OPCW

Technical Secretariat

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NOTE BY THE DIRECTOR-GENERAL

SUMMARY OF VERIFICATION ACTIVITIES IN 2017

1. The Second Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention reaffirmed the importance of factual reporting by the Technical Secretariat (hereinafter "the Secretariat") on verification results "in the interests of transparency and continued assurance of States Parties' compliance" (paragraph 9.51 of RC-2/4, dated 18 April 2008). In addition, as stated in paragraphs 3.187 and 3.188 of the Note by the Secretariat issued for the Third Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention (hereinafter "the Third Review Conference"), "Review of the Operation of the Chemical Weapons Convention since the Second Review Conference" (RC-3/S/1, dated 12 March 2013 and Corr.1, dated 20 March 2013), "[r]ecent developments in the Secretariat's factual reporting on verification have further enhanced transparency and the continued assurance of States Parties' compliance. … The Secretariat will continue its efforts to improve the way it reports on verification results".

2. In light of the above, the Secretariat has prepared the attached OPCW verification summary for 2017, which reflects the verification work undertaken by the Secretariat during that year.

3. The summary provides valuable reporting on the Secretariat's verification activities, especially to States Parties that are not represented in The Hague. In terms of public outreach, it is consistent with the OPCW's Media and Public Affairs Policy (C-I/DEC.55/Rev.1, dated 30 November 2017), and presents pertinent information on such work to a wider audience.

4. The summary follows a structure similar to the verification summaries from previous years, and does not contain any classified information.

Annexes:

Annex 1: OPCW Verification Summary for 2017
Annex 2: List of Designated OPCW Laboratories

Annex 1

OPCW VERIFICATION SUMMARY FOR 2017

1. EXECUTIVE SUMMARY

Overview

1.1 As at 31 December 2017, there were 192 States Parties to the Chemical Weapons Convention (hereinafter "the Convention"). Declared chemical weapons had yet to be destroyed in one State Party, and declared chemical weapons production facilities (CWPFs) had yet to be fully destroyed in two States Parties. Six States Parties had stocks of old chemical weapons (OCWs) that had yet to be destroyed or otherwise disposed of, while recovered abandoned chemical weapons (ACWs)—confirmed or suspected—were present on the territory of two States Parties. According to declared information, 82 of the States Parties maintained at least one declarable facility pursuant to Article VI of the Convention.

1.2 No verification activities could be undertaken for one signatory State not Party[1] and three non-signatory States.[2] No new States joined the Convention in 2017.

1.3 One of the 192 States Parties had not submitted its initial declaration pursuant to the Convention by the end of 2017. The Secretariat was not able to fulfil its verification tasks with regard to this State Party.

Verification operations

1.4 With regard to the chemical demilitarisation and industry verification programmes, and without counting the Secretariat's continuous operations in the Syrian Arab Republic or its activities verifying the destruction of Syrian chemical weapons outside the territory of the Syrian Arab Republic, the Secretariat performed 321 inspections/rotations in 2017, which accounted for 7,544 inspector days at 291 sites in 53 States Parties. This total consisted of 80 inspections or rotations connected to chemical weapons demilitarisation under Articles IV and V, and 241 inspections related to industry verification under Article VI. In addition, a further 1,627 inspector days were spent in 2017 by the Secretariat on verification activities connected to the Syrian Arab Republic[3] or on verification-related activities connected to that State Party.

1.5 The overall number of inspector days related to chemical weapons, including those in Iraq and the Syrian Arab Republic, was 6,032 in 2017, while 3,139 inspector days were spent pursuant to Article VI, representing 66% and 34% respectively of the total number of inspector days (7,544).

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1 Israel.

2 The Democratic People's Republic of Korea, Egypt, and South Sudan.

3 This figure includes verification activities both with respect to declared sites in that State Party and with respect to destruction activities that occurred outside its territory, as well as missions related to its initial declaration.

1.6 No challenge inspections (CIs) or investigations of alleged use (IAUs) were requested in 2017.

1.7 The Secretariat was able to meet the mandated inspection aims at all inspections carried out in 2017. An issue or issues requiring further attention (IRFAs) were registered in connection with 24 inspections (one chemical weapons-related inspection and 23 Article VI inspections).

Chemical weapons verification

1.8 In 2017, the Secretariat verified the destruction of 1,936.032 metric tonnes (MT) of chemical weapons, consisting of 1,620.889 MT of Category 1 and 315.143 MT of Category 2 chemical weapons. Destruction operations took place at five chemical weapons destruction facilities (CWDFs) on the territory of possessor States Parties: one in Libya,[4] one in the Russian Federation, and three in the United States of America. The Secretariat verified the year-end status of destruction of chemical-warfare agents at the end of the review period as follows:

(a) A total of 69,688.369 MT, or 96.38%, of the declared chemical weapons stockpile of 72,304.274 MT had been verified as destroyed, including withdrawals from chemical weapons stocks for purposes not prohibited under the Convention.

(b) Of the seven declared chemical weapons possessor States Parties, A State Party,[5] Albania, India, Libya, the Russian Federation, and the Syrian Arab Republic had destroyed their entire declared stockpiles of chemical weapons.

(c) The United States of America had destroyed 90.58% of its declared quantities of Category 1 chemical weapons.

1.9 By 31 December 2017, the Director-General had certified that 91 out of 97 CWPFs had either been destroyed (in 68 instances) or converted (in 23 instances). The remaining five[6] facilities—three CWPFs in Iraq and two CWPFs in the Syrian Arab Republic—remained to be destroyed. In 2017, the Secretariat carried out nine inspections at nine CWPFs in three States Parties, namely, Iraq, the Russian Federation, and the Syrian Arab Republic. The Secretariat conducted five visits to the destroyed CWPFs in the Syrian Arab Republic.

1.10 In 2017, the Secretariat conducted five inspections at three chemical weapons storage facilities (CWSFs) in two States Parties, which amounted to 163 inspector days.

1.11 The destruction of the chemical weapons abandoned by Japan on the territory of China continued, and was based on the destruction plan jointly presented to the

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4 Libyan Category 2 chemical weapons were removed and transported to Germany for destruction.

5 The State Party in question has requested that its name be regarded as highly protected information. Therefore, for the purposes of this report, it is referred to as "A State Party".

6 This excludes the former Falluja 2 facility (Iraq), which has been verified as destroyed but for which the destruction has yet to be certified.

Executive Council (hereinafter "the Council") by China and Japan (EC-67/NAT.11, dated 15 February 2012), pursuant to decision EC-67/DEC.6 (dated 15 February 2012), adopted by the Council at its Sixty-Seventh Session and in accordance with the provisions of the Convention.

1.12 The Secretariat carried out 11 inspections related to chemical weapons abandoned by Japan on the territory of China, including two inspections related to the verification of destruction activities.

1.13 Since entry into force (EIF) of the Convention, 17 States Parties had declared OCWs. Of these, 12 States Parties had declared OCWs produced between 1925 and 1946, and 10 States Parties had declared pre-1925 OCWs. The Secretariat conducted seven OCW inspections (in Belgium, Canada, France, Germany, Italy, Panama, and the United Kingdom of Great Britain and Northern Ireland) in 2017. In many cases, destruction operations have made considerable progress; however, recoveries of significant quantities of OCWs continue to be made.

Article VI verification

1.14 In terms of Article VI of the Convention, the Secretariat verified declared activities at 241 facilities and plant sites in 48 States Parties in 2017. This comprised 11 Schedule 1 facilities (41% of the inspectable facilities); 42 Schedule 2 plant sites (22%); 19 Schedule 3 plant sites (5%); and 169 other chemical production facility (OCPF) plant sites (4%).

1.15 Six States Parties reported that they expected to be involved—as importers or exporters—in six transfers of Schedule 1 chemicals between States Parties in 2017. Declarations received in 2017 indicated exports of 10,942 MT of Schedule 2 chemicals by 54 States Parties, and exports of 464,897 MT of Schedule 3 chemicals by 121 States Parties in 2016. There were 13 reported transfers of Schedule 1 chemicals and no transfers of Schedule 2 chemicals to States not Party in 2016.

Optimising the verification regime

1.16 In 2017, the Secretariat continued its efforts to maximise the number of sequential inspections as a way of saving resources. Twelve of the 13 States Parties that received four or more industry inspections in 2017 concurred with the use of sequential inspections on their territories. In total, the Secretariat carried out 58 sequential inspections in 2017.

1.17 Sampling and analysis (S&A) was used during 10 Article VI inspections in 2017: eight in Schedule 2 inspections, and two (subsequent) OCPF inspections involved S&A. In both cases the inspection, including S&A, was completed within the 24-hour time limit.

1.18 Through the Verification Information System (VIS) programme, which comprises several information-technology components and related projects, the Secretariat has over the years increased the use of information-technology tools for the preparation, submission, and processing of declaration data. These tools aim to introduce efficiencies for both the Secretariat and the States Parties. The VIS and associated

data-analysis tools are essential for the processing and effective monitoring of verification-related information; the Secretariat continues to explore ways to enhance these capabilities. Following the success of the electronic declaration tool for National Authorities (EDNA), in 2014 the Secretariat introduced a secure transmission system—the Secure Information Exchange (SIX)—for declarations-related data. The system provides a secure electronic channel for the exchange of electronic declarations and other information, including that of a classified nature, between States Parties and the Secretariat. As at 31 December 2017, a total of 79 users from 47 States Parties had registered for the SIX system.

1.19 The ability of the Secretariat to implement its verification responsibilities effectively and efficiently continues to be adversely affected by outstanding or late declarations, although sustained engagement between the Secretariat and the States Parties concerned has recently resulted in significant improvements in this area.

1.20 In total, the Secretariat processed 1,046 incoming documents, declarations, and other verification-related documents from States Parties in 2017, comprising 10,671 pages.

2. INSPECTIONS

2.1 During 2017, and without counting its verification activities connected with Iraq and the Syrian Arab Republic, the Secretariat conducted 321 inspections/rotations, which accounted for 7,544 inspector days at 280 sites in 53 States Parties. Inclusion of the number of inspector days spent on operations connected with Iraq and the Syrian Arab Republic gives the total number of inspector days for 2017 as 9,171. On average, 764 inspector days were undertaken each month.

2.2 Table 1 lists the number and types of inspections or rotations completed in 2017 and other summary statistics on inspection activities, while Table 2 shows the inspections completed between EIF of the Convention and 31 December 2017.

TABLE 1: INSPECTION ACTIVITIES IN 2017

Type of Facility	Inspectable or Operational Facilities[7]	Inspections Completed[8]	Facilities or Sites Inspected[7]	Inspector Days
Chemical Weapons-Related Inspections				
CWDF	5	43	5	3,739
CWSF	5	5	3	163
CWPF	35	14	14	165
OCW	6	7	7	118
ACW[9]	25	11	10	220
Totals		**80**	**39**	**4,405**
Inspector days connected with the Syrian Arab Republic				1,627
Total number of chemical weapons-related inspector days				**6,032**
Article VI Inspections				
Schedule 1	27	11	11	216
Schedule 2	189	42	42	887
Schedule 3	401	19	19	160
OCPF	4,234	169	169	1,876
Totals	**4,851**	**241**	**241**	**3,139**
Combined totals		**321**	**280**	**7,544**
Combined total, including days connected with Iraq and the Syrian Arab Republic				**9,171**

7 For CWDFs and ACW destruction sites (ACWDs): operational facilities in 2017; for CWSFs, CWPFs, OCWs, and ACWs: inspectable in 2017; for Article VI facilities: inspectable in 2017.

8 Inspections carried out in the Syrian Arab Republic and in connection with destruction activities outside its territory are not included in this column because of the unique nature of the Secretariat's operations with respect to that State Party. The figures reported here may therefore differ slightly from those in the narrative sections below, where Syrian operations, particularly with respect to CWPFs and ACWs, are included to the extent possible.

9 Including ACWDs.

TABLE 2: INSPECTION ACTIVITIES SINCE EIF[10]

Type of Facility	Inspections Completed	Facilities or Sites Inspected	Inspector Days
Chemical weapons-related inspections			
CWDF	1,871	44	216,296
CWSF	507	37	15,151
CWPF	499	79	9,211
OCW	143	39	2,308
ACW	124	51	3,317
DHCW[11]/EDCW[12]	25	n/a	1,734
Totals	**3,169**	**250**	**248,017**
Inspector days connected with contingency operations			11,895
Total number of chemical-weapons related inspector days			**259,912**
Article VI inspections			
Schedule 1	292	38	5,045
Schedule 2	826	390	19,241
Schedule 3	469	394	7,175
OCPF	1,975	1,760	24,578
Totals	**3,562**	**2,582**	**56,039**
Combined totals	**6,731**	**2,832**	**304,056**
Combined total of inspector days, including those connected with contingency operations			**315,951**

Distribution of Article VI inspections

2.3 Forty-eight States Parties received Article VI inspections in 2017. As can be seen in Table 3, this number was two lower than in the previous year (50 States Parties in 2016). The variation in the number of inspected States Parties is mainly due to the random nature of the selection of plant sites for inspection under paragraph 11 of Part IX of the Verification Annex to the Convention (hereinafter "the Verification Annex").

TABLE 3: DISTRIBUTION OF ARTICLE VI INSPECTIONS

	2009	2010	2011	2012	2013	2014	2015	2016	2017
No. of inspections	208	208	208	219	229	241	241	241	241
Inspected States Parties	38	38	39	44	46	50	43	50	48
No. of States Parties accounting for 50% of inspections	6	6	7	6	7	7	6	7	6

10 For CWSFs, the figures related to the number of inspected facilities do not include facilities declared as "CWSFs at CWDFs", as these are verified as part of the respective CWDF and not as separate entities.

11 DHCW = destruction of hazardous chemical weapons.

12 EDCW = emergency destruction of chemical weapons.

TABLE 4: DISTRIBUTION OF ARTICLE VI INSPECTIONS BY REGION

Regional Groups	No. of Industry Inspections	Percentage of Total	Percentage of Inspectable Sites
Africa	2	1%	1%
Asia	112	46%	58%
Eastern Europe	17	7%	4%
Latin America and the Caribbean	12	5%	5%
Western Europe and Other Countries	98	41%	32%

Challenge inspections and investigations of alleged use

2.4 No CIs or IAUs were requested in 2017, and no CI field exercises were conducted. Nevertheless, the Secretariat conducted an in-house CI refresher training course and a table-top exercise in July 2017. The training was aimed at providing an updated assessment of the fundamentals of CIs under Article IX of the Convention, as well as Part X of the Verification Annex, and also covered experiences and lessons learned from recent contingency operation deployments. In this regard, the Secretariat conducted a rapid field deployment exercise with a training course on command and control. This exercise was held in the United Kingdom of Great Britain and Northern Ireland, and was conducted with the assistance of the host State. The field activities were focused on investigation of a clandestine laboratory designed to produce chemical agent, together with a munition filling and storage area and a chemical weapons munitions test area.

Inspector training

2.5 A group of new inspectors came on board in 2017. The group (Group Q) was comprised of seven new inspectors who joined the OPCW in October 2017 and completed their mandatory training by the end of December 2017. The Capacity-Building and Contingency-Planning Cell coordinated or delivered 1,764 training days. The training programme comprised 58 individual training courses, which were provided over 50 calendar weeks of training.

2.6 Fifty-five percent of the training held in 2017 was delivered within the territory of the Netherlands, with the remainder conducted within the territories of Belgium, Canada, Italy, Romania, Serbia, Slovakia, and the United Kingdom of Great Britain and Northern Ireland. These States Parties assisted in the delivery of the training programme, either as host nations, through voluntary contributions, or through the provision of technical and/or administrative assistance.

3. CHEMICAL WEAPONS

3.1 The Secretariat verifies the destruction of chemical weapons by maintaining a continuous presence at operating CWDFs, which allows for the monitoring of ongoing declared activities, either by direct physical observation or through the use of on-site instruments (including equipment specifically dedicated for use by inspectors). For the purpose of verification, inspectors are granted unimpeded access, so that they can monitor process parameters. Furthermore, S&A allows the Secretariat to verify the type of chemical-warfare agent being destroyed. By observing the process of destruction and by means of the S&A of generated by-products and, where applicable,

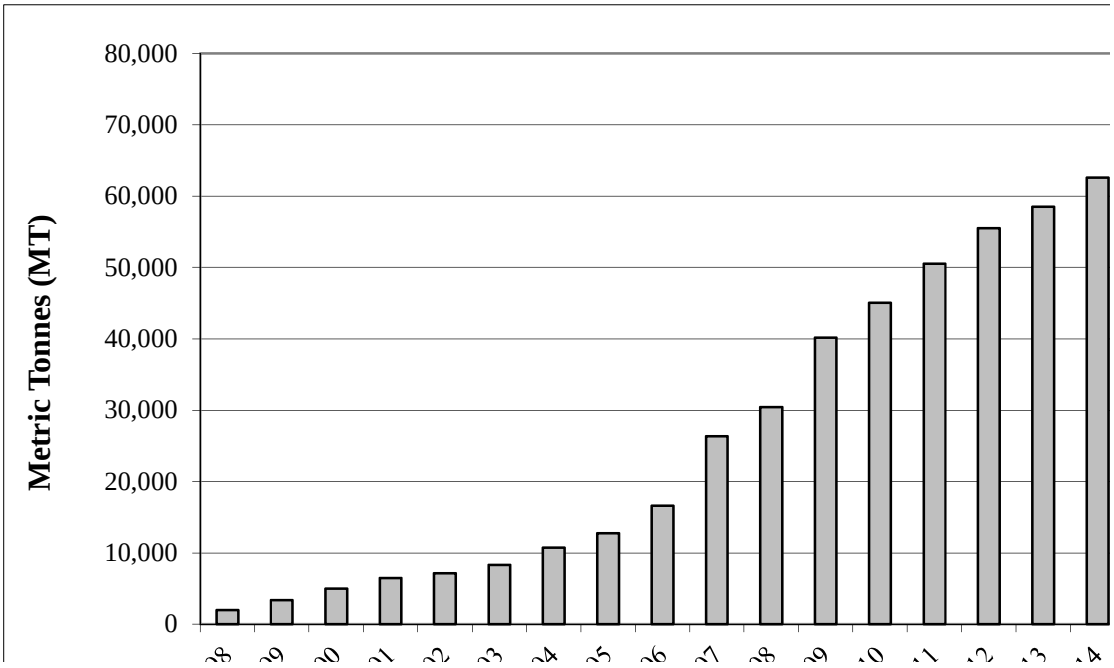
the thermal treatment and the mutilation of drained and decontaminated munitions bodies, the Secretariat can verify that declared quantities of chemical weapons have been completely destroyed and that no chemical weapons have been diverted. Inspections are also carried out at CWSFs to ensure that no removal of chemical weapons takes place except in accordance with the Convention.

3.2 Inspections at CWDFs amounted to 3,739 inspector days during 2017 (2,898 in 2016), while inspection efforts at CWSFs totalled 163 inspector days (183 in 2016). In addition, the number of inspector days spent on operations connected to the destruction of chemical weapons declared by the Syrian Arab Republic was 1,627 (1,136 in 2016).

3.3 In 2017, the Secretariat verified the destruction of 1,620.889 MT of Category 1 chemical weapons and 315.143 MT of Category 2 chemical weapons, giving a total of 1,936.032 MT verified as destroyed. This was a decrease compared to 2016, when the total verified destruction amounted to 2,014.894 MT.

3.4 By the end of the review period, the overall amount of Category 1 and 2 chemical weapons verified as destroyed, including withdrawals from chemical weapons stocks for purposes not prohibited under the Convention, totalled 69,688.369 MT, or 96.38%, of the declared chemical weapons (see Figure 1).

FIGURE 1: VERIFIED DESTRUCTION OF CHEMICAL WEAPONS: CUMULATIVE FROM 1998 TO 2017



3.5 In 2017, five CWDFs (three fewer than in 2016) were involved in the destruction of Category 1 and 2 chemical weapons: one in Libya, one in the Russian Federation, and three in the United States of America. Two other CWDFs, in the United States of America, were still under construction and/or systemisation. Table 5 lists the destruction facilities that were operating or under construction during 2017.

TABLE 5: CHEMICAL WEAPONS DESTRUCTION FACILITIES IN SERVICE OR UNDER CONSTRUCTION IN 2017

Libya	1. Gesellschaft zur Entsorgung von chemischen Kampfstoffen und Rüstungsaltlasten mbH(GEKAmbH) (Germany) *
Russian Federation	2. Kizner
United States of America	3. Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) 4. Chemical Transfer Facility/Munitions Assessment Processing System (CTF/MAPS) 5. Recovered Chemical Weapons Destruction Facility (RCWDF) 6. Blue Grass Chemical Agent Destruction Pilot Plant (BGCAPP)** 7. Blue Grass Chemical Agent Destruction Pilot Plant Static Detonation Chamber (BGCAPP-SDC)***

* Libyan Category 2 chemical weapons were removed and transported to Germany for destruction

** Construction was complete; systemisation was ongoing at the end of 2017.

*** Construction and systemisation have been paused while the overall schedule for the BGCAPP is under review to ensure the most efficient application of resources.

3.6 At the end of the review period, there remained only one State Party with declared chemical weapons that had yet to be completely destroyed: the United States of America.

Progress in meeting destruction obligations

3.7 At the end of the review period, A State Party, Albania, India, Libya, the Russian Federation, the Syrian Arab Republic, and the United States of America had declared a total of 72,304.274 MT of chemical weapons (70,493.571 MT of Category 1 and 1,810.703 MT of Category 2), contained in 8,270,573 munitions and containers. Approximately 96.38% of these chemical weapons—or a total of 69,688.369 MT (67,877.666 MT of Category 1 and 1,810.703 MT of Category 2)—had been verified as destroyed as at 31 December 2017.[13] The possessor States Parties had also declared 417,833 items of Category 3 chemical weapons. All those items had been destroyed at the end of the review period.

3.8 In 2011, pursuant to a recommendation of the Council at its Thirty-First Meeting, the Conference of the States Parties (hereinafter "the Conference") at its Sixteenth Session adopted a decision regarding the final extended deadline of 29 April 2012 (C-16/DEC.11, dated 1 December 2011). Pursuant to that decision, Libya, the Russian Federation, and the United States of America submitted in April 2012 and October 2014 (the latter due to the Russian Federation's Addendum (EC-68/P/NAT.1/Add.1, dated 6 October 2014)) detailed plans for the destruction of their respective remaining chemical weapons, which specified the planned completion dates for destruction of the remaining chemical weapons by each of the States Parties concerned.

13 Included in this total are 2.913 MT of Schedule 1 chemicals that had been withdrawn from Category 1 chemical weapons stockpiles for purposes not prohibited under the Convention (see subparagraph 2(d) of Part VI of the Verification Annex).

3.9 As at 31 December 2017, OPCW inspectors had verified the destruction of the following quantities of chemical weapons in the seven above-mentioned States Parties that had declared chemical weapons stockpiles:

(a) Category 1 chemical weapons: The Secretariat had verified the destruction of 67,874.754 MT of this category of chemical weapons. In addition, a total amount of 2.913 MT of Category 1 chemical weapons had been withdrawn pursuant to Article VI of the Convention and subparagraph 2(d) of Part VI of the Verification Annex. Of the total amount, 65,612.087 MT were unitary chemical weapons (of which 1,620.889 MT were destroyed in 2017), including lewisite, sarin (GB), sulfur mustard (including H, HT, and HD), tabun (GA), tabun with UCON, soman (GD) and viscous soman (GD), VX, Vx, and unknown agent, contained in 7,378,402 munitions and containers (of which 438,907 were destroyed in 2017), as well as in other storage vessels that had a volume of less than $2m^3$ and in larger volume storage tanks, from which the chemical-warfare agent had been drained. Another 2,262.667 MT were binary chemical weapons (none destroyed in 2017), which included the following: DF, QL, OPA, sodium-o-ethyl methyl phosphonothiolate, hexamine, diisopropyl aminoethyl chloride hydrochloride, diethyl aminoethyl chloride hydrochloride, and isopropanol. Overall, the Secretariat had verified the destruction of 785,066 binary items, including 415,108 artillery projectiles, 369,958 separately declared DF and OPA canisters, and 306 other containers for binary components.

(b) Category 2 chemical weapons: The Secretariat had verified the destruction of 1,810.703 MT of Category 2 chemical weapons (315.143 MT in 2017): CNS, thiodiglycol (TDG), 2-chloroethanol (2-CE), phosgene, sodium sulfide, sodium fluoride, chloroacetophenone (CN), adamsite (DM), phosphorous oxychloride, phosphorous trichloride, phosphorous pentachloride, hydrogen fluoride, hydrochloric acid, mono isopropylamine, di-isopropyl aminoethanol, thionyl chloride, triethylamine, trimethylphosphite, dimethylphosphite, butanol, methanol, pinacolyl alcohol, and tributylamine, as well as 3,847 artillery projectiles.

(c) Category 3 chemical weapons: As at the end of 2017, the Secretariat had verified the destruction of 417,833 items of Category 3 chemical weapons declared to the OPCW.

Iraq

3.10 The destruction of the two declared bunkers containing chemical weapons remnants by encapsulation began in 2017 but had not been verified as completed at the end of the reporting period.

Libya

3.11 In 2017, Libya continued to report to the Council and Conference through annual and/or periodic reports on the progress achieved towards the complete destruction of its remaining stockpile of chemical weapons, in compliance with Conference decision C-16/DEC.11. All reports were received on time and in accordance with the

provisions of the above-mentioned decision. In its annual progress report to the Conference, Libya informed the Secretariat about the destruction activities regarding Category 2 chemical weapons stocks and other measures taken by the Libyan authorities to achieve complete destruction of the remaining Category 2 chemical weapons stockpile.

3.12 On 28 November 2017, Libya certified the completion of the destruction of remaining chemical weapons in accordance with subparagraph 7(c) of Article IV of the Convention.

3.13 The Secretariat confirmed the complete destruction of all chemicals declared by Libya during an inspection at GEKA mbH in December 2017.

Russian Federation

3.14 In accordance with Conference decision C-16/DEC.11, the Russian Federation reported to the Council through annual and/or periodic reports on the progress achieved towards the complete destruction of its remaining stockpile of chemical weapons. All reports were received on time and in accordance with the provisions of the decision.

3.15 The Russian Federation completed the destruction of its remaining Category 1 stockpile at the Kizner CWDF on 27 September 2017, which was verified by the Secretariat. In accordance with subparagraph 7(c) of Article IV of the Convention, the Russian Federation submitted a letter to the Conference at its Twenty-Second Session confirming the complete elimination of its chemical weapons.

Syrian Arab Republic

3.16 In accordance with Council decision EC-M-33/DEC.1 (dated 27 September 2013), all relevant documents were made available to the States Parties.

3.17 The Secretariat verified the destruction of 100% of declared Category 1 and 2 chemical weapons.

United States of America

3.18 The United States of America submitted three amendments to its initial declaration in 2017, thereby adjusting its chemical weapons inventory, declaring a new CWSF, and updating the site diagram and building list for two existing CWSFs.

3.19 In accordance with Conference decision C-16/DEC.11, the United States of America reported to the Council and Conference through annual and/or periodic progress reports on the progress towards the complete destruction of chemical weapons remaining after the 29 April 2012 deadline. All required reports were received by the Secretariat on time and in accordance with all provisions of the above-mentioned decision.

3.20 The United States of America also submitted, inter alia, the following information:

(a) an addendum to the detailed facility information (DFI) for the PCAPP, together with a revised facility agreement, to include the non-contiguous Veolia treatment, storage and disposal facility (TSDF), which will supplement the on-site bio-treatment system at the PCAPP;

(b) a proposal to conduct a final engineering review at the Veolia TSDF in June 2017;

(c) an amendment and modifications to the facility agreement for the CTF at Aberdeen Proving Ground, Maryland, to include the non-contiguous Veolia TSDF; and

(d) a letter with proposals to conduct the 2017 annual recovered chemical weapons destruction review in January 2018 at the United States point of entry.

3.21 As at 31 December 2017, the Secretariat had verified the destruction or withdrawal for purposes not prohibited under the Convention of 25,153.858 MT, or 90.58%, of the stockpile of Category 1 chemical weapons declared by the United States of America.

3.22 In 2017, the Secretariat verified the destruction in the United States of America of 182.793 MT of Category 1 chemical weapons. In addition, parallel to the destruction operations, the Secretariat had verified the destruction of the removed energetic components.

3.23 The Secretariat conducted a final engineering review of the PCAPP in Pueblo, Colorado, to add the non-contiguous Veolia TSDF, in June 2017. Subsequently, the Veolia TSDF was used for the destruction of hydrolysate generated from the chemical agent hydrolysis process at PCAPP.

3.24 In early January 2018, the Secretariat conducted an inspection to review documents related to the destruction of items recovered and destroyed in 2017 at the RCWDF-Savanna Army Depot Activity and CTF/MAPS.

4. CHEMICAL WEAPONS PRODUCTION FACILITIES

4.1 The Secretariat conducts inspections to verify progress at those CWPFs that have not yet been fully destroyed or converted for purposes not prohibited under the Convention. Verification ceases once the Director-General certifies that destruction of a CWPF has been completed, whereas facilities that have been certified as converted remain subject to systematic inspections for 10 years under the provisions of the Convention and for the next five years under the provisions of the Council decision on the nature of continued verification measures at converted facilities 10 years after the Director-General's certification of their conversion (EC-67/DEC.7, dated 16 February 2012). In 2017, the Secretariat carried out nine inspections at nine CWPFs in three States Parties, and conducted five visits to the destroyed CWPFs in the Syrian Arab Republic in accordance with Council decision EC-M-43/DEC.1 (dated 24 July 2014).

4.2 As at 31 December 2017, 97 CWPFs had been declared to the OPCW. The Director-General had certified the completion of destruction or conversion of 91 of those facilities. Sixty-eight had been certified as destroyed. Twenty-three had been converted for purposes not prohibited by the Convention. Five CWPFs had yet to be destroyed and one CWPF had yet to be certified as destroyed.

4.3 In 2017, in accordance with Council decision EC-67/DEC.7 on the nature of continued verification measures at converted facilities 10 years after the Director-General's certification of their conversion, the Secretariat inspected five such facilities in the Russian Federation.

4.4 Consultations between Iraq and the Secretariat continued in 2017 regarding the verification of four declared former CWPFs. One initial inspection was conducted to verify the destruction of one CWPF in Iraq.

4.5 In the Syrian Arab Republic, in 2017, the Secretariat conducted an initial inspection at two declared former CWPFs and verified the destruction of one declared former CWPF. Additionally, in accordance with Council decision EC-M-43/DEC.1, the Secretariat visited five CWPFs that had been verified as destroyed.

5. OLD AND ABANDONED CHEMICAL WEAPONS

5.1 With regard to OCWs, the verification work of the Secretariat consists of inspections at declared storage sites in States Parties declaring OCW items, in order to verify the consistency of any changes (recoveries, destruction or reclassification) reported in either annual or ad hoc declarations, as well as other notifications.

5.2 With regard to ACWs, the Secretariat continuously carries out inspections to monitor ongoing activities concerning chemical weapons abandoned by Japan on the territory of China. During periods of destruction the Secretariat also carries out quarterly inspections to verify those destruction operations.

5.3 In 2017, the Secretariat conducted seven OCW inspections in seven States Parties and 11 ACW inspections in one State Party. The discovery of 1,520 OCWs was declared by seven States Parties, while 1,719 OCWs were reported as destroyed.

5.4 In 2017, over 6,400 ACWs abandoned by Japan on the territory of China were reported as newly recovered and/or identified and more than 3,900 ACWs were reported as destroyed. Chemical weapons abandoned by Japan on the territory of China were subject to the destruction deadline of 29 April 2012 (EC-46/DEC.4, dated 5 July 2006). According to Council decision EC-67/DEC.6, the destruction of chemical weapons abandoned by Japan on the territory of China was to continue after 29 April 2012, in accordance with the provisions of the Convention. The ACW Test Destruction Facility at Haerbaling continued destruction operations in 2017. At the end of the period under review, there were over 13,000 ACWs in 24 storehouses, awaiting destruction.

Declared stocks

5.5 Between EIF of the Convention and 31 December 2017, 17 States Parties had declared OCWs. Of these, 12 States Parties declared 72,258 OCWs produced between 1925 and 1946, while 10 States Parties declared 69,172 OCWs produced before 1925. Throughout the years, all of these States Parties have provided information to the Secretariat on recovery and destruction operations, and on steps being taken to destroy or otherwise dispose of the OCWs as toxic waste.

5.6 In 2017, OCWs and/or suspected OCW discoveries were reported to the Secretariat by Belgium, France, Germany, Italy, Panama, Poland, and the United Kingdom of Great Britain and Northern Ireland.

5.7 Based on information received, as at 31 December 2017, six States Parties (Belgium, France, Germany, Italy, the Netherlands, and the United Kingdom of Great Britain and Northern Ireland) still had OCWs or suspected OCWs on their territories and approximately 38,400 OCWs had yet to be destroyed or otherwise disposed of.

5.8 Also as at 31 December 2017, three States Parties had declared confirmed ACWs on their territories. In particular, more than 60,000 items of chemical weapons abandoned by Japan on the territory of China had been discovered at over 90 locations in 18 provinces in China. Of these, 48,272 had already been destroyed by 31 August 2017.

Verification activities

5.9 In 2017, the Secretariat conducted seven OCW inspections in Belgium, Canada, France, Germany, Italy, Panama, and the United Kingdom of Great Britain and Northern Ireland.

5.10 During the period under review, 11 ACW inspections were conducted in relation to chemical weapons abandoned by Japan on the territory of China.

6. INDUSTRY VERIFICATION

6.1 The total number of facilities declared worldwide in connection with the Article VI verification regime at the end of the review period was 5,225, of which 4,722 were subject to systematic verification (see Table 6). In 2017, the Secretariat verified the declared activities at 241 facilities and plant sites in 49 States Parties. The breakdown of inspections per verification remained the same as in 2016. Thus, 11 Schedule 1 facilities, 42 Schedule 2 plant sites, 19 Schedule 3 plant sites, and 169 OCPF plant sites were inspected in 2017.

TABLE 6: FACILITIES DECLARED PURSUANT TO ARTICLE VI AS AT 31 DECEMBER 2017

Number of Declared Facilities Number of States Parties Having Declared Article VI Facilities					
Regime	**Schedule 1**	**Schedule 2**	**Schedule 3**	**OCPF**	**Totals**
Declared	26	496	402	4,301	5,225
Declarable	26	459	391	4,300	5,176
Inspectable	26	203	362	4,131	4,722
States Parties	23	36	34	80	80

6.2 In 2017, an IRFA or IRFAs were recorded at 23 Article VI inspections, that is, at one Schedule 1 inspection, 11 Schedule 2 inspections, three Schedule 3 inspections, and eight OCPF inspections. Furthermore, 152 observations during inspections were marked "gather further information" (typically, declaration issues that do not amount to IRFAs, according to the Secretariat's internal practices).

6.3 In 2017, seven OCPF inspections and two Schedule 2 inspections were carried out at plant sites that turned out to be non-inspectable (see paragraph 6.17 below).

Transfers of scheduled chemicals

Transfers of Schedule 1 chemicals according to annual declarations on past activities for 2016

6.4 Thirteen transfers of Schedule 1 chemicals were declared by 5 States Parties in their annual declarations on past activities (ADPAs) for 2016. All these 13 transfers were notified by both the sending and receiving States Parties. The total amount of Schedule 1 chemicals transferred in 2016 was 28.45 grams.

Transfers of Schedule 2 and Schedule 3 chemicals between States Parties in ADPAs for 2016

6.5 The ADPAs for 2016 that were received in 2017 indicated that a total of 54 States Parties transferred Schedule 2 chemicals in 2016, and that the total volume of this trade came to approximately 10,942 MT. Meanwhile, 121 States Parties transferred Schedule 3 chemicals in 2016, and the total volume of this trade was approximately 464,897 MT.

Transfers of Schedule 2 and 3 chemicals to States not Party in ADPAs for 2016

6.6 In the ADPAs for 2016 received in 2017, there were no reported transfers of Schedule 2 chemicals to States not Party in 2016. Nine States Parties exported four Schedule 3 chemicals to two States not Party.

Optimisation of the Article VI inspection regime

6.7 Throughout 2017, the Secretariat continued its efforts to optimise the effectiveness and efficiency of the Article VI inspection regime.

6.8 Inspections were carried out with a comparable team size to that of similar inspections carried out in 2016. However, the Secretariat will continue to evaluate and re-assess the size of the inspection teams, with a view to ensuring the greatest possible levels of both efficiency and effectiveness.

6.9 In September 2016, updated inspection report templates were introduced for Schedule 1, Schedule 2, and Schedule 3 inspections. The updated templates facilitated a more streamlined post-inspection process, thus reducing the time on site for those inspections.

6.10 During 2017, the Secretariat also continued its efforts to maximise the number of sequential inspections (see Table 7) as a way of optimising the use of human and material resources. Sequential inspections (two inspections in one mission) are an important tool for making the inspection process more efficient; further efficiencies could be achieved should additional States Parties agree to the conduct of sequential inspections on their territories, in particular those with large numbers of annual Article VI inspections. In this regard, 12 of the 13 States Parties that received four or more industry inspections in 2017 have advised the Secretariat that they concur with the use of sequential inspections on their territory. Out of the 58 sequential inspections that took place in 2017, 45 were consecutive inspections in a single country, while 13 allowed inspectors to conduct inspections in two States Parties during one mission. As a result of performing those 58 sequential inspections, the Secretariat saved at least EUR 400,000 in travel costs, and 130 inspector weeks of work.

6.11 In 2017, four more sequential inspections were carried out than in 2016. This was due to the location of the sites selected,

TABLE 7: SEQUENTIAL INSPECTIONS

Sequential Inspections (On a Year-by-Year Basis)										
2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
26	37	42	40	47	48	57	51	59	54	58

6.12 At the end of the review period, the following States Parties with inspectable Schedule 3 and/or OCPF plant sites had not yet agreed to the Secretariat's conducting sequential inspections in some form: Azerbaijan, Georgia, Pakistan, the Russian Federation, and Viet Nam.

Sampling and analysis

6.13 The Secretariat has continued to conduct Schedule 2 inspections using S&A on a routine basis, reaching 90 such missions in 22 States Parties by the end of 2017 (see Table 8).

6.14 In 2017, there were 10 inspections involving S&A, eight in Schedule 2 inspections, and two (subsequent) OCPF inspections involving S&A. In both latter cases the inspection, including S&A, was completed within the 24-hour time limit. This brought the total of Article VI inspections using S&A to 104, and the number of States Parties that have received S&A missions to 26, giving a broader geographical distribution.

6.15 As at 31 December 2017, 100% (20 out of 20) of the States Parties with currently inspectable Schedule 2 plant sites had received at least one S&A mission. Two additional States Parties that had received S&A no longer have inspectable sites.

TABLE 8: SAMPLING AND ANALYSIS AT ARTICLE VI PLANT SITES

Number of Inspections with S&A											
2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**Total**
9	9	9	9	8	9	8	9	11	11	11	104[14]

[14] Includes 90 Schedule 2, one Schedule 3, and three OCPF missions.

6.16 Analytical data have been continually included in the OPCW Central Analytical Database (OCAD), following validation by the Validation Group and approval by the Council.

Inspections at non-inspectable Article VI sites

6.17 In 2017, a total of nine Article VI inspections were carried out at sites that proved to be non-inspectable, two at Schedule 2 plant sites and seven at OCPF sites. This number is somewhat higher than the number recorded in 2016, although it is similar to the number recorded in the preceding years. In the past few years, the Secretariat has made efforts to address the issue of non-inspectability through a variety of means, including bilateral consultations and requests for clarification (RFCs), internal analyses and checks, and education and outreach at training courses and seminars for National Authorities. In addition, e-learning modules have been developed. Table 9 shows how the number of inspections at non-inspectable sites has varied over time.

TABLE 9: INSPECTIONS AT SITES THAT ARE NON-INSPECTABLE

2010	2011	2012	2013	2014	2015	2016	2017
14	6	5	7	8	7	4	9

Secretariat support to consultations on industry and other Article VI issues

6.18 Four informal consultations were conducted in 2017. States Parties undertook consultations on a number of outstanding verification-related topics, including evaluation of the results of the site selection methodology in 2016; a summary of industry verification in 2016; further enhancement of S&A efforts during Article VI missions; update on transfer discrepancies; implementation of the Verification Action Plan; addressing the recommendations from the Scientific Advisory Board regarding verification (including continuous additions to the OCAD); preliminary results of the survey on biomediated synthesis; and presentations by States Parties on the same topic.

7. OTHER VERIFICATION-RELATED ACTIVITIES

Implementation matters

7.1 This section provides information about several ongoing matters that constitute challenges to the Secretariat's ability to effectively discharge its verification responsibilities. It is not an exhaustive list. By highlighting these subjects, the Secretariat is giving States Parties an opportunity to see how matters are affected by remedial action taken by the Secretariat and States Parties; the Secretariat will continue to monitor how these challenges develop over time.

Outstanding initial declarations

7.2 Since EIF of the Convention, the Secretariat has reminded States Parties of their declaration obligations through a variety of means, including bilateral consultations and RFCs, reconciliation letters, and education and outreach at regional and subregional meetings, courses, seminars, and workshops. The Secretariat will continue to work with the relevant States Parties towards the submission of their outstanding initial declarations.

Progress and status

7.3 By the end of 2017, 191 of the 192 States Parties had submitted their full initial declarations. During 2017, the Secretariat did not receive the pending initial declaration in accordance with Article III and Article VI of the Convention from the only one remaining State Party: Tonga (due date: 28 July 2003). The Secretariat will continue to work with Tonga towards the submission of its outstanding initial declaration.

Outstanding or late annual declarations

7.4 In order for the Secretariat to be able to continue to perform its verification tasks effectively, it is of the utmost importance that States Parties continue to submit their ADPAs and annual declarations of anticipated activities (ADAAs) in a timely manner. Outdated information not only leads to erroneous site selections, but also risks increasing the rate of inspections at non-inspectable sites. Both of these scenarios involve an inefficient use of inspection resources. In addition, countries that submit their aggregate national data (AND) late may cause transfer discrepancies.

Follow-up actions

7.5 In regard to actions taken by the Secretariat to address the issue of timely submission of declarations, particular emphasis has been placed on supporting the States Parties concerned. In 2017, the Secretariat provided tailor-made technical assistance to those States Parties in the framework of several bilateral meetings and consultations.

Progress and status

7.6 Since the 2007 decision on timely submission of Article VI declarations, the Secretariat has regularly been requested to prepare status reports for the Council on the implementation of that decision. Two such reports[15] were provided in 2017 by the Secretariat. In addition, one status report focusing on ADPAs for 2016 and ADAAs 2018 as at 31 December 2017 has been published in 2018 (EC-87/DG.8, dated 12 January 2018).

7.7 Overall, 92 States Parties with declarable facilities or activities submitted ADPAs for 2016. Of these, 76 States Parties met the deadline of 31 March 2017 for submitting at least part of their required declarations, and 16 States Parties submitted their ADPAs for 2016 between 31 March and 31 December 2017. Of the aforementioned 16 States Parties, 10 States Parties submitted their ADPAs for 2016 more than 30 days late, and six States Parties submitted their ADPAs for 2016 fewer than 30 days late.

7.8 In 2017, 47 States Parties with declarable facilities or activities submitted ADAAs for 2018. Of these, 21 States Parties met the deadline (2 October 2017) for Schedule 1 chemicals and facilities, and 43 States Parties met the deadline (1 November 2017) for Schedule 2 and 3 chemicals and facilities. In total, 45 States Parties met the deadline for submitting at least part of their required ADAAs for 2018, and two States Parties

15 EC-84/DG.8 (dated 17 January 2017) and EC-85/DG.17 (dated 16 June 2017).

submitted their required ADAAs for 2018 after the deadline but before 31 December 2017.

7.9 In line with EC-53/DG.11 (dated 17 June 2008), the Secretariat has continued to highlight to States Parties, through bilateral meetings, presentations at workshops, and annual reconciliation letters, the need to review and update their lists of declarable OCPFs. As a result of the response of States Parties to this request, as at 31 December 2017, 75 States Parties (93.7%) out of 80 had fully updated their lists of OCPFs in their ADPA for 2016, resulting in the update of 99.7% of the declarable OCPFs.

Transfer discrepancies

7.10 The Third Review Conference encouraged the cluster on chemical-industry and other Article VI issues to consult on ways to reconcile such discrepancies, and called upon States Parties and the Secretariat to continue working to identify the causes of discrepancies related to Article VI declarations, such as those relating to AND for Schedule 2 and 3 transfers (paragraph 9.93 and subparagraph 9.95(g) of RC-3/3*, dated 19 April 2013).

Actions taken by the Secretariat on transfer discrepancies

Transfer discrepancy module

7.11 In 2017, the Secretariat created a transfer discrepancy module in the VIS. This new module makes it possible to incorporate additional information submitted by the States Parties regarding identified causes of existing transfer discrepancies, with a view to resolving certain discrepancies (for example, end-of-year shipment, different Chemical Abstracts Service registry numbers used by exporting and importing States Parties, different national measures of implementation), as well as other relevant information to be considered by the respective importing or exporting State Party during the resolution process.

7.12 Having used this new module, the Secretariat modified the transfer discrepancy letters for ADPAs 2016 and 2015, reflecting additional information on certain transfer discrepancies to be considered by the respective importing or exporting State Party and excluding those transfer discrepancies resolved by States Parties. Also, the Secretariat provided a unique identification key ("TD key") for each transfer discrepancy in the transfer discrepancy letters, which allows further communication between the States Parties and with the Secretariat for the purpose of resolving discrepancies without mentioning classified information.

Cooperation with the World Customs Organization

7.13 In the framework of its cooperation with the World Customs Organization (WCO), in 2010 the Secretariat initiated the Harmonized System (HS) project to allocate to the most traded scheduled chemicals the international six-digit HS codes included in the WCO International Convention on the Harmonized Commodity Description and Coding Systems (HS Nomenclature). This project aims to identify globally traded scheduled chemicals and ultimately to assist States Parties in meeting their declaration

obligations under the Convention by submitting complete, accurate, and timely trade declarations.

7.14 The first phase of the HS project, which was focused on the 33 most traded scheduled chemicals, was successfully completed, resulting in the inclusion of these 33 chemicals in the 2017 edition of the HS Nomenclature, effective from 1 January 2017.

7.15 The second phase of the HS project is currently ongoing and aims to allocate unique HS codes to another 15 of the most traded scheduled chemicals in the next edition of the HS Nomenclature, to become effective in January 2022. This proposal was provisionally adopted during the 51st Session of the HS Review Subcommittee. The Secretariat continues its close cooperation with the Secretariat of the WCO, with a view to the successful completion of this second phase.

Update of Article VI-related OPCW tools

7.16 On 1 January 2017, the Secretariat issued the second revision of the OPCW Declarations Handbook 2013. This new version was made available in the six official languages of the OPCW. Even though no fundamental changes have been made to the content with regard to the previous version of the Declarations Handbook 2013, the latest text is more user friendly and convenient, with the inclusion of hyperlinks and additional tables of contents, in response to users' comments and suggestions.

Transfer discrepancies with respect to Schedule 2 and Schedule 3 chemicals

7.17 Despite the follow-up actions taken by the Secretariat, according to the ADPAs for 2016, there were still considerable Schedule 2 and 3 transfer discrepancies,[16] as was the case in previous years. In particular, approximately 67% (517) of the total number (767) of Schedule 2 and Schedule 3 transfers between States Parties showed transfer discrepancies, compared to 69% in 2015 and 68% in 2014. The ADPAs for 2016 show that the aforementioned 517 transfer discrepancies of Schedule 2 and 3 chemicals involved 85 States Parties. Out of these 517 transfer discrepancies, 147 were encountered for Schedule 2 chemicals and 370 for Schedule 3 chemicals.

Status of required declarations

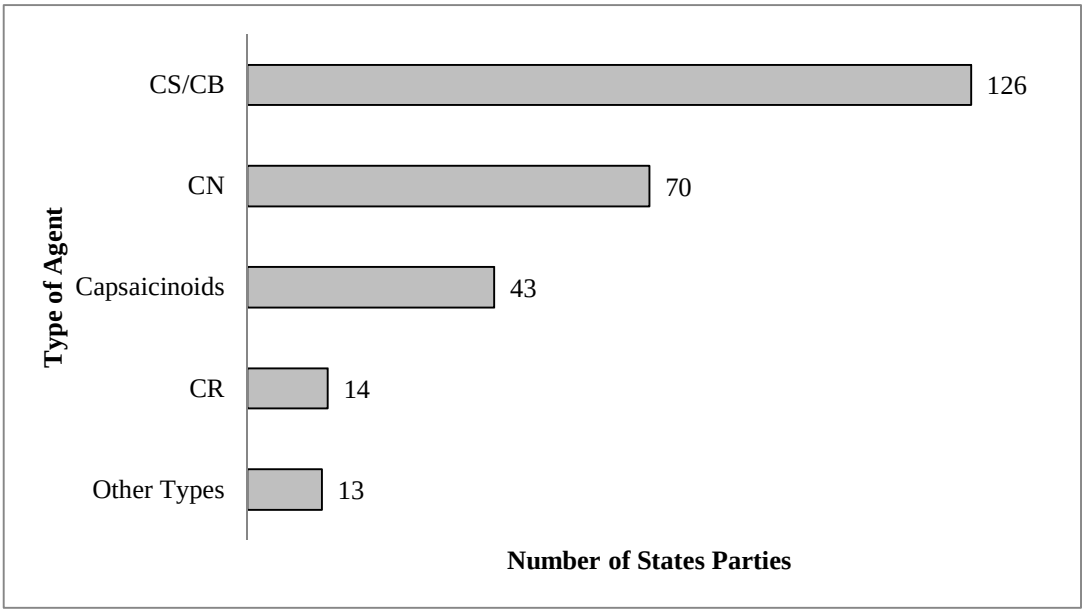
Riot control agents

7.18 In line with efforts undertaken in previous years to keep information received from States Parties in regard to chemicals held for riot control purposes up to date, the Secretariat takes every opportunity—such as bilateral consultations, follow-up correspondence, RFCs, reminder letters, etc.—to highlight to States Parties the need to update their declarations with respect to riot control agents (RCAs). The latest

[16] A transfer discrepancy arises for a transferred Schedule 2 or 3 chemical when the difference between the quantities declared by the importing and exporting States Parties is more than the relevant threshold specified for that chemical in paragraph 3 of Part VII or paragraph 3 of Part VIII of the Verification Annex.

information on the number of States Parties having declared RCAs, by agent type, is contained in Figure 2.

FIGURE 2: NUMBER OF STATES PARTIES HAVING DECLARED RIOT CONTROL AGENTS – BY TYPE OF AGENT



Handling of declarations

Clarification of declarations

7.19 In a 2004 decision (EC-36/DEC.7, dated 26 March 2004), the Council urged States Parties to expedite their responses to RFCs, established a 90-day deadline for responding to such requests, and recommended that the Secretariat take follow-up action in cases where it cannot determine whether or not a facility is inspectable.

7.20 The Secretariat did not issue any RFCs addressing inspectability-related issues in 2017. A small number of inspectability-related issues were identified during the reporting period, but in each case these issues were quickly resolved through discussions between the Secretariat and the States Parties concerned, without the need for RFCs to be issued. At the end of reporting period, there were no outstanding issues of this nature.

7.21 Clarification of the Syrian initial declaration continued throughout 2017 by the Declaration Assessment Team (DAT), which had conducted 19 rounds of consultations as at 31 December 2017. The preliminary results of the work of the DAT were reported to the Council at its Eighty-Fourth (EC-84/HP/DG.1, dated 2 March 2017) and Eighty-Sixth Sessions (EC-86/HP/DG.2, dated 3 October 2017 and Corr.1, dated 5 October 2017).

Processing of declarations

7.22 In 2017, the Secretariat received 1,046 incoming documents (in paper and electronic format), comprising 10,671 pages, from States Parties. These documents included

92 ADPA 2016, 47 ADAA 2018, and other verification-related documents. Five hundred and twenty-four documents (51%), comprising 2,886 pages (27%), were unclassified. However, the majority of the pages that were received continued to be classified: 144 documents (1,758 pages) were classified as "OPCW Highly Protected"; 222 documents (5,588 pages) as "OPCW Protected"; and 156 documents (439 pages) as "OPCW Restricted". In other words, 50% of the documents received (52% in 2016) and 73% of the pages (78% in 2016) were classified. The Secretariat continues to ensure that all documents are handled in strict compliance with the OPCW confidentiality regime. Meanwhile, the Secretariat encourages States Parties to evaluate carefully classification levels and to minimise the number of classified documents to the extent possible.

Electronic declarations

7.23 Fifty-nine States Parties provided their ADPAs for 2016 either solely or additionally in electronic format (as compared with 58 States Parties in the preceding year). A total of 36 States Parties submitted their original ADAAs for 2018 in electronic format (as compared with 37 States Parties the year before).

7.24 The Secretariat has continued to provide States Parties with support during their submission of electronic declarations using EDNA. In addition, eight representatives from 12 States Parties attended the EDNA training courses organised during the Twenty-Second Session of the Conference. The Secretariat also provided a basic course on electronic declarations as part of the "Training Course on National Authorities and Chemical Databases", organised by the Finnish Institute for Verification of the Chemical Weapons Convention (VERIFIN) in August 2017.

7.25 In 2017, the Secretariat successfully completed work on improvements to the EDNA tool and released an enhanced version (3.3.1) to States Parties, in February 2018. The new version includes a number of technical enhancements and corrections of previously reported software errors.

7.26 Also in 2017, the Secretariat observed a significant rise in interest amongst the States Parties in using the SIX system, which was made available to States Parties in July 2014 (S/1192/2014, dated 1 July 2014). As at 31 December 2017, a total of 79 users from 47 States Parties had registered for the system (as compared to 60 users from 38 States Parties in 2016). This increase is due to the promotion of the system during meetings with States Parties. The Secretariat conducted technical assistance visits to two States Parties in 2017 to support them in the setting up and configuration of the system. As reported to the States Parties in the Note by the Secretariat S/1525/2017/Rev.1 (dated 19 September 2017), there was an increase of 18% of declarations submitted using SIX compared to the previous year. The statistics also confirm one of the key benefits of the system, which allows the National Authorities to work on their declarations until a few days before the deadlines without having to take into account the time it takes for the classified information to be submitted to the Secretariat, often via the diplomatic pouch, which would take several weeks.

7.27 In August 2017, the Secretariat made available the translation of SIX e-learning modules into French and Spanish. The Secretariat also organised a dedicated training session for the SIX system during the Twenty-Second Session of the Conference.

Implementation by States Parties of the 2009 Conference decision on low-concentration limits for mixtures of chemicals containing Schedule 2A and 2A* chemicals

7.28 The Conference at its Fourteenth Session approved a decision (C-14/DEC.4, dated 2 December 2009) on guidelines regarding low-concentration limits for mixtures containing Schedule 2A and 2A* chemicals. The decision required States Parties to implement the guidelines as soon as practicable.

7.29 The decision also required the Secretariat to report in the Verification Implementation Report on the progress made by States Parties in implementing the decision, beginning not later than 1 January 2012. To gather information for this report, a total of seven surveys have been carried out: in 2011 (S/948/2011, dated 6 July 2011), in 2012 (S/1040/2012, dated 18 September 2012), in 2013 (S/1125/2013, dated 17 September 2013), in 2014 (S/1213/2014, dated 12 September 2014), in 2015 (S/1310/2015, dated 15 September 2015), in 2016 (S/1420/2016, dated 13 September 2016) , and in 2017 (S/1531/2017, dated 4 September 2017).

7.30 As at 31 December 2017, the overall response to the seven surveys showed that 61 of the 192 States Parties had responded to at least one survey. Of those 61 States Parties, 42 States Parties had implemented the decision and 19 had not.

7.31 In addition, one State Party (Pakistan) provided a submission under paragraph 5 of Article VII of the Convention in 2010; this submission indicated that the State Party had implemented this decision.

8. TECHNICAL SUPPORT FOR VERIFICATION ACTIVITIES

Sampling and analysis for verification purposes

8.1 The OPCW Laboratory calibrated, prepared, and dispatched gas-chromatography mass-spectrometry (GC-MS) instruments for 10 S&A missions in 2017. In each case, the instrumentation was fully certified by the Office of Internal Oversight (OIO).

8.2 Assistance and support were provided to the inspectors who are analytical chemists, in preparation for inspections involving S&A. This included acquiring the chemicals needed to emulate process streams and consultations on the methods used for analysing the results.

Official OPCW proficiency tests

8.3 Each year, the OPCW carries out proficiency tests for institutions that may wish to participate in the OPCW network of analytical laboratories. The year under review saw the completion of the Fortieth, the holding of the Forty-First, and the start of the Forty-Second OPCW Proficiency Tests. Additionally, the Second Biomedical

Proficiency Test has been conducted. The particulars of these tests are provided in Table 10.

TABLE 10: SUMMARY OF OPCW PROFICIENCY TESTS IN 2017

	Fortieth Proficiency Test	**Forty-First Proficiency Test**	**Forty-Second Proficiency Test**	**Second Biomedical Proficiency Test**
Sample Preparation	Dstl, United Kingdom	OPCW Laboratory	DGA, France	DSO, Singapore
Evaluation of Results	FOI, Sweden	DSO, Singapore	VERTOX, India	TNO, the Netherlands
Number of Nominations[17]	24	13		25
Results	14 As 4 Bs 1 C 1 D 1 F*[18] 1 trial test	5 As 5 B 0 Cs 1 D 1 F	Available in 2018	17 As 0 B 1 C 3 Ds 1 F 3 trial tests

8.4 At the end of the reporting period, there were 20 designated laboratories from 16 Member States, one of which had had its designation temporarily suspended, and 17 designated laboratories for biomedical sample analysis from 13 States Parties. Annex 2 shows the status of each designated laboratory as at 31 December 2017.

OPCW Central Analytical Database

8.5 The Validation Group met once in 2017 and technically approved 239 new analytical data. Data from the second Validation Group meeting of 2016 and the first (and only) Validation Group meeting of 2017 were processed and forwarded to the Council for its approval. The Council approved for the first time the inclusion of data of non-scheduled chemicals relevant to the Convention other than analytical derivatives for optional use in inspections and investigations of alleged use.

8.6 Seven hundred and eighty-four new analytical data were approved by the Council and were incorporated into the new version of the OCAD (V.20), which has been certified by the OIO and released to States Parties in January 2018. The OCAD (database/extracted analytical data) was issued 10 times for on-site inspections and once, upon special request, for a CWDF mission.

8.7 The contents of the OCAD are reflected in Table 11.

[17] Including sample preparation/evaluation laboratories.

[18] F* indicates a failure due to a reporting error; the laboratory does not lose designation.

TABLE 11: CONTENTS OF THE OPCW CENTRAL ANALYTICAL DATABASE

Number of Analytical Data in the OCAD (Last Five Versions)					
	V.16	**V.17**	**V.18**	**V.19**	**V.20**
MS[19]	5,243	5,376	5,412	5,672	6,070
IR[20]	981	989	988	999	1,015
NMR[21]	1,391	1,391	1,391	1,391	1,391
GC(RI)[22]	4,485	4,614	4,639	4,875	5,245
Number of Chemical Species in the OCAD[23]					
MS	3,898	4,003	4,022	4,225	4,566
IR	726	734	734	745	756
NMR	298	298	298	298	298
GC(RI)	3,740	3,866	3,878	4,089	4,439

OPCW Laboratory accreditation

8.8 Two internal audits, to cover three areas of activity in the OPCW Laboratory under accreditation, were conducted by the OIO in 2017, confirming that the Laboratory is following ISO[24] 17025 and 17043 standards.

8.9 The audit by the Dutch Raad voor Accreditatie (RvA) was carried out successfully in 2017. A few minor non-conformities were noted, all of which have been closed, and the accreditation has been continued.

Multipurpose training facility

8.10 A number of classes were conducted in the small multipurpose training facility that has been constructed within the Rijswijk facility. This space (approximately 38 m²) is equipped with four fume hoods, and has been equipped with four GC-MS systems and an LC-MS system. All equipment is on movable tables, enabling the space to be used for non-laboratory purposes.

8.11 Four courses were conducted for external participants in 2017:

(a) a basic analytical chemistry course for women chemists (one week for 10 participants);

(b) two courses on analysis of chemical warfare agent samples (five days for nine participants and five days for 10 participants); and

(c) an analysis course for analytical chemists from customs laboratories (one week for 11 participants).

19 MS = mass spectrometry.

20 IR = infrared spectroscopy.

21 NMR = nuclear magnetic resonance spectrometry.

22 GC(RI) = gas chromatography-retention indices.

23 Number of distinct chemicals represented in the OCAD.

24 ISO = International Organisation for Standardization.

8.12 Approximately four weeks of courses were provided to Secretariat staff on subjects that included the use of analytical instrumentation and S&A, as well as numerous safety classes.

8.13 At the end of 2017, a new high resolution Orbitrap mass spectrometer was ordered to enhance capabilities for the analysis of biomedical samples and environmental samples at trace level. The instrument became operational in May 2018.

Annex 2

LIST OF DESIGNATED OPCW LABORATORIES[25]

	State Party	Laboratory Name	Date of Designation
1.	Belgium	Defence Laboratories Department*	12 May 2004
2.	China	The Laboratory of Analytical Chemistry Research Institute of Chemical Defence	17 November 1998
3.	China	Laboratory of Toxicant Analysis Institute of Pharmacology and Toxicology Academy of Military Medical Sciences	14 September 2007
4.	France	DGA Maîtrise NRBC Département d'analyses chimiques	29 June 1999
5.	Germany	Bundeswehr Research Institute for Protective Technologies and NBC Protection*	29 June 1999
6.	Finland	Finnish Institute for Verification of the Chemical Weapons Convention (VERIFIN)	29 March 2017
7.	India	VERTOX Laboratory Defence Research and Development Establishment	18 April 2006
8.	Iran (Islamic Republic of)	Defense Chemical Research Laboratory*	3 August 2011
9.	Netherlands	TNO Defence, Security and Safety	17 November 1998
10.	Republic of Korea	Chemical Analysis Laboratory CB Department, Agency for Defence Development	3 August 2011
11.	Republic of Korea	Chemical, Biological and Radiological Defence Research Institute*	4 September 2012
12.	Russian Federation	Laboratory for Chemical and Analytical Control Military Research Centre*	4 August 2000
13.	Russian Federation	Central Chemical Weapons Destruction Analytical Laboratory of the Federal State Unitary Enterprise, "State Scientific Research Institute of Organic Chemistry And Technology"	15 April 2015
14.	Singapore	Verification Laboratory Defence Medical and Environmental Research Institute, DSO National Laboratories*	14 April 2003
15.	Spain	Laboratorio de Verificación de Armas Químicas (LAVEMA), Instituto Tecnológico, "La Marañosa"*	16 August 2004
16.	Sweden	FOI, CBRN Defence and Security Swedish Defence Research Agency	17 November 1998
17.	Switzerland	Spiez Laboratory Swiss NBC Defence Establishment	17 November 1998
18.	United Kingdom of Great Britain and Northern Ireland	Defence Science and Technology Laboratory Chemical and Biological Systems Porton Down	29 June 1999
19.	United States of America	Edgewood Chemical/ Biological Forensic Analytical Center	17 November 1998
20.	United States of America	Lawrence Livermore National Laboratory	14 April 2003

[25] An asterisk (*) next to the name of a laboratory means that its status as an OPCW designated laboratory remained suspended as at the end of the reporting period because of its performance in a recent official OPCW proficiency test. These laboratories will not be considered for receipt of samples taken for off-site analysis until they perform satisfactorily in future OPCW proficiency tests.

LIST OF DESIGNATED OPCW LABORATORIES (BIOMEDICAL ANALYSIS)

	State Party	Laboratory Name	Date of Designation
1.	Australia	Defence Science and Technology Group	1 August 2016
2.	China	The Laboratory of Analytical Chemistry Research Institute of Chemical Defence	1 August 2016
3.	China	Laboratory of Toxicant Analysis Institute of Pharmacology and Toxicology Academy of Military Medical Sciences	1 August 2016
4.	Finland	Finnish Institute for Verification of the Chemical Weapons (VERIFIN)	1 August 2016
5.	France	DGA Maîtrise NRBC Département d'analyses chimiques	1 August 2016
6.	Germany	Bundeswehr Research Institute for Protective Technologies and NBC Protection*	1 August 2016
7.	India	VERTOX Laboratory Defence Research and Development Establishment	1 August 2016
8.	Iran (Islamic Republic of)	Defense Chemical Research Laboratory*	1 August 2016
9.	Netherlands	TNO Defence, Security and Safety	1 August 2016
10.	Republic of Korea	Chemical Analysis Laboratory CB Department, Agency for Defence Development	1 August 2016
11.	Russian Federation	Laboratory for Chemical and Analytical Control Military Research Centre*	1 August 2016
12.	Russian Federation	Laboratory of Chemical Analytical Control and Biotesting, Research Institute of Hygiene, Occupational Pathology and Human Ecology (RIHOPHE)	1 August 2016
13.	Singapore	Verification Laboratory Defence Medical and Environmental Research Institute, DSO National Laboratories*	1 August 2016
14.	Sweden	FOI, CBRN Defence and Security Swedish Defence Research Agency	1 August 2016
15.	United Kingdom of Great Britain and Northern Ireland	Defence Science and Technology Laboratory Chemical and Biological Systems Porton Down	1 August 2016
16.	United States of America	Edgewood Chemical/ Biological Forensic Analytical Center	1 August 2016
17.	United States of America	Lawrence Livermore National Laboratory	1 August 2016

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