toxicologists are clearly set out in the opening section of the *Original Interim Report*:

*'Some of the signs and symptoms described by witnesses and noted in*

*photos and video recordings taken by witnesses, of the alleged victims are not consistent with exposure to chlorine-containing choking or blood agents such as chlorine gas, phosgene or cyanogen chloride. Specifically, the rapid onset of heavy buccal and nasal frothing in many victims, as well as the colour of the secretions, is not indicative of intoxicification from such chemicals.*

*The large number of decedents in the one location (allegedly 40 to 50), most of whom were seen in videos and photos strewn on the floor of the apartments away from open windows, and within a few meters of an escape to un-poisoned or less toxic air, is at odds with intoxication by chlorine-based choking or blood agents, even at high concentrations.'* ([Summary]; paras 1.10-1.11, p. 3)

In the 'Epidemiology' section of the Original Interim Report (paras 7.70-7.91; pp: 25-28) it is first noted that the apparent rapid onset of symptoms and death are consistent with a fast-acting nerve agent such as sarin:

*'A highly debilitating agent, in the opinion of the FFM team, would have to have been released in order to cause the rapid onset of symptoms described by witnesses and observed in the videos where large numbers of decedents are concentrated in different apartments at Location 2. The rapid onset of heavy salivation and frothing from the mouth would be more consistent with exposure*

to a highly toxic nerve agent than a choking (sic) agent such as chlorine or phosgene. However, analytical results showed no indication of organophosphorus nerve agents or their degradation products present in samples collected at the scene of the alleged attack or in biomedical samples from victims'. (para 7.81; p. 26)

The section then identifies the principal anomalies with respect to chlorine gas:

*'7.82 Pulmonary edema and excessive frothing from the mouth have been reported in cases of exposure to lethal doses of chlorine gas or other toxic chlorine-based agents such as phosgene or cyanogen chloride [7] [8] [9]. However, indications are that pulmonary edema, particularly in the case of phosgene, is a late pathological effect of exposure and in cases of high exposure levels death can result before pulmonary edema develops [8] [9]. The white or light-cream colour of the froth presented by victims is not in keeping with exposure to choking agents, where secretions are characteristically pinkish in colour when frothing does occur. The rapid, and in some reported cases, immediate onset of frothing described by victims is not considered consistent with exposure to chlorine-based choking or blood agents. The opinion of a number of toxicologists, specialists in chemical-weapons-related intoxication supported this assessment.*

*7.83 In order to produce such rapid incapacitation that victims would be unable to escape the toxic gas from the location of the alleged chemical attack (see 3D layout of the building and description), a respiratory irritant such as chlorine or phosgene would almost certainly need to have rapidly accumulated to very high concentrations. It is considered unlikely, given the location of the suspected source of the toxic chemical as well as the configuration and condition of the building, that such concentrations would not[sic] have been attained, particularly in the basement. Moreover, if such high concentrations had developed, as mentioned above, reports suggest that asphyxiation would have been the likely cause of death before pulmonary edema and frothing could develop [10].*

*7.84 ... It should be expected that on encountering the irritant gas, victims would instinctively have retreated and exited the building, which was within a few metres away ...*

*7.85 Based on the above observations, expert opinions of toxicologists specialized in chemical weapons exposure, and published scientific knowledge in this area, the FFM team considers that chlorine gas or other reactive chlorine-containing toxic agents such as phosgene or cyanogen chloride would not have resulted in the severe and rapid frothing symptoms reported by witnesses and observed in video footage and photos.'* (paras

7.82-7.85; pp. 26-27)

The *Original Interim Report* is unequivocal in its conclusions that the death of the victims at Location 2 is inconsistent with poisoning by chlorine gas (see paras 1.10, 1.11 and 1.13; p. 3: para 7.85; p. 27: paras 8.6, 8.7 and 8.9; pp. 29-30)

## FORENSIC PATHOLOGY

It had also been noted by investigators that some of the victims had wet hair and unusual discoloration around the eyes whilst some of the deceased had been re-positioned throughout the course of the night of 7/8th April. Notably, buckets of dirty water and wet rags could be seen in the videos near the victims, raising the possibility that the wet hair was not due to sweating but because the victims' faces had been washed after death. Email exchanges between Inspector Brendan Whelan and the FFM team leader confirm that an attempt was made to obtain expert advice with a forensic pathologist from the nearby Netherlands Forensic Institute in The Hague. However, leaked internal OPCW emails<sup>166</sup> indicate the FFM team leader turned down the opportunity without justification and, as a result, forensic pathology played no part in the Douma investigation.

The *Original Interim Report* noted these unusual features because they appeared inconsistent with chemical poisoning, particularly chlorine:

*'Several victims show degrees of*

*periobital discoloration and early signs of livor mortis, and in one case an adolescent male displays obvious signs of rigor mortis. Most of the subjects appear to have wet hair.'* (*Original Interim Report: para 7.78; p. 26*)

It also noted the need to get forensic pathologists involved in order to understand the time of death and to explain these unusual features:

*'Although many of the bodies in Location 2 present signs of rigor mortis, it is difficult to determine from the video the time of death. To establish this and the origin of certain features identifiable on many of the bodies, the team considers that an expert in forensic pathology would be required to provide an authoritative assessment.'* (*Original Interim Report: para 7.88; p. 28*).

## REPOSITIONING OF BODIES

The *Original Interim Report* also made clear that some of the deceased were moved during the course of the night: 'From the various videos showing the deceased victims throughout the interior of Location 2, it is apparent that some of the victims have been moved and re-positioned between video recordings' (para 7.69; p. 23).

**REDACTED INTERIM REPORT AND  
PUBLISHED INTERIM REPORT:  
OMISSION OF TOXICOLOGY AND  
FORENSIC PATHOLOGY ISSUES**

Concerns with respect to the censorship of toxicology information were first raised in the 'Grave Concern' email dated 22 June 2018 (Appendix 2a). Whelan's email stated:

*'The original report discusses in detail the inconsistency between the victim's symptoms, as reported by witnesses and seen in video recordings. Omitting this section of the report (including the Epidemiology which has been removed in its entirety) has a serious negative impact on the report as this section is inextricably linked to the chemical agent identified. It either supports or detracts from the confidence in the identity of any possible chemical. In this case, the confidence in the identity of chlorine or any choking agent is drawn into question precisely because of the inconsistency with the reported and observed symptoms. The inconsistency was not only noted by the FFM team but strongly supported by three toxicologists with expertise in exposure to CW agents.'* (Appendix 2a: 'Grave concern' email)

In the *Redacted Interim Report*, no reference could be identified anywhere with respect to the toxicology or forensic pathology issues. The *Published Interim Report*,—agreed by Whelan in expectation that the toxicology and forensic pathology issues would be

adequately addressed come the *FFM Final Report*—also makes no mention of them.

**FFM FINAL REPORT:  
UNJUSTIFIED ELIMINATION  
OF ORIGINAL TOXICOLOGY  
CONCLUSION AND FAILURE TO  
RESOLVE FORENSIC PATHOLOGY  
ANOMALIES**

**TOXICOLOGY**

Whilst the *Original Interim Report* clearly communicates the findings that both the arrangement of bodies and the signs of poisoning observed are not compatible with chlorine poisoning, the *FFM Final Report* omits these. In his 25 April 2019 letter to the OPCW Director-General Fernando Arias, Whelan wrote:

*'Critical information, like the expert opinions of the toxicologists we had consulted on 6 June, has, shockingly, been omitted. There is even no record in the report of those consultations, whilst later exchanges with other toxicologists, who seem to have found consistency of the victim's symptoms with the chlorine narrative, are reported. To say that this selective use of expert opinions and facts is disturbing is an understatement. Particularly as it leads to severely biased reporting of the epidemiological study.'* (Appendix 2b: 25 April 2019 letter to the DG).

Specifically, the summary section of the *FFM Final Report* contains no reference to the principal anomalies and the

ruling out of chlorine gas. Instead, it makes reference to witness observations alleging 40 or more decedents at Location 2 and the fact that the FFM did not examine the bodies (*FFM Final Report* [Summary]: para 2.10; p. 3), before stating that ‘many of the signs and symptoms reported ... indicate exposure to an inhalant irritant or toxic substance’ (*FFM Final Report* [Summary]: para 2.11; p. 4). It then concludes:

*‘... based on the information reviewed and with the absence of biomedical samples from the dead bodies or any autopsy records, it is not currently possible to precisely link the cause of the signs and symptoms to a specific chemical’ (emphasis added, FFM Final Report [Summary]: para 2.11; p. 4).*

This formulation of words avoids making any explicit statement ruling out chlorine, thus leaving the possibility that chlorine might have been a cause. As such, the key conclusion that chlorine gas was not likely to have been the cause of death, corroborated during the June 2018 consultation with German toxicologists, is absent from the *FFM Final Report* summary.

Then, in an apparent attempt to strengthen the suggestion that the victims were killed as a result of a chemical attack, the *FFM Final Report* summary (para 2.10; p. 3) claims that ‘[a] United Nations agency also reported cases of death by exposure to a toxic chemical’ and references two UN (Human Rights Council [HRC]) reports.<sup>167</sup> In fact, this claim is misleading because neither

of the UN reports, both written while the OPCW’s Douma investigation was ongoing and relying primarily on witness testimony, state any firm conclusions regarding cause of death:

*‘The Commission of Inquiry has been investigating this incident. The available evidence is largely consistent with the use of chlorine, but this in and of itself does not explain other reported symptoms, which are more consistent with the use of another chemical agent, most likely a nerve gas. The Commission’s investigations are on-going.’ (Report A: p. 14).*

And in a section of the HRC report headed ‘Ongoing Investigations’ it is stated that:

*‘... the Commission cannot make yet any conclusions concerning the exact cause of death, in particular on whether another agent was used in addition to chlorine that may have caused or contributed to deaths and injuries’ (Report B: p. 17).*

As such, nothing substantive can be drawn from the cited UN reports as they, in fact, state clear uncertainties about the cause of death and which undermine the *FFM Final Report*’s conclusion of chlorine being the likely cause of death. It is notable that a *New York Times* article published on 20 June 2018 reported that the UN’s Independent Commission had doubts about the cause of death and withheld information from the official report issued the same day. The article states:

*'Mr Megally declined to go into detail over why such information was withheld from the report published on Wednesday. But he said that with the April 7 attack in particular, more information was needed, included precisely what killed the 49 people. "If we're not sure what the cause of death was, we may be looking in the wrong place," he said.'*<sup>168</sup>

This misleading move is reinforced by referencing again the two UN reports in the conclusion section of the FFM Final Report (para 9.5: p. 30-31).<sup>169</sup>

The ruling out of chlorine gas because of the two principal anomalies is also omitted from the body of the *FFM Final Report* in the section titled 'Epidemiological Analysis'. Specifically, the epidemiology section does at least include the important observation that only a fast-acting agent (which chlorine gas is not considered to be) explains immediate collapse and death of the victims:

*'The victims do not appear to have been in the midst of attempting self-extrication or respiratory protection when they collapsed, indicating a very rapid or instant onset. This type of rapid collapse is indicative of an agent capable of quickly killing or immobilizing' (FFM Final Report: para 8.96; p. 29).*

However, the conclusion that chlorine gas could be ruled out is absent. Instead, the 'Epidemiology Analysis' spends thirty-three paragraphs describing, amongst

other things, the various symptoms observed in media and reported by witnesses, including rapid and profuse discharge, before concluding that 'it is not currently possible to precisely link the cause of the signs and symptoms to a specific chemical' (*FFM Final Report*: paras 8.70-8.103; pp: 25-30). As with the summary section, the formulation of words used avoids committing to any explicit statement either ruling out or affirming chlorine use, thus leaving the possibility that chlorine might have been a cause. As such, the original finding, that 'symptoms observed were inconsistent with exposure to chlorine'<sup>170</sup>, is omitted from the *FFM Final Report*.

No explanation or justification for this expunging of an unequivocal expert opinion from the German toxicologists can be identified in the *FFM Final Report*. Whilst the report does refer to later consultations with toxicologists in September and October 2018, it provides no information about what they said that might help to explain or justify the omission. It is also notable that the *FFM Final Report* makes no mention of the original consultation with the German toxicologists; the only consultations shown in the report timeline are those obtained during the Autumn of 2018 (*FFM Final Report*: Annex 3; p. 41).

## FORENSIC PATHOLOGY

With respect to the forensic pathology anomalies raised in the *Original Interim Report*, there is no indication anywhere in the *FFM Final Report* that expert forensic advice was obtained

and, indeed, it actually acknowledges that it had left these critical issues unresolved. It stated that “periorbital discolouration is not associated with any specific known toxic exposure,” and, significantly, noted that “to determine whether it [the discoloration] is due to a physiological response to exposure to a toxic substance or simply post-mortem changes would require additional steps” (FFM Final Report: para. 8.101; p. 30). The report also failed to account for the second physiological feature that could not be explained by chlorine poisoning - that many of the victims had wet hair. The report suggests this may have been caused by sweating shortly before death: “The presentation of wet hair in an otherwise dry environment is difficult to assess and is possibly due to profound diaphoresis shortly before death,” (para 8.102; p. 30) the FFM Final Report speculated. However, profuse sweating is a symptom of nerve agent poisoning and not a sign of chlorine exposure.

## REPOSITIONING OF BODIES

The media evidence showing that bodies were repositioned during the course of the night of 7-8 April 2018, whilst clearly referenced in the body of the *Original Interim Report* (“it is apparent that some of the victims have been moved and repositioned between video recordings” (Original Interim Report: para 7.69; p. 23), is placed in the annex of the FFM Final Report and with the wording altered to: “[f]rom the various videos showing the deceased victims throughout the interior of Location 2 some of the victims had been moved between video recordings’

(FFM Final Report: Annex 11; p. 103). In fact, the only reference to this disturbing issue in the body of the report is an obscure reference to ‘another video’ in which ‘many of the victims seem to have been moved to one room in the same building’ (FFM Final Report: para 8.90; p. 28).

## THE 2023 IIT REPORT

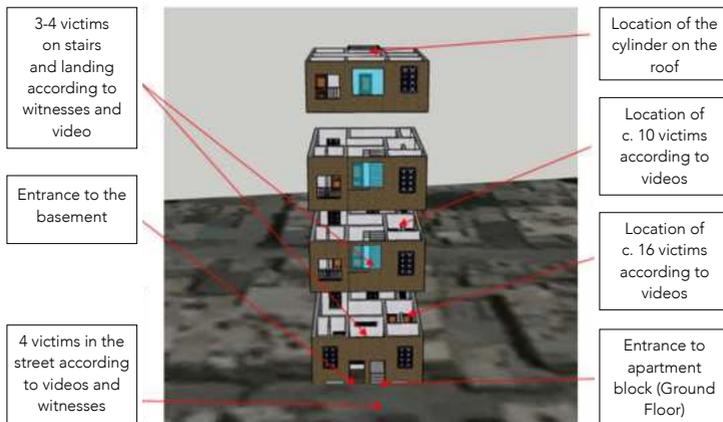
The IIT report states that a single toxicologist consulted by the IIT concluded that the ‘accounts of the victims and medical personnel are consistent with the rapid release of a high dosage of chlorine gas which led to the rapid and high fatality rate seen at Location 2’ (IIT 2023: para. 6.108, p. 44). In doing so it does not mention or discuss either the FFM Final Report conclusion (based on the Autumn 2018 toxicology consultations) – that symptoms could not be linked to a specific chemical- nor the *Original Interim Report* conclusion (based on consultations with three experts in toxicology/pharmacology) that ruled out chlorine gas as a cause. Most importantly, neither the IIT nor their toxicologist provide adequate explanations for either the trapping and rapid death of victims on the ground floor or the *combination* of rapid death and rapid profuse discharge of foam.<sup>171</sup>

Trapping and rapid death are explained as follows. First, the IIT report refers to having ‘obtained information indicating that the ‘concentration of chlorine released at Location 2... was at least 1,000 ppm’ (IIT 2023: para. 6.107: p. 44), a level

that would cause death 'within minutes'. Drawing upon its own gas dispersion models, the IIT then claims that victims who had moved out of the basement and onto the first and second floors of the building to escape the chlorine gas were confronted with a scenario in which within 3 minutes of gas release 'all floors within the building would have exceeded a concentration of chlorine which would lead to death' (IIT Report: para 6.111; p. 44). Regarding trapping, they claim that 'the only possible escape route from the apartments via the stairwell' was obstructed by the rapid dispersion of gas (IIT Report: para 6.112: p. 44). They state that escape was impossible after 20 seconds on the third floor and impossible after 60 seconds on the second floor (IIT Report: para 6.112: p. 44-45). All of this contrasts with the original toxicology assessment which stated that '[i]t should be expected that on encountering the

irritant gas, victims would instinctively have retreated and exited the building, which was within a few metres away'.

However, although creating the impression that they explain why the victims became trapped to then die in minutes from extremely high levels of chlorine gas, the IIT's analysis is actually deceptive. The IIT notes that a specialist stated that 'all exit routes on the **third** and **second** floor were no longer accessible without exposure to a high and lethal volume of chlorine gas' (**emphasis added**, IIT Report: para 6.112; p. 45). But this, obviously, does not include the **first** floor. The IIT then immediately goes on to state this was 'consistent with the rapid onset of symptoms which led to the fatalities recorded on *stairs and landings*, as reported by witnesses and observed in videos and pictures' (*emphasis added*)' (IIT Report: para



6.112; p. 45). However, this statement is misleading because 16 victims were also photographed in an apartment – not stairs or landings - on the first floor and who were therefore, according to their specialist’s assessment, not prevented from escaping.

In fact, when the IIT uses the term ‘first floor’ they are referring to the ground floor. The diagram above (from FFM report) shows the layout from the FFM Final Report and which refers to the ‘first floor’ as the ground floor.

As can be seen in this diagram, for the sixteen victims photographed on the ground floor (labelled the ‘first floor’ by the IIT) it was literally only a few steps through the bottom of the stairwell on the ground floor and out the front door – a scenario in which the victims could hold their breath for the few seconds it would take them to run through any lethal gas to get to safety. In short, these sixteen individuals did not have to escape “via the stairwell”, in the sense of running down flights of stairs, and so their exit route would not have been “obstructed” by any lethal levels of chlorine. It is also notable the IIT’s explanation does not account for the four decedents photographed on the street outside the building who, obviously, could not have been trapped in the way described by the IIT. In fact, these four decedents are not mentioned anywhere in the IIT Report.

Not only is failure to escape from the ground/first floor left unexplained, it is also unclear what the actual gas

concentration would have been at the ground floor level. Elsewhere in the IIT report a concentration gradient is described – “dropping from the highest levels in the room directly under the cylinder ... to the lowest levels on the street” (IIT Report: para. 6.86) and which was consistent with “two gas dispersion models.” (IIT Report: para. 6.71). If the 1000 ppm level to which the IIT refers occurred just below the cylinder, what was the concentration then on the ground floor? The IIT does not tell us. As noted above, we are told that escape routes on the second and third floor were no longer accessible due to high and lethal levels of chlorine gas but this tells us nothing about the first floor/ground floor. And the IIT’s statement - that within three minutes of release ‘a concentration of chlorine which *would lead to occupant death*’ (*emphasis added*) was present on all floors – does not actually differentiate between rapidly lethal levels and levels that cause death over a much longer period (hours or days). The lack of clarity and specificity on this issue is concerning.

In addition to this misleading analysis regarding gas concentration and trapping of victims, the rapid and profuse discharge of foam accompanied by rapid death is not explained. The IIT report does include a single statement apparently explaining foaming although not its *rapid and profuse* discharge alongside rapid death: The IIT Report states that it (not the toxicologist), ‘notes that as chlorine gas reacts with the cells and moisture in the gastrointestinal tract to produce acids, that reaction also leads to the oral and nasal secretion of a foam-

like substance ...' (IIT Report: para 6.106; p. 43). The single academic source cited for this claim does not, however, make any such statement, referring only to acid production,<sup>172</sup> whilst the 269-page US Department of Health document – *Toxicological Profile for Chlorine* – also cited in the *IIT Report* makes no mention of any such a phenomenon.<sup>173</sup> Neither of these sources describe rapid and profuse discharge of foam from the nose or mouth alongside rapid death. Elsewhere, in support of the claim that symptoms were compatible with chlorine gas, a misleading citation is given. The citation provided in footnote 28, (IIT Report: p. 44), is as follows: “DOA 1933 Pathology of Chlorine exposure leading to death. “Postmortem findings included [...] mottled appearance on lung surface with scattered areas of emphysema, plural hemorrhage, perivascular edema, [...] frothy fluid filling the trachea and bronchi”. This citation omits, however, that the actual publication states ‘pathology of chlorine exposure leading to death in **24 hours**’ (**emphasis added**).<sup>174</sup> As such the edited citation is misleading because it creates the impression the material supports the idea of rapid foaming and death within minutes when, in fact, it does not.

Regarding forensic pathology, no adequate consideration is given in the IIT report to the unexplained observations – periorbital markings and wet hair – seen on some of the victims. Here it is notable that, although stating it specifically explores ‘alternative scenarios’ (IIT 2023: para. 4.6; pp. 15-16), there is no forensic pathology examination in order to

resolve these unexplained observations.

As such, the key flaws identified in the *FFM Final Report*—removal without explanation or justification of expert advice ruling out chlorine gas and failure to consult forensic pathologists regarding unexplained observations relating to alternative possible explanations for the deaths—are carried through to the IIT Report.

## SYNTHESIS

Analysis of the OPCW reports and other documentation leaked into the public domain, supports the claims of the Panel and its statement that was published by the *Courage Foundation*. Clear and unequivocal assessment regarding the incompatibility between what was observed and reported at Location 2 – rapid collapse and death close to escape and cleaner air, accompanied by in some cases immediate and profuse discharge of foam at the mouth and nose – and chlorine gas poisoning was reported in the *Original Interim Report* but eliminated in the *FFM Final Report* without explanation. The *FFM Final Report* obscures the anomalies identified in the *Original Interim Report* and concludes instead that the signs and symptoms could not be linked to a specific chemical.

Alarming, there is no mention of, or reference to, the June 2018 meeting with German toxicologists who had corroborated the finding contained in the *Original Interim Report*. Critically,

whilst the *FFM Final Report* mentions that toxicology experts were consulted in September and October 2018, it never details their assessment. As such, the report substitutes the clear unequivocal conclusion from toxicologists expert in chemical weapons poisoning for an unspecific statement which is not attributed to toxicologists reported to have been consulted in September and October.

Significant question marks surrounding unusual periorbital discolouration and wet hair on many of the victims, that needed to be resolved through consultation with forensic pathologists, were not answered: prior to the interim report an attempt to obtain such advice was turned down by the FFM team leader whilst, without explanation, those drafting the *FFM Final Report* never obtained the necessary expert advice. Importantly, the failure to resolve the forensic pathology issues is indicative of a reluctance to seriously address alternative explanations for the deaths at Location 2 and information showing a deliberate turning down of attempts to obtain necessary expert forensic pathology advice indicates that the bias was intentional. In addition, the fact that bodies were 're-positioned' during the course of the night of 7-8 April is obscured in the *FFM Final Report*.

The IIT Report carries on the flaws identified in the *FFM Final Report* – the original toxicology conclusion is absent, an analysis suggesting victims were trapped by lethal levels of gas is flawed and misleading, and no adequate

explanation is offered in order to resolve the original anomalies identified regarding rapid collapse and death combined with rapid and profuse foam discharge. The four deceased found outside the building are unexplained by the IIT's rationale and, in fact, not mentioned anywhere in the Report. There is also no forensic pathology examination in order to resolve the unexplained observations on the deceased.

Drawing together the preceding analysis, the *FFM Final Report* based its 'reasonable grounds ... use of a chemical as a toxic weapon took place ... The toxic chemical was likely molecular chlorine' claim in part on 'toxicological ... analyses from experts'. As we have seen, however, the analysis presented in the *FFM Final Report* underpinning this claim contains demonstrable flaws - a) unexplained and unjustified elimination of toxicology advice that had ruled out chlorine as a cause of death and b) intentional failure to explore significant forensic pathology issues that pointed toward an alternative scenario. Because of these flaws the *FFM Final Report* fails to resolve anomalies surrounding the deaths at Location 2 identified in the *Original Interim Report* leaving instead the misleading impression it has done. Consequently, the *FFM Final Report* gives the impression of having presented stronger evidence than it actually has done regarding toxicology and enables its conclusion to be biased towards claiming that the toxicological evidence contributes to the 'reasonable grounds' conclusion. As such the claim

that toxicology evidence contributes to the 'reasonable grounds' assertion is not tenable.

# ANNEX TWO

## WITNESS TESTIMONY: INSUFFICIENT INFORMATION REGARDING CORROBORATION OF WITNESS TESTIMONIES, OBSCURING, ELIMINATION OF, OR FAILURE TO RESOLVE ANOMALOUS WITNESS CLAIMS; AND ANALYTICAL ERRORS REGARDING GAS DISPERSION PATTERNS

### WHAT THE COURAGE FOUNDATION PANEL SAID:

*The reporting of witness statements and the lack of any meaningful analysis highlights the partiality of this report. Whilst two clearly distinct and opposing narratives are described by witnesses, only the one supportive of the use of toxic weapons contributes to the conclusions. The imbalance between numbers of persons interviewed by the respective FFM teams in Damascus and in Country X is noteworthy, with twice as many of the latter being interviewed.<sup>175</sup>*

### INTRODUCTION

It is now known from the leaked *Original Interim Report* that there was diametrically opposing witness testimony regarding what had happened depending on which country the interviews were conducted in. Those interviewed in Turkey (a total of 26 people who were generally believed to be members of the White Helmets, or who were brought to the inspectors by the White Helmets) supported the narrative that there had been a chemical attack. On the other hand, those interviewed in

Damascus (a total of 13 people who were provided to the inspectors by the Syrian authorities) reported no evidence of a chemical attack. Witness testimony from the Turkey group (referred to in OPCW reports as 'Country X' witnesses) showed significant anomalies with respect to symptoms reported, location of the deceased and the alleged rapid build-up of gas in the basement at Location 2, whilst new witness testimony introduced in the *FFM Final Report* raised fresh anomalies.

### ANALYSIS OF THE FOUR FFM REPORTS

#### ORIGINAL INTERIM REPORT

References to witness testimony are first made in the summary section where they are referred to in the context of noting the inconsistency between some of reported signs and symptoms and the claim that the alleged victims had been exposed to chlorine gas:

*Some of the signs and symptoms described by witnesses and noted in photos and video recordings taken by witnesses, of the alleged victims*

are not consistent with exposure to chlorine-containing choking or blood agents such as chlorine gas ....(Original Interim Report: para 1.10; p. 3)

And,

*The inconsistency between the presence of a putative chlorine-containing toxic choking or blood agent on the one hand and the testimonies of alleged witnesses and symptoms observed from video footage and photographs, on the other, cannot be rationalised.* (Original Interim Report: para 1.13; p. 3)

Contained in the *Original Interim Report* are then a series of significant issues which relate to witness testimony- a) the fact that there were contrasting narratives from the Turkey group interviewees compared to the Damascus group including, in the former group, significant contradictions with respect to symptoms; b) anomalous witness reports regarding the location of victims and c) anomalies regarding the alleged build-up of gas at Location 2. We discuss each in turn.

### **A] CONTRASTING NARRATIVES REGARDING LOCATION 1 (HOSPITAL) AND ANOMALOUS WITNESS STATEMENTS REGARDING SYMPTOMS**

In the body of the *Original Interim Report* it is clearly stated that '[t]wo broad and distinct narratives were derived from discussions with interviewees, one

corresponding to the group interviewed in Country X [Turkey] and the other to the group interviewed in Damascus' (para 7.40; p. 20). The testimonies from the Damascus interviewees *did not support* the allegation that a chlorine gas attack had occurred, but rather a narrative whereby victims who arrived at the hospital at Location 1 around the time of the alleged attack were suffering from dust and smoke inhalation. The testimonies from Country X interviewees *did support* the allegation that a gas attack had occurred.

Overall, the two narratives are clearly distinguished and set out in sections headed 'Narrative from group interviewed in Damascus regarding events on 7 April 2018' and 'Narrative from group interviewed in Country X regarding events on 7 April 2018' (Original Interim Report: paras 7.42-7.67; pp 20- 23). In addition, it is clearly stated that the narratives are 'not presumed to be factual' (Original Interim Report: paras 7.42 and 7.53; pp. 20 and 21). The *Original Interim Report* also clearly identifies the divergence in reported symptoms.

Specifically, whilst there is agreement between witness testimonies in both groups that some event did happen around 19:00 hrs on 7 April 2018 in the emergency room of the underground hospital, testimony diverges with respect to what individuals claimed to have witnessed at that event. According to those interviewed in Damascus patients arrived at the hospital suffering the effects of exposure to smoke and dust:

7.46 Shortly after 19:00, 10 to 20 patients (children and adults) arrived in groups at the emergency department of Douma Hospital with blackened faces and covered in dust. They presented with respiratory symptoms that included dyspnoea, coughing and asthmatic exacerbation secondary to exposure to smoke and dust. Medical staff from other medical points close to Douma hospital who were interviewed, also stated that they received casualties with similar symptoms. (Original Interim Report: para 7.46; pp. 20-21).

Then, according to one witness interviewed, someone entered the emergency centre screaming there had been a chemical attack and which resulted in panic and inappropriate responses.

*'A witness was asked at the emergency department to help hospital staff to wash casualties. While performing this task, a man, who was not from the hospital, entered shouting "chemical!, chemical!" and panic ensued. By-standers then began undressing and washing people, and proceeded to give inappropriate treatment'. (Original Interim Report: para 7.47; p. 21)*

In general, the medical staff interviewed in Damascus who were present at the time of the alleged attack stated the symptoms of the victims were not commensurate with those of a chemical attack. Other witnesses claimed to smell smoke on the patients' clothes, in line

with the medics' claims they had been suffering from smoke and dust inhalation.

*'Most of the medical staff present in the emergency department on the 7 April, who were interviewed, emphasised that the symptoms of the casualties were not consistent with those expected from a chemical attack. They also reported not having experience treating casualties of chemical weapons and some witnesses mentioned not being aware of any chemical attacks in Douma or Syria. Some interviewees stated that no odour emanated from the patients, while other witnesses declared that they perceived a smell of smoke on the patients' clothes'. (Original Interim Report: para; 7.52, p. 21)*

The account from witnesses interviewed in Turkey is similar in some respects, but with important differences especially with respect to reported symptoms.

*'A number of casualties made their own way to the hospital and 20 to 25 people were rescued by the first responders. The casualties were taken to the hospital where they were washed and treated with nebulizers.' (Original Interim Report: para 7.59; p. 22)*

*'The following symptoms were reported by casualties: shortness of breath, excess salivation or foaming from the mouth, severe cough, nausea, vomiting, redness and a burning sensation in the eyes and upper airways, lacrimation, and*

*vision impairment. Hallucination and constricted pupils were also reported' (Emphasis added; Original Interim Report: para 7.60; pp. 22)*

*7.61 At Location 2, casualties were lying immobile on the ground of the basement, ground floor and on the stairs. They presented with excess foaming from the mouth and cyanosis and were presumed dead. When the first bodies were brought to the hospital, a doctor advised first responders not to bring the bodies to avoid secondary contamination as the smell on their clothes was very strong. (Original Interim Report: para 7.61; p. 22)*

In addition, the *Original Interim Report* also reported that a witness at Location 2 stated 'he saw people (approximately 15) on the street foaming from the mouths, shaking, screaming, shivering...' (Footnote 10 to Table, p.25). The *Original Interim Report* also states that it was reported that casualties lying in the basement and other areas of Location 2 'presented with excess foaming from the mouth and cyanosis and were presumed dead.' (Original Interim Report: para 7.61; p. 22)'. The report also notes that witnesses relayed that the onset of symptoms, particularly heavy frothing, was 'rapid' and in some reported cases 'immediate' (para 7.82; p. 27).

It is important to note that 'constricted pupils' are associated with nerve agent poisoning (such as sarin) and not chlorine gas poisoning (see also Annex 1) whilst hallucination is not associated

with chlorine poisoning. As such, these witness reports, as well as reports of immediate and excessive foaming at the mouth, are not consistent with the claim that chlorine gas poisoned the civilians at Location 2.

In the 'Epidemiology' section, the *Original Interim Report* clearly sets out these distinctions in the symptoms reported. It is also noted that the FFM 'did not witness first-hand any patients or decedents showing symptoms of exposure to toxic chemicals and that all the alleged evidence came either from witness statements or recorded material available to the team' (para 7.77; p. 26). The report states:

*7.77 The range of symptoms reported varies substantially depending on where and from whom the information was gathered. Witnesses interviewed in Damascus present a narrative whereby, on 7 April around the time of the alleged chemical attacks, casualties arrived at Location 1 displaying symptoms commensurate with asphyxiation from dust and fumes as a result of bombing. The symptoms included dyspnoea, cough and asthmatic exacerbation secondary to exposure to smoke and dust. Witnesses and victims interviewed in Country X describe symptoms that included shortness of breath, a burning sensation in the chest, oral hypersecretion, ocular irritation, visual disturbances, lacrimation, dysphonia, nausea, vomiting, pruritus, and in the case of some surviving victims, constricted pupils.*

## B] ANOMALIES REGARDING SIGHTINGS OF DEAD BODIES AT LOCATION 2

In sum, the accounts from the two groups of witnesses, clearly distinguished in the *Original Interim Report*, indicate casualties presented at the hospital. Interviews with Damascus medical staff indicated victims were suffering from effects of smoke and dust inhalation. Interviews with Turkey witnesses, conversely, indicated exposure to a toxic chemical irritant. In the case of the latter, however, the reports of constricted pupils are a sign of exposure to a nerve agent, not to chlorine gas, and hallucinations are compatible with neither chlorine gas nor nerve agent poisoning, the two suspected chemicals in the alleged attacks. These reports from the Turkey witness group were, therefore, incongruous with the chemical analysis which had found no evidence of a nerve agent.

It is notable that confusing signs and symptoms had in fact already been reported in the mainstream media immediately after the alleged attack. A BBC article stated that 'A spokeswoman said there were reports of people being treated for symptoms including convulsions and foaming of the mouth, consistent with nerve or mixed nerve and chlorine gas exposure'.<sup>176</sup> Also of note is the fact that, as described in Section Two, that BBC producer Riam Dalati stated over social media that '[a]fter almost 6 months of investigations, I can prove without a doubt that the Douma Hospital scene was staged'.<sup>177</sup>

When reports first began to emerge in the immediate aftermath of the alleged attack there were mixed reports as to how many and where the victims were found. Some mainstream media reported up to seventy victims died in a basement.<sup>178</sup> Yet video footage released on social media showed the dead victims lying on the floors and stairs inside the Location 2 apartment building, as well as outside the entrance to the building, having reportedly run from the basement of the building to higher ground to escape the effects of a chlorine gas attack.

The *Original Interim Report* documents these inconsistencies. According to the narrative gleaned from interviewees '[a]t Location 2, casualties were lying immobile on the ground of the basement, ground floor and on the stairs.' (*Original Interim Report*: para 7.61; p. 22).<sup>179</sup> The *Original Interim Report* goes on to state that there were variations ... in the numbers of bodies and their distributions throughout location 2 as observed in video footage and photos, compared to the numbers provided by witnesses who were interviewed. According to statements from witnesses, "many people they presumed dead, were lying on the floor of the basement". (para 7.69; p. 23).

The *Original Interim Report* sets out these diverging accounts in table format (*Original Interim Report*: p. 24) showing in the first column a numerical identification

SOURCE <sup>a</sup>	TOTAL DEAD <sup>a</sup>	DISTRIBUTION OF MORTAL VICTIMS IN LOCATION 2 <sup>a</sup>						TOTAL VICTIMS OF EXPOSURE <sup>a</sup>
		BASEMENT <sup>a</sup>	GROUND FLOOR <sup>a</sup>	1st FLOOR <sup>a</sup>	2nd FLOOR <sup>a</sup>	STAIRS <sup>a</sup>	OUT-SIDE <sup>a</sup>	<sup>a</sup>
VIDEO <sup>a</sup>	133 <sup>a</sup>	NONE SEEN <sup>a</sup>	c. 16 <sup>a</sup>	c. 10 <sup>a</sup>	0 <sup>a</sup>	3-4 <sup>a</sup>	4 <sup>a</sup>	Not Indicated <sup>a</sup>
1757 <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	50 0 <sup>a</sup>
1770 <sup>a</sup>	<sup>2</sup> 6(1) <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>
1919 <sup>a</sup>	<sup>a</sup>	40-50 <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>
1900 <sup>a</sup>	<sup>a</sup>	- <sup>a</sup>	10 <sup>a</sup>	10 <sup>a</sup>	<sup>a</sup>	4 <sup>a</sup>	<sup>a</sup>	<sup>a</sup>
1741 <sup>a</sup>	43 <sup>a</sup>	- <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>
1742 <sup>a</sup>	40-45 <sup>a</sup>	10-15 <sup>a</sup>	<sup>3</sup> 10 <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	3 <sup>a</sup>	<sup>a</sup>	500 <sup>a</sup>
1743 <sup>a</sup>	45 <sup>a</sup>	3 <sup>a</sup>	20 <sup>a</sup>	<sup>a</sup>	15-16 <sup>a</sup>	<sup>a</sup>	4 <sup>a</sup>	<sup>a</sup>
1753 <sup>a</sup>	40-45 <sup>a</sup>	"Some" <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	50-100(exc dead victims) <sup>a</sup>
1920 <sup>a</sup>	<sup>a</sup>	c. 30 <sup>a</sup>	9 <sup>a</sup>	12? <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>
1757 <sup>a</sup>	<sup>4</sup> 42 <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>
1787 <sup>a</sup>	<sup>5</sup> 300 <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>
1902 <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>6</sup> 70,790 <sup>a</sup>
1780 <sup>a</sup>	<sup>8</sup> 150 <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>
1757 <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>9</sup> 42 <sup>a</sup>
1749 <sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>a</sup>	<sup>10</sup> 15 <sup>a</sup>

Table detailing witness reports and locations of deceased. *Original Interim Report p. 24)*

<sup>1</sup> Location 2 only. This was the number counted in the house prior to the bodies being removed. About 33 were counted being removed from the apartments on the following day. None were seen been removed from the basement

<sup>2</sup> This was not at Location 2. Two witness statements place it approximately 50-60 meters from Location 2. According to one of the witnesses, who was an alleged casualty at this location, there were six fatalities resulting from toxic exposure at this location. According to the second witness, who was also a casualty, there was one fatal casualty at this location.

<sup>3</sup> Inside the apartment. Exact room not specified

<sup>4</sup> Number quoted as being brought to hospital by first responders

<sup>5</sup> Subject stated to have assisted in burial of more than 300 persons stated to be related to the alleged chemical incident.

<sup>6</sup> The number of patients from the alleged chemical attack treated by the witness

<sup>7</sup> Number of chemical casualties admitted to the intensive-care unit at hospital according to the witness

<sup>8</sup> At the medical point subject describes seeing up to 150 casualties both alive and dead and estimates 150 in total dead secondary to chemical exposure

<sup>9</sup> Witness stated that in total, there were around 180-185 casualties that night (unclear if referring to chemical casualties). 42 as result of alleged chemical attack were brought to the hospital by first responders. Two died at the emergency care unit<sup>7</sup>.

<sup>10</sup> The witness said he saw people (approximately 15) on the street foaming from the mouths, shaking, screaming, shivering...

for each witness and in the subsequent columns how many deceased they claimed to have seen in the various locations throughout Location 2. The first row of the table refers to what was seen in open-source videos of victims at Location 2.

While it can be seen from this table that there is often general alignment (second column) in the total number of deceased claimed to have been witnessed at Location 2 compared to open-source videos (approximately 43 in total), there are differences in accounts about *where* the witnesses said they saw the bodies. In particular, interviewees reported seeing varying numbers of deceased lying in the basement, in numbers ranging from 'some' to 50: Specifically, the table shows that four witnesses (Witnesses 1919, 1742, 1753 and 1920) claim to have seen between 'some' and '40-50' decedents in the basement at Location 2 (Original Interim Report: p. 24). Another interviewee makes no mention of seeing any deceased in the basement but claims to have seen the bodies distributed throughout the ground and first floors of the Location 2 building with a few located outside on the street.

The *Original Interim Report* does not try to rationalize this discrepancy in witness testimonies but does note that no evidence could be found to corroborate the claims of those witnesses who said that bodies had been found in basements.

*The FFM did not obtain any video*

*footage or photos of dead casualties lying in the basement of location 2 or being removed from there. There were also no photos or video footage available to the FFM team of the other two basements or of decedents, where three witnesses interviewed claimed to have been exposed to chlorine' (para 7.69; pp. 23- 24)*

There are in fact, as far as we are aware, no existing videos or photos of dead bodies either lying in or being removed from any basements. It is also notable that the BBC reported the day after the alleged attacks that the 'White Helmets tweeted graphic images showing several bodies in basements'.<sup>180</sup> The notion that bodies were found in basements was therefore already in the public domain when the alleged witnesses were interviewed.

### **C] ANOMALIES REGARDING REPORTED LOCATION OF VICTIMS AND THE BUILD-UP OF CHLORINE GAS AT LOCATION 2**

The information from witnesses regarding the locations of decedents is important because it raises the question of how victims could have been poisoned and killed in the basement of the building at Location 2 – and also outside on the street - by gas from a cylinder that had landed on a balcony four floors above. The *Original Interim Report* goes into considerable detail - in a section titled 'Discussion 1: Analysis of the possible route of dispersion of the alleged toxic chemical or chemicals in Location 2' - about how chlorine gas could have rapidly dispersed to

lethal levels throughout the Location 2 apartment building (*Original Interim Report*: paras 7.19- 7.26; pp. 13-15). The report provides a detailed 3D drawing of the building indicating the downward flow of the putative chlorine gas through the building. A key conclusion from this analysis was that there was no apparent access to the basement from inside the building (*Original Interim Report*: para 7.20; p.13): hence for the purported gas to have reached the basement from the top balcony, it would have to funnel down the stairwell, out onto the street, and then re-enter the basement of the building from outside. Because of the physical laws of gases, the gas concentration could never have been higher in the basement than it was in the street (*Original Interim Report*: para. 7.25; p. 15) The ramifications of this are important. The *Original Interim Report* notes that to produce the apparent rapid incapacitation of victims 'a respiratory irritant such as chlorine or phosgene would almost certainly need to have rapidly accumulated to very high concentrations'. They argued that this was unlikely: 'given the location of the suspected source of the toxic chemical as well as the configuration and condition of the building, ... such concentrations would not[sic] have been attained, particularly in the basement' (*Original Interim Report*: para 7.83; p. 27).

In sum, this physical constraint does not therefore support witness accounts that many of the victims died rapidly in the basement of Location 2: levels were unlikely to have built up sufficiently rapidly or to sufficient concentrations

there to cause rapid incapacitation and death and prevent the victims' escape.

### REDACTED INTERIM REPORT

Concern over the redaction of information regarding witness testimony was first raised in Whelan's 'Grave Concern' email:

*The original report discusses in detail the inconsistency between the victim's symptoms, as reported by witnesses and seen in video recordings. Omitting this section of the report (including the Epidemiology which has been removed in its entirety) has a serious negative impact on the report as this section is inextricably linked to the chemical agent identified. It either supports or detracts from the confidence in the identity of any possible chemical. In this case, the confidence in the identity of chlorine or any choking agent is drawn into question precisely because of the inconsistency with the reported and observed symptoms. The inconsistency was not only noted by the FFM team but strongly supported by three toxicologists with expertise in exposure to CW agents. (Appendix 2a: 'Grave Concern' email)*

Witness testimony issues can further be observed as follows:

1] The extensive documentation of the contrast between the testimonies of the Turkey vs. Damascus witnesses was omitted from the *Redacted Interim*

Report leaving only a brief reference to 'two broad and distinct narratives' and a brief table summarizing interviewee details (para 7.28, p. 14-15). Also removed is the disclaimer that the narratives derived from witness statements are 'not presumed to be factual' (Original Interim Report paras 7.42 and 7.53. pp: 20 and 21).

**2 ]** The *Redacted Interim Report* omits all reference to concerns about the inconsistency between reported symptoms and chlorine poisoning in its summary (paras 1.1-1.8, pp. 2-3) and elsewhere there is no reference to information regarding anomalous witness testimony regarding symptoms.

**3 ]** Notably the *Redacted Interim Report* also omits information concerning the lack of evidence for witness claims regarding deceased in the basement at Location 2. The table detailing witness testimony and reported locations of the deceased is removed entirely from the *Redacted Interim Report*. Further omissions occur with respect to this matter. Specifically, the *Original Interim Report* stated:

*The FFM did not obtain any video footage or photos of dead casualties lying in the basement of location 2 or being removed from there. There were also no photos or video footage available to the FFM team of the other two basements or of decedents, where three witnesses interviewed claimed to have been exposed to chlorine' (Original Interim Report: para 7.69; pp. 23- 24)*

This is altered in the *Redacted Interim Report* to read:

*Three of the seven casualties were purportedly exposed at two buildings, the exact locations of which were not known or visited by the FFM team. No photographs or videos of the locations or victims of the alleged attacks at these locations were available to the FFM team. (Redacted Interim Report: para 7.29; p. 15)*

**4 ]** Also removed from the *Redacted Interim Report* is the detailed discussion - 'Discussion 1: Analysis of the possible route of dispersion of the alleged toxic chemical or chemicals in Location 2' - of possible gas concentration contained in the *Original Interim Report*. As such, the *Redacted Interim Report* omits the discrepancy noted in the *Original Interim Report* about the inconsistency between witness claims that the deceased had been seen in the basement at Location 2 and of there being no obvious explanation for how chlorine gas could have entered that basement and reached lethal concentrations.

#### **PUBLISHED INTERIM REPORT**

No mention is made in the *Published Interim Report* about witness testimony other than to state simply that '[a]nalysis of the testimonies is ongoing' (para 8.17; p. 11). This is possible because the team was working on trying to corroborate witness accounts and resolving the discrepancies identified in the *Original Interim Report*.

The OPCW published its FFM *Final Report* on 1 March 2019. The investigators therefore had a further eight months after publication of the *Interim Report* to corroborate witness testimonies. During the intervening period the FFM deployed in October 2018 for a week to interview five more alleged witnesses, though for what purpose is not stated in the report. Notably, of the five, four were allegedly casualties of chemical exposure and therefore supported the claim that a chemical attack had occurred. No additional medical professionals were interviewed and there is nothing in the report to suggest any previously interviewed witnesses were re-interviewed.

The *FFM Final Report* makes clear that witness testimony contributes to its primary conclusion of there being 'reasonable grounds that the use of a toxic chemical as a weapon took place' (para 2.17 p. 4 and para 9.12; p. 31-32) and lists details of interviews across four pages (paras 8.41-8.69; pp. 21-25); it also refers to them throughout the report. As such, the *FFM Final Report* accepts the version of events presented by the Turkey-based witnesses as accurate whilst, to all intents and purposes, rejecting the witness testimony from the Damascus group. There is no mention of the existence of the 'contrasting narratives' that had previously been detailed in the *Original Interim Report* and even, albeit briefly, in the *Redacted Interim Report* (para 7.28, p. 14). Also absent is the qualifier that the witness testimony

'is not presumed to be factual' (Original Interim Report paras 7.42 and 7.53. pp: 20 and 21). Instead, the report describes a 'composite summary of the statements from witnesses interviewed by the FFM team' (para 8.43; p.22). Significantly, it is not possible to determine how the investigators corroborated the Turkey group witnesses whilst refuting information provided by Damascus group witnesses. The corroboration of Turkey-based witness accounts is made even more problematic because the significant anomalies identified in the *Original Interim Report* are either omitted or left unresolved without adequate explanation.

Specifically, the *FFM Final Report* downgrades the testimony from Damascus-based witness testimonies regarding events at the hospital (Location 1) whilst obscuring the inconsistent reports regarding symptoms including the anomalous claims from Turkey-based witnesses regarding sarin-like symptoms. Also, the issue of inexplicable claims regarding bodies in the basement at Location 2 is omitted from *FFM Final Report* whilst analysis examining the feasibility of a lethal build of gas at Location 2 is absent. At the same time the *FFM Final Report* adds new witness testimony regarding injuries and deaths far from Location 2. This extended-casualty zone claim is based on flawed analysis and begs further questions regarding infeasible gas concentration levels. We discuss each of these issues in turn before returning again to the central issue of witness testimony corroboration.

## A] FAVOURING TURKEY GROUP WITNESS STATEMENTS REGARDING LOCATION 1 (HOSPITAL) WHILST DOWNGRADING DAMASCUS GROUP WITNESS TESTIMONY

Some of the witness testimony is downgraded in the *FFM Final Report* with an apparent lessening of confidence that medical staff interviewed were in fact at Location 1 at the time of the incident. According to the *Original Interim Report*:

*'Most of the medical staff present in the emergency department on the 7 April, who were interviewed, emphasised that the symptoms of the casualties were not consistent with those expected from a chemical attack.'* (para 7.52; p. 21)

In the *FFM Final Report*, however, doubts about their presence at the hospital scene are expressed.

*'A number of the interviewed medical staff who were **purportedly** [emphasis added] present in the emergency department on 7 April emphasised that the presentation of the casualties was not consistent with that expected from a chemical attack'* (para 8.54; p. 23)

There is no explanation why a lower level of confidence (or changing the quantification of the number of medical staff from 'Most' to 'a number') regarding the presence of key witnesses at the scene has been applied. In doing so, these witnesses' testimonies are by extension placed under question.

Adding the qualifier 'purportedly' implies that the investigators did not in fact confirm or corroborate whether these witnesses were present at the hospital scene, yet alone corroborate their actual testimonies.

On the other hand, no such doubt is raised about witnesses who *did* report being witness to another alleged chemical attack occurring earlier in the day at around 16:00. Paragraph 8.55 of the *FFM Final Report* states,

*'Other medical staff [emphasis added] stated that, at around 16:00 on 7 April, an estimated 15 to 18 casualties with difficulty breathing arrived at the SCD Centre located in Sector 3. According to the witnesses, an attack with chlorine had taken place in close proximity to this centre'* (para 8.55; p.23).

This statement is interesting because it implies that medical staff were direct witnesses to the arrival of casualties of a chlorine attack at the SCD or White Helmets Centre and that their physical presence there is not in question i.e. has been corroborated. There is, however, evidence this may have not been the case. Comparing the two reports we see the language in the *FFM Final Report* has been modified from the *Original Interim Report* which made no mention of medical staff reporting an incident at the White Helmets Centre.

*'At approximately 16:00 on Saturday 7 April, a **civilian notified** SCD first responders, [emphasis added] of*

*an alleged chemical attack nearby. Fifteen to eighteen people were affected.'* (emphasis added Original Interim Report, para 7.55; pp. 21-22).

It is not clear for what purpose this was done, but it does misleadingly give the impression that the arrival of 15-18 casualties arriving at the White Helmets centre was witnessed by medical staff, when in the *Original Interim Report* this is not what was reported.

In addition, the *FFM Final Report* also confirms that the FFM downgraded the witnesses presented at the Hague by the Russian Federation, shortly after the alleged attack, some of whom alleged the hospital scenes had been staged, by treating them as 'open-source video material' (Note 13 p. 22). As such, their testimony, whether reliable or not, was effectively marginalized within the body of material that the FFM relied upon to reach its conclusions (*FFM Final Report*, para 7.5, p. 9). Furthermore, the *FFM Final Report* also obscures the fact that the witnesses had appeared in a briefing at the OPCW headquarters by referring only to a press briefing that was, in fact, held after the briefing and at another location (*FFM Final Report: Annex 2*; p. 34, second bullet point).

Overall, this evidence from the reports indicates that a double standard is being applied, whereby evidence from Turkey-based witnesses is accepted as true whilst that from Damascus-based witnesses is considered unreliable.

## **B] OBSCURING ANOMALOUS WITNESS STATEMENTS REGARDING SYMPTOMS**

The obscuring or elimination of contrasting witness reports regarding symptoms continues in the *FFM Final Report* with the reported symptoms from both 'Turkey' and 'Damascus' groups being blended together:

*Broadly, patients were reported to display shortness of breath, burning sensation in the chest, oral hypersecretion or foaming, and ocular [sic] irritation. Additional complaints were visual disturbance, lacrimation, dysphonia [sic], nausea, vomiting and pruritus. A non-specific number of patients classified as severe manifested with seizure activity described as flexion of arms and wrists. Medical personnel reported the absence of any signs of external trauma. (Final Report, para 8.79; p. 26)*

The *FFM Final Report* also obscures the fact that the 'Turkey Group' witnesses reported constricted pupils (a key sarin/ nerve agent indicator) by removing it from the list in paragraph 8.79 and instead discussing the reporting of miosis (the technical term for constricted pupils) and mydriasis (the technical term for dilated pupils) in the following paragraph:

*'An unknown number of patients were reported to have manifested miosis or mydriasis. Although interviewed medical staff or physicians did not directly observe miosis, one support*

staff stated that four casualties who were classified as severe were directly observed to be presenting mydriasis' (FFM Final Report: para 8.80; p. 27).

The fact that hallucination had been reported by the 'Turkey group' witnesses, which is not a symptom of chlorine poisoning, is omitted entirely from the FFM Final Report.

As such, it appears that the fact there was anomalous testimony from Turkey-based witnesses – reporting symptoms of a nerve agent attack – which inevitably raises questions about their reliability and accuracy, is downplayed or obfuscated in the FFM Final Report.

#### **C] FAILURE TO ADDRESS INEXPLICABLE REPORTS REGARDING DECEASED IN THE BASEMENT AT LOCATION 2**

The matter raised with respect to inconsistencies between witness statements and the location of bodies in and around Location 2 is obscured and left unresolved in the FFM Final Report. The FFM Final Report excludes the detailed table that was in the *Original Interim Report* which documented important information regarding the reported location of the deceased. As a result, details of the problematic claim made by four witnesses that bodies were seen in the basement at Location 2 is absent from the FFM Final Report. Also, whilst the FFM Final Report refers to some witnesses 'seeing decedents in the basement of the building', (FFM Final Report: para 2.10 p. 3 and para 9.5; p. 30),

at another point it avoids any mention of deceased in the basement at Location 2: 'Witness accounts place the deceased lying on the stairs, inside apartments on multiple levels of Location 2, inside basements of neighbouring buildings across the area, on rooftops and on the streets' (FFM Final Report: para 8.62; p. 24). As with the *Redacted Interim Report*, no mention is made of the fact that the FFM 'did not obtain any video footage or photos of dead casualties lying in the basement of Location 2 or being removed from there' (Original Interim Report: para 7.69; p. 24). Overall, the FFM Final Report does not resolve the problematic claim by some witnesses to have seen bodies lying in the basement at Location 2.<sup>181</sup>

#### **D] OMISSION OF INFORMATION REGARDING THE INCONSISTENCY BETWEEN APPARENT RAPID DEATH IN THE BASEMENT AND THE BUILD-UP OF CHLORINE GAS AT LOCATION 2; AND THE ADDITION OF NEW INFORMATION REGARDING CASUALTIES FAR FROM LOCATION 2**

As stated in the *Original Interim Report* and discussed earlier, given the location of the cylinder on the top floor terrace and the configuration and conditions of the building at Location 2, it was unlikely that levels of chlorine gas would have accumulated sufficiently rapidly, particularly in the basement, so as to prevent victims from escaping (para 7.83; p. 27). The FFM Final Report, however, contains no information or analysis regarding gas concentration

and leaves a brief description of the building layout (FFM Final Report: para 8.27; p. 16) as the only remainder of the detailed analysis provided in the *Original Interim Report* (paras 7.19-7.26; pp. 13-15). It is also notable that, when responding to a formal question from the Russian Federation regarding the *FFM Final Report* and the feasibility of gas concentrations being sufficient to cause fatalities at Location 2, the OPCW claimed 'the FFM did not establish any correlation between the number of decedents and the quantity of the toxic chemical used' because several factors, including 'condition of the building, the architecture of the apartments, air circulation, and the number of persons present at the time of the incident', were unknown.<sup>182</sup> This statement, made in May 2019 before the *Original Interim Report* had been leaked, is inconsistent with the fact that the *Original Interim Report* had provided such details and discussed gas flows.

In addition, and remarkably, new information emerges in the *FFM Final Report* alleging casualties and deaths from chemical exposure far from Location 2. Although not specifically stated, it would appear this update was a result of the interviews conducted with the five new witnesses -four of whom claimed to be casualties- which the FFM team redeployed to interview in October 2018. The *FFM Final Report* states that:

*'[l]ater on, the FFM team members interviewed alleged casualties, first responders and witnesses. The witnesses located in multiple*

*basements used as shelters within a 350-meter distance southwest of Point One ...'* and reported the 'smell of chlorine' (para 8.58; p. 23-24).

The profile of interviewees provided in the *FFM Final Report* states that ten of the eleven alleged primary casualties were:

*'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 metres south of Location 2' (para 8.42; p. 21).*

Finally, the report also states that:

*'Witness accounts place the deceased lying on the stairs, inside apartments on multiple levels of location 2, inside basements of neighbouring buildings across the area, on rooftops and on the streets. Additionally, a witness stated that six casualties died at Point One' (para 8.62; p.24).*

A highlighted map of the affected area is provided in Figure 4 of the *FFM Final Report* (p. 11); this map is shown below (Image 5) with identification of key locations and direction of due north added. According to the legend provided the white shaded area is the general location where witnesses reported having perceived a strong odour. This contrasts with the witness testimony reported in the *Original Interim Report* which claimed 'a strong smell was perceived within at least a

FIGURE 4: OTHER AREAS OF INTEREST IN PROXIMITY TO LOCATION 2



Image 5

Annotated image from *FFM Final Report*, p. 11. showing the area around Location 2, the vehicles' tunnel to Point One (Location 1) and areas mentioned by witnesses. The white shaded area is the general location where witnesses reported having perceived a strong odour. The red shaded areas are buildings/houses/ places where witnesses reported being affected by a chemical.

500-meter radius of the impact location' (para 7.57; p. 22). A one km concentric ring around the alleged chlorine source was in fact problematic as gases do not tend to disperse radially in all directions but rather typically form an elongated plume following the wind direction. The white transparent ovaloid overlaid with the gas source centred at one end (see diagram above), represents an apparently more logical, if simple depiction based only on witness accounts, of the dispersion of the alleged gas which stretches out 350 metres southwest of Location 1 and 160 metres south of Location 2. The red boxes in the diagram represent 'buildings / houses / places where witnesses reported being affected by a chemical'. All of this information was not present in the *Original Interim Report*.

This new information, however, generates further incongruencies. First,

based on witness accounts, the chlorine gas released from the cylinder on the third-floor balcony of Location 2, once it had diffused down the stairwell of the apartment building and out on to the street, must have spread in an easterly direction (see Figure 4 (Image 5) above) towards the entrance to the tunnel that led to Location 1 (or Point 1):

*'Some witnesses reported seeing a yellow to green cloud or smoke, and one witness described it as a green colour in the atmosphere. This cloud was witnessed on the streets in close proximity to the vehicle entrance of the tunnel leading to the emergency department of Point One and on the ground floor of Location 2' (FFM Final Report: 8.61; p.24).*

Other witness statements suggest the same:

'As reported by witnesses, most casualties who reached the roof or went towards the west, away from Point One, survived. Other casualties who reportedly stayed inside buildings or basements, or who tried to go towards the entrance of the tunnel leading to Point One, died' (FFM Final Report: para 8.62; p. 24).

At the same time, from the map in Figure 4 (Image 5 above), we see that the buildings highlighted in red, where further casualties are reported (FFM Final Report: para 8.42; p. 21), all lie due south of Location 2, the source of alleged chlorine release. This would imply therefore that the toxic gas moved south from Location 2. This gives rise to conflict, therefore, in the movement of the gas cloud. Was it moving in an easterly direction towards Location 1 or was it moving in a southerly direction towards the other buildings where 'witnesses reported being affected by a chemical' (FFM Final Report: figure 4 legend, p. 11) and casualties reportedly occurred (FFM Final Report: para 8.42; p. 21)?

Furthermore, it is also the case that the reported wind direction in the FFM Final Report at the time of the attack was from the southeast at 11 kmh whilst the 2023 IIT Report states it was from the southwest (IIT report: para 6.28, p. 25). The FFM Final Report provides the information shown in Image 6 below.

In other words, the wind was not blowing towards the south but either in a north-easterly or north westerly direction, away from several of the highlighted areas on the map where alleged victims were reported to have been affected. In other words, the alleged casualties are reported to have been exposed *upwind* of Location 2.<sup>183</sup>

Second, the extended casualty zone begs the further question of how chlorine gas could have accumulated to harmful levels in buildings that were upwind and 160 metres from Location 2. To account for deaths 'inside basements of neighbouring buildings across the area, on rooftops and on the streets' (FFM Final Report: para 8.62; p. 24) there needs to be some plausible mechanism for lethal

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

TABLE 1: METEOROLOGICAL CONDITIONS IN DOUMA 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%

Image 6

FFM Final Report. p. 12.



Image 7

Annotated image from *FFM Final Report*, p. 11 with wind direction used in *FFM Final Report*.

levels of the chlorine gas to have reached these people from its source at Location 2. Laws of physics and gas dispersion imply that whatever the levels of chlorine gas around Location 2, they would have to be far lower in the upwind side of Location 2. It is also notable that for the gas to have dispersed southwards from Location 2—which being heavier than air moves along the ground—it would have needed to pass rows of apartment blocks directly blocking its path.

It must be remembered that the alleged release of chlorine gas at Location 2 was relatively small, in kilogram quantities, but yet the alleged death toll in comparison was relatively large, including deaths both inside the building, immediately outside on the ground, and reportedly more deaths in an extensive area upwind of the alleged release. To put such a scenario into context it is worth considering a significantly larger chlorine release that took place in 2005.

### COMPARISON WITH A WELL-STUDIED ACCIDENTAL CHLORINE GAS RELEASE<sup>184</sup>

The behaviour and effect of chlorine gas released into the atmosphere is a complex phenomenon and understanding deaths and casualty numbers in context can be difficult. Although not all gas releases, including chlorine, behave in the same way, it is instructive to draw a comparison between the alleged chlorine gas release in the Douma incident -measured in kilogram quantities - with a massive accidental release where tens of tonnes of chlorine gas were dumped in less than two minutes into a residential area.

The accident took place in the town of Graniteville, South Carolina, in 2005 and involved a train derailment that ruptured a tanker car containing liquid chlorine. The incident resulted in approximately 46 tonnes of pure chlorine being dumped at a rate of over one and a half tonnes per second into the neighbourhood through an open gash measuring 800 cm

x 8 cm in the side of the tanker. While the accident displaced 5,400 people from their homes, and resulted in almost 600 casualties seeking medical care, the death toll was relatively low. Nine people died, eight from asphyxiation and the ninth from lactic acidosis and acute respiratory failure. Twenty five were diagnosed radiographically with pulmonary oedema, but there are no medical accounts of victims frothing or foaming at the nose and mouth.

In contrast, in addition to the 40 or more who apparently died rapidly, with some foaming at the mouth and nose, at Location 2, an undefined number of people located inside basements, on the streets or on rooftops in an area upwind of an alleged chlorine release involving tens of kilograms of chlorine gas, reportedly died before rescuers could arrive. This release, moreover, was allegedly from an intact chlorine cylinder with gas being released over a period of time and through an aperture of less than one centimetre in diameter.

The comparison of the two events is basic, but it does raise questions of how lethal levels of chlorine could be achieved at such a distance (and upwind) from the alleged source in Douma, when victims survived a release almost a thousand times larger at comparable distances in Graniteville.

## THE ISSUE OF CORROBORATION

Witness testimony is a critical aspect of an investigation of alleged use of chemical

weapons. The Chemical Weapons Convention (CWC) itself highlights the rights of inspectors to collect samples and conduct interviews as key investigative activities during alleged use inspections (Chemical Weapons Convention-Verification Annex: Part XI, paras 16 & 21).<sup>185</sup> The results of sample analysis, however, particularly in cases of alleged chlorine attacks, where background chlorine in the environment complicates the analysis, can be inconclusive. In such cases witness testimony may have to carry the burden of evidence. Witness accounts, however, unlike scientific forensic evidence, represent a relatively subjective record of events. Particularly in war time witness accounts risk being biased—either deliberately or unintentionally—especially if they come from individuals who might be sympathetic to one side or other in the conflict.

In the FFM Report into the alleged chemical weapon attack on Khan Shaykhun, 2017, some clarification was provided with respect to the handling of witness testimony. Whilst stating that '[t]he FFM considered ... as primary evidence: first-hand testimony from interviewees', it also noted that '[t]he FFM considered the following as tertiary evidence and /or supporting information: samples, of all types, where there is insufficient supporting evidence; **testimonies without additional corroboration** (emphasis added); open-source information; and information supplied by States Parties' (S/1510/2017: paras 5.113 and 5.115: p. 49).<sup>186</sup>

The Douma *FFM Final Report*, however, provides insufficient information with respect to how, or whether at all, witness testimony was corroborated. Most significantly, and as we have seen, the narrative presented by Turkey group witnesses, that the alleged attack had occurred, is accepted as accurate whilst the Damascus group witnesses, who claimed no chemical attack had occurred, is rejected. The *FFM Final Report* provides no information about the process of corroboration underpinning this analysis. This issue is made more problematic because anomalies identified with respect to Turkey group witnesses – reporting of Sarin/nerve agent symptoms, unexplained deceased in basements and the associated issue of gas concentration at Location 2 – are left either obscured or unresolved in the *FFM Final Report*. Furthermore, new witness testimony from Turkey Group witnesses raises yet further anomalies relating to gas concentrations and location of victims.

## THE 2023 IIT REPORT

There is no explicit mention in the IIT report of the narrative originally presented by Damascus witnesses which instead largely relays narrative claims in line with the Turkey group witnesses. There is no detailed explanation or rationalization to justify the corroboration of the Turkey group witnesses over and above those from the Damascus group whilst the anomalies regarding the reporting of nerve agent symptoms, reports of bodies in basements and the

extended casualty zone are unresolved. In fact, the IIT Report even leaves a misleading impression that miosis – constricted pupils – is compatible with chlorine gas poisoning (IIT Report: para 6.118; p. 46) whilst also including a single line stating ‘Despite some minor variances in witnesses’ recollection of events, the IIT assessed the accounts, overall, to be consistent’ (IIR Report: para 6.105; p. 43). As such, obvious anomalies are simply glossed over.

Regarding the anomalous Turkey group witness claims concerning deceased in the basement at Location 2, the description of the gas dispersion studies provided by the IIT (IIT 2023: paras 6.109-6.114) makes no reference to how lethal levels of chlorine could have developed there which, as described in the *Original Interim Report*, was not directly connected to the stairwell and was accessible only from the street. The lethal concentration of gas claim by the IIT also does not explain the four decedents photographed outside the Location 2 building on the street. In fact, all of the anomalous witness claims regarding dead and injured in basements and across the area South of Location 2 are absent from the IIT Report. In effect, anomalous witness reports of deaths that cannot be explained by the IIT have been removed and without any explanation or justification. Also, although claiming that it considered allegations of staging at the hospital (Location 1) (IIT Report: para 4.3; p. 15), there is no further mention or analysis of this in the report.

As such, the key flaws identified in the

*FFM Final Report*—failure to provide the necessary information to demonstrate how differing claims were either corroborated or discounted; and the omission, obscuring or failure to resolve anomalies from Turkey group witnesses—are carried through unresolved to the IIT Report which instead, broadly speaking, simply removes any mention of them.

## SYNTHESIS

The fact that the two witness groups reported very different accounts of what happened at Douma is clear in the *Original Interim Report* and apparently resolved come the *FFM Final Report* with one group of witnesses being believed over another. However, although the OPCW FFM understands the importance of corroboration and how different forms of evidence should be treated in terms of its value, no information is provided as to how or if the Turkey Group witnesses claims were corroborated whilst those in the Damascus Group came to be rejected. Moreover, significant anomalies regarding symptoms reported by Turkey Group witnesses, location of deceased, and the feasibility of high gas concentration levels, are omitted or obscured in the *FFM Final Report* whilst a new seemingly implausible and erroneous analysis is presented regarding alleged deaths and injuries far from, and upwind of, Location 2.

Regarding the new IIT Report, the key flaws identified in the *FFM Final Report*—failure to provide the necessary information to demonstrate how

differing claims were either corroborated or discounted; and the omission, obscuring or failure to resolve anomalies from Turkey group witnesses—are carried through unresolved to the IIT Report. Whilst claiming to fully address ‘alternative scenarios’ including the possibility that the alleged attack was staged, the IIT Report mentions the issue of staged hospital scenes, widely reported at the time and subsequently, but then inexplicably fails to provide any analysis or discussion thereof.

In summation, the *FFM Final Report* bases its ‘reasonable grounds ... use of a chemical as a toxic weapon took place’ claim in part on ‘witnesses’ testimonies’. As we have seen, however, this claim relies upon an analysis involving demonstrable flaws due to unexplained and unjustified corroboration of one group of witnesses whose claims support the *FFM Final Report* conclusion, despite their containing multiple unresolved anomalies. Meanwhile, another group of witnesses whose accounts do not support the *FFM Final Report* conclusions are downgraded and dismissed, again without explanation or justification. These flaws mean that issues indicated in the *Original Interim Report* remain unresolved, and obfuscated, in the *FFM Final Report* which instead creates a misleading impression it has done. Consequently, the impression is given of there being stronger evidence than has actually been presented regarding ‘witness testimony’ and this in turn enables the *FFM Final Report’s* conclusion to be biased towards claiming that the witness testimony

evidence contributes to the 'reasonable grounds' conclusion. As such, the *FFM Final Report* claim regarding 'witnesses' testimony' and 'reasonable grounds' is not tenable. New witness testimony obtained later in the investigation leads to a flawed analysis which compounds anomalies already identified regarding gas concentration levels.



# ANNEX THREE

## CHEMICAL ANALYSIS; INSUFFICIENT INFORMATION TO SUBSTANTIATE CLAIMS, ANALYTICAL ERRORS, AND FAILURE TO EXPLORE SIGNIFICANT EVIDENCE INDICATING ALTERNATIVE EXPLANATION FOR FINDINGS AT LOCATION 4

### WHAT THE COURAGE FOUNDATION PANEL SAID:

*'Many, if not all, of the so-called 'smoking gun' chlorinated organic chemicals claimed to be "not naturally present in the environment" (para 2.6) are in fact ubiquitous in the background, either naturally or anthropogenically (wood preservatives, chlorinated water supplies etc). The report, in fact, acknowledges this in Annex 4 para 7, even stating the importance of gathering control samples to measure the background for such chlorinated organic derivatives. Yet, no analysis results for these same control samples (Annex 5), which inspectors on the ground would have gone to great lengths to gather, were reported.*

*Although the report stresses the 'levels' of the chlorinated organic chemicals as a basis for its conclusions (para 2.6), it never mentions what those levels were —high, low, trace, sub-trace? Without providing data on the levels of these so-called 'smoking-gun' chemicals either for background or test samples, it is impossible to know if they were not*

*simply due to background presence. In this regard, the panel is disturbed to learn that quantitative results for the levels of 'smoking gun' chemicals in specific samples were available to the investigators but this decisive information was withheld from the report.*

*The final report also acknowledges that the tell-tale chemicals supposedly indicating chlorine use, can also be generated by contact of samples with sodium hypochlorite, the principal ingredient of household bleaching agent (para 8.15). This game-changing hypothesis is, however, dismissed (and as it transpires, incorrectly) by stating no bleaching was observed at the site of investigation. ("At both locations, there were no visible signs of a bleach agent or discoloration due to contact with a bleach agent"). The panel has been informed that no such observation was recorded during the on-site inspection and in any case dismissing the hypothesis simply by claiming the non-observation of discoloration in an already dusty and scorched environment seems tenuous and unscientific'.<sup>187</sup>*

## INTRODUCTION

An investigation of any alleged chemical attack involves 1) searching for evidence of the chemical used and 2) establishing how that chemical was delivered. In the case of Douma, this involved searching for evidence of a chemical release and determining whether any detected chemicals had come from the two yellow cylinders found at Locations 2 and 4. As already noted, chemical analysis did not find any evidence of nerve agents having been used and attention then came to focus on the possibility that chlorine gas had been used as a weapon.

It is important to understand that establishing whether chlorine has been released is challenging because chlorine gas itself becomes rapidly undetectable. However, chlorine gas or its decomposition products do react with other chemicals in the environment, including organic materials and metals, and, in doing so, leaves what are known as chlorinated organic chemicals (COCs) which *are* stable and detectable (paraphrased from the *FFM Final Report*: para 8.9; p. 13). Consequently, the search for evidence of chlorine gas use necessarily involves looking for COCs. Complicating this, however, is the fact that whilst COCs might come from a release of chlorine gas, they can also come from other chemical sources that contain a reactive chlorine atom; such sources include *hydrochloric acid*, *sodium hypochlorite* [bleach] or *hypochlorous acid* [disinfectant]). Furthermore, low levels of COCs can actually be quite normal for any given

environment, occurring naturally or as a result of normal human activity. As a result, determining whether detected COCs are the result of chlorine gas release or the result of another chemical being introduced to the environment, or whether they are simply there as part of the normal background, is an essential challenge for any investigation. Indeed, the former OPCW Director General, Ahmet Üzümcü, acknowledged in 2018 the problem of detecting chlorine use as a weapon because of its widespread presence in the environment. "Investigations of the use of chlorine as a weapon pose great challenges for the use of chemical analysis to definitively identify exposure since the element chlorine is ubiquitous," Üzümcü said in a public speech.<sup>188</sup>

The original results for whether chlorine gas had been released were inconclusive. There was evidence some kind of chlorine-based chemical had been in contact with samples but the actual chemical was not identified. Also, although the cylinders might have been the sources of the suspected chemical release, there was insufficient evidence to affirm this.

## ANALYSIS OF THE FOUR FFM REPORTS

### ORIGINAL INTERIM REPORT

Regarding evidence for chlorine gas having been released at Locations 2 and 4, the *Original Interim Report* stated:

Based on levels of chlorinated organic derivatives, which are not naturally present in the environment, detected in environmental samples gathered at the sites of the alleged use of toxic chemicals (Locations 2 and 4), the FFM concludes that the materials from which the samples were taken at both locations had been in contact with one or more substances containing reactive chlorine. Examples of such chemicals include, molecular chlorine, phosgene, cyanogen chloride, hydrochloric acid, hypochlorous acid and sodium hypochlorite. **The actual chemical was not identified.** (emphasis added: para 1.6; p. 2. See also paras 7.14; p. 12 and 8.2; p. 29).

Regarding the cylinders being the source of any possible chemical release, the *Original Interim Report* stated:

Two industrial gas cylinders with dimensions of approximately 1.4 x 0.4 meters were observed by the FFM team, one at each of the two locations where the alleged chemical attacks took place. Although the cylinders might have been the sources of the suspected chemical release, there is **insufficient evidence** to affirm this. (emphasis added: para 1.7; pp: 2-3 and para 8.3; p. 29).

As such, the statements in the *Original Interim Report* relayed the fact that a) the chemical analysis results had not confirmed whether or not the detected COCs were caused by chlorine gas or were the result of chemical reaction with other substances containing reactive

chlorine often found in household and industrial settings (e.g. hydrochloric acid, sodium hypochlorite [bleach] or hypochlorous acid [disinfectant]), and b) that there was insufficient evidence to link any suspected chemical release with the cylinders.

**REDACTED INTERIM REPORT:  
DISTORTED AND FALSE CLAIMS  
REGARDING CHLORINE GAS  
RELEASE FROM THE CYLINDERS**

As documented in Section Two – see *Procedural Irregularity 2: Creation of, and attempt to publish, a Redacted Interim Report containing unfounded claims*, – Inspector Brendan Whelan discovered that unwarranted modifications had been made to the report unknown to the investigators and he protested this in his ‘Grave concern’ email. As described by Whelan, the *Redacted Interim Report* altered the *Original Interim Report* text in a way that distorted the evidence for chlorine gas having been released from the cylinders. He protested the omission of the fact that there were possible chemical sources other than chlorine gas for the COCs detected, the claim that the cylinders were the likely source of the toxic chemical, and the claim that the levels of COCs detected could be described as ‘high’. These issues were set out in the ‘Grave Concern’ email as follows:

*The statement in paragraph 8.3 [Redacted Interim Report] in the final conclusions “The team has sufficient evidence at this time to determine*

that chlorine, or another reactive chlorine-containing chemical, was likely released from the cylinders” is highly misleading and not supported by the facts. The only evidence at this moment is that some samples collected at Locations 2 and 4 were in contact with one or more chemicals that contain a reactive chlorine atom. Such chemicals could include molecular chlorine, phosgene, cyanogen chloride, hydrochloric acid, hydrogen chloride, or sodium hypochlorite (the major ingredient of household chlorine-based bleach). Purposely singling out chlorine gas as one of the possibilities is disingenuous. ...

The redacted report states that the gas was likely released from the cylinders (in Locations 2 and 4). The original report purposely emphasized the fact that, although the cylinders might have been the sources of the suspected chemical releases, there was insufficient evidence to affirm this. It is possible the error was simply a typo. This is a major deviation from the original report.

Paragraph 8.2 [Redacted Report] states that “based on the high levels of various chlorinated organic derivatives, [...] detected in environmental samples”. Describing levels as “high” likely overstates the extent of levels of chlorinated organic derivatives detected. They were, in most cases, present only in parts per billion range, as low as 1-2 ppb, which is essentially trace quantities’

(Appendix 2a: ‘Grave Concern’ email)

These distortions can be observed when comparing the *Original Interim Report* with the *Redacted Interim Report* as follows:

Regarding the evidence for chlorine gas release, the *Original Interim Report*, after stating that samples had been ‘in contact with one or more substances containing reactive chlorine’, clearly specified that a range of other chemical substances might have been the cause of these results: ‘examples of such chemicals include, molecular chlorine, phosgene, cyanogen chloride, hydrochloric acid, hypochlorous acid and sodium hypochlorite’ (para 1.6, p. 2; see also paras 7.12, 7.13 and para 7.14; p. 12). The *Original Interim Report* then clearly stated that the ‘actual chemical [causing the COCs] was not identified’ (para 1.6; p. 2; see also para 7.14, p.12).

This information was altered in the *Redacted Interim Report* which removed mention of the range of chemicals that might have caused the results, the explicit statement that the actual chemical was not identified, and then stated that the FFM had determined that chlorine or another reactive chlorine-containing chemical was present at both locations:

*Based on the high levels of various chlorinated organic derivatives, which are not naturally present in the background environment, detected in environmental samples gathered at the sites of alleged use*

of toxic chemicals (Locations 2 and 4, see figure 2 in section 7), the FFM determined that chlorine or another reactive chlorine-containing chemical was present at both locations. (para 1.5; p. 2; see also para 7.7; p. 9 and para 8.2; p. 15)

These alterations worked to highlight the possibility that chlorine gas was the source of the detected COCs. As Whelan notes in the 'Grave Concern' email (Appendix 2a), this 'singling out chlorine gas as one of the possibilities is disingenuous' and could leave the reader of the report with a distorted impression that chlorine gas was the likely source of the COCs that had been detected.

Regarding chlorine coming from the cylinders, the *Original Interim Report* stated that although 'the cylinders might have been the source of the suspected chemical release, there is insufficient evidence to affirm this' (see para 1.7 p. 3; para 8.3: p. 29). This was turned around in the *Redacted Interim Report* to read '[t]he team has sufficient evidence at this time to determine that chlorine, or another reactive chlorine-containing compound, was likely released from the cylinders' (**emphasis added** *Redacted Interim Report*: para 1.7, p. 2 and para 8.3; p. 16). In the preceding paragraph, chlorine is in fact presumed to be the chlorine-reactive chemical: '*The FFM identified the likely source of chlorine (emphasis added) as the industrial gas cylinders found by the FFM team on the roof-terrace (Locations 2) and in the bedroom (Location 4) during the visits.*' (*Redacted Interim Report*: para 1.5; p. 2

and para 8.2; p. 16). These claims amount to falsehoods.

Regarding the levels of the COCs detected, the text was altered in the *Redacted Interim Report* to state that 'high levels' of COCs had been found (para 1.5; p. 2 and 8.2; p. 15) when the *Original Interim Report* speaks only of 'levels' (para 1.6; p. 2 and para 8.2; p. 29). Regarding wood samples, the *Original Interim Report* stated that: '[t]he conclusion from those results is that all the wood samples collected from Locations 2 and 4 had been in contact with a substance containing a reactive chlorine species' (*Original Interim Report*; para 7.6, p. 11)'; The *Redacted Interim Report* altered this to state: '[t]he results show that all the OPCW wood samples collected from Locations 2 and 4 had been exposed to chlorine gas or another reactive chlorine-containing chemical and in certain cases at **high concentrations**' (**emphasis added**; para 7.7, page 9). The 'Grave Concern' email protested the use of the term 'high' when referring to the levels of COCs, stating that '[t]hey were, in most cases, present only in parts per billion range, as low as 1-2 ppb, which is essentially trace quantities'.

In sum, the *Redacted Interim Report* misrepresented the evidence for chlorine gas release from the cylinders by misleadingly highlighting chlorine gas as the possible source for the detected COCs through a) omitting the examples of other possible sources for the detected COCs i.e. other substances containing reactive chlorine, specifically

phosgene, cyanogen chloride, hydrochloric acid, hypochlorous acid or sodium hypochlorite, b) falsely affirming the cylinders were the likely source of chlorine gas release, and c) misleadingly referring to levels of detected COCs as 'high'. Whelan describes these claims as 'highly misleading and not supported by the facts' (Grave Concern, email, see Appendix 2a).

### PUBLISHED INTERIM REPORT

During the discussions within the FFM team that followed the 'Grave Concern' protest, Whelan reported that he had secured agreement on what needed to be included as a minimum in what was to then become the *Published Interim Report* (Appendix 2b: April 2019 letter to the DG). First, Whelan stated that:

*As a result of research I had been conducting I discovered that the "chlorinated organic chemicals" identified in many of the samples from Douma could be present in the background environment as a result of anthropogenic [human]activity and in some cases as natural background. This finding raised serious doubts about the confidence in chlorine gas being present at the site of the incident. For this reason, the statement that "samples had been exposed to a reactive chlorine-containing chemical, possibly chlorine" was not necessarily true and had to be changed to the more factually correct and scientifically defensible "various chlorinated organic chemicals were found in samples ..." (emphasis*

*added, Appendix 2b: Letter to DG, 25 April 2019)*

The important finding that had been made by Whelan here was that the detected COCs, understood previously to be indicators of contact with a chlorine-reactive chemical, whether that be *molecular chlorine, phosgene, cyanogen chloride, hydrochloric acid, hypochlorous acid or sodium hypochlorite*, might actually already have been present in the environment before the alleged attack either occurring naturally or as a result of normal human activity.

As such, Whelan had established that the statements made in both the *Original Interim Report* and the *Redacted Interim Report* - '[b]ased on the levels of chlorinated organic derivatives, which are not naturally present in the environment... the FFM concludes that the materials from which the samples were taken at both locations had been in contact with one or more substances containing reactive chlorine.' (Original Interim report: para 1.6; p. 2. See also paras 7.14; p. 12 and 8.2; p. 29) - were likely to be overstating the evidence by claiming the detected COCs were caused by contact with chlorine gas or another chlorine-reactive chemical (such as *phosgene, cyanogen chloride, hydrochloric acid, hypochlorous acid or sodium hypochlorite*) when, in fact, they might have simply been naturally or normally present in the area.

Whelan subsequently gave a formal presentation to colleagues in July 2018 demonstrating how the chemicals found

in the Douma samples could be present in the background environment, and as such this information was available to investigators. In his letter to the DG Whelan wrote: *'[i]n this presentation I demonstrated how the chlorinated chemicals that had been detected in samples from Douma (open-source information by this time) can, in fact, be commonly present in the environment'* (Appendix 2b: 25 April Letter to DG).

Second, Whelan stated that:

*Many of the "chlorinated organic chemicals" found in the samples were reported to be present at levels of parts per billion (ppb), some as low as 1-2 ppb. These are sub-trace levels, so low in fact that they are at the limits of detection and below what is often present in the environment. ...*

*For this reason, I argued that the levels at which these compounds were present in samples was a critical finding by the designated lab that should be included to put the results in perspective....*

*... All the report reviewers, including the team leader, accepted the argument and the quantitative levels of chlorinated organic chemicals were incorporated into the draft report. (Appendix 2b: Letter to DG, 25 April 2019).*

The key point here is that because it was now understood that many of the detected COCs could be present in the environment, either naturally or as the

result of normal human activity, it was essential that both levels in test and control samples be reported in order to determine whether the COCs were actually naturally or normally present in that area of Douma, and therefore not compelling evidence for any possible chemical release; or whether they were indeed unusual and, therefore, evidence that a chlorine reactive chemical had been released.

Even then, Whelan reports that there were continued attempts to modify the *Published Interim Report* by unknown actors. In particular, the agreement regarding reporting levels was at the last minute not adhered to:

*The interim report was eventually issued on 6 July [2018]. However, some hours before it was to be released, there were again attempts, from unknown actors, to modify the language of the report in a way that would hint at unfounded conclusions. I and another key team member successfully stood steadfast against these changes. Vital information, however, relating to the quantitative levels of chlorinated compounds in the samples were, despite being agreed for inclusion earlier, unilaterally omitted at the last minute. The justification for the omission was that, the designated lab, at the eleventh hour, reportedly stated it could "no longer stand by the validity of their quantitative measurements", an explanation I was entirely dissatisfied with but could not argue against. (Appendix 2b: Letter to DG,*

25 April 2019).

When published the Published Interim Report did at least report the chemical analysis results as Whelan had insisted, stating only that '*various chlorinated organic chemicals were found in samples from locations 2 and 4*' (para 2.5; p. 2 and para 8.7 p.10), thus avoiding an unwarranted conclusion that the detected COCs were necessarily attributable to contact either with *molecular chlorine, phosgene, cyanogen chloride, hydrochloric acid, sodium hypochlorite or hypochlorous acid*. The report also corrected the overclaim made in the *Redacted Interim Report* regarding the cylinders being the 'likely' source of release by accurately stating that work 'is ongoing to assess the association of these cylinders with the incident' (Published Interim Report: para 2.6; p.3).

## FFM FINAL REPORT

The *FFM Final Report* includes much of the material from the *Original Interim Report* (see *FFM Final Report*: paras 8.6-8.19, pp: 13-15) and, responding to Whelan's protest, does not employ the term 'high' to describe the levels of detected chemicals (para 2.6 p. 3; para 9.1 p.30). Also, the reference to 'high concentrations' with respect to wood samples in the *Redacted Interim Report* is no longer present in the *FFM Final Report* (see in particular paras; 8.8. and 8.9; p. 13). Also, the *FFM Final Report*, again in response to Whelan's protest, does not make the claim made in the *Redacted Interim Report* that it was

'likely' the cylinders were the source of any chemical release (para 1.7, p. 2 and para 8.3; p. 15), downgrading instead to 'it is possible that the cylinders were the source' (*FFM Final Report*: para 2.16, p. 4 and para 9.11 p. 31). As such, the *FFM Final Report* appears, at first glance, to have responded to some of the concerns raised with respect to the *Redacted Interim Report*.

However, and critically, the *FFM Final Report* does affirm the likelihood that chlorine gas was released and, as such, makes a significantly strengthened claim relative to the *Published Interim Report* which had stated only that '*various chlorinated organic chemicals were found in samples from locations 2 and 4.*' (para; 2.5, p. 2 and para 8.7; p.10). The *FFM Final Report* states:

*[b]ased on the levels of chlorinated organic derivatives, detected in several environmental samples gathered at the sites of alleged use of toxic chemicals (Locations 2 and 4), which are not naturally present in the environment, the FFM concludes that the objects from which the samples were taken at both locations had been in contact with one or more substances containing reactive chlorine (para 2.6; p.3 and para 9.1; p.30; see also para 8.15; p.14)*

And:

*'evaluation and analysis of all the information gathered by the FFM ... provide reasonable grounds that the use of a toxic chemical as a weapon*

took place. *This toxic chemical contained reactive chlorine. The toxic chemical was likely molecular chlorine.* (emphasis added para 2.17; p. 4 and para 9.12; pp 31-32).

In making these claims the *FFM Final Report 1*) reinstates the claim made in the *Original Interim report* and the *Redacted Interim Report* that COCs not normal (i.e. neither natural nor the result of normal human activity) to the area had been detected in many samples; and 2) makes a strengthened claim that the chemical causing them could be narrowed down to it likely being chlorine gas. We discuss each of these modifications in turn.

### **1] CLAIMING THE COCS DETECTED WERE NOT NATURAL OR NORMAL TO THE AREA BUT WITHOUT PRESENTING THE NECESSARY QUANTITATIVE LEVELS AND CONTROL SAMPLE RESULTS**

In his 25 April 2019 letter to the DG, Inspector Whelan challenged this claim as follows:

*In particular, the wording from the interim report (“various chlorinated organic chemicals were found in samples ...”) has been altered to read, without presenting any additional evidence or reasoning, “samples taken at both locations had been in contact with one or more substances containing reactive chlorine”. This claim is unsubstantiated and scientifically irresponsible given the information the team possessed*

*and had discussed internally, that chlorinated organic chemicals found in the samples are common in the environment (from chlorine treated water and wood preservatives among others) and crucially, were detected at sub-trace levels.*

...

*Compounding many fundamental failings of the FFM Final Report is the fact that no background samples were analysed to put the detection of chlorine-containing compounds in context. Without measures of background levels, the detection of chlorinated organic compounds and inorganic chloride ion has little value since these chemicals can be present in the environment, as my earlier research showed ... (Appendix 2b: Letter to DG, April 2019).*

As discussed earlier, it had been established by Whelan, and agreed by the FFM team during discussions running up to the *Published Interim Report*, that many of the COCs previously thought to be indicators of a chemical release were in fact either natural or normal to the environment especially at trace levels. It was for this reason that Whelan had argued quantitative levels of the detected COCs was essential information that needed to be reported in order to determine their significance. Indeed, the *FFM Final Report* itself acknowledges that control samples needed to be collected for this reason:

*Although molecular chlorine is not*

*naturally present in the environment, chloride ions and many chlorinated organic derivatives exist in the natural background. For that reason it was important to gather control samples, wherever feasible, at locations not expected to have been exposed to chlorine gas. (Annex 4; p. 43)*

The *FFM Final Report*, however, reports neither quantitative levels nor control sample results. It spends eight paragraphs (paras 8.6-8.14; pp: 13-14) discussing various findings from the chemical analysis but does not report, either here or in the Annex on chemical analysis results (Annex 5; pp: 44-51), the quantitative levels or results from background control samples for the COCs.

In sum, the *FFM Final Report* bases its conclusion that COCs were ‘not naturally present in the environment’ on the ‘levels’ detected, implying they were above what might normally be expected if they were either naturally occurring or as the result of normal human activity. It omits, however, the quantitative levels and control sample results necessary to show if this was actually the case.

## 2] NARROWING DOWN TO CHLORINE GAS VIA ANALYSIS INVOLVING OMISSION, FABRICATION AND FALLACIOUS REASONING

Without having presented the necessary quantitative levels and control sample results necessary to show the COCs detected were neither natural to the

area nor the result of normal human activity, the *FFM Final Report* proceeds anyway to conclude that they were the result of the release of a chemical such as *molecular chlorine [chlorine gas], phosgene, cyanogen chloride, hydrochloric acid, hypochlorous acid or sodium hypochlorite:*

*The findings discussed in paragraphs 8.9 to 8.14 indicate that a substance, or a combination of substances (such as molecular chlorine, hypochlorous acid [disinfectant] or sodium hypochlorite [bleach]) containing a reactive chlorine atom was in contact with many of the samples collected at both alleged incident sites (Locations 2 and 4) (emphasis added: para 8.15; p. 14)*

The *FFM Final Report* then proceeds to rule out the competing sources to leave chlorine gas as the likely option. In his April 2019 letter to the DG, Inspector Whelan challenged this claim stating that although the detected COCs:

*‘could indeed be the result of exposure to substances containing reactive chlorine, such as molecular chlorine or house-hold bleach’, the FFM selectively decided it was ‘likely [to be the result of exposure to] molecular chlorine’, with no supporting scientific evidence for the choice and based on fallacious reasoning and flawed analytical procedures (i.e. absence of any background analysis).*

As can be observed through examination of the *FFM Final Report*, the process of

ruling out the other possible sources involved, a) unexplained omission, b) fabrication, and c) fallacious reasoning. We deal with each in turn.

**A ]** Although *hydrochloric acid* is mentioned in the '[d]iscussion of analysis results' (paras 8.6-8.14; pp: 13-14), no rationale is provided to rule it out and, come paragraph 8.15 (see above), it is simply no longer mentioned.

**B ]** Regarding sodium hypochlorite (household bleach), the FFM Final Report states:

*At both locations, there were no visible signs of a bleach agent or discoloration due to contact with a bleach agent. (FFM Final Report: para; 8.16; p. 14)*

It has been reported,<sup>189</sup> however, (and has not been denied by the OPCW) that no such 'negative' observation regarding bleach was ever recorded during the on-site inspection and it is unclear on what basis this claim was inserted into the *FFM Final Report*, particularly since open-source videos indicate bleach stains on some of the clothing worn by victims. The impact of inserting this statement however is clear. By doing so, the possibility of household bleach being the source of the COCs is taken off the table.

**C ]** Regarding hypochlorous acid, no justification is presented to rule it out and the FFM Final Report instead states:

*Based on the sample analysis and*

*the observation on site, there were reasonable grounds to indicate that the environment in both locations was in contact with molecular chlorine or hypochlorous acid. Knowing that hypochlorous acid is a disproportionation product of molecular chlorine in contact with water, there were reasonable grounds to indicate that molecular chlorine was present first in that environment. (FFM Final Report; para 8.17. p. 14)*

This is fallacious reasoning, arguing as it does that because chlorine gas is a possible source of hypochlorous acid, then there are 'reasonable grounds' to believe that this was indeed the case. This argument provides no grounds, for example, for ruling out household disinfectant which is also a source of hypochlorous acid.

In sum, the *FFM Final Report* employs analysis involving omission, fabrication and fallacious reasoning to rule out the other sources for the detected chemicals thus leaving the impression of chlorine gas as the remaining most likely chemical.

**FURTHER ISSUES: FAILURE TO ESTABLISH A LINK BETWEEN ANY POSSIBLE CHLORINE GAS RELEASE AND THE TWO YELLOW CYLINDERS AND FAILURE TO INVESTIGATE SIGNIFICANT ANOMALIES**

As described earlier, the *Original Interim Report* had suggested that although the two chlorine cylinders 'might have been the sources of the suspected chemical

release, there is insufficient evidence to affirm this' (para 1.7; p.3). This, as detailed earlier, was turned around, without any evidence in the *Redacted Interim Report* to read '[t]he team has sufficient evidence at this time to determine that chlorine, or another reactive chlorine-containing chemical, was likely released from cylinders.' (para 1.7, p. 2 and para 8.3; p. 16). After the 'Grave concern' protest from Inspector Whelan that unsupported claim was removed from the *Published Interim Report*.

In the *FFM Final Report* the authors essentially agree with the conclusion in the *Original Interim Report* acknowledging that there was no clearly established link between the cylinders and the toxic chemical claimed to be present on site. The report claims that it is only 'possible [emphasis added] that the cylinders were the source of the substances containing reactive chlorine' (*FFM Final Report*: para 2.16, p. 4 and para 9.11 p. 31), a similar construct to the *Original Interim Report*, which suggested the cylinders 'might have been the sources of the suspected chemical release' but there was insufficient evidence to support that hypothesis.

The climb down in confidence compared to the *Redacted Interim Report* is significant. First, it means that a key question in the investigation, i.e., if the cylinders were the actual source of the supposed toxic chemical, has not been resolved by the chemical analysis. Secondly, this being the case, it is not clear how the drafters of the *Redacted Interim Report* claimed to have had

sufficient evidence to support the assessment that the toxic chemical likely came from the cylinders. The obvious question begged is what changed for the drafters to state there was no longer 'sufficient evidence' come the *FFM Final Report*? One possibility here is that the FFM received new information that undermined the original assessment. Another possibility is that the authors misrepresented the evidence in the *Redacted Interim Report* but then downgraded the assessment in the *FFM Final Report* because the inaccuracy had been protested, and the original claim could not be defended.

On the issue of the cylinders, it is notable that the *FFM Final Report* presents one further paragraph in the section '[d]iscussion of analysis results' (paras 8.6-8.19; pp: 13-15) which appears to be an attempt to imply chlorine was released from them, but without fully substantiating the argument.

*The analysis results (Annex 5) of the samples taken by the FFM from the cylinders and their proximity to other sampled points exposed to reactive chlorine at both locations, show higher levels of chloride in addition to the presence of chlorinated organic compounds. (para 8.18. pp. 14-15)*

Here the *FFM Final Report* lists chloride (an element of common table salt and not to be confused with chlorine gas but which can form from the decomposition of chlorine gas) as having been found at 'higher' levels in samples taken from the chlorine cylinders themselves

(Annex 5: entries 2, 3 and 17) and also in samples taken from nearby the cylinders (Annex 5: entries 8, 20, 21, 22, 24). The attempted rationalisation to suggest the cylinders were the source of a release is problematic for three reasons:

1) *The yellow cylinders are clearly, by design, chlorine cylinders which at one stage would have contained chlorine gas. It is therefore reasonable to expect they would show presence of chloride (from decomposition of the chlorine gas).*

2) *The report claims 'higher' levels of chloride but does not state what these levels are in relation to. No background/control sample data for chloride is presented to show it was higher than might be already present in the environment. This was despite the fact that control samples were gathered for that purpose.*

3) *The argument as presented in paragraph 8.18 ignores one other key piece of evidence (FFM Final Report: Annex 5: entry 25). This entry refers to a pair of disposable rubber gloves found on the staircase at Location 4. Analysis showed that the level of chloride detected on these gloves was far higher (in fact the highest level of chloride detected in any sample) than that detected on any of the cylinders. This is a potentially significant finding which the FFM Final Report omits discussion of.*

This final point raises the important question of why a pair of disposable

gloves found on the stairway outside the room with the cylinder on the bed at Location 4 would show far higher levels of chloride than the inside of the cylinder itself. It is disingenuous to imply that high levels of chloride found on the cylinders was significant whilst even higher levels found on a pair of disposable gloves (which could indicate they were used to handle chlorine-based substances) is not even mentioned. A similar odd observation is noted elsewhere in the report where reference is made to a viscous liquid that was found on presumably the same gloves and at the entrance to and inside the room at Location 4:

*'The FFM team observed a viscous liquid throughout the room, which was not apparent in videos. The same liquid was observed also before the entrance to the apartment and on disposable gloves present at the location (Annex 5)' (FFM Final Report: Annex 7; p. 63).*

Remarkably, the investigation team did not see fit to follow up on this information to try to answer the obvious question: Was some chloride or chlorine containing chemical manually strewn about the room by someone wearing the gloves found on the stairs? As such, the reference to chloride in paragraph 8.18, and what it omits to mention regarding the gloves, simply raises further questions about other possible explanations for the chemical analysis results and the logical possibility that a chemical or combination of chemicals could have been placed at the location,

as opposed to chlorine gas having been released from the cylinders.

## THE 2023 IIT REPORT

The IIT report states that it undertook a number of steps to clarify and deepen its understanding of the findings by the FFM that reactive chlorine was used as a weapon' (IIT: para 6.36; p. 26). This 'deepening' involved further analysis of the FFM findings by a single chemist in combination with two 'supplementary samples' one of which was passed by a 'third party at Location 2 in Douma on 8 April 2018' (IIT Report: paras 6.43-6.44: p. 29). The chemist was also 'asked to give particular consideration to the hypothesis that household bleach products' could have been the source of the chemical results (IIT Report: para 6.47; p. 30).

Whether or not the new samples and the analysis provided by the single chemist actually provides new evidence of chlorine gas release is not clear. However, several issues are immediately obvious.

First, the focus on providing additional evidence in support of chlorine gas release tacitly confirms the validity of criticisms regarding the *Redacted Interim Report* and the *FFM Final Report* which revolved around the failure to substantiate claims of likely chlorine gas release.

Second, the IIT Report does not report full details – levels across samples and control samples – of chemical analysis

results and as such perpetuates a key flaw identified regarding the *FFM Final Report*.

Third, significant analytical weight is placed in the IIT Report on the presence of TeCP (tetrachlorophenol) in the concrete sample supplied by a third party. The IIT Report claims 'the presence of TeCP clearly points to chlorine gas as being the chlorinating agent present at the scene, and in very high concentrations' (IIT Report: para 6.52; p. 30). The IIT Report goes on to state that samples taken from the street at the entrance to Location 2 did not show either TeCP or another highly chlorinated phenol TCP (trichlorophenol). This, the IIT claims, is consistent with chlorine gas being released from the cylinder because one would expect highly chlorinated phenols to be detected close to the cylinder, where concentrations are highest, and not detected further away where concentrations would be lower: 'This [cylinder was the source] is indicated by the presence of highly chlorinated phenols TCP and TeCP at the sampling locations close to the cylinder (i.e. at the crater on the roof and in the room under the cylinder), as opposed to the least chlorinated phenols MCP and DCP on the street far away from the cylinder' (IIT Report: para 6.57; p.32).

However, two issues immediately stand out here. First, examination of the *FFM Final Report* chemical analysis results tables shows that TeCP was also identified in samples from the tunnel leading to the hospital at Location 1 which is even further away from the

cylinder at Location 2 than the two samples from the street outside the Location 2 building that showed no TeCP/TCP. This inconsistency, which obviously undermines their argument, is unexplained in the IIT Report. Second, the concrete sample presented by a third party has actually been used to replace the FFM's own sample of concrete collected from the exact same location (in the room below the cylinder): this can be seen in the sample table of the *FFM Final Report*. Why the IIT analysed this sample of concrete rather than their own sample of concrete is, remarkably, left unexplained.

Fourth, in its discussion of wood samples, the IIT Report misleadingly claims that the fact that '[c]hlorine gas is the only chemical that, alone, would produce both BC (Bornyl chloride) and TCP in conifer wood' (IIT Report: para 6.60; pp. 32-33) is 'strong evidence of the presence of chlorine gas in the building' (IIT Report: para 6.68; p. 36). This claim is based entirely on an unwarranted assumption that BC and TCP were produced simultaneously, from a single source, and at the time of the alleged attack. Importantly, as pointed out by Inspector Whelan, TCP is frequently found in the environment and, as such, the assumption made by the IIT is not warranted.<sup>190</sup>

Fifth, although claiming to consider alternative scenarios involving the staging of a chemical attack, their arguments, based on chemical analysis results, are problematic. Specifically, as part of ruling out the possibility of

household bleach having been used, the IIT draws upon the same TeCP sample (IIT Report: para 6.58, p. 32) that has been supplied by an unknown third party and used to replace the sample originally collected by the OPCW itself. In addition, the IIT's approach to ruling out staging with chemicals fixates on the possible use of other chemicals (IIT Report: paras 6.83- 6.91: pp: 38-40) to simulate chlorine gas release but ignores the obvious possibility that chlorine gas might have been released as part of staging. Furthermore, and most importantly, the IIT Report fails to address the direct evidence of possible staging that can be identified in earlier reports: a pair of gloves at Location 4, covered in the same unknown liquid that was observed spread across the room, and which contained the highest reading of chloride.

Sixth, argument based upon experiments with wood samples (IIT Report: paras 6.62-6.63; p. 34) contains no reference to necessary information regarding levels or control samples. Also unexplained is why a copper wire sent for analysis, apparently showing signs of corrosion attributable to chlorine gas (IIT Report: para 6.65), was not originally sent for analysis in 2018 (if it originally showed such corrosion it would have presumably been sent for analysis in 2018).

## SYNTHESIS

Across the *Redacted Interim Report* and *FFM Final Report* one can observe attempts to strengthen the claim that

chlorine gas was released by suggesting, without supporting scientific evidence, that it was the source of the COCs detected in the chemical analysis. This was most striking with respect to the *Redacted Interim Report* which presented a falsified conclusion by emphasizing the possibility that chlorine gas had been released by omitting information regarding other possible sources for the detected COCs, inaccurately claiming there was 'sufficient' evidence affirming the cylinders were the likely source of release, and misleadingly referring to the levels of detected COCs as 'high'. These falsehoods led to the 'Grave Concern' protest from Inspector Whelan.

Following the 'Grave concern' protest email and further research by Whelan, it was understood and agreed that many of the detected COCs previously understood to be indicators of a reactive chlorine-containing chemical, possibly chlorine gas, having been released could in fact be normally or naturally present in the environment especially at trace levels. Accordingly, it was agreed that quantitative levels had to be reported. The agreement, however, was later reneged on: At the last minute, despite protests from Whelan, they were unilaterally excluded from any mention in the Published Interim Report. The report did, however, at least avoid overstating the significance of the chemical analysis results stating only that '[v]arious chlorinated organic chemicals were found in samples from locations 2 and 4', thus avoiding an unwarranted conclusion that the detected COCs were necessarily attributable to contact with molecular

chlorine, phosgene, cyanogen chloride, hydrochloric acid, sodium hypochlorite or hypochlorous acid.

Come the *FFM Final Report*, however, the claim that the COCs detected were neither natural nor normal was reinstated whilst a strengthened claim was made that chlorine gas had 'likely' been released. To the extent that these claims draw upon the chemical analysis, they are unsupported based as they are on a) the omission of the quantitative levels and control sample results necessary to show that the detected COCs were indeed unnatural or unusual, and b) creating the impression that chlorine gas was the source of COCs via analysis involving omission, fabrication and fallacious reasoning. In addition, analysis related to an attempt to link chlorine gas release with the yellow cylinders begged further questions surrounding manipulation of evidence – and staging – at Location 4 but which were left unexplored.

Additional analysis presented in the recently published IIT report claims to present new evidence in support of chlorine gas release but this contains obvious flaws including exaggerated claims regarding the significance of the chemical TeCP, unexplained replacement of an OPCW gathered sample with one presented by a third party, and demonstrably inadequate attempts to rule out 'alternative scenarios'.

The *FFM Final Report* finds that there were 'reasonable grounds that the use of a toxic chemical as a weapon took place. This toxic chemical contained reactive

chlorine. The toxic chemical was *likely* molecular chlorine.’ To the extent that this claim relies upon chemical analysis, it does so on the basis of essential information being omitted, analytical errors and providing insufficient evidence that the yellow cylinders were the source of any chemical released. It is, furthermore, concerning that information that presented evidence of staging – signs of bleach stains on the clothing of victims and the presence of high levels of chloride on gloves at location 2, couple with reports regarding a viscous fluid at Location 4 – was left unexplored. Because of these flaws the *FFM Final Report* obfuscates rather than resolves key issues indicated in the *Original Interim Report* and, as a consequence, creates a misleading impression that it has presented stronger chemical evidence than it actually has done. This, in turn, contributes towards enabling the conclusion to be biased towards claiming that there are ‘reasonable grounds’ an attack with chlorine gas occurred. As such, the *FFM Final Report* claim regarding chemical analysis contributing towards the ‘reasonable grounds’ conclusion is not tenable. Whether or not the analysis presented in the IIT Report, which contains multiple problems, succeeds in presenting new and substantive evidence of chlorine release is unclear.



# ANNEX FOUR

**BALLISTICS ISSUES AND THE YELLOW CYLINDERS;  
INSUFFICIENT INFORMATION TO SUBSTANTIATE  
KEY CLAIMS, ANALYTICAL ERRORS AND FAILURE TO  
ADEQUATELY ADDRESS SIGNIFICANT INFORMATION  
INDICATING AN ALTERNATIVE EXPLANATION FOR THE  
HOLE AT LOCATION 2**

## **WHAT THE COURAGE FOUNDATION PANEL SAID:**

*'The unauthorised disclosure of the Engineering Assessment in May 2019 of the two munitions found at Locations 2 and 4, and subsequently acknowledged by the Director General as bona-fide, revealed the diametrically opposing views of inspectors within the FFM team. Although the panel does not have the technical competence to judge the merits of the contradicting studies (i.e. the study described in the final report versus the leaked engineering report), it was surprised by how little consideration was given to alternative hypotheses in the final report.*

*One alternative ascribing the origin of the crater to an explosive device was considered briefly but, despite an almost identical crater (understood to have resulted from a mortar penetrating the roof) being observed on an adjacent rooftop, was dismissed because of "the absence of primary and secondary fragmentation characteristics". In contrast, explosive fragmentation characteristics were noted in the leaked study<sup>191</sup>*

## **INTRODUCTION**

Two yellow cylinders were photographed at Locations 2 and 4 and it was alleged that these were the source of chlorine gas and that they had been dropped onto the buildings. The cylinder at Location 2 was photographed poised over a hole in a concrete metal bar reinforced ceiling having allegedly punched the hole but failing to fall through it (see image 8 left); the cylinder at Location 4 was found on a bed after it had allegedly penetrated a concrete metal bar reinforced ceiling, hit the floor below, and then bounced laterally 3 metres across a room to land on a bed (see image 9 right). Key concerns raised in the *Original Interim Report* related to the compatibility between the damage observed on the cylinders and that observed at the two locations and, in view of the observed damage, whether it was plausible that the cylinders had in fact been dropped from a height onto the rooves.



Image 8



Image 9

The image on the left shows the cylinder on the balcony at Location 2 (*FFM Final Report Annex 6 p. 54*) and the image on the right shows the cylinder on the bed at Location 4 (*FFM Final Report Annex 7 p. 61*).

## ANALYSIS OF THE FOUR FFM REPORTS

### ORIGINAL INTERIM REPORT

After identifying toxicology issues, the *Original Interim Report* executive summary highlights concerns about the two yellow cylinders found at Locations 2 and 4 (para 1.12; p. 3). The first concern was whether the relatively slight damage observed on the cylinders was compatible with the damage seen

at Locations 2 and 4. At Location 2 the cylinder had apparently created a hole in a metal bar reinforced concrete ceiling (See Images 10, 11 and 12) whilst at Location 4 the cylinder had broken through a metal bar reinforced ceiling, landed on the floor beneath, and then apparently bounced sideways travelling three meters across the room to then land on a bed. This sideways bounce was considered inexplicable by the investigators. (See Image 13).



Image 10

Location 2 and cylinder (*Original Interim Report: Annex 6; p. 54* and *FFM Final Report: Annex 6 p. 54*).



Image 11

Location 2 hole in ceiling (*Original Interim Report: Annex 6; p. 54* and *FFM Final Report Annex 6; p. 54*).



Image 12

Location 2 cylinder head (Original Interim Report: Annex 6; p. 53 and FFM Final Report Annex 6 p. 53)



Image 13

Graphic showing images from Location 4 and the alleged trajectory of cylinder after it had penetrated the roof (Original Interim Report: Annex 7: p. 58 and FFM Final Report Annex 7: p. 61).

Specifically, the *Original Interim Report* states 'the FFM team is unable to provide satisfactory explanations for the relatively moderate damage to the cylinders allegedly dropped from

an unknown height, compared to the destruction caused to the metal bar reinforced concrete roofs' ([Summary]: para 1.12; p. 3 & paras 7.27-7.28: p. 16 & para 7.34; p. 19).

Regarding the cylinder at Location 4, the report raises uncertainties regarding how the cylinder ended up on the bed: *'how the cylinder ended up on the bed, given the point at which it allegedly penetrated the room, remains unclear'* (Original Interim Report [Summary]: para 1.12; p. 3 & paras 7.31-7.33; pp. 16-19). This issue is further elaborated in the body of the report:

*It was not apparent how a cylinder that seems to have entered the room at an angle perpendicular to the floor might have sufficient lateral momentum to travel more than three meters from the presumed impact point inside the bedroom (the floor directly beneath the hole in the ceiling) to its final resting position on the bed. Witness testimonies state that the cylinder was originally found on the bed by the first responders who were the first to enter the building, ruling out the possibility therefore that it was moved by someone from the impact point on the floor on to the bed. (para 7.32; p. 18)*

Additional analysis raising questions about the cylinders can be found in the Annexes to the *Original Interim Report* where it is questioned again whether the damage to the cylinder head at Location 2 is compatible with the damage to the roof and, in addition, why the cylinder at Location 2 failed to pass through the hole it had allegedly created in the ceiling:

*Considering, on the one hand, the size of the cylinder and its estimated weight, and on the other, the almost*

*perfectly circular shape of the crater purportedly created by the cylinder in the reinforced concrete, the damage to the body of the cylinder appears slight, particularly at the head of the cylinder where there is only a few minor indentations. Moreover, it is unclear why the cylinder did not pass through the crater after penetrating it (Annex 6; para 37 p. 54)*

Further matters raised included identification of a similar hole on a nearby building, the claim from a witness that a fire had been started in the room below the cylinder in order to detoxify it, and a number of 'observed changes to the scene' which included a) movement of the cylinder several times before the FFM visit, b) movement of debris in front of the cylinder and c) the removal of the heavily buckled metal frame and fins that had previously been observed on the balcony and which were alleged to have become detached from the cylinder (Original Interim Report: Annex 6; paras 35-41, pp. 54-55).

The similar looking hole on a nearby building, which appeared to be the result of an artillery/mortar shell impact, raised an obvious alternative explanation for the damage seen at Location 2:

*The FFM team noted that a similar crater (see photos below) was present on a nearby building and considered the possibility that the crater could have already been present in the terrace at the time of the alleged incident and therefore not the result of the impact by the cylinder. (Original*



Image 14

Showing mortar/artillery shell on adjacent building (Annex 6; p. 55)



Image 15

*Interim Report: Annex 6; para 38, p. 54)*

Regarding the cylinder at Location 4, the inexplicability of the sideways bounce is further elaborated on in the Annexes:

*It appears that the cylinder would have penetrated the ceiling at the spot marked 1 in the diagram below. Beneath the hole, allegedly made by the passing cylinder, there is damage to the side of the large wardrobe (number 2). It is not clear what would have caused the cylinder to change trajectory towards the bed, since there are no indications that it made contact with any of the walls or window underneath. It is unclear also how the cylinder would have sufficient kinetic energy to travel the more than three meters towards the bed and land atop without causing significant damage to the bed. (Original Interim Report: Annex 7; para 44; p. 59)*

Having described the issues and concerns of the FFM team, it is clearly

stated in the *Original Interim Report* that the '[t]he view of the team is that further studies by specialists in metallurgy and structural engineering or mechanics are required to provide an authoritative assessment of the team's observations' (Original Interim Report: para 8.8; p. 29).

**REDACTED INTERIM REPORT:  
SUPPRESSING CONCERNS ABOUT  
THE DAMAGE AND HOW THE  
LOCATION 4 CYLINDER CAME TO  
BOUNCE ACROSS THE ROOM TO  
REST ON A BED**

Concerns with respect to elimination of matters relating to ballistics and the cylinders were first raised in the 'Grave Concern' email:

*The original report has extensive sections regarding the placement of the cylinders at both locations as well as the relative damage caused to the impact points, compared to that caused to the cylinders suspected of being the source of the toxic chemical. These sections are essentially absent*

from the redacted report. (Appendix 2a: 'Grave Concerns' email).

Examining the *Redacted Interim Report* it can be seen that discussion of the cylinders, other than to identify them as 'the likely source of chlorine', is removed entirely from the summary (paras 1.1-1.8; pp: 2-3). In the body no mention could be found of the question marks over the compatibility between the damage on the cylinder at Location 2 and the roof. Instead, the text reads with respect to the Location 2 cylinder as follows:

*At this stage, work is still progressing in relation to the location of the cylinder, its provenance on the roof and the damage to both the rebar-reinforced concrete terrace and the cylinder. The FFM team considers that experts in structural engineering and metallurgy would be required to provide a competent assessment of the relative damages. (Redacted Interim Report: para 7.19; p. 11)*

And with respect to the Location 4 cylinder:

*The team considers that further analysis would need to be conducted by suitable experts, possibly in metallurgy and structural or mechanical engineering, to provide an assessment of the trajectory of the cylinder, in addition to the damage caused to the bed, the roof and the cylinder itself. (Redacted Interim Report: para 7.22; p. 13-14)*

With respect to the question of how the

cylinder bounced across the bedroom, this is removed and the possibility of manual placement downplayed. Here it is notable that the *Original Interim Report* had avoided prejudging whether the cylinder at Location 4 either bounced across the room following penetration of the roof, or if it was simply moved from the floor to the bed by hand:

*In the case of Location 4, how the cylinder ended up on the bed, given the point at which it allegedly penetrated the room, remains unclear. (Original Interim Report (Summary) para 1.12; p. 3)*

And:

*It was not apparent how a cylinder that seems to have entered the room at an angle perpendicular to the floor might have sufficient lateral momentum to travel more than three meters from the presumed impact point inside the bedroom (the floor directly beneath the hole in the ceiling) to its final resting position on the bed. Witness testimonies state that the cylinder was originally found on the bed by the first responders who were the first to enter the building, ruling out the possibility therefore that it was moved by someone from the impact point on the floor on to the bed.*

*The team considers that further analysis would need to be conducted by suitable experts, possibly in mechanical engineering, to provide a qualified competent assessment of the trajectory of the cylinder. (Original*

*Interim Report: paras 7.32-7.33: pp: 18-19)*

In the *Redacted Interim Report*, however, the only reference made is to the 'trajectory' of the cylinder:

*The team considers that further analysis would need to be conducted by suitable experts, possibly in metallurgy and structural or mechanical engineering, to provide an assessment of the trajectory of the cylinder, in addition to the damage caused to the bed, the roof and the cylinder itself. (para 7.22; pp. 13-14):*

The term 'trajectory' is usually associated with the motion of an object that has kinetic energy as a result of falling from a height or being propelled in some way. As such, by using only this term in relation to the cylinder at Location 4, the *Redacted Interim Report* downplays the possibility of manual placement. There is also no mention in the *Redacted Interim Report* of the mortar/artillery shell hole observed on the neighbouring building.

Overall, whilst it is noted in both reports that further expert assessment was needed in order to understand the observations at Locations 2 and 4, the material explaining why any doubts emerged in the first place is removed from the *Redacted Interim Report*, whilst alterations work to exclude the possibility that someone might have simply placed the cylinder on the bed. These are not trivial modifications. If the investigators decided it necessary to recruit outside experts in order to

help explain seemingly inexplicable observations it would seem to imply there had been doubts on the part of the Douma team. As such, by removing such doubts the *Redacted Report* misrepresents the team's assessment of the situation, and to a reader of the report, creates the impression that the need to obtain further specialist advice was a normal and unremarkable part of an on-going investigation.

In the *Published Interim Report* - agreed by Whelan in expectation that the ballistics issues would be adequately addressed in the *FFM Final Report* – the issues are referred to as follows:

*'work is in progress regarding the location of the cylinder, its provenance, and the damage to both the reinforced concrete balcony and the cylinder (para 8.12; p. 11)*

And:

*'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 (sic) 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'(para 8.14; p. 11)*

And:

*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, and relative damage to the cylinders and the roofs, and how the cylinders arrived at their respective locations. (Published Interim Report [Summary]: para 2.6: p. 3)

**THE FFM FINAL REPORT:  
INSUFFICIENT INFORMATION  
AND ANALYSIS NECESSARY TO  
ACCOUNT FOR THE DAMAGE  
OBSERVED ON THE CYLINDERS  
AND ANALYTICAL ERRORS**

In his 25 April 2019 letter to the DG, Whelan wrote:

*The final report additionally contains (with respect to the original unpublished report) a large section on the engineering studies of the two cylinders and their provenance. As an organic chemist, I do not have the competence to comment on the damage to the cylinders, the roofs or their provenance. My colleague REDACTED an experienced engineer who has an extensive background in the subject does however have the competence. I understand that he also has serious concerns about the reporting of this issue in the Final Report and the way this part of the investigation was conducted. (Annex 2b)*

Superficially, the *FFM Final Report* claims to resolve the issues raised in the *Original Interim Report* and does so on the basis of consultations with what it describes as

three independent experts. The identity of these experts is not revealed by the OPCW and any detailed reports they might have provided are unavailable. The *FFM Final Report* concludes that the observations at the scenes of both Locations 2 and 4, including the relative damage to the metal bar reinforced concrete ceilings and the cylinders, was consistent with the holes being formed by the cylinders and, as such, affirms the idea that the cylinders were dropped from a height.

However, in general terms, there is a clear lack of detail and evidence presented in the *FFM Final Report*. For example, the *FFM Final Report* relays its findings in 11 paragraphs (paras 2.13-2.15, p. 4; paras 8.29-8.31, p. 17; paras 8.34-8.35, pp. 19-20 and paras 9.8-9.10, p. 31) and with two of these (paras 2.14 and 2.15, p. 4) each being repeated twice (para 8.31, p.17; para 9.9, p. 31 and para 8.34, p. 19; para 9.10, p. 31) across the body and conclusion of the report.

Other than an attempt to rationalise the bounce of the cylinder at Location 4 (para 8.34, p. 19), the main section of the report provides little detailed analysis and consists primarily of descriptive material and assertions alongside various images from computer simulations and photographs of the cylinder (see pages 17-20). More material is provided in Annexes 6 and 7 (pp: 53-64) but most of this is again description and images from computer simulations and lacks detailed analysis (other than an attempt to rationalise why the cylinder at Location 2 did not penetrate the ceiling and the

ruling out of a mortar/artillery shell being the cause of the damage at Location 2).

Critically, and beyond an eight-sentence description of the experts' analyses in annex 12 (p. 104), there is no detailed description of methodologies, calculations or simulations presented in the *FFM Final Report* and it is therefore not possible to evaluate the reasoning employed by the three experts. Most importantly, the *FFM Final Report* omits the analysis necessary to show that the damage observed on the cylinders was compatible with the damage to the metal bar reinforced ceilings and, consequently, the *FFM Final Report* does not demonstrate that the issues raised in the *Original Interim Report* have actually been addressed. These matters are now discussed in detail.

**LOCATION 2 CYLINDER ON THE BALCONY: INSUFFICIENT ANALYSIS AND INFORMATION NECESSARY TO ACCOUNT FOR THE DAMAGE OBSERVED ON THE CYLINDER, ANALYTICAL ERRORS INVOLVING AN ALLEGED 'DOUBLE IMPACT' HYPOTHESIS, AND FAILURE TO RESOLVE ANOMALIES**

With respect to the compatibility between the damage to the cylinder and ceiling at Location 2, the *FFM Final Report* states 3 times that:

*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-top terrace, the aperture, the balcony, the surrounding rooms, 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' ([summary] para 2.14; p. 4. See also paras 8.31; p. 17 & para 9.9; p. 31)*

This convoluted statement appears to be a summary of the findings of the three reportedly independent experts. One would expect it to be followed by detailed reasoning and supporting analysis, but this is notably absent in the *FFM Final Report* as we shall now show.

Annex 6 (para 7: p. 55) includes a double impact rationalization as to why the cylinder at Location 2 did not penetrate the ceiling, an issue raised, as noted above, in the *Original Interim Report* – 'Moreover, it is unclear why the cylinder did not pass through the crater after penetrating it' (*Original Interim Report*: Annex 6; p. 54). The rationalization is based on the claim that the cylinder first impacted a roof corner, slowing it down, before it then impacted the ceiling (*FFM Final Report*: annex 6; pp: 55-57). The *FFM Final Report* (Annex 6: para 7; p. 55) states:

*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 the 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.

photographs of the cylinder and a screenshot from a computer simulation purporting to show 1) the damage caused by this alleged first impact to the cylinder and 2) the penetration of the ceiling during the second alleged impact when the cylinder allegedly created a hole in the ceiling but failed to pass through it (see Images 16, 17 and 18) (Annex 6; pp; 56-58).

The FFM Final Report then presents

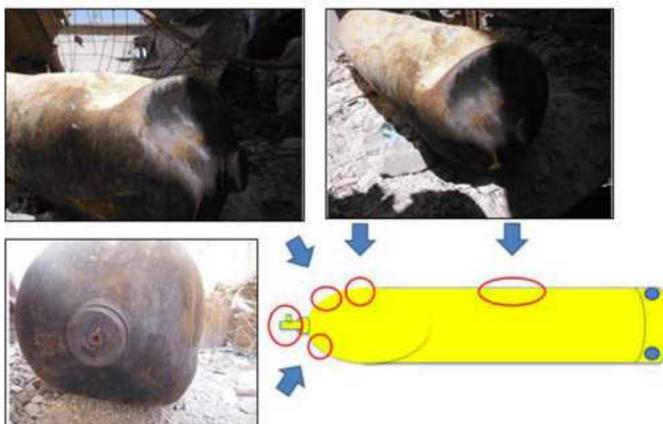


Image 16

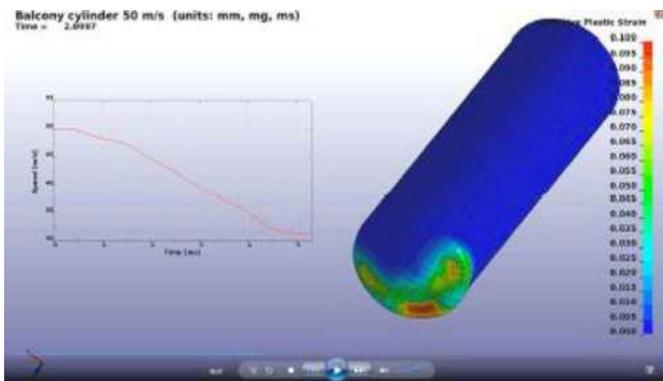


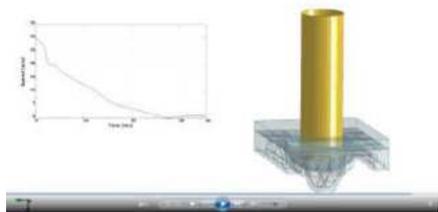
Image 17

Location 2 Cylinder images and computer graphic regarding alleged initial impact with roof corner, FFM Final Report Annex 6: p. 56.

This material, however, does not address the concern raised in the Original Interim Report with respect to the lack of damage to the cylinder head relative to the damage to the ceiling and the metal reinforcement bars (some of which are deflected through greater than 90 degrees). Specifically, whilst the screenshots of computer 'modulations' regarding the impact of the cylinder on the ceiling (FFM Final Report: (Annex) Figure A.6.7(a) and A.6.7(b) (p. 57) show the ceiling being penetrated, they do not show the damage caused to the cylinder head as it impacted the metal bar reinforced concrete ceiling (see Image 18).

It is also notable that the modelling does not show the metal reinforcement bars that can be seen in photographs splayed outwards by more than 90 degrees, (see Image 19 below): indeed, the modelling (see above) does not show any of the metal bars being broken.

As such, the FFM Final Report does not present the information and findings necessary to resolve the issue originally raised that the damage to the cylinder head appeared slight relative to the damage caused to the metal bar reinforced concrete ceiling.



*Modulation of Cylinder Impact on Balcony (FFM Final Report: Annex 6; p. 57)*

Image 18



Image 19



Image 20



Image 21

*Location 2 Images (19, 20 & 21): Hole in ceiling and cylinder head (FFM Final Report: Annex 6; p.53-54).*

In addition, the double impact scenario presented is underdetermined. Whilst the *FFM Final Report* provides a computer simulation that shows a dent on the cylinder being caused by the first impact (see Image 17 above of blue cylinder), no attempt is made to show the results of any modelling of the second alleged impact and the interaction of the metal bar reinforced ceiling with the cylinder head (see image 18 above of yellow cylinder). As such, the scenario claims that two impacts occurred but only the modelling of one of these is presented to support this finding.

With respect to the artillery/mortar shell hole observed on the neighboring building and the possibility that the hole at Location 2 was caused in this way, the *FFM Final Report* dismisses the hypothesis on the basis that no relevant blast fragmentation patterns could be observed at Location 2 (Annex 6: paragraph 8; p. 58). However, the presence of blast fragmentation damage was noted at Location 2 in the leaked engineering report and also filmed at the time. It has also been noted by commentators that the greater than 90-degree deflection of the rebars at Location 2 (see Image above) is consistent with an explosive blast.

**LOCATION 4 CYLINDER ON THE BED: INSUFFICIENT ANALYSIS AND FINDINGS NECESSARY TO ACCOUNT FOR THE DAMAGE OBSERVED ON THE CYLINDER**

With respect to the Location 4 cylinder the *FFM Final Report* states 3 times:

*'... the results of the studies indicated that the shape of the aperture produced in the modulation matched the shape and damage observed by the team. The studies further indicated that, after passing through the ceiling and impacting the floor at lower speed, the cylinder continued an altered trajectory, until reaching the position in which it was found' ([summary] para 2.15; p. 4 see also paras 8.34; pp.19 & para. 9.10; p. 31).*

In the body of the report there is a further line stating:

*... 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.*

**FIGURE 13: COMPUTER-MODULATED DAMAGE TO THE CYLINDER WHILE PASSING THROUGH THE ROOF**



**FIGURE 14: DAMAGE OBSERVED ON THE CYLINDER**



*Image 22*

*(FFM Final Report: para 8.35; pp: 19-20)*

**FIGURE 10: COMPUTER MODULATION OF THE APERTURE AND CYLINDER IMPACT**

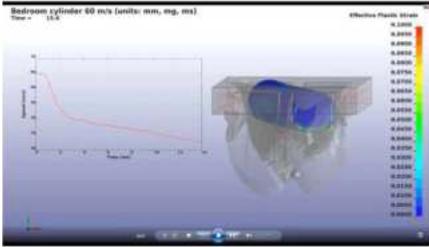


Image 23

(FFM Final Report: figure 10, p. 18)

There is no analysis or results discussed alongside these images. In addition to the two computer-generated images and the four photographs (Image 22), there is also a screenshot of a computer 'modulation' showing the penetration of the ceiling by the cylinder (see Image 23) (FFM Final Report: Figure 10, p. 18).

It is not possible to discern from the

images whether or not any damage to the cylinder that might result from it passing through the metal bar reinforced concrete roof is being modelled. Similar to the lack of information regarding the cylinder at Location 2, the images do not appear to model the effects of the cylinder passing through the metal bars in the ceiling. As such, and similar to the Location 2 cylinder, the *FFM Final Report* lacks necessary analysis and findings to show that the concerns raised in the *Original Interim Report*, regarding the compatibility between the damage observed in the cylinder and the damage to the metal bar reinforced roof, have been resolved.

The *FFM Final Report* also presents this graph purporting to account for the movement of the cylinder across the room:

**FIGURE 12: DIAGRAM DEMONSTRATING THE POSSIBLE MOVEMENT OF THE CYLINDER AT LOW SPEED**

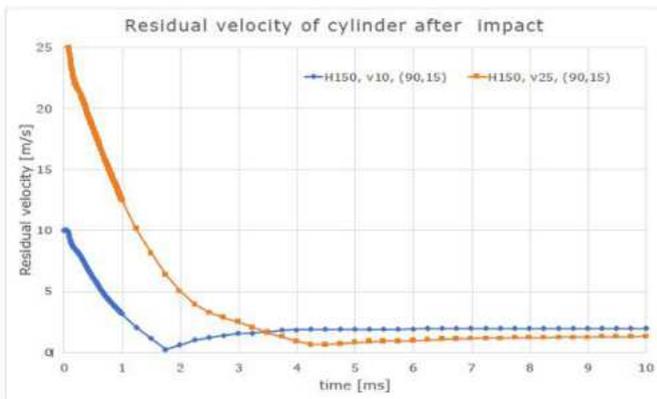


Image 24

*FFM Final Report*; para 8.34, p. 19

This graph appears to provide an explanation for the cylinder velocity as it drops into the room and bounces off the floor. The OPCW claims the diagram 'indicates the exact possibility that after initial impact, the cylinder could have retained enough energy to continue on an altered trajectory at lower speed until final position'.<sup>192</sup> However, no attempt is made in the report to explain how the cylinder was able to alter direction, generating a lateral component of velocity, and then move 3 meters across the bedroom. In other words, the graph does not explain how the cylinder came to change direction.

## THE 2013 IIT REPORT

The IIT report spends 61 pages (nearly half the report) discussing various aspects related to the two yellow cylinders found at Locations 2 and 4 (IIT Report: paras 6.121-6.319; pp; 47-108). It also states that two experts were asked to evaluate whether the cylinders were placed by hand or dropped from a great height (i.e. by helicopter) (IIT Report: para 6.197: p. 74) and that, 'in particular, the experts were tasked with assessing whether the observed damage at both locations would match the damage one could expect from the cylinders' impact ... [and] ... consider other plausible methods of delivery, potentially constitutive of the "staging" scenario'. (IIT Report: para 6.198; p. 75). The IIT Report confirms that it builds upon the analysis by the three independent experts used for the *FFM Final Report* (IIT Report: para 6.199; p. 75). It also claims that Finite Element

analysis simulations were performed to 'further understand the observed impact phenomena at both locations' (IIT Report: para 6.213; p. 81). The IIT also claims to have 'thoroughly reviewed' the leaked engineering assessment and the finding that cylinders were most likely placed by hand as part of its evaluation of alternative scenarios (IIR Report: paras 6.286-6.301; pp. 96-102).

However, nowhere is there an attempt to demonstrate the supposed damage caused to the two cylinders as a result of their impacting metal bar reinforced ceilings. Instead, the compatibility is simply asserted: 'The IIT notes that the damage observed on both cylinders is consistent with an impact following their drop from a considerable altitude' (IIT Report: para 6.182; p. 70). This omission is made even more remarkable because, as part its consideration of 'alternative scenarios', the IIT Report claims to have ruled out the possibility the cylinders were placed by hand. The results of impact studies showing the predicted deformation of the cylinders following impact with the metal bar reinforced ceilings would be central to establishing whether the cylinders had been dropped from a helicopter or were placed by hand. The IIT Report does not provide these impact study results and provides no explanation for this critical omission. As such, the fundamental issue of the compatibility, or lack thereof, between the damage observed on the cylinders and the damage to the ceilings is, to all intents and purposes, avoided by the IIT.

Regarding the attempts to explain the

bouncing cylinder at Location 4, the erroneous graph and analysis presented in the FFM Final Report is referenced in the IIT Report as evidence for the cylinder bounce (IIT Report: para: 6.292; p. 98). The IIT report then adds that 'it is conceivable that, after impact, the projectile may have rotated in a vertical plane and bounced off the floor' (IIT Report para 6.294: p. 98), before proceeding to pose new speculative theories without logical explanation, calculations or modelling. The report concludes:

*'It is likely that the impact also induced a rotation around the cylinder length axis, which may explain why it moved diagonally across the room. The location in which the cylinder was found is as unlikely as any other location within the room. Moreover, the location in which the cylinder was*

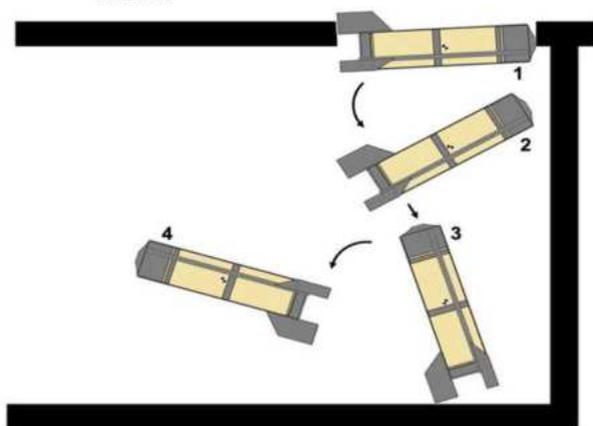
*inspected by the FFM 18 days after the incident does not have a bearing on the cylinder's content and design'. (IIT Report: para 6.298; p. 100)*

Particularly noteworthy is the theory that the cylinder rotated to a vertical plane and then bounced off its end, where the large protruding fins are (see image 9 above). The graphic provided is shown below in Image 25.

It is unclear from this presentation how the cylinder could have bounced in such a manner without the protruding fins being completely flattened.

Regarding the summary dismissal seen in the Final FFM Report of the possibility that the hole at Location 2 was caused by an explosive device, this is elaborated upon in the IIT Report which claims that the fragmentation patterns seen outside

**FIGURE 48: POSSIBLE MOTION OF THE CYLINDER IN THE VERTICAL PLANE**



Scenario to explain bouncing cylinder in the IIT Report: p. 99.

Image 25

on the balcony wall are inconsistent with an explosive event where the hole is (IIT Report: para 6.145; p. 59). It does not however, address the point noted by commentators that the greater than 90-degree deflection of the rebars at Location 2 is consistent with an explosive blast. As per the point above, the IIT fails to provide the results of impact studies which would be central to establishing whether the cylinder at Location 2 caused the damage observed on the ceiling. Instead, the IIT Report asserts that 'the terminal ballistics expert further determined that the damage observed at Location1 was not consistent with the use of an explosive charge' (para 6.218; p. 82).

As such, it is not clear from the IIT Report that key flaws, concerning the failure to account for the cylinder bounce and the rejection of the possibility that an explosive munition caused the hole at Location 2, have been fully resolved.

## SYNTHESIS

Clearly stated concerns regarding the compatibility between the observed damage to the cylinders and the metal reinforced ceilings raised in the *Original Interim Report*, as well as cylinder bounce at Location 4, are obscured in the *Redacted Interim Report* and remain unresolved in the *FFM Final Report* which asserts, rather than demonstrates, that they are compatible.

Even though reportedly three independent experts were consulted

and multiple images are presented of computer simulations, there is no analysis or findings that account for the observed (slight) damage to the cylinders, relative to the metal bar reinforced ceilings, at either location. As such the *FFM Final Report* does not show the predicted deformation to the cylinders from these impacts which should have been the primary output of such any impact study or assessment. In an example of analytical error, a rationalization regarding why the cylinder at Location 2 did not penetrate the ceiling involved a 'double impact' hypothesis that only modelled damage to the cylinder from one of the alleged impacts. In the case of the cylinder at Location 4, the explanation for the cylinder bounce is implausible and flawed. Information that is inconsistent with, or anomalous to, the *FFM Final Report* conclusions, and which points toward alternative explanations for the hole at Location 2, as indicated by the existence of a nearby and similar looking artillery/mortar blast hole and damage observed at Location 2 - fragmentation damage on the balcony and the distortion of metal rebars through greater than 90 degrees – , is summarily dismissed. As such, the *FFM Final Report* lacks sufficient analysis to resolve the concerns raised in the *Original Interim Report* and therefore does not substantiate the idea that the cylinders were dropped from a height onto the ceilings.

The recently published IIT Report provides no new information regarding the impact damage observed on the cylinders and the ceilings. Despite

its claim to fully consider 'alternative scenarios', the IIT report continues to fail to present the results of impact studies showing the predicted deformation of the cylinders following impact with the metal bar reinforced ceilings which would be central to establishing whether the cylinders had been dropped from a helicopter or, alternatively, placed by hand. The IIT Report does not provide these impact study results and provides no explanation for this critical omission. As such this key issue/flaw in the *FFM Final Report* is carried through unresolved to the IIT Report.

The *FFM Final Report* bases its 'reasonable grounds ... use of a chemical as a toxic weapon took place' claim in part on 'ballistics expert advice'. As we have seen, however, this claim relies upon an analysis containing demonstrable flaws – failure to substantiate key claims, analytical errors, failure to resolve anomalous information and failure to properly consider information regarding an alternative and plausible explanation for the hole at Location 2. Because of these flaws, issues raised in the *Original Interim Report* remain unresolved and are, to all intent and purpose, obfuscated thus leaving the impression of there being stronger ballistics evidence than has actually been presented in the *FFM Final Report*. This in turn contributes to the conclusions drawn in the *FFM Final Report* being biased towards claiming that ballistics evidence contributes towards the 'reasonable grounds' claim. As such, the *FFM Final Report* claim regarding ballistics analysis and 'reasonable grounds' is not tenable.



# APPENDIXES

## 1. KEY DOCUMENTS

**A ]** Original Interim Report is available at: <https://wikileaks.org/opcw-douma/document/FirstdraftInterimReport/>

**B ]** Redacted Interim Report is available at: <https://wikileaks.org/opcw-douma/document/RedactedInterimReport/>

**C ]** Published Interim Report is available at: [https://www.opcw.org/sites/default/files/documents/S\\_series/2018/en/s-1645-2018\\_e\\_.pdf](https://www.opcw.org/sites/default/files/documents/S_series/2018/en/s-1645-2018_e_.pdf)

**D ]** FFM Final Report is available at: <https://www.opcw.org/sites/default/files/documents/2019/03/s-1731-2019%28e%29.pdf>

**E ]** IIT Report is available at: <https://www.opcw.org/sites/default/files/documents/2023/01/s-2125-2023%28e%29.pdf>.

## 2. SELECTED DOCUMENTS

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111 José Bustani (first Director General of the OPCW), Professor Noam Chomsky (MIT), Andrew Cockburn (Harper's Magazine), Daniel Ellsberg (Former Defense and State Department official), Professor Richard Falk (Princeton University), Tuli Gabbard (former Presidential candidate and Member of the US House of Representatives), Professor Dr. Ulrich Gottstein (IPPNW-Germany), Katharine Gun (former GCHQ), Denis J. Halliday (UN Assistant Secretary-General 1994-98), Professor Pervez Houdbhoy (Quaid-e-Azam University and ex Pugwash), Kristinn Hrafnsson (Editor in Chief, Wikileaks), Dr. Sabine Krüger (Analytical Chemist, Former OPCW Inspector 1997-2009), Annie Machon (former MI5 Officer), Ray McGovern (ex-CIA

Presidential Briefer), Elizabeth Murray (former Deputy National Intelligence Officer for the Near East, National Intelligence Council), Professor Götz Neuneck (Pugwash Council and German Pugwash Chair), Dirk van Niekerk (former OPCW Inspection Team Leader, Head of OPCW Special Mission to Iraq), John Pilger (journalist and film maker), Professor Theodore A. Postol (MIT), Dr. Antonius Roof (former OPCW Inspection Team Leader and Head Industry Inspections), Professor John Avery Scales (Pugwash Council and Danish Pugwash Chair), Hans von Sponeck (former UN Assistant Secretary General), Alan Steadman (Chemical Weapons Munitions Specialist, Former OPCW Inspection Team Leader and UNSCOM Inspector), Jonathan Steele (journalist and author), Roger Waters (Musician and Activist), Lord West of Spithead (First Sea Lord and Chief of Naval Staff 2002-06), Oliver Stone (Film Director), Colonel (ret.) Lawrence B. Wilkerson, U.S. Army, (Visiting Professor at William and Mary College and former chief of staff to United States Secretary of State Colin Powell)

112 'Statement of Concern' 21 March 2021. Berlin Group 21, Available at <https://berlingroup21.org>. Accessed 8 February 2022. The Statement of Concern was sent to the OPCW DG and all 193 States Parties as well as: the President of the UN General Assembly, Volkan Bozkir; the President of the UN Security Council, Ambassador Linda Thomas-Greenfield; the UN Secretary-General, António Guterres; the President of the UN Human Rights Council, Ambassador Nazhat Shameem; the UN High Commissioner for Human Rights, Michelle Bachelet; the Chair of the UN Human Rights Council's Syria Commission of Inquiry, Paulo Pinheiro; and, finally, the UN Under Secretary-General and High Representative for Disarmament Affairs, Izumi Nakamitsu.

113 The Presidents of the UN General Assembly in New York and the UN Human Rights Council in Geneva did not acknowledge the registered letters they had been sent. The presiding President of the UN Security Council, US Ambassador Thomas-Greenfield, did not acknowledge receipt nor did other Council members confirm that Ambassador Thomas-Greenfield had fulfilled her obligation to distribute the Statement to the other 14 members of the Council. No responses were received from UN Secretary-General Guterres, UN High Commissioner for Human Rights, Bachelet, nor the UN Under Secretary-General for Disarmament Affairs, Izumi Nakamitsu - all civil servants with a responsibility to represent the interests of the UN, as 'the people's organisation'. The Chair of the UN HRC Syria Commission did confirm receipt but did not comment on the Statement.

114 'Proposal', Berlin Group 21, Available at <https://berlingroup21.org/bg21-proposal>. Accessed 8 February 2022. During this period, BG21 also made contact with Paulo Pinheiro, Chair of the Independent Commission of Inquiry on the Syrian Arab Republic, Ambassador Shameem Khan, President of the UNHRC, and Izumi Nakamitsu, the UN High Representative for Disarmament Affairs. They were asked to react to the Statement of Concern and the continuing serious controversy regarding the OPCW investigation and, more specifically, address contradictions and inconsistencies between the final OPCW report and UN Commission of Inquiry reports on Douma. The only substantive response to these approaches occurred on 25 May 2021 when the UN Commission of Inquiry confirmed that Douma was not included in its list of 38 'confirmed' chemical attack cases in Syria.

115 Security Council 8785th meeting. Director General address to the United Nations Security Council, 3 June 2012. S/PV.8785. United Nations. Available at [https://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/S\\_PV.8785\\_E.pdf](https://www.securitycouncilreport.org/atf/cf/%7B65BFCF9B-6D27-4E9C-8CD3-CF6E4FF96FF9%7D/S_PV.8785_E.pdf). Accessed 8 February 2022..

116 Ibid., pp. 20-21.

117 Chemical Weapon Convention, Article VIII, para 45. Available at <https://www.opcw.org/chemical-weapons-convention/articles/article-viii-organization>. Accessed 8 October 2022.

118 Letter from BG21 to Ambassador Khan, UN Human Rights Council, 8 June 2021. BerlinGroup21 Available at <https://berlingroup21.org/letter-to-ambassador-khan-un-human-rights-council-june-2021>. Accessed 8 February 2022.

119 Communication with Mr Pinheiro, Chairman of the Independent Commission on Syria, 18 June 2021, BerlinGroup21, Available at <https://berlingroup21.org/communication-with-mr-pinheiro-chairman-of-the-independent-commission-on-syria-june-2021>. Accessed 8 February 2022.

120 IIT Report, 2023, S/2125/2023. 'Note by the technical Secretariat: Third Report by the OPCW Investigation and Identification Team Pursuant to Paragraph 10 of Decision C-SS-4/Dec. 3 "Addressing the Threat From Chemical Weapons use" Douma (Syrian Arab Republic)- 7 April 2018. Available at <https://www.opcw.org/sites/default/files/documents/2023/01/s-2125-2023%28e%29.pdf>, accessed 4 February 2023).

121 'Chemical weapons inspectors to exhume bodies of Douma victims' by David Bond, 3 May 2018, Financial Times, Available at <https://www.ft.com/content/651d4d56-4e15-11e8-a7a9-37318e776bab>. Accessed 13 February 2022.

122 Chemical Weapons Convention, Verification Annex, para 23. Available at <https://www.opcw.org/chemical-weapons-convention/annexes/verification-annex/part-xi-investigations-cases-alleged-use>. Accessed 14 February 2022.

123 See *Original Interim Report*: paras 7.71 p. 25. And FFM Final Report: paras 8.7 p. 25. Original Interim Report available

at: <https://wikileaks.org/opcw-douma/document/FirstdraftInterimReport/>.

124 Original Interim Report: para 7.82; pp. 26- 27.

125 FFM Final Report [Summary]: para 2.11; p. 4.

126 Original Interim Report: para 7.88; p. 28.

127 FFM Final Report: para 8.101; p. 30.

128 FFM Final Report: para 8.102; p. 30.

129 Note by the Technical Secretariat: Third Report by the OPCW Investigation and Identification Team Pursuant to Paragraph 10 of Decision C-SS-4/Dec.3 "Addressing the Threat from Chemical Weapon Use" Douma (Syrian Arab Republic) – 7 April 2018. Available at <https://www.opcw.org/sites/default/files/documents/2023/01/s-2125-2023%28e%29.pdf>. Accessed 1 February 2023: para. 6.108, p. 44.

130 Ibid: para. 4.6; pp. 15-16.

131 FFM Final Report: Annex 3; pp. 40-41.

132 Original Interim Report: para 1.6; p. 2. See also paras 7.14; p. 12 and 8.2; p. 30.

133 Original Interim Report: para 1.7; p. 3. and para 8.3; p. 30.

134 Emphasis added Redacted Interim Report: para 1.7, p. 2-3 and para 8.3; p. 15)

135 Published Interim Report: para 2.5; p. 3 and para 8.7 p.10.

136 FFM Final Report, emphasis added, para 2.17; p. 4 and para 9.12; pp 31-32.

137 FFM Final Report Annex 6 p. 5.

138 FFM Final Report Annex 7 p. 61.

139 Original Interim Report [Summary]: para 1.12; p. 3 & paras 7.27-7.28: p. 16 & para 7.34; p. 19.

140 FFM Final Report: Annex 6; p.53-54.

141 Courage Foundation Panel Analytical Points, October 2019, Courage Foundation. Available at <https://berlingroup21.org/courage-foundation-panel-analytical-points-october-2019>. Accessed 29 December 2022.

142 'Panel Criticizes "Unacceptable Practices" in the OPCW's investigation of the Alleged Chemical Attack in Douma, Syria on April 7th 2018, Courage Foundation. <https://berlingroup21.org/courage-foundation-panel-statement-october-2019>

143 'Original Interim Report: para 1.13, p. 3; paras 7.89-7.91, p. 29; para 8.9, p. 30-31.

144 FFM Final Report: para 7.1, p. 8.

145 FFM Final Report: footnote 9; p. 8.

146 Inspector Brendan Whelan's 25 April letter to DG. Available at <https://berlingroup21.org/letter-to-opcw-director-general-march-2019>.

147 Åke Sellström (2021) 'Lessons from Weapons Inspections in Iraq and Syria', Symposium on New Challenges in Weapons Inspection, American Journal of International Law, 15(2): pp. 95-99.

148 Quoted in 'OPCW executives praised whistleblower and criticized Syria cover-up, leaks reveal' by Aaron Maté, The Grayzone, 15 September 2017. Available at <https://thegrayzone.com/2020/12/07/opcw-executives-whistleblower-syria-leaks/>. Accessed 18 February 2022.

149 It is established that additional OPCW Inspectors have informally expressed their concern.

- 150 Courage Foundation Panel Analytical Points, October 2019, Courage Foundation. Available at <https://berlingroup21.org/courage-foundation-panel-analytical-points-october-2019>. Accessed 29 December 2022.
- 151 'Panel Criticizes "Unacceptable Practices" in the OPCW's investigation of the Alleged Chemical Attack in Douma, Syria on April 7th 2018, Courage Foundation Panel. Available at <https://berlingroup21.org/courage-foundation-panel-statement-october-2019>. Accessed 7 February 2022.
- 152 Chemical Weapons Convention, 'Investigations in Cases of Alleged Use of Chemical Weapons', Part XI. Available at <https://www.opcw.org/chemical-weapons-convention/annexes/verification-annex/part-xi-investigations-cases-alleged-use>. Accessed 1 January 2023.
- 153 Chemical Weapons Convention, 'Investigations in Cases of Alleged Use of Chemical Weapons', Part XI, para 7. <https://www.opcw.org/chemical-weapons-convention/annexes/verification-annex/part-xi-investigations-cases-alleged-use>. Accessed 1 January 2023.
- 154 Chemical Weapons Convention, 'Investigations in Cases of Alleged Use of Chemical Weapons', Part XI. Available at <https://www.opcw.org/chemical-weapons-convention/annexes/verification-annex/part-xi-investigations-cases-alleged-use>. Accessed 1 January 2023.
- 155 Ibid.
- 156 Chemical Weapon Convention, Article VIII, para 45. Available at <https://www.opcw.org/chemical-weapons-convention/articles/article-viii-organization>. Accessed 8 October 2022.
- 157 Chemical Weapons Convention, Part II, para 62. Available at <https://www.opcw.org/chemical-weapons-convention/annexes/verification-annex/part-ii-general-rules-verification>. Accessed 8 October 2022.
- 158 OPCW Policy on Confidentiality, C-1/DEC.13/Rev.2. Available at <https://www.opcw.org/sites/default/files/documents/2019/05/cidec13r2%28e%29.pdf>. Accessed 1 January 2023.
- 159 A breach of the obligation to protect confidentiality ('a breach of confidentiality') includes any unauthorised disclosure of OPCW information to any individual, or government or private entity, regardless of the intention or the consequences of the disclosure. A breach of confidentiality can also be associated with misuse of information to gain a personal advantage or to benefit or damage the interests of a third party. A violation of obligations concerning the protection of confidential information is deemed to have taken place if there has been non-compliance with the specified procedures for the handling, protection, release and dissemination of confidential information so as to create a clear risk of unauthorised disclosure, with or without such disclosure actually occurring. In practical terms, there is considerable overlap between a breach of confidentiality and a violation of obligations to protect confidential information.
- 160 As required in the terms of the Confidentiality Annex, the Director-General shall promptly initiate an investigation: (a) following 'sufficient indication' that there has been a violation of an obligation to protect confidential information on the part of a staff member or contracted personnel of the Secretariat, another authorised individual or entity beyond the Secretariat, or an agent or official of a State Party; or (b) when a State Party has lodged an allegation concerning a breach of confidentiality.
- 161 If the State Party requesting an investigation is not satisfied with the report issued by the Director-General following an investigation, and after all reasonable attempts have been made to resolve the issue through consultations, that State Party has the right to request that the Confidentiality Commission be convened to consider the case.
- 162 'Analytical Points: OPCW', Courage Foundation. Available at <https://berlingroup21.org/courage-foundation-panel-analytical-points-october-2019>. Accessed 28 April 2022.
- 163 'Panel Criticizes "Unacceptable Practices" in the OPCW's investigation of the Alleged Chemical Attack in Douma, Syria on April 7th 2018, Courage Foundation Panel. Available at <https://berlingroup21.org/courage-foundation-panel-statement-october-2019>. Accessed 7 February 2022.
- 164 'Analytical Points: OPCW', Courage Foundation. Available at <https://berlingroup21.org/courage-foundation-panel-analytical-points-october-2019>. Accessed 28 April 2022.
- 165 Inspector Brendan Whelan's 25 April letter to DG. Available at <https://berlingroup21.org/letter-to-opcw-director-general-march-2019>.
- 166 Emails from Whelan to Team Leader published in 'Corrupting the Science: Shunning forensic expertise, OPCW left Douma murders in Syria unsolved' by Aaron Maté, The Grayzone, 6 December 2021. Available at <https://thegrayzone>.

[com/2021/12/06/corrupting-science-part2/](https://www.bbc.com/2021/12/06/corrupting-science-part2/), downloaded 12 July 2022.

167 REPORT A: United Nations Human Rights Council (HRC) - Independent International Commission of Inquiry on the Syrian Arab Republic - report, 38th Session, 20 June 2018 (A/HRC/38/CRP.3). REPORT B: HRC - Independent International Commission of Inquiry on the Syrian Arab Republic report to the General Assembly, - 39th Session, 10 – 28 September 2018 (A/HRC/39/65).

168 'Horrific Details on Syria Chemical Attacks Left Out, for Now, From U.N. Report', by Rick Gladstone and Maggie Haberman, New York Times, 20 June 2018. Available at <https://www.nytimes.com/2018/06/20/world/middleeast/un-syria-eastern-ghouta.html>. Accessed 28 April 2022.

169 It is also of note that the 2021 report from the UN HRC on this issue does not include Douma as one of its 38 cases of chemical weapons use in Syria because it did not meet the evidentiary threshold necessary to state publicly an attack had occurred. See graphic linked to in A/HRC/46/54, available at [https://www.ohchr.org/sites/default/files/Documents/HRBodies/HRCouncil/ColSyria/COISyria\\_Chemical\\_Weapons.jpg](https://www.ohchr.org/sites/default/files/Documents/HRBodies/HRCouncil/ColSyria/COISyria_Chemical_Weapons.jpg), available at [https://www.ohchr.org/sites/default/files/Documents/HRBodies/HRCouncil/ColSyria/COISyria\\_Chemical\\_Weapons.jpg](https://www.ohchr.org/sites/default/files/Documents/HRBodies/HRCouncil/ColSyria/COISyria_Chemical_Weapons.jpg). Accessed 6 September 2022. See also <https://berlingroup21.org/communication-with-mr-pinheiro-chairman-of-the-independent-commission-on-syria-june-2021>. <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G21/014/36/PDF/G2101436.pdf?OpenElement>. Download date 3 June 2021.

170 Toxicology Meeting Minutes, Available at [https://wikileaks.org/opcw-douma/document/actual\\_toxicology\\_meeting\\_redacted/page-2/#pagination](https://wikileaks.org/opcw-douma/document/actual_toxicology_meeting_redacted/page-2/#pagination). Accessed 2 October 2022.

171 The IIT Report does state that it, not the toxicologist, 'notes that as chlorine gas reacts with the cells and moisture in the gastrointestinal tract to produce acids, that reaction also lead to the oral and nasal secretion of a foam-like substance ...' (IIT Report; para 6.106; p. 43) and references a scientific publication: C. W. White and J. G. Martin (2010), "Chlorine Gas Inhalation Human Clinical Evidence of Toxicity and Experience in Animal Models", in Proc Am Thorac Soc, Vol. 7 (4), (July 2010), pp. 257-263. Nowhere in the publication cited can this claim be found.

172 See page 257: 'since chlorine gas is moderately water soluble, it can form hypochlorous acid and hydrochloric acid as it dissolves into airway liquid surface when contacting mucosal surfaces and airways', C. W. White and J. G. Martin (2010), "Chlorine Gas Inhalation Human Clinical Evidence of Toxicity and Experience in Animal Models", in Proc Am Thorac Soc, Vol. 7 (4), (July 2010), pp. 257-263. Available at <https://pubmed.ncbi.nlm.nih.gov/20601629/>. Accessed 1 February 2023.

173 U.S. Department of Health and Human Services, Toxicological Profile for Chlorine, Available at <https://www.atsdr.cdc.gov/toxprofiles/tp172.pdf>, accessed 1 February 2023.

174 U.S. Department of Health and Human Services, Toxicological Profile for Chlorine, Available at <https://www.atsdr.cdc.gov/toxprofiles/tp172.pdf>, accessed 1 February 2023.

175 'Analytical Points'. Courage Foundation Panel. Available at <https://berlingroup21.org/courage-foundation-panel-analytical-points-october-2019>. Accessed 28 April 2022.

176 BBC News report, available at <https://www.bbc.com/news/world-middle-east-43686157>, Accessed 11 December 2022.

177 Riam Dalati (BBC Producer) social media: [https://twitter.com/Dalatrm/status/1095677403198906369?s=20&t=3\\_vd4h4E6hg4rXsWvA1ww](https://twitter.com/Dalatrm/status/1095677403198906369?s=20&t=3_vd4h4E6hg4rXsWvA1ww). Accessed 9 February 2022.

178 BBC News report, available at <https://www.bbc.com/news/world-middle-east-43686157>, downloaded 27 August 2022.

179 It is notable that this account appears inconsistent with another statement in the report which says victims ran from the basement towards the roof of the building to supposed safer ground from the alleged gas (para 7.84; p.27).

180 BBC News report, available at <https://www.bbc.com/news/world-middle-east-43686157>, downloaded 27 August 2022.

181 A further significant anomaly concerns an eye witness claim that a helicopter was seen dropping a yellow cylinder at about 7 p.m. on the evening of the alleged attack. The Original Interim Report relayed this claim (Original Interim Report: para 7.56; p. 22) but it is removed from the FFM Final Report which does however refer to a claim that 'casualties began arriving shortly after 19:00 with excess salivation or foaming from the mouth' (FFM Final Report: para 8.56; p. 23). The issue here, recalling the toxicology concerns outlined in this report, is that frothing at the mouth from pulmonary oedema takes time to develop. Hence the witness statement regarding the timing of the helicopter sighting and the timing of arrivals at the hospital are incompatible with one another. This potentially important contradiction with respect to the Country X witness testimony is obfuscated by the deletion of the helicopter claim.

182 'Note by the Technical Secretariat: Update on the OPCW Fact-Finding Mission in Syria', S/1755/2019, OPCW. Available at <https://www.opcw.org/sites/default/files/documents/2019/05/s-1755-2019.pdf>, accessed 3 November 2022.

- 183 Although it is possible that chlorine gas can sometimes spread in a non plume-like manner, due to it being heavier than air, it would need to be explained in the FFM Final Report why this unusual behaviour occurred in this case.
- 184 'Rapid Assessment of Exposure to Chlorine Released from a Train Derailment and Resulting Health Impact', Public Health Reports, 122(6): 784-792. Available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1997246/>, accessed 9 September 2022.
- 185 Chemical Weapons Convention, Verification Annex, Available at <https://www.opcw.org/chemical-weapons-convention/annexes/verification-annex/part-xi-investigations-cases-alleged-use>. Accessed 25 July 2022.
- 186 S/1510/2017, 'Report of the OPCW Fact-Finding Mission in Syria Regarding an Alleged Incident in Khan Shaykhun, Syrian Arab Republic April 2017', OPCW. Available at [https://www.opcw.org/sites/default/files/documents/Fact\\_Finding\\_Mission/s-1510-2017\\_e.pdf](https://www.opcw.org/sites/default/files/documents/Fact_Finding_Mission/s-1510-2017_e.pdf). Accessed 29 April 2022.
- 187 'Analytical Points'. Courage Foundation Panel. Available at <https://berlingroup21.org/courage-foundation-panel-analytical-points-october-2019>. Accessed 28 April 2022.
- 188 "The importance of science in the implementation of the CWC", Keynote speech by the then OPCW Director General Ahmet Üzümcü, Royal Society of Chemistry, 23 May 2018. Available at [https://www.opcw.org/sites/default/files/documents/ODG/uzumcu/180523.FR.ODG.Speech\\_RSC.pdf](https://www.opcw.org/sites/default/files/documents/ODG/uzumcu/180523.FR.ODG.Speech_RSC.pdf), accessed 11 September 2022.
- 189 'Analytical Points'. Courage Foundation Panel. Available at <https://berlingroup21.org/courage-foundation-panel-analytical-points-october-2019>. Accessed 28 April 2022.
- 190 Inspector Brendan Whelan's 25 April letter to DG. Available at <https://berlingroup21.org/letter-to-opcw-director-general-march-2019>.
- 191 'Analytical Points'. Courage Foundation Panel. Available at <https://berlingroup21.org/courage-foundation-panel-analytical-points-october-2019>. Accessed 28 April 2022.
- 192 'Note by the Technical Secretariat: Update on the OPCW Fact-Finding Mission in Syria', S/1755/2019, OPCW. Available at <https://www.opcw.org/sites/default/files/documents/2019/05/s-1755-2019.pdf>, accessed 3 November 2022. P. 4.







Logo of the Ministry of Health of the Republic of Turkey

