

**Security Council**

Distr.: General
23 June 2021

Original: English

Letter dated 14 April 2021 from the Secretary-General addressed to the President of the Security Council

I have the honour to transmit herewith the second report of the Organisation for the Prohibition of Chemical Weapons (OPCW) Investigation and Identification Team pursuant to paragraph 10 of decision C-SS-4/DEC.3 (“Addressing the Threat from Chemical Weapons Use”) Saraqib (Syrian Arab Republic), 4 February 2018, which I received from the Director-General of OPCW on 12 April 2021 (see annex).

The issue of the use of chemical weapons in the Syrian Arab Republic is one that the Security Council has been seized of since 2013. As any use of chemical weapons poses a serious threat to international peace and security, I believe it is appropriate that the report be shared with the members of the Council, as was the case with the first report, shared with Council members on 15 April 2020.

I should be grateful if you would bring this matter to the attention of the members of the Security Council.

(Signed) António **Guterres**



**Annex to the letter dated 14 April 2021 from the Secretary-General
addressed to the President of the Security Council**

[Original: Arabic, Chinese, English,
French, Russian and Spanish]

I have the honour to provide to you, for your consideration, the attached report entitled “Second 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’ Saraqib (Syrian Arab Republic) – 4 February 2018” (see enclosure). The report was prepared in accordance with paragraph 10 of decision C-SS-4/DEC.3, dated 27 June 2018, which was adopted by the Conference of the States Parties of the Organisation for the Prohibition of Chemical Weapons (hereinafter referred to as “OPCW”). Consistent with paragraph 10 of this decision, the report has already been provided to the Executive Council of OPCW, for its consideration.

I also wish to inform you that some of the annexes of the report contain confidential information classified as “OPCW highly protected” and will be provided to you through appropriate means. Consistent with the Agreement concerning the Relationship between the United Nations and the Organisation for the Prohibition of Chemical Weapons, I would kindly ask that the United Nations ensure the appropriate protection in respect of such confidential information, in accordance with its constituent instrument and policies on confidentiality.

(Signed) **Fernando Arias**

Enclosure

[Original: Arabic, Chinese, English,
French, Russian and Spanish]



OPCW

Technical Secretariat

S/1943/2021
12 April 2021
Original: ENGLISH

NOTE BY THE TECHNICAL SECRETARIAT

**SECOND 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”
SARAQIB (SYRIAN ARAB REPUBLIC) – 4 FEBRUARY 2018**

EXECUTIVE SUMMARY

1. The Director-General of the OPCW Technical Secretariat established the Investigation and Identification Team (IIT) pursuant to the Decision by the Conference of the States Parties entitled “Addressing the Threat from Chemical Weapons Use” (C-SS-4/DEC.3, dated 27 June 2018). The IIT began its work in June 2019, focusing on certain incidents for which the OPCW Fact-Finding Mission (FFM) had determined that use or likely use of chemical weapons on the territory of the Syrian Arab Republic occurred and for which the OPCW-United Nations Joint Investigative Mechanism had not reached a final conclusion.
2. The IIT is not a judicial body with the authority to assign individual criminal responsibility, nor does the IIT have the authority to make final findings of non-compliance with the Convention. The mandate of the IIT is to establish the facts.
3. This second report of the IIT sets out the findings of the investigations conducted in the period between April 2020 and March 2021, focusing on the incident in Saraqib, the Syrian Arab Republic, on 4 February 2018. On the basis of all the information obtained and its analysis, the IIT concludes that there are reasonable grounds to believe that at approximately 21:22 on 4 February 2018, during ongoing attacks against Saraqib, a military helicopter of the Syrian Arab Air Force under the control of the Tiger Forces hit eastern Saraqib by dropping at least one cylinder. The cylinder ruptured and released a toxic gas, chlorine, which dispersed over a large area affecting 12 named individuals.
4. The IIT reached its conclusions on the basis of the degree of certainty of “reasonable grounds”. In reaching its conclusions, the IIT carefully assessed the information obtained from the FFM, States Parties, and other entities, coupled with interviews conducted by the IIT and analyses of samples, munition remnants, gas dispersion models, and topographic studies, as well as advice from experts, specialists, and forensic institutes, along with other relevant material and sources. The IIT reviewed thousands of files, amounting to more than 400 gigabytes, obtained 44 statements from more than 30 witnesses, and considered data related to 18 samples. The IIT assessed this information holistically, scrutinising carefully its probative value through a widely shared methodology in compliance with best practices of international fact-finding bodies and commissions of inquiry. In so doing, the IIT adhered to applicable OPCW procedures, including with respect to chain of custody, supplemented as appropriate. The IIT pursued lines of inquiry and scenarios suggested by the Syrian authorities, but was unable to obtain any concrete information supporting them. The conclusions in this report are based on the combination, consistency, and corroboration of all of the information gathered as a whole.
5. The IIT is grateful for the ample support received during its investigation from States Parties, other entities, and individuals.

6. The challenges faced by the IIT included its inability to access the site of the incidents in the Syrian Arab Republic. The IIT regrets that this access was not granted, despite: (a) various requests addressed by the Technical Secretariat to the authorities of the Syrian Arab Republic; (b) the obligation by the Syrian Arab Republic to cooperate with the Technical Secretariat under paragraph 7 of Article VII of the Chemical Weapons Convention; and (c) the obligation incumbent on the Syrian Arab Republic, pursuant to United Nations Security Council resolution 2118 (2013), to cooperate fully with the OPCW by providing personnel designated by the OPCW with immediate and unfettered access to any and all sites and individuals that the OPCW has grounds to believe to be of importance for the purpose of its mandate. The IIT has expressed on several occasions its readiness to meet with representatives of the Syrian Arab Republic at their convenience and at a location of their choosing to discuss the progress of its activities and their modalities.
7. The Decision of 27 June 2018 by the Conference of the States Parties requires the Technical Secretariat to provide the reports on the IIT investigations to the OPCW Executive Council and to the United Nations Secretary-General for their consideration, and to preserve and provide information to the mechanism established by the United Nations General Assembly in resolution 71/248 (2016), as well as to any relevant investigatory entities established under the auspices of the United Nations. Accordingly, the IIT has endeavoured to compile this report and its related records and findings in a manner suitable for future use by these bodies. This also means that the IIT has carefully considered, in reaching its conclusions, that the information used in this report may be assessed and used by other bodies in the future.

(blank page)

TABLE OF CONTENTS

I.	MANDATE	9
1.	ESTABLISHMENT OF THE INVESTIGATION AND IDENTIFICATION TEAM	9
2.	THE TASK OF THE IIT	10
II.	INVESTIGATIVE ACTIVITIES.....	11
3.	APPROACH AND CHALLENGES OF THE INVESTIGATION.....	11
4.	THE POSITION OF THE SYRIAN ARAB REPUBLIC ON THE SARAQIB INCIDENT	13
III.	THE INCIDENT OF 4 FEBRUARY 2018 IN SARAQIB.....	14
5.	BACKGROUND	14
6.	INCIDENT IN SARAQIB, 4 FEBRUARY 2018.....	19
IV.	FACTUAL FINDINGS.....	42
7.	GENERAL REMARKS	42
8.	FACTUAL FINDINGS ON THE INCIDENT OF 4 FEBRUARY 2018	42
9.	GENERAL CONCLUDING OBSERVATIONS	44
10.	SUMMARY OF FACTUAL FINDINGS.....	45

Annexes:

Annex 1:	INFORMATION MANAGEMENT AND OTHER INTERNAL PROCEDURES.....	47
Annex 2:	APPROACH TO OBTAINING AND SECURING INFORMATION.....	49
Annex 3:	SUMMARY OF CONTACTS WITH REPRESENTATIVES OF THE SYRIAN ARAB REPUBLIC RELEVANT TO THE CURRENT INVESTIGATIONS BY THE INVESTIGATION AND IDENTIFICATION TEAM.....	53
Annex 4:	REDACTED PARAGRAPHS.....	65

(blank page)

I. MANDATE

1. ESTABLISHMENT OF THE INVESTIGATION AND IDENTIFICATION TEAM

- 1.1 This report is submitted pursuant to paragraph 10 of the decision adopted by the Conference of the States Parties (hereinafter “the Conference”) at its Fourth Special Session entitled “Addressing the Threat from Chemical Weapons Use” (C-SS-4/DEC.3, dated 27 June 2018) (hereinafter “the Decision of 27 June 2018”), and covers investigations conducted by the Investigation and Identification Team (IIT) in the period from April 2020 through March 2021.
- 1.2 In the Decision of 27 June 2018, the Conference recalled its own responsibility under paragraph 20 of Article VIII of the Chemical Weapons Convention (hereinafter “the Convention”) to oversee its implementation, to act in order to promote its object and purpose, and to review compliance with it.¹
- 1.3 In paragraph 10 of the Decision of 27 June 2018, the Conference specifically decided that the Technical Secretariat (hereinafter “the Secretariat”):

shall put in place arrangements to identify the perpetrators of the use of chemical weapons in the Syrian Arab Republic by identifying and reporting on all information potentially relevant to the origin of those chemical weapons in those instances in which the OPCW Fact-Finding Mission in Syria [FFM] determines or has determined that use or likely use occurred, and cases for which the OPCW-UN Joint Investigative Mechanism [JIM] has not issued a report; and [...] that the Secretariat shall provide regular reports on its investigations to the [Executive] Council [of the OPCW] and to the United Nations Secretary-General for their consideration.

- 1.4 As stated in the “First 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”, Ltamenah (Syrian Arab Republic), 24, 25, and 30 March 2017”, dated 8 April 2020 (S/1867/2020) (hereinafter “First IIT Report”), and consistent with the standards applied by international fact-finding missions and commissions of inquiry, the IIT’s mandate is to identify – on the basis of a sufficient and reliable body of information (i.e., the “reasonable grounds” standard)² – individuals, as well as entities, groups, and governments (i.e., non-State and State actors) directly or indirectly involved in the use of chemical weapons in the incidents within the scope of the IIT’s investigations.³

¹ See preambular paragraph 6 of C-SS-4/DEC.3.

² See First IIT Report, paragraphs 2.17 to 2.20.

³ See First IIT Report, paragraphs 2.5 to 2.16.

2. THE TASK OF THE IIT

- 2.1 The IIT is not a judicial body with the authority to assign individual criminal responsibility, nor does the IIT have the authority to make final findings of non-compliance with the Convention. The IIT is rather meant to facilitate the work of other mechanisms such as (a) primarily, the OPCW policy-making organs in their determinations of non-compliance and related consequences for a State Party in accordance with the Convention;⁴ and (b) through the International, Impartial, and Independent Mechanism (IIIM), courts or tribunals, whether at the domestic, regional, or international level, having jurisdiction over the conduct investigated by the IIT. The IIT's support to the work of the latter is foreseen by the Decision of 27 June 2018, which specifically reaffirms the principle that "those responsible for the use of chemical weapons should be held accountable"⁵ and stipulates that the Secretariat shall, inter alia, "provide information to the investigation mechanism established by the United Nations General Assembly in resolution 71/248 (2016)" (IIIM),⁶ "as well as to any relevant investigatory entities established under the auspices of the United Nations".⁷
- 2.2 The IIT aims at fulfilling these tasks by establishing the facts relevant to the identification of perpetrators of the use of chemical weapons in the incidents in the Syrian Arab Republic under its purview.
- 2.3 The *factual findings* of the IIT relate to the process of gathering, analysing, and reporting on facts relevant to the imputation of a specific human conduct to an individual or an entity. These factual findings are intrinsically different from *legal findings*, which instead relate to any wrongfulness of that conduct under the applicable legal framework and its legal consequences (i.e., liability).⁸ The latter findings are not within the purview of the IIT. Notwithstanding, since the *factual findings* of the IIT may provide the initial grounds for further legal action, it is important for the IIT to adopt an information-gathering and review methodology which is consistent with future endeavours in this respect.
- 2.4 The IIT therefore endeavours to compile its records and factual findings in a manner suitable for future use by the OPCW policy-making organs, as well as the IIIM and any other relevant investigation body that may request material from the IIIM.
- 2.5 Details on the mandate and methods of work of the IIT can be found in the First IIT Report,⁹ as well as in three Notes circulated by the Secretariat, respectively EC-91/S/3

⁴ See paragraph 11 of C-SS-4/DEC.3.

⁵ See preambular paragraph 5 of C-SS-4/DEC.3.

⁶ The IIIM has the primary mandate to "[...] consolidate, preserve and analyse evidence of violations of international humanitarian law and human rights violations and abuses and to prepare files in order to facilitate and expedite fair and independent criminal proceedings, in accordance with international law standards, in national, regional or international courts or tribunals that have or may in the future have jurisdiction over these crimes, in accordance with international law". See United Nations General Assembly resolution 71/248 (21 December 2016), paragraph 4.

⁷ See paragraph 12 of C-SS-4/DEC.3.

⁸ Cf., for example, United Nations General Assembly resolution 46/59, Declaration on Fact-Finding by the United Nations in the Field of the Maintenance of International Peace and Security, UN Doc. A/RES/46/59 (9 December 1991), paragraph 17, which notes that the report of a fact-finding body "[...] should be limited to a presentation of findings of a factual nature". See also, among others, G. Arangio-Ruiz, *State Responsibility Revisited. The Factual Nature of the Attribution of Conduct to the State*, Quaderni della Rivista di Diritto Internazionale 6, Volume C-2017, pp. 3 and 110.

⁹ See First IIT Report, paragraphs 1.1 to 3.7 and Annexes 1 and 2 (and references therein).

(dated 28 June 2019),¹⁰ EC-92/S/8 (dated 3 October 2019), and S/1918/2020 (dated 27 November 2020).

II. INVESTIGATIVE ACTIVITIES

3. APPROACH AND CHALLENGES OF THE INVESTIGATION

- 3.1 Referring to the findings of the FFM as a starting point,¹¹ the IIT conducted an impartial, objective, and independent examination of all available information concerning the use of chemical weapons in the incident in the city of Saraqib (Syrian Arab Republic) on 4 February 2018, with a view to collecting, comparing, and analysing further information in order to identify the perpetrators, as described above. This incident is included in the list of incidents on which the IIT decided to focus its investigative work and which was made available to States Parties by the Secretariat in Annex 2 to Note EC-91/S/3. In selecting this incident from that list for further investigation, the IIT applied the criteria elaborated on in the First IIT Report concerning, inter alia: a) the severity of the incident; (b) the amount and apparent reliability of the information already available on the incident; and (c) the type of chemical substance(s) detected. The IIT also took into account patterns of similar incidents, reliability of persons who allegedly witnessed the events,¹² and the fact that this incident is specifically noted with concern in the Decision of 27 June 2018.¹³
- 3.2 The approach to the investigation of the incident in Saraqib of 4 February 2018 undertaken by the IIT is consistent with that described in the First IIT Report.¹⁴ In particular, the IIT conducted the following activities: (a) it analysed the information received from the FFM; (b) it requested information from States Parties, including the Syrian Arab Republic, and upon receipt reviewed this information; (c) it assessed the statements previously provided by witnesses and conducted interviews itself with persons of interest; (d) it obtained videos, documents, and other material from various sources; (e) it requested re-examination of previous analyses of samples, including data mining for specific chemicals from OPCW designated laboratories, as well as new analyses, and technical assessments from a number of forensic institutes and specialists; (f) it requested and analysed satellite imagery; (g) it collected information from open sources; and (h) it consulted experts. In carrying out these activities, the IIT relied on the same methods and procedures it had applied during the investigation described in the First IIT Report,¹⁵ including with regard to (a) its approach to obtaining and securing information (e.g., chain of custody, handling of information, security of witnesses, and sampling and analysis by designated laboratories); (b) its information and case management systems; and (c) the degree of certainty applied to the identification of perpetrators. The IIT proceeded in a manner consistent with the

¹⁰ In the preparation of the present report, the composition of the IIT has included personnel from all five regional groups.

¹¹ See “Report of the OPCW Fact-Finding Mission in Syria Regarding an Alleged Incident in Saraqib, Syrian Arab Republic on 4 February 2018” (S/1626/2018, dated 15 May 2018) (“FFM Report on Saraqib”), paragraph 7.4.

¹² See First IIT Report, paragraphs 3.4 and 3.5.

¹³ See paragraph 9 of the Decision of 27 June 2018 in which the Conference “[n]ote[d] with concern that the Fact-Finding Mission has identified further uses of chemical weapons in the Syrian Arab Republic at Ltamenah on 24, 25, and 30 March 2017 and at Saraqib on 4 February 2018, and that the perpetrators of these attacks have still to be identified [...]”.

¹⁴ See First IIT Report, paragraphs 4.1 to 4.10 and Annexes 1, 2, and 3 (and references therein).

¹⁵ See First IIT Report, paragraphs 1.1 to 3.7 and Annexes 1 and 2 (and references therein), EC-91/S/3, dated 28 June 2019, and EC-92/S/8, dated 3 October 2019.

Convention, relevant decisions of the policy-making organs,¹⁶ and best practices of international fact-finding bodies and commissions of inquiry, especially when collecting information, such as witness statements, and assessing their relevance, sufficiency and credibility, including by corroboration through separate sources.

- 3.3 As mentioned above, the collection of information in respect of the Saraqib incident of 4 February 2018 involved reaching out to States Parties, international and non-governmental organisations, and individuals, as well as a number of internationally reputable forensic institutes and experts and other relevant entities. Since the IIT is not judicially empowered to compel the submission of information and material, it relied, once again, on the voluntary cooperation of all these parties. In particular, regarding States Parties, the IIT expected them to provide access to relevant information and locations consistent with paragraph 7 of Article VII of the Convention.
- 3.4 Against this background, over the past months, the IIT has held 43 bilateral meetings with States Parties and other entities. It has also reviewed thousands of files, amounting to more than 400 gigabytes, obtained statements from more than 30 witnesses (at times getting back to certain individuals to request clarifications of previous statements), and requested and obtained analysis results and additional data for 18 samples related to this investigation. The IIT assessed the information obtained, including by corroboration through other sources, in order to determine its sufficiency, relevance, and reliability. With specific regard to videos and photographs, the IIT conducted or obtained forensic analysis aimed at verifying their authenticity through geolocation, metadata assessment, and other techniques. The IIT will provide this information to the IIIM as required by paragraph 12 of the Decision of 28 June 2018 and in accordance with applicable OPCW confidentiality rules and protocols.
- 3.5 During the investigation of the incident in Saraqib of 4 February 2018, the IIT encountered similar issues to those mentioned in the First IIT Report,¹⁷ especially with regard to (a) the lack of cooperation from the Syrian Arab Republic, namely its unwillingness to respond to the Secretariat's requests, as explained below; (b) the impossibility to access the site of the incident; (c) the lapse of time between the date of the incident and the IIT's investigation; and (d) the attendant difficulties in gathering additional information. In addition, the IIT, as an integral part of the Secretariat, has been faced with the impact of the outbreak of the coronavirus pandemic (COVID-19) on the implementation of the OPCW's activities and the mitigating measures that have been taken in response, as illustrated in the relevant Notes by the Secretariat.¹⁸
- 3.6 Despite these constraints, the IIT was able to carry out its investigatory activities described above. The IIT considered it imperative to ensure the necessary degree of care during its gathering and assessment of the information, including consultations with experts in various disciplines.

¹⁶ In addition to C-SS-4/DEC.3, see, the decision by the Conference entitled "Sampling and Analysis during Investigations of Alleged Use of Chemical Weapons" (C-I/DEC.47, dated 16 May 1997) which was applied *mutatis mutandis* by the IIT to its investigations. See below, Annex 2, for details on these methodologies.

¹⁷ See First IIT Report, paragraphs 4.1 to 4.10.

¹⁸ See, in particular: S/1863/2020, dated 20 March 2020; S/1870/2020, dated 17 April 2020; S/1876/2020, dated 2 June 2020; S/1890/2020, dated 26 August 2020; S/1918/2020, dated 27 November 2020; and S/1930/2021, dated 18 February 2021. See also the report by the Director-General (EC-95/DG.15, dated 21 September 2020), paragraph 7.

- 3.7 In this context, on 3 July 2020 the Director-General addressed a letter to the Deputy Minister of Foreign Affairs and Expatriates of the Syrian Arab Republic, as Head of the Syrian National Authority, attaching a note by the IIT which invited the Syrian Arab Republic to, inter alia, submit any concrete information and sources or additional lines of inquiry in respect of the incident in Saraqib on 4 February 2018 and which indicated the IIT's availability to meet with key representatives of the Syrian Arab Republic, at their convenience and at a location of their choosing. The purpose of this meeting would have been to discuss the progress of the investigation and the provision of other information, including access to locations, which the authorities of the Syrian Arab Republic may be able to facilitate.
- 3.8 Again, on 16 October 2020, the Director-General addressed another letter to the Deputy Minister. In this second letter, the Director-General reiterated the requests previously made to the Syrian Arab Republic to submit information in its possession and the IIT's willingness to hold a meeting with the Syrian authorities in spite of any COVID-19-related travel restrictions. A further note from the IIT was enclosed with this second letter by the Director-General, specifically referring to the incident in Saraqib and requesting the IIT's access, inter alia, to flight logs and pilots and military command personnel who were in charge of, or involved in, operations of the Syrian Arab Air Force in and around the area of Saraqib on and around 4 February 2018.
- 3.9 Copies of the two above-mentioned Director-General's letters and their attached notes from the IIT are enclosed in Annex 3 to this report. As at the date of this report, the Secretariat had not received a response from the Syrian Arab Republic to the requests set forth in these letters.¹⁹
- 3.10 As pointed out in the attachments to the Director-General's letters, the IIT took specific note of the position previously expressed by the Syrian Arab Republic on the incident in Saraqib of 4 February 2018, including relevant information submitted by it, in some of its notes verbales to the Secretariat, in 2018 in the aftermath of the incident. The information presented by the Syrian Arab Republic in these notes verbales was therefore taken into account by the IIT when considering possible scenarios concerning the use of chemical weapons in Saraqib on 4 February 2018 and is further discussed in the following sections of this report.
- 3.11 The IIT was able to assess also the explanations and some – albeit limited – information regarding the incident under review transmitted by the Syrian Arab Republic to the Secretariat shortly after that incident occurred. No further elaboration or supporting evidence was provided by the Syrian authorities, notwithstanding the Secretariat's requests, including in the Note of the Secretariat S/1918/2020, dated 27 November 2020 (in particular, paragraph 6) and the correspondence addressed to those authorities.²⁰

4. THE POSITION OF THE SYRIAN ARAB REPUBLIC ON THE SARAQIB INCIDENT

- 4.1 In preparing its investigation plan for the incident in Saraqib on 4 February 2018, the IIT considered various hypotheses as to how this incident might have occurred and then proceeded to develop concrete scenarios based on all available information. Among these scenarios, the IIT considered, in particular, the view of the Syrian Arab Republic

¹⁹ See also the report by the Director-General (EC-95/DG.15).

²⁰ See below, Annex 3.

that the incident had been “staged” by terrorist armed groups in order to forge accusations against the Syrian Arab Army.²¹

- 4.2 In addition to reiterating that the Syrian Arab Army has never used chemical weapons or toxic chemicals in Saraqib (or anywhere else on its territory), the Syrian authorities notified the Secretariat that they conducted their own analytical examination of the incident of 4 February 2018 in Saraqib, based on open source videos and photographs, refuting the allegations against them. The IIT thoroughly considered elements related to the craters, the cylinders, the vegetation, and the soil visible in open source videos, as well as on the alleged victims. The IIT further took into account information about the coordinates of “a tunnel containing chemicals” north of Saraqib and suggestions that the White Helmets (Syria Civil Defence, or SCD), together with *Jahbat al-Nusra* (al-Nusra Front), had brought to Saraqib chlorine-filled cylinders and staged the incident; this would have included broadcasting videos of persons pretending to have been victims of a chlorine attack, who were later seen in other images fraternising with members of a terrorist group and drying themselves off after chlorine decontamination.
- 4.3 The IIT was therefore able to pursue specific leads suggested by the Syrian Arab Republic. However, these leads were not supported by any concrete evidence and appear largely based on conclusions reached, relying upon open source material, and possibly other information (which the Syrian Arab Republic did not, however, share with the Secretariat).²² Accordingly, the IIT decided to request the authorities of the Syrian Arab Republic to provide concrete information and sources in their possession supporting such leads, as well as any technical analysis mentioned by them.²³ No such concrete information, technical analysis, or reference to sources was provided. The IIT also pursued these avenues of inquiry with a variety of other sources to try to validate the open source information relied upon in the technical assessment by the Syrian Arab Republic, as discussed below.

III. THE INCIDENT OF 4 FEBRUARY 2018 IN SARAQIB

5. BACKGROUND

The findings of the Fact-Finding Mission

- 5.1 As noted above, the IIT is mandated to investigate those instances in which the FFM has determined that use or likely use of chemical weapons occurred, and for which the JIM did not reach findings as to the perpetrators. The FFM determined in its report that “chlorine, released from cylinders through mechanical impact, was likely used as a chemical weapon on 4 February 2018 in the Al Talil neighbourhood of Saraqib”.²⁴

General situation in the area

- 5.2 Between 2016 and 2018, the Idlib Governorate experienced a large influx of internally displaced persons due to the fighting in the region. Saraqib, the second largest city in

²¹ Cf. First IIT Report, Section 5.

²² Cf. also, in this respect, Note by the Secretariat entitled “Information provided by the Syrian Arab Republic for Consideration by the Technical Secretariat: Overview of Processing”, S/1934/2021, dated 10 March 2021.

²³ Letter to the authorities of the Syrian Arab Republic, with attached note by the IIT, dated 3 July 2020; letter to the authorities of the Syrian Arab Republic, with attached note by the IIT, dated 16 October 2020 (reproduced below, Annex 3 to this report).

²⁴ FFM Report on Saraqib, paragraph 7.4.

Idlib Governorate, is approximately 20 kilometres southeast of Idlib city and 50 kilometres southwest of Aleppo. The city is strategically located at the junction of the east-west M4 highway, which runs from the Iraqi border to Latakia, and the north-south M5 highway, linking Aleppo in the north to Hama city, then on to Homs city, the capital Damascus, and all the way to the border with Jordan.

- 5.3 As the IIT has indicated before,²⁵ controlling the M5 highway is an important objective for military operations in the area. The IIT obtained reports and information that, since at least 2012, villages and cities along the M5 highway had been constant targets for air strikes.²⁶ When the authorities of the Syrian Arab Republic recaptured eastern Aleppo city in late 2016, the highway's strategic value further increased.
- 5.4 In February 2018, Saraqib was not under government control, and would not be until March 2020. In February 2018, it had been under the control of armed opposition groups since January 2012. The city itself enjoyed the somewhat peculiar status of a place where – despite the armed conflict, incessant bombings, and even confrontations among the various armed groups in control – life continued, and elections were even held for local representatives in the summer of 2017. To provide some context to the allegations related to the incident on 4 February 2018, the IIT outlines below some of the information it obtained regarding the military activities in the area.
- 5.5 Around July 2017, *Hay'at Tahrir al-Sham* (HTS) managed to wrest control of the area from other armed groups, becoming the dominant armed “jihadist” group in the area by 2018.²⁷ Following this, operations and air strikes by both Syrian and Russian aircraft in the area escalated. Towards the end of 2017, pro-government forces increased aerial attacks over both Idlib and adjacent areas, renewing their offensives later in January 2018.²⁸ By the end of 2017, an alleged additional 320,000 people were said to have fled the area of east and southeast Idlib Governorate due to the military operations and their consequences.
- 5.6 On 27 October 2017, the General Command of the Syrian Arab Army had in fact announced that it would be launching a campaign to retake, at least in part, the Idlib Governorate, including Abu Adh Dhuhur, to be led by Major-General (MG) [REDACTED].²⁹ This is also shown in what appears to be a military order dated 24 October 2017 signed by General [REDACTED], Deputy Commander in Chief and Minister of Defence. This document, posted online and obtained by the IIT, specifies the obligation of “all the commanders [...] to implement the orders and the instructions of MG [REDACTED] until the end of the mission as determined by the General Command”. The IIT further obtained information, including from Syrian news outlets, that on 6 January 2018 MG [REDACTED] was replaced by MG [REDACTED].

²⁵ First IIT Report, paragraphs 6.6 and 6.7.

²⁶ For the purpose of its reports, the IIT uses the term “conventional” to identify non-chemical attacks or weapons.

²⁷ As noted in the First IIT Report, *Jabhat Fatah al-Sham* (formerly Al-Nusra Front or *Jabhat al-Nusra*), designated as a terrorist organisation by the United Nations Security Council back in May 2013 in accordance with its resolution 1267 (1999), absorbed various other armed groups, resulting in the creation of *Hay'at Tahrir al-Sham* (HTS). See First IIT Report, paragraph 6.13.

²⁸ See, among others, Human Rights Council, Report of the Independent International Commission of Inquiry on the Syrian Arab Republic, 9 August 2018, UN Doc. A/HRS/39/65, page 3. The IIT obtained a vast amount of information from various sources, including Syrian and Russian open sources, in relation to these military operations.

²⁹ Annex 4, classified as “OPCW Highly Protected” and available to all States Parties (in document ITT/HP/003, dated 12 April 2021) under the conditions provided for by the Convention, contains paragraphs with the names that have been redacted in the public report.

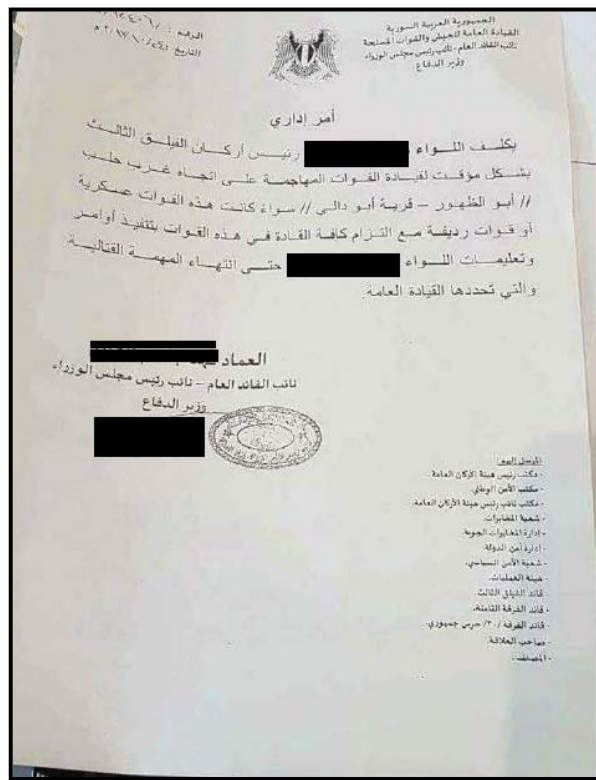


Image 1 - Purported order of 24 October 2017 appointing Major-General [REDACTED] to lead campaign*

- 5.7 The forces deployed in the campaign included the Tiger Forces (*Quwwat al-Nimr*), an elite unit employed on various fronts of the conflict(s) by the Syrian General Command.³⁰ The IIT obtained information from witnesses, satellite imagery, and other sources that the al Mujanzarat military facility (also referred to as “Vehicles” or “Tank” School), located 22 kilometres northeast of Hama city and approximately 68 kilometres east of Saraqib, started functioning as a forward operations base (and therefore was also called “*al Nukta*”, i.e., “the Point”) for the Tiger Forces and other units under the command of Brigadier-General (BG) [REDACTED] in late 2017.
- 5.8 Towards the end of 2017, several helicopters that had been operating under the Tiger Forces in other theatres of operation were moved to al Mujanzarat from the Hama military airbase and possibly from other locations. This coincided with the relocation of the Tiger Forces to the area to participate in upcoming operations in Idlib. The IIT understands from witness statements, expert reports, and open source information that the Tiger Forces had control over significant assets in the form of Mi-8/17 Hip helicopters, as well as armoured and artillery units. Observation data and other information obtained by the IIT show a spike of air operations departing from al Mujanzarat between 27 December 2017 and 9 February 2018 – and again in August and September 2018, when the airbase also became the object of several attacks by armed groups.
- 5.9 As mentioned in the First IIT Report, the armed groups and the civilians in areas not under the control of the Government of the Syrian Arab Republic rely on various methods to provide early warning of possible incoming aerial attacks, whether by

* Images, including maps, in this report are provided for information and reference purposes only, and do not as such constitute evidence related to the events or incident in question.

30 First IIT Report, paragraphs 6.9 and 6.16.

airplanes or helicopter. They use, among others, networks of aircraft “spotters” (or “observatories”), identifying communications between pilots and other officers, coordinates of targets, and sighting of aircraft, and sharing such information with other “spotters” and individuals in the areas likely to be targeted. These human-based early warning networks are complemented by intercepted communications, sensors, and data processing to enable predictions on the locations and time of possible air strikes.³¹ This data, under certain circumstances, identifies the origin of flights and at times allows the identification of information on the pilots.

- 5.10 In late 2017, forces of the Syrian Arab Republic increased aerial attacks over both Idlib and adjacent areas, renewing offensives later in January 2018. Fighting, and gains by pro-government forces, intensified in January when territorial advances, spearheaded by the Tiger Forces, resulted in the recapturing of Abu Adh Dhuhur airbase by 20 January 2018. This campaign became known by opposition armed groups as the “Eastern Railway Campaign”, a reference to the railway running roughly north-south connecting, among others, Abu Adh Dhuhur and Hama city. Within this campaign, the operations ultimately leading to the capture of the Abu Adh Dhuhur airbase were under way on 4 January 2018, proceeding along three axes: north from Abu Dali, west from Khanaser, and south from Al Hadher. By the beginning of February 2018, the Syrian Arab Army in the area had further captured at least 13 towns and villages southeast of Saraqib.
- 5.11 As reflected in the map below (Image 2 – where the railway is depicted in black, while highways are in red and violet), one branch of the operation originated from the area near al Mujanzarat and moved northwards via Khuwayn to Sinjar and, finally, Abu Adh Dhuhur airbase. Once Abu Adh Dhuhur airbase was captured, after joining with the northern axis, the forces turned westwards towards Saraqib, ultimately stalling at Tell Sultan. This southern axis of the attack was the one comprised of forces under command of BG [REDACTED], who would avail himself of the Operations Room at al Mujanzarat, as necessary. The IIT obtained information that BG [REDACTED], Colonel [REDACTED], and representatives from other forces active in the theatre of operations at various times would be present at the Operations Room. Multiple sources, including persons who were able to recognise him in radio communications, identified Col. [REDACTED] as the chief operations officer for the Tiger Forces and in charge of the Operations Room, under the authority of BG [REDACTED]. The IIT obtained information according to which BG [REDACTED] and Col. [REDACTED] were heard on radio communicating among themselves and giving direct orders to pilots to carry out air strikes in 2017 and 2018.

³¹ See, for instance, First IIT Report, paragraphs 6.19 and 6.20.

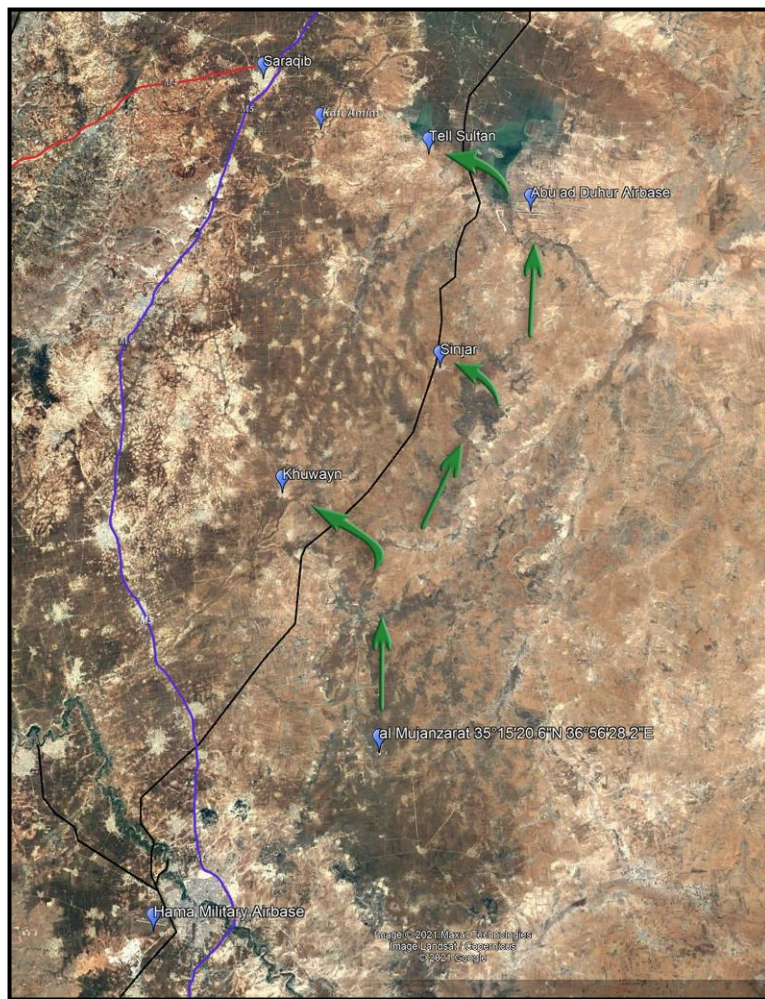


Image 2 – Graphic representation of general directions of military campaign

- 5.12 By early February 2018, the authorities of the Syrian Arab Republic had consolidated their hold on the city of Abu Adh Dhuhur and pushed westward towards Saraqib, where front lines stalled and stabilised roughly 15 kilometres east and southeast of the city. These front lines did not drastically change until the renewed push by the Syrian forces from the north of Khan Shaykhun along the M5 highway in late December 2019 and early January 2020. On 2 February 2018, key assault units of the Tiger Forces, which had spearheaded the Syrian Army's eastern Idlib offensive, were given orders to soon terminate their operations in the region and depart towards Ghouta: the IIT obtained information that this redeployment had indeed occurred as of 13 February 2018.
- 5.13 Various sources reported that, on 3 February 2018, forces opposing the authorities of the Syrian Arab Republic hit and downed a Russian Su-25 military airplane in the area over Idlib Governorate, causing it to crash near the town of Ma'saran, about 15 kilometres south of Saraqib, which led to the death of the pilot. This incident was followed by increased air strikes against the territory held by armed opposition groups throughout the Governorate, including the area of Saraqib (where government forces were gaining ground while advancing on the city). Multiple sources claimed credit for the downing of the Russian Su-25; however, the IIT did not pursue this line of inquiry as it falls outside its mandate. The IIT also obtained information that on that same day Kafr Amim, a town about eight kilometres southeast of Saraqib, was attacked by a helicopter dropping a chlorine cylinder; since the IIT was not seized of the incident, it also did not pursue this matter.

- 5.14 The IIT obtained information of a barrel bomb production or loading facility at al Mujanzarat airbase, and it recalls the information it obtained as regards the Tiger Forces' involvement in requesting chlorine to use as a chemical weapon in Ltamenah on 25 March 2017.³² Despite suggestions that BG [REDACTED], commander of the Tiger Forces, made a request for, and used, chlorine barrel bombs for an attack on 4 February 2018, the IIT could not corroborate this, and therefore did not rely on it.
- 5.15 As mentioned above, the predominant armed group in the area was HTS, the latest evolution of *Jabhat al-Nusra* and other groups, led by [REDACTED]. HTS had 10,000 fighters around Idlib Governorate at the time, a number that the IIT has not been able to confirm. According to Syrian media reports from 2020, the headquarters of HTS was located in Anajara, in a series of tunnels west of Aleppo city.
- 5.16 The IIT obtained information from a source in Saraqib that, in February 2018, a force of 5,500 from *Jaysh Idlib al Hor* (Free Idlib Army) was in charge of the operations to defend the front lines outside Saraqib. The city was used as a transit location for troops moving to and from the front lines. During this period, the Saraqib "Operations Room" (dubbed *Rad al Toghyan*, "Repel the Tyranny") comprised and coordinated up to 12 armed groups in the campaign in and around Saraqib, including: *Jaysh Idlib al Hor* (under [REDACTED]); *Ahrar al Sham* (under [REDACTED]); *Filaaq al Sham* (al Sham Legion, under [REDACTED]); *Jaysh al Nasr* (Army of Victory, under [REDACTED]); *Jaysh al Nukbha* (Elite Army); *Jaysh al Ahrar* (Army of Free Men, under [REDACTED]); and *Tajamo'o Dimshq* (Rally of Damascus, under [REDACTED]). HTS was not part of this coalition due to ideological differences – though the IIT obtained information that the two groupings did in fact coordinate their actions and at times fought together on the front lines.
- 5.17 While the IIT obtained information that other States carried out air strikes and operations on the territory of the Syrian Arab Republic in early February 2018, there is no information indicating air strikes in the Saraqib area by forces opposing the authorities of the Syrian Arab Republic.
- 5.18 Strategically, according to a military expert consulted by the IIT, the use of chemical weapons in Saraqib in early February 2018 could be interpreted as an attempt to redouble efforts to push westwards, including towards Saraqib, as the momentum of the offensive stalled, but also as a "punishment" for the downing of the Russian aircraft, as well as to break the will of the population and of entrenched opposition fighters. The expert further noted there was no major military attempt to actually capture Saraqib and its immediate surroundings after 4 February.
- 5.19 Alternatively, the military expert also submitted that local (armed) groups could have had an incentive to stage a chemical attack to focus the attention of the international community on the plight of Saraqib and the surrounding area, relentlessly bombed over the preceding weeks. These considerations, among others, informed the IIT's approach in evaluating the information obtained and, more specifically, in identifying novel sources of information in order to pursue its investigations.

6. INCIDENT IN SARAQIB, 4 FEBRUARY 2018

- 6.1 The FFM determined that chlorine, released from cylinders through "mechanical impact", was likely used as a chemical weapon on 4 February 2018 in the Al Talil

³² First IIT Report, paragraph 8.10.

neighbourhood of Saraqib.³³ The IIT understands its mandate to be based on the findings of the FFM; it therefore focused its investigation on the possible perpetrators of the use of chlorine and also took into account information about the presence of other substances.

- 6.2 In fulfilment of its task to identify perpetrators, and taking into account the constraints under which the IIT is working,³⁴ the IIT examines various scenarios.³⁵ As mentioned, in this specific instance, the authorities of the Syrian Arab Republic set out their explanation of the incident, based on their own analytical studies of the events: this was a “staged” scenario – they suggested that local terrorist armed groups, backed by various States, had the means to fabricate and forge false accusations. In this respect, the IIT specifically pursued various avenues of inquiry regarding the allegation that barrels containing chlorine were placed at the scene to “stage” a chemical attack.
- 6.3 The IIT therefore focused in this case on the two main scenarios, i.e., that of the “staging” of a chemical attack, and that of an attack with chlorine released through cylinders dropped from the air. At the same time, the IIT remained open to other hypotheses that could explain what happened on 4 February 2018 in Saraqib.

(i) The context of the military activities in the area

- 6.4 With regard to the military activities in the area of Saraqib in late 2017 and early 2018, the IIT made its assessments on the basis of accounts by witnesses, expert reports, observations and technical data, imagery, open source information, and through consultations with external entities.
- 6.5 Strikes by airplanes and helicopters have been an essential element throughout military campaigns in the Syrian Arab Republic since August 2012. As briefly addressed,³⁶ between the end of 2017 and February 2018, the area of Saraqib was heavily targeted by air strikes, until the overall offensive by the Syrian forces and their allies stalled. Within these operations, the IIT specifically noted the downing of a Russian SU-25 on 3 February 2018, which several sources considered a significant event. In the week before 4 February 2018, the area of Saraqib was heavily bombed – including two hospitals: one was the important Ma’rat al-Numan hospital, hit after 8:00 pm on 4 February itself; the other, the Saraqib hospital itself (also called al-Ishan, or Ow dai hospital), struck on 29 January 2018.
- 6.6 The IIT gathered information and analysed images from nine airbases within a distance that would allow helicopters to reach Saraqib.³⁷ Although all these bases could in theory support such sorties, the IIT obtained specific information about helicopter raids on Saraqib from Hama airbase³⁸ as well as from al Mujanzarat military facility during the relevant period. From Hama airbase, flight data and other information indicate dozens of air sorties between December 2017 and February 2018, including at least nine on 4 February 2018. Al Mujanzarat is located about 25 kilometres northeast of Hama airbase; in early 2018, it functioned as the operational headquarters for the Tiger

³³ See FFM Report on Saraqib, paragraph 7.4.

³⁴ See above, Section 2; *cf.* First IIT Report, Section II.4.

³⁵ See above, Sections 3 and 4; *cf.* First IIT Report, Section II.5.

³⁶ See above, paragraphs 5.8 to 5.10.

³⁷ The IIT recognises that helicopters can land almost anywhere, but in the context of an offensive campaign they would operate from a particular, albeit at times temporary, airbase.

³⁸ For the relevance of Hama airbase since 2017, see *inter alia*, the First IIT Report, in particular paragraphs 6.10 ff.

Forces, which had control of a group of Mi-8/17 helicopters deployed there, with up to eight regularly used helicopters. Observation data and other information obtained by the IIT show a significant spike in helicopter operations departing from al Mujanzarat between 27 December 2017 and 9 February 2018. While before 27 December there were no flight activities recorded from that airbase, after that date activities were noted as fluctuating between a few to more than 50 flights daily, correlating with military operations in the area.³⁹

(ii) Meteorological conditions

- 6.7 Sunset on 4 February 2018 was at around 17:03; sunrise on the next day was at around 6:32. The IIT established the meteorological situation in the area in the evening of 4 February 2018 through concurring witness statements and other sources of information, including official reports received from the World Meteorological Organization (WMO) and its specialised meteorological centres. Between 21:00 and 22:00, the area experienced a temperature of 10° C (with a possible margin of error of mostly about 2° C) with 80% relative humidity at 2 metres above ground. Wind was estimated as being light, towards a northerly direction. Models of the area show strong variations in the wind direction over the course of the evening and night; after 22:00 on 4 February, the models indicate this light wind changing to a southerly direction. The conditions prevailing in the area at the time, as estimated, are considered permissive for the use of chlorine gas. Thus, a decision-maker with knowledge of such conditions would be able to plan and use such gas as a chemical weapon in these circumstances – although the exact direction of any gas dispersion could not have been accurately foreseen in advance.

(iii) Accounts and assessments of the munitions in question, their delivery, and impact

- 6.8 The area of the incident identified by the FFM is an open grassy field about 400 metres east of the Abu Adh Dhuhur Bridge over the M5 highway in Saraqib, and southwest of the local Agricultural Bank (a facility used as a warehouse).⁴⁰ This whole area in eastern Saraqib shows various weapon impacts between 1 and 7 February 2018, as discerned from satellite imagery obtained by the IIT and interpreted by specialists, confirming witness statements of increased air attacks during that period.

³⁹ See above, paragraph 5.8.

⁴⁰ See FFM Report on Saraqib, paragraph 5.17 and page 7 (maps).

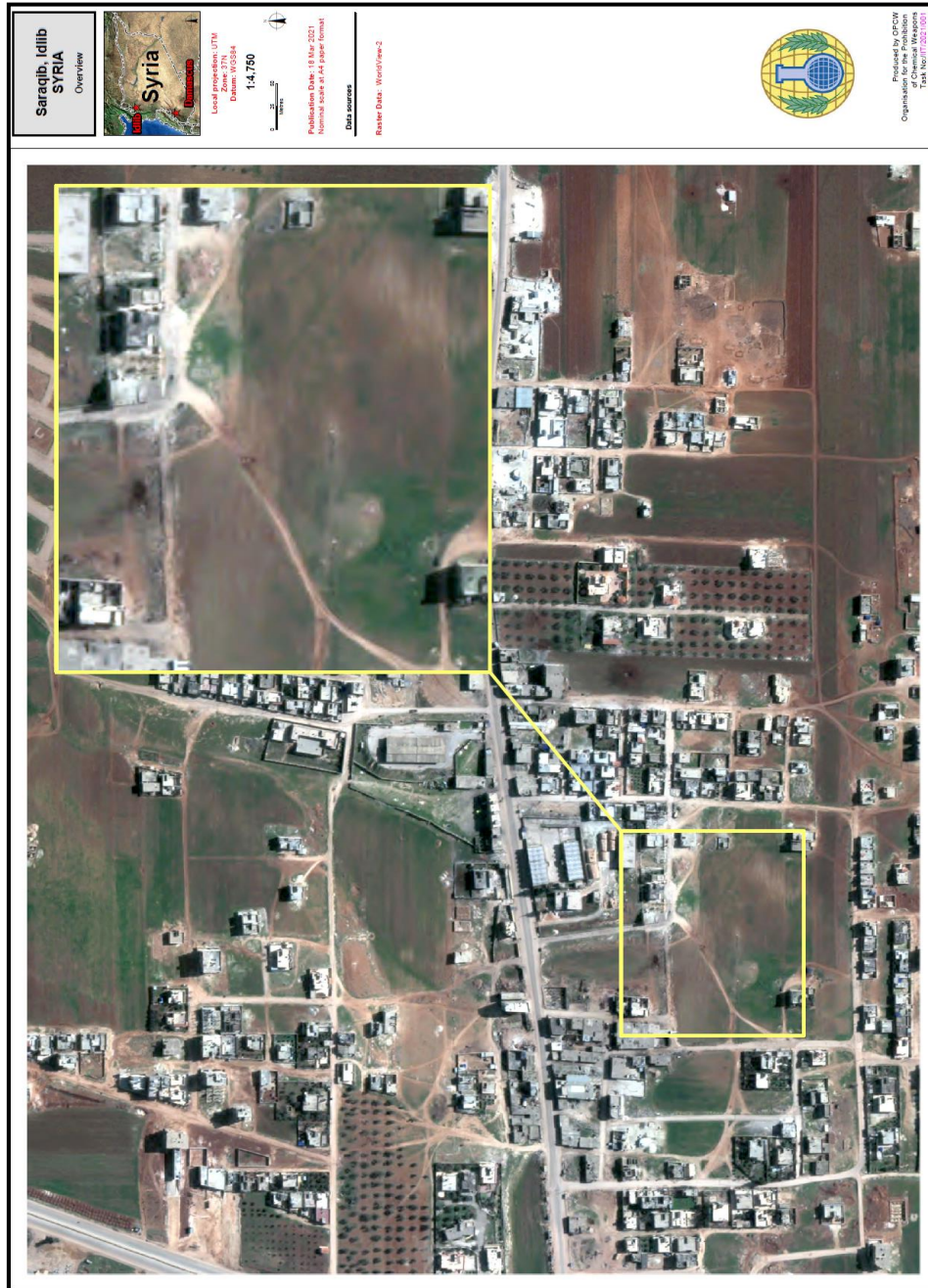


Image 3 - General area of incident of 4 February 2018

- 6.9 In this open grassy area, several witnesses recounted barrels (cylinders) being dropped in the evening of 4 February 2018: they heard a helicopter sound between 21:15 and 21:22 and one or two items falling and hitting the ground. Two of them recalled also seeing a helicopter, or its lights in the night. Witnesses, including those in a nearby shelter (marked in Image 4 with a blue star) specifically recalled that, whilst they did not hear explosions, as the cylinder(s) were falling a distinctive “tumbling” sound (described using the expression “*wahif*”) could be discerned. At first some of the witnesses actually thought that conventional bombs had been dropped, but had not detonated. One of the individuals in the shelter, located about 70 metres from Crater 1 and about 120 metres northeast from Crater 2, recounted that he went to see what had happened and started feeling sick when getting closer to the area in the direction of the origin of the sound. The IIT was able to confirm 12 named individuals, including 11 who were treated at the Sarmin field hospital, as having suffered symptoms as a consequence of exposure to chlorine related to this incident. Seven of these 11 were sheltering together that evening. Information in this respect is detailed in the FFM Report on Saraqib and below, in the following sections of this report.
- 6.10 Videos obtained by the IIT and information in open sources confirm the witness accounts that at least two cylinders were dropped in the area, not far from each other, in the time frame reported by the witnesses. During its analysis, the IIT noted several impact points, but specifically focused on three craters marked in Image 4, on the basis of the concurrence of the accounts and the analysis conducted by the specialists it consulted, as well as satellite images and video recordings obtained in the aftermath of the incident.

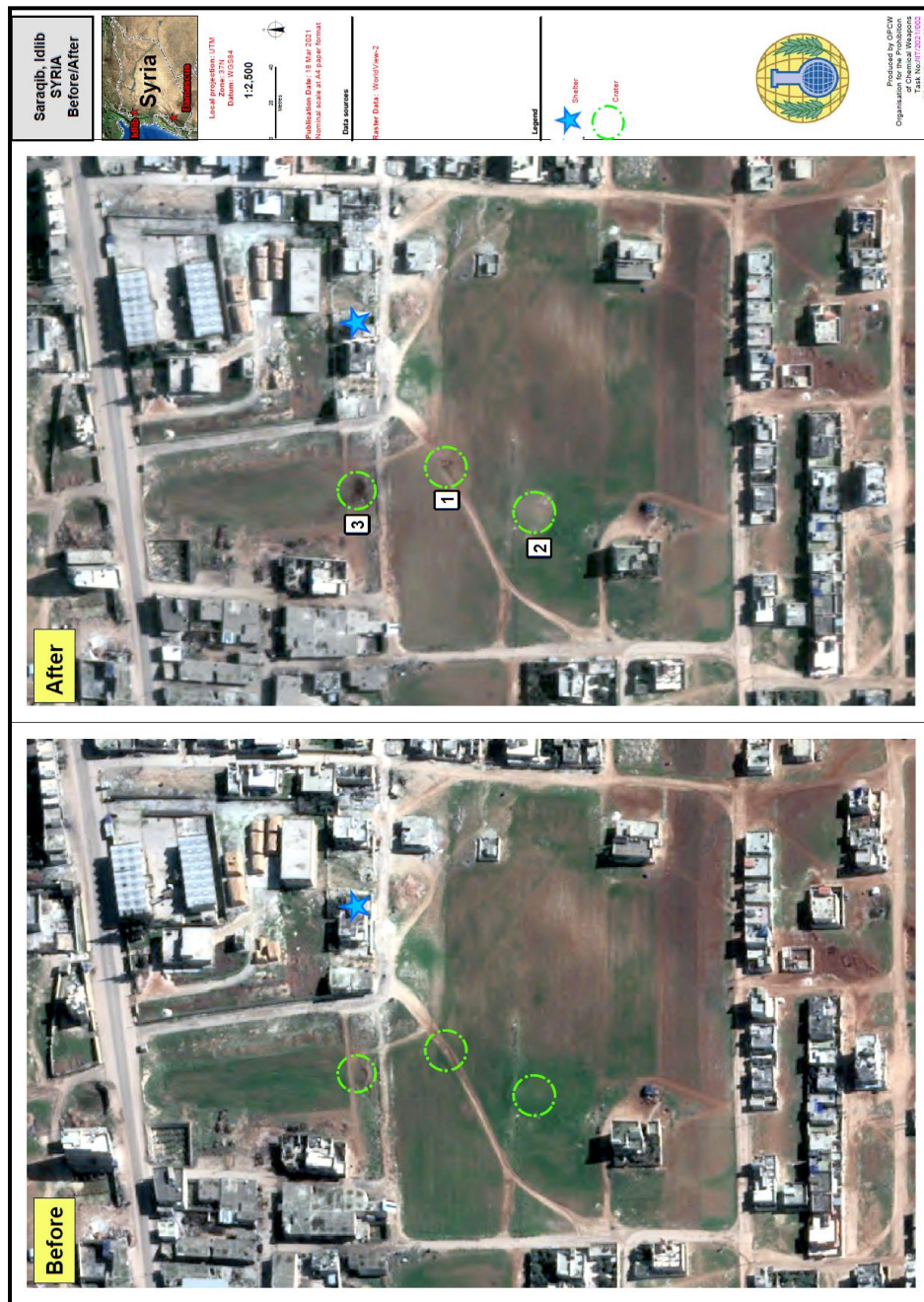


Image 4 - Relevant area in the days before (left) and after (right) 4 February 2018

- 6.11 The first crater (marked as “Crater 1”) is a shallow crater located on a track, or dirt road. The vegetation (grass) around the impact location shows a discoloration in an oval shape. No cylinder or other distinctive munition fragments were observed or collected inside the crater –although some metal pieces located nearby resemble fragments of the same type of frame (cradle) identified around Cylinder 2, as discussed below.
- 6.12 Another crater (marked as “Crater 2”), also relatively shallow, is found about 50 metres southwest of Crater 1. The vegetation (grass) around the impact location also shows distinct discoloration in an oval shape. Metal fragments can be seen in and around the crater in imagery taken at first light on 5 February 2018. Remnants of a cylinder were found about five metres from the crater.



Image 5 - Example of geolocation of Crater 2

- 6.13 A third crater (marked as “Crater 3”) is located to the north of the first two, just above another small track; it is deeper and larger in size compared to Craters 1 and 2, more likely due to a conventional munition. Due to its size, and the lack of expected environmental visible effects of chemicals, it is unlikely that release of chlorine occurred at this specific location shortly before the images of the area (both satellite and video) were taken. Also in light of the FFM Report on Saraqib, the IIT did not focus on this crater.
- 6.14 The IIT, in view of its mandate to ascertain the origin of chemical weapons, worked to determine whether Crater 1 and Crater 2 were indeed caused by the cylinders identified by witnesses as the ones releasing toxic chemicals – and whether, in turn, these could be confidently linked to two cylinders dropped by one helicopter, as recounted by several witnesses. One of the challenges in this respect stemmed from the fact that the incident, as recounted by witnesses, occurred under cover of darkness. Moreover,

witnesses stated that they felt sick when trying to get closer to the impact points in the immediate aftermath of the incident. This, they said, prevented them from inspecting the site in the hours after 21:00. Under these circumstances, the IIT proceeded to ascertain the position and possible movements of the cylinders not merely from the accounts of individuals in the area during and immediately after the incident, but also on the basis of all the information obtained.

- 6.15 Despite making inquiries with multiple sources, including the Syrian Arab Republic, the only concrete information obtained was that Craters 1 and 2 were created through kinetic impact from high altitude (a conclusion matching the type of damage of both Cylinders 1 and 2). The IIT received an indication that the local radio tower, or mast, in Saraqib – more than 200 metres high – could have been used to drop the cylinders in question and cause the damage visible on them. This is a radio tower located more than two kilometres northwest of the area of the alleged incident.⁴¹ Imagery from February 2018 near this tower shows craters of explosions, unlike those of Craters 1 and 2 and, instead, more similar to Crater 3. In any event, even apart from the complexity of executing such a “staging” operation, this scenario is not borne out by any plausible information. In the face of witness information and expert analyses pointing to cylinders being dropped from a helicopter, the IIT could identify no source, other than mere speculation, supporting the theory of a possible drop at, and subsequent transfer of these cylinders from, another location.
- 6.16 The FFM focused on two cylinders and noted the presence on top of them of stamped markings, including Cl₂.⁴² It estimated that each cylinder had a capacity of 100-120 litres.⁴³ Moreover, the FFM concluded that the top of each cylinder was ruptured in a way that does not indicate explosive charges, but rather “significant mechanical force on the body of the pressurized container”.⁴⁴ The IIT requested two munition specialists to engage in a thorough study of imagery (including satellite photographs from the period), the cylinders’ locations, and their appearance, together with the fragments in and around the relevant craters, and to assess whether the cylinders ruptured upon impact.⁴⁵
- 6.17 As per standard practice, the authenticity of images and their content was checked and analysed through different means: witnesses were interviewed with regard to the recording of the videos as well as to the locations and individuals shown; images from various sources were compared; geolocation analysis was conducted; and metadata extraction was performed by a forensic institute. It was the combination, consistency, and corroboration of different sources of information that provided the necessary degree of certainty in respect of the reliability of the imagery, and not reliance on individual pieces of information.
- 6.18 Upon careful analysis of imagery, witness statements, geolocation, metadata, and the specialists’ analysis, the IIT finds that it is indeed probable that the two craters were caused by two cylinders that, when rupturing, released chlorine at around 21:22 on 4 February 2018. Nonetheless, the information before the IIT was not sufficient to allow

⁴¹ The IIT also explored other similar installations, such as one in Al Eis, 22 kilometres northeast of Saraqib.

⁴² See FFM Report on Saraqib, paragraphs 5.23 and 5.50.

⁴³ See FFM Report on Saraqib, paragraph 5.49.

⁴⁴ See FFM Report on Saraqib, paragraphs 5.50 and 5.51.

⁴⁵ Although the FFM used the expression “crater of Cylinder 2” and similar (see, for instance, FFM Report on Saraqib, page 18, item 10), the IIT did not relate the two cylinders to one or both of the two main craters identified in the area when presenting the information to the specialists and other experts consulted on the various matters.

it to reach a conclusion to the requisite degree of certainty as to why one of the two cylinders ("Cylinder 1") came to be located around 47 metres north of Crater 1, as shown in images from the first hours of the morning of 5 February 2018. There are simply too many variables related to location and possible movement of this cylinder after its impact, which the IIT, despite its attempts, has been unable to reconcile. Considering that any uncertainty relating to the origin of Cylinder 1 has no effect on the information or the analyses relating to Cylinder 2, the IIT has therefore focused its investigation on the origin only of the latter.

(iv) Remnant and its possible origin

- 6.19 Cylinder 2 is a yellow industrial-type cylinder which can be used for the storage of chlorine. It is damaged at the front end and is deformed to an angle of approximately 45° – a degree similar to that seen at similar alleged incidents of chlorine gas use. Based on the analysis of the damage observed, the munition specialists consulted by the IIT considered it very unlikely that explosives would have been used within the device. Indeed, its appearance in images from 5 February 2018 (i.e., the angle of the damage, as well as the shape and size of the deformation), added to the size of the fragments recovered, does not correlate with a substantial amount of explosive attached to or inserted into it. The damage to Cylinder 2 is instead consistent, according to the munition specialists, with it being air delivered and impacting the ground from a significant altitude. Upon initial impact on the ground, and considering the distances involved, the most likely conclusion is that Cylinder 2 "rebounded" about five metres to its resting location – which, again, would be consistent with the cylinder having been dropped from a significant altitude.
- 6.20 The front-end round plate seen on both cylinders (in which the valve is normally inserted) contains a clover-like imprint (Image 6). A similar imprint can be seen on the cylinder in another alleged incident from the same period. The imprint is not completely symmetrical (and the one on Cylinder 1 does not exactly match the one on Cylinder 2). These observations indicate that its origin is unlikely to be the manufacturing process of the actual cylinder(s). According to multiple specialists advising the IIT, such markings were most likely caused by circular objects (such as the one visible in Image 7, top left picture), seen in the past, which add weight to the front end, creating a small distance between the front of the cylinder and the plate seen in Image 7 (bottom left picture).⁴⁶
- 6.21 Moreover, the valve which is normally situated at the front end is broken off; at the point of the ruptured surface a pink area is visible on the photographs taken of the cylinder on 5 February 2018. Notably, the pink area is still visible on photographs taken 15 days later, but with clear discoloration compared to earlier images. The IIT pursued various lines of inquiry to try and understand the significance, if any, of this pink colour, which, from open source searches, can be observed in other alleged cases of use of chlorine cylinders as weapons. The most likely explanations are that this is either a sealant or corroded brass from the rod, part of the valve, used to fill the cylinder. Nonetheless, the IIT did not determine that this pink-coloured area would be of significance to assist in ascertaining the origin and perpetrators of this incident.

⁴⁶ On this front end, see further details below, paragraph 6.23.



Image 6 – Picture of side of Cylinder 2

- 6.22 Attached to Cylinder 2 is a metal structure (“cradle”) consisting of what appears as several metal straps holding the cylinder in place – most likely, according to the specialists, two fins, an axle and a V-shaped metal part close to the axle. The IIT notes that this design is consistent with the type of munitions that can be delivered from a helicopter with the use of a metal structure, as reported in the First IIT Report, for instance.⁴⁷ In the vicinity of Cylinder 2 and of Crater 2, as seen from imagery taken in the early hours of 5 February 2018, several metal fragments can be observed. They included the fragment marked by the FFM as SDS12 (item 12 on page 19 of the FFM Report on Saraqib), as well as metal plates, one of which is attached to a bar.

⁴⁷ See First IIT Report, paragraph 8.26.

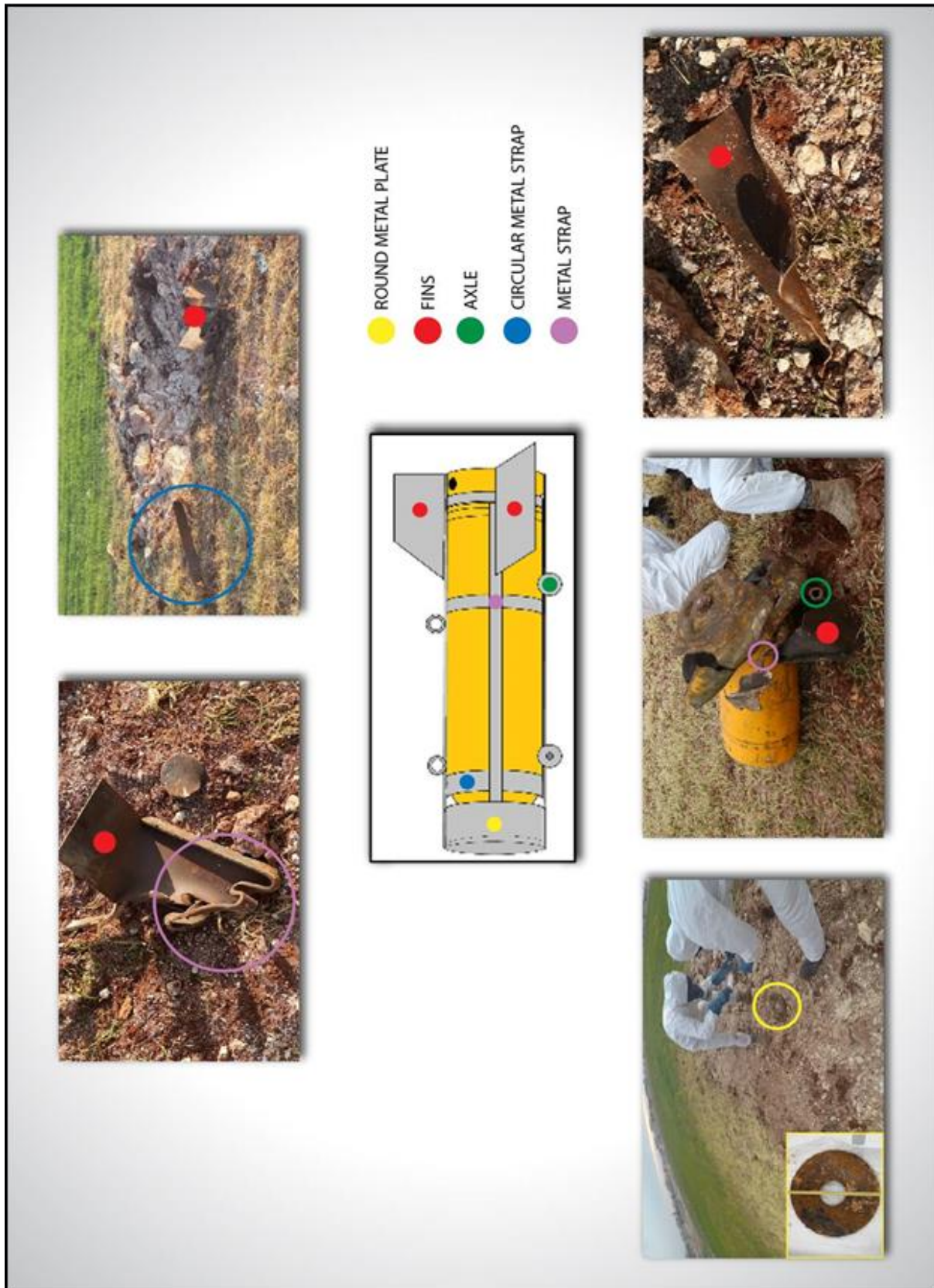


Image 7 - Representation of model of cylinder (barrel), with reference to possible fragments related to identifiable parts of a metal structure

- 6.23 Fragment SDS12, re-inspected by the IIT, is a plate considered by the munition specialists to have very likely been part of the front end section of the cradle, the portion which provides additional weight to the front end, thus ensuring nose-first impact. Its plate is now heavily corroded, though welding material can still be observed on the concave side of the plate and on the edges.
- 6.24 The deformed (approximately at 90°) metal plate attached to a deformed metal bar is consistent with the shape of a fin attached to one of the longitudinal straps of the cradle for the cylinder. From visual analysis, the metal strap is likely part of the cradle. The other metal plate is also deformed (see top left photo in Image 7); according to the munition specialists advising the IIT, despite its deformation, the shape of this item resembles the design of a stabilising fin found on cylinders in similar incidents. Other fragments in the area seen in videos and photographs taken during the sampling process, such as a square metal plate and some metal circular fragments, cannot be attributed with any degree of certainty to a specific object, let alone a specific weapon; the IIT therefore did not take them into account.

Example of imagery related to recovery of item from the incident site

SDS12

...in Crater 2 on the morning of 5 February 2018...



...as packed at the scene on the morning of 5 February 2018...



"Metal piece from the 2nd barrel"

...as handed over to the FFM on 19 February 2018...



"Metal piece from the 2nd barrel"

...and as re-examined by IIT in OPCW Laboratory



Image 8 – Example of imagery related to recovery of item from the incident site – SDS12

- 6.25 The IIT considered it significant that a metal structure – apparently including two fins, parts of a strap-in frame (cradle), and an axle – was found attached to Cylinder 2 and that other fragments found in the vicinity of Crater 2 (another fin and parts of a metal frame) are consistent with markings resulting from having been fitted with a steel strap-in structure, as seen on the chlorine “barrel bombs” identified in the same period of the conflict in the Syrian Arab Republic – including that used on Ltamenah on 25 March 2017.⁴⁸

(v) Chemical analyses

- 6.26 As in its analysis of the incident of 25 March 2017 in Ltamenah,⁴⁹ the IIT notes that there is no single chemical that would unequivocally and directly indicate the use of chlorine gas and its origin. The IIT nonetheless undertook a number of steps to clarify and deepen its understanding of the findings by the FFM that chlorine, released from cylinders through mechanical impact, was likely used as a chemical weapon on 4 February 2018 in Saraqib.⁵⁰ In order to do this, the IIT obtained additional evaluations of data directly from the two OPCW designated laboratories used by the FFM to analyse relevant samples. It then proceeded to assess the significance of the data with the assistance of other chemists.
- 6.27 Further, the IIT engaged a well-known and experienced chemist (not previously involved in the analysis of samples from Saraqib, or their assessment) as an expert to assist the investigation in relation to the results of sample analyses and their significance. The chemist researched relevant literature and consulted other chemists and specialists, as appropriate.
- 6.28 Starting from an analysis of the FFM findings regarding chlorine,⁵¹ the expert was asked, *inter alia*, to consider (i) additional data received from the two designated laboratories, and (ii) whether the results of the analysis could suggest that the area was “staged” so as to resemble an area affected by a chlorine attack. In pursuing this “staging” option, the IIT requested the chemist not to limit themselves to considering the conclusions expressed by the authorities of the Syrian Arab Republic, i.e., that chlorine cylinders were brought from elsewhere to the area to resemble an attack on Saraqib, but also other options – including that common chlorine products could have been brought to the scene to “stage” a chlorine gas attack with otherwise ordinary cylinders.
- 6.29 As to the first point (the data received from the designated laboratories), the independent chemist conducted a thorough review of the side-by-side comparison and the additional data provided by the two designated laboratories,⁵² finding no discrepancy with the analytical results reported by the FFM.
- 6.30 In relation to the second point (whether the results of the analysis could suggest that the area was “staged”), the “staging” of the area to resemble an area affected by a chlorine gas attack cannot be excluded on the basis of the chemistry analyses alone. This is

⁴⁸ See First IIT Report, paragraphs 8.26 and 8.27.

⁴⁹ See First IIT Report, paragraph 8.35.

⁵⁰ See FFM Report on Saraqib, paragraph 7.4.

⁵¹ See FFM Report on Saraqib, in particular Tables 4 and 5.

⁵² These are all laboratories that have successfully performed the proficiency testing of the OPCW and offer the necessary assurances to States Parties about competence, impartiality, and unambiguous results in relation to analysis of chemical samples, as per Conference decision entitled “Criteria for the Designation of Laboratories by the OPCW” (C-I/DEC.61, dated 22 May 1997).

mainly owing to the absence of truly unique environmental markers for chlorine as well as the myriad of organic and inorganic chemicals in the environment. Moreover, explanations other than the use of chlorine as a weapon remain possible for the presence of the chlorinated organic compounds in the samples (e.g., degradation products of herbicides and pesticides, or household chlorine-based products used at the scene).

- 6.31 However, the expert consulted by the IIT remarked that the fact that most of the chlorinated organic chemicals also identified in the FFM report were found at the site close to Crater 2 was indicative of the presence of high levels of chlorine or other reactive chlorine species at that particular location. The expert further noted similarities between the results of analyses and distribution of compounds throughout the affected area between the incident of Saraqib on 4 February 2018 and those noted at Ltamenah on 25 March 2017 – including high chloride ion content in samples near the sites of the impact, i.e., chloride levels significantly higher than in samples collected at various incremental distances from the location where the cylinders were found. The chemist did note the “good level of resemblance” of the findings in this incident to the results of chemical analyses in the incident of 25 March 2017 in Ltamenah,⁵³ also considering the distribution of the chlorinated organic chemicals in the area.
- 6.32 Contrary to other submissions, for which the IIT in vain tried to find support, the chemist, as well as other specialists consulted by the IIT, found that the discoloration and withering of vegetation observed at the site in question correlate with the use of chlorine gas in the area.



Image 9 – Imagery of vegetation in the vicinity of impact point in the morning of 5 February 2018

- 6.33 In its attempts to explore different scenarios, including the allegations of “staging”, the IIT further obtained and analysed various household chlorine-based products commonly used in the Syrian Arab Republic and readily available on the market. This was done with a view to assessing whether it would be possible to “stage” a chemical attack by dousing the cylinders and the area in question with these products. Indeed, various witnesses stated that the smell around the affected area was a pungent odour of chlorine similar to household cleaning products, though stronger. The analysis of these products yielded six chemicals, the presence of which in samples from the Saraqib incident could be indicative of intentional – or even accidental – dispersal of these chlorine-based products in the area in question. Any such dispersal may have (wrongly) led to a conclusion of a chemical attack by chlorine gas. The two designated laboratories

⁵³ See First IIT Report, paragraphs 8.1 to 8.36.

that had analysed the original samples from Saraqib for the FFM, upon request of the IIT, confirmed that no trace of any of these six chemicals could be detected in those samples. The IIT therefore requested another laboratory to examine both soil and vegetation samples from the incident in Saraqib for any of those six chemicals; despite various examination processes, their presence could not be confirmed.

- 6.34 The IIT noted that certain sarin-related compounds were found in the samples analysed on behalf of the FFM by two designated laboratories; these are only a small part of the “chemical signature” identified by the IIT in the samples pertaining to the two incidents of Ltamenah on 24 and 30 March 2017 (and by the JIM in the incident of Khan Shaykhun on 4 April 2017) as indicating the use of the sarin resulting from a process matching the one developed by the Syrian Arab Republic.⁵⁴ They would not, on their own, be sufficient to prove the use of that type of sarin to the requisite degree of certainty.
- 6.35 The IIT is aware of small sarin-filled munitions allegedly used during the conflict in the Syrian Arab Republic, and of an alleged sarin attack in the Saraqib area in 2013. The IIT requested the opinions of various chemists as to the presence of such compounds, and to any possible interaction of chlorine and sarin. The expert, supported by other sources, explained that an incentive for the use of multiple toxicants in one attack could be that of causing even more panic and chaos, as well as complicating the aftermath (decontamination, medical treatment of the victims, off-site analysis of samples) and the interpretation of off-site analytical results. Another possibility explored by the IIT is that the material sampled was contaminated with those sarin-related compounds.
- 6.36 Specialists consulted by the IIT agreed that it would be difficult to fill a cylinder to be used as a weapon with both sarin and chlorine. They explained that one of the ways to destroy sarin is actually to treat it with hypochlorite, which reacts almost immediately to form the much less toxic IMPA. These conclusions may suggest that the two were not used together, in the same container, for a single chemical attack aimed at producing diverse consequences. The sophistication required to stage a chemical attack with sarin, as for example described in the First IIT Report,⁵⁵ would not accord with such a poor understanding of the nullifying effects of mixing sarin and chlorine. Any use of multiple toxicants in a single attack would therefore almost invariably involve the use of different munitions for chlorine and for sarin. In examining contemporaneous videos, no fragment was identified that would indicate the use of sarin bombs, or other projectiles that could be filled with sarin. Wipe samples from the inside of the cylinders showed the presence of sarin degradation and by-products. Investigation of the imagery from the sampling process and further physical analysis of the sample held by the OPCW revealed the presence of soil inside the cylinders, likely resulting from the cylinder impacting and rupturing on the ground.
- 6.37 Yet another hypothesis would be that sarin-related markers were identified because of an older sarin incident in the same area, with the less volatile by-products/hydrolysis products residing as more or less persistent remnants in the environment. Two of the

⁵⁴ See: First IIT Report, paragraphs 11.3 and 11.8; Note by the Secretariat entitled “Report of the OPCW Fact-Finding Mission in Syria Regarding Alleged Incidents in Ltamenah, the Syrian Arab Republic – 24 and 25 March 2017, dated 13 June 2018” (S/1636/2018), Tables 3 and 4; S/2017/904, Seventh report of the JIM, dated 26 October 2017, Annex II, paragraphs 81 ff.

⁵⁵ See First IIT Report, paragraph 11.3 and Annex 5 (OPCW Highly Protected, available to all States Parties under the conditions provided for by the Convention).

identified compounds (DIMP and IMPA) do not degrade for a very long time, and they move with water once dissolved – this means that any use of sarin in the vicinity, even in previous years, could explain their presence.

- 6.38 The IIT further explored the possibility of cross-contamination during the sampling process, or at a later stage in the handling of the samples themselves. The IIT was able to exclude the possibility of cross-contamination after the samples were secured: the OPCW Laboratory quality control procedures, the practices followed by the FFM, the examination of the seals and packaging on these specific samples throughout their cycle, the restricted access to the OPCW Laboratory itself, and the fact that control samples sent with those same samples to the designated laboratories were uncontaminated, allow the IIT to exclude cross-contamination after their sealing by the FFM. This leaves the possibility that contamination occurred before sampling or after the samples were taken, but before they were secured by the OPCW in sealed packaging. The latter scenario would still not fully explain why only by-products and one degradation product of sarin, rather than sarin itself, were identified.
- 6.39 In any event, since the FFM did not make findings related to the use of sarin in Saraqib on 4 February 2018, the IIT refrained from pursuing this aspect of the incident further. Some uncertainties in respect of the possible use of sarin in the same area remain, but the IIT was mindful of the presence of these compounds when assessing the information in its totality.
- 6.40 The IIT also considered the significance of the presence of other chemicals in certain samples analysed by the FFM.⁵⁶ According to the expert consulted by the IIT, the TNT and related nitro-compounds mentioned by the FFM (despite the fact that designated laboratories would not routinely search for traces of such compounds) could be the result of previous incidents with explosives in the same area. The presence of soil inside Cylinder 2 would support this. The number of possible explanations for the presence of such compounds remains, in the words of the expert, “quite high” – but would not be inconsistent with the use of chlorine as a weapon. In this respect, the IIT obtained a vast amount of information from various sources about conventional attacks in the area of Saraqib throughout the weeks leading up to the time of the incident.⁵⁷ This could explain the presence of these other chemicals in samples gathered from and around the ruptured cylinder.
- 6.41 In conclusion, the chemical analyses and studies, taken in context, do indicate that both cylinders, and in particular Cylinder 2, were used to launch a chlorine attack in Saraqib. The following sections elaborate on certain aspects of this context by analysing further information.

(vi) Symptoms of affected persons

- 6.42 The IIT has been able to verify 12 named affected individuals, none of whom a fatality. The IIT took note of the information from victims stating that they had been affected by chlorine gas while at the shelter (marked with a blue star in Images 4 and 10), as well as the accounts of rescuers providing them first aid and bringing them for further treatment to a specific medical facility, a field hospital in Sarmin, a town about eight kilometres northwest of Saraqib (since the Saraqib hospital and Ma’rat al-Numan had just been bombed). Symptoms described by victims, rescuers, and medical personnel

⁵⁶ See FFM Report on Saraqib, Table 4.

⁵⁷ See above, paragraphs 5.10 to 5.13.

included shortness of breath, skin irritation, chest pain, and coughing. The IIT assessed the accounts received in relation to the location of the victims, the symptoms they described, the communications of the “spotters” in relation to the helicopter attacks in the area that day,⁵⁸ the accounts and movements of the crew of the rescuers, as well as the distance from the shelter to the medical facility to which the victims were brought. Despite some minor variances in witnesses’ recollection of events, the IIT assessed the accounts, overall, to be consistent.

- 6.43 Nonetheless, in view of the alternative scenario posited, but also of the conclusions discussed above on the chemical analyses, the IIT requested independent experts not involved in previous assessments of the incident to make their own evaluation of the reported symptoms. In order to minimise possible bias and protect confidentiality, the IIT provided these experts with anonymised accounts and data from 19 individuals interviewed, including victims and others who were present in the area or otherwise involved in the rescue operations in the hours after the incident.
- 6.44 Two experts (toxicologists) assessed the FFM Report on Saraqib, photographs, and information provided by witnesses – including medical personnel – on symptoms and treatment of victims involved in the incident of 4 February 2018. The toxicologists, after reviewing relevant medical literature, independently checked each account from witnesses (victims or other eyewitnesses to the symptoms) against the symptoms that could be expected from chlorine exposure. They also considered imagery related to the treatment received by the victims.
- 6.45 On the basis of the material provided to them, the two toxicologists reached a shared conclusion, i.e., that the accounts of victims (three of whom were among the first responders) and medical personnel – despite some marginal discrepancies – are consistent with exposure to a toxic gas like chlorine, which is poisonous and classified as a pulmonary irritant. The two toxicologists did not express doubts as to the overall veracity of the accounts. The fact that the toxicologists received only anonymised accounts and data had another notable consequence: the toxicologists made their assessments without knowing who had described themselves as being victims from the shelter, first responders, or medical staff who only reached the area or the victims later. Despite this, the victims considered by the expert toxicologists to have symptoms consistent with exposure to irritating gas are those from the shelter, as well as the two first responders. The witnesses deemed to be “unlikely exposed” by the expert toxicologists were either those responders that only assisted in the later transfer of the victims to the Sarmin field hospital or were part of the medical staff (who would have all had much later exposure and were better equipped with protective equipment).
- 6.46 The toxicologists added that symptoms described in three out of 11 victims could *also* be consistent with exposure to a substance other than chlorine, such as organophosphates.⁵⁹
- 6.47 Although overall the symptoms of the victims are consistent with chlorine exposure, the IIT nonetheless proceeded to request from specialists the topographic analysis of

⁵⁸ See above, paragraph 5.9.

⁵⁹ Assuming correct interpretation and annotation of the symptoms at the time, the two toxicologists explained that symptoms such as difficulty moving (“relaxed legs”) and miosis (pinpoint or constricted pupils, firmly established by the IIT in two individuals only) could be caused by the co-exposure to chlorine and the organophosphates present in the area. On the presence of organophosphates, see also above.

the area, so that geographical and artificial features could be considered when assessing the accounts of witnesses and the likelihood of a chemical attack in an area with those characteristics. In addition, the IIT considered it useful to assess possible chlorine gas dispersion from one, or both, of the cylinders that could have been dropped at the locations identified as Crater 1 and Crater 2.

- 6.48 The IIT decided to avail itself of different sets of specialists, (i) to produce the topographic study, and (ii) to provide a model for gas dispersion. The fact that the gas dispersion model was applied to the topographic model created by a separate institution had the additional advantage of increasing the independence of the analysis. In relation to gas dispersion, the IIT specifically sought, from a specialised institute, data and visual representation(s) of gas dispersion modelling on the basis of several parameters, including locations of the crater(s), prevailing weather conditions, as well as variations in the filling capacity of the cylinders and of the dispersion rate of the gas. The specialised institute explained that the “hazard areas” provided in the models are ensemble averages consisting of multiple potential dispersion outcomes, intended only to show the potential area of exposure to a certain quantity of material, taking into account the uncertainty around local terrain, meteorology, and turbulent effects. The hazard areas identified relate to a quantity of chlorine sufficient to cause severe effects, i.e., requiring immediate medical attention – such as difficulty breathing, constriction of airways, wheezing, chest pain, choking, sickness and vomiting, coughing up sputum, cyanosis, unconsciousness, and even death.
- 6.49 On the basis of the expert report from the specialised institute, the IIT assessed that at the location where the witnesses described being at the time of the incident (marked with a blue star in Image 10), at least 40% of the casualties would have experienced severe symptoms. Assuming a release of chlorine from a full cylinder rupturing in the area marked as Crater 2, milder symptoms (such as coughing, headache, dizziness, rapid breathing) would be even more likely. Moreover, the IIT notes that the witnesses recounted how, as they approached Crater 2, they felt considerably more sick – this is indeed the area where the risk of severe symptoms increases to at least 50%. The delineation, in Image 10, between 90%, 50%, 40%, and 10% probabilities of being affected by severe symptoms are not absolute boundaries: as one moves away from the impact site, the decrease in concentration would be gradual and would be dependent on a number of factors, as described above. Moreover, chlorine exhibits a “toxic load effect” whereby shorter exposures to high concentrations are more toxic than longer exposures to low concentrations. This was taken into account in the modelling and is represented in the probability of casualty hazard areas. Thus, when looking at Image 10 and considering the dispersion models, the lines extrapolated are merely indicative and not absolute boundaries of concentrations. Based on the images of the cylinders and given the large rupture, the specialists assessed that all content would have been released as vapour within 10 seconds, which is consistent with witnesses from the shelter stating that they heard one or two items falling and hitting the ground, and that one of them went outside immediately and started experiencing symptoms. In the case of two cylinders releasing chlorine upon rupture, the gas dispersion would be even more likely to cause severe symptoms in individuals at the shelter marked with the blue star in Images 4 and 10.

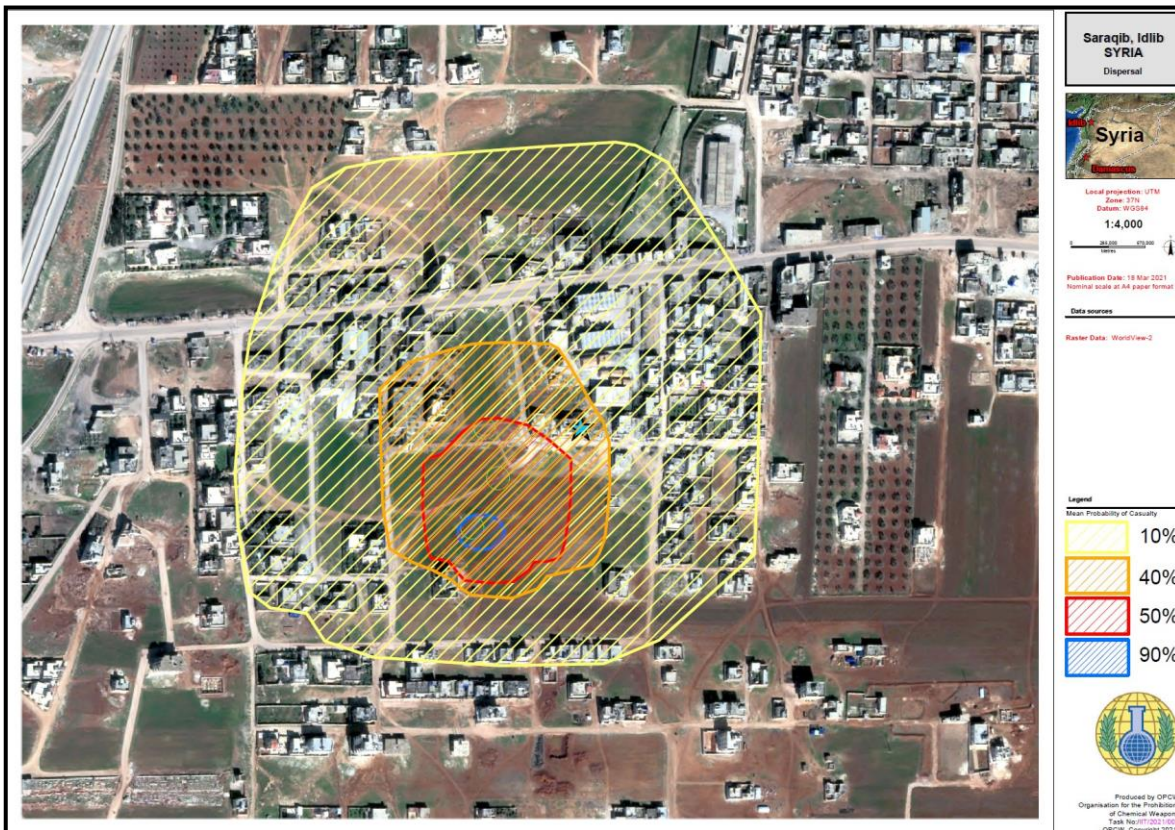


Image 10 – Graphic representation of gas dispersion from Crater 2: the shadings provide rough guidance on the probability of individuals experiencing severe symptoms after release of chlorine from a full cylinder

- 6.50 As indicated above, the symptoms of the victims are, overall, consistent with chlorine exposure under the estimated wind direction and speed. Moreover, in light of the circumstances described above, it would have been extremely difficult to predict impact points – and reliably “stage” them in order to blame another party to the conflict – in a manner that would withstand independent analyses of weather patterns, topography, and gas dispersion. Owing to the wind variations identified in the area throughout the evening and night hours of 4 February 2018, it would have been arduous for the individuals present in the area and the first responders to guess, or reconstruct *ex post facto*, the exact direction of the wind at the precise time a military helicopter was hovering over the area, so as to convincingly suggest that the chlorine gas had caught them in the shelter located downwind from the crater(s). This is compounded by the fact that the victims were brought to a field hospital in Sarmin. In fact, the Saraqib hospital had been rendered out of service from bombings on 29 January and the Ma’rat al Numan hospital was bombed just about an hour before the incident in Saraqib. In these circumstances, a “staging” of the incident involving medical personnel also would have had to involve staff from a field hospital used only because of the (hardly foreseeable) attack against the other two facilities.
- 6.51 The IIT also explored the suggestion that the discoloration of the grass in the vicinity of Crater 2 does not appear to perfectly match the direction of the wind. According to other specialists consulted by the IIT (and not involved in the gas dispersion modelling discussed below), this apparent discrepancy is not determinative. In fact, discoloration of the grass at the locations of Crater 1 and Crater 2, and within their relatively close vicinity, correlates with the expected effects of chlorine release. Upon impact of the cylinder on the ground, chlorine would be released from the rupture point on the

cylinder body and would initially sink, as chlorine is heavier than surrounding air. It would, however, soon dilute as the gas cloud moves downwind; its density would reduce, resulting in further behaviour similar to neutrally buoyant gas. Such initial behaviour and cloud movement depend on a series of parameters, including ground conditions, topography of the area, wind velocity, and other atmospheric conditions. This behaviour actually matches the description of one witness who said that, in the light of approaching vehicles, he saw the cloud of gas spreading towards the buildings, a description the IIT had not shared with those specialists.

- 6.52 In conclusion, the gas dispersion model elaborated on the basis of, inter alia, weather data provided by other independent specialised institutions and of the independent and separate topographic analysis of the area, together with the expected behaviour of chlorine immediately after being released from a cylinder, indicate that the accounts of witnesses in relation to the effect of chlorine gas on the victims are reliable, and that those individuals were affected by chlorine gas used as a weapon.

(vii) The origin of the cylinders

- 6.53 In relation to the origin of the cylinders, the IIT pursued the scenario that they came from a tunnel north of Saraqib which contained chemicals that armed groups could use. The IIT identified in satellite images possible tunnels existing at least as of 1 February 2018 about one kilometre northeast of Saraqib; despite inquiries and requests, including to the Syrian Arab Republic and various witnesses, the IIT could not ascertain the possible use of such shelter(s), nor the presence of relevant chemicals at those sites.
- 6.54 Another suggestion was that chlorine-filled cylinders were brought by the “White Helmets” to the area in question to stage the incident and that persons involved in such staging were seen fraternising with “terrorists” in video recordings. The IIT pursued this line of inquiry by, inter alia, obtaining these videos – which it considers authentic as to what they purport to show. On the basis of its investigations into the matter and the lack of reliable information supporting the suggestion related to the “White Helmets” using chlorine-filled cylinders, the IIT was unable to reach the conclusion that these videos do in fact support the allegations of “staging” by armed groups or other entities. As mentioned above, it did not obtain any supporting material or even concrete leads from the Syrian Arab Republic. No information obtained from other States Parties pursuant to the requests by the IIT and the Director-General on the basis of paragraph 7 of Article VII of the Convention supports transportation of the cylinder(s) in question by means other than helicopter.
- 6.55 The other main scenario alleged as to the incident of 4 February 2018 was the drop of cylinder(s) from helicopter. The IIT obtained information that Mi-8/17 Hip helicopters are able to carry at least two items of the size of Cylinders 1 and 2. Three distinct sources confirmed to the IIT that an attack on the eastern part of Saraqib was executed at around 21:22. The IIT obtained flight data from various sources according to which, in the evening of 4 February 2018, a helicopter flew from the south-southeast towards Saraqib. Flight data obtained by the IIT shows that at least 54 Mi-8 helicopter flights took off in a time frame of between 6:50 and 21:10 on 4 February 2018 from al Mujanzarat airbase within the military facility. One of these was reported at 21:02.
- 6.56 This take-off time and the subsequent identification by both human and technical means of a helicopter circling and hovering above Saraqib between around 21:15 and 21:22 are consistent with the time needed for a Mi-8/17 Hip helicopter flying at or near

cruising speed to depart from al Mujanzarat and hover over eastern Saraqib after circling the city.

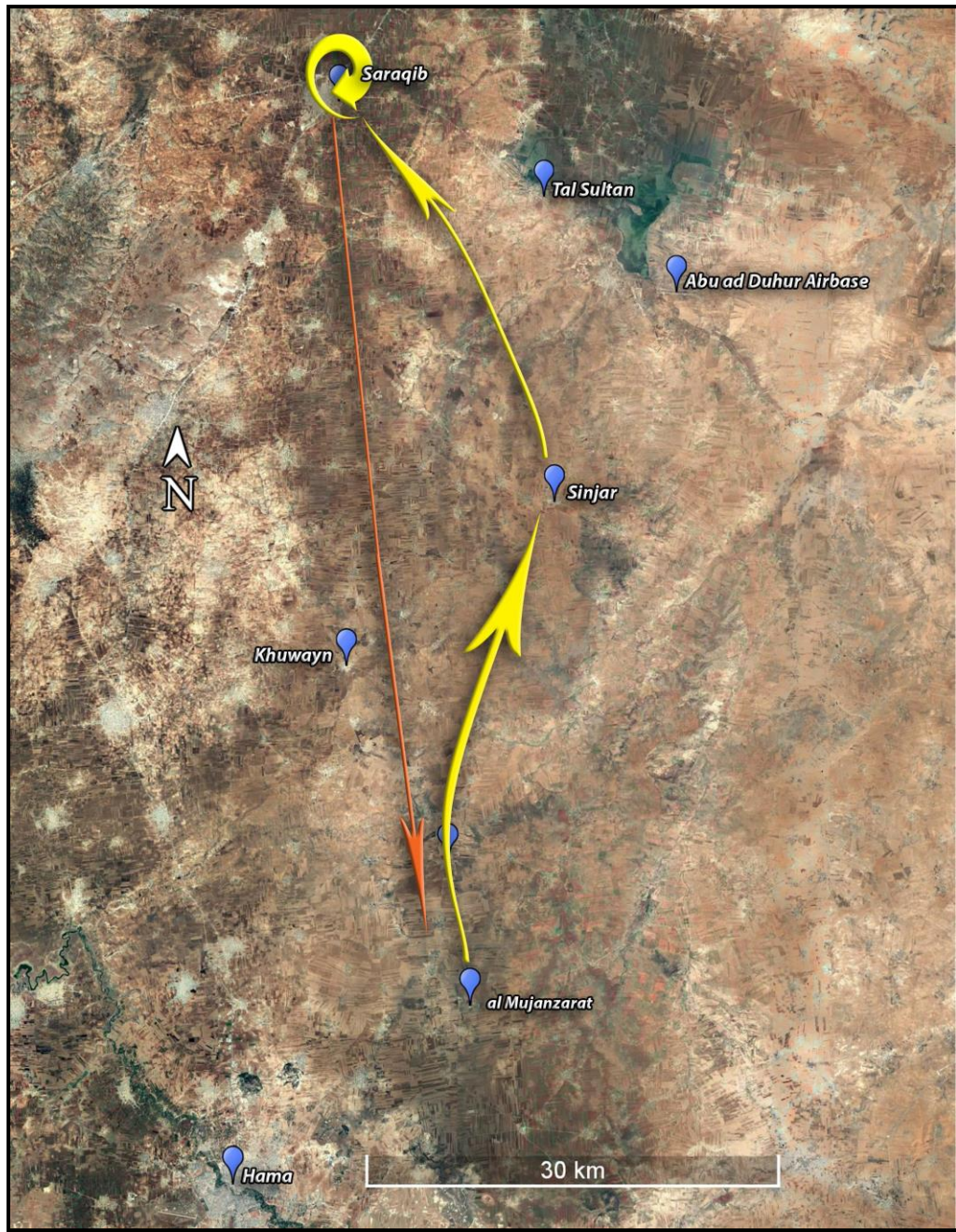


Image 11 - Possible flight path of “Alpha-253” helicopter as per flight data based on human and technical information obtained by the IIT (the most direct return route in orange)

- 6.57 The IIT also obtained information, from different sources, that the helicopter departing from al Mujanzarat at around 21:02 was identified with the code “1253” (pronounced in Arabic as “*Alph wa meteen wa thalatha wa khamseen*”), or rather “Alpha-253” (pronounced in Arabic as “*Alpha meteen wa thalatha wa khamseen*”) – where “253” was the code assigned to a pilot flying a specific helicopter. On this basis, and in light of the mutual corroboration of different sources of information obtained, the IIT concludes that the code in question was “Alpha-253”.

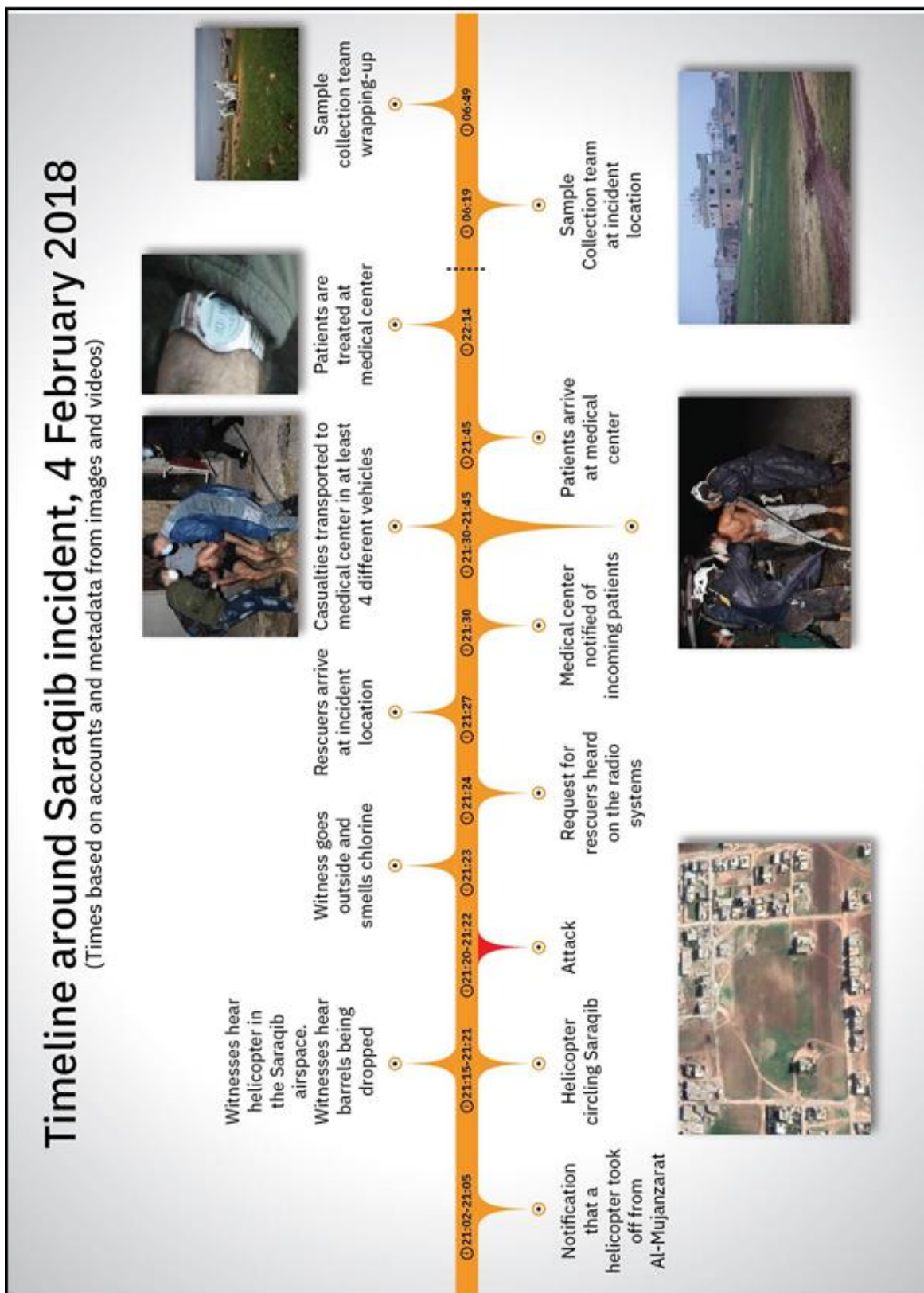


Image 12 – Timeline of events surrounding the Saraqib incident, 4 February 2018
(Times based on accounts and metadata from images and videos)*

* This timeline is provided for reference purposes only, and does not constitute findings by the IIT.

IV. FACTUAL FINDINGS

7. GENERAL REMARKS

- 7.1 The IIT scrutinised the information obtained and reached its conclusions on the basis of a holistic assessment through a widely shared methodology, in compliance with the relevant provisions of the Convention, as well as international best practices of international fact-finding bodies and commissions of inquiry.⁶⁰
- 7.2 As the investigation progressed, the IIT was able to expand its sources of information. Taking into account the different mandates of the FFM and of the IIT, this in turn added clarity, consistency, and corroboration as to what witnesses and the original chemical analyses indicated about the origins of the two cylinders identified in the area. The IIT holistically assessed all of the information it obtained, taking a critical approach against the posited scenarios, keeping an open mind, and encouraging States Parties – including the Syrian Arab Republic – and other entities to contribute and expand the evidentiary basis.
- 7.3 During the investigation, some scenarios became increasingly less likely as they could not be substantiated by the information obtained. As a result of its investigations, the IIT could not identify any plausible explanation for the concurrence of information before it, other than the conclusions presented below.

8. FACTUAL FINDINGS ON THE INCIDENT OF 4 FEBRUARY 2018

- 8.1 In relation to the incident of 4 February 2018, in light of the information obtained considered in its totality, the IIT concludes that there are reasonable grounds to believe that at approximately 21:22 on 4 February 2018, during ongoing attacks against Saraqib, a military helicopter of the Syrian Arab Air Force codenamed “Alpha-253”, under the control of the Tiger Forces, hit eastern Saraqib by dropping at least one cylinder. The cylinder ruptured and released a toxic gas, chlorine, which dispersed over a large area, affecting 12 named individuals.
- 8.2 While chlorine has many legitimate uses, gaseous chlorine is poisonous and is classified as a pulmonary irritant – its toxicity being a function of dosage and exposure time. The IIT took into account that the compounds identified in various samples are consistent with the use of chlorine gas as a weapon on 4 February 2018. The IIT also considered the findings of the FFM in this respect, as well as all of the information underlying them, plus the additional expert reports, statements, and documents obtained during its own investigation.
- 8.3 In its investigation, and in order to ensure the independence of its analysis, the IIT obtained examination results and technical assessments from a variety of experts and specialists working at different institutions with different nationalities. Thus, in addition to the designated laboratories used by the FFM for their analyses, the IIT reached out to another laboratory for further studies, and to an independent expert from yet another institution. Assessments of prevailing meteorological conditions were obtained from separate sources; toxicologists with expertise in chemical incidents – but who had never before been involved in any assessment of this incident – were consulted to complement the analyses carried out by the FFM on the basis of the information gathered by the Secretariat and the statements of witnesses; munition specialists from various countries

⁶⁰ See below, Annex 2.

reached concurring conclusions on the craters and the cylinders considered by the IIT during its investigations, as detailed above; the conclusions of various experts were considered. The IIT further engaged specialists in geolocation, and a separate forensic institute for the extraction and analysis of metadata to assist in verifying the authenticity and reliability of digital material, including videos and photographic material, obtained through various sources.

- 8.4 The symptoms of the victims are, overall, consistent with chlorine exposure under the estimated wind direction and speed. The modelling of dispersion and casualty hazard areas was developed on the basis of two independent technical assessments: a topographic study and an assessment of the behaviour of chlorine gas under the prevailing circumstances. The modelling corroborates the statements of witnesses and other information obtained.
- 8.5 An independent expert was asked to consider (i) data on samples received from two designated laboratories, and (ii) whether the results of the analysis could suggest that the area was “staged” so as to resemble an area affected by a chlorine attack. The IIT also commissioned an analysis of various household chlorine-based products readily available on the market in the area. No chemical that may indicate dispersal of these products in the environment could be identified in samples from the Saraqib incident. The chemical analyses and the results of further inquiries are consistent with the use of chlorine as a weapon on the evening of 4 February 2018.
- 8.6 The accounts of the witnesses the FFM and the IIT interviewed are consistent and indicate that both Cylinder 1 and Cylinder 2 were dropped by one helicopter in the eastern part of Saraqib at approximately 21:22 on 4 February 2018. Out of an abundance of caution, and due to the lack of certainty as to whether Cylinder 1 was moved to a location further away from Crater 1 during the night between 4 and 5 February 2018, the IIT, in its investigation on the origin of chemical weapons and the perpetrators of the use of chemical weapons, confined itself to considering only Cylinder 2.
- 8.7 Crater 2 is consistent with the kinetic impact of Cylinder 2: munition specialists concluded that its shape and depth, as well as the pattern of discoloration of the nearby grass and the distance of the main fragment of Cylinder 2 to that point, indicate that chlorine was released upon rupture of Cylinder 2. The alternative allegation put forth could not be substantiated in any way.
- 8.8 According to various specialists, Cylinder 2 most likely ruptured due to kinetic impact. Its shape and the angle of the damaged portion, as well as the shape and size of the deformation observed, do not correlate with a substantial amount of explosive attached to or inserted into it. The damage to Cylinder 2 is instead consistent, according to munition specialists, with it being air delivered and impacting the ground from a significant altitude. The IIT considered that this could have happened either by being dropped by helicopter, as stated by witnesses, but also by having it dropped from a height and somehow brought to the area in question. Nonetheless, despite information about a radio tower about 200 metres high in Saraqib, the IIT did not obtain any concrete information substantiating that a cylinder with a capacity of 100-120 litres could have been dropped from this particular installation or dropped somewhere else and brought to the area in question in the hours or days before, on, or after 4 February 2018. The logistics involved in dropping an object like the cylinder(s) in question from a height of about 200 metres and then bringing them to another location would also be

extremely complex during military activities, would leave traces, and would be hard to dissimulate.

- 8.9 Moreover, the “cradle”, parts of which were still attached to Cylinder 2, and the fragments identified in its vicinity are consistent with the steel frame observed in at least one previous incident,⁶¹ with a weighted nose part, wheels, tail fins, and two lifting loops. This design is consistent with a type of munitions that can be delivered from a helicopter. This steel strap-in structure serves a number of purposes: it allows placing the cylinder on wheels to aid loading it into a helicopter and rolling it out from the helicopter’s cargo bay; and the weighted nose and fins orient the munition downwards. Upon impact, the kinetic energy will rupture the cylinder itself or, in instances in which a fusing system is present, explosive charges will rupture the cylinder.⁶²
- 8.10 The fact that Cylinder 1 was further away from Crater 1 with no clear explanation also does not indicate that this incident was “staged”. In fact, in the event that the whole incident had been organised to blame the authorities of the Syrian Arab Republic, it is hard to comprehend why Cylinder 1 was placed, and video-recorded, so far away from Crater 1, thus creating uncertainties as to its significance for this incident.
- 8.11 Different sources provided information confirming that a helicopter codenamed Alpha-253 and departing from al Mujanzarat airbase at around 21:02 hovered over the east of Saraqib at around 21:22, exactly when witnesses located northeast of Crater 2 described hearing the sound of helicopter and items falling and hitting the ground, and soon thereafter experiencing symptoms consistent with exposure to chlorine gas.
- 8.12 The IIT further notes other information placing the Tiger Forces and their subordinated helicopters at al Mujanzarat, in the context of the campaign in the area initiated as a result of an order by the General Command and during a period of increased air activity around Saraqib.

9. GENERAL CONCLUDING OBSERVATIONS

- 9.1 The IIT is aware of general information related to internal investigations carried out by Syrian authorities that could be relevant to the use of chemical weapons.⁶³ However, the IIT did not obtain or receive any information, though it requested it, as to investigations and prosecutions by the Syrian authorities into the incident in Saraqib of 4 February 2018, as required under Article VII of the Convention⁶⁴ – proceedings which in any case would not affect the mandate of the IIT.

⁶¹ See First IIT Report, paragraphs 8.26 and 8.27.

⁶² The IIT considers it unconvincing, in light of all of the circumstances, that a party to the conflict trying to stage chemical attacks by chlorine would develop different, and increasingly more complex over the years, mock-up “weaponised” cylinders, including a “cradle” around cylinders, as their position in the conflict would give them increasingly less access to staging means.

⁶³ See, e.g., Fourth report of the JIM, S/2016/888, dated 21 October 2016, paragraph 31 (related to events prior to the incidents of Ltamenah in March 2017).

⁶⁴ See, in particular, paragraph 1 of Article VII of the Convention, and Note by the Director-General entitled “Compliance with Article VII: Legislation, Cooperation and Legal Assistance” (C-III/DG.1/Rev.1, dated 17 November 1998), in particular paragraphs 2.2, 3.1, and 5.1). States are therefore responsible under international law for use by non-State actors on their territory or in any other place under their jurisdiction in case they fail to investigate and prosecute alleged perpetrators in such instances. See also decision by the Council entitled “Addressing the Threat Posed by the Use of Chemical Weapons by Non-State Actors” (EC-86/DEC.9, dated 13 October 2017).

- 9.2 During this investigation, the IIT also did not obtain any information that would indicate that rogue units or individuals used chemical weapons in the manner described above in this incident.
- 9.3 The IIT obtained information from various sources suggesting that, for chemical weapons to be used in the manner described above, orders would be required. Nonetheless, the IIT could not draw definitive conclusions in respect of the requisite degree of certainty as regards the specific chain of command for any specific order issued in this particular incident. Information obtained, however, does indicate that, at this point in the hostilities, use of chlorine as a weapon was delegated by the General Command to operational level commanders – and, of course, delegation of authority does not absolve superior commands of responsibility.⁶⁵

10. SUMMARY OF FACTUAL FINDINGS

- 10.1 In light of its mandate to identify the perpetrators of the use of chemical weapons in the Syrian Arab Republic by identifying and reporting on all information potentially relevant to the origin of those chemical weapons in the incident under consideration, the IIT concludes that there are reasonable grounds to believe that, at approximately 21:22 on 4 February 2018, during ongoing attacks against Saraqib, a military helicopter of the Syrian Arab Air Force under the control of the Tiger Forces hit eastern Saraqib by dropping at least one cylinder. The cylinder ruptured and released a toxic gas, chlorine, which dispersed over a large area, affecting 12 named individuals.

⁶⁵ See also First IIT Report, paragraph 13.3.

Annexes:

- Annex 1: Information Management and Other Internal Procedures
- Annex 2: Approach to Obtaining and Securing Information
- Annex 3: Summary of Contacts with Representatives of the Syrian Arab Republic Relevant to the Work of the Investigation and Identification Team
- Annex 4: Redacted Paragraphs

Annex 1

INFORMATION MANAGEMENT AND OTHER INTERNAL PROCEDURES

1. As explained in the Note by the Technical Secretariat entitled “Work of the Investigation and Identification Team Established by Decision C-SS-4/DEC.3 (dated 27 June 2018)” (EC-92/S/8, dated 3 October 2019), and further detailed in the First 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” – Ltamenah (Syrian Arab Republic) 24, 25, and 30 March 2017 (hereinafter “First IIT Report”),⁶⁶ since the activities of the Investigation and Identification Team (IIT) require vast amounts of information in all its forms to be collected and created, seamless and robust procedures are required to allow for the secure, consistent, and transparent management of such information, from the time of its collection or creation through its ultimate preservation, transfer, or destruction. In setting up these procedures, the IIT took into account confidentiality and security requirements deemed necessary for the storage and use of the information material provided by other entities.
2. Starting from the premise that access to information within the IIT is on a need-to-know basis, effective and secure information handling is considered a key factor for the IIT to fulfil its mandate by: (a) ensuring the safety and security of the IIT’s activities, personnel, and third parties; (b) maintaining the integrity of its records and information; (c) ensuring effective and timely search, analysis, and dissemination of information; and (d) increasing the awareness of confidentiality requirements by promoting correct information handling practices.
3. Established internal procedures related to information management cover all kinds of information material created, obtained, and managed by the IIT, which include both digital and physical material. Provisions are made to ensure the confidentiality of both categories of material in terms of organisational, physical, and information security measures.
4. In particular, and in addition to organisational and physical arrangements, the IIT’s information management systems and its file storage system reside in the IIT Secure Network (ISN), designed and built in compliance with the OPCW Security Critical Network policies and requirements for the protection of OPCW confidential material. The ISN is accessible by designated terminals possessing appropriate security and confidentiality measures, which are “air gapped”, with no external network interface.
5. The IIT’s internal procedures provide for the registry procedure, the structure of the central repository for the IIT’s records and information, access permission based on roles, responsibilities, the repository’s contents, as well as the retention schedule of IIT records and information. Such procedures ensure that the chain of custody of information and the audit trail of records are properly captured, in order to maintain their continued integrity and authenticity. The IIT has further implemented steps to capture and protect results from open source searches directly related to the

⁶⁶ See First IIT Report, especially Annex 1 (Information Management and Other Internal Procedures).

identification of perpetrators within the IIT's mandate. A back-up plan was implemented in order to enhance security.

6. The case management system within the ISN aims at supporting investigation activities. This case management system is designed to be conducive to investigation and analysis activities, as well as to ensure the authenticity and reliability of records. The system, accessible through specific encrypted terminals in the ISN, is designed to allow only the IIT to securely and methodically keep the records and information associated with investigation and analysis activities, add relationships among items, and provide feedback on investigation steps. It allows for a comprehensive account of the chain of custody of each item obtained, including its movement, locations, and transfers. All electronic information collected and generated by the IIT as a result of its investigation activities is to be stored in the information management system. Moreover, the system organises material efficiently for its future transfer to the investigation mechanism established by the United Nations General Assembly in resolution 71/248 (2016) (IIIM) as well as to any relevant investigatory entities established under the auspices of the United Nations, as mandated by paragraph 12 of decision of the Conference of the States Parties entitled "Addressing the Threat from Chemical Weapons Use" (C-SS-4/DEC.3, dated 27 June 2018).
7. Access control functions in this customised case management system allow IIT personnel to access records only with specific pre-defined permissions (including permissions to create, read, and modify records). The system is further designed to ensure audit trails that cannot be modified or removed. IIT personnel are trained in the use of the system as required and maintain awareness of the necessary security and confidentiality measures taken to protect the information material.

Annex 2

APPROACH TO OBTAINING AND SECURING INFORMATION

1. The investigative activities of the Investigation and Identification Team (IIT) on the incident in Saraqib on 4 February 2018 included gathering and assessing information provided to it by individuals, local entities, States Parties, and other international, regional, and local actors as well as, where applicable and relevant, technical and scientific examinations and analyses to identify the origin of the chemicals used, munition markings and physical characteristics, and technical information and/or extrapolations related to delivery means, such as aircraft flight paths and munition trajectories. The activities further included interviews with alleged victims and other persons who might have witnessed the incident, with experts in the various subjects relevant to the investigation, and evaluation of open source material.⁶⁷ Moreover, the IIT requested topographic studies and gas dispersion modelling to verify the credibility of other information it had obtained related to the release of chlorine gas from the cylinders used in this incident. In fulfilling its mandate, the IIT obtained and analysed information and material from any relevant source in addition to the information already obtained from the OPCW Fact-Finding Mission (FFM), also in order to determine the relevance, probative value, and reliability of the information, as well as the credibility of the source.
2. The IIT takes specific care to ensure that issues that may arise because of the different languages spoken by the investigators, on the one side, and interviewees, on the other, are properly addressed. Apart from having an interpreter present during interviews, and in addition to summaries of the interviews prepared by the investigators, full transcripts of the interviews are later translated by professionals into English, so as to be able to properly check the original interpretation. A transcript of the interview carried out by the IIT is produced through a process to accurately identify any discrepancy not easily captured when “live” interpretation of an interview is done (consecutively or simultaneously). Moreover, certain interviews are now also conducted directly in the language of the interviewee, with a transcript in English only produced afterwards.
3. For the specific purpose of this report, the IIT reached out to 15 witnesses directly related to this attack (at times reverting to certain individuals to request clarifications of previous statements and to expand on certain matters), including alleged victims.⁶⁸ These interviews were considered in conjunction with statements from witnesses previously obtained by the FFM and other entities, thus allowing for a substantial amount of information from a broad variety of sources to be considered.
4. In relation to other entities willing to provide information, or provide leads for the investigation, the general approach of the IIT has continued to be that of requesting access to information and to the sources of such information that the IIT considered could be obtained from those entities, and to assess them together with the rest of the

⁶⁷ See also Note EC-92/S/8 (dated 3 October 2019) by the Technical Secretariat.

⁶⁸ Although the IIT, on certain limited occasions, engaged in remote interviews through secure means (when the security concerns of the interviewee could be properly addressed), it never relied on remote interviews alone in reaching its conclusions, as it deemed the probative value of an in-person interview in the same room as the interviewee to be higher.

information already at the IIT's disposal. In the course of its investigations, the IIT has reached out, among others, to the following entities:⁶⁹ the Center for Advanced Defense Studies (C4ADS); Chemical Violations Documentation Center of Syria (CVDCS); Europol Analysis Project on Core International Crimes (AP CIC); European Union Satellite Centre; Global Public Policy Institute (GPPi) – Peace and Security; Human Rights Watch; Independent International Commission of Inquiry on the Syrian Arab Republic; Peace SOS; ProJustice; Syria Civil Defence (SCD, also known as the “White Helmets”); Syrian Archive; Syrian Network for Human Rights (SNHR); World Meteorological Organization (WMO).

5. When entities willing to assist the IIT did not have relevant information directly, but could put the IIT in contact with persons of interest, the IIT proceeded with requesting this type of facilitation on the basis of the following understanding:
 - (a) the IIT would not pay, in any way, fees or other forms of remuneration for the support rendered by these entities;
 - (b) the entity in question would ensure that no person had been unduly influenced or pressured to provide information or extend his/her cooperation for the purpose of the IIT's investigations; and
 - (c) with a view to protecting persons of interest who might be at risk because of their interaction with the IIT, sufficient guarantees would be provided to protect confidentiality as well as the privacy of these persons, including their identification data and statements.
6. Unless specific circumstances dictated otherwise, the IIT treated all information obtained from external entities and individuals as “OPCW Highly Protected”, the highest classification category within the OPCW confidentiality regime, and restricted its access on the basis of the need-to-know principle in accordance with the Confidentiality Annex to the Chemical Weapons Convention (hereinafter “the Convention”) and the OPCW Policy on Confidentiality.⁷⁰
7. The IIT treated the information collected through a widely shared methodology among investigatory bodies, such as international fact-finding bodies and commissions of inquiry, in particular with regard to the chain of custody of the samples and material.
8. These samples were treated so as to ensure their reliability, including during their transportation to the OPCW Laboratory in the Netherlands and from there to OPCW designated laboratories. This continues to be done in accordance with the Verification

⁶⁹ The IIT does not publicly list entities that have not provided consent to be named. This list also does not include OPCW designated laboratories and other laboratories or specialised institutions that have been providing technical and scientific expertise in the course of the investigation.

⁷⁰ See paragraph 4.1 of Part V and paragraphs 3.1 to 3.4 of Part VI of the OPCW Policy on Confidentiality (C-I/DEC.13/REV.2, dated 30 November 2017), as well as subparagraph 2(h) of the Confidentiality Annex to the Convention.

Annex to the Convention and corresponding applicable internal procedures and practices of the Secretariat.⁷¹

9. For such material and samples, the chain of custody was maintained and documented by the Secretariat from the moment of collection or receipt. For instance, once in the custody of the Secretariat, samples were treated according to OPCW procedures to ensure their integrity, as well as their security, preservation, and confidentiality. At the OPCW Laboratory, the samples were prepared for off-site analysis at two OPCW designated laboratories in accordance with paragraph 57 of Part II of the Verification Annex. The sample processing included verification of their identity, i.e., through sample codes, item descriptions, and seal numbers; solvent extraction and/or splitting into fresh primary containers; packaging of sample splits together with positive and negative control samples; and detailed analysis of positive and negative control samples before dispatch. Internal established procedures for splitting, packing, and transportation to the OPCW designated laboratories were applied and all steps of the process were documented.
10. Upon arrival at the OPCW designated laboratories, the identity and seal integrity of the samples are once again verified against the accompanying chain of custody form. All samples (i.e., authentic and control samples) are prepared and analysed in accordance with instructions issued by the OPCW Laboratory. This is in the form of a document setting out the scope of analysis, which also contains the identification data for the samples and their corresponding tamper-proof seal numbers.
11. The OPCW designated laboratories, which operate under a quality system in accordance with International Organization for Standardization/International Electrotechnical Commission standard ISO/IEC 17025, are also obliged to maintain the chain of custody of the samples throughout their processes. All activities performed by the OPCW designated laboratories on behalf of the OPCW must conform to the terms and conditions of the technical arrangements between the Secretariat and the OPCW designated laboratories.
12. Owing to the ongoing conflict(s) occurring in the relevant areas, access by the Secretariat to the sites of incidents shortly after their occurrence was often not possible. Therefore, the IIT has consistently ensured that samples and other material taken by other entities were supported by documents, photographs, video footage, forensic analyses, and/or witness testimony. In order to do this, the IIT reached out to specialists and forensic institutes to provide geolocation and metadata from the image files obtained. This approach has been applied consistently in light of the fact that it is the combination, consistency, and corroboration of all of the information gathered as a

⁷¹ With specific respect to the storage conditions in the OPCW Laboratory and the degradation of samples to be analysed, see further “Advice on chemical weapons sample stability and storage provided by the Scientific Advisory Board of the Organisation for the Prohibition of Chemical Weapons to increase investigative capabilities worldwide”, also available in *Talanta*, vol. 188 (2018), pages 808, 810, and 811.

whole, rather than single pieces of evidence, which form the basis of the IIT's conclusions.⁷²

13. The IIT took guidance from practices and principles derived from relevant Conference decisions and Secretariat procedures,⁷³ as well as from the approach of States Parties investigating similar incidents, and applied them *mutatis mutandis*, in full compliance with the Convention.
14. Information gathered during the IIT's investigation remains available for transfer to the mechanism established by the United Nations General Assembly in resolution 71/248 (2016) (IIIM) as well as to any relevant investigatory entities established under the auspices of the United Nations, as mandated by paragraph 12 of the Decision of 27 June 2018, and reinforced by paragraph 9 of Council Decision entitled "Addressing the Possession and Use of Chemical Weapons by the Syrian Arab Republic" (EC-94/DEC.2, dated 9 July 2020).

⁷² See, for instance, Note by the Secretariat S/1654/2018 (dated 20 July 2018), pages 3, 9 to 10, and 21. The IIT further notes that this approach follows the practice of international and domestic investigations in these types of events.

⁷³ Cf., among others: Decision by the Conference entitled "Sampling and Analysis during Investigations of Alleged Use of Chemical Weapons" (C-I/DEC.47, dated 16 May 1997); Standard Operating Procedure for Evidence Collection, Documentation, Chain-of-Custody and Preservation During an Investigation of Alleged Use of Chemical Weapons (QDOC/INS/SOP/IAU01), first issued in 2011.

Annex 3

SUMMARY OF CONTACTS WITH REPRESENTATIVES OF THE SYRIAN ARAB REPUBLIC RELEVANT TO THE CURRENT INVESTIGATIONS BY THE INVESTIGATION AND IDENTIFICATION TEAM

1. In relation to the investigations required under paragraph 10 of Decision C-SS-4/DEC.3 “Addressing the Threat from Chemical Weapons Use”, the Secretariat has engaged in continuous and extensive communications aimed at obtaining input from all States Parties, and the Syrian Arab Republic in particular – as detailed in the First 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” – Ltamenah (Syrian Arab Republic) 24, 25, and 30 March 2017 (hereinafter, “First IIT Report”).⁷⁴
2. Communications with the authorities of the Syrian Arab Republic between June 2019 (the time the IIT started its activities), April 2020 (when the First IIT Report was issued), and continued since, have included attempts to consult with those authorities, requests for visits to the Syrian Arab Republic and for meetings with relevant individuals, and invitations to provide the IIT with input on its methodologies, as well as any information on the relevance, probative value, and reliability of information related to the origin of the chemical weapons and useful to identify perpetrators in certain incidents.
3. The authorities of the Syrian Arab Republic did not to engage with the IIT, despite: (a) various requests addressed to them by the Technical Secretariat (hereinafter “Secretariat”); (b) the obligation by the Syrian Arab Republic to cooperate with the Secretariat under paragraph 7 of Article VII of the Chemical Weapons Convention; and (c) the obligation incumbent on the Syrian Arab Republic, pursuant to United Nations Security Council resolution 2118 (2013), to cooperate fully with the OPCW by providing personnel designated by the OPCW with immediate and unfettered access to any and all sites and individuals that the OPCW has grounds to believe to be of importance for the purpose of its mandate.
4. Nonetheless, the Director-General forwarded two notes by the IIT to the authorities of the Syrian Arab Republic specifically related to the ongoing investigations, requesting, inter alia, information on the Saraqib incident and other events surrounding incidents that remain to be investigated on the basis of the original non-exhaustive provisional list.⁷⁵
5. In these notes, and with specific regard to the incident in Saraqib on 4 February 2018, the IIT recalled the position and views of the authorities of the Syrian Arab Republic based on its own technical analysis of images as well as on information about, inter alia, staging of chemical attacks through the use of cylinders and images of persons pretending to be victims of a chlorine attack. On 3 July 2020, and again on 16 October 2020 as its investigation was progressing, the IIT requested further information and

⁷⁴ See First IIT Report, Annex 3 (Summary of Contacts with Representatives of the Syrian Arab Republic Relevant to the Work of the Investigation and Identification Team).

⁷⁵ See Note by the Secretariat EC-91/S/3, Annex 2.

material that may support and corroborate the Syrian position, plus relevant flight logs and access to pilots and military command personnel involved in operations in the area of Saraqib on and around 4 February 2018. Moreover, the IIT requested material (access to sources, videos, photographs and any other evidence) that could substantiate and validate information from the Syrian Arab Republic to the effect that terrorist groups were receiving chemicals from abroad and planning to use them in the area.

6. Further, on 27 November 2020, the Secretariat issued Note S/1918/2020 to all States Parties. This Note recalled that the IIT “requested the Syrian Arab Republic to provide specific information and, more generally, input. Despite the travel restrictions stemming from the current COVID-19 situation, the IIT has also continued to request to meet with key representatives of the Syrian Arab Republic, at their convenience and at a location of their choosing, to discuss the IIT’s work, the provision of any relevant information, and access to locations that the Syrian authorities may be able to facilitate”.

**OPCW**

Organisation for the Prohibition of Chemical Weapons

Director-General

The Hague, 3 July 2020

L/ODG/223647/20

Dear Vice-Minister,

Excellency,

I refer to the work of the Investigation and Identification Team (IIT), established pursuant to paragraph 10 of the Decision adopted by the Conference of the States Parties to the Chemical Weapons Convention on 27 June 2018 (C-SS-4/DEC.3).

Following the issuance of its First Report (S/1867/2020 dated 8 April), the IIT is proceeding with its investigations and, as mandated by the above mentioned decision, has reached out to States Parties in order to gather information and conduct investigations and analysis on those incidents under its scope.

As was the case through my letter to you dated 19 December 2019, I am attaching to this letter a Note seeking the cooperation of the Syrian Arab Republic on these activities as mandated by paragraph 7 of Article VII of the Chemical Weapons Convention.

Please accept, Excellency, the assurances of my highest consideration.

and my best regards,


Fernando Arias

H. E. Dr Faisal Mekdad
Deputy Foreign Minister
Ministry of Foreign Affairs and Expatriates
Syrian Arab Republic

NOTE

This note follows the previous correspondence related to the work of the OPCW Secretariat through the Investigation and Identification Team (IIT), established pursuant to the Decision by the Conference of the States Parties entitled “Addressing the Threat from Chemical Weapons Use” (C-SS-4/DEC.3, dated 27 June 2018). It further refers to the Note of the Secretariat S/1867/2020 entitled First Report by the OPCW Investigation and Identification Team Pursuant to Paragraph 10 of Decision C-SS-Dec.3 “Addressing the Threat from Chemical Weapons Use” – Ltamenah (Syrian Arab Republic) 24, 25, and 30 March 2017 dated 8 April 2020, as well as the position of the Syrian Arab Republic on that Note.¹

The investigative work of the IIT is proceeding. I would like to once again reiterate the availability and willingness of the IIT to receive information related to its mandate, in any setting or format the authorities of the Syrian Arab Republic may deem feasible, in particular on the other incidents outlined in Annex 2 of the Note of the Technical Secretariat dated 28 June 2019 (EC-91/S/3).

With specific reference to the incidents Al-Tamanah (12 April 2014),² Kafr-Zita (18 April 2014),³ Al-Tamanah (18 April 2014),⁴ Marea (1 September 2015),⁵ the Secretariat would be grateful for any concrete information the authorities of the Syrian Arab Republic may be able to share potentially relevant to establish the origin of the chemical weapons used in those instances and useful to identify perpetrators, including delivery methods and background information related to actors that might have the capabilities to use such weapons, and any element related to the relevance, probative value, and reliability of such information as well as the credibility of the source(s).

The IIT was further informed that, in relation to the incident in Saraqib (4 February 2018),⁶ the Syrian Arab Republic has specifically notified its position based on its own technical analysis of images of the craters, vegetation, possible fragments, and alleged symptoms of casualties. The authorities of the Syrian Arab Republic further advised the Secretariat of information in their possession related to the use of chlorine cylinders to “stage” a chemical attack, including by broadcasting videos of persons pretending to be casualties of a chlorine

¹ Syrian Arab Republic: Statement by H.E. Ambassador Bassam Sabbagh Permanent Representative of the Syrian Arab Republic to the OPCW on the First Report of the OPCW Investigation and Identification Team Issued on 8 April 2020, dated 16 April 2020, EC-94/NAT.5.

² Ref.: Note by the Technical Secretariat, Second Report of the OPCW Fact-Finding Mission in Syria Key Findings, S/1212/2014.

³ Ref.: Note by the Technical Secretariat, Second Report of the OPCW Fact-Finding Mission in Syria Key Findings, S/1212/2014.

⁴ Ref.: Note by the Technical Secretariat, Second Report of the OPCW Fact-Finding Mission in Syria Key Findings, S/1212/2014.

⁵ Ref.: Note by the Technical Secretariat, Report of the OPCW Fact-Finding Mission in Syria Regarding Alleged Incidents in Marea, Syrian Arab Republic August 2015, S/1320/2015.

⁶ Ref.: Note by the Technical Secretariat, Report of the OPCW Fact-Finding Mission in Syria Regarding an Alleged Incident in Saraqib, Syrian Arab Republic on 4 February 2018, S/1626/2018.

attack. The Secretariat also obtained information that the Syrian Arab Republic has knowledge that chemicals were stored in tunnels north of Saraqib during that period of time. As with other incidents, the Secretariat would therefore be grateful for any concrete information and sources that the authorities of the Syrian Arab Republic may have supporting these notifications, or suggesting additional avenues of inquiry, including – but not limited to – the above-mentioned videos and any technical analysis performed.

The IIT continues the examination of the available information concerning the use of chemical weapons in the incidents within its mandate, as identified by the Conference. I therefore once again reiterate the benefit of the IIT meeting with key representatives of the Syrian Arab Republic, at their convenience and at a location of their choosing, to discuss the progress of this investigation and the provision of other information, including access to locations, which the authorities of the Syrian Arab Republic may be able to facilitate.



OPCW

Organisation for the Prohibition of Chemical Weapons

Director-General

The Hague, 16 October 2020

L/ODG/224348/20

Dear Vice-Minister,

Excellency,

I refer to my letter to you dated, 3 July 2020, in which I informed you about the ongoing work of the Investigation and Identification Team (IIT), as established pursuant to paragraph 10 of the decision C-SS-4/DEC.3 adopted by the Conference of the States Parties to the Chemical Weapons Convention on 27 June 2018.

In my letter, I called on the Syrian Arab Republic to cooperate with the IIT, consistent with paragraph 7 of Article VII of the Chemical Weapons Convention, in particular through the provision of concrete information that the authorities of the Syrian Arab Republic may be able to share and which is relevant to the incidents under investigation by the IIT, as specified in the Note enclosed with that letter.

I was heartened that, during EC-95, the authorities of the Syrian Arab Republic reiterated their real desire to continue constructive cooperation with the Technical Secretariat. I also welcome the reference to the need for technical and scientific discussions on these matters: I gather from this that the authorities of the Syrian Arab Republic are willing to engage with the IIT before it issues its next report(s).

Regretfully, I note that, as of today, neither I nor the IIT have received a response to the above note, or to its reiterated requests for information and technical assessments. I am writing now to inform you that the IIT is currently progressing in its investigation of various incidents.

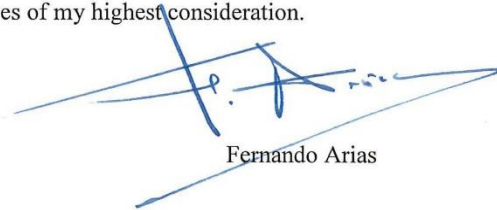
With a view to assisting the IIT in conducting its investigations, I am compelled to reiterate the Secretariat's request to the Syrian Arab Republic that it submits any information currently in its possession pertaining to the incidents being investigated. The details of such a request were already included in the attachment to my letter to you of 3 July 2020 and are further elaborated in a new Note enclosed with this letter.

...

H. E. Dr Faisal Mekdad
Deputy Foreign Minister
Ministry of Foreign Affairs and Expatriates
Syrian Arab Republic

Finally, I should like to take this opportunity to kindly remind you that, notwithstanding the travel restrictions owing to the current COVID-19 pandemic, the IIT continues to remain available to meet with key representatives of the Syrian Arab Republic, at their convenience and at a location of their choosing, to discuss the IIT's work, the provision of any relevant information, and access to locations which the authorities of the Syrian Arab Republic may be able to facilitate.

Please accept, Excellency, the assurances of my highest consideration.

A handwritten signature in blue ink, appearing to be 'F. Arias', is written over a horizontal line. The signature is stylized with a large 'F' and a cursive 'A'.

Fernando Arias

NOTE

Further to the note attached to the Director-General's letter regarding the work of the Investigation and Identification Team (IIT) to H.E. Dr. Faisal Mekdad, Deputy Foreign Minister of the Syrian Arab Republic, dated 3 July 2020, this Note elaborates on the request for information and material which the Syrian Arab Republic may be able to provide to the IIT in order to assist specifically in its ongoing investigation of the incident in Saraqib of 4 February 2018, and Marea of 1 September 2015.

In relation to the former, the IIT has taken note of the position expressed by the Syrian Arab Republic on that particular incident in two Note Verbales, respectively Note Verbale No. 9, dated 12 February 2018 and Note Verbale No. 23, dated 12 March 2018. Further, the IIT has considered the conclusions on the incident submitted by the Syrian Arab Republic enclosed with said Note Verbale No. 23, refuting the allegations made against it related to this incident.

In particular, the IIT has reviewed the findings presented by the Syrian Arab Republic of the craters, the vegetation, and possible fragments near the alleged impact site, as well as its assessment of the alleged symptoms of casualties. It has specifically noted the issues raised by the authorities of the Syrian Arab Republic themselves during EC-88 in light of their "analytical examination of the videos and photographs posted by terrorist groups on open sites" (*Cf.* Note by the Technical Secretariat, S/1654/2018, dated 20 July 2018, Annex 2, pp. 7, 18-19). Since the findings by the Syrian Arab Republic appear to have been based on open source material and were presented in a succinct form, the Syrian Arab Republic is requested to submit further information and material which may support and corroborate its conclusions related to the incident (e.g., the specific videos and photographs mentioned in the aforementioned Note Verbales and any additional technical assessments made concerning their authenticity, witness testimony, intelligence information, and any samples or other evidence).

In addition, the IIT would be grateful for the opportunity to review the flight logs relating to the operations of the Syrian Arab Air Force in and around the area of Saraqib on and around 4 February 2018 and to be granted access to pilots and military command personnel who were in charge of, or involved in, such operations, at a location to be determined in consultation with the Syrian Arab Republic.

Reference is also made to other Note Verbales from the Syrian Arab Republic: No. 14, dated 19 February 2018, including the geographical coordinates of a tunnel north of Saraqib allegedly containing unspecified chemicals which, according to the Syrian Arab Republic, terrorist groups were planning to use some time after 19 February 2018; No. 18, dated 1 March 2018, and No. 20, dated 7 March 2018, describing lorries with chemicals entering the territory of the Syrian Arab Republic via a specific crossing. This information could potentially be relevant also to the use of chemical weapons occurred on 4 February 2018 in Saraqib. For this reason, the Syrian Arab Republic is requested to submit relevant material (e.g., through access to the sources of this information, videos and photographs, and any other evidence) which may substantiate and validate the information contained in these Notes Verbales.

In general, the IIT would appreciate receiving any evidence in support of allegations of movements and storage of toxic chemicals planned for use in chemical weapons false-flag attacks which may be relevant to the incident in Saraqib of 4 February 2018, as well as to other instances within the purview of the IIT.

In relation to the incident in Marea of 1 September 2005,¹ the IIT has noted the position of the Syrian Arab Republic on the use of sulphur mustard in Marea in August 2015, and the related reference to information in possession of the Syrian Arab Republic on the “use of chemical weapons and toxic chemicals” by “terrorist groups such as Da’esh, Al-Nusra and other Al-Qaeda wings” (see, inter alia, EC-M-50/NAT.18, dated 23 November 2015). The IIT therefore requests any evidence relevant to the possible identification of perpetrators of the use of chemical weapons in the area of Marea during the relevant time-frame, which would include supporting documentation on names of units and of relevant commanders or members of armed groups involved in the use of chemical weapons, as well as samples, imagery, or other information.

The IIT continues the examination of all available information concerning the use of chemical weapons in the incidents falling within its mandate and welcomes all information that the Syrian Arab Republic may be able to share on any of the outstanding incidents.

¹ Ref.: Note by the Technical Secretariat, Report of the OPCW Fact-Finding Mission in Syria Regarding Alleged Incidents in Marea, Syrian Arab Republic August 2015, S/1320/2015 (dated 29 October 2015).



OPCW

Technical Secretariat

S/1918/2020
27 November 2020
Original: ENGLISH

NOTE BY THE TECHNICAL SECRETARIAT

**WORK OF THE INVESTIGATION AND IDENTIFICATION TEAM
ESTABLISHED PURSUANT TO DECISION C-SS-4/DEC.3
(DATED 27 JUNE 2018)**

1. The Conference of the States Parties (hereinafter “the Conference”), at its Fourth Special Session, adopted a decision entitled “Addressing the Threat from Chemical Weapons Use” (C-SS-4/DEC.3, dated 27 June 2018). In paragraph 10 of C-SS-4/DEC.3, the Conference decided that the Technical Secretariat (hereinafter “the Secretariat”) shall put in place arrangements to identify the perpetrators of the use of chemical weapons in the Syrian Arab Republic by identifying and reporting on all information potentially relevant to the origin of those chemical weapons in those instances in which the OPCW Fact-Finding Mission in Syria (FFM) determines or has determined that use or likely use occurred, and cases for which the OPCW-UN Joint Investigative Mechanism has not issued a report; and that the Secretariat shall provide regular reports on its investigations to the Executive Council (hereinafter “the Council”) at its regular sessions and to the United Nations Secretary-General, for their consideration.
2. In accordance with C-SS-4/DEC.3, the Secretariat established the OPCW Investigation and Identification Team (IIT) with the purpose of identifying perpetrators of the use of chemical weapons in the Syrian Arab Republic.
3. Two Notes by the Secretariat, both entitled “Work of the Investigation and Identification Team Established by Decision C-SS-4/DEC.3 (dated 27 June 2018)” (EC-91/S/3, dated 28 June 2019 and EC-92/S/8, dated 3 October 2019) were previously circulated to all States Parties for information purposes. These Notes presented the mandate and methods of work of the IIT. Note EC-91/S/3 stressed that the IIT, as an integral part of the Secretariat, would conduct its operations according to the principles of impartiality, objectivity, and independence and that it would ensure the security, integrity, preservation, and chain of custody of the information and material in its possession from the moment of receipt, collecting, analysing, and storing technical and scientific information, meeting the highest technical standards, through, inter alia, the meticulous employment of forensic processes. The Note further elaborated on the composition of the team, the degree of confidence that would be relied upon to make findings, as well as the principles underlying the IIT’s activities in terms of investigative focus and methodologies, information management, and protection of confidentiality. Note EC-91/S/3 also included, in its Annex 2, a non-exhaustive preliminary list of incidents on which the IIT intended to focus its investigative work. Note EC-92/S/8 provided an update on the activities of the IIT and added, inter alia, that the IIT welcomes input from States Parties, and relies on

CS-2020-2737(E) distributed 27/11/2020



S/1918/2020

page 2

their cooperation pursuant to paragraph 7 of Article VII of the Chemical Weapons Convention (hereinafter “the Convention”),¹ in particular through the provision of relevant information and access to relevant places and persons.

4. On 8 April 2020, the Secretariat issued the document entitled “First 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”, Ltamenah (Syrian Arab Republic), 24, 25, and 30 March 2017” (S/1867/2020, dated 8 April 2020), covering the IIT’s findings on three incidents among the ones listed in the aforementioned Annex 2 to Note EC-91/S/3.
5. The present Note provides States Parties with a general update on relevant developments in the activities of the IIT following the provision of the first IIT report to the Council and the United Nations Secretary-General (S/1867/2020), as required by C-SS-4/DEC.3. In the interim period, the IIT has continued its investigative activities on the incidents falling within its purview. As is the case for other parts of the Secretariat, the IIT has been faced with the impact of the outbreak of the novel coronavirus (COVID-19) pandemic on the implementation of all OPCW activities and the mitigation measures that have been taken in response, as illustrated in the relevant Notes by the Secretariat.² Nevertheless, the IIT has continued, inter alia, to reach out to States Parties, international and non-governmental organisations, individuals, and other entities to collect relevant information and material.
6. In this context, the IIT has requested the Syrian Arab Republic to provide specific information and, more generally, input. Despite the travel restrictions stemming from the current COVID-19 situation, the IIT has also continued to request to meet with key representatives of the Syrian Arab Republic, at their convenience and at a location of their choosing, to discuss the IIT’s work, the provision of any relevant information, and access to locations that the Syrian authorities may be able to facilitate.
7. Paragraph 12 of C-SS-4/DEC.3 specifically requires the Secretariat to preserve and provide information to the International, Impartial and Independent Mechanism to Assist in the Investigation and Prosecution of Persons Responsible for the Most Serious Crimes under International Law Committed in the Syrian Arab Republic since March 2011 (IIIM). Further to the Memorandum of Understanding, dated 26 September 2018, between the OPCW and the IIIM, in October and November 2020 the Secretariat provided the first batches of such information in adherence to all applicable legal requirements and provisions (see also Note EC-91/S/1, dated 10 May 2019).
8. Since the issuance on 28 June 2019 of EC-91/S/3, which included the criteria for prioritisation of the IIT’s work and, in Annex 2, the above-mentioned non-exhaustive preliminary list of incidents to be investigated by the IIT, the FFM has issued two reports (S/1901/2020 and S/1902/2020, both dated 1 October 2020). Nonetheless, the FFM has been unable to reach findings that would require the IIT to include them in

¹ Paragraph 7 of Article VII of the Convention states that: “[e]ach State Party undertakes to cooperate with the Organization in the exercise of all its functions and in particular to provide assistance to the Technical Secretariat”.

² See, in particular: S/1863/2020, dated 20 March 2020; S/1870/2020, dated 17 April 2020; S/1876/2020, dated 3 June 2020; and S/1890/2020, dated 26 August 2020.

S/1918/2020
page 3

the list of instances falling within its purview. The IIT continues its investigations on the remaining incidents listed and will report to the Council and the United Nations Secretary-General on the outcome of such investigations in due course.

9. This Note, providing a general update on the work of the IIT established pursuant to C-SS-4/DEC.3, is hereby circulated for the information of the States Parties to the Convention.

--- 0 ---

Annex 4

REDACTED PARAGRAPHS

This Annex has been classified as “OPCW Highly Protected” and is available to all States Parties in document ITT/HP/003, dated 12 April 2021.
