OPCW

Technical Secretariat

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NOTE BY THE DIRECTOR-GENERAL

SUMMARY OF VERIFICATION ACTIVITIES IN 2018

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 2018, 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 2018
Annex 2: List of Designated OPCW Laboratories

Annex 1

OPCW VERIFICATION SUMMARY FOR 2018

1. EXECUTIVE SUMMARY

Overview

1.1 As at 31 December 2018, there were 193 States Parties to the Chemical Weapons Convention (hereinafter "the Convention"). Declared chemical weapons had yet to be destroyed in one State Party. All declared chemical weapons production facilities (CWPFs) had been verified as either destroyed or converted for purposes not prohibited by the Convention. Nine 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 one State Party. According to declared information, 80 of the States Parties maintained at least one declarable facility pursuant to Article VI of the Convention.

1.2 There were one signatory State not Party[1] and three non-signatory States[2] for which no verification activities could be undertaken. One State, the State of Palestine, joined the Convention in 2018.

1.3 One of the 193 States Parties had not submitted its initial declaration pursuant to the Convention by the end of 2018. The Secretariat was not able to fulfil its verification tasks with regard to this State Party.

Verification operations

1.4 With regard to disarmament and non-proliferation, 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, or the activities in Iraq, the Secretariat performed 299 inspections/rotations in 2018, which accounted for 5,397 inspector days at 276 sites in 45 States Parties. This total consisted of 58 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 1,395 inspector days were spent in 2018 by the Secretariat on verification activities connected to the Syrian Arab Republic[3] or on verification-related activities connected to that State Party.

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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.

1.5 The overall number of inspector days related to chemical weapons, including those in the Syrian Arab Republic and Iraq, was 3,739 (55% of the total) in 2018, while 3,053 inspector days (45%) were spent pursuant to Article VI.

1.6 No challenge inspections (CIs) or investigations of alleged use (IAUs) were requested in 2018.

1.7 The Secretariat was able to meet the mandated inspection aims at all inspections carried out in 2018. An issue or issues requiring further attention (IRFAs) were registered in connection with 13 inspections (Article VI inspections).

Chemical weapons verification

1.8 In 2018, the Secretariat verified the destruction of 248.161 metric tonnes (MT) of chemical weapons, all of which were Category 1 chemical weapons. Destruction operations took place at three chemical weapons destruction facilities (CWDFs) on the territory of 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 69,936.531 MT, or 96.73%, of the declared chemical weapons stockpile of 72,304.290 MT had been verified as destroyed, including withdrawals from chemical weapons stocks for purposes not prohibited under the Convention.

(b) The United States of America had destroyed 91.47% of its declared quantities.

(c) All declared Category 2 and Category 3 chemical weapons had been destroyed before the reporting period.

1.9 By 31 December 2018, the Director-General had certified that all 97 CWPFs had either been destroyed (in 74 instances) or converted (in 23 instances). In 2018, the Secretariat carried out six inspections at six CWPFs in two States Parties, namely Iraq and the Syrian Arab Republic. Five of those inspections were carried out to verify the destruction of three CWPFs in Iraq and two CWPFs in the Syrian Arab Republic. One inspection was conducted at a converted CWPF in Iraq. The Secretariat conducted five visits to the destroyed CWPFs in the Syrian Arab Republic to verify the integrity of external and internal plugs installed at five such CWPFs and the technical condition of the remote monitoring system installed at four such CWPFs.

1.10 In 2018, the Secretariat conducted three inspections at three chemical weapons storage facilities (CWSFs) in two States Parties, namely, Libya and the United States of America, which amounted to 62 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 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 12 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, 18 States Parties had declared OCWs. Of these, 12 States Parties had declared OCWs produced between 1925 and 1946, and 11 States Parties had declared pre-1925 OCWs. The Secretariat conducted six OCW inspections (in Belgium, France, Germany, Italy, the Netherlands, and the United Kingdom of Great Britain and Northern Ireland) in 2018. 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 42 States Parties in 2018. This comprised 11 Schedule 1 facilities (42% of the inspectable facilities); 42 Schedule 2 plant sites (21%); 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 seven transfers of Schedule 1 chemicals between States Parties in 2018. Declarations received in 2018 indicated exports of 10,203 MT of Schedule 2 chemicals by 61 States Parties, and exports of 442,276 MT of Schedule 3 chemicals by 119 States Parties in 2017. There were six reported transfers of Schedule 1 chemicals and no reported transfers of Schedule 2 chemicals to States not Party in 2017.

Optimising the verification regime

1.16 In 2018, the Secretariat continued its efforts to maximise the number of sequential inspections as a way of saving resources. Fifteen of the 17 States Parties that received four or more industry inspections in 2018 concurred with the use of sequential inspections on their territories. In total, the Secretariat carried out 57 sequential inspections in 2018.

1.17 In the reporting period, sampling and analysis (S&A) was conducted during nine Article VI inspections: seven Schedule 2 inspections, and two OCPF inspections.

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 2018, a total of 94 users from 57 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 resulted in significant improvements in this area recently.

1.20 In total, the Secretariat processed 810 incoming documents, declarations, and other verification-related documents from States Parties in 2018, comprising 8,926 pages.

2. INSPECTIONS

2.1 During 2018, and not counting its verification activities connected with Iraq and the Syrian Arab Republic, the Secretariat conducted 299 inspections/rotations, which accounted for 5,397 inspector days at 276 sites in 45 States Parties. Inclusion of the number of inspector days spent on other operations connected with the Syrian Arab Republic gives the total number of inspector days for 2018 as 6,792. On average, 566 inspector days were undertaken each month.

2.2 Table 1 lists the number and types of inspections or rotations completed in 2018 and other summary statistics on inspection activities, while Table 2 shows the inspections completed between EIF of the Convention and 31 December 2018.

TABLE 1: INSPECTION ACTIVITIES IN 2018

Type of Facility	Inspectable or Operational Facilities[4]	Inspections Completed[5]	Facilities or Sites Inspected[4]	Inspector Days
Chemical Weapons-Related Inspections				
CWDF	3	26	3	1,864
CWSF	3	3	3	62
CWPF	26	11	11	141
OCW	7	6	6	57
ACW[6]	25	12	10	220
DHCW[7]	n/a	0	n/a	0
Totals	n/a	**58**	**33**	**2,344**
Inspector days connected with the Syrian Arab Republic				1,395
Total number of chemical weapons-related inspector days				**3,739**
Article VI Inspections				
Schedule 1	27	11	11	216
Schedule 2	189	42	42	984
Schedule 3	401	19	19	196
OCPF	4,234	169	169	1,657
Totals	**4,851**	**241**	**241**	**3,053**
Combined totals		**321**	**276**	**5,397**
Combined total of inspector days including days spent on operations connected with the Syrian Arab Republic				**6,792**

4 For CWDFs and ACW destruction sites (ACWDs): operational facilities in 2018; for CWSFs, CWPFs, OCWs, and ACWs: inspectable in 2018; for Article VI facilities: inspectable in 2018.

5 Inspections carried out in the Syrian Arab Republic 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.

6 Including ACWDs.

7 DHCW = destruction of hazardous chemical weapons.

TABLE 2: INSPECTION ACTIVITIES SINCE EIF[8]

Type of Facility	No. of Inspections Completed	No. of Facilities or Sites Inspected	No. of Inspector Days
Chemical weapons-related inspections			
CWDF	1,897	45	218,160
CWSF	510	37	15,213
CWPF	510	82	9,352
OCW	149	39	2,365
ACW	136	52	3,537
DHCW[9]/EDCW[10]	25	n/a	1,734
Totals	**3,227**	**255**	**250,361**
Inspector days connected with contingency operations			13,290
Total number of chemical-weapons related inspector days			**263,651**
Article VI inspections			
Schedule 1	303	38	5,261
Schedule 2	868	403	20,225
Schedule 3	488	404	7,371
OCPF	2,144	1,895	26,235
Totals	**3,803**	**2,740**	**59,092**
Combined totals	**7,030**	**2,993**	**309,453**
Combined total of inspector days, including those connected with contingency operations			**322,743**

Distribution of Article VI inspections

2.3 Forty-three States Parties received Article VI inspections in 2018. The distribution of Article VI inspections is shown in Table 3 below.

TABLE 3: DISTRIBUTION OF ARTICLE VI INSPECTIONS

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
No. of inspections	208	208	208	219	229	241	241	241	241	241
Inspected States Parties	38	38	39	44	46	50	43	50	48	43
No. of States Parties accounting for 50% of inspections	6	6	7	6	7	7	6	7	6	7

8 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.

9 DHCW = destruction of hazardous chemical weapons.

10 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	3	1%	1%
Asia	102	42%	58%
Eastern Europe	17	7%	4%
Latin America and the Caribbean	26	11%	5%
Western Europe and Other Countries	93	39%	32%

Challenge inspections (CI) and investigations of alleged use (IAU)

2.4 Neither CIs nor IAUs were requested in 2018, and no CI field exercises were conducted. Nevertheless, in February the Secretariat started its initial preparations for a full-spectrum CI field exercise. This included a site visit in Romania. In addition, a small team of inspectors participated in the Precise Response 2018 exercise in Canada, in which the deployment aspect and the chemical reconnaissance and sampling elements of CIs and IAUs were practised.

Inspector training

2.5 The Capacity-Building and Contingency-Planning Cell coordinated or delivered 1,640 training days. The training programme comprised 37 individual training courses, which were offered over 48 calendar weeks of training.

2.6 Fifty-four percent of the training held in 2018 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

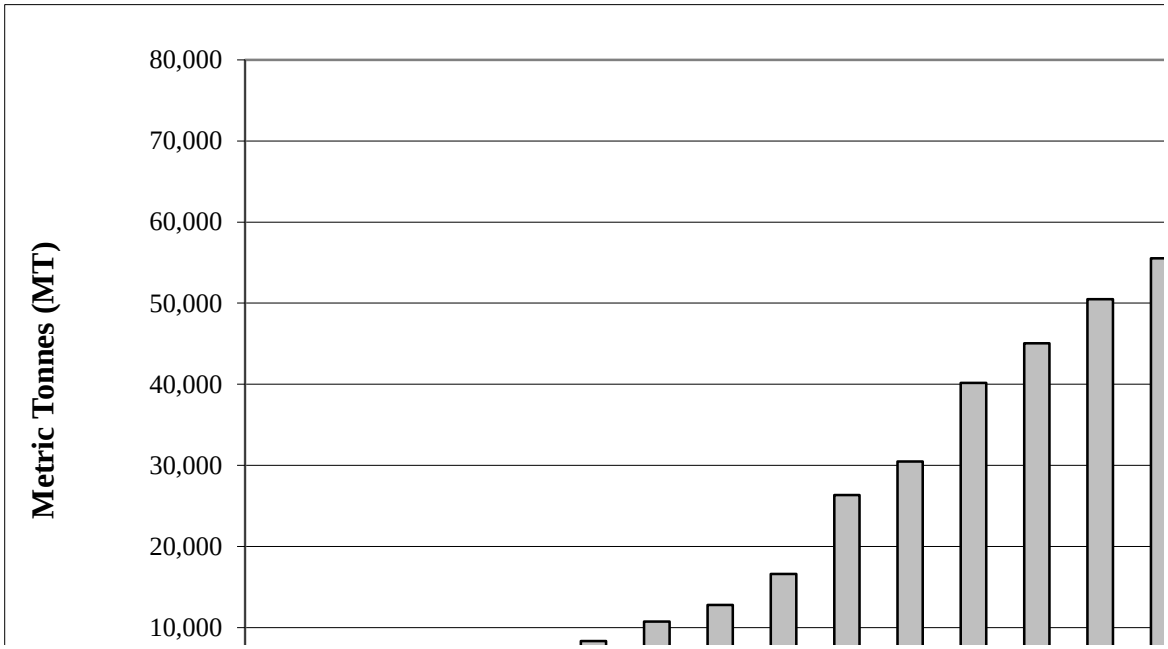
3.1 The Secretariat verifies the destruction of chemical weapons by maintaining a continuous presence at operating CWDFs, which allows for the monitoring of ongoing declared activities, either by direct physical observation or through the use of on-site instruments (including equipment specifically dedicated for use by inspectors) and by the review of relevant documentation. For the purpose of verification, inspectors are granted unimpeded access, so that they can monitor process parameters. Furthermore, sampling and analysis (S&A) activities allow 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 1,864 inspector days during 2018 (3,739 in 2017), while inspection efforts at CWSFs totalled 62 inspector days (163 in 2017). In addition, the number of inspector days spent on operations connected to the activities performed in the Syrian Arab Republic was 1,395 (1,627 in 2017).

3.3 In 2018, the Secretariat verified the destruction of 248.161 MT of Category 1 chemical weapons. This was a decrease compared to 2017, when the total verified destruction amounted to 1,936.032 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 69,936.531 MT, or 96.73%, of the declared chemical weapons (see Figure 1).

FIGURE 1: VERIFIED DESTRUCTION OF CHEMICAL WEAPONS: CUMULATIVE FROM 1998 TO 2018



3.5 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.

3.6 In 2018, three CWDFs were involved in the destruction of Category 1 chemical weapons. All three CWDFs were located in the United States of America. Two other CWDFs in the United States of America were in the construction and/or systemisation phases and were scheduled to start destruction operations in 2019. Table 5 lists the destruction facilities that were operating or under construction during 2018.

TABLE 5: CHEMICAL WEAPONS DESTRUCTION FACILITIES IN SERVICE OR UNDER CONSTRUCTION IN 2018

United States of America	1. Pueblo Chemical Agent-Destruction Pilot Plant (PCAPP) 2. Pueblo Chemical Agent Destruction Pilot Plant Explosive Destruction System (PCAPP-EDS) 3. Chemical Transfer Facility/Munitions Assessment Processing System (CTF/MAPS) 4. Prototype Detonation Test and Destruction Facility (PDTDF) 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)**

* Construction was complete; systemisation was ongoing at the end of 2018.

** Construction and systemisation was ongoing at the end of 2018. The initial visit was conducted in October 2018.

Progress in meeting destruction obligations

3.7 At the end of the review period, A State Party,[11] Albania, India, Libya, the Russian Federation, the Syrian Arab Republic, and the United States of America had declared a total of 72,304.290 MT of chemical weapons (70,493.587 MT of Category 1 and 1,810.703 MT of Category 2), contained in 8,270,577 munitions and containers. Approximately 96.73% of these chemical weapons—or a total of 69,936.531 MT (68,122.915 + 2.913 (see subparagraph 3.9(a)) MT of Category 1 and 1,810.703 MT of Category 2)—had been verified as destroyed as at 31 December 2018.[12] The possessor States Parties had also declared 417,833 items of Category 3 chemical weapons, which had been destroyed before 2018.

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.

3.9 As at 31 December 2018, 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:

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11 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".

12 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).

(a) Category 1 chemical weapons: The Secretariat had verified the destruction of 68,122.915 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, 65,860.248 MT were unitary chemical weapons (of which 248.161 MT were destroyed in 2018), 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 7,425,175 munitions and containers (of which 46,773 were destroyed in 2018), 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 2018), 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: 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: The Secretariat had verified the destruction of 417,833 items of Category 3 chemical weapons declared to the OPCW.

Iraq

3.10 The Secretariat verified the destruction by Iraq of its entire declared stockpile of chemical weapons remnants in February 2018.

Syrian Arab Republic

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

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

United States of America

3.13 The United States of America submitted two amendments to its initial declaration in 2018, thereby adjusting its chemical weapons inventory, declaring a new site at the

RCWDF, Dugway Proving Ground (DPG) in Utah, and adding recovered items to the RCWDF at Pine Bluff Arsenal in Arkansas.

3.14 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. In 2018, all required reports[13] were received by the Secretariat on time and in accordance with all provisions of the above-mentioned decision. In its latest progress report to the Conference, the United States of America informed the Secretariat about the progress in the destruction of remaining stockpiles of chemical weapons as at 31 October 2018, including measures being taken to accelerate the progress of destruction and activities at the two CWDFs being constructed or prepared for destruction operations (BGCAPP, scheduled to begin operations in 2019 and PCAPP, to continue as planned).

3.15 According to the annual report on destruction of chemical weapons for the period from 1 January to 31 December 2018, a total of 248.161 MT of Category 1 chemical weapons was destroyed at the PCAPP EDS, Colorado and the RCWDF DPG, Utah.

3.16 In its detailed annual plan for destruction for 2019, the United States of America informed the Secretariat that a total of 363.022 MT[14] of HD, H, GB, and unknown chemical agent (Category 1 chemical weapons) is planned to be destroyed at the PCAPP, BGCAPP, BGCAPP SDC, and RCWDF facilities.

3.17 In addition to those noted above, the United States of America made the following submissions in 2018:

(a) modifications to the facility agreement for the PCAPP EDS;

(b) a revision of the detailed facility information for the BGCAPP SDC;

(c) a technical supplement for the destruction of two chemical weapons at the RCWDF DPG;

(d) the final facility agreement and agreed detailed plan for verification for the BGCAPP SDC;

(e) a technical paper regarding the analysis of supercritical water oxidation effluent;

(f) the detailed facility information for the BGCAPP;

(g) the draft facility agreement for the BGCAPP; and

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13 EC-87/NAT.1, dated 26 February 2018; EC-88/NAT.3 (dated 18 June 2018; EC-89/NAT.4, dated 19 September 2018; C-23/NAT.1, dated 8 November 2018; and RC-4/NAT.1, dated 8 November 2018.

14 Rounding rules have been applied to this quantity.

(h) a letter with proposals to conduct the 2018 annual recovered chemical weapons destruction review in January 2019 at the United States point of entry.

3.18 As at 31 December 2018, the Secretariat had verified the destruction or withdrawal for purposes not prohibited under the Convention of 25,402.020 MT, or 91.47%, of the stockpile of Category 1 chemical weapons declared by the United States of America. This State Party has previously completed the destruction of its declared Category 2 chemical weapons (0.010 MT) and all 81,020 items of declared Category 3 chemical weapons.

3.19 In 2018, the Secretariat verified the destruction in the United States of America of 248.161 MT of Category 1 chemical weapons. This included an amount of 246.416 MT of HD sulfur mustard, contained in 46,406 items and destroyed at the PCAPP in Pueblo, Colorado; 1.740 MT of HD sulfur mustard, contained in 365 items and destroyed at the PCAPP EDS in Pueblo, Colorado; and 0.00590 MT of unknown chemical agent, contained in two items and destroyed at the RCWDF DPG, Utah.

3.20 In addition, parallel to the destruction operations, the Secretariat had verified the destruction of the removed energetic components at the PCAPP's non-contiguous SDC site at Anniston Army Depot, Alabama, and the hydrolysate at the PCAPP's non-contiguous Veolia treatment, storage, and disposal facility at Port Arthur, Texas.

3.21 The Secretariat conducted an initial visit to the BGCAPP SDC at Blue Grass, Kentucky, from 15 to 17 October 2018 and finalised the facility agreement and agreed detailed plan for verification. Subsequently, both documents were distributed to the members of the Council for consideration at its Ninetieth Session.

3.22 In early January 2019, the Secretariat conducted an inspection to review documents related to the destruction of items recovered and destroyed at the RCWDF DPG. Based on the review of destruction documentation, including video recordings, made available by the inspected State Party, the inspection team confirmed the destruction of 0.00590 MT of unknown agent contained in two M121 155-mm projectiles at the RCWDF DPG on September 2018.

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 2018, the Secretariat carried out six inspections at six CWPFs in two 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 2018, 97 CWPFs had been declared to the OPCW. The Director-General had certified the completion of destruction or conversion of all those facilities. Seventy-four had been certified as destroyed. Twenty-three had been converted for purposes not prohibited by the Convention.

4.3 During the reporting period, Iraq twice submitted to the Secretariat information regarding the destruction of remaining declared former CWPFs located at Falluja and Al-Muthana. Three inspections were conducted to verify the destruction of the three CWPFs in Iraq. In March 2018, Iraq submitted a national paper (EC-87/P/NAT.6, dated 27 February 2018) announcing that it had fulfilled its obligations under the Convention in regard to its declared facilities.

4.4 In August 2018, in accordance with paragraph 85 of Part V of the Verification Annex, the Secretariat inspected one CWPF in Iraq that had been converted for purposes not prohibited by the Convention.

4.5 In the Syrian Arab Republic, in 2018, the Secretariat conducted an inspection at two declared former CWPFs and verified their destruction. 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 2018, the Secretariat conducted six OCW inspections in six States Parties: Belgium, France, Germany, Italy, the Netherlands, and the United Kingdom of Great Britain and Northern Ireland and 12 ACW inspections in relation to chemical weapons abandoned by Japan on the territory of China. The discovery of 2,495 OCWs was declared by nine States Parties, while 2,616 OCWs were reported as destroyed.

5.4 In 2018, 9,089 items abandoned by Japan on the territory of China were reported as newly recovered and/or identified and 3,015 ACWs were reported as destroyed.

5.5 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 destruction facility at Haerbaling continued destruction operations in 2018. At the end of the period under review, there were over 19,000 ACWs in 23 storehouses, awaiting destruction. Compared to the previous year, the number of storehouses was reduced from 24 to 23.

Declared stocks

5.6 Between EIF of the Convention and 31 December 2018, 18 States Parties had declared OCWs. Of these, 12 States Parties declared 72,345 OCWs produced between 1925 and 1946, while 11 States Parties declared 71,582 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.

5.7 In 2018, OCWs and/or suspected OCW discoveries were reported to the Secretariat by Australia, Belgium, France, Germany, Italy, Japan, Latvia, the Netherlands, and the United Kingdom of Great Britain and Northern Ireland.

5.8 Based on information received, as at 31 December 2018, nine States Parties (Australia, Belgium, France, Germany, Italy, Japan, Latvia, the Netherlands, and the United Kingdom of Great Britain and Northern Ireland) still had OCWs or suspected OCWs on their territories and approximately 37,311 OCWs had yet to be destroyed or otherwise disposed of.

5.9 Also as at 31 December 2018, three States Parties had declared confirmed ACWs on their territories. In particular, 71,719 items of chemical weapons abandoned by Japan on the territory of China had been discovered at over 90 locations in 18 provinces in 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 5,341, of which 4,837 were subject to systematic verification (see Table 6). In 2018, the Secretariat verified the declared activities at 241 facilities and plant sites in 42 States Parties. The breakdown of inspections per verification regime remained the same as in 2017. Thus, 11 Schedule 1 facilities, 42 Schedule 2 plant sites, 19 Schedule 3 plant sites, and 169 OCPF plant sites were inspected in 2018.

TABLE 6: FACILITIES DECLARED PURSUANT TO ARTICLE VI AS AT 31 DECEMBER 2018

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	398	4,420	5,341
Declarable	26	446	381	4,417	5,270
Inspectable	26	208	357	4,264	4,837
States Parties	23	35	34	80	80

6.2 In 2018, an IRFA or IRFAs were recorded at 13 Article VI inspections, that is, at one Schedule 1 inspection, nine Schedule 2 inspections, and three OCPF inspections. Furthermore, during 180 inspections observations were marked "gather further information" (typically, declaration issues that do not amount to IRFAs, according to the Secretariat's internal practices). The large number of relevant observations by the Secretariat testifies to the importance of submitting declarations in a timely, complete, and accurate fashion; of strengthening controls of chemicals and facilities of relevance to the Convention; and of raising awareness of the risks associated with toxic chemicals.

6.3 In 2018, five OCPF inspections were carried out at plant sites that turned out to be non-inspectable (see paragraph 6.16 below).

Transfers of scheduled chemicals

Transfers of Schedule 1 chemicals according to annual declarations on past activities for 2017

6.4 Six transfers of Schedule 1 chemicals were declared by six States Parties in their annual declarations on past activities (ADPAs) for 2017. All these six transfers were notified by both the sending and receiving States Parties. The total amount of Schedule 1 chemicals transferred in 2017 was 0.29915 grams.

Transfers of Schedule 2 and Schedule 3 chemicals between States Parties in ADPAs for 2017

6.5 The ADPAs for 2017 that were received in 2018 indicated that a total of 61 States Parties transferred Schedule 2 chemicals in 2017, and that the total volume of this trade came to approximately 10,203 MT. Meanwhile, 119 States Parties transferred Schedule 3 chemicals in 2017, and the total volume of this trade was approximately 442,276 MT.

Transfers of Schedule 2 and 3 chemicals to States not Party in ADPAs for 2017

6.6 In the ADPAs for 2017 received in 2018, there were no reported transfers of Schedule 2 chemicals to States not Party in 2017. Eight States Parties exported four Schedule 3 chemicals to three States not Party.

Optimisation of the Article VI inspection regime

6.7 Throughout 2018, 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 2017. 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 Throughout 2018, 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, 15 of the 17 States Parties that received four or more industry inspections in 2018 have advised the Secretariat that they concur with the use of sequential inspections on their territory. Out of the 57 sequential inspections that took place in 2018, 47 were consecutive inspections in a single country, while 10 allowed inspectors to conduct inspections in two States Parties during one mission. **As a result of performing those 57 sequential inspections, the Secretariat saved over EUR 432,000 in travel costs.**

6.11 In 2018, one fewer sequential inspection was carried out than in 2017. This was due to the location of the sites selected and the distribution over the States Parties.

TABLE 7: SEQUENTIAL INSPECTIONS

Sequential Inspections (On a Year-by-Year Basis)											
2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
26	37	42	40	47	48	57	51	59	54	58	57

6.12 The following five States Parties with inspectable Schedule 3 and/or OCPF plant sites had not yet agreed to the conduct of sequential inspections in some form: Azerbaijan, Georgia, Pakistan, the Russian Federation, and Viet Nam. The Secretariat continues to engage with them, with a view to finding a solution that would result in further optimisation of the Secretariat's resources.

Sampling and analysis

6.13 The Secretariat has continued to conduct Schedule 2 inspections using S&A on a routine basis, reaching 113 such missions in 26 States Parties by the end of 2018 (see Table 8).

6.14 In 2018, there were nine inspections involving S&A, seven 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 113 (see Table 8), 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 2018, 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 Schedule 2 S&A inspections no longer have inspectable Schedule 2 sites.

TABLE 8: SAMPLING AND ANALYSIS AT ARTICLE VI PLANT SITES

Number of Inspections with S&A													
2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**Total**
2	9	9	9	9	8	9	8	9	11	11	10	9	113[15]

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. The Council decision (EC-86/DEC.10, 13 October 2017) to include the derivatives of non-scheduled chemicals was an important step towards improving the OCAD.

Inspections at non-inspectable Article VI sites

6.17 In 2018, a total of five Article VI inspections were carried out at sites that proved to be non-inspectable; all of those were OCPF sites. This number is lower than the number recorded in 2017, 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**	**2018**
14	6	5	7	8	7	4	9	5

Secretariat support to consultations on industry and other Article VI issues

6.18 Three informal consultations were conducted in 2018. States Parties undertook consultations on a number of outstanding verification-related topics, including evaluation of the results of the site selection methodology in 2017; inspection frequency and site selection parameters; a summary of industry verification in 2017; the future of Article VI implementation; an update on transfer discrepancies; presentations by States Parties on their findings regarding the use of bio-mediated processes in their industries; a summary of open issues from the Third Review

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

Conference; a summary of the report of the Scientific Advisory Board to the Fourth Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention (hereinafter "the Fourth Review Conference"); a summary of International Council of Chemical Associations (ICCA) presentation to the Open-Ended Working Group on Preparations for the Fourth Review Conference and the ICCA position paper; and a follow-up to the list of Article VI regular and outstanding issues on the agenda of the Council.

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

Progress and status

7.2 By the end of 2018, 192 of the 193 States Parties had submitted their full initial declarations. During 2018, the Secretariat did not receive the pending initial declaration in accordance with Article III and Article VI of the Convention from 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

7.3 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

7.4 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[16] were provided in 2018 by the Secretariat. In addition, one status report focusing on ADPAs for 2017 and ADAAs for 2019 as at 31 December 2018 has been published in 2019 (EC-90/DG.6, dated 16 January 2019).

16 EC-87/DG.8, dated 12 January 2018 and EC-88/DG.14, dated 20 June 2018.

Progress and status

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 2018, the Secretariat provided tailor-made technical assistance to those States Parties in the framework of several bilateral meetings and consultations.

7.6 Overall, 90 States Parties with declarable facilities or activities submitted ADPAs for 2017. Of these, 75 States Parties met the deadline of 31 March 2018 for submitting at least part of their required declarations, and 15 States Parties submitted their ADPAs for 2017 after the deadline.

7.7 In 2018, 46 States Parties with declarable facilities or activities submitted ADAAs for 2019—44 by the deadline. Regarding ADAAs for 2019 for Schedule 1 chemicals and facilities, 22 out of 23 States Parties met the deadline (2 October 2018); and regarding ADAAs for 2019 for Schedule 2 and 3 chemicals and facilities, 41 out of 43 States Parties met the deadline (1 November 2018).

7.8 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 2018, 74 out of 80 States Parties (92.5%) had fully updated their lists of OCPFs in their ADPA for 2017, resulting in the update of 4,301 out of 4,417 declarable OCPFs (97.4%).

Transfer discrepancies

7.9 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

7.10 In 2017, the Secretariat created a transfer discrepancy module in the Verification Information System (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 (CAS) 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.

7.11 Having used this new module, the Secretariat modified the transfer discrepancy letters for ADPAs 2017 and 2016, 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

7.12 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.

7.13 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.

7.14 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 WCO 51st Session of the HS Review Subcommittee, in January 2017. 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

7.15 In November 2018, the Secretariat released updated OPCW tools for the identification of scheduled chemicals: the Handbook on Chemicals and the online scheduled chemicals database. These new versions of the tools include additional scheduled chemicals declared by the States Parties between 2014 and 2017, as well as the scheduled chemicals registered by the CAS in the same period. The Handbook on Chemicals contains a total of 2,060 scheduled chemicals and the online scheduled chemicals database covers up to 34,500 scheduled chemicals.

Transfer discrepancies with respect to Schedule 2 and Schedule 3 chemicals

7.16 Despite the follow-up actions taken by the Secretariat, according to the ADPAs for 2017, there were still considerable Schedule 2 and 3 transfer discrepancies,[17] as was the case in previous years. In particular, approximately 66% (546) of the total number

[17] 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.

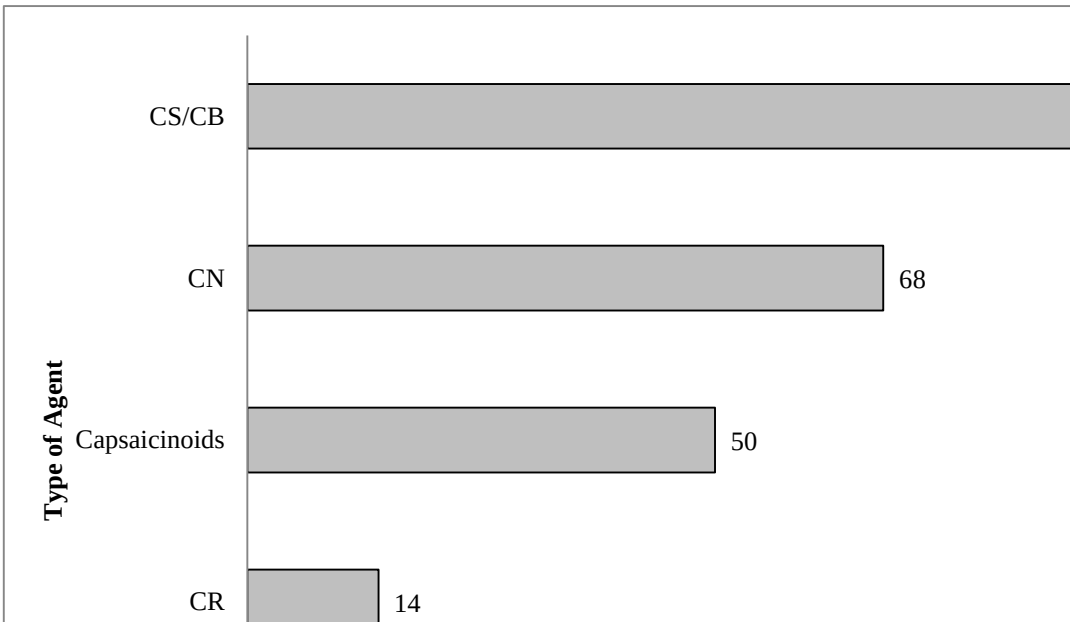
(829) of Schedule 2 and Schedule 3 transfers above the threshold between States Parties showed transfer discrepancies. The ADPAs for 2017 show that the aforementioned 546 transfer discrepancies of Schedule 2 and 3 chemicals involved 83 States Parties. Out of these 546 transfer discrepancies, 163 were encountered for Schedule 2 chemicals and 383 for Schedule 3 chemicals.

Status of required declarations

Riot control agents

7.17 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 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

7.18 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.

7.19 The Secretariat did not issue any RFCs addressing inspectability-related issues in 2018. 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 the reporting period, there were no outstanding issues of this nature.

7.20 Clarification of the Syrian initial declaration continued throughout 2018 by the Declaration Assessment Team (DAT), which had conducted 19 rounds of consultations as at 31 December 2018. The preliminary results of the work of the DAT during 2018 were reported to the Council at its Eighty-Seventh (EC-87/HP/DG.1, dated 2 March 2018), Eighty-Eighth (EC-88/HP/DG.2, dated 28 June 2018), and Eighty-Ninth Sessions (EC-89/HP/DG.2, dated 1 October 2018).

Processing of declarations

7.21 In 2018, the Secretariat received 810 incoming documents (in paper and electronic format), comprising 8,926 pages, from States Parties. These documents included 90 ADPA for 2017, 46 ADAA for 2019, and other verification-related documents. Three hundred and fifty documents (43.20%), comprising 2,028 pages (22.72%), were unclassified. However, the majority of the pages that were received continued to be classified: 137 documents (1,068 pages) were classified as "OPCW Highly Protected"; 175 documents (5,470 pages) as "OPCW Protected"; and 148 documents (360 pages) as "OPCW Restricted". In other words, 56.78% of the documents received (50% in 2017) and 77.27% of the pages (73% in 2017) 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

7.22 Fifty-eight States Parties provided their ADPAs for 2017 either solely or additionally in electronic format (as compared with 59 States Parties in the preceding year). A total of 38 States Parties submitted their original ADAAs for 2019 in electronic format (as compared with 36 States Parties the year before).

7.23 The Secretariat has continued to provide States Parties with support during their submission of electronic declarations using EDNA. 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 2018. In addition, EDNA training was provided during the general training course on the Convention for the personnel of National Authorities and relevant stakeholders in November 2018.

7.24 In September 2018, the Secretariat started the development of the next version of EDNA, the Electronic Declaration Information System (EDIS). The EDIS will further strengthen the verification regime by bringing usability enhancements and new functionalities to the declaration preparation and submission process. The first release of the system is scheduled for 2019 and will include all of the existing EDNA features, with the addition of a new user management module for distributed use of the system and declarations of RCAs under Article III.

7.25 In 2018, the Secretariat again 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). 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 2018, a total of 94 users from 57 States Parties had registered for the system (as compared to 79 users from 47 States Parties in 2017). This increase is due to the promotion of the system during meetings with States Parties. The Secretariat conducted technical assistance visits to five States Parties in 2018 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/1662/2018 (dated 21 August 2018), there was an increase of 39% 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.

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

7.26 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.

7.27 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 eight 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); in 2017 (S/1531/2017, dated 4 September 2017); and in 2018 (S1668/2018, dated 3 September 2018).

7.28 As at 31 December 2018, the overall response to the eight surveys showed that 61 of the 193 States Parties had responded to at least one survey. Of those 61 States Parties, 43 States Parties had implemented the decision and 18 had not yet done so.

7.29 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 nine S&A missions in 2018. 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 Forty-Second, the holding of the Forty-Third, and the start of the Forty-Fourth OPCW Proficiency Tests. Additionally, the Third Biomedical Proficiency Test has been conducted. The particulars of these tests are provided in Table 10.

TABLE 10: SUMMARY OF OPCW PROFICIENCY TESTS IN 2018

	Forty-Second Proficiency Test	**Forty-Third Proficiency Test**	**Forty-Fourth Proficiency Test**	**Third Biomedical Proficiency Test**
Sample Preparation	Direction générale de l'armement, France	OPCW Laboratory	Agency for Defence Development, Republic of Korea	OPCW Laboratory
Evaluation of Results	VERTOX, India	Defense Chemical Research Laboratory, Islamic Republic of Iran	Lawrence Livermore National Laboratory, United States of America	Centers for Disease Control and Prevention, United States of America
Number of Nominations[18]	16	9		22
Results	9 As 3 Bs 3 Cs 0 Ds 1 F 0 trial test	3 As 3 Bs 1 Cs 0 Ds 2 F s 0 trial test	Available in 2019	13 As 0 B 0 C 4 Ds 1 F 3 trial tests 1 withdrew

8.4 At the end of the reporting period, there were 22 designated laboratories from 18 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 2018.

OPCW Central Analytical Database

8.5 The Validation Group met twice in 2018 and technically approved 403 new analytical data. Data from the first Validation Group meeting of 2018 were processed and forwarded to the Council for its approval. The Council approved for the first time the electronic nuclear magnetic resonance (NMR) data and continued inclusion of data of non-scheduled chemicals relevant to the Convention other than analytical derivatives for optional use in inspections and IAUs.

8.6 One hundred and twenty-six new analytical data were approved by the Council and were incorporated into the new version of the OCAD (V.21), which has been certified by the OIO and released to States Parties in January 2019. The OCAD (database/extracted analytical data) was issued nine times for on-site inspections in 2018.

18 Including sample preparation/evaluation laboratories.

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

TABLE 11: CONTENTS OF THE OPCW CENTRAL ANALYTICAL DATABASE

Number of Analytical Data in the OCAD (Last Five Versions)					
	V.17	**V.18**	**V.19**	**V.20**	**V.21**
MS[19]	5,376	5,412	5,672	6,070	6,117
IR[20]	989	988	999	1,015	1,033
NMR	1,391	1,391	1,391	1,391	1,392
GC(RI)[21]	4,614	4,639	4,875	5,245	5,292
Number of Chemical Species in the OCAD[22]					
MS	4,003	4,022	4,225	4,566	4,602
IR	734	734	745	756	775
NMR	298	298	298	298	299
GC(RI)	3,866	3,878	4,089	4,439	4,482

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 2018, confirming that the Laboratory is following ISO[23] 17025 and 17043 standards.

8.9 The Dutch Raad voor Accreditatie (RvA) was satisfied with the Secretariat's quality system and lowered the surveillance intensity. Therefore, no external audit took place in 2018.

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[24] system. All equipment is on movable tables, enabling the space to be used for non-laboratory purposes.

8.11 Five courses were conducted for external participants in 2018:

(a) a course on analytical skills development for participants from Iraq (one week for six participants);

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

19 MS = mass spectrometry.

20 IR = infrared spectroscopy.

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

22 Number of distinct chemicals represented in the OCAD.

23 ISO = International Organisation for Standardization.

24 LC = liquid chromatography.

(c) a course for analytical chemists from laboratories supporting customs services (one week for 9 participants);

(d) a course on analytical skills development for participants from Algeria (one week for three participants); and

(e) a course on basic proficiency testing (one week for five participants).

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.

Annex 2

LIST OF DESIGNATED OPCW LABORATORIES[25]

	State Party	Laboratory Name	Date of Designation
1.	Belgium	Belgian Defence Laboratories Department (DLD)	12 May 2004
2.	China	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.	Finland	Finnish Institute for Verification of the Chemical Weapons Convention (VERIFIN)	29 March 2017
5.	France	DGA Maîtrise NRBC Département d'analyses chimiques	29 June 1999
6.	Germany	Bundeswehr Research Institute for Protective Technologies and NBC Protection	29 June 1999
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.	Pakistan	Analytical Laboratory, Defence Science Technology Organisation	18 April 2018
11.	Republic of Korea	Chemical Analysis Laboratory CB Department, Agency for Defence Development	3 August 2011
12.	Republic of Korea	Chemical, Biological and Radiological Defence Research Institute*	4 September 2012
13.	Romania	Scientific Research Center for CBRN Defense and Ecology, Chemical Analysis and Special Synthesis Laboratory	29 August 2018
14.	Russian Federation	Laboratory for Chemical and Analytical Control Military Research Centre	4 August 2000
15.	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
16.	Singapore	Verification Laboratory, Defence Medical and Environmental Research Institute, DSO National Laboratories	14 April 2003
17.	Spain	Laboratorio de Verificación de Armas Químicas (LAVEMA), Instituto Tecnológico, "La Marañosa"	16 August 2004

[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.

	State Party	Laboratory Name	Date of Designation
18.	Sweden	FOI, CBRN Defence and Security, Swedish Defence Research Agency	17 November 1998
19.	Switzerland	Spiez Laboratory, Swiss NBC Defence Establishment	17 November 1998
20.	United Kingdom of Great Britain and Northern Ireland	Defence Science and Technology Laboratory, Porton Down	29 June 1999
21.	United States of America	Edgewood Chemical / Biological Forensic Analytical Center	17 November 1998
22.	United States of America	Lawrence Livermore National Laboratory	14 April 2003

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	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 Institute of Pharmacology and Toxicology	1 August 2016
7.	India	VERTOX Laboratory, Defence Research and Development Establishment	1 August 2016
8.	Netherlands	TNO Defence, Security and Safety	1 August 2016
9.	Republic of Korea	Chemical Analysis Laboratory, CB Department, Agency for Defence Development	1 August 2016
10.	Russian Federation	Laboratory for Chemical and Analytical Control Military Research Centre	1 August 2016
11.	Russian Federation	Laboratory of Chemical Analytical Control and Biotesting, Research Institute of Hygiene, Occupational Pathology and Human Ecology (RIHOPHE)	1 August 2016
12.	Singapore	Verification Laboratory, Defence Medical and Environmental Research Institute, DSO National Laboratories	1 August 2016
13.	Sweden	FOI, CBRN Defence and Security, Swedish Defence Research Agency	1 August 2016
14.	United Kingdom of Great Britain and Northern Ireland	Defence Science and Technology Laboratory, Porton Down	1 August 2016
15.	United States of America	Centers for Disease Control and Prevention	11 July 2017

	State Party	Laboratory Name	Date of Designation
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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