

CONFERENCE ON DISARMAMENT

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CHEMICAL WEAPONS

WORKING PAPERS OF THE

Ad Hoc COMMITTEE ON CHEMICAL WEAPONS 1986 - 1987



CD / CW / WP

COMPILED BY:

ARMS CONTROL AND DISARMAMENT DIVISION OF

THE DEPARTMENT OF EXTERNAL AFFAIRS

OTTAWA, CANADA

FEBRUARY 1988

CONFERENCE ON DISARMAMENT

CHEMICAL WEAPONS

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PREFACE

This volume covers working papers tabled in the *Ad Hoc* Committee on Chemical Weapons (ANCCW) during 1986 and 1987. It is compiled to facilitate discussions and research on the issue of Chemical Weapons.

Not all numbered working papers from the ANCCW have been reproduced here. Some papers were also tabled in plenary and given a CD/ number. These can be found in the relevant annual volumes for plenary official documents (WP). Other papers were of such transitory importance (relating mainly to procedural matters) that they have not been reproduced.

Note that the alphabetical listing while the documents are arranged in numerical order by CD/CW/WP number.

CD / CW / WP

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OTTAWA, CANADA

FEBRUARY 1988

43 242-690

CHEMICAL WEAPONS WORKING PAPERS
Submitted to AHCCW of the UN 1986-1987
Chronological Index

Serial	Reference	Country	Description	Date
<u>1986</u>				
327	CD/648	Bulgaria/ Romania	Letter Dated 15 January 1986 to the President of the Conference of Disarmament by the Permanent Representative of the People's Republic of Bulgaria and the Government of Romania to the Secretary General of the United Nations Appeal by the Government of Romania, President of the Conference, President of the Conference	15.1.86

PREFACE

CD/CW/WP

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Note that the index is a chronological listing while the documents themselves are arranged in numerical order by CD/CW/WP number.

337.1	WP.130	China	Working Paper on Calculation Elimination of Quantity	11.4.86
339.1	CD/CW/ WP.131	Australia	Review to Ensure Non-Diversification of Super-Toxic Lethal Chemicals Possible Approaches	11.4.87
340	CD/685	USA	Amendment to CD/300, Draft Convention on the Prohibition of Chemical Weapons (also issued as CD/CW/ WP.132)	11.4.86
341.1	CD/CW/ WP.134	Yugoslavia	Working Paper	11.4.86
342.1	CD/CW/ WP.133	Netherlands	An Approach to the Verification of Non-Proliferation - Substances Subject to Monitoring in a CW Convention	11.4.86

PREFACE

CD/CW/WE

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CHEMICAL WEAPONS WORKING PAPERS
Submitted to AHCCW of the CD 1986-1987
Chronological Index

Serial	Reference	Country	Description	Date
<u>1986</u>				
327	CD/648	Bulgaria/ Romania	Letter Dated 10 January 1986 to the President of the Conference on Disarmament by the Permanent Representative of the People's Republic of Bulgaria and the Chargé d'Affaires a.i. of the Socialist Republic of Romania Transmitting the Declaration Appeal by Nicolae Ceausescu, President of the Socialist Republic of Romania and Tidor Zhivkov, President of the State Council of the People's Republic of Bulgaria, Concerning the Creation of a Chemical-Weapon-Free Zone in the Balkans (also issued as CD/CW/WP.128)	10.1.86
334.1	CD/CW/ WP.129 and Rev. 1	Chairman AHCCW	Outline for the Organization of Work during the 1986 Session (Not Reproduced)	17.2.86
337.1	CD/CW/ WP.130	China	Working Paper on Calculation of Elimination of Quantity	10.3.86
339.1	CD/CW/ WP.131	Australia	Regimes to Ensure Non-Diversion of Super-Toxic Lethal Chemicals: Possible Approaches	24.3.87
340	CD/685	USA	Amendment to CD/500, Draft Convention on the Prohibition of Chemical Weapons (also issued as CD/CW/WP.132)	3.4.86
341.1	CD/CW/ WP.134	Yugoslavia	Working Paper	9.4.86
342.1	CD/CW/ WP.133	Netherlands	An Approach to the Verification of Non-Production - Substances Subject to Monitoring in a CW Convention	11.4.86

Serial	Reference	Country	Description	Date
342.1	CD/CW/ WP.136	GDR/Poland	Working Paper on Article IX	18.4.86
342.2	CD/CW/ WP.137	AHCCW	Report of the Chairman of Working Group C	18.4.86
342.3	CD/CW/ WP.138	AHCCW	Report of the Chairman of Working Group A	22.4.86
342.4	CD/CW/ WP.139	AHCCW	Report of the Chairman of Working Group B	23.4.86
344	CD/697	Belgium	Order of Elimination of Chemical Weapons Stocks and Method for Comparing These Stocks: Elements of A Possible Solution (also issued as CD/CW/WP.135 and Corr. 1)	20.5.86
345	CD/698	Australia	Verification of Non-Production of Chemical Weapons and Their Precursors by the Civilian Chemical Industry: Trial Inspection of an Australian Chemical Facility (also issued as CD/CW/WP.140)	4.6.86
346.1	CD/CW/ WP.141	Netherlands	Verification of Non-Production of Chemical Weapons: Scenario for an Experimental Inspection	10.6.86
346.2	CD/CW/ WP.142	Netherlands	Verification of Non-Production of Chemical Weapons: Observations on the Scenario for an Experimental Inspection as Laid Down in CD/CW/WP.141	13.6.86
351.1	CD/CW/ WP.144	Netherlands	Verification of Phosphorus-Containing Nerve Agents in Waste Water	24.6.86
351.2	CD/CW/ WP.143	Netherlands	Verification of Non-Production of Chemical Weapons: Existing Arrangements for Monitoring the Civil Chemical Industry in the Netherlands	1.7.86

Serial Reference	Country	Description	Date
352	USA	Letter Dated 9 July 1986 from the United States Representative to the Conference on Disarmament Transmitting a Document Entitled "Chemical Stockpile Disposal Program" Prepared by Aberdeen Proving Ground, MD (also issued as CD/CW/WP.145)	9.7.86
353	Japan	Some Quantitative Aspects of a Chemical Weapons Convention (also issued as CD/CW/WP.146)	14.7.86
355.1	USA	Movement of Chemical Weapons Stocks	25.7.86
355.2	Cuba	Definition of the Term "Capacity"	29.7.86
355.3	AHCCW	Report of Working Group C	1.8.86
355.4	AHCCW	Report of Working Group A	6.8.86
355.5	AHCCW	Report of Working Group B	6.8.86
355.6	AHCCW	Draft Report of the <u>Ad Hoc</u> Committee on Chemical Weapons to the Conference on Disarmament (Not Reproduced)	14.8.86
<u>1987</u>			
358.1	AHCCW	Draft Report of the <u>Ad Hoc</u> Committee on Chemical Weapons to the Conference on Disarmament on its Work During the Period 12-30 January 1987 (Not Reproduced)	22.1.87
360.1	Chairman AHCCW	Outline for the Organization and Programme of Work of the <u>Ad Hoc</u> Committee on Chemical Weapons (Not Reproduced)	9.2.87

Serial	Reference	Country	Description	Date
360.2	CD/CW/ WP.155	Australia	Regimes for Monitoring Super-toxic Lethal Chemicals made for Pharmaceutical Purposes	9.2.87
361.1	CD/CW/ WP.156	Chairman AHCCW	Issues Pertaining to Chemical Weapons Stocks - Cluster I: Suggestions by the Chairman of the <u>Ad Hoc</u> Committee	18.2.87
361.2	CD/CW/ WP.157	Peru	Some Comments on Articles X, XI, and XII of the Draft Convention on Chemical Weapons (CD/734)	26.2.87
361.3	CD/CW/ WP.158	AHCCW	Interim Report of the Co-ordinator on Issues Pertaining to Chemical Weapons Stocks (Cluster I)	4.3.87
361.4	CD/CW/ WP.159	FRG	Chemical Weapons Convention: Collection and Forwarding of Data and Other Information to Verify the Non-production of Chemical Weapons	19.3.87
361.5	CD/CW/ WP.160	AHCCW	Cluster I: Issues Pertaining to Chemical Weapons Stocks. Revised Attachment (E) to CD/CW/WP.158. Proposed New Section VI of Annex IV	20.3.87
363.1	CD/CW/ WP.161	AHCCW	Interim Report of the Co-ordinator on Issues Pertaining to Non-production of Chemical Weapons (Cluster III)	30.3.87
363.2	CD/CW/ WP.162	Mongolia	Working Paper: Order of Elimination of Chemical Weapons Stocks	6.4.87
366.1	CD/CW/ WP.163	AHCCW	Cluster III: Proposal by the Item Co-ordinator	13.4.87
366.2	CD/CW/ WP.164	AHCCW	Interim Report of the Co-ordinator on Issues Pertaining to the Organization and Functions of the Consultative Committee and its Organs (Cluster IV)	22.4.87

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367	CD/752	Pakistan	Proposal on Article X (Assistance) of the Draft Convention on Chemical Weapons (also issued as CD/CW/WP.165)	23.4.87
367.1	CD/CW/WP.166	GDR	Working Paper: Definition of Thresholds	24.4.87
367.2	CD/CW/WP.167	AHCCW	Current Stage of the Negotiations on a Chemical Weapons Convention (Not Reproduced)	27.4.87
367.3	CD/CW/WP.168	AHCCW	Interim Report of the Co-ordinator on Issues Pertaining to Chemical Weapons Production Facilities (Cluster II)	27.4.87
369.1	CD/CW/WP.169	Spain	Elimination of Super-toxic Lethal Chemicals (Annex IV)	15.6.87
374.1	CD/CW/WP.170	Bulgaria	Possible Approach to Determine the Frequency of Inspections of Facilities Handling Schedule [2] Chemicals	2.7.87
375.1	CD/CW/WP.171	USA	Declaration of Chemical Production Capacity	13.7.87
377.1	CD/CW/WP.172	AHCCW	Interim Report of the Co-ordinator in Issues Pertaining to Non-production of Chemical Weapons (Cluster III)	21.7.87
377.2	CD/CW/WP.173	Canada/ Norway	Explanation of the Origins of the Proposed Annex to Article IX (CD/766) in Relation to the Rolling Text (CD/CW/WP.167)	24.7.87
378.1	CD/CW/WP.174	Japan	Verification of Non-production under a Chemical Weapons Convention	30.7.87
378.2	CD/CW/WP.175	AHCCW	Report of the Co-ordinator on Issues Pertaining to the Organization and Functions of the Consultative Committee and its Organs (Cluster IV)	31.7.87

Serial	Reference	Country	Description	Date
378.3	CD/CW/ WP.176	Brazil	Convention on Chemical Weapons: Aspects Related to Economic and Technological Development	6.8.87
378.4	CD/CW/ WP.177 and Rev. 1	AHCCW	Report of the Co-ordinator on Issues Pertaining to Chemical Weapons Stocks (Cluster I)	7.8.87 12.8.87
378.5	CD/CW/ WP.178	Canada	Identification of Chemical Substances	7.8.87
379.1	CD/CW/ WP.179	AHCCW	Draft Report of the Ad Hoc Com- mittee on Chemical Weapons to the Conference on Disarmament (Not Reproduced)	14.8.87
379.2	CD/CW/ WP.180	Japan	Comments on the "Guidelines for Schedule [1]" (CD/CW/WP.179, Appendix II)	19.8.87
382	CD/785	Finland	Air Monitoring as a Means for the Verification of Chemical Disar- mament (also issued as CD/CW/ WP.181)	25.8.87

Serial	Reference	Country	Description	Date
334.1	CD/CW WP.129 and Rev. 1	Chairman AHCCW	Outline for the Organization of Work during the 1986 Session (Not Reproduced)	17.2.86
355.6	CD/CW/ WP.152	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament (Not Reproduced)	14.8.86
358.1	CD/CW/ WP.153	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its Work During the Period 12-30 January 1987 (Not Reproduced)	22.1.87
360.1	CD/CW/ WP.154	Chairman AHCCW	Outline for the Organization and Programme of Work of the Ad Hoc Committee on Chemical Weapons (Not Reproduced)	9.2.87
367.2	CD/CW/ WP.167	AHCCW	Current Stage of the Negotiations on a Chemical Weapons Convention (Not Reproduced)	27.4.87
379.1	CD/CW/ WP.179	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament (Not Reproduced)	14.8.87

Bulgaria/
Romania

CD/CW/WP.128

Letter Dated 10 January 1986
Addressed to the President of
the Conference on Disarmament
by the Permanent Representa-
tive of the People's Republic
of Bulgaria and the Charge
d'affaires a.i. of the Social-
ist Republic of Romania Trans-
mitting the Declaration Appeal
by Nicolae Ceausescu, President
of the Socialist Republic of
Romania, and Todor Zhivkov,
President of the State Council
of the People's Republic of
Bulgaria, Concerning the Crea-
tion of a Chemical-Weapon-Free
Zone in the Balkans

Also issued as
CD/648
10 Jan. 1986

NOT REPRODUCED
(see WP volume)

CD/CW/WP.129
and Rev. 1

Outline for the Organization
of Work during the 1986 Session

17.2.86

NOT REPRODUCED

Ad Hoc Committee on Chemical Weapons

China: Working Paper on Calculation of Elimination Quantity

The method of calculating the elimination quantity should be in keeping with the principles for the elimination of chemical weapons as they appear in CD/636, Appendix I, Annex IV.

1. Basic Concepts:

1.1. Toxicity Intensity (TI): the weight of half the number of exposed lives harmed (in the case of harmful agents) or killed (in the case of lethal agents) by one milligramme of a CW agent.

$$TI = \frac{1}{LD50} \text{ (or } \frac{1}{ED50}, \text{ or } \frac{1}{LCt50}, \text{ or } \frac{1}{ECt50})$$

1.2. Stockpile Equivalent (SE): the product of the stockpile weight (Ws) of a CW agent and its Toxicity Intensity.

$$SE = Ws \cdot TI$$

2. Formula for Elimination Quantity (We):

$$We = K \cdot SE \text{ total} \cdot TI^{-1}$$

where:

We: the actual weight of a CW agent to be eliminated by a State in one phase of elimination

K: the agreed elimination percentage in that phase

SE total: the total Stockpile Equivalent of the State

TI: the Toxicity Intensity of the CW agent to be eliminated in that phase.

Note: - The term "Chemical Warfare (CW) agent" is used in this working paper. Any eventual wording will depend on consensus opinion on the definition of chemical weapons.

*/ Reissued for technical reasons.

Ad Hoc Committee on Chemical Weapons

WORKING GROUP A

Working Paper by Australia

Régimes to Ensure Non-Diversion of Super-Toxic
Lethal Chemicals: Possible Approaches

Super-toxic lethal chemicals produced for purposes not prohibited by the Convention could constitute a risk of diversion. Various approaches have been suggested as to the best way to prevent such diversion. These approaches are explored to see which is likely to offer maximum security for the Convention.

Super-toxic lethal chemicals can be divided into groups:

- those made in small amounts for pharmaceutical purposes;
- those made in moderate to large amounts for use in agriculture;
- others, including toxic intermediates not considered in detail in this paper.

The definition of a super-toxic lethal chemical is one having a subcutaneous LD₅₀ less than 0.5 mg/kg. The inhalation toxicity is less relevant for most of the compounds used for permitted purposes since most of them are solids.

It may be useful to note that the determination of LD₅₀ will involve a statistical error. Also it will vary (sometimes considerably), between species, and sometimes it will vary between different strains within the same species, and also seasonally. Further it cannot be determined for man. It is a very useful guideline to help define super-toxic lethal chemicals but the cut-off point between such chemicals and "other lethal" chemicals cannot be considered to be sharp. Perhaps all chemicals with LD₅₀ values less than 1 mg/kg should be scrutinized. Their suitability for use as a chemical weapon would determine whether or not they should be included on the prohibited list. This comment does not call in doubt the great utility of the classification already agreed.

From the practical point of view however, a chemical which is slightly less toxic than 0.5 mg/kg but is suitable for weapons use on grounds of stability, ease of dissemination, appropriate persistence in the field etc. might be more susceptible to diversion for military use than a more toxic chemical which does not have these properties.

Thus for the purpose of this discussion chemicals with toxicity close to that defined as super-toxic lethal will be considered along with those falling unequivocally into the category for inclusion on the prohibited list.

Pharmaceuticals

A number of drugs used in the treatment of disease fall into the category of super-toxic lethal. These include:

- Digoxin - used in heart disease
- Phospholine - used in eye disease (glaucoma)
- Nitrogen mustard - cancer (Hodgkin's disease)
- Curare Derivatives - relaxation in anaesthesia.

These compounds are produced under tight control, both national and international. Further, they are dispensed in very small amounts. Diversion from permitted use would be almost impossible and certainly quite impractical. It is suggested that the Convention should take note of the special case presented by such pharmaceuticals.

Agricultural Chemicals

Some chemicals used extensively in agriculture have a mammalian toxicity in their pure form which is within or close to the defined limit. These chemicals include some carbamates used to control insect and other pests, some organophosphorus compounds with similar uses and the rodenticide, sodium fluoracetate. In many countries sodium fluoracetate can only be used by officers of the Department of Agriculture. It is not available for general farm use. Because of their toxicity these insecticides are produced in a dilute form.

Compounds such as these could be diverted to military use if obtained in a purified form. They would be less suitable for such use than sarin, soman and VX. Whether they would be more or less effective than phosgene and sulphur mustard is not known. However, it is clear that they must be subjected to an appropriate control régime. Let us explore several régimes.

1. They could be banned and monitored for non-production in the same way as nerve agents. Their use in agriculture would then be taken over by compounds which fall below the toxicity cut-off point. These new compounds could present a significant threat to the Convention, since reducing their

Limitation in the production of super-toxic lethal compounds would lead to a similar increase in the production of these latter compounds, since the needs of agriculture will be met in some way.

2. Production could be limited to one site, which could be monitored to ensure that an agreed quantity was made. However, carbamate insecticides are made in thousands of tons per annum. Diversion after leaving the plant could occur. It will be obvious that small amounts of these compounds are used over very large areas of farmland. This involves extensive distribution between factory and final user. Thus restriction of production to one site will not help greatly.

3. The present situation is one of national control of these chemicals. They are made in a small number of plants in any given country, and shipping is controlled by national and international regulations. The United Nations has specifically addressed the problem of the safe transport of hazardous chemicals. These regulations are stringent and cover safe-handling, labelling and regulations of distribution.

Proposed Methods of Control of Monitoring

Requisite data for a control régime might include:

- Declaration of super-toxic lethal chemicals made or used for purposes not prohibited by the Convention.
- Declaration of plants making them.
- Annual production data, percentage used in country of production and percentage exported, including nation which imports.
- Uses of such chemicals.

In addition, the Technical Secretariat might devise a uniform system of dispensing, labelling and shipping such compounds. This exercise might be carried out in conjunction with other international bodies which regulate trade in hazardous chemicals. Materials accountancy from the site of production to final distribution should cover such compounds. The Technical Secretariat would collate such data.

A uniform system of data reporting, uniform safety procedures and control of distribution would facilitate the task of verification. Inspection on a routine, random basis would be necessary to check on the accuracy of data reporting.

Summary

The production and use of chemicals which fall into or close to the category of super-toxic lethal should be subject to a régime adequate to prevent diversion.

The Pharmaceutical industry should be exempt from such control unless special circumstances arise.

Régimes which restrict legitimate commercial production appear unlikely to protect the Convention and may have an adverse effect on agriculture.

A system of data reporting verified by on-site inspection of production and distribution, and which is carried out in conjunction with existing national and international controls, is suggested as appropriate.

USA

CD/CW/WP.132

Amendment to CD/500, Draft
Convention on the Prohibition
of Chemical Weapons

Also issued
as CD/685
3 Apr. 1986

NOT REPRODUCED
(see WP volume)

Ad Hoc Committee on Chemical Weapons

Working Paper by the Netherlands

PERMITTED ACTIVITIES

An approach to the verification of non-production -
substances subject to monitoring in a CW convention

1. Article VI of CD/636 contains proposals for the rights of States Parties to develop, produce, otherwise acquire, retain, transfer and use toxic chemicals and their precursors for permitted purposes. A number of papers (in particular CD/353, CD/439, CD/445, CD/500, CD/514, CD/575, CD/627 and CD/632) have focused attention on the arrangements necessary to ensure that chemicals are not diverted for purposes proscribed by the Convention. This paper sets out the current views of the Netherlands and describes régimes to which they could be submitted under a future convention.

A list of such compounds is attached as an Annex to illustrate the kinds of chemicals which may be subject to the three régimes outlined below. The compounds so listed are done so without prejudice to the Netherlands position on the final scope of the lists, including possible deletions or additions as may be necessary.

Verification of non-production of all categories of chemicals would include data exchange, and where appropriate, on-site inspection or resolution of data discrepancies. Details of the respective régimes and verification procedures will be further elaborated.

Category I

2. All production and use of these chemicals, which have no other known use than for CW purposes, in this category would be prohibited, with the following exceptions:

(a) Production at a single small-scale production facility, provided that the total amount of all compounds in this category possessed by a Party for protective purposes does not exceed one tonne in any calendar year. This facility shall be subject to monitoring by the National Authority and the Consultative Committee through annual submission of data, on-site instruments, on-site national inspections and systematic international on-site inspections.

(b) Synthesis and use at laboratories and in quantities appropriate to research and medical purposes under conditions to be elaborated.

Category II

3. Chemicals in this category would be subject to monitoring by routine random on-site inspection by an international inspectorate and exchange of information and data.

Category III

4. Chemicals in this category would be subject to monitoring by information and data exchange co-ordinated by national verification authorities and by an international inspectorate.

Protection of Proprietary Information

5. Both the on-site inspection and data/information exchange would be so organized as to provide the most stringent protection for proprietary information.

Revision of Lists

6. Lists of compounds would be incorporated as annexes to the Convention. To reflect advances in both military and civil technologies, procedures whereby the Consultative Committee could make changes to the lists will need to be agreed.

7. For the purposes of initial declarations by States Parties, a number of substances are listed under group titles (e.g. 12 and 19). However, control and monitoring procedures would be applied to specific individual declared chemicals within these categories which would be identified by producers and users for the national verification authorities who would notify the technical secretariat of the Consultative Committee.

SUBSTANCES TO BE SUBJECT TO MONITORING
UNDER A CHEMICAL WEAPONS CONVENTION

1. O-Alkyl alkylphosphonofluoridates
 - e.g. Sarin : O-isopropyl methylphosphonofluoridate I
 - Soman : O-pinacolyl methylphosphonofluoridate
2. O-Alkyl N,N-dialkylphosphoramidocyanidates
 - e.g. Tabun : O-ethyl N,N-dimethylphosphoramidocyanidate I
3. O-Alkyl S-2-dialkylaminoethylalkylphosphonothiolates
 - e.g. VX : O-ethyl S-2-diisopropylaminoethylmethyl-phosphonothiolate I
4. Sulphur mustards : e.g. bis (2-chloroethyl) sulphide I
5. Lewisites
 - Lewisite 1 : 2-chlorovinylchloroarsine I
 - Lewisite 2 : bis (2-chlorovinyl) chloroarsine
 - Lewisite 3 : tris (2-chlorovinyl) arsine
6. Nitrogen mustards
 - HN1 : 2-chloroethyldimethylamine I
 - HN2 : bis (2-chloroethyl) methylamine
 - HN3 : tris (2-chloroethyl) amine
7. 3-Quinuclidinyl benzilate (BZ) I
8. Saxitoxin **/ I
9. Alkylphosphonyldifluorides I
 - e.g. DF
10. Ethyl O-2-diisopropylaminoethyl alkylphosphonites I
 - e.g. QL
11. 3,3-Dimethylbutan-2-ol (pinacolyl alcohol) I
12. Chemicals containing the P-methyl, P-ethyl or P-propyl II
 - (normal or iso) bond
13. N,N-Dialkylphosphoramidic dihalides II
14. Dialkyl N,N-dialkylphosphoramidates II
15. N,N-Diisopropylaminoethyl-2-halides II
16. N,N-Diisopropylaminoethan-2-ol II
17. N,N-Diisopropylaminoethane-2-thiol II

18.	2,2-Diphenyl-2-hydroxyacetic acid (2,2-diphenylglycollic acid : benzilic acid)	II
19.	2,2-Diphenyl-2-hydroxyacetic acid esters	II
20.	Quinuclidin-3-ol	II
21.	Bis (2-hydroxyethyl) sulphide (thiodiglycol)	II
22.	Arsenic trichloride	II
23.	Di- and trimethyl/ethyl esters of phosphorous (P III) acid	III
24.	N,N-Disubstituted aminoethyl-2-halides */	III
25.	N,N-Disubstituted aminoethan-2-ols */	III
26.	N,N-Disubstituted aminoethane-2-thiols */	III
27.	Aryl-, alkyl- and cycloalkylglycollic acids/esters (less benzilic acid/esters)	III
28.	3- and 4-hydroxypiperidines (less quinuclidin-3-ol)	III
29.	Hydrogen cyanide	III
30.	Phosgene	III
31.	Cyanogen chloride	III
32.	Trichloronitromethane (chloropicrin)	III
33.	Phosphorus trichloride	III
34.	Phosphorus oxychloride	III
35.	Sulphur mono- and dichloride	III

I : Subject to category I régime

II : Subject to category II régime

III : Subject to category III régime

*/ less N,N-diisopropyl compounds

**/ Substance No.8

Saxitoxin has been synthesised in the laboratory. Its inclusion on grounds of toxicity is without prejudice to any legal considerations relating to the position of toxins under the Biological Weapons Convention.

9 April 1986

CONFERENCE ON DISARMAMENT

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

WORKING GROUP A

Working Paper by Yugoslavia

Considering lists A, B and C, document CD/651, we have concluded that list A was not uniform. That is why we propose that in mid-column, para. 1 "Chemicals containing one P-methyl, P-ethyl or P-propyl (normal or iso) bond" be replaced by "Chemicals containing one P^{III}-alkyl or P^V-alkyl bond (where alkyl group is normal or iso)". We also propose that List A, Part III, or List C, Part II be supplemented to include trihydroxy compounds such as tris-(hydroxymethyl) alkane.

Belgium

CD/CW/WP.135
and Corr.1

Order of Elimination of
Chemical Weapons Stocks and
Methods for Comparing These
Stocks: Elements of a
Possible Solution

Also issued as
CD/697
20 May 1986

NOT REPRODUCED
(see WP volume)

Ad Hoc Committee on Chemical Weapons

Working Paper on Article IX by the German Democratic
Republic and Poland

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4. Each State Party to the Convention shall have the right to submit to the Executive Council a request to carry out an on-site inspection to clarify a situation considered to be ambiguous or giving cause to doubts about compliance with the obligations under the Convention.

The request shall be made in good faith and be accompanied by relevant information and data giving grounds for it and shall

- provide the location and time of an event or activity considered to be ambiguous or giving rise to doubts, as well as indicate the substance of these ambiguities or doubts;
- deal with such an event or activity, which, on account of its repetitiveness, continuity or substantial size, or in any other way, points to a purposeful activity giving cause to doubts about compliance with the Convention.

5. Upon receipt of a request, the Executive Council shall conduct a prima facie assessment of the request and determine

- a) whether the request meets the requirements stated in para. 4 of this Article;
- b) whether the Executive Council has at its disposal relevant information and data, which could clarify ambiguities or remove doubts that have led to the request;
- c) whether the parameters of the requested on-site inspection do not exceed the limits necessary for the clarification of ambiguities or the removal of doubts.

While considering the request, the Executive Council shall invite the State Party requesting the on-site inspection (hereinafter called "requesting party") and the State Party proposed to be subjected to such an inspection (hereinafter called "receiving party") to be present at its proceedings. The Executive Council may call upon other States Parties to provide the information deemed relevant to the clarification of the actual state of affairs.

* 6. On the basis of the assessment, the Executive Council shall either forward the request for an on-site inspection to the State Party in question or act otherwise.

7. The receiving party shall treat favourably and in good faith a request forwarded to it and cooperate with the Executive Council in order to ensure the prompt and full clarification of the situation.

8. If the receiving party, in exceptional circumstances, refuses the request, it shall submit a prompt, factual and exhaustive explanation of the reasons for the refusal. In this case, the receiving State shall endeavour to propose alternative measures aimed at restoring confidence as regards compliance with the Convention.

Ad Hoc Committee on Chemical Weapons

Report of the Chairman of Working Group C

1. In accordance with the terms of reference outlined by the Chairman of the Ad Hoc Committee on Chemical Weapons in document CD/CW/WP.129/Rev.1 dated 19 February 1986, Working Group C had before it the following items:

- (a) Article I (General provisions on scope),
- (b) Article VII (National implementation measures),
- (c) Article VIII (Consultative Committee),
- (d) Article IX (Consultations, co-operation and fact-finding),
- (e) Herbicides,
- (f) Investigation of allegations of the use of chemical weapons.

2. Working Group C held eight meetings from 28 February to 18 April 1986. In addition, the Chairman has conducted bilateral as well as multilateral private consultations with the most directly interested delegations aimed at facilitating efforts towards a compromise solution of the questions under consideration.

3. It was agreed that within the terms of reference, and without according priority to any of the items on the agenda, Working Group C would in the first part of the session of the Conference on Disarmament, deal with Article VIII and Article IX.

4. The basis for discussion was Appendix I of document CD/636 dated 23 August 1985 as well as existing proposals on the items, including a proposal by Pakistan in document CD/664 dated 13 February 1986. During the discussion, the German Democratic Republic and Poland submitted a proposal as contained in document CD/CW/WP.136 dated 18 April 1986. To facilitate

discussions, the Chairman submitted an informal working paper on Article VIII dated 14 March 1986 and an informal working paper on one aspect of Article IX dated 11 April 1986.

5. As a result of the intensive work of Working Group C and the Chairman's consultations, a general convergence of views has emerged on a set of draft provisions on Article VIII dealing with the Consultative Committee and the Executive Council and one aspect of Article IX as contained in Annex I and Annex II respectively, which in the view of the Chairman reflects the present stage of negotiations and constitutes a basis for further work.

6. In the second part of the session of the Conference on Disarmament, Working Group C will continue its consideration of Article VIII and Article IX, particularly aspects not yet considered during the first part of the session, as well as the other remaining items on the agenda.

ANNEX I

ARTICLE VIII

I. CONSULTATIVE COMMITTEE */

A. Establishment of the Consultative Committee

1. There is hereby established the Consultative Committee.
2. The Consultative Committee shall be the principal organ of the Convention.
3. The first session of the Consultative Committee shall be convened by the Depositary at [venue] not later than 30 days after the entry into force of the Convention.

B. Composition, procedure and decision-making

1. The Consultative Committee shall be composed of all the States Parties to this Convention. Each State Party to this Convention shall have one representative in the Consultative Committee, who may be accompanied by alternates and advisers.
2. The Consultative Committee shall meet in regular annual sessions and in such special sessions as may be convened at the request of ... members of the Consultative Committee or of the Executive Council or as provided in Article IX of the Convention.
3. Sessions shall take place at the seat of the Consultative Committee unless it decides otherwise.
4. The Consultative Committee shall adopt its rules of procedure. At the beginning of each regular session, it shall elect its Chairman and such other officers as may be required. They shall hold office until a new Chairman and other officers are elected at the next regular session.
5. A majority of the members of the Consultative Committee shall constitute a quorum.
6. Each member of the Consultative Committee shall have one vote.
[[7. Decisions on questions of procedure, including decisions to convene special sessions of the Consultative Committee, shall be taken by a simple majority.
8. Decisions on questions of substance shall be taken by [a two-third majority] [consensus]. When the issue arises as to whether a question is one

*/ Some delegations suggested that the question of how the expenses of the Consultative Committee shall be met needs to be addressed within the Convention at an appropriate time.

of substance or not, that question shall be treated as one of substance unless otherwise decided by the Consultative Committee by the majority required for decisions on questions of substance.]]

[[7. All decisions shall be taken by a two-third majority.]]

C. Powers and functions

1. The Consultative Committee shall [oversee] [review] the implementation of the Convention, consider any questions or matters relevant to the Convention or relating to the powers and functions of any subsidiary organs [established by the Consultative Committee], foster consultation and co-operation among States Parties [for the advancement of chemical industry for peaceful purposes] and promote the verification of compliance with this Convention.

2. In carrying out its functions [referred to in paragraph 1], the Consultative Committee shall inter alia:

(a) co-operate with the appropriate national authorities of States Parties;

(b) facilitate consultations and co-operation among States Parties at their request;

(c) review scientific and technical developments which could affect the operation of this Convention;

(d) encourage international scientific and technical co-operation in the chemical field for peaceful purposes, [especially with the objective of promoting the advancement of chemical industry in the developing States as provided in Article XI,]

(e) carry out all activities relating to measures of verification, for this purpose, the Consultative Committee shall;

(i) specify procedures for systematic international on-site inspection;

(ii) oversee [and carry out] systematic international on-site inspection in accordance with Articles ...;

[[iii) consider and decide on requests to send a fact-finding mission in accordance with Article ...;]

(iv) carry out fact-finding activities in accordance with Article IX;

(f) establish and revise as necessary, procedures for exchange of information, for declarations and for technical matters related to the implementation of this Convention;

(g) receive, keep [and make available to States Parties] declarations, plans and notifications presented by States Parties in accordance with Articles ...;

(h) provide a forum for discussion of any questions raised relating to the objectives or the implementation of the Convention.

(i) elect the members of the Executive Council in accordance with Article ...;

[(j) elect ... (the head of the Secretariat) from among the candidates proposed by members of the Consultative Committee,]

[(k) appoint inspectors as the staff of the Inspectorate and the head of the Inspectorate,]

(l) establish, as appropriate, such subsidiary organs as it finds necessary for the exercise of its functions in accordance with this Convention,

(m) adopt the rules of procedure [of the Executive Council including the method of selecting its Chairman],

(n) consider and approve the proposed annual budget of the Consultative Committee and its subsidiary organs submitted by the Council,

(o) consider and approve the reports of the Executive Council,

(p) after the expiry of a period of ... years from the date of entry into force of this Convention, undertake a review of the operation of this Convention in accordance with Article ... */

3. The Consultative Committee shall establish an Executive Council [within 45 days after the entry into force of the Convention].

4. While the Consultative Committee is ultimately responsible for the functions provided for in paragraph 2, it shall delegate the actual implementation of those functions to the Executive Council in accordance with the provisions of this Convention.

*/ Some delegations were of the view that provisions on review should be more appropriately included in another part of the Convention.

II. EXECUTIVE COUNCIL */

A. Composition, procedure and decision-making

1. The Executive Council shall consist of [15] States Parties to this Convention elected by the Consultative Committee. [In addition, those permanent members of the Security Council of the United Nations which are parties to the Convention should be represented]. Each member of the Executive Council shall have one representative in the Council, who may be accompanied by alternates and advisers.
2. The members of the Executive Council shall be elected on the basis of [an appropriate geographic and political balance.]
3. Election shall take place at regular sessions of the Consultative Committee. Each [elected] member of the Executive Council shall serve for [two] [three] years period, with [five] of the members elected each year.
4. The Executive Council shall function at the seat of the Consultative Committee.
[5. A majority of the members of the Executive Council shall constitute a quorum.]
6. Each member of the Executive Council shall have one vote.
[[7. Decisions on questions of procedure shall be taken by a simple majority.
8. Decisions on questions of substance shall be taken by [a two-third majority] [consensus]. When the issue arises as to whether a question is one of substance or not, that question shall be treated as one of substance unless otherwise decided by the Council by the majority required for decisions on questions of substance.]]
[[7. All decisions shall be taken by a two-third majority.]]

*/ Some delegations believed that the question of placement within the Convention of some of the provisions relating to the functions of the subsidiary organs will have to be considered at a later stage.

B. Functions */

1. The Executive Council shall be responsible to the Consultative Committee and shall have delegated authority to discharge the functions of the Consultative Committee as provided in paragraph 1 and paragraph 2 (a) to 2 (h) of Section I Subsection C of this Article.

2. The Executive Council shall particularly:

(a) supervise and co-ordinate the activities of the subsidiary organs of the Consultative Committee in implementing the provisions of the Convention;

(b) ensure the effective implementation of, and compliance with, the Convention;

(c) propose to the Consultative Committee, as appropriate, the establishment of such subsidiary organs as it finds necessary for the exercise of its functions in accordance with this Convention;

(d) present reports to the Consultative Committee particularly about the exercise of the functions delegated to it;

(e) request the ... (head of the Secretariat) when appropriate and necessary, to convene a special meeting of the Consultative Committee;

[(f) propose to the Consultative Committee the establishment of appropriate mechanisms for directing and supervising the Inspectorate,]

[(g) propose to the Consultative Committee the appointment of inspectors as the staff of the Inspectorate and appoint among the inspectors the head of the Inspectorate,]

(h) obtain, keep, and disseminate information submitted by States Parties regarding matters pertaining to the Convention.

(i) receive requests for information and clarification regarding compliance with the Convention from States Parties, including requests for fact-finding.

(j) decide and oversee specific actions to be taken regarding such requests.

...

*/ Some delegations considered that the provisions on the functions of the Executive Council will require further specification in the light of such functions as may be conferred upon the Council in other parts of the Convention, particularly with regard to verification.

ARTICLE 11

FUNCTIONS OF THE EXECUTIVE COMMITTEE

1. The Executive Committee shall be responsible for the general administration and shall have authority to direct the work of the Council and to call upon the Council for assistance in the performance of its duties.
2. The Executive Committee shall have authority to:
 - (a) supervise and coordinate the activities of the various departments of the Council and to direct the work of the Council in the performance of its duties;
 - (b) manage the executive administration of the Council and to call upon the Council for assistance in the performance of its duties;
 - (c) request the Council to take such action as may be necessary to carry out the purposes of the Council and to call upon the Council for assistance in the performance of its duties;
 - (d) request the Council to take such action as may be necessary to carry out the purposes of the Council and to call upon the Council for assistance in the performance of its duties;
 - (e) request the Council to take such action as may be necessary to carry out the purposes of the Council and to call upon the Council for assistance in the performance of its duties;
 - (f) request the Council to take such action as may be necessary to carry out the purposes of the Council and to call upon the Council for assistance in the performance of its duties;
 - (g) request the Council to take such action as may be necessary to carry out the purposes of the Council and to call upon the Council for assistance in the performance of its duties;
 - (h) request the Council to take such action as may be necessary to carry out the purposes of the Council and to call upon the Council for assistance in the performance of its duties;
 - (i) request the Council to take such action as may be necessary to carry out the purposes of the Council and to call upon the Council for assistance in the performance of its duties;
 - (j) request the Council to take such action as may be necessary to carry out the purposes of the Council and to call upon the Council for assistance in the performance of its duties;

and shall have authority to call upon the Council for assistance in the performance of its duties. The Executive Committee shall have authority to request the Council to take such action as may be necessary to carry out the purposes of the Council and to call upon the Council for assistance in the performance of its duties.

ANNEX II

ARTICLE IX

CONSULTATION, CO-OPERATION AND FACT-FINDING

...

Procedure for requesting clarification

1. A State Party shall have the right to request the Executive Council to assist in clarifying any situation which may be considered ambiguous or which gives rise to doubts about the compliance of another State Party with the Convention. The Executive Council shall provide appropriate information and data in its possession relevant to the situation which can dispel such doubts, whilst [taking every precaution in] protecting commercial and industrial secrets and other confidential information coming to its knowledge in the implementation of the Convention.

2. A State Party shall have the right to request the Executive Council to obtain clarification from another State Party on any situation which may be considered ambiguous or which gives rise to doubts about its compliance with the Convention. In such a case, the following shall apply:

(a) The Executive Council shall forward the request for clarification to the State Party concerned within [24 hours] of its receipt.

(b) The requested State Party shall provide the clarification to the Executive Council within [seven days] of the receipt of the request.

(c) The Executive Council shall forward the clarification to the requesting State Party within [24 hours] of its receipt.

(d) In the event that the requesting State Party deems the clarification to be inadequate, it may request the Executive Council to obtain from the requested State Party further clarification.

(e) For the purpose of obtaining further clarification requested under paragraph 2 (d), the Executive Council may set up a group of experts to examine all available information and data relevant to the situation causing the doubt. The group of experts shall submit a factual report to the Executive Council on its findings.

(f) Should the requesting State Party consider the clarification obtained under paragraphs 2 (d) and 2 (e) to be unsatisfactory, it may request a special meeting of the Executive Council in which States Parties involved not members of the Executive Council shall be entitled to take part in

accordance with provisions in Article In such a special meeting, the Executive Council shall consider the matter and may recommend any measure it deems appropriate to cope with the situation.

3. A State Party shall have the right to request the Executive Council to clarify any situation which has been considered ambiguous or has given rise to doubts about its compliance with the Convention. The Executive Council shall respond by providing such assistance as appropriate.

4. The Executive Council shall inform the States Parties to this Convention about any request for clarification provided in this Article.

5. [If the doubts or concerns of a State Party about compliance have not been resolved within [two months] after the submission of the request for clarification to the Executive Council, or it believes its doubts warrant urgent consideration, without necessarily exercising its right to the challenge procedure, it may request a special session of the Consultative Committee in accordance with Article In such a special session, the Consultative Committee shall consider the matter and may recommend any measure it deems appropriate to cope with the situation.]

...

Ad Hoc Committee on Chemical Weapons

Report of the Chairman of Working Group A

1. This report outlines the work undertaken by Working Group A during the first part of the 1986 session of the Ad Hoc Committee on Chemical Weapons.
2. The Working Group has responsibility for consideration of matters relating to Article II (Definitions and Criteria) and Article VI (Permitted Activities), as contained in the provisional structure of the Draft Convention in CD/636.
3. Over the period 24 February to 21 April the Working Group held eight meetings.
4. The first meeting of the Working Group was devoted to an exchange of views on aspects of Articles II and VI to which delegations considered attention should be given during 1986.
5. This discussion indicated that there was a widespread wish to carry forward the work undertaken at the informal consultations held in October 1985 and at the January session of the Ad Hoc Committee this year, i.e. developing and refining definitions, criteria and lists of relevant chemicals with the objective of elaborating appropriate régimes to which the listed chemicals would be subject under the Convention. It was the common view that these matters should be considered in their interrelationship.
6. A number of specific proposals were put forward regarding the approach and relevant elements which should be taken into consideration in devising appropriate régimes.
7. Support was also expressed for endeavouring to settle the texts of definitions which, at present, appear in Article II of CD/636 in bracketed form.

8. Following these discussions the Chairman prepared an indicative programme of work for the first part of the session, which was endorsed by the Working Group.

9. The programme provided for consideration of a number of specific matters relevant to establishing régimes for listed chemicals, as follows:

- Monitoring by data exchange;
- Threshold levels for data reporting;
- Mechanism for changing lists of chemicals;
- Transfer(s) of chemicals.

10. As a working method delegations were encouraged to relate their comments on these specific matters to the chemicals which are produced in large commercial quantities and which could be used for chemical weapons purposes (as contained in List C of the Annex to CD/651).

11. Specific meetings were also devoted to discussion of the régimes which should be elaborated for super-toxic lethal chemicals and key precursor chemicals.

12. These discussions established that the common system for monitoring listed chemicals should be data exchange. It was recognized that certain categories of chemicals might require a more stringent monitoring régime than others.

13. In addition to formal meetings of the Working Group, the Chairman conducted a series of consultations focussed, in particular, on:

- determining which chemicals produced in large commercial quantities and which could be used for chemical weapons purposes should be placed in an "aggregated list";
- elaborating the elements of a monitoring régime to apply to this list of chemicals.

14. The results of these consultations are contained in the two papers annexed to this report. Agreement was reached in the course of these consultations on including six chemicals on the aggregated list. A number of elements relevant to the establishment of an effective monitoring régime were also identified. A range of matters which require further consideration was also enumerated.

15. The Chairman also held informal consultations on the subjects of super-toxic lethal chemicals and listing of and the régime for key precursor chemicals.

16. Working and informal papers on aspects of Articles II and VI were presented by Australia, Canada, the Netherlands, the United States and Yugoslavia.

17. On the basis of the discussions and work undertaken during the first part of the 1986 session, the Chairman considers that the Working Group should focus, in the second part of the session, on:

- determining the criteria for and lists of relevant chemicals;
- elaborating the régimes to be applied to listed chemicals;
- further consideration of the subject of super-toxic lethal chemicals;
- the texts of definitions to be contained in Article II of CD/636.

18. The objective of the further work by the Working Group should be, in the Chairman's view, the elaboration of agreed textual provisions for Article II and Article VI and, as appropriate, relevant annexes.

Part III: Chemicals to be considered further for inclusion in List C.

- Di- and tri-methyl/ethyl esters of phosphorus acid (PEII) acids
- N,N-disubstituted sulfoxethyl-2-thiols 2/
- N,N-disubstituted aminomethan-2-ols 2/
- N,N-disubstituted aminomethane-2-thiols 2/

Notes to List C

- 1/ To be elaborated.
- 2/ Except N,N-disulfoxethyl compounds which are included in List A.
- 3/ The question of whether these should be a separate category for control agents has to be considered further.

ANNEX I

List "C"

Part I: Chemicals which are produced in large commercial quantities and which could be used for chemical weapons purposes

Phosphorus oxychloride

Phosphorus trichloride

Phosgene

Cyanogen chloride

Hydrogen cyanide

Sulphur Mono- and Dichloride

Trichloronitromethane (chloropicrin)

Aggregated list of the relevant chemicals (as a result of the discussions) to which régime "C" 1/ should be applied.

Phosphorus oxychloride

Phosphorus trichloride

Phosgene

Cyanogen chloride

Hydrogen cyanide

Trichloronitromethane

(chloropicrin)

Part II: Chemicals to be considered further for inclusion in List C.

- Di- and Trimethyl/ethyl esters of phosphorus acid (PIII) acid
- N,N-disubstituted aminoethyl-2-halides 2/
- N,N-disubstituted aminoethan-2-ols 2/
- N,N-disubstituted aminoethane-2-thiols 2/

Notes to List C

1/ To be elaborated.

2/ Except N,N-diisopropyl compounds which are included in List A.

3/ The question of whether there should be a separate category for riot control agents has to be considered further.

ANNEX II

List C Chemicals

Possible régime for non-diversion

Criterion: Chemicals which are produced in large commercial quantities and which could be used for chemical weapons purposes.

Elements of a régime

1. Declaration of production of listed chemicals at time of entry into force.
2. Each national authority should collect and maintain data on the annual production and/or consumption of each facility.
3. Each State Party to report annually to the Consultative Committee the total production, consumption, end uses, import and export of listed chemicals.
4. Reporting by a State Party on the consumption and end uses of listed chemicals for purposes not prohibited by the Convention shall be on the following basis:
 - broadly accounting for different categories of consumption and end use. The categories are to be developed.
 - indicating within each category the purpose and, where appropriate, the types of products for which the listed chemical was consumed or used.

Matters to be considered further

How detailed and in what form should the data on production and consumption collected and maintained by the national authority be?

The form and content of the Initial Declaration.

Should a threshold level(s) be set for reporting on listed chemicals? If so, what should be the level(s)?

What are the categories which should be specified for reporting consumption and end-use of listed chemicals?

Should location of facilities be reported to the Consultative Committee?

Should reporting cover quantities of chemicals held in storage and/or storage capacity at facilities?

Should the initial report by the State Party cover the year prior to entry into force of the Convention?

How should questions arising from information contained in a report by a State Party to the Consultative Committee be resolved?

Ad Hoc Committee on Chemical Weapons

Report of the Chairman of Working Group B

1. In accordance with the terms of reference outlined by the Chairman of the Ad Hoc Committee on Chemical Weapons in document CD/CW/WP.129/Rev.1, Working Group B was entrusted to deal with the following Articles:

- Article III "Declarations";
- Article IV "Measures on chemical weapons";
- Article V "Measures on chemical weapons production facilities".

In accordance with an agreed programme of work the Chairman has assisted the process of negotiations through submission of discussion papers and summaries. During the first part of the 1986 session of the Ad Hoc Committee on Chemical Weapons, Working Group B held 8 meetings and regular informal consultations from 26 February to 23 April 1986.

2. In considering Articles III and IV the Working Group singled out the broad issues of interest: (A) the elaboration of an order of elimination, and (B) the organizational framework of the destruction of chemical weapons stocks, including verification procedures. Both issues were considered on the basis of CD/636, Annex IV, pages 19-21, and the relevant provisions in Articles III and IV of the preliminary structure of the Chemical Weapons Convention, contained in the same document.

3. It was agreed that for the purposes of advancing the negotiations in the direction of elaborating the draft of the Convention, the Working Group would produce texts that would be a development of the Principles for the Order of Elimination and the Principles and Methods for the Verification of the Elimination of chemical weapons, contained in Article IV, Annex IV.

4. The following delegations have submitted working papers which have been or will be used by the Chairman in his drafting efforts:

(a) China: CD/CW/WP.130, dated 10 March 1986, entitled "Working Paper on Calculation of Elimination Quantity";

(b) Belgium: CD/CW/WP.135, dated 16 April 1986, entitled "Order of elimination of chemical weapons stocks and method of comparing these stocks: Elements of a possible solution";

(c) German Democratic Republic: a "Non-paper dated 16 April 1986, entitled 'Guidelines on the International inspections to be conducted at a Specialized Facility for the destruction of CW stocks'";

(d) Other delegations have informally forwarded to the Chairman drafts on sections of his discussion paper on the verification of destruction of 26 March 1986.

5. In the course of the discussion the Working Group referred, as appropriate, to a number of other working papers submitted at earlier stages of the negotiations which were considered relevant to the issues under discussion.

6. The results of the Working Group's activities are suggested as the following drafts subject to further consideration:

A. Order of Elimination

I. Issues of Mutual Understanding

1. The elaboration of the Order of Elimination should build on the following: undiminished security for all States during the entire elimination stage; confidence building in the early part of the elimination stage; gradual acquisition of experience in the course of destroying chemical weapons stocks and applicability irrespective of the actual composition of the stockpiles and the methods chosen for the elimination of the chemical weapons.

2. It is considered necessary to elaborate the Order of Elimination of chemical weapons stocks before the entry into force of the Convention. The Order of Elimination could be contained in the body of the Chemical Weapons Convention or in an annex.

3. The elimination of chemical weapons stocks should start for all States Parties possessing chemical weapons simultaneously. The whole elimination stage could be divided into 8 or 9 annual periods.

During each elimination period each State Party undertakes to eliminate one-eighth or one-ninth of equivalent stockpile. This principle will not preclude States Parties from eliminating their stocks at a faster pace. During each period each State Party would determine its precise destruction schedule. Annual accounting and reporting about every single elimination period is considered appropriate.

4. It is considered necessary to elaborate a method for comparing different categories of chemical weapons stocks. In this connection, some delegations have introduced concrete proposals, notably CD/CW/WP.130, which are based on the concept of "stockpile equivalent". The comparison of lethal and harmful chemicals remains unresolved and is subject to further consideration. Some delegations have expressed doubt that this problem could be solved.

5. It has been recognized that the elimination of chemical weapons stocks and the elimination of relevant production facilities should be considered together.

II. Issues in regard to the Order of Elimination which necessitate further consideration

1. Based on the above concept the process of elimination, in general, should correspond to the following Order:

- I. Key Precursors in bulk^{*/};
- II. Other Harmful Chemicals in bulk;
- III. Other Lethal Chemicals in bulk;
- IV. Super-toxic Lethal Chemicals in bulk;
- V. Empty Munitions;
- VI. Other Harmful Chemicals in weaponized form;
- VII. Other Lethal Chemicals in weaponized form;
- VIII. Super-toxic Lethal Chemicals in weaponized form.

2. The placement of binary and multicomponent chemical weapons in the Order of Elimination (in weaponized form and as [key components] [especially dangerous key precursors] in bulk).

3. Whether empty double-purpose munitions and devices should be considered in the Order of Elimination.

4. Some delegations feel that it would be appropriate to introduce the idea of security stockpile threshold levels to meet the security concerns of countries with small stockpiles of chemical weapons.

^{*/} Opinions have been expressed to the effect that aged chemical weapons stocks could be destroyed during the initial period outside the principle of proportionality.

B. Destruction of chemical weapons stocks

1. - Within [an unspecified period of time] prior to the commencement of the first elimination period each State Party possessing chemical weapons stocks undertakes to declare the location of its Specialized Facility(ies) for elimination of chemical weapons stocks (SFECW).

- The technical equipment of any SFECW shall adequately satisfy three basic requirements. It shall ensure:

- (a) the irreversible destruction of the processed materials;
- (b) the safety of the populations, the environment, as well as of the attending personnel and the international inspectors;
- (c) the verifiability of the destruction process;

- Any SFECW shall be of a stationary or non-stationary type provided it corresponds to the basic requirements.

- Any SFECW shall be [government property] [under government jurisdiction and control].

2. - The method of destruction shall be determined by each State Party in conformity with the foregoing requirements;

- On the basis of the method of destruction a description of the technological process and the technological scheme shall be forwarded to the Consultative Committee;

- The information addressed to the Consultative Committee shall include;

- (a) a description of all safety regulations which shall be in force at the site of the SFECW;
- (b) a description of the working and living conditions for the international inspectors;

- In addition, it was suggested that the information should include the modalities of verification and the capacity of the SFECW.

Australia CD/CW/WP.140 Verification of Non-Production
of Chemical Weapons and Their
Precursors by the Civilian
Chemical Industry. Trial
Inspection of an Australian
Chemical Facility Also issued as
CD/698
4 June 1986

NOT REPRODUCED
(see WP volume)

1. The aim of the experimental inspection

The aim of the experimental inspection was "to study and test organizational and technical aspects involved in routine inspection of a chemical plant under a CW convention". A large chemical company in the Netherlands agreed to co-operate in the carrying out of the experimental inspection. The plant where this was done consists of a variety of petrochemical and chemical facilities, including several multi-purpose ones, the largest of which was selected for the experimental inspection. Among the purposes for which the facility is used is the production of an organophosphate (monocrotophos, a pesticide), for which trimethyl phosphite is one of the raw materials. The prime aim of the experimental inspection was to verify that the phosphites used at the facility are not used to produce phosphorus methyl compounds. In addition, the extent was investigated to which it was possible for the experimental inspection to verify that the phosphites are genuinely processed into phosphates and not retained for the production of nerve gases such as Sarin elsewhere. Although the experimental inspection was to take place in a very sensitive situation, an attempt was made to plan it in such a way that it would be possible to generalize from it.

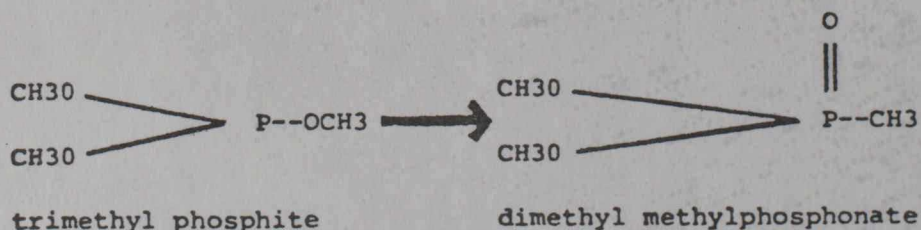
The aim of the experimental inspection was to gain experience of the organizational and technical aspects involved in routine inspection in one specific case and thus cannot be interpreted as a check on the company as a whole. Furthermore, co-operation by the company must not be regarded as committing either the company or the Dutch chemical industry as a whole to the adoption of a particular position vis-à-vis a future chemical weapons treaty. The proposals made in the present scenario and the accompanying comments on it are intended as a contribution towards thinking on the subject and not as a formal statement of policy by the Netherlands.

2. Composition of the inspection team

The experimental inspection team consisted of Mr. Sluimer (Central Environmental Protection Department, Rhine Estuary Region) and Mr. Verweij (Prince Maurits Laboratory, Central Organization for Applied Scientific Research (TNO)).

3. Verification of non-production

Nerve gases such as Sarin cannot be made from trimethyl phosphite by means of a single reaction. Trimethyl phosphite must first be converted into dimethyl methylphosphonate as an intermediate step:



3.1 Qualitative verification of non-production

The least intrusive method of checking that trimethyl phosphite is not converted into dimethyl methylphosphonate (DMMP) is analysis of the effluent water to detect whether a compound with a phosphorus methyl bond (P-CH₃) is present. These very stable functional groups occur in dimethyl methylphosphonate but not in trimethyl phosphite. Their presence in effluent water can be demonstrated by the method described in CD/306 and CD/307. An attempt should be made to sample the water as close as possible to the facility where trimethyl phosphite is processed in order to ensure that dilution is kept to a minimum.

3.2 Quantitative verification of non-production

If the process effluent water can be sampled near enough the facility where trimethyl phosphite is processed and the result of the analysis of the water is negative, it can reasonably be assumed that DMMP is not being produced, and there is no need to continue the routine inspection with regard to this point.

If traces of a compound with a phosphorus methyl bond are found in the water, this does not necessarily mean that DMMP is deliberately being produced. The following alternatives are possible:

- the trimethyl phosphite procured from elsewhere may already contain traces of P-CH₃
- DMMP or another phosphorus methyl compound may be produced as an unintentional by-product of the processing of trimethyl phosphite
- the trimethyl phosphite may deliberately be being processed into DMMP.

In order to establish which of these alternatives is applicable, the inspection team will have to continue its investigation.

4. Verification of non-diversion

How can the International CW Inspectorate ascertain that the key precursors which a company claims to be using for the production of phosphates are not being diverted from that production process on a large scale? During a routine inspection an inspection team can readily establish whether the stocks of initial and end products are in accordance with the books.

The experimental inspection was primarily concerned with verifying non-production. In addition, an attempt was made to survey the problems which arise in verifying non-diversion (does the quantity of phosphite processed into phosphate correspond with the initial quantity of phosphite?).

5. Data required for the verification of non-production

In order to be able to carry out its inspection work properly, the International Inspectorate will have to have information on plants which manufacture or process substances of relevance to CW. Where substances from category II (CD/CW/WP.133) are concerned, the information required falls into two categories:

5.1 Data required for a survey of production which is of relevant to CW

The International Inspectorate needs this information in order to assess which plants require routine inspection and, possibly, how often they are likely to require it. In addition, this information can also be used to establish a sort of balance sheet for substances of relevance to CW.

5.2 Data required to carry out an inspection

This information is needed in order to determine how a routine inspection should be carried out. Only the team which is to carry out the inspection has a need to know.

6. Stage-by-stage information

In order to limit the dissemination of sensitive information on industrial operations to those within the Inspectorate who have a need to know, while on the other hand not burdening the Inspectorate with excessive details which are only needed in order to carry out a routine inspection, information could be supplied in stages, such as the following three:

- A. compulsory reporting (section 7)
- B. familiarization visits (section 8)
- C. information at the beginning of an inspection (section 9).

The information which should be supplied at these three stages will be described in the next three sections.

7. Compulsory reporting

All companies with plants which are subject to routine inspection would regularly be required to supply certain confidential information via the appropriate national authorities to the International CW Inspectorate, regardless of whether there has recently been an inspection or whether one is imminent. This would enable the Inspectorate to build up a picture of the plants subject to the Convention. A specimen form to be completed for this purpose (as used in the experimental inspection) is attached as Annex I. The information to be supplied on it includes the following:

- What group I/II/III substances (cf. CD/CW/WP.133) are used commercially, quantity, type of plant and purpose.
- Similar information on known by-products which are group I/II/III substances.
- Licences held; licensors who could be consulted at a stage when more detailed information is required.
- Simple block diagrams of the plant concerned.
- Reactor vessel capacity.
- Production/process/analytical data which could be examined during an inspection.

- Facilities for analysis which it might be possible to use for inspection purposes.

Of the above data, it is notably the precise volume of production which constitutes commercially sensitive and therefore confidential information in the present case. As it was not necessary to know the exact amount for the purposes of the experimental inspection, it was deemed sufficient to enter the order of magnitude on the form.

8. Familiarization visits

In order to obtain further information necessary for a proper inspection, inspection teams could make inquiries about all plants subject to routine inspection. If this information is available from national government bodies, it might be sufficient for an inspection team to visit the government body concerned. Among the documents which the inspection teams should be allowed to study during familiarization visits are, for example, licences and reports containing more detailed flow diagrams and an indication of the capacity of the production plant. In so far as the material supplied to an inspection team during a familiarization visit is confidential, it may only be inspected on the spot and not copied or taken away.

If government bodies do not have sufficient information, a familiarization visit might also be made to the production plant. If government bodies do have sufficient information, a visit to the plant itself would not strictly speaking be necessary, but would presumably none the less be useful for purposes of familiarization.

9. Notification of intended routine inspection and reception at the plant

9.1 Management should be notified of the intention to carry out a routine inspection as shortly as possible beforehand.

9.2 A check should be made as to whether information obtained previously (sections 7 and 8) is still accurate. Changes and new developments should be noted.

9.3 Relevant data on the production plant which the inspection team have not already seen should be inspected. This is the last stage in the supply of information.

10. Inspection of the relevant parts of the plant

Management would escort the inspection team on a tour of the plant. The inspectors would mainly examine the following:

1. volume of initial product stored (trimethyl phosphite)
2. transport from the storage site to the reaction process
3. actual occurrence of reaction
4. volume of production

5. whether claims by management that certain pipes and apparatus are no longer in use are true
6. process water supply
7. effluent removal
8. removal of product
9. storage of end product
11. Sampling and analysis

The sampling points could be arranged as follows, according to their degree of intrusiveness:

near-site verification

1. at the point where process water enters the industrial complex
2. at the point where effluent water leaves the industrial complex.

on-site verification (less intrusive)

3. effluent water from: the production plant
4. waste other than the effluent referred to above
5. effluent water from the industrial complex as a whole before it enters the purification plant.

on-site verification (more intrusive):

6. at the place where the initial product is stored (in order to analyse whether the trimethyl phosphite contains traces of P--CH₃)
7. at the point where a product leaves the reactor vessel (in order to establish that the key precursor has been processed into a substance not relevant to CW).

Inspection would be most effective if the samples could be analysed before the end of the inspection so that supplementary samples can be taken if necessary in order to eliminate any uncertainties which arise. Where possible, analyses should be carried out in works laboratory. The other samples could be taken to the TNO's Prince Maurits Laboratory for analysis.

12. Subsequent discussion and reporting

The inspection team would discuss the results of the inspection with the plant's management and national representatives.

Annex I

Annual report form for companies with plants subject to routine inspection

1. Name of company:
2. Location of plant (postal address and exact geographical location):
3. Is more than 1 ton per annum of the substances in List II produced, stored, traded or processed?
4. To what substance(s) does this apply?
5. Which of the following activities are performed with regard to the substance(s):
 - production
 - storage
 - trade
 - processing
6. Is/are the substance(s) produced or processed in a dedicated plant or in a multi-purpose plant?
7. Since when has this been the case?
8. What amounts are:
 - produced?
 - stored?
 - traded?
 - processed?
9. For what purpose is/are the substance(s) produced or processed:
 - export (to which country?)
 - conversion into:
 - sale to other domestic industry
 - other:

(This set of questions is repeated if the product made is a group I/II/III substance).

10. Are list I or II substances known to be produced as by-products?

Yes
No

11. If so,

- what substances?
- since when?
- in what quantities?

12. For what purpose are they used:

- export (to which country?)
- conversion into:
- sale to other domestic industry
- other:

13. List of relevant licences and names and addresses of licensors which could be consulted at a stage when more detailed information is required (both licences and accompanying documents)

14. Simple block diagram of the facilities used for storage, reaction and processing of the chemicals referred to at 3 and 4.

15. Indication of reactor vessel capacity at the plant to be inspected.

- reactor vessels of 1-20 m³
- reactor vessels of 20-50 m³
- reactor vessels of more than 50 m³

16. What production, process and analytical data relating to the substances referred to at 4 and 11 are present at the location?

How are they stored, and for how long?

17. What facilities for analysis exist and can be used for the purposes of the inspection?

... gas chromatography in combination with:

- ... flame ionization
- ... flame photometer-P
- ... flame photometer-S
- ... thermionization detector-NP
- ... mass spectrometer
- ... infra-red spectrometer

... high-performance liquid chromatography with:

- ... differential refractive detector
- ... electrochemical detector
- ... ultraviolet detector

... thin-layer chromatography with reagents for:

... P-compounds
... S-compounds
... N-compounds
... Cl-compounds
... cholinesterase inhibitors

... mass spectrometer
... infra-red spectrometer
... nuclear magnetic resonance spectrometer
... ultraviolet spectrometer
... facilities for wet-chemical analysis, such as:

... element analysis
... gravimetry
... titrimetry

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Ad Hoc Committee on Chemical Weapons

The Netherlands

**WORKSHOP ON THE VERIFICATION OF A CHEMICAL WEAPONS BAN
held in the Netherlands, 4-6 June 1986**

**Verification of non-production of Chemical Weapons:
Observations on the scenario for an experimental inspection
as laid down in CD/CW/WP.141**

* / Reissued for technical reasons

GE-86-61860/2883E

0 The following observations on the scenario for an experimental inspection are numbered in the same way as the scenario for an experimental inspection (CD/CW/WP.141)

1. The aim of the experimental inspection

(a) Selection of the plant to be "inspected"

In previous proposals, trimethyl phosphite has been regarded as one of the key precursors which should be subject to routine inspection. In CD/CW/WP.133 (11 April 1986) however, the Netherlands proposed placing trimethyl phosphite in category III. This would mean that the plant where the experimental inspection was carried out would only be subject to compulsory reporting and not to routine inspection. The problems which the International Inspectorate would encounter in performing a routine inspection of the plant selected would however differ little from those involved in inspecting a plant where a category II precursor was processed. We therefore consider that the production plant where the experimental inspection was carried out was highly suitable for the purpose of that inspection, the aim of which was to work out and test verification methods.

(b) Selection of the facility "inspected"

The complex where the experimental inspection was performed comprised a number of other multi-purpose production facilities. The facility "inspected" was the largest and the only one in which trimethyl phosphite was processed.

The scope of the experimental inspection was deliberately limited in order to enable us to concentrate on certain aspects. The main limitations were as follows:

- other production facilities within the same complex were disregarded (although the analysis of effluent from the central purification plant was also of relevance to other facilities)
- the relevant substance was only processed in the facility selected. Routine inspection of a facility which produces a relevant substance would entail a number of extra problems, notably because the Inspectorate will wish to know as exactly as possible what happens to the substance produced.

(c) Choice of inspection methods

For the experimental inspection, use was notably made of a method of detecting compounds with a phosphorus methyl bond. This is the most obvious method of analysis in view of the possibility that trimethyl phosphite might be processed into dimethyl methylphosphonate (DMMP). In a real inspection this method of analysis would probably likewise be used to detect compounds with a phosphorus ethyl bond. An analysis of which phosphorus methyl compounds are present in the complex could also be performed, as the method used only indicates whether such compounds are present in a sample without indicating which ones.

2. Composition of the inspection team

The experimental inspection was conducted by an employee of the Central Environmental Protection Department, Rhine Estuary Region whose job involves inspecting the civil chemical industry under the terms of a number of Acts of Parliament on environmental matters, and an employee of the Prince Maurits Laboratory whose job involves research into methods of detecting chemical weapons.

3. Verification of non-production

(a) Applications of the effluent analysis method

The effluent analysis method referred to can also be used to detect traces of ethyl phosphorus and, in principle, other alkyl phosphorus traces. This covers the majority of nerve gases and their key precursors. However, the method is not suitable for mustard gas and Tabun because these super-toxic lethal chemicals do not contain any phosphorus alkyl compound.

In using the method it is of course important to bear in mind the possibility that trimethyl phosphite may be converted into dimethyl methylphosphonate inside a closed system so that no effluent is produced. But even if water is not used directly in the process, effluent will ultimately be released during the incineration of by-products and so on.

(b) Verification of previous and future non-production

A routine inspection can only provide full certainty about what is going on in the plant at the time of the inspection. It is not possible to obtain complete certainty about what has happened in the past or what will happen in the future. None the less, an inspection team could possibly obtain indications on what has happened or will happen by looking at the following:

	possible indications of CW production	
	<u>in the past</u>	<u>in the future</u>

1. Plant records etc.	X	X
2. Special technical facilities	X	X
3. Special safety measures	X	X
4. Medical particulars of staff (blood samples, illness, interviews)	X	
5. Presence of particular basic products	X	X
6. Presence of other particular compounds	X	X
7. Presence of illegal end products	X	
8. Waste (small, detectable traces are persistent)	X	

Some of these indications can be concealed fairly rapidly and easily (for example 7), while others are far more difficult to hide (for example 8). The clearest indications are naturally to be found in plant records. Although these may be false, it is very likely that falsifications will come to light during a routine inspection which has been announced only shortly beforehand. It is difficult to make full formal provision for checking up on all of the above eight points, and much will therefore depend on the knowledge, experience and diplomacy of the inspectors. The necessary experience will have to be built up, inter alia by paying visits to the plant concerned and to other similar ones. Familiarization visits could play a useful part in this.

If the plant is small, consisting for example of a single production facility together with everything pertaining to it, an inspection team can check all eight points with relative ease. But if the routine inspection has to be carried out at a very large plant where numerous activities not relevant to CW are performed, it will be far more difficult to check it properly for special basic products and other particular compounds. Unless there are good reasons for the inspection team to devote special attention to the possible presence of stocks of relevance to CW, it would possibly be more efficient for the inspection team to concentrate on numbers 1-4 and 8 of the above list in such cases.

4. Verification of non-diversion

The most difficult problem involved in verifying non-diversion is the loss that occurs when processing a substance. Losses may occur for the following reasons (among others):

4.1 Loss on account of physical causes

This may occur, for example, during transport and storage as a result of evaporation, residues being left behind in vessels and pipes, etc.

4.2 Loss for reasons of process chemistry

Examples:

- If a reaction is to be carried out between two chemicals, one of which is more expensive than the other, a deliberate decision will often be made to use an excess quantity of the cheaper substance in order to ensure that all of the more expensive substance is converted into product.
- During the reaction process, part of the initial product may be converted into undesirable by-products which are eliminated by means of waste purification and air purification processes.

4.3 The extent of losses

Although companies will naturally do their best to operate as economically as possible, with minimum losses, a discrepancy of 10 per cent between the quantity of initial products used and the theoretical quantity of end product which should result is not unusual. If this end product is in turn used as an initial product for another end product, a further loss of 10 per cent may occur.

In a production process which consists of a number of stages of this kind, it is thus theoretically possible for losses amounting to dozens of percentage points to occur. It should be borne in mind in this respect that a company will itself be the first to establish the reasons why raw materials are being lost, for economic motives. The Inspectorate can expect management to give a plausible explanation of any substantial loss. If they cannot, there are grounds for suspicion.

5. Data required for verification of non-production

In planning the experimental inspection, we drew heavily on the United Kingdom's working document CD/575. We believe that the list of data in Annex I, point 6, forms a good checklist for data required for an effective routine inspection.

In addition to the points which appear on this list we feel that it would also be worthwhile to look at how waste is processed (in connection with the possibility of using effluent analysis as a less intrusive verification method). It might also be useful to obtain a general indication of the safety measures taken, as these provide an indication of the possibility of producing ultra-toxic substances at the plant concerned. However, as various important key precursors are themselves less toxic than for example many pesticides in civil production, the non-existence of special safety precautions does not indicate whether illegal production of key precursors is taking place in the plant concerned.

One must assume that in the course of time inspectors operating under a CW convention will build up extensive knowledge of the chemistry and technology of, in this case for example, the organophosphate industry.

Since the production facility where the experimental inspection took place was not producing but processing a key precursor, interest in the production process strictly speaking ceased at the point where the key precursor had been converted into another compound. It was therefore sufficient for the description and the on-site inspection to be confined to the first part of the production process.

6. Stage-by-stage supply of information

In CD/575 it was proposed that parties should be obliged to supply the information referred to in section 5.1 of the scenario to the International Inspectorate at regular intervals. The inspection team would only receive the supplementary information referred to at 5.2 upon arrival at the industrial complex at the beginning of a routine inspection.

During the experimental inspection we came to the provisional conclusion that this placed excessive demands on the inspection team. In order for effective on-site verification to be performed, far more information is required than listed at 5.1. If the inspection team has to receive and process all this supplementary information at the beginning of a routine inspection this will probably take up so much time that the actual on-site inspection can only begin late. In order to make a routine inspection as effective as possible, as little time as possible must be lost between notification that a routine inspection is to take place and the actual carrying out of the inspection, i.e. before the team actually looks at the

production facility and takes samples if appropriate. It is therefore important that the inspection team should be as fully informed as possible in advance.

This problem might be solved by inserting an extra stage in the supply of information between the supply of general information under compulsory reporting arrangements and a routine inspection. The aim of this stage would be to provide the inspectors who might have to carry out a routine inspection with the information they need in order to prepare for the inspection properly. It should comprise as much relevant information as possible, and would therefore go much further than the general information supplied under compulsory reporting arrangements but without having the compulsory or verificative character of a routine inspection.

Use could be made of the fact that in most countries where there are plants which would require routine inspection the central or regional authorities already possess much information about them.

7. Compulsory reporting

7.1 Sensitivity of data

Many of the data which companies would be asked to supply regularly to the International Inspectorate (via the national co-ordinating agency) are either public already (at least in the Netherlands and many other countries) or could be made public without too much hesitation. However, there are a few questions that relate to commercially sensitive data, especially questions 8 and 9 on the form annexed to the scenario:

- the exact amount produced etc.
- the name of the customer to whom it is sold.

However, it is essential for the Inspectorate to have both types of information in order to keep a kind of balance sheet. Perhaps the problem could be resolved if the national co-ordinating agency were to add the figures together and only forward the total to the Inspectorate.

7.2 Frequency of reporting

Some questions certainly would not need to be answered more than once a year (e.g. questions 1, 2 and 13 to 17). Others will need to be answered more frequently, for example quarterly or whenever a relevant change occurs (e.g. beginning or end of production of a category II precursor).

7.3 Obligation to store data

In order to ensure that companies do not dispose of production data so that the inspection team cannot have access to them during a routine inspection, it could be made compulsory for them to store such data for a specified period of time.

8. Familiarization visits

8.1 Purpose of familiarization visits

Unlike compulsory reporting, as described in section 7, and routine inspections, as described in sections 9 to 12, familiarization visits have no direct verification purpose. But parties should be obliged to co-operate in such visits in a bona fide manner. If a party is unwilling or unable to supply enough relevant information during a familiarization visit, it should be possible to arrange an expedited routine inspection of the plant in questions.

8.2 Use of information held by the authorities

In so far as the information held by local or central government is public, there should not be any objection to an inspection team copying it and so forth. In so far as it is confidential, the inspection team should only have the right to study it during a familiarization visit and not the right to make copies and the like.

If the inspectors from the International Inspectorate are indeed empowered to obtain information from central or local government bodies, this of course will in effect mean extra work for the government bodies concerned. Presumably it would not take up much extra time or call for many extra staff, but in most countries amendments to legislation would be necessary to enable government bodies to allow confidential information to be studied by the International Inspectors. As a rule, government bodies will have obtained the information for precisely defined purposes which will not include verification of non-production of chemical weapons (at least not for the time being).

It could be left to parties to the convention to work out exact details of regulations to facilitate effective familiarization visits.

8.3 National implementation agency

All parties to the convention would have to designate a national implementation agency to channel compulsory reports and liaise with the International Inspectorate. If a party did not have any industry of relevance to CW (or any chemical weapons), the national implementation agency would not actually have anything to do and it would probably be sufficient to make the Ministry of Foreign Affairs or the Ministry of Economic Affairs formally responsible for acting in this capacity.

If a party did have plants of relevance to CW within its territory, the national implementation agency could be instructed to guide the International Inspectors both on familiarization visits and on routine inspections. It would be possible to make it compulsory for government bodies which receive relevant data to supply copies thereof to the national implementation agency, so that the familiarization visits could mainly be confined to visits to the implementation agency by the International Inspection team. But from the point of view of protection of confidential industrial data it might be more advisable to leave the data where they are and for the team to make familiarization visits to those places.

9. Notification of routine inspections and reception at the industrial complex

In order to make it as difficult as possible to eradicate all traces of illegal activities, it is very important that as little time as possible should elapse between the notification and the carrying out of a routine inspection. The following measures could help to achieve this end:

- Good preparation by the inspection team (e.g. by means of familiarization visits; see section 8).
- Stage-by-stage notification of the routine inspection. It might first be announced that an inspection is to be carried out in a particular region (e.g. Belgium, the Federal Republic of Germany and the Netherlands). The receiving State or States would then be obliged immediately to take all necessary steps to facilitate inspection of any plant within its/their territory (visas, transport etc.). Only after the inspectors' arrival in the area would it be announced exactly which plant was to be inspected.
- Instead of following the procedure described in the scenario, the inspectors could take a few samples immediately upon arrival at the industrial complex, i.e. before holding detailed talks with management, etc. In a routine inspection the sequence of the elements discussed in sections 9 to 12 of the scenario would thus be as follows:

10A and 11A: initial inspection and sampling

9: reception; study of relevant data etc.

10B: more detailed inspection

11B: further sampling

12: subsequent discussion

10. Inspection of the relevant parts of the industrial complex

At all times during the process which resulted in the scenario for an experimental inspection we sought to keep the intrusiveness of the inspection to a minimum. It is our view that this can be achieved by defining as precisely as possible both the requirements of proper verification of non-production and the parts of the inspected plant which are sensitive to publicity.

Proper routine inspection is therefore like a suit which is made to measure. In broad outline each one may be alike, but the details differ from case to case. In order to ensure a good, comfortable fit the company must co-operate frankly and allow its measurements to be taken.

Thus there is no point in seeking to lay down an "off-the-peg", standard procedure which is both detailed and applicable in every case. Every plant is different, and there will be differences as regards which parts are relevant to CW production and as regards what information is sensitive to leaks. The precise details of a routine inspection which optimally combines the

requirements of effective inspection and preservation of confidentiality must therefore be decided in each concrete case in consultation between the inspection team and the company.

None the less, it is possible to draw up a checklist of points to be borne in mind by the inspection team. We sought to take a step in this direction in the scenario for the experimental inspection. It is likely that further points will be added to the checklist during future inspections or experimental inspections.

The chemical weapons convention will have to provide the framework for these inspections. The powers of the inspection team will have to be defined so broadly that a company whose plant is being inspected will not have any formal grounds for refusing permission for the inspection team to carry out any part of the inspection which the team considers necessary.

11. Sampling and analysis

11.1 Checking for the presence of phosphorus methyl and phosphorus ethyl compounds

During the experimental inspection the effluent was only analysed for traces of phosphorus methyl. A genuine inspection should also include analysis for phosphorus ethyl compounds and possibly also for other phosphorus alkyl compounds.

11.2 Intact analysis

In many cases it will not be sufficient for the inspection team to note that effluent contains phosphorus methyl or phosphorus ethyl compounds; it will also wish to ascertain exactly which of these compounds the effluent contains, or at least that these substances are not being produced illegally. Negative and positive identification are suitable for this purpose.

11.3 Negative identification

The advantage of this method would be that it does not reveal exactly what is actually being manufactured. But it is very difficult to carry out negative identification for all list I and II substances using existing techniques. It is easiest for phosphorus alkyl compounds.

11.4 Positive identification

The disadvantage of positive identification is that it yields far more information about the production process. Perhaps there may be methods which make it possible to identify a class of substance without knowing exactly which substance is involved.

11.5 On-site analysis of samples

The experience of the IAEA has shown that problems often arise with the transport of samples for analysis elsewhere on account of safety regulations for air transport and so on. A similar problem could arise with the transport of samples that possibly contain super-toxic lethal chemicals. It is therefore important that wherever possible samples should be analysed on site or nearby.

12. Subsequent discussion and reporting

As the experimental inspection was not intended to result in genuine verification, the report by the experimental inspection team does not contain an assessment of the production facility which the team visited but only an assessment of the feasibility of certain inspection methods and techniques. In order to safeguard the confidentiality of various operating data, certain details were omitted from the report as presented. In the case of a real inspection the report would remain confidential and would not contain any more details than strictly necessary. Details about the production process have no place in the report unless the inspection team believes that it is on the track of irregularities which suggest that production is being carried out for CW purposes.

13. After the inspection

In the case of the experimental inspection there was of course no follow-up. However, this aspect cannot be omitted from any consideration of routine inspections. The follow-up can give rise to problems if a violation of the convention has been found or if it remains uncertain whether such a violation has occurred.

13.1 Uncertainties

If the conclusions from the report are unclear and there is room for doubt, there are various options, such as:

- a. further consultation with the State where the plant is located (or direct, with the company concerned?)
- b. a further inspection to eliminate uncertainties (in fact a challenge inspection requested by the Inspectorate)
- c. if the above procedures do not eliminate the uncertainties and the doubt is serious, the Inspectorate could refer the case to the Executive Council
- d. the Executive Council could decide on a challenge inspection, which the company would be obliged to accept
- e. if there are no serious grounds for doubt but uncertainty still remains, it might be sufficient to increase the weighting factor for the plant concerned, so that there is an increased likelihood of a further inspection being carried out.

13.2 Violation of the CW convention

If the violation of the CW convention which has been found to have occurred is or might be serious, the Executive Council should be informed of the findings of the inspection team immediately. If the violation is not so serious, the matter might be dealt with by the Inspectorate and the company and State inspected. A report on this should subsequently be submitted to the Executive Council.

13.3 Powers of the Inspectorate

In order to keep the resolution of any uncertainties as low-key as possible, it is important that the Inspectorate should have sufficient powers to consult with a party and if necessary to decide on a further inspection. If the Inspectorate does not have sufficient powers, even minor problems will have to be put to the Executive Council in every case, thus creating a strong probability of politicization.

13.4 Obligatory acceptance of challenge inspections

Routine inspections will not be carried out often enough to provide complete certainty that there are no irregularities at the plants which are registered. It will therefore have to remain possible to carry out challenge inspections.

If a party has registered a plant as relevant to CW because Category I, II or III substances are manufactured or processed there, it is hard to imagine what good reasons there could be for refusing a challenge inspection at such plants.

It is therefore worth considering incorporating in the CW convention an obligation to permit challenge inspections at plants which have been registered because they produce or process Category I, II or III substances.

Ad Hoc Committee on Chemical Weapons

THE NETHERLANDS

**WORKSHOP ON THE VERIFICATION OF A CHEMICAL WEAPONS BAN
held in the Netherlands, 4-6 June 1986**

**Verification of non-production of chemical weapons:
Existing arrangements for monitoring the civil chemical
industry in the Netherlands**

Introduction

A Workshop on the verification of a chemical weapons ban was held in the Netherlands, 4-6 June 1986.

During the Workshop, a lecture was given by Dr. J.G. Wessels Boer, Deputy Director of the Department Soil and Groundwater, Water, Chemicals, Ministry of Housing, Physical Planning and the Environment, on existing arrangements for monitoring the civil chemical industry in the Netherlands.

Since the Netherlands Government is of the opinion that an overview of existing inspections at a national level could give a useful impetus to discussions in the Ad Hoc Committee on Chemical Weapons about an international inspection régime - the relationship between national inspection measures and an international inspection régime has hardly been discussed in the current negotiations - the integral text of the lecture of Dr. Wessels Boer is attached as an annex to this Working Paper.

Existing arrangements for monitoring the civil chemical
industry in the Netherlands

Summary

The present paper first briefly discusses the connection between the proposal for monitoring the production of substances for chemical warfare and the content of the paper. Existing national arrangements for monitoring the civil chemical industry in the Netherlands are then described. The information which is in principle already available to the authorities under existing laws and regulations is indicated. Lastly, the ways in which observance of the law is monitored and enforced and confidentiality of data is safeguarded are discussed.

Introduction

In order to monitor production and handling of substances which could be used either for purposes of chemical warfare or for civil purposes, it is necessary to know enough about their civil use. Such substances are divided into three categories on the basis of their civil use - or at least will be if the proposals of the Netherlands and others at the CD are accepted - and monitoring methods must be based on this fact.

The present paper does not consider the requirements for effective international monitoring of the implementation of a chemical weapons convention. What we have, however, sought to do is to indicate what national arrangements already exist, or will shortly come into being, for quite different purposes, such as environmental protection, human safety and so on. This is intended to show that a system of legislation and inspections exists which is complex but intrusive and which can be used by the central, regional and local authorities to monitor the chemical industry. No distinction is made in this respect as regards the ownership of chemical plants, i.e. as to whether they are private or state-owned, or whether the owners are established in the Netherlands or elsewhere.

Concern about the environment and human welfare in the Netherlands has resulted in a number of Acts of Parliament which provide for checks on industry. They are concerned with conditions in the work-place, imports and exports and, in many cases, the environment. In order to ensure that the authorities are kept sufficiently informed about the chemical industry,

effective and verifiable methods are required. There must be a balance between effective monitoring (i.e. obtaining information about industrial operations) and the interests of industry. This means that a certain measure of confidentiality must be guaranteed. Existing arrangements in the Netherlands will be described by way of example.

In the present paper I shall therefore consider the following four subjects:

1. Arrangements for monitoring in the Netherlands
2. Data available to the authorities
3. Inspection and inspectors' powers
4. Safeguards for confidentiality.

I wish to emphasize that I shall be speaking about national legislation and regulations and not international monitoring. However, experience gained nationally may be of use in planning effective international arrangements for monitoring the observance of a prohibition on the production of certain chemicals.

1. Arrangements for monitoring the chemical industry in the Netherlands

Every industrial company undoubtedly records a wealth of data for the purposes of its accounts and in order to comply with laws and regulations. In order to comply with laws and regulations. In order to determine what data industry has on chemicals and in what form, 30 companies were surveyed at the request of the Government. This yielded a picture of the nature and extent of the various record-keeping arrangements with regard to purchases, sales, production and waste disposal. At the same time an overview was prepared of the records which have to be kept pursuant to laws and regulations laid down by both central government and local authorities, and the time spent on complying with these requirements. This survey was carried out in order to investigate the extent to which existing record-keeping arrangements in industry resemble those required by laws and regulations, and particularly those which will in future be required under the terms of the Chemical Substances Act.

Part of the Chemical Substances Act entered into force at the beginning of this year. Once the whole Act is in force, it will become the main instrument for monitoring chemical production and trade. Record-keeping on the quantities of substances and preparations which a company has manufactured, imported or supplied in the Netherlands will shortly become compulsory under the Act. The aim of this is to make it possible for the authorities to obtain information from the companies with a minimum of delay so as to build up a picture of the distribution and prevalence of certain substances which may be dangerous to humankind and the environment. This aim can only be achieved if the data required for the purpose are actually recorded and reported. The same Act therefore lays down that industry is obliged to supply further information on certain substances designated by the authorities to a designated body.

Besides the Chemical Substances Act, there are a number of other Acts of Parliament under which the chemical industry is monitored.

A licence is required for establishing, operating or altering a plant with its facilities. Licences are issued at local level, mainly by municipal authorities and to a lesser extent by provincial authorities. They are often issued subject to conditions indicating precisely the measures which must be taken to deal with danger, damage or nuisance, or indicating the desired result. If there is any uncertainty about possible danger, damage or nuisance, a temporary licence may be issued.

In many cases a full list of the chemicals to be used in the plant must be submitted in order to obtain a licence. The owner must also state what work is to be performed and what products are to be manufactured or collected. Owners may be ordered to take measurements in order to assess danger, damage or nuisance, and to supply the results to the authorities.

The Nuisance Act is mainly concerned with preventing nuisance to local residents and has proved inadequate as a statutory basis for combating environmental pollution. A system of environmental legislation has therefore been established which makes it possible, inter alia, to monitor the chemical industry.

The Pollution of Surface Waters Act lays down that waste, pollutants and noxious substances may only be discharged into surface waters if a licence has

first been obtained to do so. Similar provisions are contained in the Marine Pollution Act. Under these Acts, public servants are empowered to measure the quantities discharged and to take samples, even in places where substances are stored. Companies are also obliged to supply information on the nature or composition of their discharges.

When applying for a discharge licence, information must be supplied not only about the nature and quantity of the substances to be discharged but also about the plant producing them, and process diagrams must be provided, showing what substances are generated and released, where and in what quantities. Depending on the water into which the discharge is to be made, a licence is issued by central government, the provincial authorities or other government bodies.

The Air Pollution Act lays down similar provisions for the protection of the air as those which exist for surface waters. Measurement and recording of emissions are frequently made compulsory for licensees.

Statutory regulations also exist on the processing of waste. The Chemical Waste Act provides for compulsory notification of transfer of chemical waste, which must include details of the nature, properties, composition and quantities of the waste transferred. Most normal industrial waste must also be recorded under the Waste Disposal Act. Pollution of the environment with waste must be traced and the results supplied to the authorities.

The Working Conditions Act also makes provision for monitoring the civil chemical industry. It provides for rules to be laid down in the interests of safety, human health and the welfare of employees. If any dispute arises between an employer and employees concerning observance of the Act or the presence of danger, the works council or a majority of the employees may ask the authorities to ensure that appropriate measures are taken. The company is obliged to supply such data as are necessary in order to establish whether the Act is being observed.

Notification and recording of accidents and occupational diseases will shortly become compulsory. If special dangers to safety, health and welfare may arise, the company is obliged to draw up a work-place safety report, which

must include a description of the plant, the process, how it operates, and the possible dangers and provisions for dealing with them. One copy of the report is sent to the government body which issued the licence under the Nuisance Act.

New substances

It is simpler to monitor the production, processing and marketing of new substances by the chemical industry. New substances are defined for this purpose as substances first produced, processed or marketed in the European Community after 17 September 1981. Effective provisions are laid down in the aforementioned Chemical Substances Act. Any company which introduces a new substance is required to inform the authorities in writing, supplying the data laid down in the Act. In addition, the authorities may instruct a company to supply data not specified in the Act. For this purpose a company notifying the authorities about a new substance may be instructed to carry out supplementary research. The authorities must be notified of any change in knowledge, quantities, use or nomenclature. Otherwise, the laws and regulations already referred to apply to production and marketing of new substances.

Exports

Exports of chemical substances are regulated in the General Import and Export Act and notably in the Strategic Commodities Export Decree, which regulate imports and exports of certain goods, namely goods which may be of strategic significance or of relevance to the international legal order. Actions which are necessary in order to export such goods are also subject to the Act. This may mean for example that it is prohibited to export military material or substances suitable for the manufacture of chemical weapons without a licence. A licence is also required for trade in strategic goods in free circulation. This means that it is not permitted for a company established in the Netherlands to be financially involved in trade in strategic goods in other countries without prior authorization.

The aforementioned Chemical Substances Act contains provisions on the export of chemical substances and preparations which appear on a list which has yet to be drawn up. A company wishing to export such substances and preparations must notify the appropriate Netherlands Government Minister and

the competent authorities in the country to which the substances are to be exported. For each substance it is also to be determined what data should be submitted to the authorities concerned. Before substances are exported, the company will have to show that the authorities in the receiving country have received the data and authorized the transaction. This prior informed consent procedure is not yet in force. An EC regulation on the subject is in preparation. Pending the entry into force of the prior informed consent procedure, sectoral organizations representing the industry have decided on a voluntary notification scheme.

Thus the relevant Acts of Parliament lay down rules on compulsory record-keeping and reporting with regard to emissions, waste processing and nuisance. The frequency with which data must be recorded or reported depends to a large extent on the way in which companies are permitted to collect the data. Recording may be continuous, periodic or occasional, while reporting to the authorities is generally required quarterly. The qualitative and quantitative data required and the mode of collection are generally defined in the licences issued under an Act of Parliament. The various Acts lay down procedures for the issuing of licences, stating how, from whom and for what purposes licences must be obtained.

Certain licences cannot be obtained unless the licences required under other Acts have been granted. The Environmental Protection (General Provisions) Act regulates the co-ordination of licensing, and is intended to help it to proceed more smoothly. The Act also contains a number of general rules on environmental protection.

2. Data available to the authorities

The authorities have access to a wide range of data in connection with licence applications, inspections, record-keeping and reporting under the above Acts of Parliament. In principle, they know what chemicals are being used by a particular company, and this will certainly be the case once the Chemical Substances Act has entered into force in full. The processes and facilities which are in operation at a company are known. The quantities of substances which are emitted from a company's works and/or which the company supplies to others for processing as chemical waste are also recorded.

In principle, this makes it possible to monitor the chemical industry effectively. However, this statement needs to be qualified in three ways.

Firstly, data are recorded per company rather than per substance. This makes it difficult to trace the progress of substances from place to place, and particularly to keep track of the quantities involved.

Secondly, the data are not recorded centrally by central government but in a fragmentary fashion by various public authorities. There may be some improvement in this respect as a result of computerization and the Environmental Protection (General Provisions) Act.

Thirdly, the data supplied are not always sufficiently specific and accurate. It is true however that there is a tendency for legislation to provide for more supervision for the more dangerous substances, so that data on the more dangerous substances will be more specific.

In addition to data obtained in connection with the issuing of licences, statistics are available from the Central Bureau of Statistics, from records on emissions and from such sources as the Chemical Directory of the Netherlands and the Manual of the Dutch Chemical Industry.

In principle, data from the Central Bureau of Statistics are public, but they are compiled in such a way as to make it impossible to deduce the source. In the case of chemicals this means that information is only made public on whether a particular substance was imported into or exported from the Netherlands in a particular month, while data on individual companies remain secret and cannot be used for monitoring purposes. If a chemical is only used by one company or by very few, the chemical is not named but listed as part of a group, such as a category of chemical substances. It is possible to enquire what category a particular substance belongs to.

Emissions are also recorded in the Netherlands. Companies are asked to inform the authorities what quantities of substances they have emitted. These data likewise fail to yield a detailed picture. With the aid of data from the Central Bureau of Statistics, emission records and the aforementioned literature, followed by detective work using the telephone it is in principle possible to obtain a fairly complete picture within a few days as regards the quantities of a particular substance which companies have received, produced or sold.

Experience shows that once one knows which company has sold or produced a substance, it is fairly easy to obtain more general information on this substance. Particularly if furnished with some degree of formal power, one can probably trace about 80 to 90 per cent of the quantity of the substance involved. The percentage depends on the substance, the quantity and the number of producers and users.

3. Inspection and inspectors' powers

Laws and regulations on acceptable ways of producing, storing, processing and marketing substances are one thing; safeguards to ensure that they are observed are another. Every Act of Parliament therefore designates bodies to which reports must be submitted, and officials are appointed by central, provincial and municipal government to monitor observance of the various statutory provisions. They are empowered to examine and copy such records and documents as may reasonably be deemed necessary in order to carry out their responsibilities. If necessary for the purposes of their duties, they may also detain and examine vehicles and their contents. They may enter plants with their equipment and examine goods and take samples if necessary. They may designate persons who are to accompany them. Companies are obliged to co-operate with officials and those accompanying them in any way which the officials may require in order to do their job, and to supply any information needed for this purpose. Thus the statutory powers vested in officials are very far-reaching, and there are few powers denied to them.

4. Confidentiality

Naturally, confidentiality for purposes of protecting industrial secrets is justified. The various Acts of Parliament therefore lay down that companies may apply in writing, stating reasons, for certain data to be treated in confidence. In this case, two application forms have to be completed. One is detailed and the other, which is public, is more brief. Confidential data may only be used by the body to which they have been supplied and only for the purpose for which they were supplied. Everybody who gains access to confidential data is obliged to treat them in confidence unless required to reveal them pursuant to an Act of Parliament or in the interests of its implementation.

Conclusion

By way of conclusion it can be said that effective monitoring of the chemical industry in the Netherlands is possible with regard to the production, processing and marketing of substances. Information is not yet stored centrally, but the various public authorities have data on the substances used and produced and on processes, plants, discharges and emissions.

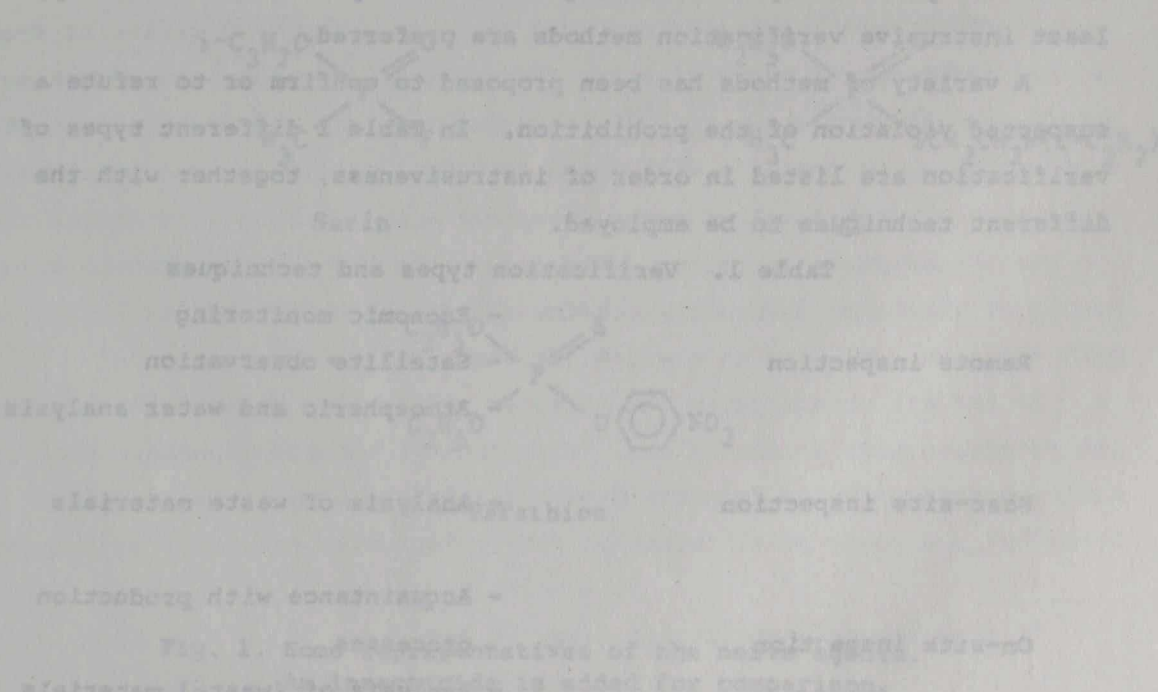
Ad Hoc Committee on Chemical Weapons

THE NETHERLANDS

WORKSHOP ON THE VERIFICATION OF A CHEMICAL WEAPONS BAN

held in the Netherlands, 4-6 June 1986

Verification of phosphorus-containing nerve agents
in waste water



VERIFICATION OF PHOSPHORUS-CONTAINING NERVE AGENTS
IN WASTE WATER

SUMMARY

A survey is given of the work which has been carried out in the Prins Maurits Laboratory of the Netherlands Organization of Applied Scientific Research (TNO) concerning the verification of phosphorus-containing nerve agents in water. The investigations furnished two verification procedures. The P-CH₃ procedure is meant for near-site inspection but has also been applied during the trial inspection preceding the Workshop organized by the Netherlands, 4-6 June 1986. The procedure on intact agents provides additional information about the identity of the agent and may also be used as a type of negative identification during an on-site inspection. Parts of this work have been published in the documents CD/306 and CD/307.

INTRODUCTION

Discussions concerning a treaty prohibiting the development, production and stockpiling of chemical weapons have been going on in the Committee on Disarmament in Geneva for about 17 years. Many participating countries consider an adequate verification of such a ban a prerequisite for a treaty. The main function of an effective verification system is to deter the production of chemical weapons, in particular the most dangerous. To achieve adequate deterrence, procedures are necessary to ensure that there is a reasonable probability of detecting clandestine production. Clearly, the least intrusive verification methods are preferred.

A variety of methods has been proposed to confirm or to refute a suspected violation of the prohibition. In Table 1 different types of verification are listed in order of intrusiveness, together with the different techniques to be employed.

Table 1. Verification types and techniques

Remote inspection	- Economic monitoring
	- Satellite observation
	- Atmospheric and water analysis
Near-site inspection	- Analysis of waste materials
	- Acquaintance with production processes
On-site inspection	- Analysis of (waste) materials

At the time the investigations were started (1974) we were of the opinion that in particular the near-site inspection of river water downstream of chemical production plants showed interesting possibilities. It was taken for granted that before deciding whether a visit to a plant by members of an inspection team was required, it would be useful to carry out a chemical analysis of the waste material present in the water around the premises. This method is less intrusive than a visit, which could be regarded as a possible compromise of intellectual property. Furthermore it was assumed that a future prohibition concerning the development, production and stockpiling of chemical weapons would concentrate on compounds which might be banned unconditionally. Such a ban would most probably concern the nerve agents, because due to their superior toxic properties these compounds constitute the most serious threat among chemical weapons. As the verification technique has to be geared to the ban, an investigation was started which aimed at the detection of nerve agents or their decomposition products in waste water.

P-CH₃ PROCEDURE

Nerve agents are organophosphorus compounds and are structurally related to insecticides. Both types of compounds may be prepared in similar production plants. However, there is an important structural difference between these compounds. The majority of the nerve agents such as VX, Sarin and Soman have a phosphorus-methyl grouping in their molecule which is absent in the organophosphorus insecticides. The difference is shown in Figure 1.

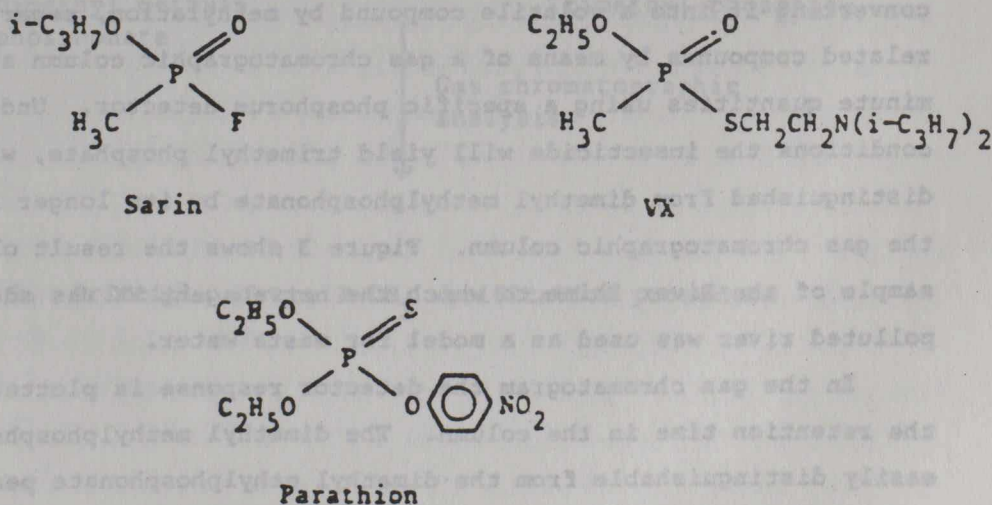


Fig. 1. Some representatives of the nerve agents.
An insecticide is added for comparison.

The phosphorus-methyl bond appears to be directly related to high mammalian toxicity, and the production of compounds containing this group has been avoided by manufacturers of insecticides.

Two questions arose from this analysis

- can one detect the phosphorus-methyl grouping in a given suspect sample of waste water?
- can the possibility of this chemical configuration occurring in nature be excluded?

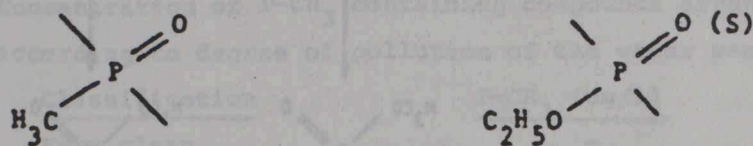
The answer to both questions is yes. The phosphorus-methyl bond is very strong and resists most methods of degradation. It can be detected analytically with high specificity and sensitivity by means of gas chromatography in combination with specific phosphorus detection as will be shown afterwards. Furthermore, an extensive search of the literature revealed that the phosphorus-methyl bond does not appear in nature. Thus the detection of this chemical configuration in a sample could not be due to a naturally occurring organophosphorus compound. It would appear therefore that a false positive identification of a nerve agent or its breakdown products would not take place.

Based on these considerations a verification procedure was evaluated between 1974 and 1980. The principle is presented in Figure 2.

In short, ^{*/} the method consists of hydrolysing the nerve agent or its decomposition products into methylphosphonic acid, concentrating it, converting it into a volatile compound by methylation, separating it from related compounds by means of a gas chromatographic column and detecting it in minute quantities using a specific phosphorus detector. Under identical conditions the insecticide will yield trimethyl phosphate, which may be distinguished from dimethyl methylphosphonate by its longer retention time in the gas chromatographic column. Figure 3 shows the result obtained with a sample of the River Rhine to which the nerve agent VX was added. This heavily polluted river was used as a model for waste water.

In the gas chromatogram the detector response is plotted as a function of the retention time in the column. The dimethyl methylphosphonate peak is easily distinguishable from the dimethyl ethylphosphonate peak and the trimethyl phosphate peak. Dimethyl ethylphosphonate results from compounds

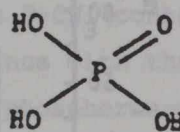
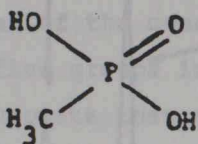
^{*/} Experimental details are given in Ref. 1.



Nerve agent

Insecticide

Hydrolysis

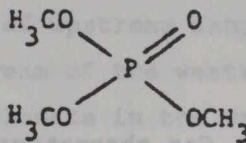
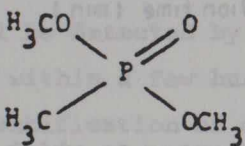


Methylphosphonic acid

Phosphoric acid

Concentration

Methylation



Dimethyl methylphosphonate

Trimethyl phosphate

Gas chromatographic analysis

Fig. 2. Principle of the P-CH₃ verification procedure

For more details see Ref. 2.

For calculations see Ref. 1.

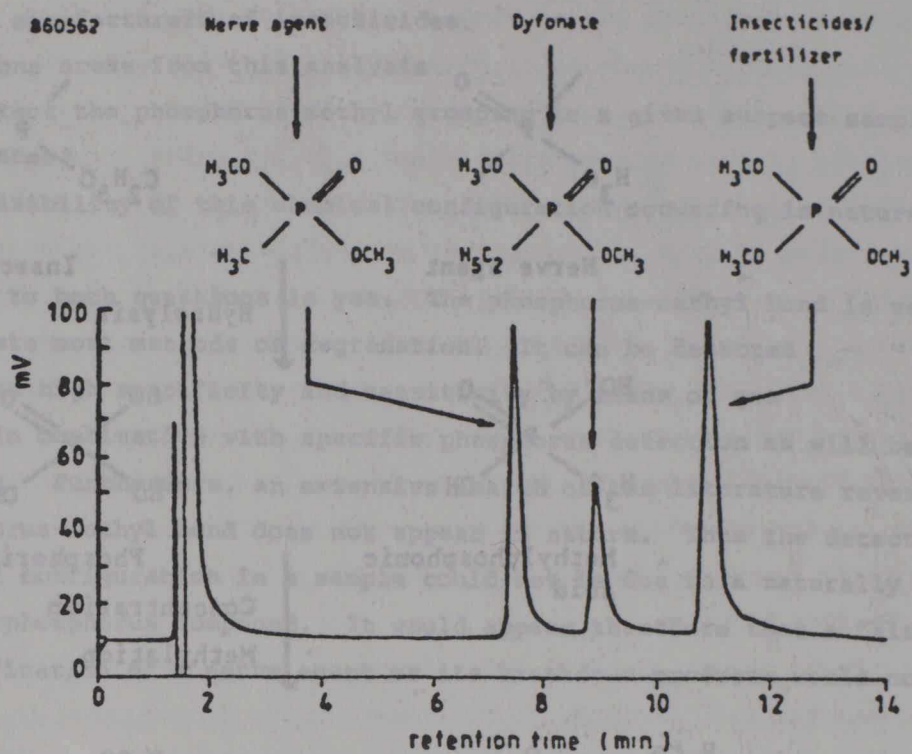


Fig. 3. Gas chromatogram of analysed Rhine water to which VX was added

containing the phosphorus-ethyl linkage such as the insecticide Dyfonate. Trimethyl phosphate originates partly from phosphate present in the Rhine water sample. Dimethyl methylphosphonate is identified by comparing its retention time with those of a series of reference materials. The thermionic detector, which is specific for phosphorus compounds, is used in combination with a flame ionization detector to prove that the signal is not due to the presence of a non-phosphorus compound in relatively high concentration.

The lowest detectable concentration of the nerve agent VW was about 0.2 μg per litre of pure water when using the procedure described. In practice the detection limit might be influenced by a background concentration of P-CH₃ containing compounds in the water sample under investigation. To

gain an insight into this background concentration a number of surface water samples obtained from several countries in Western Europe and North America were examined. The results */ are given in Table 2.

Table 2. Concentration of P-CH₃ containing compounds arranged according to degree of pollution of the water sample

<u>Classification</u>	<u>P-CH₃ (ug/l)</u>
Very clean	-
Clean	0.2
Industrially polluted	0.4
Waste water	10

The mean values of the concentrations of the P-CH₃ containing compounds of the four classified groups increase in accordance with their degree of pollution. This suggests that the occurrence of phosphorus-methyl compounds is due to industrial sources. Flame retardants and experimental insecticides may be mentioned as the origin of the background encountered.

When using a background concentration of 0.5 µg/litre for industrially polluted water it could be calculated that a plant producing 12 tons of the nerve agent Sarin per day which discharges its waste water into a river like the Rhine will be detected by comparing a number of upstream samples with samples taken within a few hundred metres downstream of the waste outlet. **/ A positive identification of dimethyl methylphosphonate in the waste water on the basis of its gas chromatographic retention time may be followed by an on-site inspection of the plant under consideration to obtain more definite proof of the violation of the prohibition or to establish legitimate intentions.

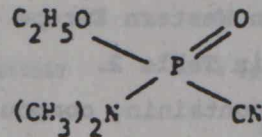
At this point the reader may be interested in an answer to the following questions

- are there nerve agents which do not have the phosphorus-methyl grouping?
- what about the verification of key precursors of nerve agents, for instance those that could be used in a binary weapon?

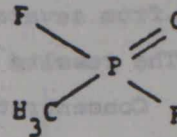
The potential nerve agent Tabun, which has been mentioned several times in connection with the Gulf War between Iraq and Iran, will not be detected upon application of our verification procedure. As is seen in Figure 4 this compound is a derivative of phosphoric acid and will consequently yield trimethyl phosphate after hydrolysis and methylation.

*/ For more details see Ref. 2.

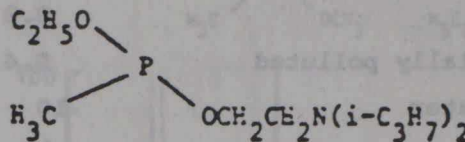
**/ For calculation see Ref. 1.



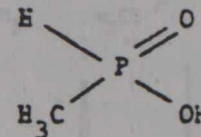
Tabun



Methylphosphonic difluoride



QL



Methylphosphonic acid

Fig. 4. Verification of Tabun and binary nerve agents

Binary nerve agents are made by mixing two compounds during the delivery of the projectile to its target. For the nerve agents Sarin and Soman methylphosphonic difluoride will most probably be one of the binary compounds. This substance can be detected with the verification procedure as it hydrolyses rapidly to methylphosphonic acid. QL, the probable binary precursor of the nerve agent VX, yields methylphosphonic acid on hydrolysis. Under the conditions of the verification procedure this compound is methylated to methyl methylphosphinate, which is detected by gas chromatography. As the signal of the phosphinate can be differentiated from that of dimethyl methylphosphonate, this provides a means of distinguishing wastes originating from classically produced VX and its binary precursor QL (Ref. 3).

In conclusion our P-CH₃ verification procedure in waste water

- gives an indication that a phosphorus-methyl containing chemical warfare agent or related product might be produced
- is sufficiently sensitive to give a positive answer even after extensive water purification and dilution
- works even in heavily polluted water
- is also applicable to key precursors, for instance in case of binary nerve agent systems.

INTACT CWA PROCEDURE

In our view the above-mentioned verification procedure constitutes sufficient evidence to warrant an inspection of the plant under consideration to confirm or to refute the indication that a nerve agent might be produced. However, the method lacks specificity in that intact P-CH₃ containing nerve agents or their decomposition products are all transformed into the same compound: dimethyl methylphosphonate. Therefore in 1980 an investigation was started to develop a verification procedure for the detection of intact nerve agents of the organophosphorus type in surface waters. It was to be expected that the concentration of these compounds in surface water, if at all present, would be very low because the majority of the compounds are unstable in water. Moreover, a production plant will try to keep its waste water effluent as clean as possible for environmental and safety reasons. As a consequence it seemed wise to aim at a procedure which could be used at a µg/litre concentration level, being comparable with the detection limit of the aforementioned P-CH₃ procedure.

In short, ^{*}/ the method consists of concentrating the chemicals from the water sample using a tube packed with a porous polymer (XAD-4), removing the adhering water by centrifugation, extracting the agent from the polymer with a small amount of an organic solvent and transferring the resulting solution to another tube filled with the porous polymer Tenax-GC. Subsequently the compounds are injected into a gas chromatograph by means of heat desorption, separated on the gas chromatographic column and detected by means of a flame photometric detector which is specific for phosphorus compounds (see Fig. 5).

When starting with 10 ml aliquots of water containing µg/litre concentrations of nerve agents recoveries of 50-100 per cent were obtained by application of the verification procedure as is shown in Table 3.

Table 3. Recoveries of µg/l concentrations of nerve agents in 10 ml of water

<u>Compound</u>	<u>Recovery (per cent)</u>
Sarin	54
Soman	70
Tabun	60

^{*}/ For full details the reader is referred to Ref. 4

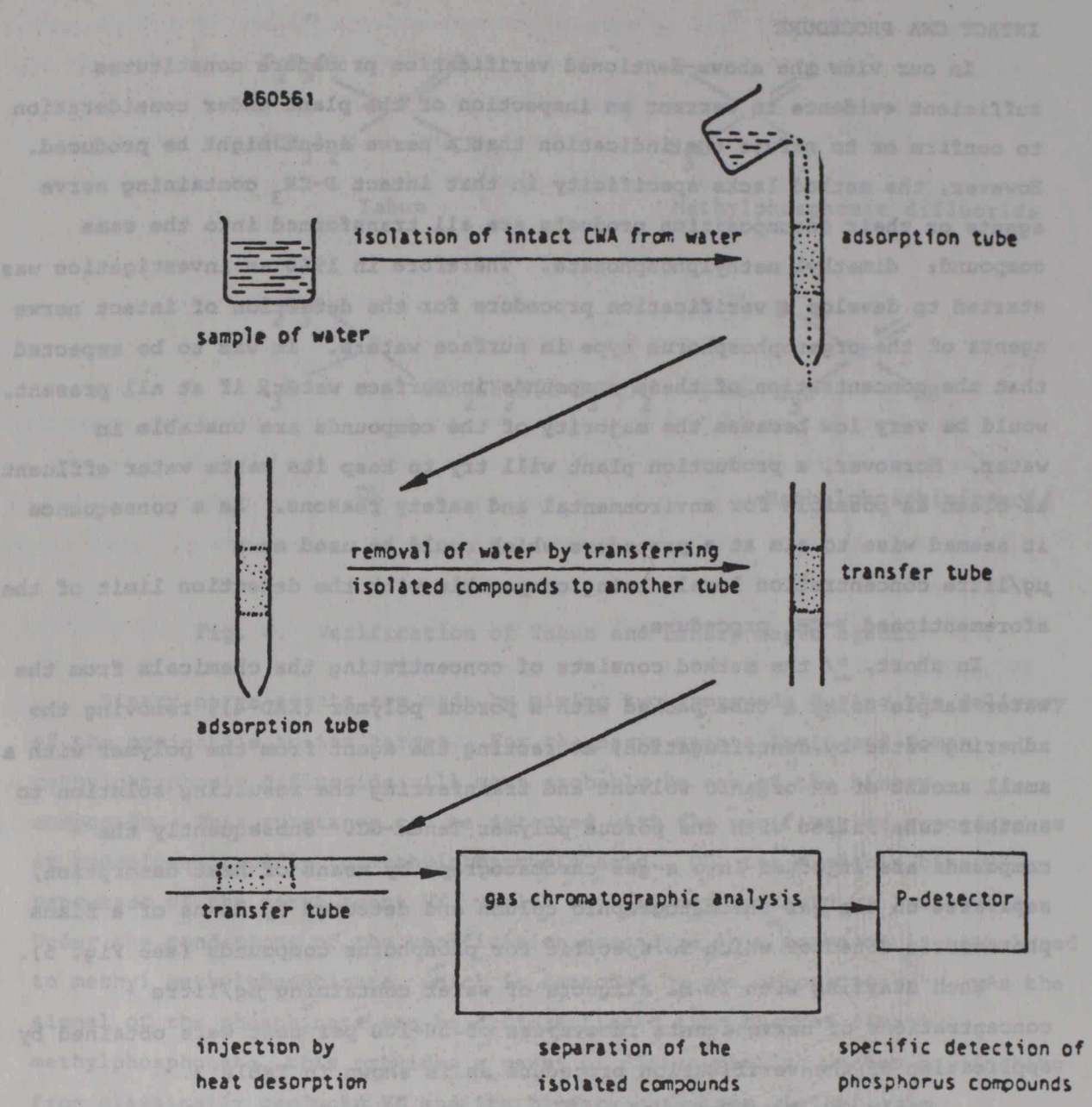


Fig. 5. Principle of intact CWA procedure

In the near future we will include VX as well as different types of surface waters in the investigations. Summarizing, we seem to approach our goal of developing a verification procedure for the detection of intact nerve agents of the organophosphorus type in surface water at a concentration level of 1 µg/litre. The procedure could also be used for water samples collected during an on-site inspection of a plant. The procedure implies a type of

negative identification in that the search is directed and limited to well-known chemical weapons. This aspect may be appreciated by the chemical concern under observation which will not welcome a thorough analysis of the samples.

TRIAL INSPECTION

During the on-site trial inspection which preceded the Workshop only the P-CH₃ procedure, although originally meant for near-site inspection, was applied. The reason for this was that the investigation concerning the applicability of the procedure on intact agents is still incomplete. It was the first occasion that the P-CH₃ procedure could be used for the analysis of samples other than surface water samples.

The water taken in from the River Rhine and let out to the same river showed a concentration level of P-CH₃ containing compounds which is normal for industrially polluted water. On first sight it may be concluded that a near-site inspection would have failed as it was found during the on-site inspection that a P-CH₃ containing compound took part in the production process. However, it should be emphasized that this compound appeared as a minor by-product. In our view it seems of interest to apply the P-CH₃ procedure during a near-site inspection of a plant where a P-CH₃ containing compound is actually produced.

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negative identification in that the search is directed and limited to well known chemical responses. This aspect may be appreciated by the chemical response under investigation which will not welcome a thorough analysis of the samples.



During the on-site inspection which preceded the workup only the P-CF procedure, although originally meant for near-site inspection, was applied. The reason for this was that the investigation concerning the applicability of the procedure on interest agents is still incomplete. It was the first occasion that the P-CF procedure could be used for the analysis of samples other than surface water samples.

The water taken in from the River Rhine and led out to the same river showed a concentration level of P-CF compounds which is normal for industrial polluted waters. It was concluded that a near-site inspection would have failed as it was found during the on-site inspection that a P-CF containing compound took part in the production process. However, it should be emphasized that this compound appeared as a minor component. In our view it seems of interest to apply the P-CF procedure during a near-site inspection of a place where a P-CF containing compound is actually produced.

P-CF compounds	P-CF compounds	P-CF compounds

1. A. ...
2. A. ...
3. A. ...
4. A. ...
5. A. ...
6. A. ...
7. A. ...
8. A. ...
9. A. ...
10. A. ...

USA	CD/CW/WP.145	Chemical Stockpile Disposal Program - Prepared by Aberdeen Proving Ground, MD	Also issued as CD/711 9 July 1986
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NOT REPRODUCED
(see WP volume)

Chemical 8500 plus Diodes also used as
Program - Programmed by Anderson, D. V. 11
Revised October 1988

NOT REPRODUCED
(see W. volume)



Japan CD/CW/WP.146 Some Quantitative Aspects of
a Chemical Weapons Convention Also issued as
CD/713
14 July 1986

NOT REPRODUCED
(see WP volume)

CD/CW/WS 198
1986 Organizational Affairs of
a Chemical Weapons Convention
1986

NOT REPRODUCIBLE
(See Vol. 1)

Ad Hoc Committee on Chemical Weapons

THE UNITED STATES OF AMERICA

Movement of Chemical Weapons Stocks

To illustrate the seriousness of the problem of possible movement of an illicit CW stockpile before an inspection could be carried out, let us assume that 500 tons of weaponized agent is being stored in a single stockpile location, and examine how rapidly it could be moved.

- By any standard, 500 tons of chemical agent is a significant stockpile.
- When weaponized, 500 tons of agent plus the munitions it would be placed in would weigh 7000-8000 tons if all were in projectiles, or 1000 tons if all were in bombs or missile warheads.
- One army ammunition company (about 200 men) can load 1320 tons of any kind of ammunition onto trucks or rail cars in one work day using their organic equipment.
- 1000 tons of chemical bombs or missile warheads could be outloaded in eighteen hours by one ammunition company, leaving six more hours for travel.
- An ammunition battalion normally consists of three companies. A battalion could load 8000 tons of chemical filled projectiles in two days, or two battalions could do it in one day.
- Once loaded, movement by rail or road at 50 km/hr could displace the ammunition 1000 km or more each day.
- If the stocks to be loaded were properly prepared to facilitate rapid loading, were containerized, or were handled using the specialized heavy material handling equipment found at rear area depots, all the loading times could be reduced.
- Special trucks or rail cars are not required for the movement of chemical munitions.
- Once loaded on rail cars or trucks, chemical munitions have virtually the same appearance as conventional ammunition or other heavy cargo.

Ad Hoc Committee on Chemical Weapons

Working Paper by Cuba

Definition of the term capacity

In the course of the discussions on plans for the destruction of chemical weapons, a number of delegations have referred to the need for those plans to report the capacity of the destruction facilities, a subject on which there appears to be a consensus.

The Cuban delegation holds the view that the capacity element would not add anything specific to the plans for the destruction of chemical weapons, since what is essential in those plans is the quantity of chemical weapons that it is planned to destroy in the period of time established in the future Convention, quantities which will have to be proportional.

If the quantities of chemical weapons to be destroyed do not maintain such proportionality, new destruction facilities will have to be built, and consequently the capacity will be changed, hence it is neither a stable nor an important basic element.

Nevertheless, with a view to furthering the negotiations on this matter, the Cuban delegation offers the following observations:

1. In its broadest sense, the capacity of a facility is a term which is necessarily expressed numerically, in a given unit of measurement for a specific period of time.
2. The capacity of a particular facility, regardless of incidental factors such as storage capacity, supply of raw materials or final products, market demand, etc., depends directly on two factors:

(a) Technological capacity: understood to mean the maximum technological potentiality of the (total) critical equipment of the production process;

(b) The length of the working day: in other words, whether the destruction process takes place in one or two work shifts or uninterruptedly throughout the day.

3. For the purposes of the negotiations, we need not take into account the number of staff involved in the technological process, inasmuch as the processes or methods used to destroy the chemical weapons do not require it.

4. While we could take as a basis for negotiations a facility's historical capacity of destruction of chemical weapons, this is not advisable since that is a statistical capacity which depends on the above-mentioned incidental factors. Furthermore, it is quite likely that some chemical-weapon States will be forced to build new destruction facilities, in which case that historical capacity would no longer exist.

5. In view of the above, our delegation proposes the following definition of capacity:

"The capacity for the destruction of chemical weapons is the quantity of tonnes of toxic substances of a given kind which may technologically be processed by the destruction methods employed in the course of a working day".

6. Our delegation also considers that the destruction capacity reported in the plans in question does not have to be considered directly in order to determine by simple multiplication what quantities would be destroyed in a month or year, for the reasons given above, in so far as under our definition the reported capacity would be the maximum.

Consequently, such a declaration would only serve to give a general rather than a precise idea of the possibilities of carrying out the destruction plans in time.

7. Finally, in the case of a facility for the destruction of vectors (grenades, mines, bombs, projectiles and other means), the term tonnes should be replaced by units in the definition of capacity.

CONFERENCE ON DISARMAMENT

CD/CW/WP.149
1 August 1986

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

Report of Working Group C

1. In accordance with the terms of reference outlined by the Chairman of the Ad Hoc Committee on Chemical Weapons in document CD/CW/WP.129/Rev.1 dated 19 February 1986, Working Group C had before it the following items:

- (a) Article I (General provisions on scope);
- (b) Article VII (National implementation measures);
- (c) Article VIII (Consultative Committee);
- (d) Article IX (Consultations, co-operation and fact-finding);
- (e) Herbicides;
- (f) Investigation of allegations of the use of chemical weapons.

2. Working Group C held 16 meetings from 28 February to 1 August 1986. In addition, the Chairman conducted informal consultations aimed at facilitating efforts towards compromise solution of the questions under consideration.

3. The basis for discussion was Appendix I of document CD/636 dated 23 August 1985, taking into account existing proposals on the items, including proposals by the Union of the Soviet Socialist Republics in document CD/294 (21 July 1982), the United Kingdom in documents CD/431 (10 February 1984) and CD/589 (11 April 1985), proposals by the United States in documents CD/500 (18 April 1984) and CD/685 (3 April 1986), a proposal by Pakistan in document CD/664 (13 February 1986), a proposal by the German Democratic Republic and Poland in document CD/CW/WP.136 (18 April 1986), a working paper by Norway in document CD/703 (16 June 1986) and another proposal by the United Kingdom in document CD/715 (15 July 1986). To facilitate discussions, the Chairman submitted an informal working paper on Article VIII, i.e. Informal Working Paper dated 14 March 1986 concerning the Consultative Committee, the Executive Council and the Secretariat, and two informal working

papers on Article IX, i.e. Informal Working Paper dated 11 April 1986 concerning Procedure for Requesting Clarification and Informal Working Paper dated 7 July 1986 concerning Procedure for Requesting a Fact-finding Mission.

4. Working Group C was able to agree on the text in Annex I on Article VIII dealing with the Consultative Committee and the Executive Council and the text in Annex II on Article IX dealing with procedure for requesting clarification. The texts are however not binding on any delegation. The text in Annex III on Article IX dealing with procedure for challenge inspection in its present form in some instances has narrowed down the differences. In the view of many delegations the text reflects the current stage of the negotiations. It requires further substantive work.

5. Working Group C also took up the question of verification of allegations of the use of chemical weapons. Substantive discussion on this matter did not take place. Nevertheless, it was felt that substantive discussion on this important issue in the future work of the Ad Hoc Committee is necessary.

6. Discussion on Article VIII concerning the Secretariat and on Articles I and VII and on the question of herbicides referred to in paragraph 1 had to be postponed due to lack of time.

ANNEX I

ARTICLE VIII

I. CONSULTATIVE COMMITTEE */

A. Establishment of the Consultative Committee

1. There is hereby established the Consultative Committee.
2. The Consultative Committee shall be the principal organ of the Convention.
3. The first session of the Consultative Committee shall be convened by the Depositary at [venue] not later than 30 days after the entry into force of the Convention.

B. Composition, procedure and decision-making

1. The Consultative Committee shall be composed of all the States Parties to this Convention. Each State Party to this Convention shall have one representative in the Consultative Committee, who may be accompanied by alternates and advisers.
2. The Consultative Committee shall meet in regular annual sessions and in such special sessions as may be convened at the request of ... members of the Consultative Committee or of the Executive Council or as provided in Article IX of the Convention.
3. Sessions shall take place at the seat of the Consultative Committee unless it decides otherwise.
4. The Consultative Committee shall adopt its rules of procedure. At the beginning of each regular session, it shall elect its Chairman and such other officers as may be required. They shall hold office until a new Chairman and other officers are elected at the next regular session.
5. A majority of the members of the Consultative Committee shall constitute a quorum.
6. Each member of the Consultative Committee shall have one vote.
- [[7. Decisions on questions of procedure, including decisions to convene special sessions of the Consultative Committee, shall be taken by a simple majority.
8. Decisions on questions of substance shall be taken by [a two-third majority] [consensus]. When the issue arises as to whether a question is one

*/ Some delegations suggested that the question of how the expenses of the Consultative Committee shall be met needs to be addressed within the Convention at an appropriate time.

of substance or not, that question shall be treated as one of substance unless otherwise decided by the Consultative Committee by the majority required for decisions on questions of substance.]]

[[7. All decisions shall be taken by a two-third majority.]]

C. Powers and functions

1. The Consultative Committee shall [oversee] [review] the implementation of the Convention, consider any questions or matters relevant to the Convention or relating to the powers and functions of any subsidiary organs [established by the Consultative Committee], foster consultation and co-operation among States Parties [for the advancement of chemical industry for peaceful purposes] and promote the verification of compliance with this Convention.

2. In carrying out its functions [referred to in paragraph 1], the Consultative Committee shall inter alia:

(a) co-operate with the appropriate national authorities of States Parties;

(b) facilitate consultations and co-operation among States Parties at their request;

(c) review scientific and technical developments which could affect the operation of this Convention;

(d) encourage international scientific and technical co-operation in the chemical field for peaceful purposes, [especially with the objective of promoting the advancement of chemical industry in the developing States as provided in Article XI,]

(e) carry out all activities relating to measures of verification; for this purpose, the Consultative Committee shall;

(i) specify procedures for systematic international on-site inspection;

(ii) oversee [and carry out] systematic international on-site inspection in accordance with Articles ...;

[[iii) consider and decide on requests to send a fact-finding mission in accordance with Article ...;]

(iv) carry out fact-finding activities in accordance with Article IX;

(f) establish and revise as necessary, procedures for exchange of information, for declarations and for technical matters related to the implementation of this Convention;

(g) receive, keep [and make available to States Parties] declarations, plans and notifications presented by States Parties in accordance with Articles ...;

(h) provide a forum for discussion of any questions raised relating to the objectives or the implementation of the Convention.

(i) elect the members of the Executive Council in accordance with Article ...;

[(j) elect ... (the head of the Secretariat) from among the candidates proposed by members of the Consultative Committee,]

[(k) appoint inspectors as the staff of the Inspectorate and the head of the Inspectorate,]

(l) establish, as appropriate, such subsidiary organs as it finds necessary for the exercise of its functions in accordance with this Convention;

(m) adopt the rules of procedure [of the Executive Council including the method of selecting its Chairman];

(n) consider and approve the proposed annual budget of the Consultative Committee and its subsidiary organs submitted by the Council;

(o) consider and approve the reports of the Executive Council;

(p) after the expiry of a period of ... years from the date of entry into force of this Convention, undertake a review of the operation of this Convention in accordance with Article ... */

3. The Consultative Committee shall establish an Executive Council [within 45 days after the entry into force of the Convention].

4. While the Consultative Committee is ultimately responsible for the functions provided for in paragraph 2, it shall delegate the actual implementation of those functions to the Executive Council in accordance with the provisions of this Convention.

*/ Some delegations were of the view that provisions on review should be more appropriately included in another part of the Convention.

II. EXECUTIVE COUNCIL */

A. Composition, procedure and decision-making

1. The Executive Council shall consist of [15] States Parties to this Convention elected by the Consultative Committee. [In addition, those permanent members of the Security Council of the United Nations which are parties to the Convention should be represented]. Each member of the Executive Council shall have one representative in the Council, who may be accompanied by alternates and advisers.
2. The members of the Executive Council shall be elected on the basis of [an appropriate geographic and political balance.]
3. Election shall take place at regular sessions of the Consultative Committee. Each [elected] member of the Executive Council shall serve for [two] [three] years period, with [five] of the members elected each year.
4. The Executive Council shall function at the seat of the Consultative Committee.
- [5. A majority of the members of the Executive Council shall constitute a quorum.]
6. Each member of the Executive Council shall have one vote.
- [[7. Decisions on questions of procedure shall be taken by a simple majority.
8. Decisions on questions of substance shall be taken by [a two-third majority] [consensus]. When the issue arises as to whether a question is one of substance or not, that question shall be treated as one of substance unless otherwise decided by the Council by the majority required for decisions on questions of substance.]]
- [[7. All decisions shall be taken by a two-third majority.]]

*/ Some delegations believed that the question of placement within the Convention of some of the provisions relating to the functions of the subsidiary organs will have to be considered at a later stage.

B. Functions */

1. The Executive Council shall be responsible to the Consultative Committee and shall have delegated authority to discharge the functions of the Consultative Committee as provided in paragraph 1 and paragraph 2 (a) to 2 (h) of Section I Subsection C of this Article.

2. The Executive Council shall particularly:

(a) supervise and co-ordinate the activities of the subsidiary organs of the Consultative Committee in implementing the provisions of the Convention;

(b) ensure the effective implementation of, and compliance with, the Convention;

(c) propose to the Consultative Committee, as appropriate, the establishment of such subsidiary organs as it finds necessary for the exercise of its functions in accordance with this Convention;

(d) present reports to the Consultative Committee particularly about the exercise of the functions delegated to it;

(e) request the ... (head of the Secretariat) when appropriate and necessary, to convene a special meeting of the Consultative Committee;

[(f) propose to the Consultative Committee the establishment of appropriate mechanisms for directing and supervising the Inspectorate,]

[(g) propose to the Consultative Committee the appointment of inspectors as the staff of the Inspectorate and appoint among the inspectors the head of the Inspectorate,]

(h) obtain, keep, and disseminate information submitted by States Parties regarding matters pertaining to the Convention.

(i) receive requests for information and clarification regarding compliance with the Convention from States Parties, including requests for fact-finding.

(j) decide and oversee specific actions to be taken regarding such requests.

*/ Some delegations considered that the provisions on the functions of the Executive Council will require further specification in the light of such functions as may be conferred upon the Council in other parts of the Convention, particularly with regard to verification.

ANNEX II

ARTICLE IX

CONSULTATION, CO-OPERATION AND FACT-FINDING

1. ... (as in paragraph 1 of Appendix I, CD/636)
2. ... (As in paragraph 2 of Appendix I, CD/636)

Procedure for requesting clarification

1. A State Party shall have the right to request the Executive Council to assist in clarifying any situation which may be considered ambiguous or which gives rise to doubts about the compliance of another State Party with the Convention. The Executive Council shall provide appropriate information and data in its possession relevant to the situation which can dispel such doubts, whilst [taking every precaution in] protecting commercial and industrial secrets and other confidential information coming to its knowledge in the implementation of the Convention.

2. A State Party shall have the right to request the Executive Council to obtain clarification from another State Party on any situation which may be considered ambiguous or which gives rise to doubts about its compliance with the Convention. In such a case, the following shall apply:

(a) The Executive Council shall forward the request for clarification to the State Party concerned within [24 hours] of its receipt.

(b) The requested State Party shall provide the clarification to the Executive Council within [seven days] of the receipt of the request.

(c) The Executive Council shall forward the clarification to the requesting State Party within [24 hours] of its receipt.

(d) In the event that the requesting State Party deems the clarification to be inadequate, it may request the Executive Council to obtain from the requested State Party further clarification.

(e) For the purpose of obtaining further clarification requested under paragraph 2 (d), the Executive Council may set up a group of experts to examine all available information and data relevant to the situation causing the doubt. The group of experts shall submit a factual report to the Executive Council on its findings.

(f) Should the requesting State Party consider the clarification obtained under paragraphs 2 (d) and 2 (e) to be unsatisfactory, it may request a special meeting of the Executive Council in which States Parties involved not members of the Executive Council shall be entitled to take part in

accordance with provisions in Article ... In such a special meeting, the Executive Council shall consider the matter and may recommend any measure it deems appropriate to cope with the situation.

3. A State Party shall have the right to request the Executive Council to clarify any situation which has been considered ambiguous or has given rise to doubts about its compliance with the Convention. The Executive Council shall respond by providing such assistance as appropriate.

4. The Executive Council shall inform the States Parties to this Convention about any request for clarification provided in this Article.

5. [If the doubts or concerns of a State Party about compliance have not been resolved within [two months] after the submission of the request for clarification to the Executive Council, or it believes its doubts warrant urgent consideration, without necessarily exercising its right to the challenge procedure, it may request a special session of the Consultative Committee in accordance with Article ... In such a special session, the Consultative Committee shall consider the matter and may recommend any measure it deems appropriate to cope with the situation.]

ANNEX III

ARTICLE IX

CONSULTATION, CO-OPERATION AND FACT-FINDING

1. ... (as in paragraph 1 of Appendix I, CD/636)
2. ... (as in paragraph 2 of Appendix I, CD/636)

Procedure for requesting clarification

... (as in Annex II)

Procedure for requesting a fact-finding mission */

1. A State Party shall have the right to request the Executive Council to send a fact-finding mission to another State Party in order to clarify and resolve a situation which gives rise to doubts about compliance with the provisions of the Convention, or which is considered ambiguous.
2. The State Party requesting a fact-finding mission as provided in paragraph 1 (hereinafter referred to as the "requesting State") shall submit the request to the Executive Council specifying as precisely as possible the doubts or concerns, the reasons for the doubts or concerns and the action that the Executive Council is requested to take. The request shall be accompanied by concrete elements supporting the doubts, including inter alia:

(a) the relevant provisions of the Convention about which doubts of compliance have arisen;

(b) the location in which the situation which gives rise to doubts has allegedly occurred.

*/ Some delegations considered that the text in its present form does not reflect sufficient agreement for inclusion in the final report of the Ad Hoc Committee.

*/ Others held the view that the text should be included in the Final Report of the Ad Hoc Committee.

*/ Some delegations considered that the Convention should include provisions on the obligation of State Party requesting clarification or requesting a fact-finding mission under Article IX to act in good faith and on the obligation of that State Party and the Executive Council not to make public any information regarding the subject of the request before the Executive Council reaches its decision.

3. Upon receipt of a request for a fact-finding mission, the Executive Council shall immediately:

(a) examine the request in order to ensure that it is consistent with the provisions of paragraph 2;

(b) inform the State Party to which the fact-finding mission is requested to be sent (hereinafter referred to as the "receiving State") about the receipt of the request.

4. In case the Executive Council finds that the request is not consistent with the provisions of paragraph 2, it shall notify the requesting State within ... hours after the receipt of the request. In such a case, the requesting State may renew the request accompanied by information and data which comply with the requirements provided in paragraph 2.

5. In the event that the Executive Council has in its possession appropriate information and data relevant to the situation which can dispel such doubts, it shall, within ... hours after the receipt of the request, provide such information and data to the requesting State for the purpose of clarifying or resolving the situation, whilst protecting commercial and industrial secrets and other confidential information coming to its knowledge in the implementation of the Convention. In the light of the information and data provided by the Executive Council, the requesting State shall notify the Executive Council whether it decides to withdraw or to reaffirm its request for a fact-finding mission.

6. While considering the request, the Executive Council may invite the requesting State and the receiving State not member of the Executive Council to participate in the proceedings and to provide the Executive Council with information relevant to the facts or situation which have given rise to doubts, without the right to take part in the decision-making of the Executive Council. In case the requesting State and the receiving State are members of the Executive Council, they shall not take part in the decision-making of the Executive Council.

7. The Executive Council, after having confirmed that the request is consistent with the provisions of paragraph 2, and within ... hours after the receipt of the request, shall forward the request for a fact-finding mission to the receiving State, indicating inter alia the date that the fact-finding mission is proposed to be sent, which shall not be later than ... hours after the transmittal of the request.

8. The receiving State, subject to paragraph 12, shall comply with the request for a fact-finding mission referred to in paragraph 7. It shall co-operate with the Executive Council in order to facilitate the effective functioning of the fact-finding mission, inter alia by promptly providing unimpeded access of the fact-finding mission to the location in question.
9. The fact-finding mission while discharging its duties shall refrain from any activities other than those incident to its mandate.
10. The fact-finding mission shall submit its report to the Executive Council within ... days after the conclusion of its work in accordance with Annex ... The fact-finding mission may submit preliminary or interim reports during the discharge of its duties.
11. The Executive Council shall immediately study the report of the fact-finding mission and reach its findings not later than ... days after the submission of the report of the fact-finding mission. It shall immediately communicate its findings to the requesting State and the receiving State.
12. In the exceptional event that the receiving State considers that the on-site inspection requested to be carried out by the fact-finding mission will be contrary to its national security interests, the receiving State may object to comply with the request. The receiving State shall notify the Executive Council of its objection not later than ... hours after the receipt of the request and such a notification shall be accompanied by an adequate explanation of the reasons for the objection and information concerning actions to be taken under paragraph 13, including the submission of proposal for an alternative measure referred to in paragraph 13.
13. The receiving State objecting to comply with the request for a fact-finding mission pursuant to paragraph 12 shall make every effort to dispel the doubts of its compliance with the Convention, and take every measure aimed at ensuring the integrity of the Convention, including the submission of a detailed, concrete proposal for an alternative measure of resolving concerns which have given rise to the request, which shall be submitted to the Executive Council in accordance with the provisions of paragraph 12. To this end, the receiving State shall co-operate with the Executive Council and with the requesting State.
14. The provisions of paragraph 12 shall not apply to request for a fact-finding mission relating to:
 - (a) prohibition of use of chemical weapons provided in Article I,

- (b) any declared location or facility subject to systematic on-site inspection pursuant to Articles III, IV, V and VI.
15. In case the measures taken by the receiving State referred to in paragraph 13 do not satisfy the requesting State, it may renew the request to the Executive Council for sending a fact-finding mission. In such a case, the Executive Council shall follow the procedure as provided in paragraph 7, taking into account all relevant elements, including possible new elements received by the Executive Council after the original request.
16. In the event that the receiving State objects to comply with the second request in accordance with paragraph 15, the requesting State through the Executive Council shall have the right to request for a special session of the Consultative Committee. The Executive Council shall immediately take the necessary steps to convene the Consultative Committee in accordance with Article ... not later than ... days after the receipt of the request for convening the Consultative Committee.
17. In the special session held in pursuance of paragraph 16, the Consultative Committee shall consider the emergent situation and shall decide any measure it deems appropriate to cope with the situation in accordance with its powers and functions as provided in Article VIII.

Remedial measures

18. In case the Executive Council finds that the report of the fact-finding mission indicates that there existed an ambiguous situation or that a breach of the Convention had taken place, the receiving State shall take all steps necessary to bring itself in full compliance with the Convention and shall inform the Executive Council of the action taken by it or proposed to be taken by it within ... days after the receipt of the communication of the Executive Council on its finding.
19. In the event that the receiving State fails to or objects to comply with the provisions of paragraph 1, the Executive Council shall call for a special session of the Consultative Committee in accordance with the provisions of Article VIII.
20. In the special session held in pursuance of paragraph 2, the Consultative Committee shall consider the emergent situation and shall decide any measure it deems appropriate to cope with the situation in accordance with its powers and functions as provided in Article VIII.

Ad Hoc Committee on Chemical Weapons

Report of Working Group A

1. Working Group A held 18 meetings from 24 February to 6 August 1986. In addition the Chairman held a number of informal consultations with delegations.
2. In accordance with the terms of reference outlined by the Chairman of the Ad Hoc Committee in document CD/CW/WP.129/Rev.1 of 19 February 1986, Working Group A had responsibility for consideration of Article II (Definitions and Criteria) and Article VI (Permitted Activities), as contained in the provisional structure of the Draft Convention in CD/636.
3. The Working Group concentrated on developing the lists of chemicals and elaborating the measures to which the listed chemicals would be subject under Article VI of the Convention, using as a basis the material contained in CD/636, CD/651, papers prepared by the Chairman and documents submitted by delegations.
4. The Working Group considered intensively the lists and applicable régimes for key precursor chemicals and chemicals which are produced in large commercial quantities and which could be used for chemical weapons purposes. The Chairman also conducted consultations on a draft Article VI (titled "Activities not prohibited by the Convention") and an Annex on Super-Toxic Lethal Chemicals and [especially dangerous key precursors] [key components of chemical weapons systems.] The results of this work are reflected in a draft Article VI and three Annexes, some of which contain draft schedules of chemicals. The texts represent the current state of work, which is at a preliminary stage. They are subject to evaluation by delegations with a view to seeking mutually acceptable solutions.
5. The Chairman also held private consultations on matters relating to Article II. These revealed that further work was required on the draft texts contained in the Article.
6. In accordance with the mandate for the Ad Hoc Committee on Chemical Weapons (CD/654), the draft texts under consideration by the Working Group are not binding on delegations. Bearing this in mind, Working Group A considers that the draft texts contained in this report should be used in its future work, together with all other relevant material present and future.

ARTICLE VI 1/

ACTIVITIES NOT PROHIBITED BY THE CONVENTION

1. Each State Party:

(a) has the right, subject to the provisions of this Convention, to develop, produce, otherwise acquire, retain, transfer and use toxic chemicals and their precursors for purposes not prohibited by the Convention.

(b) shall ensure that toxic chemicals and their precursors are not developed, produced, otherwise acquired, retained, transferred, or used within its territory or anywhere under its jurisdiction or control for purposes prohibited by the Convention.

2. Toxic Chemicals and Their Precursors:

(a) Toxic chemicals and their precursors considered in Annexes 1, 2 and 3, which could be used for purposes prohibited by the Convention, as well as facilities which produce, process or consume these toxic chemicals or precursors, shall be subject to international monitoring as provided in those Annexes:

Annex 1:	Super-Toxic Lethal Chemicals and [especially dangerous key precursors] [key components of chemical weapons systems].
Annex 2 List [A]:	Key Precursors.
Annex 3 List [C]:	Chemicals produced in large commercial quantities and which could be used for chemical weapons purposes.

(b) The Lists of chemicals contained in the Annexes may be revised as required (the basis and modalities for revision are to be developed).

3. Within 30 days of the entry into force for it, each State Party shall declare data on relevant chemicals and the facilities which produce them, in accordance with Annexes 1, 2 and 3.

4. Each State Party shall make an annual declaration regarding the relevant chemicals in accordance with Annexes 1, 2 and 3.

5. Each State Party undertakes to subject the chemicals and [facility] [facilities] under Annex 1 to the measures contained in that Annex.

6. Each State Party undertakes to subject the chemicals and facilities under Annex 2 to monitoring by data reporting and routine systematic international on-site verification, through on-site inspection and use of on-site instruments as long as production and processing are not impaired.

7. Each State Party undertakes to subject the chemicals and facilities under Annex 3 to monitoring by data reporting.

8. The provisions of this Article shall be implemented in a manner designed in so far as possible to avoid hampering the economic or technological development of Parties to the Convention or international co-operation in the field of peaceful chemical activities including the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for peaceful purposes in accordance with the provisions of the Convention. 2/

9. In conducting verification activities, the (Consultative Committee) shall:

(a) avoid undue interference in the State Party's peaceful chemical activities;

(b) take every precaution to protect confidential information coming to its knowledge in the implementation of the Convention; and

(c) require only the minimum amount of information and data necessary for the carrying out of its responsibilities under the Convention.

10. For the purpose of on-site verification, each State Party shall grant to the (Consultative Committee) access to facilities as required in Annexes 1, 2 and 3.

Notes

1/ One delegation considers that the terminology used in this Article and its annexes should be consistent with the final definition of chemical weapons to be agreed upon.

2/ The inclusion of this paragraph in this Article is to be considered further.

ANNEX 1

ARTICLE VI

Super-Toxic Lethal Chemicals and [especially dangerous key precursors] [key components of chemical weapons systems]

1. (a) The retention, production, acquisition and use of super-toxic lethal chemicals, and [especially dangerous key precursors] [key components of chemical weapons systems] for permitted purposes shall be strictly limited to those amounts which can be justified for such purposes.

(b) The production and use of all chemicals listed in Schedule [] shall be prohibited, except as required for research, medical or protective purposes.

(c) [Two alternatives for consideration]

(i) At no time shall the aggregate amount of super-toxic lethal chemicals, and [especially dangerous key precursors] [key components of chemical weapons systems] and key precursors possessed by a State Party for protective purposes exceed one metric tonne. The aggregate amount of super-toxic lethal chemicals acquired and produced for protective purposes shall not exceed one metric tonne per year, nor shall the annual amount of super-toxic lethal chemicals used for protective purposes exceed one metric tonne.

(ii) At no time shall the aggregate amount of super-toxic lethal chemicals, and [especially dangerous key precursors] [key components of chemical weapons systems] possessed by a State Party for permitted purposes exceed one metric tonne. The aggregate amount of super-toxic lethal chemicals acquired and produced for permitted purposes shall not exceed one metric tonne per year, nor shall the annual amount of super-toxic lethal chemicals used for permitted purposes exceed one metric tonne.

2. Single Small-Scale Facility

(a) Each State Party which produces super-toxic lethal chemicals, and [especially dangerous key precursors] [key components of chemical weapons systems] for [protective] [permitted] purposes shall carry out the production at a single specialized facility, the capacity of which shall be limited by measures to be determined. 1/

(b) The location and a detailed description of the facility shall be provided to the Consultative Committee no less than 30 days before operations commence.

(c) The facility shall be subject to systematic international on-site verification, through on-site inspection and continuous monitoring with on-site instruments.

3. [Other Facilities] 2/

[To be developed.]

4. Transfers

[To be developed.]

5. Declarations

Declarations to be provided by a State Party in relation to Annex 1, under paragraphs 3 and 4 of Article VI, shall include the following information: [To be developed.]

Schedule [] 3/

Notes

1/ Some delegations consider that the production of key precursors for protective purposes should be carried out at a single small-scale facility.

2/ Some delegations consider that the production of super-toxic lethal chemicals for permitted purposes (other than protective) could be carried out at facilities other than the single small-scale facility. They consider that any facility producing or using a significant amount of these chemicals would be subject to strict monitoring, including data reporting and systematic international on-site inspection.

3/ The chemicals to be included in this Schedule are to be discussed. Some delegations consider that it is only necessary to list chemicals such as are in category I of CD/CW/WP.133. Other delegations consider that only in the context of elaborating a list of super-toxic lethal chemicals with no use as chemical weapons but which have practical application in pharmaceutical, medical and other civil purposes, could it be determined whether the division of super-toxic lethal chemicals into two categories could be acceptable and useful for the purposes of the Convention.

ANNEX 2

ARTICLE VI

KEY PRECURSORS CHEMICALS 1/

ANNUAL DECLARATION

The Annual Declaration to be provided by a State Party under Paragraph [] of Article VI shall include:

1. aggregate data on each of the production, consumption, import and export of each of the key precursor chemicals listed in Schedule [].
2. the following information for each facility which produces, processes or consumes more than [] tonnes per annum of any of the key precursor chemicals listed in Schedule [] 2/:

Key Precursor Chemical(s)

- (i) the chemical name, [trivial name used by the facility], structural formula, and Chemical Abstracts Service Registry Number.
- (ii) the total amount produced, consumed, imported and exported in the previous calendar year. 3/

Facility

- (i) the name of the facility and of the owner, company or enterprise operating the facility.
- (ii) the exact location of the facility. 4/
- (iii) whether the facility is dedicated to producing or processing the listed key precursor. 5/
- (iv) [the main orientation (purpose) of the facility]. 6/
- (v) the capacity (to be defined) of the facility. 7/
- (vi) which of the following activities are performed with regard to the key precursor chemicals:
 - (a) production
 - (b) processing with conversion into another chemical
 - (c) processing without chemical conversion
 - (d) other.

- (vii) whether listed key precursors are stored on-site in quantities greater than [] [tonnes]. 8/

Application of Chemical(s)

- (i) the purpose(s) for which the key precursor chemical(s) are produced, consumed or processed:
 - (a) conversion on-site (specify final product or product type)
 - (b) sale 9/ to other domestic industry (specify final product type)
 - (c) export of a key precursor (specify which country)
 - (d) other.

3. A State Party shall notify the International Authority of the name and location of any facility which intends, in the year following submission of the Annual Declaration, to produce, process or consume more than [] tonnes per annum of any of the chemicals listed in Schedule []. 10/

SCHEDULE [] */

Part I: Initial list of chemicals which satisfy all the three criteria 1/ for key precursors

1. Chemicals containing one P-methyl bond (mainly halides of anhydrides, esters and salts)
2. N,N-Dimethylphosphoramidic dichloride
3. Diethyl N,N-dimethylphosphoramidate
4. Bis (2-hydroxyethyl) sulphide (thiodiglycol) 4/
5. Arsenic trichloride 5/
6. 2,2-Diphenyl-2-hydroxyacetic acid and its esters
7. Quinuclidin-3-ol

Types of chemicals to which the chemicals listed in col.1 belong and among which additional key precursors could be found

1. Chemicals containing one P-methyl, P-ethyl or P-propyl (normal or iso) bond
2. N,N-Dialkylphosphoramidic dihalides
3. Dialkyl N,N-dialkylphosphoramidates
- 4.
- 5.
6. Phenyl-, alkyl- or cyclo-alkyl-substituted glycolic acids
7. 3- or 4-hydroxypiperidine and their derivatives

To be continued (to include other proposals of delegations).

Part II: Chemicals which do not meet all the three criteria 1/ for key precursors, but possess features that would warrant their inclusion as an exception in List [A]

Types of chemicals to which the chemicals listed in col. 1 belong

To be continued (to include other proposals of delegations)

Aggregated list of key precursors (as a result of the discussions) to which regime [A] 2/ should be applied 3/

1. Chemicals containing one P-Methyl, P-Ethyl or P-Propyl (normal or ISO) bond (mainly halides of anhydrides, esters and salts).
2. N,N - Dialkylphosphoramidic

Aggregated list of relevant chemicals (as a result of the discussions) to which regime [A] 2/ should be applied

*/ List [A] in CD/651 refers. This Schedule is subject to development and revision.

Part III

A. Chemicals which according to the views of some delegations satisfy all three criteria^{1/} and should be listed in Part I and which according to the views of other delegations do not satisfy all three criteria and may be listed in Part II.

1. N,N-Diisopropylaminoethyl-2-chloride 6/
2. N,N-Diisopropylaminoethan-2-ol 6/
3. N,N-Diisopropylaminoethane-2-thiol 6/

To be continued (to include other proposals of delegations)

B.

- 3,3-Dimethylbutan-2-ol 7/

Alkyl, cycloalkyl alcohols etc.

To be continued (to include other proposals of delegations)

NOTES

- 1/ The general approach to the criteria is reflected in CD/636. The formulations for the criteria are not definitive and are still evolving.
- 2/ To be elaborated.
- 3/ The chemical substances in the aggregated list have been placed there on a provisional basis. It is necessary to consider further:
 - (a) listing the entire family or only listing specific types of derivatives within the family
 - (b) possible analogs
 - (c) use in peaceful industries
- 4/ It was pointed out that whether or not regime [A] should be applied to this chemical depends on the nature of regime [A].
- 5/ This chemical meets all three criteria for a key precursor. However, it is used for military purposes not related to chemical weapons (i.e., electronics). It is necessary to consider further whether regime [A] should be applied or not.
- 6/ It is necessary to consider further whether this compound meets all three criteria for key precursors and thus should be placed in Part I of List [A] or whether it should be included in Part II of List [A] as an exception.
- 7/ Views differ as to whether this compound:
 - (a) meets all three criteria for key precursors
 - (b) should be placed in Part II of List [A] as an exception, or should be placed in List [B] as an especially dangerous key precursor.

Verification

The facilities referred to in this Annex [shall] [may] be subject to systematic international on-site inspection on a routine basis (measures to be developed).

Notes

- 1/ It is understood that there is an integral link between the list, the annual declaration and the verification measures for key precursor chemicals.
- 2/ The structure of this paragraph is provisional.
- 3/ Whether the total amount is to be expressed as an exact figure or within a range is to be discussed.
- 4/ It was suggested that "in a major enterprise" be added.
- 5/ This requirement needs to be considered further in connection with the question of "capacity".
- 6/ It was suggested that this aspect could be incorporated in paragraph (vi).
- 7/ It was suggested that capability should also be considered in relation to capacity.
- 8/ The question of a threshold requires further consideration.
- 9/ It has been suggested that "sale" should be replaced by "transfer".
- 10/ The requirement contained in this provision is to be considered further.

Part III

4. Chemicals which are... and which according to the... is to be considered

- 1. Methyl...
- 2. Methyl...
- 3. Methyl...

Part IV

1. The general approach to the... to be elaborated.

2. The chemical... to be elaborated.

3. It is necessary to... to be elaborated.

4. It is necessary to... to be elaborated.

- 1. Methyl...
- 2. Methyl...
- 3. Methyl...

4. It is necessary to... to be elaborated.

Part V

1. The general approach to the... to be elaborated.

2. The chemical... to be elaborated.

3. It is necessary to... to be elaborated.

4. It is necessary to... to be elaborated.

The following referred to in this Annex [shall] [may] be subject to systematic international co-operation on a routine basis (measures to be developed)

Verification

1. Methyl...

ANNEX 3

ARTICLE VI

Chemicals which are produced in large commercial quantities and which could be used for chemical weapons purposes

1. ANNUAL DECLARATION

The Annual Declaration to be provided by a State Party under Paragraph [] of Article VI shall include the following information for each of the chemicals listed in Schedule []:

- (i) the chemical name, [trivial name], structural formula and Chemical Abstracts Service Registry Number.
- (ii) The total amount produced, consumed, imported and exported in the previous calendar year.
- (iii) the final product or end use of the chemical in accordance with the following categories (to be developed).
- (iv) for each facility which produces, processes, consumes or transfers 1/ one of the chemicals listed in Schedule [] (on an industrial scale - to be defined).
 - (a) the name of the facility and of the owner, company or enterprise operating the facility.
 - (b) the location of the facility.
 - (c) the capacity (to be defined) of the facility.
 - (d) the approximate amount of production and consumption of the chemical in the previous year (ranges to be specified).

2. A State Party shall notify the [International Authority] of the name and location of any facility which intends, in the year following submission of the Annual Declaration, to produce, process or consume any of the chemicals listed in Schedule [] (on an industrial scale - to be defined). 2/

Schedule [] */

Phosphorus oxychloride	(10025-87-3)
Phosphorus trichloride	(7719-12-2)
Phosgene	(75-44-5)
Cyanogen chloride	(506-77-4)

*/ List 'C' in CD/651 refers.

Hydrogen cyanide	(74-90-8)
Trichloronitromethane (chloropicrin)	(76-06-2)
Di- and Trimethyl/Ethyl Esters of Phosphorus p(III) Acid:	
Trimethyl phosphite	(121-45-9)
Triethyl phosphite	(122-52-1)
Dimethyl phosphite	(762-04-9)
Diethyl phosphite	(762-04-9)
[Sulphur monochloride] <u>3/</u>	(19925-67-9)
[Sulphur dichloride] <u>4/</u>	(19545-99-0)

VERIFICATION

The verification régime for chemicals listed in Schedule [] will comprise both the provision of data by a State Party to the [International Authority] and the monitoring of that data by the [International Authority]. 5/

Notes

1/ The relevance of transfers in this connection is to be considered further.

2/ The requirement contained in this provision is to be considered further.

3/ and 4/ The question of whether or not these chemicals should be listed in Schedule [] is still to be resolved.

5/ One delegation considers that provision should be made for resort to an on-site "spot-check" inspection, if required, to verify information supplied by a State Party.

(10025-87-3)
 (7119-13-2)
 (75-44-2)
 (500-77-1)

Ad Hoc Committee on Chemical Weapons

Report of Working Group B

1. In accordance with the terms of reference outlined by the Chairman of the Ad Hoc Committee on Chemical Weapons in document CD/CW/WP.129/Rev.1 dated 19 February 1986, Working Group B was entrusted to deal with the following articles:

- Article III "Declarations"
- Article IV "Measures on Chemical Weapons"
- Article V "Measures on Chemical Weapons Production Facilities"

2. Working Group B held 17 meetings from 26 February to 6 August 1986. In addition the Chairman of the Working Group organized a series of open-ended and private consultations.

3. The following documents were introduced with a view to assist the process of developing the texts of the above three articles as they appear in Appendix I of document CD/636 dated 23 August 1985:

- CD/CW/WP.130, dated 10 March 1986, entitled "Calculation of Elimination Quantity", submitted by the delegation of China;
- CD/CW/WP.135, dated 20 May 1986, entitled "Order of elimination of chemical weapons stocks and method for comparing these stocks: Elements of a possible solution", submitted by the delegation of Belgium;
- CD/CW/WP.145, dated 9 July 1986, entitled "Letter dated 9 July 1986 from the United States Representative to the Conference on Disarmament transmitting a document entitled 'Chemical Stockpile Disposal Program' prepared by Aberdeen Proving Ground, MD" submitted by the delegation of the United States;
- CD/CW/WP.148, dated 29 July 1986, entitled "Definition of the term capacity", submitted by the delegation of Cuba;
- Non-paper, dated 16 April 1986, entitled "Guidelines on the international inspections to be conducted at a Specialized Facility for the destruction of chemical weapons", submitted by the delegation of the German Democratic Republic.
- Non-paper, dated 3 July 1986, entitled "Declarations of chemical weapons production facilities and plans for their elimination", submitted by the delegations of Bulgaria, GDR and the USSR;

- Excerpts from CD/500, Article IV "Declaration of chemical weapons, chemical weapons production facilities and past transfers", submitted by the delegation of United States;
- Non-paper, dated 9 July 1986, entitled "Elimination of chemical weapons production facilities", submitted by the delegations of Bulgaria, GDR and the USSR;
- Chairman's paper dated 29 July 1986, entitled "Chemical Weapons";
- Chairman's paper dated 31 July 1986, entitled "Annex V. Declarations on chemical weapons production facilities";

4. Working Group B reached agreement in regard to the following:

(a) the final formulation and placement of the relevant declarations on chemical weapons stocks and on chemical weapons destruction facilities would be negotiated during the work on articles III, IV and V and their respective Annexes.

(b) the text of Annex IV, entitled "Principles, methods and organization of the elimination of chemical weapons", reflects the current stage of the negotiations; it is subject to evaluation by delegations and should be further used together with all other relevant material present and future;

(c) the text of Article V, entitled "Chemical Weapons Production Facilities" represents the current stage of negotiations;

(d) the drafts of Article IV, entitled "Chemical Weapons" and Annex V, entitled "Declarations of chemical weapons production facilities", both submitted by the Chairman, are accepted by the Working Group for further discussion after the submission of its report, including during the period 6-20 August 1986. The Working Group agreed to have an additional meeting before 20 August 1986 to consider possible developments on Articles III and IV and Annex V.

Annex IV to Article IVI. Principles, methods and organization of the elimination of chemical weaponsA. Destruction of chemical weapons

1. Destruction of chemical weapons means a process by which chemicals are converted in an essentially irreversible way to a form unsuitable for production of chemical weapons, and which in an irreversible manner renders munitions and other devices unusable as such.

Elimination through destruction shall apply to all chemical weapons except those which may be diverted (to be elaborated).

2. Each State Party possessing chemical weapons shall determine how they shall be destroyed, except that the following procedures may not be used: dumping in any body of water, land burial or open-pit burning.

3. The destruction of chemical weapons shall take place at a specifically designated and appropriately designed and equipped facility(ies) . [The facility(ies) shall be government property.]

4. The chemical weapons destruction facility shall be constructed and operated in a manner to ensure the destruction of the chemical weapons; and that the destruction process can be verified under the provisions of this Convention.

B. Diversion of Chemical Weapons

Diversion of chemical weapons means a process by which chemicals are converted in an essentially irreversible way into end products that may only be used for purposes other than those related to chemical weapons. [Diversion also includes taking super-toxic lethal chemicals from the chemical weapons stocks for use for permitted purposes in quantities up to 1 metric tonne in accordance with Article VI.]^{1/}

Elimination through diversion may apply to (to be elaborated) .

II. Principles and Order of Elimination

1. The elaboration of the Order of Elimination shall build on the undiminished security for all States during the entire elimination stage; confidence building in the early part of the elimination stage; gradual acquisition of experience in the course of destroying chemical weapons stocks and applicability irrespective of the actual composition of the stockpiles and the methods chosen for the elimination of the chemical weapons.

^{1/} One delegation stated that it was unconvinced that diversion was either a practical or economic method for elimination. It may be prepared, however, to review its position in the event a practical system for diversion can be devised, preserving the requirement for effective verification.

2. The elimination of chemical weapons stocks shall start for all States Parties possessing chemical weapons simultaneously. The whole elimination stage shall be divided into 9 annual periods.

3. Each State Party shall eliminate not less than one-ninth of equivalent stockpile during each elimination period.^{1/} However, a State Party is not precluded from eliminating its stocks at a faster pace. Each State Party shall determine its detailed plans for each elimination period, as specified in part III of this Annex and shall report annually on the implementation of each elimination period.^{2/}

4 Order of Elimination (to be elaborated)^{3/}.

III. Plans for elimination of chemical weapons

A. General Plans for elimination of chemical weapons

1. General Plan for destruction of chemical weapons

The general plan for destruction of chemical weapons, submitted pursuant to article shall specify :

(a) a general schedule for destruction, giving types and quantities of chemical weapons to be destroyed in each period;

(b) for each existing or planned CW destruction facility :

- ["name " and address]
- [location]
- chemical weapons intended to be destroyed
- method of destruction
- capacity
- expected period of operation
- [products of the destruction process]

^{1/} It is considered necessary to elaborate a method for comparing different categories of chemical weapons stocks. In this connection, some delegations have introduced concrete proposals, notably CD/CW/WP.130 and CD/CW/WP.135, which are based on the concept of "stockpile equivalent". The comparison of lethal and harmful chemicals remains unresolved and is subject to further consideration. Some delegations have expressed doubt that this problem could be solved.

^{2/} It has been recognized that the elimination of chemical weapons stocks and the elimination of relevant production facilities should be considered together.

^{3/} Some delegations feel that it would be appropriate to introduce the idea of security stockpile levels to meet the security concerns of countries with small stockpiles of chemical weapons.

[2. General Plans for diversion of chemical weapons (to be elaborated)]

B. Detailed Plans for Elimination of chemical weapons

1. Detailed Plans for Destruction of Chemicals Weapons

These plans shall be submitted to the Consultative Committee in accordance with Article ... and shall specify:

- (a) the number of chemical weapons destruction facilities and a detailed schedule for the destruction of chemical weapons at each of these facilities;
- (b) the aggregate quantity of each individual type of chemical weapons plans to be destroyed at each facility;
- (c) data about each facility:
 - name, postal address, geographical location;
 - method of destruction;
 - end-products;
 - layout plan of the facility;
 - technological scheme;
 - operation manuals;
 - method of storage and volume of the Facility's storage, estimated by types and quantities of chemical weapons;
 - types and quantities of chemical weapons kept at the storage during each elimination period;
 - the system of verification;
 - safety measures in force at the facility;
 - living and working conditions for the international inspectors.

[2. Detailed Plans for Diversion of chemical weapons (to be elaborated)]

IV. Principles and Methods for the Verification of the Elimination of Chemical Weapons

A. Destruction of Chemical Weapons

1. The aim of verification of destruction of chemical weapons stocks shall be:

-to confirm the identity and quantity of the chemical weapons stocks to be destroyed, and

-to confirm that these stocks for all practical purposes have been destroyed.

2. After a review of the detailed plans provided in Section III above, the Technical Secretariat, if the need arises, will enter into consultation with the State Party concerned in order to ensure the facility is designed to assure destruction, to allow advanced planning on how verification measures may be applied and that the application of verification measures is consistent with proper facility operation, and to ensure that the facility operation allows appropriate verification.

3. Each State Party should execute a detailed agreement with the Technical Secretariat covering detailed inspection procedures for each facility subject to inspection. (This concept remains to be further elaborated).

4. The inspectors will be granted access to the chemical weapons destruction facility [...] prior to commencement of the active destruction phase, to carry out the engineering review of the Facility, to include the facility's construction and layout, the equipment and instruments for measuring and controlling the destruction process, and the checking and testing of the accuracy of the verification equipment.

5. The inspectors will be granted access to conduct their activities at the Facility and the Facility storage during the entire active phase of destruction. They will conduct their activities in the presence and with the cooperation of representatives of the Facility's management and the National Authority if they wish to be present.

6. The inspectors may monitor by either physical observation or devices:

- (a) the Facility storage and the chemical weapons present;
- (b) the movement of chemical weapons from the storage to the Facility;
- (c) the process of destruction (assuring that no chemical weapons are diverted;)
- (d) the material balance (to be elaborated further), and
- (e) the accuracy and calibration of the instruments.

7. To the extent consistent with verification needs, verification procedures should make use of information from routine facility operations.

8. If inspectors detect irregularities which may give rise to doubts they will report the irregularities to the representatives of the facility and the National Authority and request that the situation be resolved. Uncorrected irregularities will be reported to the Executive Council.

9. After the completion of each period of destruction the Technical Secretariat shall certify the declaration of the National Authority, reporting the completion of destruction of the designated quantity of chemical weapons.

[B. Diversion of chemical weapons (to be elaborated)]

V. [Verification of Declarations and Interim Monitoring of Chemical Weapons Stockpiles]*/

*/ Some delegations believe it is necessary to elaborate principles and methods for verifying chemical weapons declarations and for monitoring chemical weapons stockpiles from the time of their declaration until their elimination.

Article V

CHEMICAL WEAPONS PRODUCTION FACILITIES

1. The provisions of this article shall apply to any and all chemical weapons production facilities under the jurisdiction or control^{1/} of a State Party, regardless of location.^{2/}
2. Each State Party with any chemical weapons production facility shall cease immediately all activity at each chemical weapons production facility except that required for closure.
3. No State Party shall construct any new facility or modify any existing facility for the purpose of chemical weapons production or for any other purpose prohibited by the Convention.^{3/}
4. Each State Party, within 30 days after the Convention enters into force for it, shall submit a declaration which:
 - (a) specifies any chemical weapons production facilities under its jurisdiction or control, or on its territory under the control of others,^{4/} including a State not party to this Convention, at any time since [1 January 1946] [at the time of entry into force of the Convention];
 - (b) specifies any transfer or any receipt by the State Party of any equipment for the production of chemical weapons [and documentation relevant to the production of chemical weapons] since [1.1.1946] or any transfer of control by that Party of such equipment [and documentation];
 - (c) specifies actions to be taken for closure of each chemical weapons production facility;
 - (d) outlines its general plan for destruction [or reconstruction for peaceful purposes] for each chemical weapons production facility, and
 - (e) outlines its general plan for any temporary conversion of any chemical weapons production facility into a facility for destruction of chemical weapons.

^{1/} It is agreed that the concept of "jurisdiction or control" requires additional discussion and elaboration.

^{2/} It is understood that the above provisions also apply to any facility on the territory of another State [regardless of ownership and form of contract, on the basis of which they have been set up and functioned for the purposes of production of chemical weapons.]

^{3/} Some delegations consider this paragraph redundant.

^{4/} Some delegations expressed doubts as to the applicability of this phrase.

5. Each State Party shall, immediately after the declaration, under para. 4, has been submitted, provide access to each chemical weapons production facility for the purpose of [systematic] international on-site verification of the declaration through on-site inspection.
6. Each State Party shall:
- (a) close within three months after the Convention enters into force for it, each chemical weapons production facility in a manner that will render each facility inoperable; and
 - (b) provide access to each chemical weapons production facility, subsequent to closure, for the purpose of systematic international on-site verification through periodic on-site inspection and continuous [monitoring by] [use of] on-site instruments in order to ensure that the facility remains closed and is subsequently [dismantled and] destroyed, or [dismantled] [and reconstructed for peaceful purposes].
7. Each State Party shall submit detailed plans for [destruction] [elimination] of each facility not later than [3 months] before the [destruction] [elimination] [conversion] of the facility begins.1/
8. Each State Party shall:
- (a) [destroy] [eliminate] all chemical weapons production facilities pursuant to [the [order] [schedule] specified in] Annex ..., beginning not later than 12 months, and finishing not later than 10 years, after the Convention enters into force for it;2/
 - (b) provide information annually regarding the implementation of its plans for the [destruction] [elimination] of its chemical weapons production facilities, and
 - (c) certify, not later than 30 days after the destruction process has been completed, that its chemical weapons production facilities have been [destroyed] [eliminated].

1/ One delegation held the view that the detailed plans in question should be submitted by each State Party within twelve months of the entry into force of the Convention for it.

2/ Some delegations expressed the desire to see the elimination of chemical weapons production facilities at the earliest opportunity.

9. A chemical weapons production facility may be temporarily converted for destruction of chemical weapons. Such a converted facility must be [destroyed] [eliminated] as soon as it is no longer in use for destruction of chemical weapons and, in any case, not later than 10 years after the Convention enters into force for the State Party.

10. [Each State Party shall submit all chemical weapons production facilities] [All chemical weapons production facilities] shall be subject to systematic international on-site verification through on-site inspection and [monitoring with] [use of] on-site instruments in accordance with Annex

11. The declaration, plans and information submitted by each State Party under this article shall be made in accordance with Annex ... and Annex

CD/CW/WP.152

Draft Report of the Ad Hoc
Committee on Chemical Weapons
to the Conference on Disar-
mament

14.8.86

NOT REPRODUCED

CD/CW/WP.153

Draft Report of the Ad Hoc
Committee on Chemical Weapons
to the Conference on Disar-
mament on its Work During the
Period 12-30 January 1987

22.1.87

NOT REPRODUCED

CD/CW/WP.154 Outline of the Organization 9.2.87
and Programme of Work of the
Ad Hoc Committee on Chemical
Weapons

NOT REPRODUCED

Ad Hoc Committee on Chemical Weapons

Working Paper by Australia

REGIMES FOR MONITORING SUPERTOXIC LETHAL CHEMICALS
MADE FOR PHARMACEUTICAL PURPOSES

Any production of supertoxic lethal chemicals for purposes not prohibited by the Convention would be most likely to occur in one of three situations:

- (a) In the pharmaceutical industry, which will include veterinary medicines,
- (b) In the agricultural chemical industry,
- (c) In industrial processes.

The definition of a supertoxic lethal chemical (STLC) is one having a subcutaneous LD₅₀ less than 0.5 mg/kg. However, because of the variability and statistical errors involved in the determination of LD₅₀, in this paper we have chosen to scrutinize pharmaceutical chemicals with LD₅₀ value less than 1 mg/kg, for the reasons outlined in CD/CW/WP.131.

In a free enterprise society, pharmaceuticals are produced by a number of independent companies who operate under regulations laid down by the State. These regulations are strictly enforced and involve licensing of producers, distributors and final outlet to the public. Purchase of pharmaceuticals is regulated. Many can only be obtained on prescription from a medical officer who must ensure that the drug is appropriate for the patient's condition. The drug must be safe, pure, effective and suitably packaged for the intended end-use. The cost of a drug must be as low as is consistent with the above-mentioned criteria. The medical officer should be free to prescribe the most appropriate drug for the condition he is treating.

It may be asked whether the production of drugs by the pharmaceutical industry under existing regulations poses any conceivable risk to the purposes of the Convention.

The retailing and use of drugs involves very small amounts of toxic drugs packaged for use in the hospital or home. Frequently such drugs are dispensed in a single dose ampoules or in tablets mixed with a large quantity of inert substance. They could not be diverted to weapons use. It is only in the production stage, where a manufacturer may make a drug in bulk, that diversion would be even a theoretical possibility.

In the normal manufacture of very toxic drugs, the annual production would not involve very large quantities. Consider insulin, a pharmaceutical product which would be supertoxic on injection (Table 1). The annual requirement for insulin, world-wide, is about 2 tonnes (1). In the past, it was obtained exclusively from animal tissue, but recently it has been produced as human insulin in a biotechnology process. We expect that human insulin will be made in only a few facilities and then distributed (1). As insulin must be injected into the patient, it is very difficult to conceive of a military use for this chemical.

We do not have production figures on other pharmaceutical chemicals that may be STLC. However, we expect that annual requirements for most of these chemicals would be much smaller than for insulin (kilograms rather than tonnes). Take, for example, the cardiac glycosides which are used in medicine to treat cardiac failure. Twenty three different compounds are listed in the "Extra Pharmacopoeia" (2), some 14 of these have LD₅₀ values less than 1 mg/kg (3). All of these drugs are extracted from plants, and a synthetic route to these drugs would be difficult and expensive. The glycosides constitute a minor component of the dried leaves of the digitalis plant. The production of 1 tonne of digitoxin would require 1,600 tonnes of dried leaves (4). Irrespective of the definition of a "significant military quantity", it is clear that production of cardiac glycosides would be limited by the amount of dried leaves that could be grown and processed. Furthermore, the glycosides are solids which would have to be disseminated as an aerosol and they are not readily absorbed through the skin.

Another class of drugs that contain STLC are the muscle relaxants. The quantities of a muscle relaxant used in a given country will depend on the number of surgical procedures which require it, and for a country like Australia would be in the range of kilograms rather than tonnes. Part of the

production of skeletal muscle relaxing drugs involve derivatives of curare. The parent compounds are obtained from plants in the tropical forests of South America. Production is limited by the supply of plants and is expensive. Other relaxants are synthetic chemicals (for example, succinylcholine and gallamine) so their production is not limited by the supply of plants. The unit sales value for the whole group of these drugs is given in our reference as \$US 23.74/kg (5). As these relaxants must be injected into the patient to produce paralysis, it is very difficult to conceive of a military use for them.

Dr. Julian Perry Robinson, an authority on chemical weapons, has studied the concept of military significant quantity and concluded that in, for example, a European war "Nerve gas stockpiles amounting to less than some hundreds of tonnes of agent could not, it would seem, be of any great significance" (6). Therefore, on this basis, the quantities of STLC pharmaceutical chemicals produced would pose no risk to the Chemical Weapons Convention, even if they were effective chemical weapons. The adoption of a realistic threshold on production quantities would exclude most of the STLC pharmaceutical chemicals from further consideration.

In Table 2 we have grouped drugs into classes. The classification is quite arbitrary and other delegations may wish to alter it. We have identified those classes which may include STLC. Many of these are, we believe, unsuitable for use as chemical weapons.

When we consider what chemicals might be diverted by an aggressor for military use, we need to check the properties of the chemicals against a number of criteria.

1. Effectiveness

- (a) Use of the chemical must be cost effective compared to other weapons systems;
- (b) The chemical must be readily produced in military significant quantities;
- (c) It must be stable enough to store;
- (d) It must have suitable persistency for its military objective.

2. Lethality

- (a) The chemical must be capable of killing or incapacitating the enemy. To do this it must be readily absorbed by the body, by the lungs, skin or mucous membranes;
- (b) Its speed of action in the body must be appropriate to its military use.

3. Dispersion over the battlefield
It must be readily dispersed as gas or as a volatile liquid or aerosol or droplets.

Chemicals which do not meet these criteria pose little or no threat to the Convention. To monitor them vigorously would constitute an unreasonable burden to the Secretariat. Of the chemical groups listed in Table 1 we have identified those which may include some STLC. We have also identified those groups which contain chemicals which might, under certain conditions, be suitable for use as chemical warfare agents.

Delegations may decide that all pharmaceuticals which are STLC should be monitored by data collection on production quantities. This would not involve the Technical Secretariat in burdensome work since many countries, including Australia, keep a computerized record of all pharmaceutical preparations which are marketed. We have a National Register of Therapeutic Drugs. Information needed to monitor the industry could be obtained readily from this Register. On the basis of this information, the Technical Secretariat could decide what further steps (including inspections) might be needed to verify the data.

The World Health Organization has developed guidelines for National Drug Registers. Documents which illustrate the Australian approach may be seen on request (7). When such a procedure is adopted universally it will offer the Secretariat ready access to most of the information it will require. Those pharmaceuticals which it is considered could be diverted to a military use should then be followed up with in-depth enquiries and routine, short notice inspections.

The procedures used in the inspection will not differ basically from those used in other facilities which make speciality chemicals. The guidelines set down in CD/698 based on the Trial Inspection of an Australian Chemical Facility (8) would need very little modification.

There will be a similar need for materials accountancy, and the confidentiality of proprietary information should also be preserved.

References

1. Heaton, C.A., The Chemical Industry, p. 323 (1986).
2. Martindale, The Extra Pharmacopoeia, 28th Edition (1982).
3. Registry of Toxic Effects of Chemical Substances (RTECS). United States Department of Health and Human Services (1986).
4. The Merck Index, 9th Edition, p. 418 (1976).
5. Chemical Economics Handbook - SRI International p. 565.0200A. (1982).
6. Robinson, J.P., The Chemical Industry and the Projected Chemical Weapons Convention: Proceedings of SIPRI/Pugwash Conference (Oct. 85). Vol. 1, p. 67.
7. (a) "National Register of Therapeutic Goods"
(b) "Australian Approved Names and Other Names for Therapeutic Substances".
8. Working Paper CD/698 of 4 June 1986 by Australia, titled "Verification of Non-Production of Chemical Weapons and their Precursors by the Civilian Chemical Industry. Trial Inspection of an Australian Chemical Facility".

TABLE 1

LD₅₀ Values of Selected Pharmaceutical Chemicals

Chemical	LD ₅₀ (mg/kg)
Insulin	0.5 to 1.0 (ivn-human) */
Digitoxin	0.25 (oral-cat)
Curare	0.14 (ivn-mouse)
Succinyl choline	0.55 (ivn-mouse)
Gallamine	0.44 (ivn-rabbit)

*/ Based on suicides and overdoses.

CONFERENCE ON DISARMAMENT

CD/CW/WP.156
18 February 1987

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

Issues pertaining to chemical weapons stocks - Cluster I

Suggestions by the Chairman of the Ad Hoc Committee

In CD/734, Article and Annex IV a number of questions remain to be agreed upon, inter alia, as regards the issues of declaration of location of chemical weapons stocks, verification of declarations and interim monitoring of the stocks, the contents of stockpile declarations and the issue of diversion. Concerning these issues the Chairman wishes to make the following comments and suggestions.

1. During the past several years a number of suggestions for compromise solutions have been discussed as regards the timing of the declarations of locations of chemical weapons stockpiles, without creating sufficient ground for solutions acceptable to the membership of the Committee. It has recently been proposed that we seek a solution on the basis of the time-frame in CD/734 i.e. "within 30 days after the Convention enters into force for it". In this light I have suggested some changes in the text of Article and Annex IV of CD/734.

2. The question of early declaration of stockpile locations is closely related to the issues of verification of stockpile declarations and interim monitoring of these stockpiles. Principles, methods and procedures for such verification and monitoring need to be elaborated. The relevant part of CD/734, Annex IV (part VI) is a blank space at present. Taking Article IV, paragraph 3 as a basis I have made a number of suggestions which could form the starting point for such work.

3. Furthermore, not only the negotiations, but the actual implementation of the Convention would be simplified if declarations of stockpile locations are made early enough for it to be possible to merge the initial aggregate declarations (Annex IV:I:A) with the declarations of detailed inventories (Annex IV:I:B). Preliminary tables for the declarations were worked out during the 1985 session. However, a number of unresolved questions were left outstanding, pending further developments. Since then, useful progress has been made in the context of Article VI, opening the way for possible solutions to some of the remaining problems. I therefore suggest that efforts now be

made to bring the declarations under Article IV in line with the progress achieved in connection with Article VI. To facilitate such work I am enclosing an outline which could be taken as a starting point.

4. As regards the issue of diversion recent developments have prompted me to suggest a number of changes in the text of CD/734.

5. My suggestions have been incorporated into Article IV and Annex IV of the draft text of CD/734, which is enclosed.

IV. CHEMICAL WEAPONS

1. The provisions of this article shall apply to any and all chemical weapons under the jurisdiction or control of a State Party, regardless of location, including those on the territory of another State.

2. Each State Party, within 30 days after the Convention enters into force for it, shall submit a declaration which:

(a) specifies the ~~X~~precise location, ~~X~~aggregate quantity and detailed inventory of any chemical weapons under its jurisdiction or control;

(b) reports any chemical weapons on its territory under the jurisdiction or control of others, including a State not Party to this Convention; 2/

(c) specifies any transfer or receipt by the State Party of any chemical weapons since [...] or any transfer of control by that State Party of such weapons; and

(d) provides its general plan for destruction ~~[or diversion]~~ of its chemical weapons.

3. ~~X~~Each State Party shall, immediately after the declaration under para. 2 of this Article has been submitted, provide access to its chemical weapons for the purpose of systematic international on-site verification of the declaration through on-site inspection. Thereafter, each State Party shall ensure, through access to its chemical weapons for the purpose of systematic international on-site verification and through on-site inspection and continuous monitoring with on-site instruments, that the chemical weapons are not removed except to a destruction facility. X

4. Each State Party shall submit detailed plans for the destruction of chemical weapons not later than ... months before each destruction ~~[diversion]~~ period begins. The detailed plans shall encompass all stocks to be eliminated during the next coming period, and shall include the precise location and the detailed composition of the chemical weapons which are subject to destruction during that period.

5. Each State Party shall:

(a) destroy ~~[or divert]~~ all chemical weapons pursuant to the Order specified in Annex IV, beginning not later than ... months and finishing not later than 10 years after the Convention enters into force for it;

(b) provide information annually regarding the implementation of its plans for destruction ~~[or diversion]~~ of chemical weapons; and

(c) certify, not later than 30 days after the destruction ~~[or diversion]~~ process has been completed, that all chemical weapons have been destroyed, ~~[or diverted]~~

1/ One delegation reserved its position on this question

2/ A question ~~was~~ raised as to the applicability of this subparagraph.
 has been

6. Each State Party shall provide access to any chemical weapons destruction facilities and the facilities' storage for the purpose of systematic international on-site verification of destruction through the continuous */ presence of inspectors and continuous monitoring with on-site instruments, in accordance with Annex IV. 1/

7. Any chemical weapons discovered by a State Party after the initial declaration of chemical weapons shall be reported, secured and destroyed, as provided in Annex IV. 2/

8. All locations where chemical weapons are Xstored or Xdestroyed shall be subject to systematic international on-site verification, through on-site inspection and monitoring with on-site instruments in accordance with Annex IV. 1/

9. Any State Party which has on its territory chemical weapons which are under the control of a State that is not a Party to this Convention shall ensure that such weapons are removed from its territory not later than ... months after the date on which the Convention entered into force for it.

10. The declaration, plans and information submitted by each State Party under this article shall be made in accordance with Annex ... and Annex ...

*/ The precise wording to express this concept satisfactorily in some of the languages requires further elaboration.

1/ The provisions of Annex IV, which address verification, require further elaboration.

2/ In view of the complex situations these chemical weapons involve, this issue needs to be further discussed and resolved.

ANNEX IV

I. DECLARATIONS OF CHEMICAL WEAPONS

A. Detailed declaration by a State Party on the aggregate quantity and detailed composition of chemical weapons under its jurisdiction or control

1. Chemicals

1.1 Toxic chemicals ^{1/}

In cases involving mixtures of two or more toxic chemicals all such components should be specified as well as the percentage of the mixtures.

REARRANGED

^{1/} In accordance with agreed definitions.

1.1.1 Super-toxic lethal chemicals 1/

Scientific chemical name/ <u>2/</u>	Bulk		Filled in munition Quantity (metric tons)	Total quantity (metric tons)
	Structural formula <u>3/</u> and Toxicity (of pure substance)	Purity <u>4/</u> %			Quantity (metric tons)	Number and size of containers
Chemical A				
Chemical B				
etc.				

1.1.2 Other lethal chemicals 1/

Scientific chemical name/ <u>2/</u>	Bulk		Filled in munition Quantity (metric tons)	Total quantity (metric tons)
	Structural formula <u>3/</u> and Toxicity (of pure substance)	Purity <u>4/</u> %			Quantity (metric tons)	Number and size of containers

1.1.3 Other harmful chemicals

Scientific chemical name/ <u>2/</u>	Bulk		Filled in munition Quantity (metric tons)	Total quantity (metric tons)
	Structural formula <u>3/</u> and Toxicity (of pure substance) if applicable	Purity <u>4/</u> %			Quantity (metric tons)	Number and size of containers

1/ In accordance with agreed definition.

2/ In accordance with the IUPAC (International Union of Pure and Applied Chemistry) Nomenclature.

3/ Different views exist whether it is necessary to state both the scientific chemical name and the structural formula in order for the declarations to be unambiguous.

4/ Three different approaches were taken by delegations: (1) Initial purity; (2) Purity of the compound as stored with an approximation of some 10 per cent; (3) That declaration of purity was not necessary.

5/ In accordance with agreed definition, but pending such a definition it is unclear which chemicals to declare in this table.

1.2 1/

Scientific chemical name/ <u>2/</u>	Quantity (metric tons)	Number and size of containers
Structural formula <u>3/</u>		
<u>Key precursors for unitary systems 4/</u>		

Scientific chemical name/ <u>2/</u>	Bulk		Filled in munition/ submunition (metric tons)	Total quantity (metric tons)
Structural formula <u>3/</u>	Quantity (metric tons)	Number and size of containers		
<u>[Key components] [Key precursors] for multi-component systems 4/ 5/ 6/</u>				

REARRANGED

1/ The view was expressed that these two tables were not necessary and the key precursors and key components could be declared under points 1.1.1, 1.1.2 and 1.1.3 as applicable.

2/ In accordance with the IUPAC (International Union of Pure and Applied Chemistry) Nomenclature.

3/ Different views exist whether it is necessary to state both the scientific chemical name and the structural formula in order for the declarations to be unambiguous.

4/ To be declared separately for super-toxic lethal, other lethal and other harmful chemicals.

5/ Identified in accordance with approaches to be worked out in the context of Article II.

6/ Some delegations suggested that multicomponent chemical weapons should not be declared as a special category in a separate table.

1.3 Precursors 1/ in bulk 2/

Scientific chemical name/ <u>3/</u>	Quantity (metric tons)	Number and size of containers
Structural formula <u>4/</u>		
<u>Precursors for unitary systems</u>		
<u>Components for multicomponent systems 5/</u>		

REARRANGED

1/ Identified in accordance with approaches to be worked out in the context of Article II.

2/ Some delegations did not consider this table necessary.

3/ In accordance with the IUPAC (International Union of Pure and Applied Chemistry) Nomenclature.

4/ Different views exist whether it is necessary to state both the scientific chemical name and the structural formula in order for the declarations to be unambiguous.

5/ Some delegations suggested that multicomponent chemical weapons should not be declared as a special category in a separate table.

2. Munitions

Type	Calibre (if applicable)	Quantity of unfilled munition/submunition (number of pieces) ^{1/}	Filled munition/submunition
			Quantity (number of pieces)
			Chemical fill (in kg per piece of munition/submunition)
<u>Unitary chemical type</u>			
<u>Examples:</u>			
Shell	155 mm	22 000	2.82 kg of chemical x
Cartridge	120 mm	500 warhead bodies	1.12 kg of chemical y
Rocket warhead		1 500 submunitions	50 kg of chemical Z (50 x 1 kg submunitions)
<u>Multicomponent chemical type</u>			
<u>Examples:</u>			
Binary shells for ... (= name of final reactive product)	155 mm	100 shell bodies	3 kg chemical A + B
		200 canisters A	2 kg chemical y
		300 canisters B	1 kg chemical C

REARRANGED

3. Other devices

Type	Quantity of unfilled devices (number of pieces)	Filled devices
		Quantity (number of pieces)
		Chemical fill (in kg/piece)
<u>Example:</u> spraytanks)		

^{1/} Some delegations did not consider this column necessary.

ANNEX IV

I. DECLARATIONS OF CHEMICAL WEAPONS

A. Locations and detailed inventories of chemical weapons stocks

For each site where chemical weapons are stored, the following shall be declared:

1. Location

Geographical location expressed by ...

2. Detailed inventory 1/

Chemicals shall be identified by chemical name in accordance with current IUPAC (International Union of Pure and Applied Chemistry) nomenclature, structural formula, and Chemical Abstracts Service Registry number, if assigned.

For a chemical not listed in Schedules I, II or III in Annex VI, the toxicity and other information required for assignment of the chemical to the proper Schedule (if applicable) according to Guidelines 2/ in Annex VI shall be provided.

In cases involving mixtures of two or more chemicals, all such components should be specified as well as the percentage of the mixtures.

2.1 Munitions, defined as chemical weapons

The information shall, for each type of munition and/or submunition, include:

- type
- calibre, if applicable
- number of unfilled pieces and filling volume 3/
- number of filled pieces
- weight, identity and purity 4/ of chemical fill; for multicomponent munition also name and calculated quantity of final reaction product.

2.2 Other devices or equipment defined as chemical weapons

The information shall include:

- type
- number of unfilled pieces and filling volume
- number of filled pieces
- weight, identity and purity 4/ of chemical fill; for multicomponent devices also name and calculated quantity of final reaction product.

2.3 Chemicals defined as chemical weapons, not declared under 2.1 or 2.2.

For each chemical the information shall include

- identity, purity 4/ and quantity in metric tonnes
- (type,) number and volume of containers.

1/ At a later stage, when agreement has been reached concerning an Order of Elimination, the possibility of grouping the declared weapons according to such an Order could be discussed.

2/ Such Guidelines remain to be elaborated.

3/ Some delegations did not consider this information necessary.

4/ Three different approaches have been taken by delegations: (1) Initial purity; (2) Purity of the compound as stored with an approximation of some 10 per cent; (3) That declaration of purity was not necessary.

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2.4

Equipment specifically designed for use directly in connection with the employment of munitions and other devices under points ~~2.1~~ and ~~2.2~~. (Example: single purpose rocket launchers). 2.1 2.2

2.5

Chemicals specifically designed for use directly in connection with the employment of munitions and other devices under points ~~2.1~~ and ~~2.2~~. (Example: thickeners). 1/ 2.1 2.2

~~2.6. Locations and detailed inventories of chemical weapons stocks to be declared before the commencement of each elimination period 2/~~

For each stock the following shall be declared:

1. Location

Geographical location expressed in...

2. Detailed inventory

Composition and quantities of the chemical weapons shall be declared in accordance with paragraph 4 of this Annex

B.

Detailed information on any chemical weapons on the territory of a State Party which are under the jurisdiction or control of others (to be developed)

C.

Past transfers and receipts (to be developed) 3/

II. 4/ PRINCIPLES, METHODS AND ORGANIZATION OF THE ELIMINATION OF CHEMICAL WEAPONS

1. Chemical weapons shall be destroyed unless eliminated in accordance with point 2 below.

2. Chemicals declared under I.A.2.3. may be retained and used for purposes not prohibited by the Convention in an aggregate quantity of up to one metric tonne per year in accordance with Article VI.

A. Destruction of chemical weapons

3. Destruction of chemical weapons means a process by which chemicals are converted in an essentially irreversible way to a form unsuitable for production of chemical weapons, and which in an irreversible manner renders munitions and other devices unusable as such.

1/ Different views exist concerning, if or to what extent such chemicals should be declared. Furthermore, it appears that this question will have to be decided in the light of the final definition of chemical weapons.

2/ ~~Some delegations held the view that overall declarations should be made within 30 days after the Convention's entry into force for a State Party.~~

3/ The view was expressed that past transfers should not be included in the Convention.

4/ For some delegations, the question of the applicability of this section of the Annex to obsolete chemical weapons (ordnances) retrieved from the combat zones of World War I will have to be resolved later.

new

~~Elimination through destruction shall apply to all chemical weapons except those which may be diverted (to be elaborated) 1/1~~

4. Each State party possessing chemical weapons shall determine how they shall be destroyed; except that the following procedures may not be used: dumping in any body of water, land burial or open-pit burning.

5. The destruction of chemical weapons shall take place at a specifically designated and appropriately designed and equipped facility(ies). [The facility(ies) shall be government property.]

6. The chemical weapons destruction facility shall be constructed and operated in a manner to ensure the destruction of the chemical weapons; and that the destruction process can be verified under the provisions of this Convention.

~~7. Diversion of chemical weapons~~

~~1. Diversion of chemical weapons means a process by which chemicals are converted in an essentially irreversible way into end-products that may only be used for purposes other than those related to chemical weapons. [Diversion also includes taking super-toxic lethal chemicals from the chemical weapons stocks for use for permitted purposes in quantities up to 1 metric tonne in accordance with Article VI.]~~

~~Elimination through diversion may apply to (to be elaborated)~~

III. PRINCIPLES AND ORDER OF ELIMINATION

1. The elaboration of the Order of Elimination shall build on the undiminished security for all States during the entire elimination stage; confidence-building in the early part of the elimination stage; gradual acquisition of experience in the course of destroying chemical weapons stocks and applicability irrespective of the actual composition of the stockpiles and the methods chosen for the elimination of the chemical weapons.

2. The elimination of chemical weapons stocks shall start for all States Parties possessing chemical weapons simultaneously. The whole elimination stage shall be divided into nine annual periods.

~~2.1 One delegation stated that it was unconvinced that diversion was either a practical or economic method for elimination. It may be proposed, however, to review its position in the event a practical system for diversion can be devised, preserving the equipment for effective verifications.~~

3. Each State Party shall eliminate not less than one ninth of its stockpile [in measure of stockpile equivalent and/or equivalent mustard weight] during each elimination period. 1/ 2/ However, a State Party is not precluded from eliminating its stocks at a faster pace. Each State Party shall determine its detailed plans for each elimination period, as specified in part III of this Annex and shall report annually on the implementation of each elimination period. 3/

4. Order of Elimination (to be elaborated). 4/

IV. PLANS FOR ELIMINATION OF CHEMICAL WEAPONS

~~1. General plans for elimination of chemical weapons~~

1. General plan for destruction of chemical weapons

The general plan for destruction of chemical weapons, submitted pursuant to article ... shall specify:

(a) a general schedule for destruction, giving types and quantities of chemical weapons to be destroyed in each period;

(b) for each existing or planned CW destruction facility:

- ["name" and address];

- [location];

- chemical weapons intended to be destroyed;

- method of destruction;

1/ It is considered necessary to elaborate a method for comparing different categories of chemical weapons stocks. The comparison of lethal and harmful chemicals remains unresolved and is subject to further consideration.

2/ Some delegations expressed the view that the question of the regulation of the elimination of stockpiles needs further and full discussion.

3/ It has been recognized that the elimination of chemical weapons stocks and the elimination of relevant production facilities should be considered together.

4/ Some delegations feel that it would be appropriate to introduce the idea of security stockpile levels to meet the security concerns of countries with small stockpiles of chemical weapons.

- capacity;
- expected period of operation;
- [products of the destruction process.]

~~1. General plans for diversion of chemical weapons (to be elaborated)~~

~~2. Detailed plans for elimination of chemical weapons~~

2. Detailed plans for destruction of chemical weapons

These plans shall be submitted to the Consultative Committee in accordance with article ... and shall specify:

- (a) the number of chemical weapons destruction facilities and a detailed schedule for the destruction of chemical weapons at each of these facilities;
- (b) the aggregate quantity of each individual type of chemical weapons plans to be destroyed at each facility;
- (c) data about each facility:
 - name, postal address, geographical location;
 - method of destruction;
 - end-products;
 - layout plan of the facility;
 - technological scheme;
 - operation manuals;
 - method of storage and volume of the facility's storage, estimated by types and quantities of chemical weapons;
 - types and quantities of chemical weapons kept at the storage during each elimination period;
 - the system of verification;
 - safety measures in force at the facility;
 - living and working conditions for the international inspectors.

~~3. Detailed plans for diversion of chemical weapons (to be elaborated)~~

3. If a State Party intends to retain chemicals as provided for under II:2 above, this should be indicated in the plans, stating identity, quantity of the chemicals and name, address and location of the recipient facility(ies).

V. PRINCIPLES AND METHODS FOR THE VERIFICATION OF THE ELIMINATION OF
CHEMICAL WEAPONS

X. Destruction of chemical weapons

1. The aim of verification of destruction of chemical weapons stocks shall be:
 - to confirm the identity and quantity of the chemical weapons stocks to be destroyed, and
 - to confirm that these stocks for all practical purposes have been destroyed.
2. After a review of the detailed plans provided in Section III above, the Technical Secretariat, if the need arises, will enter into consultation with the State Party concerned in order to ensure the facility is designed to assure destruction, to allow advanced planning on how verification measures may be applied and that the application of verification measures is consistent with proper facility operation, and to ensure that the facility operation allows appropriate verification.
3. Each State Party should execute a detailed agreement with the Technical Secretariat covering detailed inspection procedures for each facility subject to inspection. (This concept remains to be further elaborated.)
4. The inspectors will be granted access to the chemical weapons destruction facility [...] prior to commencement of the active destruction phase, to carry out the engineering review of the facility, to include the facility's construction and layout, the equipment and instruments for measuring and controlling the destruction process, and the checking and testing of the accuracy of the verification equipment.
5. The inspectors will be granted access to conduct their activities at the facility and the facility storage during the entire active phase of destruction. They will conduct their activities in the presence and with the co-operation of representatives of the facility's management and the National Authority if they wish to be present.
6. The inspectors may monitor by either physical observation or devices:
 - (a) the facility storage and the chemical weapons present;
 - (b) the movement of chemical weapons from the storage to the facility;
 - (c) the process of destruction (assuring that no chemical weapons are diverted);
 - (d) the material balance (to be elaborated further); and
 - (e) the accuracy and calibration of the instruments.
7. To the extent consistent with verification needs, verification procedures should make use of information from routine facility operations.

8. If inspectors detect irregularities which may give rise to doubts they will report the irregularities to the representatives of the facility and the National Authority and request that the situation be resolved. Uncorrected irregularities will be reported to the Executive Council.

9. After the completion of each period of destruction the Technical Secretariat shall certify the declaration of the National Authority, reporting the completion of destruction of the designated quantity of chemical weapons.

~~10. Diversion of chemical weapons (to be elaborated)~~

VI. ~~X~~VERIFICATION OF DECLARATIONS AND INTERIM MONITORING OF CHEMICAL WEAPONS STOCKPILES] ~~XX~~

Suggestions presented for discussion:

Each State Party shall execute an agreement, based on a model agreement, with the (international authority) governing the conduct of the verification procedures. The agreement shall provide for detailed subsidiary arrangements which shall govern the implementation of the verification procedures at each location.

A. Verification of declarations

1. The aim of verification of declarations of chemical weapons is to confirm the accuracy of the declarations.
2. Promptly after the declarations, each storage location shall be subject to systematic international on-site verification through on-site inspection.
3. The international inspectors shall i.a. verify
 - types and number of pieces of munitions, devices and other equipment
 - quantity and identity of chemicals.

B. Interim monitoring of chemical weapons stockpiles

1. The aim of interim monitoring of chemical weapons stockpiles is to ensure that chemical weapons are not removed except to facilities for their elimination.

~~*/ Some delegations believe it is necessary to elaborate principles and methods for verifying chemical weapons declarations and for monitoring chemical weapons stockpiles from the time of their declaration until their elimination.~~

n e w

2. Each stockpile location shall be closed to any activities except those required for safety monitoring of the stocks by the State Party, for transport of chemical weapons to destruction facilities and for verification.
3. Chemical weapons stockpiles shall be subject to international on-site verification through on-site inspection and continuous monitoring with on-site instruments.

On-site instruments may i.a. include seals, sensors, cameras and devices for transmission of data. Precise verification arrangements for each storage site will have to be determined i.a. in the light of the actual configuration of the storage site.

The international inspectors may i.a.

- verify remaining types and number of pieces of munitions, devices and other equipment,
- verify remaining quantity of bulk chemicals
- inspect, test and service monitoring devices.

C. Verification of removal of chemical weapons

1. The aim of the verification is to ensure that chemical weapons are not removed to any location other than to facilities for their elimination.
2. On the basis of the detailed plans for elimination, arrangements shall be made for the verification of removals of chemical weapons from the storage site to the destruction facility(ies). Removals may be verified by on-site presence of international inspectors and by monitoring by on-site instruments.
3. The international inspectors shall i.a. verify
 - the identity and quantity of the chemical weapons being transported from the stockpile location, as well as seals and other means for securing the transports,
 - the identity and quantity of the chemical weapons arriving at the destruction facility
 - the re-securing of the storage site.

D. Verification of the elimination of chemical weapons stockpiles

When all chemical weapons have been removed from a storage site its final elimination shall be verified through international on-site inspection.

CONFERENCE ON DISARMAMENT
Ad Hoc Committee on Chemical Weapons

Delegation of Peru

Some comments on articles X, XI and XII of the Draft Convention
On Chemical Weapons (CD/734)

In connection with the work of the Ad Hoc Committee on Chemical Weapons, the Peruvian delegation to the Conference on Disarmament wishes to express the following views on the link - for which provision is made in principle in the work of the Committee - between disarmament and development (peaceful uses) in its sphere of competence (CD/734, articles X, XI and XII).

1. It is entirely justified that account has been taken from the outset of both article IV of the Non-Proliferation Treaty and article X of the Convention on Bacteriological (Biological) and Toxin Weapons and on Their Destruction (1972), as well as the statements made at the Second Review Conference on that Convention (1986).
2. It is also necessary to bear in mind the conclusions of the Second Review Conference regarding article V, especially in the following respects:

The paragraph which states:

"The Conference, mindful of the provisions of article V and article X, and determined to strengthen the authority of the Convention and to enhance confidence in the implementation of its provisions, agrees that the States Parties are to implement, on the basis of mutual co-operation, the following measures, in order to prevent or reduce the occurrence of ambiguities, doubts and suspicions, and in order to improve international co-operation in the field of peaceful bacteriological (biological) activities";

The four measures specified in the conclusions with a view to securing substantial advances over the results obtained to date in the implementation of the 1972 Convention as regards the exchange of information;

The convening of a meeting of scientific and technical experts (31 March to 15 April 1987) to establish a uniform basis for the exchange of information among States parties. It was also decided that, in the meantime, the States parties should submit preliminary information to the United Nations Department for Disarmament Affairs.

3. The conclusion of the Second Review Conference regarding article X of the Convention - as in the case of article V, to which it is explicitly linked - embodies a substantial advance over the Final Document of the previous Review Conference, particularly in the following respects:

Specific measures for promoting international co-operation in the area concerned;

Making full use of the United Nations system through its specialized agencies with competence in this field;

Specific reference to paragraph 35 of the Final Document of the first special session of the General Assembly, particularly in the light of the forthcoming Conference On Disarmament and Development.

4. In short, and bearing in mind the solid and growing link between the security of the parties, international co-operation, and disarmament in respect of chemical weapons, it is essential to institute joint examination of the views and measures arising from the recent review of articles V and X of the Biological Weapons Convention in order to adapt them as far as possible to the closely related area of chemical weapons. This may be done specifically through the following measures:

Linking the work entrusted to a group of experts within the framework of article V with the work entrusted to the United Nations specialized agencies regarding the implementation of article X;

Giving priority in time to consideration of the link between disarmament and development, within the context of chemical weapons problems with the intention that the member countries of the Conference on Disarmament should be able to formulate, at an early date, views on the matter which may in some way be of use at the planned Conference on Disarmament and Development, in the same way that the conclusions and decisions of the Second Review Conference on the Biological Weapons Convention will be of use on the same occasion.

The delegation of Peru would be grateful if this document could be distributed in English in due course during the work of the Ad Hoc Committee.

Geneva, 24 February 1987

4 March 1987

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

Interim Report of the Co-ordinator
on Issues Pertaining to Chemical Weapons Stocks (Cluster I)

1. In accordance with the outline for the organisation and programme of work of the Ad Hoc Committee on Chemical Weapons, as contained in document CD/CW/WP.154, the period 9 February to 3 March 1987 was devoted to the consideration of issues pertaining to chemical weapons stocks. Seven formal meetings with full services, as well as 15 informal consultations were held under the Chairmanship of the Co-ordinator on Cluster I.

2. The following outstanding issues from document CD/734 were considered during these meetings:

(a) Declaration of past transfers of chemical weapons (Article III.1(iii) and Annex IV.I.D.).

(b) Time elements (Article IV and Annex IV).

(c) Declaration of chemical weapons, including their locations (Article IV.2 and Annex IV, Section I).

(d) Verification of declarations of chemical weapons, systematic monitoring, verification of transport (Article IV, paragraphs 3 and 6 and Annex IV, Section VI).

(e) Diversion of chemical weapons (Article IV and Annex IV)

(f) "Jurisdiction and Control", pertaining to chemical weapons stocks and chemical weapons production facilities (Articles IV and V).

(g) Principles, methods and organisation of destruction of chemical weapons (Annex IV, Section II.A.).

(h) Principles and order of elimination of chemical weapons (Annex IV, Section III).

3. The consideration of these issues was based upon document CD/734. Suggestions made by the Chairman of the Ad Hoc Committee, as contained in document CD/CW/WP.156, proposals made by the Co-ordinator, as well as suggestions made by delegations in the course of the discussions were taken into account.

4. The results of the work undertaken on Cluster I issues are contained in the following papers (attached) which are presented under the responsibility of the Co-ordinator and which, in his view, should serve as a basis for further work.

- (A) Proposed new wording for Article III.1(a)(iii).
- (B) Time elements in Article IV.
- (C) Proposed new wording to be inserted in Annex IV.II.
- (D) Proposed new Section I of Annex IV.
- (E) Proposal by the Co-ordinator for Section VI of Annex IV.

Attachment (B)

Attachment (C)

Time element in Article IV

Proposed new wording for Article III.1(a)(iii)

Attachment (A)

Proposed new wording for Article III.1(a)(iii)

Whether it has transferred or received any chemical weapons and whether it has transferred to or received from anyone the control over such weapons since [1 January 1946].

IV.3(d)	Report on the implementation of plans for destruction.	Annually.	
IV.4	Removal of CW which are under the control of a State that is not a Party to the Convention, from the territory.	[12] months after the Convention enters into force.	
IV Annex IV III.3	Report on the implementation of destruction period.	Annually.	
IV Annex IV V.4	Registering review of destruction facility	[] prior to commencement of the active destruction phase.	

Attachment (B)Time elements in Article IV

Ref.	Item	Time element
IV.2	Declaration	Within 30 days after the Convention enters into force.
IV.2(c)	Transfer/receipt/ transfer of control	since [1 January 1946]
IV.3	Provide access to CW stocks for the purpose of verification	immediate after the declarations
IV.4	Detailed plans for destruction	not later than [3] [6] months before each elimination period.
IV.5(a)	Start of destruction	[6] [12] months after the Convention enters into force.
	End of destruction	10 years after the Convention enters into force.
IV.5(b)	Report on the implementation of plans for destruction.	Annually.
IV.9	Removal of CWs which are under the control of a State that is not a Party to the Convention, from the territory.	[6] [12] months after the Convention enters into force.
IV. Annex IV III.3	Report on the implementation of destruction period.	Annually.
IV. Annex IV V.4	Engineering review of destruction facility	[] prior to commencement of the active destruction phase.

Attachment (C)

Proposed new wording to be inserted in Annex IV.II.

New paragraph 2

2. Each State Party possessing chemical weapons shall determine how it shall destroy them, except that the following processes may not be used: dumping in any body of water, land burial or open-pit burning. It shall destroy chemical weapons only at specifically designated and appropriately designed and equipped facility(ies).

New paragraph 3

3. The State Party shall ensure that its chemical weapons destruction facility(ies) are constructed and operated in a manner to ensure the destruction of the chemical weapons; and that the destruction process can be verified under the provisions of this convention.

No paragraph 4

Attachment (D)

Proposed new Section I of Annex IV

I. DECLARATIONS OF CHEMICAL WEAPONS

A. The declaration by a State Party of the aggregate quantity, [location], and detailed composition of chemical weapons under its jurisdiction or control shall include the following:

1. The aggregate quantity of each chemical declared.

2. The precise location of each declared storage site of chemical weapons, expressed by:

- name;
- geographical coordinates.]

3. Detailed inventory 1/ for each storage facility:

(1) Chemicals defined as chemical weapons in accordance with

Article II:

(a) Chemicals shall be declared within the schedules specified in Article VI (Annex VI). 2/

(b) For a chemical not listed in the Schedules in Article VI (Annex VI), 2/ the information required for possible assignment of the chemical to one of the proper schedules shall be provided, including the toxicity of the pure compound. For a precursor chemical, the toxicity and identity of the principal final reaction product(s) shall be provided.

1/ At a later stage, when agreement has been reached concerning an Order of Elimination, the possibility of grouping the declared weapons according to such an Order could be discussed.

2/ A view was expressed that in the context of Article IV, consideration should be given to the development of schedules applicable to chemical weapons declared under the Article.

(c) Chemicals shall be identified by chemical name in accordance with current IUPAC (International Union of Pure and Applied Chemistry) nomenclature, structural formula and Chemical Abstracts Service registry number, if assigned. For a precursor chemical, the toxicity and identity of the principal final reaction product(s) shall be provided.

(d) In cases involving mixtures of two or more chemicals, all such components shall be identified and the percentage of each component shall be provided, and the mixture shall be declared under the category of the most toxic chemical.

(e) In cases involving multi-component munitions, devices, bulk containers, and other containers, the quantity of each chemical component shall be provided, as well as the projected quantity of the final principal reaction product obtained. Such items shall be declared under the category of the [key precursor] [key component].

(f) For each chemical the form of storage, i.e. munitions, sub-munitions, devices, equipment or bulk containers and other containers shall be declared. For each form of storage the following shall be listed:

- type
- size or calibre
- number of items
- weight of chemical fill per item 3/
- purity of chemical fill 4/

(g) For each chemical the total weight present at the storage site shall be declared.

(h) For each intended chemical fill, unfilled munitions and/or sub-munitions and/or devices and/or equipment, defined as chemical weapons. 1/5/ For each type the information shall include:

- the number of items
- the fill volume per item 6/
- alternative chemical fill(s), if known.

3/ The question of precisely how to determine this weight remain to be resolved.

4/ Four different approaches have been taken by delegations: (1) initial purity; (2) purity of the compound as stored, with an approximation of some 10 per cent; (3) that declaration of purity was not necessary; (4) that purity is necessary where equivalence has to be calculated.

5/ Some delegations do not consider the inclusion of this under 3(1) appropriate and prefer to include it under 3(2).

6/ Some delegations did not consider this information necessary

(2) Unfilled munitions and/or sub-munitions and/or devices and/or equipment, defined as chemical weapons. 1/ 7/ For each type the information shall include:

- (a) the number of items
- (b) the fill volume per item 6/
- (c) the intended chemical fill, if known.

(3) Equipment specifically designed for use directly in connection with the employment of munitions, sub-munitions, devices or equipment under points (1) and (2). (Example: single purpose rocket launchers).

(4) Chemicals specifically designed for use directly in connection with the employment of munitions, sub-munitions, devices or equipment under points (1) and (2). (Example: thickeners). 8/

B. Detailed information on any chemical weapons on the territory of a State Party which are under the jurisdiction or control of others, including a State not Party to the convention (to be developed).

C. Past transfers and receipts. 9/

A State Party that has transferred or received chemical weapons shall declare this (these) transfer(s) or receipt(s), [provided the amount transferred or received exceeded one metric tonne per chemical 10/ and per year]. This declaration shall be made according to the inventory format in paragraph 3 above. This declaration shall also reflect the supplier and recipient countries, timing and current location, if known, of the transferred items.

7/ Some delegations do not consider this as a separate declaration but prefer to include this under 3(1).

8/ Different views exist concerning if, or to what extent, such chemicals should be declared. Furthermore, it appears that this question will have to be decided in the light of the final definition of chemical weapons.

9/ The view was expressed that past transfers should not be included in the convention.

10/ Nominal chemical fill weight for unfilled munitions.

Attachment (E) */Proposal by the Co-ordinator for Section VI of Annex IV[VI. VERIFICATION OF DECLARATIONS OF CHEMICAL WEAPONS,
SYSTEMATIC MONITORING, VERIFICATION OF TRANSPORT]1. Storage facility description

(a) Each site or location where, pending their elimination, chemical weapons are stored on the territory of a State Party or under its jurisdiction or control elsewhere, shall hereafter be designated as "storage facility".

(b) At the time of the submission of the Declaration of chemical weapons stockpiles, the State Party shall provide the International Authority with a detailed description and location of each storage facility containing:

- boundary map;
- location of bunkers/storage areas, within the facility;
- the contents of each bunker/storage area;
- relevant details of the construction of bunkers/storage areas;
- recommendations for the emplacement by the International Authority of seals and monitoring instruments.

2. Measures to secure the storage facility and storage facility preparation

(a) Not later than when submitting the Declaration, a State Party shall take such measures as it considers appropriate to secure its chemical weapons storage facilities and shall prevent removal of its chemical weapons stocks, except their movement for elimination.

(b) In order to prepare the storage facility for verification, the State Party shall ensure that its stockpiles are configured so that seals and monitoring devices may be effectively applied and to allow ready access for verification.

*/ It is understood that further work on this Section is required.

(c) While the storage facility remains closed for any movement of stocks, except for transport to elimination under international verification, maintenance and safety monitoring activities by national authorities may continue under procedures to be specified.

3. Subsidiary arrangements

(a) States Parties shall conclude as promptly as possible after entry into force of the convention with the International Authority an agreement on subsidiary arrangements for verification at each storage facility. Such an agreement shall be based on a model agreement (to be discussed) and shall specify detailed inspection procedures and the installation, operation and maintenance of the seals and monitoring devices of the International Authority.

(b) Procedures shall ensure that the verification inspections and the initiation of the monitoring scheme can be accomplished at all storage facilities within the agreed time frames after the convention enters into force.

4. Verification of declarations

1. Verification

(a) The aim of the on-site verification of the declaration of chemical weapons shall be to confirm the accuracy of the declarations referred to in Article IV, paragraph 2(a) 1/ and in Annex IV.I.

(b) The International Inspectors shall come to the storage facilities promptly after the declaration is submitted. They shall, inter alia verify the quantity and identity of chemicals, types and number of pieces of munitions, devices and other equipment.

(c) They shall employ, as appropriate, agreed seals, markers or other inventory control procedures to ensure the accuracy of the inventory.

(d) As the inventory progresses, the inspectors shall instal such agreed seals as may be necessary to clearly indicate if any stocks are removed, and to complete the securing of the site.

1/ Applicability to Article IV, paragraph 2(b) is to be discussed.

2. Arrangements for systematic monitoring of storage facilities

In conjunction with the inspection, the International Inspectors shall undertake necessary coordination for arrangements for systematic monitoring.

5. International systematic monitoring of chemical weapons stockpiles

(a) The aim of systematic monitoring of chemical weapons stockpiles shall be to ensure that no undetected removal of chemical weapons takes place.

(b) Systematic monitoring shall be initiated as soon as possible after the declaration and shall continue until the facility is cleared of chemical weapons. Systematic monitoring shall consist of a combination of continuous monitoring by on-site instruments and periodic verification visits by international inspectors or, where the continuous monitoring by on-site instruments is not feasible, by the presence of inspectors.

(c) In the period before the activation of on-site monitoring instruments and at other times when continuous monitoring by on-site instruments is not feasible, seals may only be opened in the presence of an international inspector. If an extraordinary event requires the opening of a seal when an inspector is not present, international inspectors will return as soon as possible to validate the inventory and re-establish the seals.

(d) Monitoring by instruments.

(i) As soon as possible after the verification of declarations, inspectors, in conjunction with host country personnel, will install sensors and ancillary equipment in accordance with the facilities agreement. The purpose of such equipment will be, in the absence of inspectors on-site, to signal the International Authority if any unauthorised movement occurs. The agreed types of sensors and equipment should be specified in the Model Agreement. This monitoring equipment should incorporate seals and other tamper-indicating and tamper-resistant devices as well as data protection and data authentication features. The Model Agreement should include provisions to take into account future technological developments.

(ii) When the instruments are activated, final inventories will be performed, as required, to ensure that no movement of stocks has occurred.

(iii) An International Verification Centre, operated by international personnel, will be established at (.....). Data will be transmitted from each storage site to the International Verification Centre by means to be determined. The transmission system will incorporate frequent transmissions from the storage site and the query and response system between the storage facility and the International Verification Headquarters. This system of monitoring instruments will be periodically checked by International Inspectors including transmission of data from the facility and the query and response system.

(iv) In the event that the instrument monitoring system indicated some problem, the International Inspectors would check the data and the monitoring system to determine whether the anomaly resulted from equipment malfunction or activities at the storage site. Any difficulties should be reported to the State Party who should assist in the resolution of the problem. If, after this examination the problem remained unresolved, the International Authority would take immediate action to ascertain the actual situation including through immediate on-site inspection if necessary. The State Party shall notify the International Authority immediately if an incident at the storage facility occurs which may have an impact on the monitoring system. Subsequent actions to resolve the difficulties and restore the operating of the monitoring system will be taken in cooperation with the International Authority.

(e) On-site inspections and visits.

(i) On-site inspections and visits shall be conducted:

- to verify the inventory;
- to review the implementation and operation of the facilities agreement: and
- to service any instrument on-site.

(ii) The frequency of such visits is to be determined. The particular storage facility to be visited shall be chosen by the International Authority in such a way as to preclude the prediction of precisely when the facility is to be inspected.

(iii) During each visit, the inspectors will verify the inventory in an agreed percentage of bunkers and storage areas. Inspectors will verify that the sensors and communications equipment are functioning correctly and will perform any necessary maintenance, servicing or replacement of such equipment

(f) When a storage facility is finally cleared of all its chemical weapons, the International Authority shall certify the declaration of the National Authority to that effect. On completion of this certification, the systematic monitoring of the storage facility will be terminated and all devices and monitoring equipment installed by the International Inspectors shall be removed promptly.

6. Verification of transport

(a) The State Party shall notify the International Authority [14] days in advance of the exact timing of removal of stocks from the storage facility and of the planned arrival at the facility where they will be eliminated.

(b) The State Party shall provide the Inspectors with the detailed inventory of the stocks to be moved. The International Inspectors shall be present when stocks are removed from the storage site for elimination and shall verify that the chemical weapons on the inventory are loaded on to the transport vehicles. Upon completion of the loading operations, the International Inspectors shall seal the cargo and/or means of transport, as appropriate.

(c) The International Inspectors shall be present at the destruction facility where they shall verify the seals on the cargo and/or the means of transport and the inventory of the chemical weapons transported.

7. Inspections

(a) The number, intensity and duration of inspections shall ensure the effectiveness of verification and shall be in accordance with Article IV and with the agreement between the State Party and the International Authority.

(b) The State Party shall be notified by the International Authority of its decision to inspect the storage facility 48 hours prior to the planned arrival of the inspection team at the facility for systematic verification purposes.

(c) The International Authority shall specify the purpose(s) of the inspection:

- verification of the declaration of chemical weapons;
- systematic monitoring of stocks of chemical weapons;
- verification of transport of chemical weapons to their elimination;

(d) International Inspectors shall, subject to agreement on subsidiary arrangements:

- Have unimpeded access to all parts of the storage facilities including any munitions, devices, bulk containers, or other containers therein. The items to be inspected will be chosen by the Inspectors;
- install, whenever appropriate, at the storage facility, seals and on-site monitoring instruments such as sensors, cameras, devices for automated off-site transmission of data;
- inspect, test and service all devices or monitoring instruments they have installed;
- bring with them and use such agreed instruments as may be necessary for the completion of their tasks;
- put marks, wherever appropriate, on stocks so as to facilitate inventory control;
- receive samples taken by the Host State Party at their request from any devices and bulk containers and other containers at the facility;
- perform on-site analysis of samples, as appropriate in the presence of Host State Party personnel;

- transfer samples off-site for analysis at a laboratory designated by the International Authority in accordance with agreed procedures;
 - ensure that samples transported, stored and processed are not tampered with in accordance with procedures (to be developed);
 - communicate freely with the International Authority headquarters.
- (e) The State Party receiving the inspection shall have the right to:
- accompany the international inspectors at all times during the inspection;
 - retain duplicates of all samples taken;
 - inspect any instrument being used or installed and to have it tested in the presence of its personnel.

(f) The International Inspectors may request clarification of any ambiguities arising from the inspection. In the event that any ambiguities arise which cannot be resolved in the course of the inspection, the inspectors shall inform the International Authority immediately.

(g) After each visit to the Storage Facility, International Inspectors shall submit a report with their findings to the International Authority. The handling of information received during the inspection shall be treated as confidential (procedures to be developed).

Ad Hoc Committee on Chemical Weapons

Federal Republic of Germany

Chemical Weapons Convention

Collection and forwarding of data and other information to verify the non-production of chemical weapons

I.

1. The provisional structure of a convention on chemical weapons (CD/734) deals in its Article VI, and in Annexes 2 and 3 to that Article, with procedures of verifying the production and use of certain substances for civilian purposes and seeks to prevent any possible abuse of such substances for purposes prohibited under this convention.

Annex 2 contains a list of key precursors for the production of chemical weapons (CW), while Annex 3 lists chemicals which are produced in large commercial quantities and which could be used for chemical weapons purposes. A weighted régime of verification is proposed for the two categories, whereby the production and use of the substances listed in Annex 2 are to be subject to verification through the submission of data and systematic international on-site verification on a routine basis, while the submission of data to the international authority and the monitoring of that data by the international authority is envisaged for the substances listed in Annex 3.

2. The total extent of the data and other information needed to verify the non-production of CW is determined both by the number of substances listed in Annexes 2 and 3 and by the intensity of the control régime for each category. Of particular importance in this respect is the threshold, still to be fixed, for the exclusion of small quantities which do not pose a military threat and which therefore are irrelevant for CW control purposes; this threshold will have a considerable influence on the number of producers and users who are required to provide information. The question of where this line is to be drawn should be examined separately on the basis of militarily significant quantities.

With regard to the quantity of substances and the control régime, various delegations have already made contributions which form the basis of the present paper. Special mention should be made of the Netherlands papers CD/CW/WP.133 of 11 April 1986 and CD/445 of 3 July 1984, the Swedish

considerations set down in CD/632 of 20 August 1985, the British views expressed in CD/575 of 6 March 1985, the comments made by the German Democratic Republic in CD/620 of 23 July 1985 and our own contribution, set forth in CD/627 of 1 August 1985.

In his report of 22 April 1986 - CD/CW/WP.138 - the Chairman of Working Group A outlined a number of questions that remain unresolved.

3. The present working paper is concerned with the data and other information on substance categories 2 and 3 which seem to be a prerequisite of effective verification.

It is based on the following conception:

The submission of the data needed to verify the non-production of chemical weapons is intended to contribute to effective international verification by the international authority (Article VIII). This presupposes selection of the appropriate data. More data does not automatically mean greater security against violations of the convention. We have already referred, in CD/627 to the difficulties facing the international authority if it is to identify violations on the basis of the submitted data in their entirety. The international authority will be able to fulfil its mission only if it can concentrate on the data relevant to compliance with the convention.

This means that the international authority should be given the data it needs in order to keep track of the production, acquisition, use, transfer and storage of the substances listed in the annexes. The requirements in terms of specific details can and must be greater for the substances listed in Annex 2 than for those in Annex 3. While with regard to the handling of the substances listed in Annex 2 both facility-related figures and aggregate national data will have to be submitted, only the latter data need to be submitted on the substances listed in Annex 3. This gradation corresponds to the distinction made in CD/734.

4. As regards the compilation of a data base to be updated regularly, we propose a division of labour between the "national authority" referred to in Article VII of the draft convention on one side and the international authority on the other. The former should collect, systematize and process the figures obtained at the national level and forward them to the international authority in accordance with a standard pattern. In this way, while the burden of routine work would be eased for the international authority, the purpose of the data exchanges could be fully achieved.

5. In addition, the national authority is obliged to immediately provide the international authority, on its request with information on the basis of its stored data for the following reasons:

- points to be clarified concerning the data provided,
- evidence suggesting end use on an excessive (suspicious) scale in a particular country on the basis of the data provided, or
- other significant grounds for suspicion that substances on the list are being put to prohibited use.

The exercise of the right to ask for clarification should be aimed at eliminating existing doubts. It can also prepare an on-challenge inspection.

6. The international authority, which receives data from all contracting parties, thereby obtains an overview of the production, processing, use and storage of the substances listed in Annex 2 and of overall national production and international exchange of the substances listed in Annexes 2 and 3. This will enable it to reliably identify any changes in production and consumption pattern. Such discrepancies could also serve to initiate specific action by the international authority. This action could consist of requests for clarification to one or more national authorities. Where there are doubts concerning effective implementation, the international authority could inform the contracting States in accordance with Article VIII of the draft convention. The contracting States would then have the opportunity to take up the issue with the country in question and even, if necessary, to request an on-challenge inspection.

7. Procedural details with regard to Annex 2

The object of control are the substances listed in Annex 2. The international authority requires regularly updated figures so that it can draw up and conduct the programme of routine inspections. The national authority should collect and update by a certain deadline ([] of each year) all data on the production, acquisition, processing and transfer by each facility of the substances in this group during the previous calendar year, if above a threshold of [] metric tonnes, as well as on those quantities stored. The national authority would forward to the international authority on [] of each year data on all facilities which had handled more than the stipulated threshold of [] metric tonnes per annum or were storing more than [] metric tonnes. In addition, on [] of each year aggregate national figures with respect to the quantities produced, imported (subdivided into countries of origin), processed and exported (subdivided into countries of destination) during the previous calendar year and of the quantities stored on [].

8. Procedural details with regard to Annex 3

In accordance with CD/734 (Annex 3 to Article VI), the facility-related data on the handling of large quantities of the substances listed in Annex 3 should not be submitted to the international authority. The national authorities should forward on [] of each year the aggregate national figures with respect to the quantities produced, imported (subdivided into countries of origin), during the previous calendar year and of the quantities stored on the deadline of [].

The international authority would receive data on each substance from each contracting party and would thereby obtain an overview of international exchanges of the substances listed in Annex 3. In cases of doubt and for the purpose of preparing an on-challenge inspection, the international authority would have the right to ask for clarification. For the reasons outlined in paragraph 5 above, the national authorities should be obliged to forward facility-related data, too, if asked for clarification.

9. The system of national data collection and transfer as described here, in connection with the right of the international authority to ask for clarification, will guarantee the largest necessary transparency of data handling and the most effective international control. The main work of data collection and processing is to be done at a national level; the international authority obtains an overview, which it can supplement as necessary by asking for clarification. At the same time, we are aware that verification is invariably an international task and that the national authority can therefore only be an instrument with which the individual contracting parties implement the convention.

The following Section II contains texts on the material outlined above which could be incorporated into the appropriate part of the draft convention.

II.

Draft elements for inclusion in Article VI

Each State Party undertakes to ensure that its national authority referred to in Article VII of the convention disposes of, from the () day after ratification, the data specified in each of Annexes 2 and 3 on the substances contained in the list. The collected data are to be updated on [] of each subsequent year.

The national authority shall provide the international authority not later than () days after ratification of the convention by the State in question with the data specified in Annexes 2 and 3. The updated lists are to be forwarded not later than [] of each subsequent year.

The international authority shall be entitled to ask the national authority for clarification if necessary for the following reasons:

- points to be clarified concerning the data provided,
- evidence suggesting end use on an excessive (suspicious) scale in a particular country on the basis of the data provided, or
- other significant grounds for suspicion that substances on the list are being put to prohibited use.

The national authorities will be obliged to respond to such a request regarding a particular substance by providing without delay the required information from the stored data.

Draft elements for inclusion in the verification
régime (data exchange) for Annex 2 to Article VI

1. Producers and recipients shall notify their national authority on [] of each year of the following per facility and for each substance listed in the schedule:

- (a) the chemical name (trade name used by the facility), structural formula and Chemical Abstracts Service Registry Number;
- (b) the total amount, if above a threshold of [] metric tonnes,
 - produced,
 - acquired nationally or imported (the latter subdivided into countries of origin),
 - used in their own facilities, including specification of purpose, and
 - transferred, giving separate figures for transfers within the country and abroad (the latter subdivided into countries of destination),

during the previous calendar year;

- (c) the total amount stored on-site, if above a threshold of [] metric tonnes, at the end of the notification period.

2. The national authority shall provide the international authority not later than [] of each year with the following information:

- (a) all data specified in paragraph 1 above for each facility which produces, acquires, uses, transfers more than [] tonnes per annum or stores on [] more than [] tonnes of any of the substances listed in the schedule;

- (b) aggregate national data for each substance listed in the schedule:

- name as specified in paragraph 1 (a) above,
- the total amount
 - produced,
 - imported (subdivided into countries of origin),
 - used within the country, and
 - exported or transferred (subdivided into countries of destination),

during the previous calendar year,

- the total amount stored on-site at the end of the notification period.

Draft elements for inclusion in the verification
régime (data exchange) for Annex 3 to Article VI

1. Producers and recipients shall notify their national authority on [] of each year of the following per facility and for each substance listed in the schedule:

- (a) the chemical name (trade name used by the facility), structural formula and Chemical Abstracts Service Registry Number;
- (b) the total amount, if above a threshold of [] metric tonnes,
 - produced,
 - acquired nationally or imported (the latter subdivided into countries of origin),
 - used in their own facilities, including specification of the final product, and
 - transferred, giving separate figures for transfers within the country and abroad (the latter subdivided into countries of destination),

during the previous calendar year;

(c) the total amount stored on-site, if above a threshold of [] metric tonnes, at the end of the notification period.

2. The national authority shall provide the international authority not later than [] of each year with the following information:

Aggregate national data for each substance listed in the schedule:

- (a) name as specified in paragraph 1 (a) above;
- (b) the total amount
 - produced,
 - imported (subdivided into countries of origin),
 - processed with the facilities, specifying final products, and
 - exported or transferred (subdivided into countries of destination),

during the previous calendar year;

(c) the total amount stored on-site at the end of the notification period.

Ad Hoc Committee on Chemical Weapons

CLUSTER I

Issues pertaining to chemical weapons stocks

Revised Attachment (E) to CD/CW/WP.158

Proposed new Section VI of Annex IV */

VI. INTERNATIONAL VERIFICATION OF DECLARATIONS OF CHEMICAL WEAPONS,
INTERNATIONAL SYSTEMATIC MONITORING OF STORAGE FACILITIES, INTERNATIONAL
VERIFICATION OF REMOVAL OF CHEMICAL WEAPONS FOR ELIMINATION

1. Storage facility description

(a) Each site or location where, pending their elimination, chemical weapons, declared in accordance with Article IV, are stored on the territory of a State Party or under its jurisdiction or control elsewhere, shall hereafter be designated as "storage facility".

(b) At the time of the submission of its declaration of chemical weapons, in accordance with Article IV, a State Party shall provide the International Authority with the detailed description and location of its storage facility(ies) containing:

- boundary map;
- location of bunkers/storage areas, within the facility;
- the detailed inventory of the contents of each bunker/storage area;
- relevant details of the construction of bunkers/storage areas;
- recommendations for the emplacement by the International Authority of seals and monitoring instruments.

2. Measures to secure the storage facility and storage facility preparation

(a) Not later than when submitting its declaration of chemical weapons, a State Party shall take such measures as it considers appropriate to secure its storage facility(ies) and shall prevent any movement of its chemical weapons, except their removal for elimination.

*/ One delegation expressed reservations on this whole section in view of its position on the issue of declaration of location of chemical weapons stocks in Article IV.

(b) In order to prepare its storage facility(ies) for international verification, a State Party shall ensure that its chemical weapons at its storage facility(ies) are so configured that seals and monitoring devices may be effectively applied, and that such configuration allows ready access for such verification.

(c) While the storage facility remains closed for any movement of chemical weapons other than their removal for elimination, activities necessary for maintenance and safety monitoring by national authorities may continue.

3. Agreements on Subsidiary arrangements 1/

(a) Within .. months after entry into force of the convention, States Parties shall conclude with the International Authority agreements on subsidiary arrangements for verification of their storage facilities. Such agreements shall be based on a Model Agreement and shall specify for each storage facility the number, intensity, duration of inspections, detailed inspection procedures and the installation, operation and maintenance of the seals and monitoring devices by the International Authority. The Model Agreement shall include provisions to take into account future technological developments.

(b) States Parties shall ensure that the verification of declarations of chemical weapons and the initiation of the systematic monitoring of storage facilities can be accomplished by the International Authority at all storage facilities within the agreed time frames after the convention enters into force. 2/

4. International verification of declarations of chemical weapons

(a) International verification by on-site inspections

(i) The aim of the international verification of declarations of chemical weapons shall be to confirm through on-site inspections the accuracy of the declarations made in accordance with Article IV 3/.

1/ The coverage of the subsidiary arrangements is to be discussed.

2/ Procedures to ensure the implementation of the verification scheme within designated time frames are to be developed.

3/ The applicability of Article IV, paragraph 2(b) is to be discussed.

(ii) The International Inspectors shall conduct this verification promptly after a declaration is submitted. They shall, inter alia verify the quantity and identity of chemicals, types and number of munitions, devices and other equipment.

(iii) They shall employ, as appropriate, agreed seals, markers or other inventory control procedures to facilitate an accurate inventory of the chemical weapons at each storage facility.

(iv) As the inventory progresses, International Inspectors shall install such agreed seals as may be necessary to clearly indicate if any stocks are removed, and to ensure the securing of the storage facility.

(b) Co-ordination for international systematic monitoring of storage facilities

In conjunction with the on-site inspections of verification of declarations of chemical weapons, the International Inspectors shall undertake necessary coordination for measures of systematic monitoring of storage facilities.

5. International systematic monitoring of storage facilities

(a) The aim of the international systematic monitoring of storage facilities shall be to ensure that no undetected removal of chemical weapons takes place.

(b) The international systematic monitoring shall be initiated as soon as possible after the declaration of chemical weapons and shall continue until all chemical weapons have been removed from the storage facility. Monitoring shall be ensured through a combination of continuous monitoring by on-site instruments and systematic verification by international on-site inspections or, where the continuous monitoring by on-site instruments is not feasible, by the presence of International Inspectors.

(c) In the period before the activation of the continuous monitoring by on-site instruments and at other times when this continuous monitoring is not feasible, seals installed by International Inspectors may only be opened in the presence of an International Inspector. If an extraordinary event

requires the opening of a seal when an inspector is not present, a State Party shall immediately inform the International Authority and International Inspectors will return as soon as possible to validate the inventory and re-establish the seals.

(d) Monitoring by instruments.

(i) International Inspectors, in conjunction with host country personnel, will install sensors and ancillary equipment in accordance with the agreement on subsidiary arrangements. The purpose of such equipment will be to signal the International Authority if any movement of chemical weapons or tampering with the monitoring system occurs. The agreed types of sensors and equipment shall be specified in the Model Agreement. This monitoring equipment shall incorporate seals and other tamper-indicating and tamper-resistant devices as well as data protection and data authentication features. Redundancy shall be built into the monitoring system to ensure that failure of an individual component will not jeopardise the monitoring capability of the system.

(ii) When the monitoring system is activated, International Inspectors will verify the accuracy of the inventory of chemical weapons, as required.

(iii) Data will be transmitted from each storage facility to the International Verification Headquarters by means (to be determined). The transmission system will incorporate frequent transmissions from the storage facility and a query and response system between the storage facility and the International Verification Headquarters. International Inspectors shall periodically check the proper functioning of the monitoring system.

(iv) In the event that the monitoring system indicated any irregularity, the International Inspectors would determine whether this resulted from equipment malfunction or activities at the storage facility. If, after this examination the problem remained unresolved, the International Authority would immediately ascertain the actual situation, including through immediate on-site inspection or visit of the storage facility if necessary. The International Authority shall report any such problem immediately after its detection to the State Party who should assist in its resolution.

(v) The State Party shall immediately notify the International Authority if an incident at the storage facility occurs which may have an impact on the monitoring system. The State Party shall co-ordinate subsequent actions with the International Authority with a view to restoring the operation of the monitoring system, if necessary.

(e) Systematic on-site inspections and visits.

(i) The frequency of systematic on-site inspections is to be determined. The particular storage facility to be inspected shall be chosen by the International Authority in such a way as to preclude the prediction of precisely when the facility is to be inspected. During each inspection, the International Inspectors will verify the inventory in agreed percentage of bunkers and storage areas and will verify that the monitoring system is functioning correctly.

(ii) Visits to service the monitoring system may be required in addition to systematic on-site inspections to perform any necessary maintenance, servicing or replacement of equipment.

(f) When all chemical weapons have been removed from the storage facility, the International Authority shall certify the declaration of the National Authority to that effect. After this certification, the International Authority shall terminate the international systematic monitoring of the storage facility and will promptly remove all devices and monitoring equipment installed by the International Inspectors.

6. International Verification of the removal of chemical weapons for elimination ^{1/}

(a) The State Party shall notify the International Authority [14] days in advance of the exact timing of removal of chemical weapons from the storage facility and of the planned arrival at the facility where they will be destroyed.

^{1/} A view was expressed that the verification of removal of chemical weapons for retention in accordance with Article VI is to be developed. Another view was expressed that all chemical weapons should be destroyed.

(b) The State Party shall provide the Inspectors with the detailed inventory of the chemical weapons to be moved. The International Inspectors shall be present when chemical weapons are removed from the storage facility and shall verify that the chemical weapons on the inventory are loaded on to the transport vehicles. Upon completion of the loading operations, the International Inspectors shall seal the cargo and/or means of transport, as appropriate.

(c) If only a portion of the chemical weapons is removed, the International Inspectors will verify the accuracy of the inventory of the remaining chemical weapons and make any appropriate adjustments in the monitoring system in accordance with the agreement on subsidiary arrangements.

(d) The International Inspectors shall verify the arrival of the chemical weapons at the destruction facility by checking the seals on the cargo and/or the means of transport and shall verify the accuracy of the inventory of the chemical weapons transported.

7. Inspections and visits

(a) The International Authority shall notify the State Party of its decision to inspect or visit the storage facility 48 hours prior to the planned arrival of the inspection team at the facility for systematic inspections or visits. In the event of inspections or visits to resolve urgent problems, this period may be shortened. The International Authority shall specify the purpose(s) of the inspection or visit.

(b) A State Party shall make any necessary preparations for the arrival of the Inspectors and shall ensure their expeditious transportation from their point of entry on the territory of the State Party to the storage facility. The agreement on subsidiary arrangements will specify administrative arrangements for Inspectors.

(c) International Inspectors shall, in accordance with agreements on subsidiary arrangements:

- have unimpeded access to all parts of the storage facilities including any munitions, devices, bulk containers, or other containers therein. While conducting their activity, Inspectors shall comply with the safety regulations at the facility.. The items to be inspected will be chosen by the Inspectors;
- bring with them and use such agreed instruments as may be necessary for the completion of their tasks;
- receive samples taken at their request from any devices and bulk containers and other containers at the facility. Such samples will be taken by representatives of the State Party in the presence of the Inspectors;
- perform on-site analysis of samples;
- transfer, if necessary, samples for analysis off-site at a laboratory designated by the International Authority, in accordance with agreed procedures;
- afford the opportunity to the Host State Party to be present when samples are analysed;
- ensure, in accordance with procedures (to be developed), that samples transported, stored and processed are not tampered with;
- communicate freely with the International Authority.

(d) The State Party receiving the inspection shall, in accordance with agreed procedures:

- have the right to accompany the international inspectors at all times during the inspection and observe all their verification activities at the storage facility;
- have the right to retain duplicates of all samples taken and be present when samples are analysed;
- have the right to inspect any instrument used or installed by the International Inspectors being used or installed and to have it tested in the presence of its personnel.
- provide assistance to the International Inspectors for the analysis of samples on-site;

- receive copies of the reports on inspections of its storage facility(ies);
- receive copies, at its request, of the information and data gathered about its storage facility(ies) by the International Authority.

(e) The International Inspectors may request clarification of any ambiguities arising from the inspection. In the event that any ambiguities arise which cannot be resolved in the course of the inspection, the inspectors shall inform the International Authority immediately.

(f) After each inspection or visit to the storage facility, International Inspectors shall submit a report with their findings to the International Authority which will transmit a copy of this report to the State Party having received the inspection or visit. Information (to be designated) received during the inspection shall be treated as confidential (procedures to be developed).

Ad Hoc Committee on Chemical Weapons

Interim Report of the Co-ordinator on Issues Pertaining
to Non-Production of Chemical Weapons
(Cluster III)

1. In accordance with the outline for the organization and programme of work of the Ad Hoc Committee on Chemical Weapons, as contained in document CD/CW/WP.154, the period 4 to 27 March 1987 was devoted to the consideration of issues pertaining to the non-production of chemical weapons. Seven formal meetings with full services, as well as 10 informal consultations were held under the Chairmanship of the Co-ordinator on Cluster III.
2. These meetings were devoted to the consideration of the following items:
 - (a) Modalities for revision of the lists.
 - (b) Guidelines to determine the number, intensity, duration, timing and mode of inspections of facilities handling Schedule [2] chemicals.
 - (c) Guidelines for Schedule [1].
 - (d) On-site "spot-check" inspections for facilities handling Schedule [3] chemicals.
 - (e) "Super-toxic lethal chemicals that are produced in commercial quantities for permitted purposes".
3. The consideration of these issues was based on CD/734, proposals made by the Co-ordinator, as well as suggestions made by delegations in the course of the discussions.
4. The results of the work undertaken on issues set out in paragraph 2 (a), (b) and (c) are contained in the following attached papers which should serve as a basis for future work:
 - (A) Modalities for revision of lists.
 - (B) Possible factors identified to determine the number and intensity, duration, timing and mode of inspections of facilities handling Schedule [2] chemicals.
 - (C) Guidelines for Schedule [1].

5. In connection with the elaboration of guidelines to determine the number, intensity, duration, timing and mode of inspections of facilities handling Schedule [2] chemicals, the Co-ordinator held informal consultations on the method of weighting the relevant factors identified, as suggested in CD/734, page 43, footnote 4/. In the view of the Co-ordinator, the discussions showed the difficulties and the complexity of the issue. In his opinion, although some aspects were clarified, no definite conclusion could be reached at this stage, and further work is needed in this area.
6. Consideration was also given to the proposal contained in CD/734, page 49, footnote 2/, on the possibility of resorting to on-site "spot-check" inspections for facilities handling Schedule [3] chemicals. During the discussions, some delegations continued to hold the view that such a provision was needed, while others still believed that the provisions of Articles VII, VIII and IX of the Convention would be sufficient in this respect.
7. A useful exchange of views on the issue of "super-toxic lethal chemicals that are produced in commercial quantities for permitted purposes" also took place. It was recognized that further work was needed in this area to identify such chemicals as well as the régime that might eventually be applied to the facilities producing them.

Attachment (A)

CLUSTER III

MODALITIES FOR REVISION OF LISTS

1. The revisions envisaged would consist of additions to, deletions from, or shifts between the lists.
2. A revision could be proposed by a State Party. [If the Technical Secretariat has information which in its opinion may require a revision of the lists of chemicals, it should provide that information to the [Executive Council] which should communicate it to all States Parties.] A State Party may request the assistance of the Technical Secretariat in the substantiation of its proposal.
3. A proposal for revision should be submitted to [the International Authority] [the Executive Council] [the Depositary of the Convention].
4. [The International Authority] [The Executive Council] [The Depositary of the Convention], upon receipt of a proposal for revision, will be responsible for informing States Parties about it.
5. The proponent should substantiate its proposal with the necessary information. Any State Party and, as requested, the Technical Secretariat, could also provide relevant information for the evaluation of the proposal.
6. Technical evaluations of a proposal may be made by the International Authority, [the Executive Council], any State Party [and the Technical Secretariat].
7. The decision on a proposal should be taken by the International Authority [the Consultative Committee] by [a majority vote] [consensus] [tacit approval of all States Parties 60 days after they have been informed of the proposal by the International Authority. If there is no tacit approval, the matter should be reviewed by the [Consultative Committee] at its next meeting.] [If urgent consideration is requested by five or more Parties, a special meeting of the Consultative Committee should be promptly convened.]
8. The revision procedure should be concluded within [60 days] after the receipt of the proposal. Once a decision is taken, it should enter into force after a period of [30 days].
9. The Technical Secretariat should provide assistance to any State Party, when requested, in evaluating an unlisted chemical. This assistance should be confidential [unless it is established in the evaluation that the chemical has chemical weapon properties].

Attachment (B)

CLUSTER III

POSSIBLE FACTORS IDENTIFIED TO DETERMINE THE NUMBER, INTENSITY,
DURATION, TIMING AND MODE OF INSPECTIONS OF FACILITIES
HANDLING SCHEDULE [2] CHEMICALS 1/

1. Factors related to the listed chemical
 - (a) Toxicity of the end product.
2. Factors related to the facility
 - (a) Multipurpose or dedicated facility.
 - (b) Capability and convertibility for initiating production of highly toxic chemicals.
 - (c) Production capacity.
 - (d) On-site storage of listed key precursors in quantities exceeding ... tonnes?
 - (e) Location of the facility and infrastructure for transportation.
3. Factors related to the activities carried out at the facility
 - (a) Production e.g. continuous, batch, types of equipment.
 - (b) Processing with conversion into another chemical.
 - (c) Processing without chemical conversion.
 - (d) Other types of activities, e.g., consumption, import, export, transfer.
 - (e) Volume produced, processed, consumed, transferred.
 - (f) Relationship between maximum and utilized capacity for a scheduled chemical.
 - multipurpose facility
 - dedicated facility
4. Other factors
 - (a) International monitoring by on-site instruments.
 - (b) Remote monitoring.

Note

1/ The order in which these factors are listed does not indicate any priority.

Attachment (C)

CLUSTER III

Guidelines for Schedule [1] 1/

The following guidelines, singly or in combination, should be taken into account in considering whether a chemical should be included in Schedule [1];

1. Super-toxic lethal chemicals which have been stockpiled as chemical weapons.
2. Super-toxic lethal chemicals which pose a particular risk of potential use as chemical weapons.
3. Super-toxic lethal chemicals which have little or no use except as chemical weapons.
4. Super-toxic lethal chemicals which possess physical and chemical properties enabling them to be used as chemical weapons. 2/
5. Super-toxic lethal chemicals with chemical structure related/similar to those super-toxic lethal chemicals already listed in Schedule 1. 3/
6. Chemicals whose principal effect is to cause temporary incapacitation and which possess physical and chemical properties enabling them to be used as chemical weapons.
7. Any toxic chemical with a chemical structure related/similar to those chemicals already listed in Schedule 1. 3/
8. Other chemicals which have been stockpiled as chemical weapons.
9. Other chemicals which have little or no use except as chemical weapons.
10. Key precursors which participate in a one-stage process of producing toxic chemicals in munitions and devices.
11. Key precursors which pose a high risk to the objectives of the Convention by virtue of their high potential for use to produce chemical weapons.
12. Key precursors which may possess the following characteristics:
 - (i) it may react with other chemicals to give, within a short time, a high yield of a toxic chemical defined as a chemical weapon;
 - (ii) the reaction may be carried out in such a manner that the toxic product is readily available for military use, and
 - (iii) key precursors which have little or no use except for chemical weapons purposes.

Notes

1/ The basis and modalities for the application and revision of the guidelines are to be developed.

2/ A view was expressed that compounds listed in Schedule [1] should possess the properties of chemical warfare agents.

3/ The view was expressed that this by itself would not be sufficient to include a chemical in Schedule [1].

6 April 1987

ENGLISH

Original: RUSSIAN

Ad Hoc Committee on Chemical Weapons

MONGOLIA

Working PaperOrder of Elimination of Chemical Weapons Stocks

The arrangements for the destruction of chemical weapons stocks must be such as not to advantage any State in any phase of that destruction.

This objective could be achieved in the following ways:

By using a comparative equivalent for the various categories, whether lethal with lethal or lethal with harmful;

By using one comparative equivalent for lethal substances and another for harmful substances;

The equivalents could be worked out on the basis of the following specific toxic doses:

LD₅₀ - (intravenous, subcutaneous, etc.)

LCT₅₀ - (inhalation)

TD₅₀ - (intravenous, subcutaneous, cutaneous, etc.)

TCt₅₀ - (inhalation).

If different toxic doses are used for different types of application, working out a comparable equivalent is impossible. Moreover, such an approach precludes the comparison of stocks in the filled and unfilled categories.

The most objective approach might be one providing for the equivalent(s) to be established on the basis of effectiveness. There would, however, be technical difficulties in applying such an approach.

The simplest and most practical method for comparing categories of chemical weapons stocks would, in our view, be a method that would enable the comparison to be made on the basis of mass (for chemicals) and of the number of standard metric tons of chemicals (for empty munitions and devices).

This method necessitates the grouping of the categories of stocks in such a way that each group includes categories of like effectiveness.

States parties to the convention could make the necessary corrections to the classification after declaring their stocks.

This approach would make possible the destruction of each category of chemical weapons stocks in equivalent parts in each of the periods of destruction and would thereby simultaneously resolve the problem of the order of destruction of the categories of stocks.

A proposal for the grouping of chemical weapons stocks into categories appears in the table below.

Chemical weapons by degrees of filling		Binary weapons											
Toxicity of the toxic chemical agent	Types of chemical weapons stocks*	Unitary weapons					Binary weapons						
		Toxic chemical agents in munitions and devices	In bulk	Empty munitions	Empty devices	Equipment designed specially in connection with the use of chemical weapons	Components in munitions and devices	In containers	Empty munitions	Empty devices	In bulk		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Y gases and QL												
	Soman												
	Sarin and DF												
	Tabun												
	Mustard (H)												
	H nitrogen mustard												
	Oxygen mustard												
	Lewisite												
	Hydrocyanic acid												
	Phosgene (s)												
	Cyanogen chloride												
	BZ												
	CS												
	CR												
Super-toxic lethal chemicals													
Other lethal chemicals													
Harmful chemicals													

*Note: This table does not pretend to be a complete list of chemical weapons stocks.

This report is the result of work done in the laboratory of the...
 The following table lists the...
 The results of the...
 The order of destruction of the categories of...
 A proposal for the...
 appears in the table below.

Category	Sub-category	Description	Quantity		Material	Notes
			Initial	Final		
Chemicals	Acids	Hydrochloric acid	100	0	...	...
	Bases	Sodium hydroxide	50	0	...	...
		Ammonia	25	0	...	...
Gases	Inert	Nitrogen	1000	0	...	...
		Argon	500	0	...	...
	Toxic	Phosphine	10	0	...	...
		Sulfur dioxide	5	0	...	...
Liquids	Organic solvents	100	0	...	...
	Water	1000	0	...	...
Solids	Metals	Aluminum	100	0	...	...
	Polymers	Plastic	50	0	...	...

Table 1: Inventory of chemical and physical materials.

Ad Hoc Committee on Chemical Weapons

CLUSTER III

Proposal by the Item Co-ordinator

COMMERCIAL PRODUCTION OF TOXIC CHEMICALS, NOT LISTED IN SCHEDULES [1], [2]
OR [3] THAT MIGHT BE RELEVANT TO THE CONVENTION

Part I

Co-ordinator's Summary

1. The issues pertaining to CD/734, Appendix II, "Super-toxic lethal chemicals that are produced in commercial quantities for permitted purposes" were discussed in a formal meeting of Group A, at informal open-ended consultations as well as in private consultations at expert level conducted by the Co-ordinator.
2. In order to determine to what extent commercial production and non-prohibited use of such chemicals might warrant a régime under the Convention, the Co-ordinator submitted, on 23 March 1987, a paper entitled "Super-toxic lethal chemicals, not included in Schedule [1], that might be relevant to the Convention". The paper listed a number of questions that would help in identifying factors that delegations considered of relevance for this issue.
3. During the discussions, three main factors emerged as relevant for the consideration of chemicals and facilities in this category:
 - the toxicity of a given chemical;
 - the quantity produced, and
 - the production capacity of the facility for such chemicals.Some delegations also attached great importance in this context to whether the chemical is suitable for chemical weapons purposes.
4. As regards the toxicity the following was, inter alia, expressed:
 - that chemicals defined as super-toxic lethal chemicals other than those in Schedule [1] should be included;

- that also other toxic chemicals should be considered;
- that the methods for determining toxicity should be further considered.

5. Consideration was also given to various possibilities of listing the relevant chemicals. Different suggestions were made in regard to having a negotiated list, an illustrative list and/or a list compiled by the [international authority] following declarations by States parties.

It was widely felt that some sort of initial list was needed and that, after the entry into force of the Convention, the [international authority] would update it on the basis of declarations by States parties.

Furthermore, it was discussed whether such a list would include individual chemicals and/or groups of chemicals.

6. In connection with the quantity produced, there was general recognition that laboratory-scale production should not be subject to a régime. It was proposed that the threshold for production, above which a régime would be applied, should be put at 10 kilograms a year, per chemical and per facility.

7. The question of production capacity of a facility was discussed in connection with attempts to identify which facilities might warrant attention from the point of view of the Convention.

Production capacity appeared to be given primary importance. It was suggested that the presence at the facility of special equipment required for the production of highly toxic chemicals, as well as whether the facility was multipurpose or dedicated, should be taken into account.

8. Thus having discussed what might fall under a régime in the Convention, attention was given to the possible contents of such a régime. Since it was felt that the régime for key precursors contained in CD/734, Appendix I, Annex VI [2] was broadly applicable, the Co-ordinator initiated consideration of the issue taking this text as a basis. The questions of declarations and of verification were examined.

9. As regards declarations the following aspects were, inter alia, commented upon:

- which chemicals should be declared;
- whether declarations of aggregate production would be needed, and if so, whether they should encompass also production below the threshold,
- whether declarations should encompass processing, consumption, import and export,
- whether the provisions concerning "Application of Chemical(s)" were relevant.

Concerning declarations of aggregate production doubts were raised as regards their necessity.

Concerning the need for data on processing and consumption, it was felt that it would be unnecessary and impractical to follow the chemical all the way up to its consumption by the end user, but that a certain amount of information would nevertheless be needed. In connection with imports and exports, a suggestion was made that States parties should indicate the countries involved. Some delegations expressed the opinion that this would be irrelevant.

Doubts were raised on the relevance of the provisions contained in the paragraph on "Application of Chemical(s)".

10. On the "verification" section, it appeared that the aims were generally agreeable. Furthermore, it was felt that the provisions contained in paragraph 5 concerning "Obligation and Frequency" were basically applicable. However, in this context, some delegations pointed out that in the case of chemicals and facilities falling under this category, inspections would be of interest only for facilities with a large production or production capacity, and that, therefore, a production of 10 kilograms might be too low a limit to warrant inspections.

11. In the light of the above, the Co-ordinator was requested to prepare a paper that could serve as a working hypothesis in the further examination of the issues involved. This request is met with the paper submitted below (Part II) for consideration by delegations. The paper follows CD/734, Appendix I, Annex VI [2].

PART II

OUTLINE FOR A POSSIBLE ANNEX VI [4]

DECLARATIONS

1. The Initial and Annual Declarations to be provided by a State party under paragraphs [3] and [4] 1/ of Article VI shall include the following information for each facility which produces or processes more than [10] kg per annum of any of the chemicals listed in Schedule [4] [or any other chemical [of special relevance to chemical weapons] with an [LD₅₀] [LCt₅₀] [toxicity] equal to or less than ...] [and which has a production capacity for any such chemical exceeding ...]:

Chemical(s)

- (i) The chemical name, common or trade name used by the facility, structural formula, and Chemical Abstracts Service Registry Number (if assigned);
- (ii) The total amount produced and/or processed [, imported and exported, with an indication of the countries involved,] in the previous calendar year. 2/

Facility

- (i) The name of the facility and of the owner, company, or enterprise operating the facility;
- (ii) The exact location of the facility (including the address, location of the complex, location of the facility within the complex including the specific building and structure number, if any);
- (iii) Whether the facility is dedicated to producing or processing the declared chemical(s) or is multipurpose;
- (iv) The capability and capacity (both to be defined) of the facility;
- (v) Which of the following activities are performed with regard to the declared chemical(s) and for which purpose(s):
 - (a) production;
 - (b) processing with conversion into another chemical;
 - (c) processing without chemical conversion (e.g. purification or formulation);
 - (d) Other - specify.
- (vi) Whether declared chemicals are stored on-site in quantities greater than [] 3/

2. A State party shall notify the [international authority] of the name and location of any facility which intends, in the year following submission of the Annual Declaration, to produce or process more than [10] kg per annum of any of the chemicals listed in Schedule [4] [or any other chemical [of special relevance to chemical weapons] with an [LD₅₀] [LCt₅₀] [toxicity] equal to or less than ...] [and which has or intends to acquire a production capacity for any such chemical exceeding ...].

VERIFICATION 4/Aim

3. The aim of the measures stipulated in Article VI, paragraph 6 5/ shall be to verify that:

- (i) facilities declared under this Annex are not used to produce any chemical listed in Schedule [1];
- (ii) the quantities of declared chemicals produced or processed are consistent with needs for purposes not prohibited by the Chemical Weapons Convention;
- (iii) the declared chemicals are not diverted or used for purposes prohibited by the Chemical Weapons Convention.

Obligation and Frequency

4. (i) Each facility notified to the [international authority] under this Annex shall be subject to systematic international on-site inspection on a routine basis;
- (ii) The number, intensity, duration, timing and mode of inspections for a particular facility shall be based on the risk to the objectives of the Convention posed by the relevant chemical, the characteristics of the facility and the nature of the activities carried out there. (Guidelines to be used as well as a system for "weighting" need to be developed. In this context, threshold(s) might need to be established).

Selection

5. The particular facility to be inspected shall be chosen by the [international authority] in such a way to preclude the prediction of precisely when the facility is to be inspected.

Notification

6. A State party shall be notified by the [international authority] of the decision to inspect a facility referred to in paragraph [4] ... hours prior to the arrival of the inspection team.

Host State party

7. The host State party shall have the right to designate personnel to accompany an international inspection team. The exercise of this right shall not affect the right of inspectors to obtain access to the facility, as provided by the Convention, nor shall it delay or otherwise impede the carrying out of the inspection.

Initial Visit

8. Each facility notified to the [international authority] under this Annex shall be liable to receive an initial visit from international inspectors, promptly after the State becomes a party to the Convention.

9. The purpose of the initial visit shall be to verify information provided concerning the facility to be inspected and to obtain any additional information needed for planning future verification activities at the facility, including inspection visits and use of on-site instruments.

Agreement on Inspection Procedures

10. Each State party shall execute an agreement, based on a model agreement, with the international authority, within ... months after the Convention enters into force for the State, governing the conduct of the inspections of the facilities declared by the State party. The agreement shall provide for the detailed subsidiary arrangements which shall govern inspections at each facility.

11. The detailed subsidiary arrangements shall include, inter alia, the size of the team required for the inspection; the duration of the inspection; the relevant parts of the site to be inspected; and the need for permanent on-site instrumentation.

Verification Inspections

12. The areas of a facility to be inspected under subsidiary arrangements may, inter alia, include:

- (i) areas where feed chemicals (reactants) are delivered and/or stored;
- (ii) areas where manipulative processes are performed upon the reactants prior to addition to the reaction vessel;
- (iii) feed lines as appropriate from subparagraph (i) and/or subparagraph (ii) to the reaction vessel, together with any associated valves, flow meters etc.;
- (iv) the external aspect of the reaction vessel and its ancillary equipment;
- (v) lines from the reaction vessel leading to long- or short-term storage or for further processing of the designated chemical;
- (vi) control equipment associated with any of the items under subparagraphs (i) to (v);
- (vii) equipment and areas for waste and effluent handling;
- (viii) equipment and areas for disposition of off-specification chemicals.

13. The inspectors have the right at any stage during the inspection to obtain samples from any of the areas inspected. They also have the right to request that appropriate analyses be performed in their presence, either in-house or in a mobile field laboratory, or if necessary to have samples analysed at a laboratory designated by the [international authority]. They may request clarification of any ambiguities arising from the inspection.

14. The Technical Secretariat may retain at each site a sealed container for photographs, plans and other information that it may wish to refer to in the course of subsequent inspection.

Submission of Inspectors' Report

15. The inspectors shall submit a report to the [international authority] on the activities conducted by them and on their findings.

16. In the event that any ambiguities arise which cannot be resolved in the course of the inspection, the inspectors may in their report recommend appropriate steps for clarification.

Notes

1/ As they would then be revised.

2/ Whether the total amount is to be expressed as an exact figure or within a range is to be discussed.

3/ The question of a threshold requires further consideration.

4/ Some of the provisions contained in this section have general application throughout the Convention. It is understood that the retention of these will be reviewed at a later stage in the negotiations.

5/ As it would then be revised.

Ad Hoc Committee on Chemical Weapons

Interim Report of the Co-ordinator on Issues Pertaining
to the Organization and Functions of the Consultative
Committee and its Organs

(Cluster IV)

1. In accordance with the outline for the organization and programme of work of the Ad Hoc Committee on Chemical Weapons, as contained in document CD/CW/WP.154, the period 30 March to 16 April was devoted to the consideration of issues pertaining to the organization and functions of the Consultative Committee and its Organs. Six formal meetings with full services, as well as six informal open-ended consultations were held under the Chairmanship of the Co-ordinator of Cluster IV.

2. Topics addressed at these meetings comprised:

- (a) The Technical Secretariat
- (b) The Preparatory Commission
- (c) Guidelines on the International Inspectorate
- (d) Functions of the Executive Council
- (e) Composition of the Executive Council

The issue of challenge inspection has not yet been considered.

Preparatory work on this subject by the Chairman of the Ad Hoc Committee continued.

3. The consideration of these issues was based on CD/539 (Annex I), CD/734, proposals made by the Co-ordinator, as well as suggestions made by delegations in the course of the discussions.

4. Results of the work undertaken on these issues are contained in the following papers attached, which are presented under the responsibility of the Co-ordinator and which, in his view, should serve as a basis for further work.

- (a) The Technical Secretariat
- (b) The Preparatory Commission
- (c) Guidelines on the International Inspectorate

A Chairman's discussion paper on Model Agreements was also introduced, on which a preliminary exchange of views took place.

The composition and functions of the organs of the Consultative Committee will need further discussion and elaboration.

Attachment (A)Cluster IVTechnical Secretariat

1. A Technical Secretariat shall be established to assist the Consultative Committee and the Executive Council in the performance of their functions, including technical assistance to States Parties. The International Inspectorate shall be part of the Technical Secretariat and carry out activities relating to the execution of international verification measures provided for in this Convention.
2. The Technical Secretariat shall comprise a Director, who shall be its head, and inspectors and such scientific, technical and other personnel as may be required.
3. The Director of the Technical Secretariat shall be appointed for ... years by the Consultative Committee [upon the recommendation of the Executive Council] and shall be responsible to the Consultative Committee and the Executive Council for the appointment of the staff and the organization and functioning of the Technical Secretariat. The paramount consideration in the employment of the staff and in the determination of the conditions of service shall be the necessity of securing the highest standards of efficiency, competence and integrity. Only citizens of States Parties shall serve as international inspectors or as other members of the professional and clerical staff. Due regard shall be paid to the importance of recruiting the staff on as wide a geographical basis as possible. Recruitment shall be guided by the principle that the staff shall be kept to a minimum.
4. In the performance of their duties, the Director of the Technical Secretariat, the inspectors and the other members of the staff shall not seek or receive instructions from any Government or from any other source external to the International Authority. They shall refrain from any action which might reflect on their position as international officials responsible only to the Consultative Committee.
5. Each State Party shall undertake to respect the exclusively international character of the responsibilities of the Director of the Technical Secretariat, the inspectors and the other members of the staff and not to seek to influence them in the discharge of their responsibilities.

Attachment (B)

Cluster IV

Preparatory Commission */

1. For the purpose of carrying out the necessary preparations for the effective operation of the provisions of the Convention and for preparing for the first meeting of the Consultative Committee, the Depository of the Convention shall convene a Preparatory Commission not later than [30] days after the Convention has been signed by (to be determined) States.
2. The Commission shall consist of the representatives designated by the States which have signed the Convention.
3. The Commission shall be convened at [...] and remain in existence until the Convention comes into force and thereafter until the Consultative Committee has convened.
4. The expenses of the Commission shall be met by the States signatories to the Convention, participating in the Commission, in accordance with the United Nations scale of assessment, adjusted to take into account differences between the United Nations membership and the participation of States signatories in the Commission.
5. All decisions of the Commission shall be made by [consensus] [a two-thirds majority].
6. The Commission shall
 - (a) elect its own officers, adopt its own rules of procedures, meet as often as necessary and establish such committees as it deems useful;
 - (b) appoint an executive secretary and establish a provisional technical secretariat with units in charge of preparatory work concerning the main activities to be carried out by the Technical Secretariat created under the Convention: declarations and data; inspectorate; evaluation of accounts and reports; agreements and negotiations; personnel, qualifications and training; development of procedures and instruments; technical support; finance and administration;
 - (c) make arrangements for the first session of the Consultative Committee, including the preparation of an agenda and draft rules of procedure;

*/ Provisions on the Commission could be contained in a resolution of the United Nations General Assembly commending the convention or in an appropriate document associated with the Convention.

(d) make studies, reports and recommendations for the first session of the Consultative Committee and the first meeting of the Executive Council on subjects requiring immediate attention after the entry into force of the Convention, including the programme of work and the budget for the first year of activities of the Consultative Committee, the location of the permanent offices of the International Authority, technical problems relevant to activities connected with the implementation of the Convention, establishment of the Technical Secretariat and of its staff and financial regulations.

7. The Commission shall report on its activities to the first meeting of the Consultative Committee.

Attachment (C)

Cluster IV

Proposed Annex to Article VIII

Guidelines on the International Inspectorate */

I. Designation

1. Verification activities in a State Party to the Convention shall only be performed by inspectors designated to this State in advance.
2. The Technical Secretariat shall communicate, in writing, to the State concerned the names, nationality and ranks of the inspectors proposed for designation. Furthermore, it shall furnish a certificate of their qualifications and enter into such consultations as the State concerned may request. The latter shall inform the Secretariat, within (30) days after receipt of such a proposal, whether or not it will accept the designation of each inspector proposed. The inspectors accepted by the State Party shall be designated to that State. The Technical Secretariat shall notify the State concerned of such a designation.
3. Should any State Party object to the designation of inspectors, be it at the time they are proposed or at any time thereafter, it shall inform the Technical Secretariat of its objection. If this is the case, the Technical Secretariat shall propose to the State Party in question one or more alternative designations. The Technical Secretariat shall refer to the Executive Council any repeated refusal by a State Party to accept the designation of inspectors if the Secretariat is of the opinion that such refusal impedes inspections to be conducted in the State concerned.

II. Privileges and immunities of inspectors

1. To the extent necessary for the effective exercise of their functions, inspectors shall be accorded the following privileges and immunities, which shall also apply to the time spent travelling in connection with their missions.

(a) immunity from personal arrest or detention and from seizure of their personal baggage;

*/ These guidelines relate to the activities international inspectors carry out in connection with routine verification in States Parties.

(b) immunity from legal process of every kind in regard to what they do, say or write in the performance of their official functions;

(c) inviolability of all their papers and documents.

(d) the right to use codes for their communication with the Secretariat and to receive papers or correspondence by courier or in sealed bags from the Secretariat;

(e) the same currency and exchange facilities as are accorded to representatives of foreign Governments on temporary official missions;

(f) the same immunities and facilities in respect to their personal baggage as are accorded to members of comparable rank of diplomatic missions.

2. Privileges and immunities shall be granted to inspectors for the sake of the Convention and not for the personal benefit of the individuals themselves. The Secretariat shall have the right and the duty to waive the immunity of any inspector whenever it is of the opinion that the immunity would impede the course of justice and can be waived without prejudice to the Convention.

3. If any State Party to the Convention considers that there has been an abuse of an above-mentioned privilege or immunity, consultations shall be held between that State and the Secretariat to determine whether such an abuse has occurred and, if so, to ensure that it does not repeat itself.

III. General rules governing inspections and the conduct of inspectors

1. Inspectors shall carry out their functions under the Convention on the basis of the inspection mandate issued by the Technical Secretariat. They shall refrain from activities going beyond this mandate.

2. The activities of inspectors shall be so arranged as to ensure on the one hand the effective discharge of the inspectors' functions and, on the other, the least possible inconvenience to the State concerned and disturbance to the facility or other location inspected. Inspectors shall request the information and data which is necessary to establish, within the framework of their mandate, the facts about the implementation of the provisions of the Convention. Inspectors shall not communicate to any State, Organization or person outside the Technical Secretariat any information to which they have access in connection with their activities in a State Party. They shall abide by relevant regulations established within the Technical Secretariat for the protection of confidential information. They shall remain bound by these relevant regulations after they have left their functions as international inspectors.

3. In the performance of their duties on the territory of a State Party, inspectors shall, if the State Party so requests, be accompanied by representatives of this State, provided inspectors are not thereby delayed or otherwise hindered in the exercise of their functions. If a State Party designates the inspectors' point of entry into, and departure from, the State concerned and their routes and modes of travel within the State, it shall be guided by the principle of minimizing the time of travel and any other inconvenience.
4. In exercising their functions, inspectors shall avoid unnecessarily hampering or delaying the operation of a facility or affecting its safety. In particular, inspectors shall not operate any facility or direct the staff of the facility to perform any operation. If inspectors consider that particular operations should be carried out in a facility, they shall request the operator of the facility to perform them.
5. After the inspection visit, inspectors shall submit to the Technical Secretariat a report on the activities conducted by them and on their findings. The report shall be factual in nature. It shall only contain facts relevant to compliance with the Convention, as provided for under the inspection mandate. Relevant regulations, governing the protection of confidential information, shall be observed. The report shall also provide information as to the manner in which the State Party inspected co-operated with the inspection team. Different views held by members of the inspection team may be attached to the report.
6. The report shall be kept confidential. The National Authority of the State Party shall be informed of the findings of the report. Any written comments, which the State Party may immediately make on these findings shall be annexed to it. Immediately after receiving the report, the Technical Secretariat shall transmit a copy of it to the State Party concerned.
7. Should the report contain uncertainties, or should co-operation between the National Authority and the inspectors not measure up to the standard required, the Technical Secretariat shall approach the State Party for clarification.
8. If the uncertainties cannot be removed or the facts established are of a nature to suggest that obligations undertaken under the Convention have not been met, the Technical Secretariat shall inform the Executive Council without delay.

Attachment (D)
Cluster IV
Chairman's Discussion Paper
Model Agreements

I. General considerations

1. The term "model agreement" is used in the IAEA for models which are to facilitate the negotiation of agreements between the Agency and States in the fields of safeguards implementation. The term is incorrect in several respects because the model is not really an agreement but merely a device to simplify the conclusion of such instruments. INFCIRC/153 says: "The Board of Governors has requested the Director General to use the material reproduced in this booklet as the basis for negotiating safeguard agreements between the Agency and non-nuclear weapon-States ...".

2. Advantages of using such models in the framework of a CW convention would be:

(a) A speedier process of approving instruments on the part of the Executive Council. If it could be said that the negotiated text of an instrument is similar to the model agreement, differing only in certain points, the Executive Council's approval can easily be secured.

(b) The model agreement will ensure greater uniformity of agreements to be concluded with a number of States Parties on a certain activity, e.g. the elimination of CW stocks. The Technical Secretariat's activities in this area could be highly standardized since a general pattern could be applied, despite the different countries concerned.

(c) Model agreements would allow equal treatment of States Parties in the implementation of the provisions of the Convention.

3. From these considerations, it can be concluded that annexing the model agreement to the Convention would not correspond with the character and purpose of such a document. Since model agreements would be working devices to be employed by the Technical Secretariat in preparing legal instruments, it would seem more appropriate for documents of this kind to be attached to the provisions governing the Preparatory Commission.

II. Questions to be discussed:

1. Should model agreements deal with the verification of

- (a) CW stocks and related elimination activities?
- (b) CW production facilities and their elimination?
- (c) non-production?

2. (a) Should a specific model agreement exist for every above-mentioned verification activity?

(b) Should there be a model agreement for CW stocks and CW production facilities and another one for non-production?

(c) Should a single model agreement be worked out with basic provisions applicable to every type of verification and two/three sets of special provisions for the various activities mentioned under II. 1.?

III. For basic provisions, the following structure could serve as a guideline:

1. Definition of the basic undertaking to be given by the State Party concerned

(Acceptance of on-site verification, i.e. on-site inspection and the use of on-site instruments in implementing Articles IV, V and VI of the Convention)

2. Co-operation between the International Authority and the State Party concerned

3. Implementation principles regarding on-site verification

(Avoidance of hampering economic and technical development, no interference with peaceful activities, protection of economic and technical secrets;

handling of information by the organs of the Consultative Committee; obligation to ensure cost effectiveness)

4. Role of the National Authority

(Minimum requirements of a national control and accounting system)

5. Guideline for information to be provided to the Technical Secretariat

(Minimum of information and data required; designation of especially sensitive information, which should not be physically transmitted but examined on the spot)

6. International Inspectorate

(Measures ensuring that inspectors can discharge their functions, designation of inspectors, privileges and immunities)

7. Termination of on-site inspection

(Completion of the elimination of stocks or CW production facilities or disappearance of the conditions referred to in Article VI and necessitating on-site inspection)

8. Finance

9. Liability for damage inflicted on inspectors during their activities, including the issue of the applicability of international law

10. Interpretation of special agreements and settlement of disputes

11. Final clauses, entry into force and duration

Pakistan

CD/CW/WP.165

Proposal on Article X (Assistance) of the Draft Convention on Chemical Weapons

Also issued as
CD/752
23 April 1987

NOT REPRODUCED
(see WP volume)

Also listed in
Index of the
List of the
List of the

NOT RECORDED
Page 17

German Democratic Republic

Working Paper

Definition of Thresholds

1. The discussions have shown the necessity of verification of certain categories of chemicals and of facilities within the permitted sphere of activities. There is general agreement that the aim of verification must be to ensure that:

Facilities are not used for the production of any of the chemicals listed in Schedule [1];

The quantity of chemicals produced, processed or consumed corresponds to the requirements for purposes not prohibited by the Convention on chemical weapons;

Chemicals are not diverted or used for purposes prohibited by the Convention on chemical weapons.

Such verification must, naturally, focus on what is truly important; what is of secondary importance should not be subject to systematic international monitoring.

2. The most important and difficult task appears to be that of defining the range of facilities that would be subject to systematic international monitoring under the Convention.

An understanding arose during a previous session of talks that the identification of such facilities required the fixing of thresholds. The establishment of such thresholds would seem appropriate with respect both to facilities producing chemicals in large commercial quantities (chemicals in Schedule [3]) and to facilities producing key precursors (chemicals in Schedule [2]) and super-toxic lethal chemicals not possessing the entire range of properties characteristic of chemical warfare agents (chemicals in Schedule [4]).

*/ Reissued for technical reasons.

From the definition of a key precursor, which states that "it (i.e., a key precursor) may [is] not be used, or [is] used only in minimal quantities" for permitted purposes (CD/734, Appendix I, page 7), it seems that the distinguishing feature of the production of such precursors is that it is not large-scale.

3. There have already emerged various approaches to the determination of appropriate thresholds. Two of them are described in the paper, dated 30 March 1987, by Dr. Peroni, Lt. Col. Bretfeld and Dr. Ooms, the representatives of Brazil, the German Democratic Republic and the Netherlands respectively.

The first of those approaches is based on the already agreed text of article VI of the draft Convention. That article provides that a State party may have, for purposes not prohibited by the Convention, an aggregate amount not exceeding one tonne per year of the chemicals listed in Schedule [1]. That quantity of chemicals defines the limit acceptable for use within the permitted sphere of activities and above which there apparently arises some danger as regards compliance with the Convention. It seems logical, therefore, to take one tonne of the super-toxic lethal chemicals listed in Schedule [1] as the starting point for calculating thresholds for key precursors.

The second of the above approaches is based on the concept of a "militarily significant quantity" of the chemicals in Schedule [1]. As yet, however, it has proved impossible to reach a general understanding on what a militarily significant quantity is. That quantity depends not only on the properties of the chemical warfare agent in question, but also, of course, on the aim of the military operation, the theatre of war and other factors. Moreover, it can hardly be accepted that verification of the production of key precursors should not begin until a given facility has the capacity to produce a militarily significant quantity of the chemicals listed in Schedule [1] within the space of a year.

4. The present working paper puts forward for discussion an approach to the definition of thresholds for chemicals in Schedule [2]. Paragraphs 2 and 3 of Annex VI [2] to document CD/734 require States Parties to the Convention to communicate to the International Authority the following information:

"2. The following information for each facility which produces, processes or consumes more than [] tonnes per annum of the chemicals listed in Schedule [2] ...

3. A State party shall notify the International Authority of the name and location of any facility which intends, in the year following submission of the Annual Declaration, to produce, process or consume more than [] tonnes per annum of any of the chemicals listed in Schedule [2]".

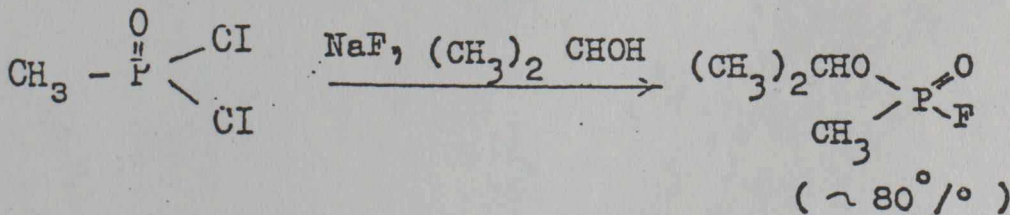
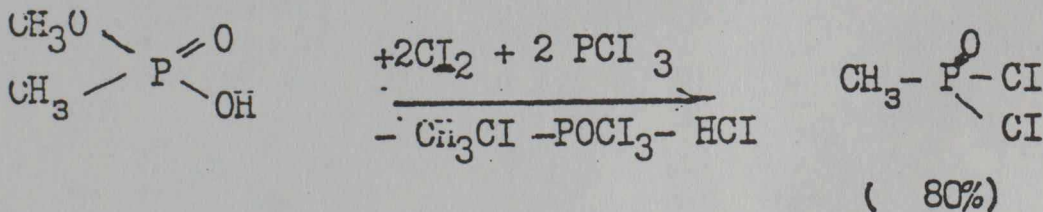
In view of the nature of these communications, it would seem possible to use the same thresholds in both the above cases.

It is suggested that thresholds should be determined by:

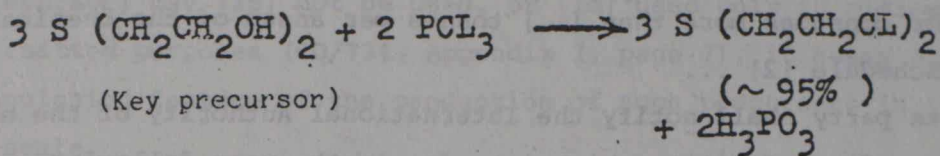
- Taking as the basis (benchmark) one tonne of what is, for a given effect, the most effective of the chemicals in Schedule [1], i.e., for the inhalation effect one tonne of Sarin and for the cutaneous-absorption effect one tonne of VX;
- Comparing the other chemical warfare agents in Schedule [1] with these benchmarks on the basis of the work done by SIPRI (The Chemical Industry and the Projected Chemical Weapons Convention, SIPRI, 1986, page 89);
- Calculating the quantity of key precursor required to produce one tonne of the final product in Schedule [1], bearing in mind the number of chemical reactions and the yield of the end-product.

The principles of these calculations may be illustrated by the following examples:

(a) Sarin



$$\frac{139.94}{109.94} \cdot \frac{1}{0.8^2} \approx \underline{\underline{2 \text{ tonnes}}}$$

(b) S-mustard

$$\frac{159.9}{122} \cdot \frac{1}{0.95} \approx 1.4 \text{ tonnes}$$

$$\text{Effectiveness factor relative to VX} = 9.5$$

$$1.4 \times 9.5 \approx \underline{13 \text{ tonnes}}$$

Calculations on these models give the following thresholds:

Organophosphoric compounds containing one CH_3 -bond:	2 t
N,N-Dialkylphosphoramidic dihalides	5 t
Arsenic trichloride	7 t
N,N-Diisopropylaminoethyl-2-chloride	2 t
N,N-Diisopropylaminoethan-2-ol	2 t
N,N-Diisopropylaminoethan-2-thiol	2 t
Thiodiglycol	13 t
Pinacolylalcohol	4 t

5. It follows from the above calculations that the thresholds are different for each class of key precursors.

6. The data on thresholds derived from stoichiometric calculations will have to be corrected for the actual situation as regards the production of key precursors if the thresholds are to serve to the optimum the objective of covering all the facilities warranting attention without complicating the task of verification by encompassing facilities of secondary importance.

CD/CW/WP.167

Current Stage of the
Negotiations on a Chemical
Weapons Convention

27.4.87

NOT REPRODUCED
(for final draft see
CD/782 in WP volume)

Ad Hoc Committee on Chemical Weapons

Interim Report of the Co-ordinator on Issues Pertaining
to Chemical Weapons Production Facilities

(Cluster II)

1. In accordance with the outline for the organization and programme of work of the Ad Hoc Committee on Chemical Weapons, as contained in document CD/CW/WP.154, the period 30 March to 27 April 1987 was devoted to the consideration of issues pertaining to chemical weapons production facilities. Two formal meetings, with full services, as well as 10 informal consultations were held under the Chairmanship of the Co-ordinator on Cluster II.
2. The related issues of international verification of declarations of chemical weapons production facilities and their closure, international systematic monitoring, international systematic verification of elimination of chemical weapons production facilities, were considered during these meetings.
3. The consideration of these issues was based on proposals made by the Co-ordinator, as well as proposals made by delegations in the course of the discussions. In addition, consideration of these issues was assisted by the outcome of consultations previously held on Cluster I, as contained in document CD/CW/WP.160.
4. The result of the work undertaken on Cluster II issues is contained in the following paper (Attachment A) which is presented under the responsibility of the Co-ordinator and which, in his view, should serve as a basis for further work. Furthermore, based on the outcome of the consultations on Cluster II, a list of corresponding changes to be made in the proposed new Section VI of Annex IV (CD/CW/WP.160) is attached (Attachment B).

ATTACHMENT A

Proposal by the Co-ordinator

(Cluster II)

ANNEX V

- V. International verification of declarations of chemical weapons production facilities and their closure, international systematic monitoring, international systematic verification of elimination of chemical weapons production facilities ^{1/}
1. International verification of declarations of chemical weapons production facilities and of cessation of their activities
- (a) International verification by initial on-site inspections
- (i) The purpose of the international verification of declarations of chemical weapons production facilities shall be:
- to confirm that all activity has ceased except that required for closure;
 - to confirm through on-site inspections the accuracy of the declarations made in accordance with Article V.
- (ii) The International Inspectors shall conduct this initial verification promptly, and in any event not later than [60] days after a declaration is submitted.
- (iii) They shall employ, as appropriate, agreed seals, markers or other inventory control procedures to facilitate an accurate inventory of the declared items at each chemical weapons production facility.
- (iv) International Inspectors shall install such agreed devices as may be necessary to indicate if any resumption of production of chemical weapons occurs or if any declared item is removed. They shall take the necessary precaution not to hinder closure activities by the State party. International Inspectors may return to maintain and verify the integrity of the devices.
- (b) Co-ordination for international systematic monitoring of chemical weapons production facilities

In conjunction with the initial on-site inspections to verify declarations of chemical weapons production facilities, the International Inspectors shall undertake necessary co-ordination for measures of systematic monitoring of these facilities as provided for in paragraph 4, below.

^{1/} This Section of this Annex will require further discussion and elaboration upon resolution of the definitions of chemical weapons, chemical weapon production facilities, and methods of elimination.

2. Agreements on subsidiary arrangements 1/

(a) Within [6] months after entry into force of the Convention, States parties shall conclude with the International Authority detailed agreements on subsidiary arrangements for the systematic monitoring of their chemical weapons production facilities. Such agreements shall be based on a Model Agreement and shall specify for each production facility the detailed inspection procedures and arrangements for the installation, operation and maintenance of the seals and monitoring devices by the International Authority, taking into account the specific characteristics of each facility. The Model Agreement shall include provisions to take into account future technological developments.

(b) States parties shall ensure that the verification of declarations of chemical weapons production facilities and the initiation of systematic monitoring can be accomplished by the International Authority at all such facilities within the agreed time frames after the convention enters into force. 2/

3. Measures for closure of chemical weapons production facilities:

(a) The purpose of the closure of a chemical weapons production facility is to render it inoperable as such.

(b) Agreed measures for closure will be taken by the State party with due regard to the specific characteristics of each facility. Such measures shall include, inter alia: 3/

- prohibition of occupation of buildings except for agreed activities;
- disconnection of equipment directly related to the production of chemical weapons to include, inter alia, process control equipment and utilities;
- disabling of protective installations and equipment used exclusively for the safety of operations of the chemical weapons production facility;
- interruption of rail and other roads to the chemical weapons production facility except those required for agreed activities.

1/ The coverage of the subsidiary arrangements is to be discussed.

2/ Procedures to ensure the implementation of the verification scheme within designated time frames are to be developed.

3/ The activities and items in these measures will need further elaboration.

(c) While the chemical weapons production facility remains closed, the State party may continue safety activities at the facility.

4. International verification of closure of chemical weapons production facilities

Subsequent to the on-site verification of declarations as referred to in paragraph 1, the International Inspectors shall conduct on-site inspections at each chemical weapons production facility for the purpose of verifying that measures referred to under 3(b) have been accomplished.

5. International systematic monitoring of chemical weapons production facilities

(a) The purpose of the international systematic monitoring of a chemical weapons production facility shall be to ensure that no resumption of production of chemical weapons nor removal of declared items would go undetected at this facility.

(b) The international systematic monitoring shall be initiated as soon as possible after the closure of the chemical weapons production facility and shall continue until this facility is eliminated. Systematic monitoring shall be ensured, in accordance with the agreements on subsidiary arrangements, through a combination of continuous monitoring by on-site instruments and systematic verification by international on-site inspections or, where the continuous monitoring by on-site instruments is not feasible, by the presence of International Inspectors.

(c) In conjunction with the on-site verification of the closure of chemical weapons production facilities referred to in paragraph 4 above and, if the relevant agreement on subsidiary arrangements for the systematic monitoring of a chemical weapons production facility has been concluded, International Inspectors shall install for the purpose of this systematic monitoring a monitoring system as referred to under (e) below. If no such agreement has been concluded, the International Inspectors will initiate the systematic monitoring by their continuous presence on-site until the agreement is concluded, and the monitoring system installed and activated.

(d) In the period before the activation of the monitoring system and at other times when the continuous monitoring by on-site instruments is not feasible, devices installed by International Inspectors, in accordance with paragraph 1, above, may only be removed in the presence of an International Inspector. If an extraordinary event results in, or requires, the removal of

a device when an inspector is not present, a State party shall immediately inform the International Authority and International Inspectors will return as soon as possible to validate the inventory and re-establish the devices.

(e) Monitoring by instruments

(i) For the purpose of the systematic monitoring of a chemical weapons production facility, International Inspectors will install, in the presence of host country personnel and in conformity with the relevant agreement on subsidiary arrangements, a monitoring system consisting of, inter alia, sensors, ancillary equipment and transmission systems. The agreed types of these instruments shall be specified in the Model Agreement. They shall incorporate, inter alia, seals and other tamper-indicating and tamper-resistant devices as well as data protection and data authentication features.

(ii) The monitoring system shall have such abilities and be installed, adjusted or directed in such a way as to correspond strictly and efficiently to the sole purpose of detecting prohibited or unauthorized activities within the chemical weapons production facility as referred to above under (a). The coverage of the monitoring system shall be limited accordingly. The monitoring system will signal the International Authority if any tampering with its components or interference with its functioning occurs. Redundancy shall be built into the monitoring system to ensure that failure of an individual component will not jeopardize the monitoring capability of the system.

(iii) When the monitoring system is activated, International Inspectors will verify the accuracy of the inventory of declared items at each chemical weapons production facility as required.

(iv) Data will be transmitted from each production facility to the International Verification Headquarters by (means to be determined). The transmission system will incorporate frequent transmissions from the production facility and a query and response system between the production facility and the International Verification Headquarters. International Inspectors shall periodically check the proper functioning of the monitoring system.

(v) In the event that the monitoring system indicates any irregularity, the International Inspectors would immediately determine whether this resulted from equipment malfunction or activities at the production

facility. If, after this examination the problem remained unresolved, the International Authority would immediately ascertain the actual situation, including through immediate on-site inspection or visit of the production facility if necessary. The International Authority shall report any such problem immediately after its detection to the State party who should assist in its resolution.

(vi) The State party shall immediately notify the International Authority if an event at the production facility occurs, or may occur, which may have an impact on the monitoring system. The State party shall co-ordinate subsequent actions with the International Authority with a view to restoring the operation of the monitoring system and establishing interim measures, if necessary, as soon as possible.

(f) Systematic on-site inspections and visits

(i) During each inspection, the International Inspectors will verify that the monitoring system is functioning correctly and verify the declared inventory as required. In addition, visits to service the monitoring system will be required to perform any necessary maintenance or replacement of equipment, or to adjust the coverage of the monitoring system as required.

(ii) (The guidelines for determining the frequency of systematic on-site inspections are to be elaborated.) The particular production facility to be inspected shall be chosen by the International Authority in such a way as to preclude the prediction of precisely when the facility is to be inspected.

6. International verification of elimination of chemical weapons production facilities

(a) The purpose of international verification of elimination of chemical weapons production facilities will be to confirm that the facility is eliminated as such in accordance with the obligations under the Convention and that each item on the declared inventory is eliminated in accordance with the agreed detailed plan for elimination.

(b) [3-6] months before elimination of a chemical weapons production facility, a State party shall provide to the Technical Secretariat the detailed plans for elimination to include proposed measures for verification of elimination referred to in Section IV.B.1 (f) of the present Annex, with respect to, e.g.:

- timing of the presence of the inspectors at the facility to be eliminated;

- procedures for verification of measures to be applied to each item on the declared inventory;
- measures for phasing out systematic monitoring or for adjustment of the coverage of the monitoring system.

(c) On the basis of the detailed plan for elimination and proposed measures for verification submitted by the State party, and on experience from previous inspections, the Technical Secretariat shall prepare a plan for verifying the elimination of the facility, consulting closely with the State party. Any differences between the Technical Secretariat and the State party concerning appropriate measures should be resolved through consultations. Any unresolved matters shall be forwarded to the Executive Council 1/ for appropriate action with a view to facilitating the full implementation of the Convention.

(d) The agreed combined plans for elimination and verification, with an appropriate recommendation by the Technical Secretariat, will be forwarded to the members of the Executive Council for review. These plans should allow a State party to destroy any item agreed to be diverted. The members of the Executive Council shall review the plans with a view to approving them, consistent with verification objectives. This review is designed to determine that the planned disposition of each item is consistent with the obligations under the Convention and the objective of eliminating the facility. It should also confirm that verification schemes for elimination are consistent with verification objectives, and are efficient and workable. This review should be completed [60] days before the planned initiation of elimination.

(e) Each member of the Executive Council may consult with the Technical Secretariat on any issues regarding the adequacy of the combined plan for elimination and verification. If there are no objections by any members of the Executive Council, the plan shall be put into action.

(f) If there are any difficulties, the Executive Council should enter into consultations with the State party to reconcile them. If any difficulties remain unresolved they should be referred to the Consultative Committee. The resolution of any differences over methods of elimination should not delay the execution of other parts of the elimination plan that are acceptable.

1/ The role of the Executive Council in the review process will need to be reviewed in the light of its composition and decision-making process.

(g) If agreement is not reached with the Executive Council on aspects of verification, or if the approved verification plan cannot be put into action, verification of elimination will proceed by the continuous on-site monitoring and presence of inspectors.

(h) Elimination and verification should proceed according to the agreed plan. The verification should not unduly interfere with the elimination process.

(i) If required verification or elimination actions are not taken as planned, all States parties should be so informed. (Procedures to be developed.)

(j) For those items to be eliminated through destruction, verification of elimination should be conducted through the presence on-site of Inspectors to witness the destruction. 1/

(k) For those items that may be diverted for permitted purposes. 2/

(l) When all items on the declared inventory have been eliminated, the International Authority shall certify, in writing, the declaration of the State party to that effect. After this certification, the International Authority shall terminate the international systematic monitoring of the chemical weapons production facility and will promptly remove all devices and monitoring equipment installed by the International Inspectors.

(m) After this certification, the State party will make the declaration that the facility has been eliminated.

7. International verification of temporary conversion of a chemical weapons production facility into a chemical weapons destruction facility
(to be elaborated)

8. Inspections and visits

(a) The International Authority shall notify the State party of its decision to inspect or visit a chemical weapons production facility 48 hours prior to the planned arrival of the inspection team at the facility for systematic inspections or visits. In the event of inspections or visits to resolve urgent problems, this period may be shortened. The International Authority shall specify the purpose(s) of the inspection or visit.

1/ This verification measure may not necessarily be the only one and others, as appropriate, may need to be further elaborated.

2/ Specification of the items, permitted purposes and methods of verification of disposition will need to be elaborated.

(b) A State party shall make any necessary preparations for the arrival of the Inspectors and shall ensure their expeditious transportation from their point of entry on the territory of the State party to the chemical weapons production facility. The agreement on subsidiary arrangements will specify administrative arrangements for Inspectors.

(c) International Inspectors shall, in accordance with agreements on subsidiary arrangements:

- have unimpeded access to all parts of the chemical weapons production facilities. While conducting their activity, Inspectors shall comply with the safety regulations at the facility. The items on the declared inventory to be inspected will be chosen by the Inspectors;
- bring with them and use such agreed instruments as may be necessary for the completion of their tasks;
- communicate freely with the International Authority.

(d) The State party receiving the inspection shall, in accordance with agreed procedures:

- have the right to accompany the International Inspectors at all times during the inspection and observe all their verification activities at the chemical weapons production facility;
- have the right to inspect any instrument used or installed by the International Inspectors and to have it tested in the presence of State party personnel;
- provide assistance to the International Inspectors upon their request for the installation of the monitoring system.
- receive copies of the reports on inspections of its chemical weapons production facility(ies).
- receive copies, at its request, of the information and data gathered about its chemical weapons production facility(ies) by the International Authority.

(e) The International Inspectors 1/ may request clarification of any ambiguities arising from the inspection. In the event that any ambiguities

1/ The question of whether or not an individual Inspector shall have the rights set out in this and the following paragraph remains open.

arise which cannot be resolved in the course of the inspections, the Inspectors shall inform the International Authority immediately.

(f) After each inspection or visit to the chemical weapons production facility, International Inspectors shall submit a report with their findings to the International Authority which will transmit a copy of this report to the State party having received the inspection or visit. Information (to be designated) received during the inspection shall be treated as confidential (procedures to be developed).

ATTACHMENT B

Proposal by the Co-ordinator

List of changes to be made in proposed new Section VI
of Annex IV (CD/CW/WP.160)

Page 2, at the end of paragraph (c), add:

"...continue at the facility."

Page 2, paragraph 4 (a)(i), line 1, change "aim" to "purpose".

Page 3, paragraph 5 (a), line 1, change "aim" to "purpose".

Page 3, paragraph 5 (b) should read:

(b) The international systematic monitoring shall be initiated as soon as possible after the declaration of chemical weapons is submitted and shall continue until all chemical weapons have been removed from the storage facility. It shall be ensured, in accordance with the agreement on subsidiary arrangements, through a combination of continuous monitoring by on-site instruments and systematic verification by international on-site inspections, or, where the continuous monitoring by on-site instruments is not feasible, by the presence of International Inspectors.

Page 3, add new paragraph 5 (c) as follows:

(c) If the relevant agreement on subsidiary arrangements for the systematic monitoring of a chemical weapons storage facility is concluded, International Inspectors shall install for the purpose of this systematic monitoring a monitoring system as referred to below under (e). If no such agreement has been concluded, the International Inspectors will initiate the systematic monitoring by their continuous presence on-site until the agreement is concluded, and the monitoring system, installed and activated.

Page 3, paragraph 5 (c) becomes paragraph 5 (d)

Page 4, paragraph 5 (d) becomes paragraph 5 (e) and new (i) and (ii) read as follows:

- (i) For the purpose of the systematic monitoring of a chemical weapons storage facility, International Inspectors will install, in the presence of host country personnel and in conformity with the relevant agreement on subsidiary arrangements, a monitoring system consisting of, inter alia, sensors, ancillary equipment and transmission systems. The agreed types of these instruments shall be specified in the Model Agreement. They shall incorporate, inter alia, seals and other tamper-indicating and tamper-resistant devices as well as data protection and data authentication features.

- (ii) The monitoring system shall have such abilities and be installed, adjusted or directed in such a way as to correspond strictly and efficiently to the sole purpose of detecting prohibited or unauthorized activities within the chemical weapons storage facility as referred to above under (a). The coverage of the monitoring system shall be limited accordingly. The monitoring system will signal the International Authority if any tampering with its components or interference with its functioning occurs. Redundancy shall be built into the monitoring system to ensure that failure of an individual component will not jeopardize the monitoring capability of the system.

Page 4, paragraph (ii) becomes (iii) and (iii) becomes (iv)

Page 4, paragraph 5 (e), (iv) becomes (v) and reads as follows:

- (v) In the event that the monitoring system indicated any irregularity, the International Inspectors would immediately determine....

Page 5, paragraph (e) (v) becomes (vi) and reads as follows:

- (vi) The State party shall immediately notify the International Authority if an event at the storage facility occurs, or may occur, which may have an impact on the monitoring system. The State party shall co-ordinate subsequent actions with the International Authority with a view to restoring the operation of the monitoring system, and establishing interim measures, if necessary, as soon as possible.

Page 5, paragraph (e) becomes (f) and paragraphs (i) and (ii) should read as follows:

- (i) Visits to service the monitoring system will be required in addition to systematic on-site inspections to perform any necessary maintenance, replacement of equipment, or to adjust the coverage of the monitoring system, if required.
- (ii) (The guidelines for determining the frequency of systematic on-site inspections are to be elaborated.) The particular storage facility to be inspected shall be chosen by the International Authority in such a way as to preclude the prediction of precisely when the facility is to be inspected. During each inspection, the International Inspectors will verify that the monitoring system is functioning correctly and verify the inventory in agreed percentage of bunkers and storage areas.

Page 5, paragraph (f) becomes paragraph 5 (g)

Page 7, paragraph (d), the fourth tick should read as follows:

- provide assistance to the International Inspectors, upon their request for the installation of the monitoring system and the analysis of samples on-site.

Ad hoc Committee on Chemical Weapons

SPAIN

Working paper

ELIMINATION OF SUPER-TOXIC LETHAL CHEMICALS (Annex IV)

With regard to the question of elimination, mixed up in the discussion of which have been concepts such as that of "equivalent quantity of substance", the Spanish delegation feels that greater account ought perhaps to be taken in the line of reasoning of the purpose of the Convention under elaboration, which is to eliminate the "risk of chemical warfare" (as was stressed by the delegation of the Netherlands, in its statement on 12 March 1987, and by the delegation of the Federal Republic of Germany, in its statement on 19 March 1987), a term closer to military science than to purely chemical theorizing.

Consequently, we must think more in "gradients of risk" than in "gradients of quantity". For the materialization of this idea there exist two conceptually very closely related parameters of major military significance which, if taken into consideration, can quantify for us the risk it is desired to eliminate. They are the following:

"Lethal dose" (DL_x): number of milligrams necessary, per minute and per cubic metre, to cause x per cent fatalities when penetration is by inhalation; or number of milligrams necessary per kilogram of the individual's body weight if penetration is subcutaneous;

"Incapacitating dose" (DI_x), which is more general, and which is defined in a similar way to "lethal dose", but relates to casualties.

Either of these parameters can be used to calculate the "quantities of equivalent risk" to be eliminated in each of the periods in question. For example:

Case No. I

Givens: Facility with two substances, Tabun and Sarin:

2,000 units of Tabun

1,600 units of Sarin;

Of LD_{50} = 400 for the Tabun and

LD_{50} = 100 for the Sarin;

To be destroyed within nine years.

Solution: Each year it will be necessary to eliminate a total of:

$$\frac{2,000 + 1,600}{9} = 400 \text{ units}$$

and, as regards the individual substances, it will be necessary to eliminate Ct of Tabun and Cs of Sarin, which may be calculated as follows:

$$\frac{Ct}{400} = \frac{Cs}{100} = \frac{Ct + Cs}{400 + 100} = \frac{400}{500}$$

giving:

320 units of Tabun

80 units of Sarin.

Case No. II (Generalization)

Givens: Facility with M substances, in quantities of

$C_1, C_2 \dots C_M$ units;

Of lethal doses $D_1, D_2 \dots D_M$;

To be eliminated within N periods of time.

Solution. In each period it will be necessary to eliminate a total of:

$$\frac{(C_1 + C_2 + \dots + C_M)}{N}$$

and of each substance it will be necessary to eliminate in each

period the quantity $P_1, P_2 \dots P_M$, calculated as follows:

$$\frac{P_1}{D_1} = \frac{P_2}{D_2} = \dots = \frac{P_M}{D_M} = \frac{\sum (P_1 + P_2 + \dots + P_M)}{\sum (D_1 + D_2 + \dots + D_M)} =$$

$$\frac{1/N \cdot \sum (C_1 + C_2 + \dots + C_M)}{\sum (D_1 + D_2 + \dots + D_M)} =$$

$$\frac{\sum (C_1 + C_2 + \dots + C_M)}{N \cdot \sum (D_1 + D_2 + \dots + D_M)}$$

giving, for each substance i, the annual quantity to be eliminated of:

$$P_i = \frac{D_i \cdot \sum (C_1 + C_2 + \dots + C_M)}{N \cdot \sum (D_1 + D_2 + \dots + D_M)}$$

Ad Hoc Committee on Chemical Weapons

BULGARIA

POSSIBLE APPROACH TO DETERMINE THE FREQUENCY OF INSPECTIONS
OF FACILITIES HANDLING SCHEDULE [2] CHEMICALS

The suggested approach is an attempt to explore a possible way of determining the frequency of international on-site inspection so as to meet the aim of the measures stipulated in Article VI, Annex VI, [2], paragraph 4, taking into account the individual impact of various factors upon the frequency of inspections (as listed in CD/CW/WP.167, Appendix 11, p. 2).

1. It is suggested that facility which:

- produces schedule [2] chemical with 1 reaction-step prior to schedule [1] chemical, and
- can produce schedule [1] chemical without any re-equipment, presents a highest risk to the objectives of the Convention and might be inspected permanently, e.g., 365 times annually.

2. In order to take into account the toxicity of the schedule [1] chemical end-product coefficient K should be accepted in the values ranging from 1 down to 0,8.

In that case the frequency of inspection should be the multiplication $365 \times K$.

3. During the initial visit of the facility the international inspectors should estimate the factors having impact upon the determination of frequency of inspections with values ranging from 0 to 10. The higher risk the smaller the number. A scale of coefficients is suggested for some of the factors.

Factors related to the listed chemicals

(a) production steps away from schedule 1 chemical - F_1 :

2 reactions	5
3 reactions	10
4 reactions, or more	15

Factors related to the facility

- (a) multipurpose or dedicated - F₂.
- (b) capability and convertibility for initiating production of highly toxic chemicals - F₃.
- (c) production capacity - F₄:
- | | |
|-------------------------------------|----|
| under 100 tonnes annually | 20 |
| from 100 to 500 tonnes annually | 15 |
| from 500 to 1,000 tonnes annually | 10 |
| from 1,000 to 1,500 tonnes annually | 5 |
| more than 1,500 tonnes annually | 0 |
- (d) on-site storage of listed key precursors in quantities exceeding ... tonnes - F₅.
- (e) location of the facility and infrastructure for transportation - F₆.

Factors related to the activities carried out at the facility

- (a) production, e.g., continuous, batch, types of equipment - F₇.
- (b) processing with or without conversion into another chemical - F₈.
- (c) other type of activities, e.g., consumption, import, export, transfer - F₉.
- (d) volume produced, processed, consumed, transferred and relationship between maximum and utilized capacity for a scheduled chemical - F₁₀.

if unutilized capacity is under 50 tonnes	20
if unutilized capacity is from 50 to 250 tonnes	15
" " " " 250 to 500 tonnes	10
" " " " 500 to 750 tonnes	5
" " " " over 750 tonnes	0

Other factors

- (a) international monitoring by on-site instruments - F₁₁.
- (b) remote monitoring - F₁₂.

The frequency of inspections is to be determined according to the formula as follows:

$$N = \frac{365 \cdot K}{F_1 + F_2 + F_3 + \dots + F_{12}}$$

The final figure N shows the number of routine inspections, which the International Authority will carry out at the particular facility. This approach will guarantee two inspections at least. It is guaranteed that following the first inspection, there is a possibility that there will be a second one. The indication of the particular facility to be inspected shall be chosen by the International Authority in such a way as to preclude the prediction of precisely when the facility is to be inspected; this will be an additional obstacle to an eventual violation of the Convention.



Ad Hoc Committee on Chemical Weapons

UNITED STATES OF AMERICA

WORKING PAPER

DECLARATION OF CHEMICAL PRODUCTION CAPACITY

Background

1. Under a convention to ban chemical weapons the quantities of chemicals produced, processed or consumed must be consistent with the needs for purposes not prohibited by the CW Convention. When the production capacity for key precursors or extremely toxic chemicals at a facility clearly exceeds legitimate commercial needs, there will be concern that the excess capacity may be utilized for the manufacture of chemical weapons. It is therefore necessary for the production capacity of each declared chemical manufacturing facility to also be declared so that any excess capacity over the projected commercial requirement is made an issue of concern and an area for verification. This paper proposes a methodology to be used so that calculations will be uniform.

2. An agreed methodology is needed because there are different methods commonly used for expressing the "capacity" of a chemical facility. Capacity could be actual production or it could be the potential ability of the facility's output based on various assumptions and modes of operation.

3. "Nameplate capacity", which is a commonly used term in the chemical industry, is the design capacity of a plant. It assumes a specific process for a specific chemical. While usage of the term varies, assumptions may range up to 100 per cent utilization of all process equipment, full availability of raw materials, labour and utilities, no maintenance requirements, no downtime for clean-up, no need for equipment changes and no operating problems. A figure based on such assumptions is a theoretical 24 hour-per-day, 365 days-per-year capacity which could only be achieved for a few months, at most.

4. For the CW Convention, capacity should be the maximum practical quantity which could be produced, processed or consumed in a year from a given process design. Capacity, in this sense, is the effective or practical annual production that this facility could reasonably expect to attain using a realistic employee work schedule and the machinery and equipment in place

during the periods covered by the annual declarations. It assumes around-the-clock operations and the availability of raw materials, a labour force and utilities during the operating periods. It assumes downtime for clean-up, maintenance and contingencies that occur every day in an operating chemical production facility.

Types of Plant Operations

5. The capacity of a plant depends in part on whether the production process is batch or continuous in nature. Capacity also is related to the number of lines or units available at the facility for the manufacture of the chemical of concern.

6. In a batch process the reactants are fed into the operation and then totally removed at the completion of that operation. For example, in batch distillation, the material to be distilled is placed in the still before the process is begun and the product is withdrawn from the condenser over a period of time. At the completion, the residues are withdrawn from the still pot. This operation is repeated until the required quantities of product are obtained. Time is required to load and reload the materials, to drain residues and waste products and possibly clean up the equipment at the completion of each operation. Batch equipment provides for flexibility and results often in a multipurpose facility which can be utilized to manufacture many different chemicals with only minor changes for each. Often too, there are multiple units, each of which is capable of being used to produce or process the chemical. Each of these factors thus raises the level of concern.

7. In a continuous process, introduction of reactants and removal of products does not occur in discrete stages. Because it is continuous, the operation requires more precise control than a batch operation; it requires relatively constant feed composition, continuous product removal and continuous by-product or residue removal. Because the design of a continuous process must be carefully integrated and is based on the particular physical and chemical properties of the reactants and products, it is usually a dedicated or single-purpose plant rather than a multipurpose one. However, because of this optimization, the equipment would usually have a higher capacity than batch equipment of the same size. The plant would usually operate 24 hours per day and 7 days per week. There would be a regular requirement to shut down a continuous process about one week every three or four months for preventive maintenance, corrosion repair and instrument recalibration. There may also be several continuous process lines which could produce this material in the plant.

8. Some processes are not totally batch or totally continuous in nature. For these semi-continuous or semi-batch process units, the annual declaration for capacity should use the methodology proposed below where applicable. The intent is to relate the actual plant operation to the maximum practical production possible. During on-site inspection, the international inspection team will verify the parameters and factors used and validate the capacity of the plant within the confines of the declared facility.

Proposed Approach to Calculation of Capacity

9. Capacity for a chemical of concern should be calculated from the annual amount actually produced or processed, the length of time taken for the

production of that amount, the number of lines or units available, and the type of operation (batch or continuous). Slightly different factors should be used for batch and continuous processes, to extrapolate the amount produced to an annual capacity. Capacity should be based on seven days per week of operation and actual plant hours per day that the equipment is in operation (as opposed to number of hours that the workers or plants worked). For batch operations, 18 hours per day should be assumed; for continuous operations 24 hours per day should be assumed. For batch operations, dedicated to one product, the equipment should be able to operate 50 weeks per year. For continuous processes, 4 weeks per year of maintenance and downtime should be assumed for a maximum of 48 weeks of operating time per year.

10. The annual declaration should provide the capacity of the facility and the total amount of the chemical produced, processed or consumed for the year. At the time of on-site inspection, the international inspection team will request and verify the parameters and the validity of the calculated capacity of the facility. The method of calculation is attached as an annex.

11. The data requested during an inspection will include, inter alia, the following related to capacity:

- (i) Total amount of the chemical produced, processed or consumed in the declared year;
- (ii) Hours per day equipment was in operation;
- (iii) Days per week in operation to produce (i);
- (iv) Weeks to produce (i);
- (v) Number of lines/units available to produce the chemical;
- (vi) Is process batch or continuous?

ANNEX

Method for Calculating Capacity

1. Capacity is the calculated annual production, processing or consumption capability of a facility based on the actual quantity of production, processing or consumption, the time required to produce that quantity and the number of lines or units available to produce the material.

2 The following parameters are used for calculations:

<u>Parameter</u>	<u>Batch</u>	<u>Continuous</u>
Equipment available	Number of units	Number of lines
Operating days/week	7	7
Operating hours/day	18	24
Operating weeks/year	50	48

3. Capacity will be calculated using the following equation:

$$\text{Capacity} = \text{amount actually produced or consumed} \times \text{days/week correction} \times \text{hours/day correction} \times \text{daily downtime correction} \times \text{annual operation correction} \times \text{annual downtime correction} \times \text{number of units/lines}$$

4. Case I. Assuming the facility actually produced or consumed 100,000 kg of the chemical from a batch operation, 6 days/week, with the equipment operating 12 hours per day over a period of 16 weeks. The capacity will be calculated as follows:

$$100,000 \text{ kg} \times \frac{7}{6} \text{ (days)} \times \frac{24}{12} \text{ (hours)} \times \frac{18}{24} \text{ (hours)} \times \frac{52}{16} \text{ (weeks)} \times \frac{50}{52} \text{ (weeks)}$$

Capacity equals 545,000 kg/year or 545 metric tons.

5. Case II. Assume the facility actually produced 100,000 kg in a continuous process, 6 days/week, equipment operating 22 hours/day over 42 weeks and there are 2 lines present in the facility to produce this chemical.

$$100,000 \text{ kg} \times \frac{7}{6} \text{ (days)} \times \frac{24}{22} \text{ (hours)} \times \frac{24}{24} \text{ (hours)} \times \frac{52}{42} \text{ (weeks)} \times \frac{48}{52} \text{ (weeks)} \times 2$$

Capacity equals 291,000 kg/year or 291 metric tons

6. Case III. Assume the facility actually produced 100,000 kg in a batch operation using 1 unit, 5 days/week, equipment operating 12 hours/day over 20 weeks and there are 3 units in the facility of the same size which can produce this chemical.

$$100,000 \text{ kg} \times \frac{7}{5} \text{ (days)} \times \frac{24}{12} \text{ (hours)} \times \frac{18}{24} \text{ (hours)} \times \frac{52}{20} \text{ (weeks)} \times \frac{50}{52} \text{ (weeks)} \times 3$$

Capacity equals 1,575,000 kg/year or 1,575 metric tons.

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

Interim Report of the Co-ordinator on Issues Pertaining to
Non-Production of Chemical Weapons

(Cluster III)

1. In accordance with the programme of work of the Ad Hoc Committee on Chemical Weapons, the period 29 June to 17 July 1987 was devoted to the consideration of issues pertaining to the non-production of chemical weapons. Eight formal meetings with full services as well as five informal open-ended consultations were held under the Chairmanship of the Co-ordinator on Cluster III.
2. These meetings were devoted to the consideration of the issue of "Commercial production of toxic chemicals, not listed in Schedules [1], [2] or [3], that might be relevant to the Convention" (Appendix III to CD/CW/WP.167).
3. The discussions on the issue were based on a Working Hypothesis submitted by the Co-ordinator on 29 June; on an Informal Working Paper prepared by the Chairman of the Ad Hoc Committee on 10 July, and on Discussion Papers of the Co-ordinator, dated 13, 14 and 15 July.
4. The results of the work are contained in the attached paper which, in the view of the Co-ordinator, reflects the current stage of affairs as regards this issue and should serve as a basis for future work.

Commercial production of toxic chemicals, not listed in Schedules [1], [2] or [3] that might be relevant to the Convention

DECLARATIONS

1. The Initial and Annual Declarations to be provided to the [international authority] by a State party under Article VI shall

for each facility which produces or processes [more than [10 kg] [100 kg] [1,000 kg] 1/ per annum 2/ of] any chemical 3/ 4/ with an LD₅₀ equal to or less than 0.5 mg per kg bodyweight 5/ or an LC₅₀ equal to or less than 2,000 mg-min/m³ and has a production capacity 6/ for any such chemical exceeding 1,000 kg 1/ 7/ per annum 8/,

include the following information:

Chemical(s)

- (i) The chemical name, common or trade name used by the facility, structural formula, and Chemical Abstracts Service Registry Number (if assigned);
- (ii) For each chemical the total amount produced and/or processed [, imported and exported, with an indication of the countries involved,] in the previous calendar year; 9/ 10/
- (iii) The purpose(s) for which the chemical(s) are produced or processed:
 - (a) conversion on-site (specify product type);
 - (b) sale or transfer to other domestic industry (specify final product type or end use);
 - (c) export (specify which country);
 - (d) other.

Facility

- (i) The name of the facility and of the owner, company, or enterprise operating the facility;
- (ii) The exact location of the facility (including the address, location of the complex, location of the facility within the complex including the specific building and structure number, if any);
- (iii) Whether the facility is dedicated to producing or processing the declared chemical(s) or is multipurpose;
- (iv) The production capacity of the facility for the declared chemical(s); 11/

(v) Which of the following activities are performed with regard to the declared chemical(s) and for which purpose(s):

- (a) production;
- (b) processing with conversion into another chemical;
- (c) processing without chemical conversion (e.g. purification);
- (d) other - specify.

(vi) Whether declared chemicals are stored on-site in quantities greater than []. 12/

2. A State party shall notify the [international authority] of the name and location of any facility which intends, in the year following submission of the Annual Declaration, to produce or process

[more than [10 kg] [100 kg] [1,000 kg] 13/ per annum of] any chemical 14/ 15/ with an LD₅₀ equal to or less than 0.5 mg per kg bodyweight 16/ or an LC₅₀ equal to or less than 2,000 mg-min/m³ and which has or intends to acquire a production capacity 17/ for any such chemical exceeding 1,000 kg 13/ 18/ per annum. 19/ 20/

Aim

3. The aim of the measures stipulated in Article VI, paragraph 6 22/ shall be to verify that:

- (i) facilities declared under this Annex are not used to produce any chemical listed in Schedule [1];
- (ii) the quantities of declared chemicals produced or processed are consistent with needs for purposes not prohibited by the Chemical Weapons Convention;
- (iii) the declared chemicals are not diverted or used for purposes prohibited by the Chemical Weapons Convention.

Obligation and Frequency

- 4.(i) Each facility notified to the [international authority] under this Annex shall be subject to systematic international on-site inspection on a routine basis if the production of any declared chemical exceeds ... per annum and the production capacity for any of the declared chemical(s) exceeds ... per annum.
- (ii) The number, intensity, duration, timing and mode of inspections for a particular facility shall be based on the risk to the objectives of the Convention posed by the relevant chemical, the characteristics of the facility and the nature of the activities carried out there. (Guidelines to be used as well as a system for "weighting" need to be developed. In this context, threshold(s) might need to be established). 23/

Selection

5. The particular facility to be inspected shall be chosen by the [international authority] in such a way to preclude the prediction of precisely when the facility is to be inspected.

Notification

6. A State party shall be notified by the [international authority] of the decision to inspect a facility referred to in paragraph [4] [48] [12] hours prior to the arrival of the inspection team.

Host State Party

7. The host State party shall have the right to designate personnel to accompany an international inspection team. The exercise of this right shall not affect the right of inspectors to obtain access to the facility, as provided by the Convention, nor shall it delay or otherwise impede the carrying out of the inspection.

Initial Visit

8. Each facility notified to the [international authority] under this Annex shall be liable to receive an initial visit from international inspectors, promptly after the State becomes a party to the Convention. 24/

9. The purpose of the initial visit shall be to verify information provided concerning the facility to be inspected and to obtain any additional information needed for planning future verification activities at the facility, including inspection visits and use of on-site instruments.

Agreement on Inspection Procedures

10. Each State party shall execute an agreement, based on a model agreement, with the international authority, within ... months after the Convention enters into force for the State, governing the conduct of the inspections of the facilities declared by the State party. The agreement shall provide for the detailed subsidiary arrangements which shall govern inspections at each facility.

11. The detailed subsidiary arrangements shall include, inter alia, the size of the team required for the inspection; the duration of the inspection; the relevant parts of the site to be inspected; and the need for permanent on-site instrumentation.

Verification Inspections

12. The areas of a facility to be inspected under subsidiary arrangements may, inter alia, include:

- (i) areas where feed chemicals (reactants) are delivered and/or stored;
- (ii) areas where manipulative processes are performed upon the reactants prior to addition to the reaction vessel;

- (iii) feed lines as appropriate from subparagraph (i) and/or subparagraph (ii) to the reaction vessel, together with any associated valves, flow meters, etc.;
- (iv) the external aspect of the reaction vessel and its ancillary equipment;
- (v) lines from the reaction vessel leading to long- or short-term storage or for further processing of the designated chemical;
- (vi) control equipment associated with any of the items under subparagraphs (i) to (v);
- (vii) equipment and areas for waste and effluent handling;
- (viii) equipment and areas for disposition of off-specification chemicals.

13. The inspectors have the right at any stage during the inspection to obtain samples from any of the areas inspected. They also have the right to request that appropriate analyses be performed in their presence, either in-house or in a mobile field laboratory, or if necessary to have samples analysed at a laboratory designated by the [international authority]. They may request clarification of any ambiguities arising from the inspection.

14. The Technical Secretariat may retain at each site a sealed container for photographs, plans and other information that it may wish to refer to in the course of subsequent inspection.

Submission of Inspectors' Report

15. The inspectors shall submit a report to the [international authority] on the activities conducted by them and on their findings. 25/

16. In the event that any ambiguities arise which cannot be resolved in the course of the inspection, the inspectors may in their report recommend appropriate steps for clarification.

Notes

1/ Some delegations felt that the thresholds for production and production capacity should correspond to militarily significant quantities.

2/ The question of production or processing not occurring annually requires further discussion.

3/ Some delegations expressed the view that additional criteria of suitability for chemical weapons purposes should be added.

4/ Some delegations expressed the view that whether or not a list of these chemicals would be needed, should be discussed.

5/ It is understood that further discussion is needed with regard to chemicals with a somewhat lower toxicity. In this context various ideas were put forward, i.a.:

- that chemicals falling within a deviation-range of 10-20 per cent could be considered;
- that chemicals with an LD₅₀ close to 0.5 mg/kg/bodyweight could be included as exceptions;
- that the modalities for revisions of lists could be made use of to take care of possible concerns in this regard.

6/ How to define production capacity remains to be agreed upon. In this context reference was made to the proposal contained in CD/CW/WP.171.

7/ It is understood that the quantitative value of the threshold for production capacity remains to be discussed.

8/ One delegation expressed the view that the question of production capacities should be considered in accordance with the relevant provisions in the Annex to Article VI, Schedules [2] and [3] (cf. CD/CW/WP.167 pp. 62, 68).

9/ Whether the total amount is to be expressed as an exact figure or within a range is to be discussed.

10/ One delegation expressed the view that aggregate national data on the production of any such chemical should also be provided.

11/ How to define production capacity remains to be agreed upon.

12/ The question of a threshold required further consideration.

13/ Some delegations felt that the thresholds for production and production capacity should correspond to militarily significant quantities.

14/ Some delegations expressed the view that additional criteria of suitability for chemical weapons purposes should be added.

15/ Some delegations expressed the view that whether or not a list of these chemicals would be needed, should be discussed.

16/ It is understood that further discussion is needed with regard to chemicals with a somewhat lower toxicity in the light of what might be agreed as regards footnote 6/ to paragraph 1.

17/ How to define production capacity remains to be agreed upon. In this context reference was made to the proposal contained in CD/CW/WP.171.

18/ It is understood that the quantitative value of the threshold for production capacity remains to be discussed.

19/ One delegation expressed the view that the question of production capacities should be considered in accordance with the relevant provisions in the Annex to Article VI, Schedules [2] and [3] (cf. CD/CW/WP.167 pp. 62, 68).

20/ It was pointed out that production plans might be changed at short notice and that the Convention therefore should provide for declarations of such revisions of production plans.

21/ Some of the provisions contained in this section have general application throughout the Convention. It is understood that the retention of these will be reviewed at a later stage in the negotiations.

22/ As it would then be revised.

23/ Some delegations expressed the view that possible criteria of "suitability for CW purposes" might be considered in this context rather than in the context of declarations.

24/ One delegation pointed out that new facilities would have to be notified to the [international authority] at a later stage.

25/ It was suggested that the report of the inspectors should be made available to the State party subject to the inspection.

Ad Hoc Committee on Chemical Weapons

CANADA AND NORWAY

EXPLANATION OF THE ORIGINS OF THE PROPOSED ANNEX TO ARTICLE IX (CD/766)
IN RELATION TO THE ROLLING TEXT (CD/CW/WP.167)

Introduction

1. In CD/766, Canada and Norway have proposed an annex to Article IX, the proposed annex being entitled "General Procedures for Verification of Alleged Use of Chemical Weapons". It was recommended that this proposed annex be considered for incorporation in the "rolling text" of the CW negotiations.
2. The purpose of this paper is to highlight the relationship between the proposed annex and the "rolling text" and other papers appearing in CD/CW/WP.167.
3. It should first be pointed out that in the proposed annex one will not find the words "challenge inspection". It confines itself to the word "inspection", since its intent was to focus on the objective procedures for conducting an inspection rather than on the variety of scenarios and on the triggering mechanism for initiating an inspection. As is indicated in the introductory comments to the proposed annex, such an inspection could be requested by a State Party that has allegedly been attacked with chemical weapons. Another scenario may have a State Party requesting an inspection of itself, to allay concerns that may have surfaced in the international community for whatever reason. This would be in keeping with the important message found in the United Kingdom paper CD/715 which highlights the basic obligation of States Parties to demonstrate compliance with the convention, and it is possible that a State Party may choose to do so on its own initiative under certain circumstances. In neither of these scenarios has challenge inspection been mentioned, and yet it would be just as important to have at hand speedy rigorous procedures to pursue the issue to a conclusion. Of course, the procedures outlined in the proposed annex would also apply in the event of a challenge inspection.

Comparison of texts

4. With respect to section 1 of the proposed annex as it appears in CD/766, it is possible to make a few general comments without going into a paragraph-by-paragraph description. For example, one will find that the various paragraphs of this section draw on appropriate elements of CD/CW/WP.167

as it now refers to inspections and visits. The concepts contained in Appendix II of WP.167, and specifically those to be found on pp.4-6 on the subject of "Guidelines on the International Inspectorate", have been incorporated as far as possible into the proposed annex to Article IX. Where there are gaps in WP.167, some extrapolation has been required.

5. In section 2 of the proposed annex, one will find comments concerning the inspection team and the right of a State Party receiving the inspection to appoint an observer. These paragraphs are consistent with Article VIII of the rolling text as it applies to the functions of the Consultative Committee and its subsidiary organs (pp.18-23). The language concerning the observer is in keeping with Appendix II to WP.167, p.5, section III, paragraph 3; and with Appendix III, p.6, paragraph 7.

6. Section 3 of the proposed annex, entitled "Equipment and Supplies", is consistent with Appendix II of WP.167, section II on privileges and immunities, and section III on general rules, to be found on pp.4-6 of Appendix II.

7. In section 4 on "Survey of the Alleged Contaminated Area" in the proposed annex, reference to "unimpeded access" is consistent with the language to be found in the rolling text concerning inspection and visits to storage facilities of chemical weapons (p.40, paragraph 7(c)) and chemical weapons production facilities (p.53, paragraph 8(c)). It is believed that the same logic would require unimpeded access to the site (or sites) where chemical weapons may be alleged to have been used.

8. Sections 5 and 6 of the proposed annex, on "Collection and Handling of Samples" and on "Interviewing", break some new ground as to what may be required during an inspection, although much of what is to be found therein can be derived from other documentation that has been submitted by Canada, Norway and other member and observer delegations to the Conference on Disarmament. References to the collection of samples and to sample analysis are consistent with Appendix III to WP.167, p.7, paragraph 13 although, of course, the context is different.

9. Section 7 of the proposed annex, on the "Certification and Selection of Designated Analytical Laboratories", is consistent with Article VIII of the rolling text as regards the functions of the Consultative Committee and the delegation of implementation of those functions to the Executive Council as mentioned on p.20, paragraph 4; and p.22 paragraphs 1 and 2.

10. Section 8 of the proposed annex, on the subject of analysis of samples, highlights the importance of corroborative analyses in relation to such an important matter as verification of alleged use of chemical weapons. It also indirectly introduces the notion that particular care will have to be taken if "novel" agents are suspected, that is, chemical substances not previously used for or associated with hostile purposes. It will be noted that no time frame has been established for analysis of the samples. For traditional chemical warfare agents, this could be a relatively short period of time. In the case of "novel" agents, there is no way of knowing. That is why the Technical Secretariat has the responsibility for ensuring that the analysis will be performed as expeditiously as possible.

11. The language of section 9 of the proposed annex on the report of the inspection team is consistent with Appendix II to WP.167, pp.5-6, paragraph 5.

12. The language of section 10 of the proposed annex on the report of the analysis of samples also reflects the comment made in paragraph 10 above about "novel" agents.

13. Section 11 of the proposed annex on the "Elaboration and Revision of Inspection Procedures" is consistent with Article VIII's description of the Technical Secretariat (p.23) and with the delegation of implementation of functions to the Executive Council as mentioned on p.20, paragraph 4 and on p.22, paragraphs 1 and 2.



Ad hoc Committee on Chemical Weapons

JAPAN

Verification of Non-production under
the Chemical Weapons Convention

1. The twin major objectives in concluding the Chemical Weapons Convention are to provide for the destruction of existing chemical weapons as well as of the relevant production facilities, and to draw up provisions so that chemical weapons will neither be developed nor produced in the future. An effective verification régime to ensure the attainment of these objectives is of great importance.

2. As regards the verification of non-production of chemical weapons, it seems that the negotiations have dealt with two distinct aspects:

- (i) non-production of chemical weapons per se, and
- (ii) monitoring of the production, etc. of certain substances in the chemical industry.

The discussions to this date in the Ad hoc Committee on Chemical Weapons may at times have tended to confuse these two differing aspects. It is therefore the intent of this paper to try to sort out this confusion so as to contribute to further progress in the negotiations.

3. Under article VI of the draft Convention (CD/CW/WP.167, Appendix I), those chemical substances whose production is to be prohibited or subjected to other controls are subdivided into three categories. They are listed in one of the three schedules of the annex to article VI, on each of which methods of prohibition or control are being developed. Such methods are conceived of as exceptions to permitted activities under article VI.

4. Schedule [1] relates to the first aspect 2.(i) above, the non-production of chemical weapons per se, one of the major objectives of this Convention, while Schedules [2] and [3] relate to the second aspect 2.(ii), the monitoring of the production, etc. of certain substances in the chemical industry, with the aim of enhancing confidence in the Convention régime. Given the understanding that Schedule [1] is a list of typical warfare agents, it would seem only proper to try to develop, with respect to the chemical weapons to be declared and destroyed under draft articles III and IV, which is the major objective of this Convention, a clear idea of the chemical weapons to be prohibited.

The verification system under this Convention will need to be developed bearing in mind the aforementioned major objectives of this Convention. For that purpose, it is necessary to re-examine the question of the identification and listing of substances, the production of which is to be prohibited or monitored under this Convention. With these points in mind:

(a) A clear understanding of the chemical substances to be prohibited in principle under the Convention should be developed, bearing in mind the chemical weapons to be declared and destroyed under draft article IV. In this connection, the provision of information by the States possessing chemical weapons of the composition and other facts pertaining to their stockpiles will be extremely useful. (While the existing list of Schedule [1] of the annex to draft article VI may also be taken as a reference point, at the same time, we need to bear in mind that the chemical substances listed in Schedule [1] are only those which are known at present as typical chemical warfare agents and, therefore, cannot represent even an extensive list of all chemical weapons. Further, if future developments in science and technology are taken into consideration, the concept of the chemical weapons to be destroyed under draft article IV will necessarily have to be a very broad one.)

(b) It is understood that Schedule [1] of the annex to draft article VI concerning permitted activities has been compiled with such an understanding of chemical weapons. It should be pointed out here that the chemical substances listed in Schedule [1] are those whose production is, in principle, prohibited and that their production or possession is allowed under strict verification measures only for research, medical or protective purposes. Thus, it follows that there are distinct conceptual differences in the respective approaches to the chemical substances which are listed in the three schedules of the annex to draft article VI. That is, the chemical substances listed in Schedule [1] are those whose production is, in principle, prohibited except for limited specific purposes. The chemical substances listed in Schedules [2] and [3] are, in principle, free from restriction, but they are placed under a monitoring régime to preclude their misuse for weapons purposes.

To recapitulate, starting from the general purpose criterion, the verification régime for chemical substances to be controlled under this Convention may be developed by trying to distinguish between those chemical substances which can only be used for weapons purposes and those chemical substances such as precursor chemicals or dual purpose substances which can, depending on the intention of users, also be used for weapons purposes. With regard to the latter substances, it is arguable from the objectives of the Convention that, to the extent that they are utilized for peaceful purposes, they need not be placed under any control régime. However, as there is a significant danger that they might be used for other purposes than peaceful, the choice is made to place them under the control of the Convention. This is the second aspect of non-production referred to in 2.(ii) above.

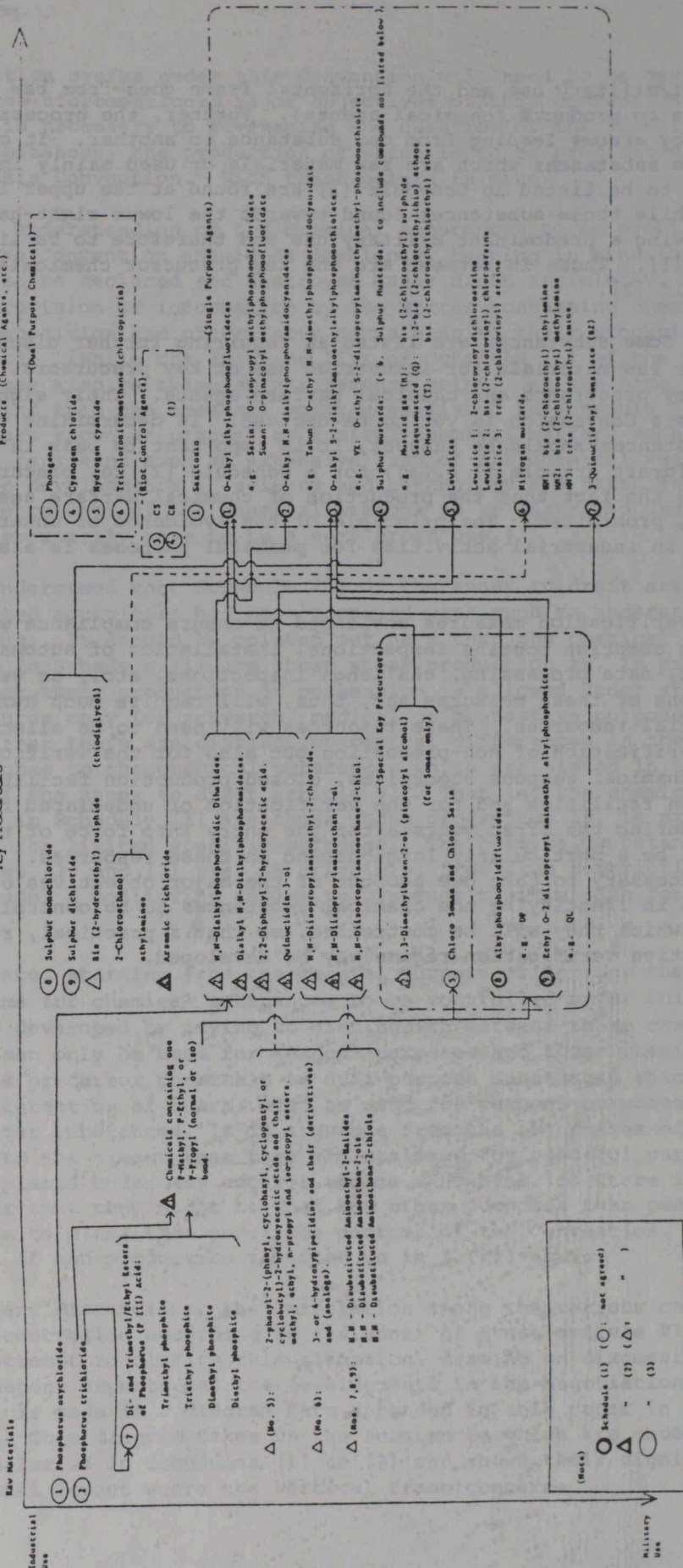
5.(a) In the present discussions, the correlation among the various chemical substances to be controlled according to the annex of draft article VI is not very clear. An attempt to clarify this situation, drawing on discussions among chemical weapons experts and the developments in the negotiations in the Ad hoc Committee, is made in a diagram form appended to this paper in the English language. This diagram takes up the substances which are under discussion for inclusion in Schedules [1] to [3] and shows their significance in a two dimensional layout where the vertical frame concerns

industrial/military use and the horizontal frame goes from raw materials, key precursors to products (chemical agents). Further, the process of synthesis is shown by arrows leading from one substance to another. It can thus be seen that those substances which are raw materials or used mainly in industry and therefore to be listed in Schedule [3] are found at the upper left-hand corner, while those substances found towards the lower right-hand are chemical agents having a predominant military use and therefore to be listed in Schedule [1]. Those in between are the key precursor chemicals to be listed in Schedule [2].

(b) Some substances are listed as requiring further discussion. They are either raw materials for industrial use or key precursors, or somewhere between key precursors and chemical warfare agents. Their significance as regards this Convention is yet to be decided. In determining to which régime these substances should be subject, it is important to bear in mind the criteria (draft article II 4.(a)) for a Schedule [2] key precursor chemical, as well as the fact that the production of chemical warfare agents is, in principle, prohibited. The principle of the avoidance of unwarranted intrusion in industrial activities for peaceful purposes is also an important element.

6. The verification measures envisaged to ensure compliance with the Convention comprise routine inspections, installation of automatic monitoring equipments, data processing, challenge inspections, etc., as well as various combinations of these measures and, thus, will require much human, material and financial resources. These resources will need to be allocated not only for the verification of non-production but also for the verification of existing chemical weapons stockpiles, closed production facilities, destruction facilities and for the verification of undeclared facilities. Further, during the first years after the entry into force of the Convention, there will be a particularly large demand on these resources. Therefore, it will be necessary to take due account of the major objectives of the Convention in identifying the chemical substances to be controlled and the extent to which they will be controlled, so that a practical, rational and cost-effective verification régime may be developed.

Correlation of Chemical Listed in CD/CW/WP.167
Key Precursors



Ad Hoc Committee on Chemical Weapons

Report of the Co-ordinator on Issues Pertaining to the Organization
and Functions of the Consultative Committee and its Organs

(Cluster IV)

1. In accordance with the programme of work of the Ad Hoc Committee on Chemical Weapons, the periods 22-26 June and 20-31 July were devoted to the consideration of the following issues:

- Guidelines for the International Inspectorate;
- Model Agreements; and
- Article VIII of the Draft Convention.

Eight meetings with full services, as well as seven informal open-ended consultations were held under the Chairmanship of the Co-ordinator on Cluster IV.

2. The Chairman of the Ad Hoc Committee continued consultations on the issue of challenge inspection.

3. There was an initial discussion of the issue of verification of alleged use of chemical weapons on the basis of document CD/766 presented by Canada and Norway.

4. The discussions on these issues were based on CD/CW/WP.167 as well as on discussion papers prepared by the Co-ordinator and Working Papers presented by delegations.

5. The results of the work are contained in the following attached papers which, in the view of the Co-ordinator, reflect the current state of affairs as regards the issues under consideration and should serve as a basis for further work.

(a) Guidelines on the International Inspectorate (Attachment A).

(b) Model for an agreement relating to facilities producing, processing, or consuming chemicals listed in Schedule [2] (Attachment B).

6. The consideration of article VIII of the Draft Convention was based on a discussion paper presented by the Co-ordinator on 27 July 1987 which, together with the list of questions attached to it, might be used for the further elaboration of the Article (Attachment C).

7. The work on Models for Agreements should continue at an expert level using, inter alia, the Co-ordinator's paper dated 18 June 1987 which is also attached (Attachment D).

Attachment (A)Cluster IVGuidelines on the International Inspectorate */I. Designation

1. Verification activities in a State Party to the Convention shall only be performed by inspectors designated to this State in advance.
2. The Technical Secretariat shall communicate, in writing, to the State concerned the names, nationality and ranks of the inspectors proposed for designation. Furthermore, it shall furnish a certificate of their qualifications and enter into such consultations as the State concerned may request. The latter shall inform the Secretariat, within (30) days after receipt of such a proposal, whether or not it will accept the designation of each inspector proposed. The inspectors accepted by the State Party shall be designated to that State. The Technical Secretariat shall notify the State concerned of such a designation.
3. Should any State Party object to the designation of inspectors, be it at the time they are proposed or at any time thereafter, it shall inform the Technical Secretariat of its objection. If a State Party raises objections to an inspector already designated, this objection shall come into effect 30 days after receipt by the Technical Secretariat. The Technical Secretariat shall immediately inform the State concerned of the withdrawal of the designation of the inspector. In cases of objections to designation of inspectors the Technical Secretariat shall propose to the State Party in question one or more alternative designations. The Technical Secretariat shall refer to the Executive Council any repeated refusal by a State Party to accept the designation of inspectors if the Secretariat is of the opinion that such refusal impedes inspections to be conducted in the State concerned.

II. Privileges and immunities of inspectors

1. To the extent necessary for the effective exercise of their functions, inspectors shall be accorded the following privileges and immunities, which shall also apply to the time spent travelling in connection with their missions:
 - (a) immunity from personal arrest or detention and from seizure of their personal baggage,
 - (b) immunity from legal process of every kind in regard to what they do, say or write in the performance of their official functions,
 - (c) inviolability of all the papers, documents, equipment and samples they carry with them,

*/ These guidelines relate to the activities international inspectors carry out in connection with routine verification in States Parties.

(d) the right to use codes for their communication with the Secretariat and to receive papers or correspondence by courier or in sealed bags from the Secretariat;

(e) multiple entry/exit and/or transit visas and the same treatment in entry and transit formalities as is given to members of comparable rank of diplomatic missions;

(f) the same currency and exchange facilities as are accorded to representatives of foreign Governments on temporary official missions;

(g) the same immunities and facilities in respect to their personal baggage as are accorded to members of comparable rank of diplomatic missions.

2. Privileges and immunities shall be granted to inspectors for the sake of the Convention and not for the personal benefit of the individuals themselves. The Secretariat shall have the right and the duty to waive the immunity of any inspector whenever it is of the opinion that the immunity would impede the course of justice and can be waived without prejudice to the Convention.

3. If any State Party to the Convention considers that there has been an abuse of an above-mentioned privilege or immunity, consultations shall be held between that State and the Secretariat to determine whether such an abuse has occurred and, if so, to ensure that it does not repeat itself.

III. General rules governing inspections and the conduct of inspectors

1. Inspectors shall carry out their functions under the Convention on the basis of the inspection mandate issued by the Technical Secretariat. They shall refrain from activities going beyond this mandate.

2. The activities of inspectors shall be so arranged as to ensure on the one hand the effective discharge of the inspectors' functions and, on the other, the least possible inconvenience to the State concerned and disturbance to the facility or other location inspected. Inspectors shall only request the information and data which are necessary to fulfil their mandate. States Parties shall furnish such information. Inspectors shall not communicate to any State, Organization or person outside the Technical Secretariat any information to which they have access in connection with their activities in a State Party. They shall abide by relevant regulations established within the Technical Secretariat for the protection of confidential information. They shall remain bound by these relevant regulations after they have left their functions as international inspectors.

3. In the performance of their duties on the territory of a State Party, inspectors shall, if the State Party so requests, be accompanied by representatives of this State, provided inspectors are not thereby delayed or otherwise hindered in the exercise of their functions. If a State Party designates the inspectors' point of entry into, and departure from, the State concerned and their routes and modes of travel within the State, it shall be guided by the principle of minimizing the time of travel and any other inconvenience.

4. In exercising their functions, inspectors shall avoid unnecessarily hampering or delaying the operation of a facility or affecting its safety. In particular, inspectors shall not operate any facility or direct the staff of the facility to perform any operation. If inspectors consider that, to fulfil their mandate, particular operations should be carried out in a facility, they shall request the designated representative of the management of the facility to perform them.

5. After the inspection visit, inspectors shall submit to the Technical Secretariat a report on the activities conducted by them and on their findings. The report shall be factual in nature. It shall only contain facts relevant to compliance with the Convention, as provided for under the inspection mandate. Relevant regulations, governing the protection of confidential information, shall be observed. The report shall also provide information as to the manner in which the State Party inspected co-operated with the inspection team. Different views held by inspectors may be attached to the report.

6. The report shall be kept confidential. The National Authority of the State Party shall be informed of the findings of the report. Any written comments, which the State Party may immediately make on these findings shall be annexed to it. Immediately after receiving the report, the Technical Secretariat shall transmit a copy of it to the State Party concerned.

7. Should the report contain uncertainties, or should co-operation between the National Authority and the inspectors not measure up to the standard required, the Technical Secretariat shall approach the State Party for clarification.

8. If the uncertainties cannot be removed or the facts established are of a nature to suggest that obligations undertaken under the Convention have not been met, the Technical Secretariat shall inform the Executive Council without delay.

Attachment (B)Cluster IVModel for an Agreement Relating to Facilities Producing, Processing
or Consuming Chemicals Listed in Schedule [2] */1. Identification of the facility

- (a) Facility identification code
- (b) Name of the facility
- (c) Ownership details of the facility
- (d) Name of the company or enterprise operating the facility
- (e) Exact location of the facility
 - . Location of the complex
 - . Location of the facility within the complex, including the specific building and structure number, if any
 - . Location of support facilities: e.g., research and technical services, laboratories, medical centres, libraries, waste treatment plants
- (g) Exact determination of the area to which inspectors shall have access

2. Information on the facility

This agreement is based on the design information obtained during the initial visit on [date of visit]. Design information should include:

- (a) Data on the production process (type of process: e.g., continuous or batch, type of equipment, the technology employed, process engineering particulars)
- (b) Data on processing with conversion into another chemical (description of the conversion process, process engineering particulars and end-product)
- (c) Data on processing without chemical conversion (process engineering particulars, description of the process and the end-product, concentration in the end-product)
- (d) Data on waste treatment (disposal and/or storage, waste treatment technology, recycling)

*/ This paper relates to agreements which have commonly been named "facility attachments". Further work is needed on this issue.

- (e) Data on safety and health measures at the facility
- (f) Data on clean-up procedures and general overhauls
- (g) Data on feedstocks used in the production or processing of declared chemicals (type and capacity of storage)
- (h) Maps and plans of the facility, including data on infrastructure for transportation (site maps showing, for example, all buildings and functions, pipework, roads, fences, mains electricity, water and gas points, and diagrams indicating the relevant material flow at the designated facility)

2.1. Storage of information

Information to be provided about the facility under paragraph 2 should be kept by the International Authority under lock and key at the facility. (In the event of unresolved ambiguities, the International Authority shall have the right to study such information.)

3. Number, intensity, duration, timing and type of inspections, and number of inspectors in an inspection team

After the initial visit, the number, intensity, duration, timing and type of inspections, and the number of inspectors in an inspection team should be agreed on the basis of guidelines (compare CD/CW/WP.167, page 63, subparagraph 5.ii. and CD/CW/WP.167, Appendix II, page 3).

4. Verification measures and identification of the parts of a facility to be inspected

(a) Identification of the relationship between feedstocks and the quantity of end-products

(b) Identification of key points for measurement (KMP) and sample-taking (STP)

(c) Identification of methods for continuous monitoring and surveillance, e.g.

- . key points for the application of monitoring and surveillance measures
- . installed instruments and devices, seals and markers, methods to check the proper functioning of those instruments, servicing of installed instruments
- . activities to be undertaken by the State Party concerned with a view to providing the conditions necessary for the installation and proper functioning of the devices

(d) Certification of relevant losses within the production process and their implications for key measurement points (KMP)

5. Provisions governing sample-taking, on-site analyses of samples and on-site analysis equipment

(a) Sample-taking (e.g., standardized procedures)

(b) On-site analyses (e.g., provisions concerning on-site/in-house analyses, analytical methods, equipment, precision and accuracy of analyses)

(c) Duplicates and additional samples

6. Records

6.1. Type of records

The records to be examined shall be determined after the initial visit and shall include the following:

(a) Accounting records (for example, discards, retained wastes, shipments of end-products, receipts/shipments)

(b) Operating records

Operating records used to establish the quantity, quality and composition of the end-product. These may include:

. Information on any accident that resulted in a loss/gain of material

. Information on dissolution, evaporation, etc.

(c) Calibration records

Information on the functioning of analytical/monitoring equipment

6.2. Location and language of records

To be determined during the initial visit

6.3. Access to records

To be determined after the initial visit

6.4. Retention period of records

To be determined on the basis of the initial visit

7. Inspection activities

7.1. Mode of routine inspection

To be developed on the basis of the initial visit

7.2. Indication of the scope of the inspection effort in progress in agreed areas under ordinary circumstances

Access to the area to be inspected, including all key points. Activities may comprise:

- (a) Examination of relevant records
- (b) Identification of relevant plant equipment
- (c) Identification and validation of measuring equipment (examination and calibration of measuring equipment; verification of measuring systems using, as appropriate, independent standards)
- (d) Taking of analytical samples
- (e) Verification of chemical inventory records
 - . verification of the operator's inventory-taking for completeness and accuracy
 - . verification of the quantities of feedstocks
- (f) Observation of operations relating to movement of chemical substances in the plant
- (g) Installation, servicing and review of surveillance and monitoring instruments
- (h)

7.3. Specific arrangements for the use of special equipment

As the need arises, specific arrangements for the use of special equipment, as requested

8. Services to be provided by the facility

Point of contact for each type of service, e.g.

- . operator assistance
- . medical and health services

9. Specific facility health and safety rules and regulations to be observed by inspectors

10. Changes, revision and updating of advance information to be provided on the facility

(To be announced in reference to the paragraph on the design information obtained during the initial visit)

11. Interpretation services

Attachment (C)

Article VIII

Co-ordinator's Discussion Paper

1. In view of the significant progress made in the elaboration of the text and annexes of the future CW Convention, it has become possible and necessary to give thorough consideration to the organizational machinery to be established under the Convention. This is what the discussions held so far in Working Group C have borne out.

The following questions will have to be addressed:

(a) How far will the detailed procedures developed in connection with Articles IV, V and VI influence the powers and functions of the main organs and how detailed should they be?

(b) In view of the considerable practical implementation work the main organs will be responsible for, how should they interact with each other and be interconnected?

(c) How can both the stability of the Convention and sufficient dynamism and flexibility to adapt to scientific-technological advances be ensured?

(d) How should the legal framework be defined in which the organs will operate? Should an "International Organization for the Prohibition of Chemical Weapons" be constituted as a legal personality under international law?

It must be attempted to build on the results achieved thus far and to draw on the examples of international organizations set up pursuant to other legal instruments.

(Although treaty language is used in the following, the text given is meant to serve as a basis for the discussion of contents.)

Article VIII

The Organization

A. General Provisions

1. There is hereby established the International Organization for the Prohibition of Chemical Weapons.
2. All States Parties shall ipso facto be members of the Organization.
3. The seat of the Organization shall be ...

Comment: All States Parties to the Convention should be members of the Organization. Thus, no provisions governing application for membership, admittance or expulsion would be necessary.

4. There are hereby established as the main organs of the Organization the General Conference, the Executive Council and the Technical Secretariat.

Comment: At this stage, it appears necessary to decide on the names of the organs. Judged by the tasks to be entrusted to the principal organ to be set up under the Convention, the name "Consultative Committee" does not seem to be appropriate. Besides its function as a forum for consultation among States Parties, the organ should address the most important problems to be solved in connection with the implementation of the Convention. The large membership this organ is bound to have does hardly warrant the term "committee". In contrast to the text contained in WP.167, it seems to be preferable to establish ipso jure the other two main organs at the time the Convention enters into force. Growing out of the Preparatory Commission, the Technical Secretariat should, for example, be able to function in an orderly manner from the first day on.

B. The General Conference

- (a) Composition, procedure and decision-making

Comment: Apart from the need to reflect the outstanding consensus on the decision-making procedure and on how the blank can be filled concerning the number of members necessary to convene an extraordinary session, the existing text of Article VIII. B. does not seem to require major changes. A provision on the first session, a provision corresponding to Article VIII. A. 3., would have to be included in that text.

- (b) Powers and functions

1. The Conference shall be the principal organ of the Organization. The other main organs shall be accountable to the Conference, as specifically provided for in the Convention.
2. The Conference shall oversee the implementation of the Convention, consider any questions or matters relevant to the Convention or the powers and functions of any subsidiary organs, foster consultation and co-operation among

States Parties for the advancement of chemical industry for peaceful purposes, and promote the verification of compliance with this Convention.

3. At its regular sessions, the Conference shall, on the basis of the annual report of the Organization, review the implementation of the Convention and provide a forum for the discussion of any questions raised in relation to the objectives or the implementation of the Convention.

4. In addition, the powers and functions of the Conference shall be:

(a) to consider and approve the annual programme and budget of the Organization, as submitted by the Executive Council;

(b) to encourage international scientific and technical co-operation for peaceful purposes, in the chemical field, as provided for in Article XI;

(c) to review scientific and technological developments which could affect the operation of the Convention, especially in regard to agreed lists;

(d) to elect the members of the Executive Council;

(e) to appoint the Director of the Technical Secretariat [upon the recommendation of the Executive Council];

(f) to establish, as appropriate, such subsidiary organs as it finds necessary for the exercise of its functions in accordance with this Convention;

(g) to adopt the rules of procedure [of the Executive Council, including the method of selecting its Chairman];

(h) to consider and approve the reports of the Executive Council, e.g., reports on challenge inspections and other fact-finding activities, in accordance with Article IX.

(i) ...

Comment: These four articles should describe the functions on the basis of which the principal organ of the Organization should decide the general policies of the Organization. The second paragraph is largely identical to paragraph 1 in part C of Article VIII of the rolling text. The implementation review function has been elaborated further in a new article relating to the consideration of the annual report. That document should incorporate the regular reports which subsidiary organs are required to give on their fields of activity. This would make it possible to assess how the provisions of the Convention and its annexes are implemented and how the organs of the Convention function. The conclusions drawn from that might lead to amendments to the annexes. In view of the detailed procedural provisions included in the annexes, a rather simple way to amend them either at regular or special sessions should be worked out. Owing to the amount of scientific-technological and organizational work entrusted to the Technical Secretariat, especially in consequence of Articles IV, V and VI, detailed prescriptions concerning the utilization of resources should be included in the programme and budget of the Organization. Among other things, the programme and budget should deal with the following issues:

- . receiving, storing and processing the data obtained through declarations, information provision procedures, the plans presented by States Parties and the findings of inspections;
 - . operating the verification system, e.g., the planning and evaluation of inspections, follow-up actions, reporting on the results of inspections;
 - . developing equipment, techniques and specific procedures for monitoring, measurement, containment and surveillance and for supplying the International Inspectorate with the necessary equipment;
 - . recruiting and training inspectors, designating international inspectors, providing administrative support to inspectors, negotiating agreements with States Parties relating to verification activities, and handling personnel, budget and financial planning matters;
 - . co-operating with the national authorities of States Parties and facilitating consultation and co-operation among States Parties;
5. The Conference shall consider at special sessions such issues of primary importance for the objectives or the implementation of the Convention as new fundamental scientific and technological developments, violations of the Convention and amendments to annexes to articles of the Convention.

Comment: Most special powers and functions set out in Article VIII. C. 2 of the rolling text are contained, partially redrafted, in the above provisions. While it is an important function of the Organization to carry out verification activities, such a function can hardly be considered a duty to be performed by one of its policy-making organs. The provision on Review Conferences seems to be in need of further study in the light of the annual review to be undertaken by the General Conference.

C. The Executive Council

(a) Composition, procedure and decision-making

Comment: This chapter needs further in-depth discussion.

(b) Powers and functions

1. The Executive Council shall be the executive organ of the Organization. It shall be responsible to the Conference and have delegated authority to represent the Organization and to oversee the effective implementation of and compliance with the Convention when the Conference is not in session.

Comment: While the powers and functions of the Executive Council are to be formulated in full recognition of its character as a subsidiary organ of the Conference, the expression "delegated authority" seems to be appropriate only in relation to Conference functions exercised by proxy.

2. The Executive Council shall, at the regular sessions of the Conference, report on the exercise of its functions and present such special reports as the Conference may request.

3. In particular, the Executive Council shall:

- (a) supervise and co-ordinate the activities of the Technical Secretariat and the other subsidiary organs, especially the implementation of the annual programme and budget;
- (b) propose to the Conference, as appropriate, the establishment of such subsidiary organs as it finds necessary for the exercise of the functions of the Organization;
- (c) submit to the Conference for approval the proposed annual report and the annual programme and budget of the Organization;
- (d) make recommendations to the Conference concerning any question or matter within the competence of the Organization;
- (e) enter into agreements with the United Nations or other international organizations on behalf of the Organization, subject to approval by the Conference;
- (f) approve agreements, concluded by the Director of the Technical Secretariat with States Parties, relating to verification activities;
- (g) request a special meeting of the Conference;
- (h) obtain, keep and disseminate under established procedures information, submitted by States Parties, pertaining to the Convention;
- (i) consider reports on on-site inspections, submitted by the Director of the Technical Secretariat;
- (j) receive requests for information and clarification regarding compliance with the Convention, including requests for fact-finding, and decide and oversee specific actions to be taken upon such requests;
- (k) ...

Article VIIIProblems and Questions to be Addressed in the Further
Elaboration of the ArticleI. International Organization

1. Should the legal framework, in which the organs will operate, be defined as an independent legal personality under international law?

2. Problems pointed out during the discussion:

Powers to enter into agreements with other international organizations and with States Parties.

Each State Party is an ipso facto member of the Organization.

3. Beside the overall mandate of the Organization to implement the provisions of the Convention, is a detailed description of its objectives necessary?

II. Main organs

1. Should there be a three-layer structure?

. Principal organ

. Executive organ

. Technical organ

2. Should the name of the principal organ be changed from "Consultative Committee" into "General Conference"?

3. How should the powers and functions of the principal organ be defined in order that it may carry out its primary task, which is to determine the Organization's general policies?

III. Review conferences

The regular review of the implementation of the Convention would be undertaken on the basis of the annual report of the Organization. Conclusions to be drawn could be reflected, inter alia, in its annual programme and budget. In the light of this regular review, the issue of holding review conferences at longer intervals will have to be addressed. The objective of such conferences would be a comprehensive assessment of the implementation of every article of the Convention. The principal organ of the Organization would be the appropriate forum for such a conference, thus stressing the role of this body.

IV. Amendments to annexes

The solution to this problem would be to reconcile the two objectives: To provide for the stability of the Convention and to allow practical

experience and new scientific-technological achievements to be reflected in the detailed procedure. The solution of this problem will have to be taken into account in the development of Article VIII.

V. The Executive Council

1. What are the powers and functions this organ needs in order to discharge its important responsibilities? What kind of division of labour should exist between the principal and the executive organ?

2. Should the functions the Executive Council would have in terms of "delegated authority" be those which the principal organ, when in session, would take back from the Executive Council?

Therefore, an exact differentiation between "delegated" and genuine functions would be advisable. On the other hand, besides delegated functions, as provided for under (C) (b) 1., there could be a provision to the effect that the General Conference should be free to delegate other functions to the executive organ.

3. Would the accountability of the Executive Council to the General Conference, the regular and special reports the Executive Council will be required to make to the Conference and its responsibility for implementing the decisions of the Conference correspond to the relationship between a principal and an executive organ?

4. Should the three main organs be established ipso jure on the day the Convention enters into force in order to ensure that they become operational as quickly as possible?

Attachment (D)Cluster IVCo-ordinator's PaperModel Agreements on How to Implement the Verification
Provisions of the Chemical Weapons Convention

A

1. Co-operation among States Parties is the element which will lend stability and viability to a CW Convention. The main organs to be set up pursuant to the future Convention, i.e., the Consultative Committee, the Executive Council and the Technical Secretariat, will function as the principal instruments of co-operation. Agreements between States Parties and the above-mentioned organs on practical aspects of the implementation of verification provisions will provide a high degree of objectivity and ensure that the organs will work smoothly and effectively. Agreements of this type will link the general, binding stipulations of the Convention, including its annexes, with the many facets of the actual and juridical situation prevailing in the various States that are party to the treaty. Those agreements will have to be the result of negotiations between States and representatives of the Technical Secretariat. It has been proposed, therefore, that guidelines be drawn up on which such agreements could be patterned and which have been termed model agreements.

2. The model agreement idea has been derived from IAEA experience. In its activities related to the peaceful use of nuclear energy under a safeguards system, this organization has been relying widely and successfully on legal instruments worked out on the basis of model agreements. For that reason, IAEA experience should be taken into consideration when it comes to implementing the verification régime of a CW Convention. Naturally, full account need to be taken of the differences existing between safeguards in the nuclear field and the verification of a CW Convention. What must be borne in mind is that Articles IV to VI and the relevant annexes of the Convention do not only contain elaborate verification provisions but also specific instructions for their implementation. It would inevitably, lead to unacceptable legal ambiguities if such provisions were duplicated in agreements between States Parties and organs to be set up pursuant to the Convention. Model agreements should be restricted to those aspects of verification which require further concretization in response to the situation prevailing in the country concerned. There are very few subjects left in need of negotiated agreements covering the general relationship between States Parties and organs. Agreements will mostly focus on specific facilities.

3. Drafting and using models for the conclusion of agreements with States Parties would have some important advantages:

(a) There would be a guarantee that such agreements are similar in substance and take into account the diverse juridical and factual conditions

existing in the States in question. All States Parties would be treated in the same manner if a general pattern - a model agreement - were applied.

(b) The process of drawing up and concluding agreements with States Parties could be accelerated significantly. The wording of the agreements would largely be identical and differ only in respect to those points which reflect national and other peculiarities.

(c) Similar agreements on the same subject would allow the Technical Secretariat to standardize its implementation activities. As a result, the Technical Secretariat would operate more efficiently and cut costs.

4. It is advisable to formulate model agreements before the Convention comes into force so that it may be made easier for the organs which will be established on the basis of that treaty to perform their duties in the initial phase. In that drafting process, the legal status of those model agreements will have to be clarified. They are, in fact, devices to facilitate the conclusion of agreements. They will have to be endorsed by the main organs and, if necessary, amended to match practical experience and evolving verification techniques.

5. In the following, this paper seeks to describe what model agreements could deal with. The approach chosen is a three-tier one:

(a) Agreements concerning verification activities in general.

(b) Agreements on activities arising from Articles IV, V and VI of the Convention - subsidiary arrangements.

(c) Agreements relating to concrete facilities - facility attachments.

Since the text of the pertinent annexes of the Convention is similar in many respects, the models for subsidiary arrangements and facility attachments will show many common traits. In view of the fact that model agreements are supposed to be working devices, repetitions and redundancy in the various versions attached should be regarded as acceptable means to provide a clear-cut blueprint for each individual case.

B

Code	Reference*	Subject Matter
		I. Agreement concerning verification activities
I.1		International inspectors
1.1	App. II, II, P. 4	Privileges and immunities
1.1.1	App. II, 1.(d)	Means of communication between inspectors and the Technical Secretariat

Code	Reference */	Subject Matter
1.1.2	App. II, 1.(e)	Currency and exchange facilities
1.1.3	App. II, 1.(f)	Personal baggage
1.2.1		Liability for damage inflicted on international inspectors during their verification activities on the territory of the State party concerned Applicability of international law
1.2.2		Liability for damage caused by inspectors in the performance of their verification activities on the territory of the State party concerned Applicability of international law
2	Art. VII	National Authority
2.1		Minimum requirements for the national control and accounting system
2.2	Art. VII, Para. 3	Information to the Consultative Committee about the National Authority (name, location, postal address, structure and functions) Information to the Consultative Committee about other legislative and administrative measures taken to implement the Convention
2.3	Art. VII, Para. 4	Agreed co-operative measures to be resorted to in solving organizational and technical issues; training of national inspectors, training of international inspectors, measures concerning the national chemicals accounting and control system
I	Art. VII, Para. 4	Designation of reference laboratories and agreement on the services to be provided by them
II. Agreements on Special Subjects		
II.1		<u>CW stocks and CW destruction facilities</u>
1.1	Annex to Art. IV, VI.7.(c), (d), P. 40	Instruments brought by inspectors, and examination and testing of those instruments by the State party concerned

Code	Reference*	Subject Matter
1.2	Annex to Art. IV, VI.7.(c)	Means and methods to transport samples for off-site analysis to laboratories designated by the Technical Secretariat
1.3	Annex Art. IV, VI.7.(f), P. 41	Measures to protect highly sensitive information
1.4	App. II, III.3, P. 5, Annex to Art. IV, VI.7.(b), P. 40	Administrative arrangements concerning the inspectors' points of entry into and departure from the State concerned, their routes and modes of travel, the locations of their stay, their living and working conditions
II.2		<u>Storage facility attachments</u>
2.1		Identification of the facility (name, geographical location, reference to relevant declarations)
2.2	Annex to Art. IV, VI. 3. (a), P. 36	Number of inspections per annum Number of inspectors in an inspection team Duration of an inspection Detailed methods and procedures, e.g., use of seals, markers, monitoring devices or other inventory control procedures and the places of their application, the control and servicing of seals, markers and devices by international inspectors, and the activities to be undertaken by the State party concerned with a view to providing the conditions necessary for the proper functioning of the devices
2.5	Annex Art. IV, VI.3.(b), P. 37	Time frame in which the aforesaid procedures are to be completed
2.6	Annex to Art. IV, VI.6.(c), P. 40	Procedure to adjust the monitoring system to cases where only a portion of CWs is removed from the storage facility for destruction
2.7	Annex to Art. IV, VI.7.(c)	Provisions governing access to storage facilities, methods of sample-taking and on-site analysis of samples, in harmony with relevant safety regulations

Code	Reference*	Subject Matter
II.3	Annex to Art. IV, V.3. P. 35	<u>Destruction facility attachments</u>
3.1		Identification of the facility (name, geographical location, reference to relevant declarations and destruction plans)
3.2	Art. IV.6.	Time spans of continuous presence of international inspectors and the number of inspectors in a team
3.3	Annex to Art. IV, V.4	Access to a destruction facility for engineering review purposes prior to the active destruction phase
3.4	Annex to Art. IV, V.5., 6.	Control measures during the destruction period, e.g., determination of strategic points for monitoring and measurement, use of monitoring devices, their numbers, places of application, the control and servicing of those devices by international inspectors, and the activities to be under- taken by the State Party concerned with a view to providing the conditions necessary for the proper functioning of the devices
II.4		<u>CW production facilities</u>
4.1	Annex to Art. V, V.8.(c),(g), P. 53	Instruments brought by inspectors, and examination and testing of such instruments by the State party concerned
4.2	Annex to Art. V, V.8.(f), P. 54	Measures to protect highly sensitive information
4.3	App. II, III.2., P.5, Annex to Art. V, V.8.(b), P. 53	Administrative arrangements concerning the inspectors' points of entry into and departure from the State concerned, their routes and modes of travel, the locations of their stay, their living and working conditions
II.5	Annex to Art. V, V.2., P. 48	<u>CW production facility attachments</u>
5.1		Identification of the facility (name, geographical location, reference to relevant declaration and plans)

Code	Reference*	Subject Matter
5.2	Annex to Art. V, V.3.(b), P. 48, V.4., P. 49	Measures for <u>closure</u> of the facility
5.3	Annex to Art. V, V.5.(b)	Procedures for systematic monitoring
5.4	Annex to Art. V, V.5.(e)	Installation and periodical checks of the proper functioning of the monitoring system, of the seals, markers, ancillary equipment and of transmission systems to be used, as well as of their strategic points of application
5.5	Annex to Art. V, V.5.(f), P. 50	On-site inspections and visits to verify the correct functioning of the monitoring system, to service the devices of that system Activities to be undertaken by the State Party concerned with a view to providing the conditions necessary for the proper functioning of the devices
5.6	Annex to Art. V, V.8.(e), P. 53,	<u>Elimination</u> of a CW production facility Provisions governing the inspectors' access to all parts of a CW production facility Harmonization of their activities with relevant safety regulations
5.7	Annex to Art. V, V.6.(d), P. 51	Time spans of continuous presence of international inspectors and the number of inspections in a team according to the combined plans for elimination and verification
II.6		<u>Facilities declared under Article VI</u>
6.1		Instruments brought by inspectors, and examination and testing of those instruments by the State party concerned
6.2	Annex to Art. VI[2], 14, P. 65	Means and methods to transport samples for off-site analysis to laboratories designated by the Technical Secretariat
6.3	Annex to Art. VI[2], 15, P. 65	Measures to protect highly sensitive information

Code	Reference*	Subject Matter
6.4	App. II, III.2, P. 5	Administrative arrangements concerning the inspectors' points of entry into and departure from the State concerned, their routes and modes of travel, the locations of their stay, their living and working conditions
II.7	Annex to Art. VI[1], 5, P. 57	<u>Single small-scale production facility attachments</u>
7.1		Identification of the facility (name, geographical location, reference to relevant declarations and information)
7.2	Annex to Art. VI[1], 5.(vi) and (iii)	Procedures for systematic inspection, including the number, intensity, duration, timing and type of inspections, as well as the number of inspectors in an inspection team Use of seals, markers, monitoring devices and the places of their application, the control and servicing of seals, markers and devices by international inspectors, and the activities the State party concerned is required to carry out with a view to providing the conditions necessary for the proper functioning of the devices. Provisions governing access to the facility, methods of sample-taking and on-site analysis of samples, in harmony with relevant safety regulations Time frame in which the above-mentioned procedures are to be completed
II.8	Annex to Art. VI, 11, P. 64	<u>Attachment relating to facilities producing, processing or consuming chemicals listed in Schedule [2]</u>
8.1		Identification of the facility (name, owner, operator, geographical location, postal address, reference to relevant declarations and information)
8.2	Annex to Art. VI[2], 5.(ii), P. 63	Number, intensity, duration, timing and type of inspections, and number of inspectors in an inspection team

Code	Reference*	Subject Matter
8.3	Annex to Art. VI[2], 13, P. 65	Identification of the parts of a facility to be inspected Seals, markers and monitoring devices to be used and the places of their application Methods to control those devices, and the activities to be undertaken by the State Party concerned with a view to providing the conditions necessary for the proper functioning of the devices
8.5	Annex to Art. VI[2], 15, P. 14	Provisions governing access to the facility, methods of sample-taking and on-site analysis of samples, in harmony with relevant safety regulations Required up-dated information to be furnished to an inspection team upon its arrival at the facility
8.7		Specification of analytical equipment available at the facility or at analytical facilities elsewhere
8.8		Time frame in which the above-mentioned procedures are to be completed
II.9		<u>Attachment relative to facilities producing supertoxic lethal chemicals not included in Schedule [1] and not prohibited under the CW Convention</u> (To be worked out along the lines of the text of II.8)

Note

*/ The references relate to CD/CW/WP.167. Quotations are usually taken from Appendix I. Any reference to Appendix II is marked as such. Most of the items not carrying any reference are based on provisions pertaining to other parts of the Annex.

Ad Hoc Committee on Chemical Weapons

BRAZIL

Convention on Chemical Weapons

Aspects related to Economic and Technological Development

1. The banning of the development, production and stockpiling of chemical weapons by means of an internationally binding instrument would represent a major achievement in the process of disarmament and, by the same token, a significant contribution to the strengthening of international peace and security. In the light of the important and manifold links between disarmament and security, on the one side, and economic development, on the other, a Convention on chemical weapons should necessarily include provisions related to the unfettered development of chemical industry for peaceful purposes, with due attention to the needs of the developing areas of the world.

2. The Convention should do so basically in two different ways.
(I) Firstly, in a negative way, by assuring that none of its provisions will be interpreted or implemented so as to hamper the development of chemical industry for peaceful purposes in any country whatsoever. (II) Secondly, in a positive way, by including specific provisions intended to promote development goals.

(I)

3. As regards the need for precluding interference with areas of activity unrelated to the purpose of banning chemical weapons -- a point which has already been dealt with by some delegations -- the Convention should expressly state that all of its provisions are to be interpreted and implemented so as to avoid hampering the economic and technological development of States Parties, and this on a universal and non-discriminatory basis. To this effect, and without prejudice to the inclusion of paragraph 8 in Article VI as registered in document CD/CW/WP.167, it is desirable that Article XI (Economic and Technological Development) include a separate paragraph which would read as follows:

"Nothing in this Convention shall be interpreted as establishing any discrimination between States Parties as regards their duties, obligations and responsibilities under the Convention, as well as their right to the development of chemical technology and industry for peaceful purposes".

4. Accordingly, and allowing for the particular relevance of the matter -- which is to be considered as one that ranks among the basic principles governing the twin purposes of disarmament and development -- the following words should be added to the seventh preambular paragraph:

"on a universal and non-discriminatory basis".

The whole paragraph would then read as follows:

"Considering that the achievements in the field of chemistry should be used exclusively for the benefit of mankind, on a universal and non-discriminatory basis,"

(II)

5. With regard to the promotion of development goals, as it has already been stressed by some delegations, the Convention should include inter alia undertakings concerning:

(a) The promotion of, and the right to participate in, the fullest possible exchange of chemicals, equipment and information relating to all activities involved in the functioning of a chemical industry for peaceful purposes, on a universal and non-discriminatory basis.

(b) International co-operation to foster the development of chemical industry for peaceful purposes and the transfer of technology in this domain, with due consideration for the needs of the developing countries. In this respect, the Convention should recognize the right to have access to world-wide technological achievements in the field of chemistry, as well as the need for effective measures designed to meet the specific needs of States whose chemical industries are still in an early stage of development.

(c) Verification of compliance with the aforementioned provisions.

6. Such undertakings would reflect a most legitimate concern over the important role of chemical industry in development and the complementarity between disarmament and development.

7 August 1987

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

Report of the Co-ordinator on Issues pertaining to Chemical Weapons Stocks

(Cluster I)

1. In accordance with the programme of work of the Ad Hoc Committee on Chemical Weapons, the periods 15-19 June and 3-7 August 1987 were devoted to the consideration of the following issues:

- Principles and order of destruction of chemical weapons (Section III of Annex to Article IV);
- Problems posed by discovered old chemical weapons;
- Problems of jurisdiction and control in Article IV and its Annex;
- Principles and methods for the verification of the destruction of chemical weapons (Section V of Annex to Article IV); and
- Past transfers.

2. Six meetings with full services, as well as ten informal open-ended consultations, were held under the Chairmanship of the Co-ordinator on Cluster I.

3. The discussions on these issues were based on document CD/CW/WP.167, as well as on discussion papers prepared by the Co-ordinator, and other proposals made by delegations.

4. The results of the work undertaken on the following issues are attached hereto:

- (a) Past transfers (Attachment A).
- (b) Discovered old chemical weapons (Attachment B).
- (c) Principles and methods of the verification of the destruction of chemical weapons (Section V of Annex to Article IV) (Attachment C).

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Attachment (A)

PAST TRANSFERS

1. Dates

The following should be reflected in the Rolling Text:

- Article III: add [26 March 1975] at the end of 1.a(iii).
- Article IV: insert [26 March 1975] after [1 January 1946] in paragraph 2.c.

2. Remove the following footnote wherever it may appear in the Annexes to Article III and Article IV of the Rolling Text:

"The view was expressed that past transfers should not be included in the Convention."

Attachment (B)

Proposal by the Co-ordinator

Annex to Article IV, Section VII

Discovered old chemical weapons */

1. The present section applies to discoveries of chemical weapons which are not a part of the chemical weapons stock of any State Party and which, during or after past military conflicts, notably the two World Wars, were:

- (a) lost on battlefields (unexploded ordnances),
- (b) abandoned or disposed of at sea or on land and the origin of which is identified.

Such chemical weapons are hereafter referred to as "old chemical weapons".

2. A State Party that discovers such old chemical weapons shall notify the International Authority within ... days of such discovery. It shall give preliminary information on type(s), quantity, age, condition and the origin of the chemical weapons discovered as well as give a summary description of the circumstances, including location, of the discovery. As soon as possible, the State Party shall submit updated and detailed information concerning the discovered old chemical weapons. In the event that the discovery was made before the entry into force and that the weapons have not yet been destroyed, the detailed information shall be given within 30 days after the entry into force.

3. The International Authority shall review, if necessary through appropriate verification procedures, this detailed information, including the origin, aggregate quantity of chemicals and the condition of the chemical weapons, notably to what extent the munitions or devices could still be used as chemical weapons and/or whether the chemicals could still be extracted and used for the production of chemical weapons. For old chemical weapons discovered under the sea, the possibility of access and/or safe retrieval shall be examined by the International Authority.

4. States Parties shall be informed by the International Authority of the conclusion of this review, including whether or not the discovered old chemical weapons still [are to be considered as chemical weapons under the Convention] [pose any risks to the objective of the Convention]. If the conclusion is positive, and provided access to the discovered old chemical weapons and their safe retrieval prove to be possible, they will be stored and destroyed in accordance with Article IV and its Annex. An appropriate

*/ Some delegations reserved their position on the approach taken on this issue as reflected in this paper.

timetable of implementation might have to be agreed to for old chemical weapons discovered after the entry into force. For discoveries of small quantities (in aggregated chemicals) safe transport might have to be organized by the State Party concerned as provided for in paragraph 6, with the knowledge of the International Authority, to another State Party possessing a suitable destruction facility.

5. A State Party which possesses information about old chemical weapons, possibly abandoned anywhere by it, shall communicate such information to the International Authority not later than 30 days after the entry into force of the Convention for it, or the discovery of the information.

6. In the event that, if so confirmed by the International Authority in its review, old chemical weapons were abandoned on a territory, that was under the jurisdiction or under the control of that State when it abandoned the chemical weapons, the discovering State Party shall have the right to request the State Party which has abandoned the chemical weapons to destroy them. The requested State Party shall destroy the abandoned chemical weapons. If the discovering State Party opts not to use this right, it shall destroy the chemical weapons, following the conclusion of the review as referred to in paragraph 4.

7. In the event that the origin of the discovered old chemical weapons cannot be identified, the International Authority shall render assistance, if so requested, to the discovering State Party to destroy them. 1/

1/ The view has been expressed that the International Authority should not have any implementing role in the destruction of chemical weapons.

Attachment (C)

Proposal by the Coordinator

Annex to Article IV (Section V)

V. PRINCIPLES AND METHODS FOR THE VERIFICATION OF THE DESTRUCTION
OF CHEMICAL WEAPONS */

1. The aim of verification of destruction of chemical weapons shall be:

- to confirm the identity and quantity of the chemical weapons stocks to be destroyed, and
- to confirm that these stocks for all practical purposes have been destroyed.

2. Review of detailed plans for the destruction of chemical weapons

(a) On the basis of the detailed plan for destruction and proposed measures for verification submitted by the State Party, and as the case may be, on experience from previous inspections and on the relevant agreement(s) on subsidiary arrangements, the Technical Secretariat shall prepare before each destruction period, a plan for verifying the destruction of chemical weapons, consulting closely with the State Party. Any differences between the Technical Secretariat and the State Party should be resolved through consultations. Any unresolved matters shall be forwarded to the Executive Council 1/ for appropriate action with a view to facilitating the full implementation of the Convention.

(b) The agreed combined detailed plans for destruction and verification plans, with an appropriate recommendation by the Technical Secretariat, will be forwarded to the members of the Executive Council for review. The members of the Executive Council shall review the plans with a view to approving them, consistent with verification objectives. This review is designed to determine that the destruction of chemical weapons, as planned, is consistent with the obligations under the Convention and the objective of destroying the chemical weapons. It should also confirm that verification schemes for destruction are consistent with verification objectives, and are efficient and workable. This review should be completed [60] days before the destruction period.

(c) Each member of the Executive Council may consult with the Technical Secretariat on any issues regarding the adequacy of the combined plan for destruction and verification. If there are no objections by any members of the Executive Council, the plan shall be put into action.

*/ This section is at a very early stage of elaboration. Further work is needed on it.

1/ The role of the Executive Council in the review process will need to be reviewed in the light of its composition and decision-making process.

(d) If there are any difficulties, the Executive Council shall enter into consultations with the State Party to reconcile them. If any difficulties remain unresolved they should be referred to the Consultative Committee.

(e) Destruction and verification should proceed according to the agreed plan as referred to above. The verification should not unduly interfere with the destruction process.

(f) If required verification or destruction actions are not taken as planned, all States Parties should be so informed (procedures to be developed).

3. After a review the detailed plans of destruction of chemical weapons, the Technical Secretariat, if the need arises, will enter into consultation with the State Party concerned in order to ensure the facility is designed to assure destruction of chemical weapons, to allow advanced planning on how verification measures may be applied and to ensure that the application of verification measures is consistent with proper facility operation, and that the facility operation allows appropriate verification.

4. Agreements on subsidiary arrangements

For each destruction facility, States Parties should conclude with the International Authority detailed agreements on subsidiary arrangements for the systematic verification of destruction of chemical weapons. Such agreements shall be based on a Model Agreement and shall specify for each destruction facility the detailed on-site inspection procedures and arrangements for the removal of chemical weapons from facilities' storages, the transport to their destruction and the monitoring of their destruction by on-site instruments, taking into account the specific characteristics of each facility and its mode of operation. The Model Agreement shall include provisions to take into account the need for maintenance and modifications.

5. International inspectors will be granted access to chemical weapons destruction facilities prior to commencement of active destruction phases for the purpose of carrying out an engineering review of the facility, to include the facilities' construction and layout, the equipment and instruments for measuring and controlling the destruction process, and the checking and testing of the accuracy of the verification equipment.

6. Systematic international on-site verification of destruction of chemical weapons

(a) The inspectors will be granted access to conduct their activities at the facility and the facility storage during the entire active phase of destruction. They will conduct their activities in the presence and with the co-operation of representatives of the facility's management and the National Authority if they wish to be present.

(b) The inspectors may monitor by either physical observation or devices:

- (i) the facility storage and the chemical weapons present;
- (ii) the movement of chemical weapons from the storage to the facility;

(iii) the process of destruction (assuring that no chemical weapons are diverted);

(iv) the material balance (to be elaborated further); and

(v) the accuracy and calibration of the instruments.

(c) To the extent consistent with verification needs, verification procedures should make use of information from routine facility operations.

(d) After the completion of each period of destruction, the Technical Secretariat shall certify the declaration of the National Authority, reporting the completion of destruction of the designated quantity of chemical weapons.

7. Inspections

(a) The International Authority shall notify the State Party 48 hours prior to the planned arrival of the inspection team at the facility for the purpose of systematic on-site verification of destruction of chemical weapons, engineering review of the facility. In the event of inspections to resolve urgent problems, this period may be shortened. The International Authority shall specify the purpose(s) of the inspection.

(b) A State Party shall make any necessary preparation for the arrival of the Inspectors and shall ensure their expeditious transportation from their point of entry on the territory of the State Party to the destruction facility. The agreement on subsidiary arrangements will specify administrative arrangements for Inspectors.

(c) International Inspectors shall, in accordance with agreements on subsidiary arrangements:

- have unimpeded access to all parts of the destruction facilities, including facilities' storages, any munitions, devices, bulk containers, or other containers therein. While conducting their activity, Inspectors shall comply with the safety regulations at the facility. The items to be inspected will be chosen by the Inspectors;

- bring with them and use such agreed instruments as may be necessary for the completion of their tasks;

- receive samples taken at their request from any devices and bulk containers and other containers at the facility. Such samples will be taken by representatives of the State Party in the presence of the Inspectors;

- perform on-site analysis of samples;

- transfer, if necessary, samples for analysis off-site at a laboratory designated by the International Authority, in accordance with agreed procedures;

- afford the opportunity to the Host State Party to be present when samples are analysed;

- ensure, in accordance with procedures (to be developed), that samples transported, stored and processed are not tampered with;

- communicate freely with the International Authority.

(d) The State Party receiving the inspection shall, in accordance with agreed procedures:

- have the right to accompany the International Inspectors at all times during the inspection and observe all their verification activities at the destruction facility, including the facility's storage;

- have the right to retain duplicates of all samples taken and be present when samples are analysed;

- have the right to inspect any instrument used or installed by the International Inspectors and to have it tested in the presence of its personnel;

- provide assistance to the International Inspectors, upon their request, for the installation of seals or monitoring devices and the analysis of samples on-site;

- receive copies of the reports on inspections of its destruction facility(ies);

- receive copies, at its request, of the information and data gathered about its destruction facility(ies) by the International Authority.

(e) If Inspectors detect irregularities which may give rise to doubts they will report the irregularities to the representatives of the facility and the National Authority and request that the situation be resolved. Uncorrected irregularities will be reported to the Executive Council.

(f) After each inspection to the destruction facility, International Inspectors shall submit a report with their findings to the International Authority which will transmit a copy of this report to the State Party having received the inspection. Information (to be designated) received during the inspection shall be treated as confidential (procedures to be developed).

8. Chemical weapons destruction facilities' storages

Section VI of Annex IV shall apply to the facilities' storages.

Ad Hoc Committee on Chemical Weapons

Report of the Co-ordinator on
Issues pertaining to Chemical Weapons Stocks

(Cluster I)

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- Past transfers.

2. Six meetings with full services, as well as ten informal open-ended consultations, were held under the Chairmanship of the Co-ordinator on Cluster I.

3. The discussions on these issues were based on document CD/CW/WP.167, as well as on discussion papers prepared by the Co-ordinator, and other proposals made by delegations.

4. The results of the work undertaken on the following issues are attached hereto:

(a) Past transfers (Attachment A).

(b) Discovered old chemical weapons (Attachment B).

(c) Principles and methods of the verification of the destruction of chemical weapons (Section V of Annex to Article IV) (Attachment C).

GE.87-63136

Attachment (A)

PAST TRANSFERS

1. Dates

The following should be reflected in the Rolling Text:

- Article III: add [26 March 1975] at the end of 1.a(iii).
- Article IV: insert [26 March 1975] after [1 January 1946] in paragraph 2.c.

2. Remove the following footnote wherever it may appear in the Annexes to Article III and Article IV of the Rolling Text:

"The view was expressed that past transfers should not be included in the Convention."

Attachment (B)

Annex to Article IV, Section VII

Discovered old chemical weapons

During the consultations, two approaches were identified. They are shown below as (I) and (II):

(I)

1. The present section applies to discoveries of chemical weapons which are not a part of the chemical weapons stock of any State Party and which, during or after past military conflicts, notably the two World Wars, were:

- (a) lost on battlefields (unexploded ordnances),
- (b) abandoned or disposed of at sea or on land and the origin of which is identified.

Such chemical weapons are hereafter referred to as "old chemical weapons".

2. A State Party that discovers such old chemical weapons shall notify the International Authority within ... days of such discovery. It shall give preliminary information on type(s), quantity, age, condition and the origin of the chemical weapons discovered as well as give a summary description of the circumstances, including location, of the discovery. As soon as possible, the State Party shall submit updated and detailed information concerning the discovered old chemical weapons. In the event that the discovery was made before the entry into force and that the weapons have not yet been destroyed, the detailed information shall be given within 30 days after the entry into force.

3. The International Authority shall review, if necessary through appropriate verification procedures, this detailed information, including the origin, aggregate quantity of chemicals and the condition of the chemical weapons, notably to what extent the munitions or devices could still be used as chemical weapons and/or whether the chemicals could still be extracted and used for the production of chemical weapons. For old chemical weapons discovered under the sea, the possibility of access and/or safe retrieval shall be examined by the International Authority.

4. States Parties shall be informed by the International Authority of the conclusion of this review, including whether or not the discovered old chemical weapons still [are to be considered as chemical weapons under the Convention] [pose any risks to the objective of the Convention]. If the conclusion is positive, and provided access to the discovered old chemical weapons and their safe retrieval prove to be possible, they will be stored and destroyed in accordance with Article IV and its Annex. An appropriate

timetable of implementation might have to be agreed to for old chemical weapons discovered after the entry into force. For discoveries of small quantities (in aggregated chemicals) safe transport might have to be organized by the State Party concerned as provided for in paragraph 6, with the knowledge of the International Authority, to another State Party possessing a suitable destruction facility.

5. A State Party which possesses information about old chemical weapons, possibly abandoned anywhere by it, shall communicate such information to the International Authority not later than 30 days after the entry into force of the Convention for it, or the discovery of the information.

6. In the event that, if so confirmed by the International Authority in its review, old chemical weapons were abandoned on a territory, that was under the jurisdiction or under the control of that State when it abandoned the chemical weapons, the discovering State Party shall have the right to request the State Party which has abandoned the chemical weapons to destroy them. The requested State Party shall destroy the abandoned chemical weapons. If the discovering State Party opts not to use this right, it shall destroy the chemical weapons, following the conclusion of the review as referred to in paragraph 4.

7. In the event that the origin of the discovered old chemical weapons cannot be identified, the International Authority shall render assistance, if so requested, to the discovering State Party to destroy them. 1/

(II)

1. A State Party discovering old chemical weapons shall notify the (International Authority) of it promptly, not later than [...] days after the discovery. It shall describe the quantity, type, condition of the discovered old chemical weapons, their location, and give a summary description of the circumstances of the discovery.

2. As soon as possible, the State Party shall submit a declaration concerning these discovered old chemical weapons, such as referred to in Section I of the present Annex. It shall also submit plans for their destruction.

3. While remaining fully responsible under this Convention (Article I) for the destruction of chemical weapons which are in its possession or under its [jurisdiction or] control, irrespective of their age or mode of acquisition, a State Party may request the International Authority to assist in the organisation of international co-operation for the destruction of discovered old chemical weapons.

1/ The view has been expressed that the International Authority should not have any implementing role in the destruction of chemical weapons.

Attachment (C)Proposal by the CoordinatorAnnex to Article IV (Section V)V. PRINCIPLES AND METHODS FOR THE VERIFICATION OF THE DESTRUCTION
OF CHEMICAL WEAPONS */

1. The aim of verification of destruction of chemical weapons shall be:
 - to confirm the identity and quantity of the chemical weapons stocks to be destroyed, and
 - to confirm that these stocks for all practical purposes have been destroyed.

2. Review of detailed plans for the destruction of chemical weapons

(a) On the basis of the detailed plan for destruction and proposed measures for verification submitted by the State Party, and as the case may be, on experience from previous inspections and on the relevant agreement(s) on subsidiary arrangements, the Technical Secretariat shall prepare before each destruction period, a plan for verifying the destruction of chemical weapons, consulting closely with the State Party. Any differences between the Technical Secretariat and the State Party should be resolved through consultations. Any unresolved matters shall be forwarded to the Executive Council 1/ for appropriate action with a view to facilitating the full implementation of the Convention.

(b) The agreed combined detailed plans for destruction and verification plans, with an appropriate recommendation by the Technical Secretariat, will be forwarded to the members of the Executive Council for review. The members of the Executive Council shall review the plans with a view to approving them, consistent with verification objectives. This review is designed to determine that the destruction of chemical weapons, as planned, is consistent with the obligations under the Convention and the objective of destroying the chemical weapons. It should also confirm that verification schemes for destruction are consistent with verification objectives, and are efficient and workable. This review should be completed [60] days before the destruction period.

(c) Each member of the Executive Council may consult with the Technical Secretariat on any issues regarding the adequacy of the combined plan for destruction and verification. If there are no objections by any members of the Executive Council, the plan shall be put into action.

*/ This section is at a very early stage of elaboration. Further work is needed on it.

1/ The role of the Executive Council in the review process will need to be reviewed in the light of its composition and decision-making process.

(d) If there are any difficulties, the Executive Council shall enter into consultations with the State Party to reconcile them. If any difficulties remain unresolved they should be referred to the Consultative Committee.

(e) Destruction and verification should proceed according to the agreed plan as referred to above. The verification should not unduly interfere with the destruction process.

(f) If required verification or destruction actions are not taken as planned, all States Parties should be so informed (procedures to be developed).

3. After a review the detailed plans of destruction of chemical weapons, the Technical Secretariat, if the need arises, will enter into consultation with the State Party concerned in order to ensure the facility is designed to assure destruction of chemical weapons, to allow advanced planning on how verification measures may be applied and to ensure that the application of verification measures is consistent with proper facility operation, and that the facility operation allows appropriate verification.

4. Agreements on subsidiary arrangements

For each destruction facility, States Parties should conclude with the International Authority detailed agreements on subsidiary arrangements for the systematic verification of destruction of chemical weapons. Such agreements shall be based on a Model Agreement and shall specify for each destruction facility the detailed on-site inspection procedures and arrangements for the removal of chemical weapons from facilities' storages, the transport to their destruction and the monitoring of their destruction by on-site instruments, taking into account the specific characteristics of each facility and its mode of operation. The Model Agreement shall include provisions to take into account the need for maintenance and modifications.

5. International inspectors will be granted access to chemical weapons destruction facilities prior to commencement of active destruction phases for the purpose of carrying out an engineering review of the facility, to include the facilities' construction and layout, the equipment and instruments for measuring and controlling the destruction process, and the checking and testing of the accuracy of the verification equipment.

6. Systematic international on-site verification of destruction of chemical weapons

(a) The inspectors will be granted access to conduct their activities at the facility and the facility storage during the entire active phase of destruction. They will conduct their activities in the presence and with the co-operation of representatives of the facility's management and the National Authority if they wish to be present.

(b) The inspectors may monitor by either physical observation or devices:

- (i) the facility storage and the chemical weapons present;
- (ii) the movement of chemical weapons from the storage to the facility;

(iii) the process of destruction (assuring that no chemical weapons are diverted);

(iv) the material balance (to be elaborated further); and

(v) the accuracy and calibration of the instruments.

(c) To the extent consistent with verification needs, verification procedures should make use of information from routine facility operations.

(d) After the completion of each period of destruction, the Technical Secretariat shall certify the declaration of the National Authority, reporting the completion of destruction of the designated quantity of chemical weapons.

7. Inspections

(a) The International Authority shall notify the State Party 48 hours prior to the planned arrival of the inspection team at the facility for the purpose of systematic on-site verification of destruction of chemical weapons, engineering review of the facility. In the event of inspections to resolve urgent problems, this period may be shortened. The International Authority shall specify the purpose(s) of the inspection.

(b) A State Party shall make any necessary preparation for the arrival of the Inspectors and shall ensure their expeditious transportation from their point of entry on the territory of the State Party to the destruction facility. The agreement on subsidiary arrangements will specify administrative arrangements for Inspectors.

(c) International Inspectors shall, in accordance with agreements on subsidiary arrangements:

- have unimpeded access to all parts of the destruction facilities, including facilities' storages, any munitions, devices, bulk containers, or other containers therein. While conducting their activity, Inspectors shall comply with the safety regulations at the facility. The items to be inspected will be chosen by the Inspectors;

- bring with them and use such agreed instruments as may be necessary for the completion of their tasks;

- receive samples taken at their request from any devices and bulk containers and other containers at the facility. Such samples will be taken by representatives of the State Party in the presence of the Inspectors;

- perform on-site analysis of samples;

- transfer, if necessary, samples for analysis off-site at a laboratory designated by the International Authority, in accordance with agreed procedures;

- afford the opportunity to the Host State Party to be present when samples are analysed;

- ensure, in accordance with procedures (to be developed), that samples transported, stored and processed are not tampered with;

- communicate freely with the International Authority.

(d) The State Party receiving the inspection shall, in accordance with agreed procedures:

- have the right to accompany the International Inspectors at all times during the inspection and observe all their verification activities at the destruction facility, including the facility's storage;

- have the right to retain duplicates of all samples taken and be present when samples are analysed;

- have the right to inspect any instrument used or installed by the International Inspectors and to have it tested in the presence of its personnel;

- provide assistance to the International Inspectors, upon their request, for the installation of seals or monitoring devices and the analysis of samples on-site;

- receive copies of the reports on inspections of its destruction facility(ies);

- receive copies, at its request, of the information and data gathered about its destruction facility(ies) by the International Authority.

(e) If Inspectors detect irregularities which may give rise to doubts they will report the irregularities to the representatives of the facility and the National Authority and request that the situation be resolved. Uncorrected irregularities will be reported to the Executive Council.

(f) After each inspection to the destruction facility, International Inspectors shall submit a report with their findings to the International Authority which will transmit a copy of this report to the State Party having received the inspection. Information (to be designated) received during the inspection shall be treated as confidential (procedures to be developed).

8. Chemical weapons destruction facilities' storages

Section VI of Annex IV shall apply to the facilities' storages.

Ad Hoc Committee on Chemical Weapons

CANADA

Identification of Chemical Substances

1. In CD/679, it was demonstrated that the Chemical Abstracts Service registry number was an unambiguous method of identifying a chemical substance. Since a chemical weapons convention will have to deal with a large number of chemical substances, it was proposed that the Chemical Abstracts Service registry numbers be used to identify those chemicals of concern to the future Chemical Weapons Convention.
2. This paper provides updated data for those chemicals in the provisional lists for Schedule 1 and Schedule 2 of Annex VI of the rolling text, with the inclusion of registry numbers. These revised schedules could be used to replace those found in CD/734 and CD/CW/WP.167.

ANNEX VI [1]
SCHEDULE [1]

PROVISIONAL LIST

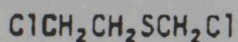
1. O-Alkyl alkylphosphonofluoridates
e.g. Sarin: O-isopropyl methylphosphonofluoridate [107-44-8]
Soman: O-pinacolyl methylphosphonofluoridate [96-64-0]
2. O-Alkyl N,N-dialkylphosphoramidocyanidates
e.g. Tabun: O-ethyl N,N-dimethylphosphoramidocyanidate [77-81-6]
3. O-Alkyl S-2-dialkylaminoethylalkylphosphonothiolates
e.g. VX: O-ethyl S-2-diisopropylaminoethylmethylphosphonothiolate
[50782-69-9]
4. Sulphur mustards:
e.g. Mustard gas (H): bis(2-chloroethyl)sulphide [505-60-2]
Sesquimustard (Q): 1,2-bis(2-chloroethylthio)ethane
[3563-36-8]
O-Mustard (T): bis(2-chloroethylthioethyl) ether
[63918-29-8]
5. Lewisites
Lewisite 1: 2-chlorovinyl dichloroarsine [541-25-3]
Lewisite 2: bis(2-chlorovinyl)chloroarsine [40334-69-8]
Lewisite 3: tris(2-chlorovinyl)arsine [40334-70-1]
6. Nitrogen mustards
HN1: bis(2-chloroethyl)ethylamine [538-07-8]
HN2: bis(2-chloroethyl)methylamine [51-75-2]
HN3: tris(2-chloroethyl)amine [555-77-1]
7. 3-Quinuclidinyl benzilate (BZ) [6581-06-2]
8. Alkylphosphonyldifluorides
e.g. DF [676-99-3]
9. Ethyl O-2-diisopropylaminoethyl alkylphosphonites
e.g. QL [57856-11-8]

To be discussed further

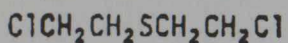
1. Saxitoxin
2. 3,3-Dimethylbutan-2-ol (pinacolyl alcohol)
3. CS
4. CR
5. Chloro Sarin
Chloro Soman
6. Sulphur Mustards: to include compounds listed below.

Sulphur Mustards: to include

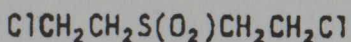
2-Chloroethylchloromethylsulphide



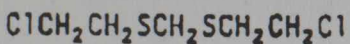
Bis(2-chloroethyl)sulphide (Mustard)



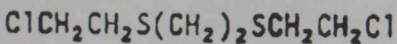
Bis(2-chloroethyl)sulphone



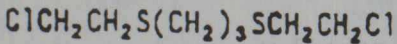
2-Chloroethylthiomethyl-2'-chloroethylsulphide



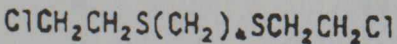
2-Chloroethylthioethyl-2'-chloroethylsulphide



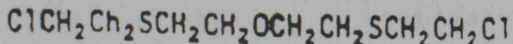
2-Chloroethylthiopropyl-2'-chloroethylsulphide



2-Chloroethylthiobutyl-2'-chloroethylsulphide



Bis(2-Chloroethylthioethyl)ether



ANNEX VI [2]
SCHEDULE [2]

PROVISIONAL LIST

1. Chemicals containing one P-Methyl, P-Ethyl, or P-Propyl (normal or iso) bond.
2. N,N-Dialkylphosphoramidic Dihalides
e.g. N,N-Dimethylphosphoramidic dichloride [677-43-0]
3. Dialkyl N,N-Dialkylphosphoramidates
e.g. Dimethyl N,N-dimethylphosphoramidate [597-07-9]
4. Arsenic trichloride [7784-34-1]
5. 2,2-Diphenyl-2-hydroxyacetic acid [76-93-7]
6. Quinuclidin-3-ol [1619-34-7]
7. N,N-Diisopropylaminoethyl-2-chloride [96-79-7]
8. N,N-Diisopropylaminoethan-2-ol [96-80-0]
9. N,N-Diisopropylaminoethane-2-thiol [5842-07-9]

 TO BE DISCUSSED FURTHER

(1) The following compounds:

Bis(2-hydroxyethyl)sulphide (thiodiglycol)

3,3-Dimethylbutan-2-ol (Pinacoly alcohol)

(2) Expanded groups for compounds 5, 6, 7, 8 and 9, as follows:

(No. 5): 2-phenyl-2-(phenyl, cyclohexyl, cyclopentyl or cyclobutyl)-2-hydroxyacetic acids and their methyl, ethyl, n-propyl and iso-propyl esters

(No. 6): 3- or 4-hydroxypiperidine and their [derivatives] and [analogs].

(Nos. 7,8,9): N,N-Disubstituted Aminoethyl-2-Halides
N,N-Disubstituted Aminoethan-2-ols
N,N-Disubstituted Aminoethane-2-thiols

CD/CW/WP.179

Draft Report of the Ad Hoc
Committee on Chemical Weapons
to the Conference on Disarm-
ament

14.7.87

NOT REPRODUCED

CONFERENCE ON DISARMAMENT

CD/CW/WP.180
19 August 1987

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

JAPAN

COMMENTS ON THE "GUIDELINES FOR SCHEDULE [1]" (CD/CW/WP.179 APPENDIX II)

1. Guidelines will be an important element of the Chemical Weapons Convention régime in considering the addition of new chemicals/deletion of existing chemicals from a schedule.
2. They need to be flexible yet precise in singling out a particular chemical for inclusion/deletion from the schedule, as a substance of particular relevance to chemical weapons.
3. A possible approach may be through a possible "pattern-recognition" system whereby a combination of factors together would point towards either inclusion or deletion.
4. As a matter of style, since the Convention régime is for controlling chemical weapons, not super toxic lethal chemicals in particular, it would be better to organize the "guidelines" as follows:

"The following guidelines, singly or in combination, might be relevant in considering whether a chemical should be included in Schedule [1], as one of particular relevance to chemical weapons.

1. Chemicals which have been stockpiled as chemical weapons.
2. Chemicals which pose a particular risk of potential use as chemical weapons.
3. Chemicals which have little or no use except as chemical weapons.
4. Chemicals which possess physical and chemical properties enabling them to be used as chemical weapons.
5. Chemicals with chemical structure related/similar to those chemicals already listed in Schedule 1.
6. (no change)
- 7.-9. (delete)
- 10.-11. (no change)".

Finland

CD/CW/WP.181

Air Monitoring as a Means for
the Verification of Chemical
Disarmament

Also issued as
CD/785
25 Aug. 1987

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(see WP volume)

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