

CONFERENCE ON DISARMAMENT

CHEMICAL WEAPONS

WORKING PAPERS OF THE
Ad Hoc COMMITTEE ON CHEMICAL WEAPONS 1992

CD/CW/WP
VOLUME
1

Dept. of Foreign Affairs
Min. des Affaires étrangères

DEC 24 2004

Return to Departmental Library
Retourner à la bibliothèque du Ministère

COMPILED AND EDITED BY:
ARMS CONTROL AND DISARMAMENT DIVISION OF
EXTERNAL AFFAIRS AND INTERNATIONAL TRADE CANADA
OTTAWA, CANADA

NOVEMBER 1993

CONFERENCE ON DISARMAMENT

CHEMICAL WEAPONS

WORKING PAPERS OF THE
Ad Hoc COMMITTEE ON CHEMICAL WEAPONS 1992

VOLUME 1

This volume covers working papers tabled in the Ad Hoc Committee on Chemical Weapons (ACCW) during its 1992 sessions from 29 January 1992 to 26 August 1992. The volume is compiled to facilitate discussions and research on the issue of Chemical Weapons.

Not all numbered working papers in the ACCW have been reproduced here. Some papers were also tabled as plenary and given a chapter. These can be found in the appropriate annual volumes for plenary official documents (WI). Other papers were of such a procedural nature that they

CD/CW/WP

VOLUME

1

Volume 1 includes CD/CW/WP.101 to CD/CW/WP.401; Volume 2 CD/CW/WP.402 to CD/CW/WP.801; Volume 3 CD/CW/WP.802 to CD/CW/WP.1201.

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

COMPILED AND EDITED BY:
ARMS CONTROL AND DISARMAMENT DIVISION OF
EXTERNAL AFFAIRS AND INTERNATIONAL TRADE CANADA
OTTAWA, CANADA

NOVEMBER 1993

Chemical Weapons Working Papers
 Submitted to AHCCW of the CB 1992
 Chronological Index

1992

VOLUME 1

Serial	Reference	Country	Description	Date
553.1	CD/CW/ WP.379	AHCCW	Final Report of the Ad Hoc PREFACE Committee on Chemical CD/CW/WP Weapons to the Conference on its work during the period 30 Sep- VOLUME 1 1991 to 20 January 1992	20.1.92

This volume covers working papers tabled in the Ad Hoc Committee on Chemical Weapons (AHCCW) during its 1992 sessions from 20 January 1992 to 26 August 1992. The volume is compiled to facilitate discussions and research on the issue of Chemical Weapons.

Not all numbered working papers from the AHCCW have been reproduced here. Some papers were also tabled in plenary and given a CD/number. These can be found in the appropriate 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.

555.2 Volume 1 includes CD/CW/WP.379 to CD/WP/WP.401; Volume 2 CD/CW/WP.402 to CD/CW/WP.441.

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

WP.383 and Add.1			Weapons (CW) destruction safety and environmental requirements	
557	CD/1127 and Corr.1	China	Some information on dis- covered chemical weapons abandoned in China by a foreign state (also issued as CD/CW/WP.384 and Corr.1)	18.2.92
558	CD/1128	Austra- lia	Trial inspection of a Schedule 1/other relevant facility (also issued as CD/CW/WP.385)	20.2.92

**Chemical Weapons Working Papers
Submitted to AHCCW of the CD 1992
Chronological Index**

1992

VOLUME 1

Serial	Reference	Country	Description	Date
553.1	CD/CW/ WP.379	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its work during the period 30 September 1991 to 20 January 1992 (Not Reproduced)	20.1.92
554.1	CD/CW/ WP.380	AHCCW Chairman	Working paper presented by the Chairman of the Ad Hoc Committee: Organization of work for the 1992 session (Not Reproduced)	23.1.92
555.1	CD/CW/ WP.381	USA	A report on the United States chemical weapons (CW) destruction experience at Rocky Mountain Arsenal, Colorado	14.2.92
555.2	CD/CW/ WP.382	USA	Johnston Atoll Chemical Agent Disposal System (JACADS)	14.2.92
555.3	CD/CW/ WP.383 and Add.1	USA	United States Chemical Weapons (CW) destruction safety and environmental requirements	14.2.92
557	CD/1127 and Corr.1	China	Some information on discovered chemical weapons abandoned in China by a foreign state (also issued as CD/CW/WP.384 and Corr.1)	18.2.92
558	CD/1128	Austra- lia	Trial inspection of a Schedule 3/other relevant facility (also issued as CD/CW/WP.385)	20.2.92

Serial	Reference	Country	Description	Date
559	CD/1129	Australia	Australian national secretariat: Survey of chemical industry (also issued as CD/CW/WP.386)	20.2.92
560	CD/1130	China	Principled position and proposals on the issue of abandoned chemical weapons (also issued as CD/CW/WP.387)	20.2.92
563	CD/1135	Hungary	Provision of data relevant to the Chemical Weapons Convention (also issued as CD/CW/WP.388)	24.2.92
564	CD/1136	Czech and Slovak Federal Republic	Protection against chemical weapons (data bank of available basic means) (also issued as CD/CW/WP.389)	27.2.92
566	CD/1141	France	Provision of data relevant to the Chemical Weapons Convention (also issued as CD/CW/WP.390)	3.3.92
567.1	CD/CW/WP.391	AHCCW Chairman	Article IX: Procedure for challenge inspections	12.3.92
568	CD/1146	Poland	Solid-phase extraction as a possible way of chemical warfare agents sampling for their analysis in laboratories under the Chemical Weapons Convention (also issued as CD/CW/WP.392)	17.3.92
568.1	CD/CW/WP.393	Islamic Republic of Iran	Verification of the chemical industry under Article VI and its Annexes	26.3.92

Serial	Reference	Country	Description	Date
568.2	CD/CW/ WP.394	AHCCW Chairman	Chairman's tentative out- line of work until the end of June 1992 (Not reproduced)	3.4.92
568.3	CD/CW/ WP.395	AHCCW Chairman	Protocol on inspection procedures: Part III - Challenge inspections conducted pursuant to Article IX	30.4.92
568.4	CD/CW/ WP.396	Austria	The selection of gas chromatographic phase systems for verification analysis	30.4.92
568.5	CD/CW/ WP.397	Austria	Old chemical weapons: description of a long-term storage facility under safe conditions	5.5.92
568.6	CD/CW/ WP.398	Austra- lia, Belgium, Canada, France, Germany, Italy, Japan, Nether- lands, UK, USA	Other relevant facilities	13.5.92
568.7	CD/CW/ WP.399	Germany	Cooperation of signatory states with the Prepara- tory Commission	18.5.92
568.8	CD/CW/ WP.400	AHCCW Chairman	Working paper for the final phase of the negoti- ations on the Chemical Weapons Convention	18.5.92
568.9	CD/CW/ WP.400 and Corr.1	AHCCW Chairman	Working paper for the final phase of the negoti- ations on the Chemical Weapons Convention	25.5.92
568.10	CD/CW/ WP.401	Switzer- land and Sweden	Anatomy of a chemical plant site	29.5.92

VOLUME 2

Serial	Reference	Country	Description	Date
568.11	CD/CW/ WP.402	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	The preamble	4.6.92
568.12	CD/CW/ WP.403	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Article I: General provi- sions on scope	4.6.92

Serial	Reference	Country	Description	Date
568.13	CD/CW/ WP.404	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Article II: Definitions and criteria	4.6.92
568.14	CD/CW/ WP.405	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Abandoned chemical weapons (proposed amendments to CD/CW/WP.400)	4.6.92
569	CD/1151	Spain	Report on a trial chal- lenge inspection (also issued as CD/CW/WP.410)	5.6.92

Serial	Reference	Country	Description	Date
568.15	CD/CW/ WP.406	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Article VI: Activities not prohibited under the Con- vention	4.6.92
568.16	CD/CW/ WP.407	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Guidelines for schedules of chemicals	4.6.92

Serial	Reference	Country	Description	Date
568.17	CD/CW/ WP.408	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Article IX: Consultations, cooperation and fact-find- ing	4.6.92
568.18	CD/CW/ WP.409	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Article XI: Economic and technological development	4.6.92
569	CD/1152	Spain	Report on a trial chal- lenge inspection (also issued as CD/CW/WP.410)	5.6.92

Serial	Reference	Country	Description	Date
569.1	CD/CW/ WP.411	Cuba	Aspects and principles of a system for funding the budget of the future Organization for the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction	5.6.92
570	CD/1153	Norway	Letter dated 11 June 1992 from the Charge d'affaires a.i. of Norway addressed to the President of the Conference on Disarmament, transmitting a research report, entitled 'Verification of a Chemical Weapons Convention: recommended operating procedures for sampling and sample handling, Part XI' (also issued as CD/CW/WP.412)	11.6.92
570.1	CD/CW/ WP.413	AHCCW Chairman	Tentative outline of work until the end of this year's session of the Conference on Disarmament (3 September 1992) (Not Reproduced)	15.6.92
571.1	CD/CW/ WP.400/ Rev.1	AHCCW Chairman	Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Not reproduced)	22.6.92
572.1	CD/CW/ WP.414	AHCCW Chairman	Explanatory note on the draft Chemical Weapons Convention contained in document CD/CW/WP.400/Rev.1	26.6.92

Serial	Reference	Country	Description	Date
572.2	CD/CW/ WP.415	Algeria, China, Egypt, India, Indone- sia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Preliminary comments on the Chairman's draft (CD/CW/WP.400/Rev.1)	26.6.92
573.1	CD/CW/ WP.416	Cuba	Basic considerations con- cerning the functions, general structure and qualifications of the staff of the Technical Secretariat and the Advis- ory Board of the new in- ternational organization to be established to ensure compliance with the provisions of the Conven- tion on the Prohibition of the Development, Produc- tion, Stockpiling and Use of Chemical Weapons and on their Destruction	22.7.92

Serial	Reference	Country	Description	Date
573.2	CD/CW/ WP.417	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Proposed joint amendments to CD/CW/WP.400/Rev.1	24.7.92
573.3	CD/CW/ WP.418	Algeria, China, Egypt, India, Indo- nesia, Islamic Republic of Iran, Kenya, Mexico, Myanmar, Paki- stan, Sri Lanka and Zaire	Proposed additional amend- ment to Article II	27.7.92
573.4	CD/CW/ WP.419	Russian Federation	Proposed amendments to CD/CW/WP.400/Rev.1	27.7.92
573.5	CD/CW/ WP.420	Cuba	Proposed amendments to CD/CW/WP.400/Rev.1	27.7.92
573.6	CD/CW/ WP.421	Peru	Proposed amendments to CD/CW/WP.400/Rev.1	27.7.92

Serial	Reference	Country	Description	Date
573.7	CD/CW/ WP.422	Austria	Results of a trial identification of 'capable facilities' in Austria	4.8.92
573.8	CD/CW/ WP.423	Austria	Proposal for the identification of 'capable facilities' within the framework of the Chemical Weapons Convention	4.8.92
573.9	CD/CW/ WP.424	Islamic Republic of Iran	Ethanolamines	4.8.92
573.10	CD/CW/ WP.425	Islamic Republic of Iran	Definition of chemical weapons	4.8.92
574	CD/1161	USA	Letter dated 3 August 1992 from the Representative of the United States of America addressed to the President of the Conference on Disarmament transmitting the Agreement between the Department of Defense of the United States of America and the President's Committee on Conventional Problems of Chemical and Biological Weapons of the Russian Federation of the Russian Federation concerning the Safe, Secure and Ecologically Sound Destruction of Chemical Weapons (also issued as CD/CW/WP.426)	5.8.92
574.1	CD/CW/ WP.427	AHCCW Chairman	Amendments to CD/CW/WP.400/Rev.1	7.8.92

Serial	Reference	Country	Description	Date
574.2	CD/CW/ WP.400/ Rev.2	AHCCW Chairman	Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Not reproduced)	10.8.92
578	CD/1168	UK	Letter dated 12 August 1992 from the Representative of the United Kingdom of Great Britain and Northern Ireland addressed to the Secretary-General of the Conference on Disarmament transmitting a paper which addressed the requirements for safety during the on-site inspections provided for under the Chemical Weapons Convention (also issued as CD/CW/WP.428)	13.8.92
578.1	CD/CW/ WP.429	Netherlands	Workshop on chemical weapons for potential inspectors to the Organization for the Prohibition of Chemical Weapons (OPCW), Rijswijk, The Netherlands (16-24 June 1992)	14.8.92
578.2	CD/CW/ WP.430	Netherlands	Verification of non-production of chemical warfare agents	14.8.92
578.3	CD/CW/ WP.431	Mexico	Working paper containing the statement of the delegation of Mexico at the meeting of the Ad Hoc Committee on Chemical Weapons to consider document CD/CW/WP.400/Rev.2	21.8.92

Serial	Reference	Country	Description	Date
578.4	CD/CW/ WP.432	Cuba	Comments on the draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, as contained in document CD/CW/WP.400/Rev.1	21.8.92
578.5	CD/CW/ WP.433	Pakistan	Statement by Ambassador Ahmad Kamal, Permanent Representative of Pakistan, before the Ad Hoc Committee on Chemical Weapons on 21 August 1992	21.8.92
578.6	CD/CW/ WP.434	Egypt	Statement of H.E. Ambassador Dr. Mounir Zahran, Permanent representative of Egypt, before the Ad Hoc Committee on Chemical weapons of the Conference on Disarmament on 21 August 1992	21.8.92
578.7	CD/CW/ WP.435	Islamic Republic of Iran	Statement by H.E. Ambassador Sirous Nasserri on the position of the Islamic Republic of Iran on the Chemical Weapons Draft Convention at the Ad Hoc Committee of Chemical Weapons on 21 August 1992	21.8.92
578.8	CD/CW/ WP.436	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament (Not Reproduced)	24.8.92
574.1	CD/CW/ WP.400 Rev.1	AHCCW	Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Not Reproduced)	10.8.92

Serial	Reference	Country	Description	Date
579	CD/1169	Norway	Letter dated 24 August 1992 from the Representative of Norway addressed to the Secretary-General of the Conference on Disarmament, transmitting a report entitled 'Transport of samples containing chemical warfare agents by air' (also issued as CD/CW/WP.437)	24.8.92
579.1	CD/CW/ WP.438	USA	Statement made by Ambassador Stephen J. Ledogar of the United States of America at the Ad Hoc Committee on Chemical Weapons on 24 August 1992	24.8.92
580.1	CD/CW/ WP.439	Ethiopia	Statement made by the representative of Ethiopia at the Ad Hoc Committee on Chemical Weapons on 26 August 1992	26.8.92
580.2	CD/CW/ WP.440	Peru	Statement made by the Representative of Peru at the Ad Hoc Committee on 26 August 1992	26.8.92
580.3	CD/CW/ WP.441	France	Statement made by Ambassador Gerard Errera of France at the Ad Hoc Committee on 26 August 1992	26.8.92

* * *

The following documents of the AHCCW, which do not contain any substantive material or are draft reports, are not reproduced but are listed here for identification:

Serial	Reference	Country	Description	Date
553.1	CD/CW/ WP.379	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its work during the period 30 September 1991 to 20 January 1992 (Not Reproduced)	20.1.92
554.1	CD/CW/ WP.380	AHCCW Chairman	Working paper presented by the Chairman of the Ad Hoc Committee: Organization of work for the 1992 session (Not Reproduced)	23.1.92
568.2	CD/CW/ WP.394	AHCCW Chairman	Chairman's tentative outline of work until the end of June 1992 (Not reproduced)	3.4.92
570.1	CD/CW/ WP.413	AHCCW Chairman	Tentative outline of work until the end of this year's session of the Conference on Disarmament (3 September 1992) (Not Reproduced)	15.6.92
571.1	CD/CW/ WP.400/ Rev.1	AHCCW Chairman	Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Not reproduced)	22.6.92
574.2	CD/CW/ WP.400 Rev.2	AHCCW	Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Not Reproduced)	10.8.92

Serial	Reference	Country	Description	Date
578.8	CD/CW/ WP.436	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament (Not Reproduced)	24.8.92
553.1	CD/CW/ WP.436	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its work during the period 30 Sep- tember 1991 to 30 January 1992 (Not Reproduced)	23.1.92
554.1	CD/CW/ WP.436	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its work during the period 30 Sep- tember 1992 to 30 January 1993 (Not Reproduced)	23.1.92
558.2	CD/CW/ WP.436	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its work during the period 30 Sep- tember 1993 to 30 January 1994 (Not Reproduced)	23.1.92
570.1	CD/CW/ WP.436	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its work during the period 30 Sep- tember 1994 to 30 January 1995 (Not Reproduced)	23.1.92
571.1	CD/CW/ WP.436	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its work during the period 30 Sep- tember 1995 to 30 January 1996 (Not Reproduced)	23.1.92
574.2	CD/CW/ WP.436	AHCCW	Draft Report of the Ad Hoc Committee on Chemical Weapons to the Conference on Disarmament on its work during the period 30 Sep- tember 1996 to 30 January 1997 (Not Reproduced)	23.1.92

AHCCW CD/CW/WP.379 Draft Report of the Ad Hoc 20.1.92
Committee on Chemical
Weapons to the Conference
on Disarmament on its work
during the period 30 Sep-
tember 1991 to 20 January
1992

NOT REPRODUCED

* * *

AHCCW CD/CW/WP.380 Working paper presented by 23.1.92
Chair- the Chairman of the Ad Hoc
man Committee: Organization of
work for the 1992 session

NOT REPRODUCED

* * *

CONFERENCE ON DISARMAMENT

CD/CW/WP.381
14 February 1992

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

UNITED STATES OF AMERICA

A Report on the U.S. Chemical Weapons (CW) Destruction Experience at Rocky Mountain Arsenal, Colorado

(Presented at the meeting of the Technical Experts on CW
Destruction, Geneva, 7-11 October 1991)

1. Introduction

The U.S. has been actively destroying CW in industrial scale facilities designed to meet applicable safety and environmental standards since 1972. Rocky Mountain Arsenal (RMA), which is located adjacent to Denver, Colorado, was the site of the first industrial scale CW destruction facility built in the U.S. RMA engaged in three CW destruction programs from 1972 through 1983.

2. General Overview

Three CW destruction programs were conducted at RMA:

(1) Project Eagle Phase I was conducted from August 1972 through February 1974 and destroyed 2,586 metric tonnes of the blister agent Mustard (H/HD) and 3,407 ton containers;

(2) Project Eagle Phase II (Expanded) was conducted from October 1973 through October 1976 and destroyed 3,714 metric tonnes of nerve agent Sarin (GB), as well as 2,422 ton containers, 59,996 M139 Bomblets contained in 106 Honest John Warheads and 21,114 M34 Cluster Bombs, each containing 76 GB-filled M125 bomblets; and

(3) Chemical Agent Identification Set (CAIS) Disposal Program was conducted from May 1981 through December 1982 and destroyed 17 metric tonnes of chemical agents contained in 21,458 CAIS's. Chemical agents destroyed included HD, GB Lewisite (L), Cyanogen Chloride (CK) and Phosgene (CG).

Incineration was used to destroy the Mustard in Project Eagle Phase I because approximately 3,000 tonnes of Mustard had been previously incinerated at RMA. The Army did not have comparable GB

incineration experience at that time and therefore adopted chemical neutralization for use during Project Eagle Phase II, based upon laboratory and pilot plant studies as well as on limited, but successful application during field disposal operations. Incineration was used to destroy the chemical agents during the CAIS Disposal Program because it minimized handling, could safely destroy all the chemical agents and packing material, and generated relatively small quantities of a more environmentally acceptable waste than did chemical neutralization.

3. Project Eagle Phase I

The disposal process consisted of four primary steps: (1) ton container preheating and draining; (2) agent incineration and ton container thermal decontamination; (3) incinerator emission control; and (4) waste treatment and disposal. The ton containers were placed in a heated thaw room to ensure the agent was heated well above its melting point. The agent was vacuum drained through the 2.54 cm inside diameter eduction tubes which were connected to the valves on the ton containers. The residual heel in the ton containers averaged 45 kilo-grams for HD-filled ton containers and 272 kilograms for H-filled ton containers. The drained mustard was incinerated in a horizontal liquid incinerator that had formerly been used to incinerate hydrazine. The incinerator operated at approximately 1,300°C; it did not have a separately fired afterburner but used the long residence time provided by a brick lined manifold between the combustion chamber and the Pollution Abatement System (PAS) to ensure complete destruction of the mustard. The drained ton containers were thermally decontaminated in one of two pedestal hearth furnaces operated at approximately 490°C. Two holes were punched in each ton container before it was placed in the furnace; an air sparge was inserted in each punch hole to facilitate residue incineration. Each furnace averaged seven ton containers per day. The incinerators used a common PAS consisting of two parallel caustic quench and packed bed scrubber towers, a single five-stage electrostatic precipitator (ESP) (to remove the iron oxide), an induced draft fan and a stack. All liquids generated by the destruction process were dried to a salt, using a spray dryer scrubber. A total of 6,480 metric tonnes of salt, ash and electrostatic precipitator residue were packaged in drums and placed in an approved landfill. The decontaminated ton containers were sold as scrap.

4. Project Eagle Phase II (Expanded)

a. The destruction of the M34 cluster bombs was the original objective of Phase II. The project was "expanded" in 1973 to include bulk GB contained in five underground storage tanks, GE-filled ton containers, and Honest John rocket warheads containing M139 bombs.

b. The disposal process varied depending on the source of the chemical agent due to the different requirements for munition disassembly, agent draining, explosives destruction and metal parts decontamination. However, the same chemical agent destruction process was used in all cases. In the process, aqueous sodium hydroxide was combined with the GB in a mixing tee, or "eductor." The brine formed in the eductor was then transferred to one of two 13 cubic meter stirred reactors. Each reactor was charged with approximately 11 cubic meters of brine solution. The brine solution was continuously stirred while being recirculated through the reactors until the neutralization reaction was completed. Heat was removed from the reactors by circulating water through external cooling jackets. Sampling stations were provided for testing to ensure that all the GB had been destroyed. The brine was then divided using the spray dryers and the resulting salt was packaged and shipped to an approved landfill.

c. M34 Cluster Bombs. The M125 bomblets were removed from the M34 cluster bombs using a programmed manipulator called a versatran. They were then placed in a staking machine to render the fuze safe. The bomblets were then punched and the agent was allowed to drain into a collection tank. The drained bomblets were then weighed to verify the quantity of residual agent, transferred through a caustic dip tank to remove the residual agent and then sheared to expose the explosive burster prior to being fed to the deactivation furnace. A rotary kiln deactivation furnace was used to incinerate all explosive components contained in the drained M-125 bomblets. A blast attenuation duct was used to protect the PAS in the event a detonation occurred in the deactivation furnace. The metal parts were discharged to a conveyor which transferred them to the decontamination furnace. An endless woven steel conveyor was used to transport the bomblets through the decontamination furnace.

d. Underground Storage Tanks. The equipment and procedures for neutralizing the GB from the underground storage tanks were essentially those utilized for the GB from the M34 Cluster Bombs. The primary modification was the addition of a dual filter bank to remove any solids in the GB pumped from the underground-storage tanks. The drained tanks were left in place and are scheduled for eventual clean-up and destruction.

e. Ton Containers. Ton containers were vacuum drained through eduction tubes in a manner similar to that used for the Mustard-filled ton containers. After being drained, they were delivered to a wash booth where they were filled with aqueous caustic to neutralize the residual GB in the ton container. The resulting brine was then drained and the external surfaces of the ton containers were decontaminated with clean caustic solution. The pedestal hearth furnaces used for Phase I were used to thermally decontaminate the ton containers.

f. Honest John Warheads. Each Warhead was manually stripped of its vapor-proof bag, nose cone, burster charges and inert parts.

The M139 bomblets were then removed by hand and placed on the punch and drain machine conveyor. The inert parts were transferred to the decontamination furnace. The bomblets were punched by one of two parallel machines and the GB was allowed to drain from the bomblets into a collection tank. The drained bomblets were rinsed with water and transferred to the rotary kiln deactivation furnace where the explosives decomposed. The kiln was similar to the one used for the M125 bomblets, but operated at a lower temperature and a longer residence time (316°C for 30 minutes as compared to 677°C for 12 minutes). The bomblets were discharged onto conveyors which delivered them to the decontamination furnace. The decontamination furnace was different than the one used for the M34 Cluster Bombs and was used to thermally treat all the components and packing material of the Honest John warhead. The decontamination furnace consisted of two compartments: (1) the melting compartment which was operated at 816°C and was used to melt the aluminum bodies of the M139 bomblets; and (2) the holding compartment which was operated in excess of 650°C and was equipped with a pouring spout which was periodically opened to allow the molten aluminum to flow into molds. The decontamination furnace was also used to pyrolyze the silicone and plastic components of the warhead, as well as thermally decontaminate warhead components made of ferrous alloy.

g. Problems were experienced initially with GB emissions from the spray dryer in excess of the allowable stack concentration (ASC) of 0.0003 mg/m³. The stack analyses were performed with the enzymatic detection method and it was not certain if the problem was purely analytical in nature or if GB was actually being emitted from the spray dryer. An intensive study was performed which concluded that: (1) no GB was in the brine although it was possible for minuscule amounts to be encapsulated or occluded in degradation products, rust or scale; (2) GB could be reformed in minuscule quantities when the brine was being extracted for analysis under acidic conditions (ph 4.5) used in the analytical procedures; (3) GB could be reformed in minute quantities from the brine during drying when the proper pH (less than 6.5) and heat conditions were met; and (4) minute quantities of GB could be formed from the salts under acidic conditions (pH less than 6.5). It should be stressed that the GB emissions were very low and at no time were the work area or general population limits (0.0001 mg/m³ and 0.000003 mg/m³ respectively) exceeded. Based on the results of these studies the following changes were adopted which minimized the occasions when GB emissions exceeded the ASC: (1) switching the spray dryer fuel from fuel oil to natural gas which had less acidic combustion products; (2) reducing the dryer temperature to 370°C; and (3) reducing the brine feed rate to 45 liters per hour.

h. Unlike Phase I, not all liquids generated during Phase II were dried to a salt; at least a portion of the washdown water/decontamination solution was discharged to a collection pond known as Basin F. The GB neutralization brine generated 9,752 metric tonnes of salt which was packaged into drums and placed in an approved landfill. The furnace ash was also drummed and placed in a landfill. The thermally decontaminated metal and aluminum

ingots were sold as scrap.

5. CAIS Disposal Program

There were 18 different set configurations grouped into seven types. The sets contained from one to five different chemical agents and some sets contained chemical agent simulants or non-lethal riot control compounds such as chloroacetophenone (CN) or Adamsite. These compounds were adsorbed on plastic pellets, adsorbed in charcoal, in chloroform solutions or were in pure form; all configurations were in glass ampules or bottles. Because the chemical agents could not be readily separated, the contents of a set were incinerated simultaneously. This concept of incinerating multiple chemical agents (albeit in small quantities) marks the CAIS Disposal Program as unique among the U.S. CW destruction programs. Except for one set type, all CAIS sets were fed to a rotary kiln deactivation furnace for destruction; disassembly was required for some of the sets before being fed to the kiln. The kiln was the same one used during the Honest John warhead disposal program, except that a separately fired afterburner operating at 900°C and a two second gas residence time was added to ensure complete agent destruction. The Honest John decontamination furnace was used to process the one set type which was too large to be processed by the deactivation furnace and was also used to thermally decontaminate the empty steel cylinders known as "pigs" which were used to overpack many of the sets. The PAS for the furnaces consisted of a quench chamber, a five-stage ESP, two parallel packed bed scrubber towers, an induced draft fan and a stack. All liquids generated during the CAIS disposal program were dried to a salt using a spray dryer. Approximately 237 metric tonnes of salt, 75 metric tonnes of furnace residue and 17 tonnes of ESP residue were generated, packed into drums and placed in an approved landfill. The salt and ESP residue were classified as hazardous wastes under the U.S. Resource Conservation and Recovery Act (RCRA) because of high arsenic and cadmium concentrations.

CONFERENCE ON DISARMAMENT

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

UNITED STATES OF AMERICA

Johnston Atoll Chemical Agent Disposal System (JACADS)

(Presented at the meeting of the Technical Experts on CW
Destruction, Geneva, 7-11 October 1991)

1. Introduction

The Johnston Atoll Chemical Agent Destruction System, known as JACADS, is the first full-scale destruction plant. At JACADS, the U.S. Army will safely destroy the various chemical munitions and bulk agent containers stored at JACADS. The types of chemical munitions which will be destroyed at JACADS are shown at Table 1.

2. Facility and Process Design

a. The JACADS process involves separating the explosives and agent from the munitions and then incinerating the various components. The main demilitarization operations take place in a two story structure designed to provide multiple levels of containment. When munitions are processed that contain both agent and explosives, all work, such as removing explosives or opening the agent cavity of rockets or land mines, is performed inside of the explosives containment room. This room, which is constructed of steel reinforced concrete, provides total containment from the effects of an unlikely detonation of the munition being processed. Total containment means no release of vapor, fragments or blast pressure. The remainder of the plant, where agent-filled projectiles and bulk containers are transferred for agent draining and preparation for feeding into the furnaces, is provided with vapor containment.

b. The route the items follow in the plant is dependant on the munition type being processed. Munition disassembly and draining of chemical agent is accomplished on the second level. The incinerator, three furnaces, and control systems are located on the first level of the building. Bulk items such as bombs and ton containers by-pass the explosive containment room and are conveyed directly to the munitions processing room for agent draining. The drained agent is collected in tanks on the first level and from there the agent is fed to a liquid incinerator. The liquid

incinerator is designed to destroy the various agents by combustion at high temperatures. The drained items are then processed through the metal parts furnace, which is used to thermally decontaminate the metal casings.

c. The projectiles have explosive charges which are removed in the explosives containment room. These explosives are then fed to the deactivation furnace which is designed to incinerate all of explosive material contained in the various munition types. The projectiles (with explosives removed) are then processed in a manner similar to that used for the bulk items. The agent is then drained and destroyed in the liquid incinerator and the munition casings are thermally decontaminated in the metal parts furnace.

d. In the case of rockets and mines, the agent is first removed by puncturing and draining the agent cavity. Rockets are then cut into several pieces and fed directly to the deactivation furnace. For mines, components of the explosive charge are separated and the mine and its explosives are fed directly to the deactivation furnace. All of these operations take place in the explosives containment room. The drained agent is destroyed in the liquids incinerator.

e. The third furnace is the dunnage incinerator which is used to burn wooden shipping material, storage boxes, and pallets. The incinerators and furnaces have pollution abatement systems designed to clean the furnace exhaust gases prior to release into the environment. Three of the furnace pollution abatement systems use wet scrubbers. The scrubbers produce a brine solution which is transferred to a brine drying area where the water is evaporated. The resulting solid salts are disposed of in a land fill.

3. Program Cost and Schedule

a. Construction of the JACADS facility started in October 1985 and extended through April 1989. During this time, a contractor prepared the site; constructed a munitions demilitarization building, a laboratory, a worker change house (termed a personnel support complex), several small support structures; and, finally, utility connections to the Johnston Atoll electrical, fuel, water and sewage systems. Construction costs associated with this phase of the program were approximately \$47 million.

b. In the later stages of construction, JACADS process equipment was shipped by barge to Johnston Atoll. Process equipment including furnaces, pollution abatement systems, conveyors, disassembly machines and control hardware were purchased from many different subcontractors. Installation occurred from April 1987 to April 1989. The costs of this phase of the program were approximately \$207 million.

c. By the spring of 1988, equipment installation had progressed to the point where the JACADS operations and maintenance

contractor could begin start-up of supporting utilities and process hardware. The start-up period prior to toxic operations was called, "systemization." The JACADS systemization effort consisted of three distinct elements: computer program checkout called applications program verification; acceptance testing; and individual unit systemization, which included operator training, certification, and performance tests with inert materials. This phase of the program cost approximately \$100 million.

d. JACADS initiated GB rocket demilitarization operations in July of 1990 with the first of four operational verification tests (OVT). These tests are intended to demonstrate the adequacy of the demilitarization technology on the different major munition types and the three primary agents contained in the U.S. Stockpile. The four items scheduled for destruction during OVT are GB M55 rockets, VX M55 rockets, bulk containers of mustard, and mustard-filled projectiles. After the completion of the OVT, plans are to destroy the remaining stocks that are on Johnston Atoll. The projected cost to complete OVT and destroy the remaining stockpile is approximately \$425 million. Current plans are to complete disposal operations in 1995.

e. The first operational verification test, using GB M55 rockets, was completed in February 1991. During this test, 7,490 rockets were processed and about 75,000 pounds of GB agent was destroyed. A major lesson was learned from the first test related to the performance of the material handling equipment associated with the deactivation furnace. Significant quantities of molten aluminum were generated from the rocket warheads during thermal processing in the deactivation furnace. Aluminum would build up on the heated discharge conveyor belt and cause fouling and jamming of the belt at the blast discharge gates at the end of the conveyor. Significant engineering modifications were needed to correct this problem. The effectiveness of the modifications will be evaluated during the second operational verification test with VX M55 rockets.

4. Staffing and Training

a. The operations and maintenance staff for the JACADS program is approximately 450 people. This includes plant operations and maintenance personnel and support groups such as laboratory, engineering, quality assurance, and program management support. The plant operates on one eight-hour shift, six days a week and is idle during the other sixteen hours. The plant will begin processing on three shifts after the last OVT, which will involve disposal of one of the mustard projectile types.

b. The JACADS workforce training program consists of two phases: qualification and certification. In order to become qualified employees must attend general courses designed to introduce them to the JACADS program and then progress to job-specific classroom training. Upon completion of the classroom

training a final exam is administered which, upon passing, makes an individual JACADS qualified. (Field training cannot begin until the exam has been successfully completed.) Once qualified, the individual works under the direct supervision of an Area Supervisor who determines when the individual is ready for the final certification exercise. This certification exercise allows the individual to demonstrate that they can safely perform their tasks in accordance with governing procedures. The time required for a new operator to become fully certified depends on the person's experience and job position in the plant. Additionally, all operations and maintenance personnel must successfully complete contingency training. This prepares workers to recognize potentially dangerous conditions and to safely and rapidly respond to these conditions in order to protect life and health, stabilize the condition, and restore the plant to safe operational status.

MUNITIONS STORED AT JOHNSTON ISLAND

TABLE 1

TYPE	DESIGNATION	AGENT
ROCKETS	M55	GB, VX
MINES	M23	VX
PROJECTILES	M2, 4.2 INCH	HD
	M60, 105MM	HD
	M360, 105MM	GB
	M110, 115MM	HD
	M121/M121A1, 155MM	GB, VX
BOMBS	M426, 8-INCH	GB, VX
	MK MOD "0", 500 LB	GB
CONTAINERS	MC-1, 750 LB	GB
	TON	GB, VX, HD

Ad Hoc Committee on Chemical Weapons

UNITED STATES OF AMERICA

U.S. Chemical Weapons (CW) Destruction Safety and Environmental Requirements

(Presented at the meeting of the Technical Experts on CW Destruction, Geneva, 7-11 October 1991)

1. Introduction

It is the policy of the U.S. Government that chemical demilitarization conducted on its territory be conducted in such a manner as to maximize public and worker safety and environmental protection. Chemical demilitarization must comply with all existing environmental and safety regulation/standards. In addition to the "normal" regulatory requirements, chemical demilitarization must also comply with internal requirements, as well as requirements established by independent oversight organizations (e.g. Department of Health and Human Services (DHHS) and National Academy of Sciences (NAS)).

2. Design Criteria

U.S. chemical demilitarization facilities must satisfy the following general design criteria:

a. No uncontrolled emissions. Cascade ventilation is used throughout the entire facility to insure vapor containment. Total containment is used in those areas where energetic components could result in accidental detonation.

(1) Total containment contains the blast, fragments, over pressure and chemical agent resulting from an accidental detonation of a chemical munition. The design is based on the peak design processing rates. For the U.S. disposal facility, the blast design for the Explosive Containment Room (ECR) and deactivation barrier room are 15 and 28.2 pounds, trinitrotoluene (TNT) equivalent, respectively. In addition, the ECR is designed for a fragment loading of the M23 land mine. All access is via blast-retaining doors, gates or panels. Doors and gates are interlocked with process controls.

(2) Vapor containment is achieved by the cascade ventilation system which draws air from the areas of least

contamination before discharging the contaminated air to the carbon filters. The ventilation rates used to achieve vapor containment are listed in Table I.

b. **No process liquid discharges.** All agent and spent decontamination solutions are incinerated. There are no liquid discharges except for boiler condensate and sanitary sewage. All scrubber brines are dried to a salt before placement in a permitted waste landfill. All process area sumps are double lined to prevent leakage into the ground.

c. **Continuous agent monitoring.** The work area and exhaust stacks are continuously monitored by real time alarms (response time 3-8 minutes). In addition, the work area, stack and installation perimeter are continuously monitored by historical/integral monitors. The agent standards for each area (work area, stack and perimeter (general population)) are listed in Table II. It should be noted that corrective actions are initiated when chemical agent is first detected, prior to reaching the exposure limits.

d. **Personnel interfaces minimized.** All disassembly operations are performed remotely. Only unpacking and feeding the chemical munitions is performed by operators. Maintenance requirements are minimized by designing the equipment to high reliability and maintainability standards and by using parallel process lines and in-line buffer storage areas. The entire process is remotely controlled via a graphical control system and monitored by Closed-Circuit Television (CCTV).

e. **Hazard Risk Analyses and Mitigation.** A variety of detailed hazard/risk analyses are performed throughout the design of the disposal process. Any accident which has a programmatic probability of 0.00000001 (1×10^{-8}) or greater of causing an off-post excursion is mitigated. Mitigation measures include reducing the size of the agent storage tanks in the Toxic Cubicle (TOX) and designing the TOX to more rigorous construction criteria.

3. Environmental Requirements

The destruction of chemical weapons is regulated by the following U.S. environmental regulations: National Environmental Policy Act (NEPA), Resource Conservation and Recovery Act (RCRA), Toxic Substance Control Act (TSCA), Clean Air Act (CAA), and State Air Quality Regulations, which is the States' implementation of the CAA. All of the environmental regulations actively solicit public comment and participation. Table III summarizes the chemical weapons incinerator emission standards which disposal facilities must satisfy.

a. The National Environmental Policy Act (NEPA) requires the preparation of an Environmental Impact Statement (EIS) for any Federal activity which may significantly affect the environment. The EIS must be performed before any decision is made on

implementing the action. The EIS evaluates the proposed action, reasonable alternatives and the "do-nothing" or status quo alternative and must address the environmental impacts, unavoidable adverse impacts, mitigation measures, relationship between short-term uses and long-term productivity and irreversible and irretrievable commitments of resources for each alternative. The EIS requires between 14 and 22 months to complete.

b. The Resource Conservation and Recovery Act (RCRA) regulates the disposal, treatment and storage of hazardous waste. The Act is administered by Federal and State agencies (States can be more restrictive but never less restrictive than the Federal Government). A permit must be received before construction can begin. It stipulates stringent inspection requirements, operating limitations/restrictions, incinerator emission limits, hazardous waste storage limitations, residue disposal requirements, and facility closure procedures. A trial burn is conducted within the first 720 operational hours to establish/confirm incinerator operating conditions.

c. The Toxic Substances Control Act (TSCA) regulates the destruction of polychlorinated biphenyls (PCB's) which are contained in the M55 rocket shipping and firing tube. The TSCA is administered by the Federal Environmental Protection Agency (EPA). A permit must be received before commencement of PCB disposal operations. Demonstration burns are required to demonstrate 99.9999% PCB Destruction Removal Efficiency (liquid) or the ability of the incinerator to operate with a gas temperature of 2,200°F and a gas residence time of two seconds.

d. The Clean Air Act and State Air Quality Regulations provide an additional source of incinerator emission regulations; they also regulate emissions from other sources (e.g. boilers, brine dryers). Their requirements can be more restrictive than RCRA. Typically the regulations focus on particulate and opacity emissions, but also regulate other incinerator emissions, including nitrogen dioxide, sulfur dioxide, carbon dioxide and hydrocarbons.

China CD/CW/WP.384 and Corr.1 Some information on discovered chemical weapons abandoned in China by a foreign state Also issued as CD/1127 and Corr.1 18.2.92

NOT REPRODUCED
(see WP volume)

* * *

Australia CD/CW/WP.385 Trial inspection of a Schedule 3/other relevant facility Also issued as CD/1128 20.2.92

NOT REPRODUCED
(see WP volume)

* * *

Australia CD/CW/WP.386 Australian National Secretariat: survey of chemical industry Also issued as CD/1129 20.2.92

NOT REPRODUCED
(see WP volume)

* * *

China CD/CW/WP.387 Principled position and proposals on the issue of abandoned chemical weapons Also issued as CD/1130 20.2.92

NOT REPRODUCED
(see WP volume)

* * *

Hungary CD/CW/WP.388 Provision of data relevant to the Chemical Weapons Convention Also issued as CD/1135 24.2.92

NOT REPRODUCED
(see WP volume)

* * *

Czech and Slovak Federal Republic CD/CW/WP.389 Protection against chemical weapons (data bank of available basic means) Also issued as CD/1136 27.2.92

NOT REPRODUCED
(see WP volume)

* * *

France CD/CW/WP.390 Provision of data relevant to the Chemical Weapons Convention Also issued as CD/1141 3.3.92

NOT REPRODUCED
(see WP volume)

* * *

CONFERENCE ON DISARMAMENT

CD/CW/WP.391
12 March 1992

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

ARTICLE IX - PROCEDURE FOR CHALLENGE INSPECTIONS

Chairman's Note

This Working Paper reflects the results of recent private and open-ended consultations on the section "Procedure for Challenge Inspections" of Article IX. It contains two texts for this section:

"ARTICLE IX - THE REALITY" is the text which represents the actual negotiating situation. This text contains the new elements of treaty language which, in the open-ended consultations, have been agreed upon ad referendum (de-bracketed) as well as those which have remained controversial (bracketed).

"ARTICLE IX - THE VISION" is a Chairman's text which in his view represents a possible result of negotiations.

It is suggested that, after checking the accuracy of "THE REALITY", the discussion of Article IX should not be reopened immediately. Both private and open-ended consultations on challenge inspections should now rather address the Protocol on Inspection Procedures before returning to the Article at a later stage.

Both texts of Article IX should provide useful reference material when the Protocol is discussed: "THE REALITY" as a constant reminder of the necessity of compromise; "THE VISION" as an indication of where the journey might end once agreement on the Protocol has come closer.

If, after having gone through the Protocol, it turns out that "THE VISION" is not conducive to promoting consensus on the Article, it will disappear again and negotiations on the Article will continue on the basis of "THE REALITY" only.

ARTICLE IX - THE REALITY

(New language as compared to pages 131-133 of CD/1116 is marked by underlining; subparagraphs are numbered by (a), (b) etc.)

Procedure for Challenge Inspections

8. (a) Each State Party has the right to request [the Executive Council for] an on-site challenge inspection of any facility or location in any other State Party 1/ for the sole purpose of clarifying and resolving any questions concerning compliance with the provisions of the Convention, and to have this inspection conducted anywhere without delay by an inspection team designated by the Director-General of the Technical Secretariat and in accordance with the Protocol on Inspection Procedures.

(b) Each State Party is under the obligation to keep the request within the scope of the Convention and to provide in the request all appropriate information [evidence] [supporting the suspicion of non-compliance] [on the concern regarding compliance] with the Convention as specified in the Protocol on Inspection Procedures. [Each State Party shall refrain from unfounded requests, care being taken to avoid abuse.] The challenge inspection shall be carried out for the sole purpose of determining facts relating to compliance.

9. For the purpose of verifying compliance with the provisions of this Convention, each State Party shall permit the Technical Secretariat to conduct on-site challenge inspections pursuant to paragraph 8.

10. Pursuant to a challenge of its facility or location, and in accordance with the procedures provided for in the Protocol on Inspection Procedures, a State Party has:

- the right and the obligation [to make every reasonable effort] to demonstrate its compliance with the Convention and, to this end, to enable the inspection team to fulfil its mandate;
- the obligation to provide access within the requested site for the sole purpose of establishing facts relevant to the request; and

1/ It is understood that issues relating to "jurisdiction and control" in the context of challenge inspections need to be considered further.

- the right to take measures to protect sensitive installations, and to prevent disclosure of confidential information, not related to the Convention.

[11. (a) The requesting State Party may, subject to the agreement of the inspected State Party, send a representative who may be a national either of the requesting State Party or of a third State Party to observe the conduct of the inspection.]

(b) The inspected State Party shall then grant access to the observer in accordance with the Protocol on Inspection Procedures.

(c) The inspected State Party shall, as a rule, accept the proposed observer, but if the inspected State Party exercises a refusal, that fact shall be recorded in the final report.]

12. (a) The requesting State Party shall present a request for an on-site challenge inspection to the Director-General of the Technical Secretariat.

(b) The Director-General shall immediately ascertain that the request meets the requirements specified in the Protocol on Inspection Procedures (Part III, Section II A, para. 1), and, if necessary, assist the requesting State Party in filing the request accordingly. When the request fulfills the requirements, preparations for the inspection shall begin.

[(c) The Director-General shall [notify] [transmit the request immediately after its receipt to] the inspected State Party [not less than 12 hours prior to the planned arrival of the inspection team at the point of entry]. Contemporaneously, the members of the Executive Council [and all the other States Parties] shall be informed about the request.]

[(c) The Director-General shall transmit the request to the inspected State Party and the members of the Executive Council [] hours prior to the planned arrival of the inspection team at the point of entry.]

(d) After having been informed of the inspection request, the Executive Council shall take note of the Director-General's action on the request and shall keep the case under its consideration throughout the inspection procedure. However, its deliberations shall not delay the inspection process.

[(e) If it considers the request to be frivolous, abusive or clearly beyond the scope of the Convention as described in paragraph 8 of this Article, the Executive Council may, within [] hours after having received the inspection request, decide by [unanimity] [a majority of .. of its members] [against carrying out] [on whether to carry out] the inspection. In such a case, inspection preparations shall be stopped, no further action on the request shall be taken, and the States Parties concerned shall be informed accordingly.]

13. The Director-General of the Technical Secretariat [subsequent to the decision of the Executive Council] shall issue a mandate for the conduct of the inspection. The mandate shall be the request referred to in paragraph 8 put into operational terms, and shall conform with the request.
14. The inspection shall be conducted in accordance with Part III or, in the case of alleged use, in accordance with Part IV of the Protocol on Inspection Procedures.^{1/} The inspection team shall be guided by the principle of conducting the inspection in the least intrusive manner possible, consistent with the effective and timely accomplishment of its mission.
15. The inspected State Party shall assist the inspection team throughout the inspection and facilitate its task. If the inspected State Party proposes [, in exceptional cases,] [, pursuant to Part III, Section III.B of the Protocol on Inspection Procedures,] arrangements to demonstrate compliance with the Convention, alternative to full and comprehensive access, it shall make every [reasonable] effort, through consultations with the inspection team, to reach agreement on the modalities for establishing the facts with the aim of demonstrating its compliance. (Deletion)
16. The final report shall contain the factual findings as well as an assessment by the inspection team of the degree and nature of access and cooperation granted for the satisfactory implementation of the inspection. The Director-General of the Technical Secretariat shall promptly transmit the final report of the inspection team to the requesting State Party, to the inspected State Party, to the Executive Council and to all other States Parties.^{2/} The Director-General shall further transmit promptly to the Executive Council the assessment(s) of the requesting and of the inspected States Parties, as well as the view(s) of other States Parties which may be conveyed to the Director-General for that purpose, and then provide them to all States Parties.

^{1/} A view was expressed that the provisions regarding investigations of alleged use of chemical weapons should be placed in a separate section under this Article.

^{2/} It was suggested that the Director-General should express his views on the matter.

17. (a) The Executive Council shall review in accordance with its powers and functions the final report of the inspection team as soon as it is presented.

(b) [In accordance with Article VIII, paragraphs 19 and 20 (d), it shall [consider] [address] [decide on] the question of [whether any non-compliance with the Convention has occurred.] [the concern regarding compliance.] [In considering this question, the final report should not be put to a vote, nor should any decision be taken as to whether a State Party is complying with the provisions of the Convention.]]

(c) [It may also] [If necessary, it shall also] [If it deems it necessary, it shall] address the question of whether the request had been within the scope of the Convention [.] [and whether the right to request a challenge inspection had been abused. [In case of abuse the Executive Council shall take the necessary measures to ensure that the requesting State Party bears all financial implications of the inspection and all other financial implications there upon.]]

(d) If the Executive Council considers [, in keeping with its powers and functions under Article VIII paragraph 20 (d),] further action to be necessary, it shall take the appropriate measures in accordance with [Article VIII paragraph 20 (d)] [this paragraph][.] [, including any appropriate further action necessary to redress the situation and to ensure compliance with the Convention, including sanctions and other specific proposals to the Conference of the States Parties.]

(e) The requesting State Party and the inspected State Party shall have the right to participate in [the review] [this process]. The Executive Council shall inform the States Parties and the next Conference of the States Parties of the outcome of this process.

[(f) If the Executive Council has made specific recommendations to the Conference of the States Parties, the Conference shall consider action in accordance with Article XII.]

ARTICLE IX - THE VISION

Procedure for Challenge Inspections

8. (a) Each State Party has the right to request an on-site challenge inspection of any facility or location in any other State Party for the sole purpose of clarifying and resolving any questions concerning compliance with the provisions of the Convention, and to have this inspection conducted anywhere without delay by an inspection team designated by the Director-General of the Technical Secretariat and in accordance with the Protocol on Inspection Procedures.

(b) Each State Party is under the obligation to keep the request within the scope of the Convention and to provide in the request all appropriate information on the concern regarding compliance with the Convention as specified in the Protocol on Inspection Procedures. Each State Party shall refrain from unfounded requests, care being taken to avoid abuse. The challenge inspection shall be carried out for the sole purpose of determining facts relating to compliance.

9. For the purpose of verifying compliance with the provisions of this Convention, each State Party shall permit the Technical Secretariat to conduct on-site challenge inspections pursuant to paragraph 8.

10. Pursuant to a challenge of its facility or location, and in accordance with the procedures provided for in the Protocol on Inspection Procedures, a State Party has:

- the right and the obligation to make every reasonable effort to demonstrate its compliance with the Convention and, to this end, to enable the inspection team to fulfil its mandate;
- the obligation to provide access within the requested site for the sole purpose of establishing facts relevant to the request; and
- the right to take measures to protect sensitive installations, and to prevent disclosure of confidential information, not related to the Convention.

11. (a) The requesting State Party may, subject to the agreement of the inspected State Party, send a representative who may be a national either of the requesting State Party or of a third State Party to observe the conduct of the inspection.

(b) The inspected State Party shall then grant access to the observer in accordance with the Protocol on Inspection Procedures.

(c) The inspected State Party shall, as a rule, accept the proposed observer, but if the inspected State Party exercises a refusal, that fact shall be recorded in the final report.

12. (a) The requesting State Party shall present a request for an on-site challenge inspection to the Director-General of the Technical Secretariat.

(b) The Director-General shall immediately ascertain that the request meets the requirements specified in the Protocol on Inspection Procedures (Part III, Section II A, para. 1), and, if necessary, assist the requesting State Party in filing the request accordingly. When the request fulfills the requirements, preparations for the inspection shall begin.

(c) The Director-General shall transmit the request to the inspected State Party and the members of the Executive Council [] hours prior to the planned arrival of the inspection team at the point of entry.

(d) After having been informed of the inspection request, the Executive Council shall take note of the Director-General's action on the request and shall keep the case under its consideration throughout the inspection procedure. However, its deliberations shall not delay the inspection process.

(e) If it considers the request to be frivolous, abusive or clearly beyond the scope of the Convention as described in paragraph 8 of this Article, the Executive Council may, within [] hours after having received the inspection request, decide by consensus against carrying out the inspection. Neither the requesting nor the inspected State Party shall participate in such a decision. If the Executive Council decided against the inspection, preparations shall be stopped, no further action on the request shall be taken, and the States Parties concerned shall be informed accordingly.

13. The Director-General of the Technical Secretariat shall issue a mandate for the conduct of the inspection. The mandate shall be the request referred to in paragraph 8 put into operational terms, and shall conform with the request.

14. The inspection shall be conducted in accordance with Part III or, in the case of alleged use, in accordance with Part IV of the Protocol on Inspection Procedures. The inspection team shall be guided by the principle of conducting the inspection in the least intrusive manner possible, consistent with the effective and timely accomplishment of its mission.

15. The inspected State Party shall assist the inspection team throughout the inspection and facilitate its task. If the inspected State Party proposes, pursuant to Part III, Section III.B of the Protocol on Inspection Procedures, arrangements to demonstrate compliance with the Convention, alternative to full and comprehensive access, it shall make every reasonable effort, through consultations with the inspection team, to reach agreement on the modalities for establishing the facts with the aim of demonstrating its compliance.

16. The final report shall contain the factual findings as well as an assessment by the inspection team of the degree and nature of access and cooperation granted for the satisfactory implementation of the inspection. The Director-General of the Technical Secretariat shall promptly transmit the final report of the inspection team to the requesting State Party, to the inspected State Party, to the Executive Council and to all other States Parties. The Director-General shall further transmit promptly to the Executive Council the assessment(s) of the requesting and of the inspected States Parties, as well as the view(s) of other States Parties which may be conveyed to the Director-General for that purpose, and then provide them to all States Parties.

17. (a) The Executive Council shall, in accordance with its powers and functions, review the final report of the inspection team as soon as it is presented, and deal appropriately with

- the concern regarding compliance as expressed in the inspection request;
- the question of whether the request had been within the scope of the Convention;
- the question of whether the right to request a challenge inspection had been abused.

(b) If the Executive Council considers, in keeping with its powers and functions, further action to be necessary, it shall take the appropriate measures to redress the situation and to ensure compliance with the Convention, including specific proposals to the Conference of the States Parties.

(c) The requesting State Party and the inspected State Party shall have the right to participate in the review process. The Executive Council shall inform the States Parties and the next Conference of the States Parties of the outcome of the process.

(d) If the Executive Council has made specific recommendations to the Conference of the States Parties, the Conference shall consider action in accordance with Article XII.

Poland CD/CW/WP.392 Solid-phase extraction as Also issued
a possible way of chemical as CD/1146
warfare agents sampling 17.3.92
for their analysis in
laboratories under the
Chemical Weapons Conven-
tion

NOT REPRODUCED
(see WP volume)

* * *

Ad Hoc Committee on Chemical Weapons

ISLAMIC REPUBLIC OF IRAN

Verification of the Chemical Industry under Article VI and its Annexes

I. SELECTION PROCESS

1. On 27 June 1991, eight non-aligned States in the Conference on Disarmament proposed a new approach for the verification of the chemical industry. This paper, as contained in CD/CW/WP.348, was discussed in 1991 in Working Group B on Verification under Article VI.

2. Due to the existence of a large number of Schedule 2 chemical production facilities and the financial burden of routine inspection of such facilities, it had been suggested that "the facilities which produce, process or consume chemicals listed in Schedule 2 over threshold declared under Annex 2 will be subjected to initial inspection, and accordingly the facility agreement will be concluded to govern the conduct of the inspection. According to certain criteria, including the duration of the initial inspection, a report will be provided to the Technical Secretariat. Based upon this report and taking into account elements such as actual production in the preceding three years and production capacity, toxicity of the chemicals, multi-purpose potential of the facility, etc. the Technical Secretariat will decide whether the facility should be subjected to: Systematic Routine Inspection (SRI) or Random Selective Inspection (RSI)."

3. In order to quantify the qualitative criteria, the following formula is being suggested:

$$y = a_1 x_1 + a_2 x_2 + a_3 x_3 + a_4 x_4$$

$$\sum_{i=1}^n a_i = 100$$

in which the variables x_1 to x_4 are as follows:

x_1 = production capacity

x_2 = toxicity of Schedule 1 chemical which can be produced from Schedule 2 chemical

x_3 = the multi-purpose potential of the facility

x_4 = the number of production steps to Schedule 1 chemicals

- (a) In this formula, in the case of x_2 the toxicity increases, when LD50 decreases, hence x_2 is calculated as $\frac{1}{LD50}$
- (b) considering the steps required to produce chemicals in Schedule 1 from chemicals in Schedule 2, as the number of production steps increases the risk potential to the Convention would decrease, thus $x_4 = \frac{1}{n}$, $n = 1, 2, \dots$
- (c) in the case of multi-purpose potential of the facility, the higher the potential, the higher the risk;
- (d) since the value of production capacity overshadows other variables, hence the value should be divided by an appropriate number so that it could be added with other variables in a well-balanced manner;
- (e) since the weights of different variables are not the same, it is needed to balance the variables with the relative coefficient (a_1 to a_4).

After obtaining all of the values or weights for each of the Schedule 2 facilities, two solutions may be determined:

- (1) according to the above-mentioned criteria, the Technical Secretariat will determine the most risky facilities and allocate the budget required for routine inspections of such facilities, and then according to the remainder of the budget, the Technical Secretariat can determine the number of random inspections; or
- (2) on the basis of the risk potential of the facilities, the budget of the Organization and other resources, the border line between routine and random inspections can be suggested (determined) by the Technical Secretariat.

This border line can be varied at the end of each year.

The facilities that undergo random inspection can be divided into three groups with ratios of (3/6, 2/6, 1/6), according to the risk potentiality for random inspections. Such a formula can also be applied to this classification.

Mathematical calculations and analysis of the above-mentioned procedures and even random selection of facilities can be done by using standard formula and methods available (to be developed) to system analysts, and the Technical Secretariat can make use of such system analysts.

After such information and analysis are transferred into computers, further work can be very much simplified and the costs and time consumptions of selection process by the Technical Secretariat would be economized considerably.

Let us assume a triple facility which produces 200 tonnes of Thiodiglycol (TDG) annually. Since Thiodiglycol is one step away from Mustard Gas, which is a warfare agent and is on Schedule 1, we can consider the variables as follows:

$$X_4 = 1 \text{ (the number of steps to Schedule 1)}$$

$$LD50 \text{ (Mustard gas)} = .7 \text{ mg/kg}$$

By rough calculations for the relative coefficients (a_1 to a_4), the following numbers will be assumed:

$$a_1 = 30, \quad a_2 = 30, \quad a_3 = 25, \quad a_4 = 15$$

so the formula will be as follows:

$$y = a_1 x_1 + a_2 x_2 + a_3 x_3 + a_4 x_4$$

$$y = 30 \times \frac{200}{100} + 30 \times \frac{1}{0.7} + 25 \times 3 + 15 \times 1$$

$$y = 60 + 42.8 + 75 + 15 \approx 193.5 \text{ (approx.)}$$

It should be noted that in the above analysis, only four variables have been considered and the numbers for the relative coefficients are primarily developed.

Also, as it is evident in the formula, in order that the variable "production capacity" does not overshadow other variables, its number has been divided by "100". This can be done in other forms such as the calculation of its logarithm or root, etc. (to be developed).

II. VERIFICATION REGIME FOR FACILITIES UNDER SCHEDULE 3 AND OTHER RELEVANT FACILITIES

Since there are a huge number of Schedule 3 and other relevant facilities all over the world, which enjoy a special and significant place in the chemical industry, any irrelevant control over such facilities may hamper the economic and technological development, and will have adverse effects on the chemical industry and trade.

These elements, as well as the feasibility and cost-effectiveness of the mechanism, justify the establishment of Random Selective visits as set out in the above-mentioned paper. (CD/CW/WP.348).

In this context, considering the risk potential of the facilities under this Annex, they could be classified so that the probability of subjecting them to such visits, would increase, while the unpredictable nature of the mechanism would be maintained.

For such a classification, a similar procedure to that envisaged for Schedule 2 could be applied here. Moreover, with regard to the difference between "inspection" and "visit", bearing in mind the above objectives, at the time of the visit, the following steps and actions are suggested to be carried out by the inspectors during the visit:

1. Identification of exact location of the facility (geographical coordinates).
2. Observation of operation process unit through list of equipment used.
3. Observation of storage area and storage vessels.
4. Observation of process control and analytical laboratory.

5. Observation of medical centres.
6. Observation of the number and the types of raw material and the products by looking through the storage area.
7. Observation of safety measures considered in the facility and the safety equipment in the storage room.
8. Examination of documents and records to check the declared data.
9. Observation of waste treatment facilities and the means of disposal.
10. Observation of the degree of complexity and automation.
11. In case of ambiguity arising out of any of the above-mentioned steps, the inspector can ask for a maximum number of x samples to be taken and analyzed on site or the inspectors can ask the Technical Secretariat for stronger inspection.

It is to be noted that the inspectors would not carry any instruments with them during the visit and that the duration of the visit is shorter (to be specified).

AHCCW
Chair-
man

CD/CW/WP.394

Chairman's tentative out-
line of work until the end
of June 1992

3.4.92

NOT REPRODUCED

* * *



1912

THE UNIVERSITY OF CHICAGO

LIBRARY

PHYSICS

PHYSICS DEPARTMENT

CHICAGO, ILL.

1912

CONFERENCE ON DISARMAMENT

CD/CW/WP.395
30 April 1992

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

Protocol on Inspection Procedures

PART III: CHALLENGE INSPECTIONS CONDUCTED PURSUANT TO ARTICLE IX

Chairman's Note

This working paper reflects the current state of negotiations on Part III of the Protocol on Inspection Procedures.

It is suggested that the attached text replaces pages 161-173 of CD/1116 in order to take due account of progress made.

Following the procedural outline of CD/CW/WP.394, the Chairman will prepare by the beginning of the next session an unbracketed draft compromise text on challenge inspections, comprising both Article IX and Part III of the Protocol on Inspection Procedures.

This compromise draft will build on CD/CW/WP.391 of 12 March 1992, on the attached text, and on private consultations to be held between now and the beginning of the next session.

GE.92-61369/4447B

PART III: CHALLENGE INSPECTIONS CONDUCTED PURSUANT TO ARTICLE IX

I. DESIGNATION AND SELECTION OF INSPECTORS AND INSPECTION ASSISTANTS

1. Inspections under Article IX shall only be performed by Inspectors and inspection assistants especially designated for this function. In order to designate Inspectors and inspection assistants for inspections under Article IX, the Director-General of the Technical Secretariat shall, by selecting Inspectors and inspection assistants from among the full-time Inspectors and inspection assistants for routine inspection activities, establish a list of proposed Inspectors and inspection assistants. It shall comprise a sufficiently large number of Inspectors and inspection assistants [selected with due regard to wide geographical representation and] having the necessary qualification, experience, skill and training, to allow for flexibility in the selection of the Inspectors, taking into account their availability and the need for rotation. The designation of Inspectors and inspection assistants shall follow the procedures provided for under Part I, Section II of this Protocol.

2. The Director-General shall determine the size of the inspection team and select its members taking into account the circumstances of a particular request. No national of the requesting State Party, or the inspected State Party shall be a member of the inspection team.

II. PRE-INSPECTION ACTIVITIES

A. Notification

1. The request for a challenge inspection to be submitted to the Director-General of the Technical Secretariat shall contain at least the following information:

- the State Party to be inspected and, if applicable, the host State;
- the point of entry to be used;
- [- the precise location of the inspection site and the type of site to be inspected;]
- the size of the inspection site;
- the concerns regarding compliance with the Convention including a specification of the relevant provisions of the Convention about which concerns have arisen and of the nature and circumstances of the suspected non-compliance [as well as the evidence on the basis of which the specific concern regarding non-compliance has arisen];
- [- the name[(s)] of the observer[(s)] of the requesting State Party].

The requesting State Party may submit any additional information it deems necessary.

2. [The requesting State Party shall notify the Director-General of the Technical Secretariat of the type of site to be inspected and of the location of the inspection site in due time for the Director-General to be able to provide this information to the inspected State Party not less than 12 hours prior to the planned arrival of the inspection team at the point of entry.]

The inspection site shall be designated by the requesting State Party as specifically as possible by providing a site diagram related to a reference point with geographic coordinates specified to the nearest second if possible. [If possible,] the requesting State Party shall also provide a map with a general indication of the inspection site and a diagram specifying as precisely as possible the perimeter of the site to be inspected.

3. The requested perimeter shall:

- Run at least a 10 metre distance outside any buildings or other structures;
- Not cut through existing security enclosures;
- Run at least a 10 metre distance outside any existing security enclosures that the requesting State Party intends to include within the requested perimeter;

If the requested perimeter does not conform with the above specifications, it shall be redrawn by the inspection team so as to conform with the above provision.

4. The Director-General of the Technical Secretariat shall within one hour acknowledge to the requesting State Party receipt of its request.

[5. The Director-General shall notify the inspected State Party not less than 12 hours prior to the planned arrival of the inspection team at the point of entry. Contemporaneously, the members of the Executive Council shall be informed about the request. The information shall include, inter alia:

- (a) the name of the requesting State Party and the name[(s)] of the observer[(s)] of the requesting State Party;
- (b) the point of entry to be used for arrival;
- (c) the size of the inspection team;

5. The Director-General shall transmit the request as set out in paragraph A.1. immediately after its receipt to the inspected State Party. Contemporaneously, the members of the Executive Council and all the other States Parties shall be informed about the request.

The Director-General shall inform the inspected State Party as soon as possible of the size of the inspection team as well as of relevant information regarding aircraft arrangements or other travel arrangements, if applicable.]

6. Upon arrival of the inspection team at the point of entry, the inspected State Party shall be informed by the inspection team of the inspection mandate.

B. Entry into the territory of the inspected State Party or host State

1. [If so decided by the Executive Council,] the Director-General of the Technical Secretariat shall dispatch an inspection team as soon as possible after a request is received by the Technical Secretariat. The inspection team shall arrive at the point of entry specified in the request in the minimum time possible, consistent with the provisions of paragraph A.5. above of this Protocol.

2. If the requested perimeter is acceptable to the inspected State Party, it shall be designated as the final perimeter as early as possible but in no case later than [24] [72] hours after the arrival of the inspection team at the point of entry. The inspected State Party shall transport the inspection team to the final perimeter of the inspection site. Such transportation shall be accomplished as soon as practicable, and shall take [in any case no more than 12 hours] [normally no more than 24 hours] after agreement on the perimeter.

3. For all declared facilities (Articles III, IV, V, and VI), the following procedures would apply:

- If the requested perimeter is contained within or conforms with the declared perimeter, the declared perimeter shall be considered the final perimeter, with one exception: if agreed by the inspected State Party, the final perimeter may be made smaller to conform with that requested by the requesting State Party.
- The inspected State Party shall transport the inspection team to the final perimeter as soon as practicable, [but in any case] [and normally] shall ensure their arrival at the perimeter not later than [12] [24] hours after the arrival of the inspection team at the point of entry.

C. Alternative determination of final perimeter

1. At the point of entry, if the inspected State Party cannot accept the requested perimeter, it shall propose an alternative perimeter as soon as possible, but in any case not later than [24] [72] hours after the arrival of the inspection team at the point of entry. Differences shall be negotiated between the inspected State Party and the inspection team with the aim of reaching agreement on a final perimeter.

2. The alternative perimeter should be designated as specifically as possible in accordance with paragraph A.3. above.

It shall include the whole of the requested perimeter and should as a rule bear a close relationship to the latter, taking into account natural terrain features and man-made boundaries. It should normally run close to the surrounding security barrier if such a barrier exists. The inspected State Party should seek to establish such a relationship between the perimeters by a combination of at least two of the following means:

- An alternative perimeter that does not extend to an area significantly greater than that of the requested perimeter;
- An alternative perimeter that is a short, uniform distance from the requested perimeter;
- At least part of the requested perimeter is visible from the alternative perimeter.

3. If the alternative perimeter is acceptable to the inspection team, it shall become the final perimeter and the inspection team shall be transported from the point of entry to that perimeter as soon as possible, [but in any case] [and shall normally take] no longer than [12] [24] hours after acceptance.

4. If a final perimeter is not readily agreed, the perimeter negotiations at the point of entry shall be concluded as early as possible, but in no case shall they continue more than [24] [72] hours after the arrival of the inspection team at the point of entry. If no agreement is reached at the point of entry, the inspected State Party shall transport the inspection team to a location at the alternative perimeter as soon as practicable, [but in any case] [and normally] shall ensure their arrival at the location no later than [12] [24] hours after the expiration of the time period for the perimeter negotiations at the point of entry.

5. Once at the location, the inspected State Party shall provide the inspection team with prompt access to the alternative perimeter to facilitate negotiations and agreement on the final perimeter.

6. If no agreement is reached within 72 hours after the arrival of the inspection team at the location, the alternative perimeter shall be designated the final perimeter.

D. Verification of location

To help establish that the site to which the inspection team has been transported corresponds to the site specified by the requesting State Party the inspection team shall have the right to use location-finding equipment and have such equipment and other approved equipment installed according to its directions. The inspection team may verify their location by reference to local landmarks identified from maps. The inspected State Party shall assist them in this task.

E. [Securing the site] [Exit monitoring]

1. No later than [12] [24] hours after the arrival of the inspection team at the point of entry, the inspected State Party shall identify all exit points for all land, air, and water vehicles from the requested perimeter. In this regard, it shall begin collecting factual information of all vehicular exit activity from the requested perimeter. It shall provide this information to the inspection team upon its arrival at the alternative or final perimeter, whichever occurs first.

This obligation may be met by collecting factual information in the form of traffic logs, photographs, video recordings, or data from chemical evidence equipment provided by the inspection team to monitor such exit activity. Alternatively, the inspected State Party may also meet this obligation by allowing one or more members of the inspection team independently to maintain traffic logs, take photographs, make video recordings of exit traffic, or use chemical evidence equipment, and conduct other activities as may be agreed between the inspected State Party and team members.

2. Upon the inspection team's arrival at the alternative perimeter or final perimeter, whichever occurs first, [securing the site, which [means] [also includes]] exit monitoring procedures [by the inspection team] [agreed upon by the inspected State Party and the inspection team], shall begin.

Such procedures [shall] [may] include: the identification of vehicular exits; the making of traffic logs, the taking of photographs [, and the making of video recordings] [by the inspection team] [following the procedures of Part I, Section IV. D, paragraph 4 of this Protocol]. The inspection team has the right to go, under escort, to any other part of the perimeter to check there is no other exit activity.

Additional procedures for exit monitoring activities as agreed upon by the inspection team and the inspected State Party could include, inter alia:

- Use of sensors;
- Random selective access;
- Sample analysis.

All activities for [securing the site] [exit monitoring] shall take place within a band around the outside of the perimeter, not to exceed 50 metres in width, measured outward.

3. The inspection team has the right to inspect on a managed access basis vehicular traffic exiting the site. The inspected State Party shall make every reasonable effort to demonstrate to the inspection team that any vehicle subject to inspection to which the inspection team is not granted full access is not being used for purposes related to the compliance concern raised in the inspection request.

Personnel and vehicles entering and personnel and personal passenger vehicles exiting the site are not subject to inspection.

4. The application of the above procedures may continue for the duration of the inspection, but may not unreasonably hamper or delay the normal operation of the facility.

F. Pre-inspection briefing and inspection plan

1. To facilitate development of an inspection plan, the inspected State Party shall provide a safety and logistical briefing to the inspection team prior to access.
2. The pre-inspection briefing shall be held in accordance with Part I, Section V. C. In the course of the pre-inspection briefing, the inspected State Party may indicate to the inspection team the equipment, documentation or areas it considers sensitive and not related to the purpose of the inspection. Additionally, personnel responsible for the site will brief the team on the physical layout and other relevant characteristics of the site; the team shall be provided with a map or sketch drawn to scale showing all the structures and significant geographic features at the site. The team shall also be briefed on availability of facility personnel and records.
3. After the pre-inspection briefing the inspection team shall prepare, on the basis of the information available and appropriate to it, an initial inspection plan which specifies the activities to be carried out by the inspection team, including the specific areas of the site to which access is desired. The plan shall also specify whether the inspection team will be divided into subgroups. The plan shall be made available to the representatives of the inspected State Party and the inspection site. Its implementation shall be consistent with the provisions of Section III below, including those related to access and activities.

G. Perimeter activities

1. At the [final] [final or alternative] perimeter [, whichever occurs first,] the inspection team shall have the right to commence immediately perimeter activities in accordance with the procedures set forth in this section, and to continue these activities until the completion of the inspection. [Subject to agreement of the inspected State Party, the inspection team may conduct perimeter activities at the alternative perimeter.]
2. In conducting the perimeter activities, the inspection team shall have the right to:
 - (a) use monitoring instruments (consistent with Part I, Section IV. D);
 - (b) take wipes, air, soil or effluent samples; and
 - (c) conduct any additional activities which may be agreed between the inspection team and the inspected State Party.
3. The perimeter activities of the inspection team may be conducted within a band around the outside of the perimeter up to 50 metres in width measured outward from the perimeter. If the inspected State Party permits, the

inspection team may also have access to any building or structure within the perimeter band. All directional monitoring shall be oriented inward. For facilities declared under articles III, IV, V and VI, at the discretion of the inspected State Party, the band could run inside, outside, or on both sides of the [declared] perimeter.

III. CONDUCT OF INSPECTIONS

A. General rules

1. The inspected State Party shall [be under the obligation to] provide access within the requested perimeter as well as, if different, the final perimeter. The extent and nature of access to a particular place or places within these perimeters shall be negotiated between the inspection team and the inspected State Party on a managed access basis.
2. The inspected State Party shall provide access within the requested perimeter as soon as possible, but in any case no later than [108] [168] hours after the arrival of the inspection team at the point of entry in order to clarify the concern[s] regarding [non-]compliance with the Convention raised in the inspection request.
3. In meeting the requirement to provide access as specified in paragraph 1, the inspected State Party shall be under the obligation to allow the greatest degree of access [taking into account any constitutional obligations it may have with regard to proprietary rights or searches and seizures]. [The inspected State Party has the right under managed access to take such measures as are necessary to protect national security. The right to managed access may not be invoked by the inspected State Party to conceal evasion of its obligations not to engage in activities prohibited by the Convention.]
4. In the event that the inspected State Party provides less than full access to places, activities, or information, it shall be under the obligation to make every reasonable effort to provide alternative means to satisfy the compliance concerns that generated the challenge inspection.
5. Upon arrival at the final perimeter of facilities declared under articles IV, V and VI, access shall be granted following the pre-inspection briefing and discussion of the inspection plan which shall be limited to the minimum necessary and, in any event shall not exceed three hours. For facilities declared under article III, paragraph 1 (c) negotiations will be conducted and managed access commenced within 12 hours of arrival at the final perimeter.
6. In carrying out the inspection in accordance with the request, the inspection team shall use only those methods necessary to provide sufficient relevant facts to clarify doubts about compliance with the provisions of the Convention, and shall refrain from activities not relevant thereto. It shall collect and document such evidence as is related to the compliance with the Convention by the inspected State Party but shall neither seek nor document information which is clearly not related thereto, unless the inspected State Party expressly requests it to do so. Any material collected and subsequently found not to be relevant shall not be retained.

7. The inspection team shall be guided by the principle of conducting the inspection in the least intrusive manner possible, consistent with the effective and timely accomplishment of its mission. Wherever possible, it shall begin with the least intrusive procedures it deems acceptable and proceed to more intrusive procedures only as it deems necessary.

B. Managed access

1. The inspection team shall take into consideration suggested modifications of the inspection plan and proposals which may be made by the inspected State Party, at whatever stage of the inspection including the pre-inspection briefing, to ensure that sensitive equipment, information or areas, not related to chemical weapons, are protected.

2. The inspected State Party shall designate the perimeter entry/exit points to be used for access. The inspection team and the inspected State Party shall negotiate: the extent of access to any particular place or places within the final and requested perimeters as provided in paragraph 3 below; the particular inspection activities to be conducted by the inspection team; the performance of particular activities by the inspected State Party; and the provision of particular information by the inspected State Party.

3. In conformity with the relevant provisions in the Annex on the protection of confidential information the inspected State Party shall have the right to take measures to protect sensitive installations and prevent disclosure of confidential data not related to chemical weapons. Such measures may include, inter alia:

- removal of sensitive papers from office spaces;
- shrouding of sensitive displays, stores, and equipment;
- shrouding of sensitive pieces of equipment, such as computer or electronic systems;
- logging off of computer systems and turning off of data indicating devices;
- restriction of sample analysis to presence or absence of chemicals on Schedules 1, 2 and 3 or appropriate degradation products;
- using random selective access techniques whereby the inspectors are requested to select a given percentage or number of buildings of their choice to inspect; the same principle can apply to the interior and content of sensitive buildings;
- in exceptional cases, giving only individual inspectors access to certain parts of the inspection site.

4. The inspected State party shall [make every reasonable effort to] demonstrate to the inspection team that any object, building, structure, container or vehicle to which the inspection team has not had full access, or

which has been protected in accordance with paragraph 3 above, is not used for purposes related to the compliance concerns raised in the inspection request.

This may be accomplished by means of, inter alia, the partial removal of a shroud or environmental protection cover, at the discretion of the inspected State Party, by means of a visual inspection of the interior of an enclosed space from its entrance, or by other methods.

[5. The inspected State Party would be under the obligation to provide access within the requested perimeter by selecting at least one of the following:

- Access on the ground for one or more members of the inspection team to portions within the requested perimeter;
- Aerial access for members of the inspection team. The inspected State Party, at its option, would provide the aircraft and pilot or rely on the inspection team's aircraft and pilot;
- Observation into the area enclosed by the requested perimeter from an elevated platform (e.g. tower, ladder or hoist) placed or erected by the inspected State Party at the final perimeter;
- Use of tamper-evident sensor suites specifically designed to detect relevant chemicals as developed and approved by States Parties in accordance with the Convention. At the option of the inspected State Party, such sensor suites could be used - either by members of the inspection team or remotely - as the aerial or surface access permitted by the inspected State Party.]

6. For facilities declared under articles IV, V, and VI, the following shall apply:

- For facilities with facility agreements, access and activities within the final perimeter shall be unimpeded within the boundaries established by the agreements.
- For facilities without facility agreements, negotiation of access and activities shall be governed by the applicable general inspection guidelines established under the Convention.
- Access greater than that granted for inspections under articles IV, V and VI shall be managed in accordance with procedures of this section.

7. For facilities declared under article III, paragraph 1 (c) the following shall apply: If the inspected State Party, using procedures of paragraphs 2 and 3 in this section, has [exceptionally] not granted full access to areas or structures not related to chemical weapons, it shall [make every reasonable effort to] demonstrate to the inspection team that such areas or structures are not used for purposes related to the compliance concerns raised in the inspection request.

[C. Observer[(s)]]

1. In accordance with the provisions of article IX, paragraph 11 on the participation of [an] observer[(s)] in the inspection, the requesting State Party shall liaise with the Technical Secretariat to coordinate the arrival of its observer[s] at the same point of entry as the inspection team within a reasonable period of the inspection team's arrival.
2. The observer[(s)] shall have the right throughout the period of inspection to be in communication with the embassy of the requesting State party located in the host State or, in the case of absence of an embassy, with the requesting State Party itself. The inspected State Party shall provide means of communication to the observer[s].
3. The observer[(s)] shall have the right to arrive at the inspection site (the alternative or final perimeter, whichever occurs first) and to have access to the inspection site as granted by the inspected State Party. The observer[(s)] shall have the right to make recommendations to the inspection team, which the team shall take into account to the extent it deems appropriate. Throughout the inspection, the inspection team shall keep the observer[(s)] informed about the conduct of the inspection and the findings.
4. Throughout the in-country period, the inspected State Party shall provide or arrange for the amenities necessary for the observer[(s)] such as communication means, interpretation services, transportation, working space, lodging, meals and medical care. All the costs in connection with the stay of the observer[(s)] on the territory of the inspected State Party or the host State shall be borne by the requesting State Party.]

[D. Sampling

Subject to safety and other precautions, as necessary, and in accordance with paragraph B.2 above, the inspection team shall itself have the right to take air, soil, wipe or effluent samples at the inspection site.]

[E. Extension of inspection site 1/

If the inspection team considers it necessary, for the purpose of the inspection, to visit any other contiguous location outside the boundaries of the inspection site as originally specified by the requesting State Party, the inspection team leader shall formally submit a written request to the inspected State Party [through the in-country escort]. Within two hours of the submission of the request the inspected State Party shall formally respond

in writing to the request [through the in-country escort]. The requesting State Party or the observer[s] of the requesting State Party shall promptly be informed by the inspection team of the request of the inspection team leader and the response to it by the inspected State Party. [If the response is negative, the requesting State Party may [through its observer] modify its original request to include the additional contiguous location. Once such a modified request has been formally submitted to [the Director-General of the Technical Secretariat] [the in-country escort], the additional contiguous location shall be subject to inspection by the team within ... hours.]

A request to visit an additional contiguous location shall not extend the overall period of inspection unless agreed in accordance with Section F below.]

F. Duration of an inspection

[The period of inspection shall normally not exceed ... hours. It may be extended by agreement with the inspected State Party by no more than ... hours.]

IV. DEPARTURE

Upon completion of the post-inspection procedures at the inspection site, the inspection team [and the observer[(s)] of the requesting State Party] shall proceed promptly to a point of entry and shall then leave the territory of the inspected State Party in the minimum time possible.

V. REPORTS

A. Contents

The inspection report shall summarize in a general way the activities conducted by the inspection team and the factual findings of the inspection team, particularly with regard to the concerns regarding [non-] compliance with the Convention cited in the request for the challenge inspection and shall be limited to information directly related to the Chemical Weapons Convention. It shall also include an assessment by the inspection team of the degree and nature of access and cooperation granted to the inspectors and the extent to which this enabled them fulfil their mandate. Detailed information relating to the concerns regarding [non-] compliance with the Convention cited in the request for the challenge inspection shall be submitted as an Appendix to the final report and be retained within the Technical Secretariat under appropriate safeguards to protect sensitive information.

B. Procedures

The Inspectors shall within 72 hours of their return to their primary work location submit a preliminary inspection report to the Director-General of the Technical Secretariat. The Director-General shall promptly transmit the preliminary report to the requesting State Party, the inspected State Party and to the Executive Council. A draft final report shall be made

available to the inspected State Party within 20 days of the completion of the inspection for identification of any non-CW-related information it considers should, due to its confidentiality not be circulated outside the Technical Secretariat. The Technical Secretariat shall consider proposals for changes to their draft final report made by the inspected State party and using its own discretion, wherever possible, adopt them. The final report shall then be submitted within 30 days of the completion of the inspection to the Director-General for further distribution and consideration in accordance with Article IX, paragraphs 16 and 17.

Ad Hoc Committee on Chemical Weapons

AUSTRIA

The selection of gas chromatographic phase systems for verification analysis

One of the analytical tasks to be fulfilled by an on-site inspection team consists of screening samples for the presence of scheduled compounds, their precursors or decomposition products. Only if the result of a screening test hints at an activity prohibited by the Chemical Weapons Convention, will samples be removed from the plant site for further confirmatory analysis ending with the identification and quantification of compounds of interest in this context.

The Ad Hoc Committee on Chemical Weapons of the Conference on Disarmament has established a Technical Group on Analytical Data Base and Laboratories which has already discussed many technical aspects of different analytical techniques for the verification of the Chemical Weapons Convention. The results of these discussions are documented in the reports CD/CW/WP.272 of 22 January 1990, CD/CW/WP.306 of 17 July 1990 and CD/CW/WP.349 of 12 July 1991.

The discussions showed that gas chromatography will play an important role in verification analysis, either for screening tests using retention data obtained by multi-dimensional gas chromatography (retention index monitoring) or by its use as a separation method in combination with a spectrometric method like mass spectrometry (GC-MS) or fourier transform infra-red spectrometry. When these "hyphenated" methods are used, gas chromatography simplifies the complex sample to such an extent that the combination of gas chromatographic retention data and spectroscopic characteristics allow the unambiguous identification of compounds.

In both cases, the selection of an appropriate gas chromatographic phase system is a critical step which has been discussed briefly in connection with the establishment of an analytical data base (CD/CW/WP.349). It was concluded that it would simplify the collection of a chromatographic retention data base if the same stationary phases would be used when gas chromatography is applied as an independent monitoring method for screening purposes or as a separation method to introduce the sample into a spectrometer. The Technical Group on Analytical Data Base and Laboratories, however, only gave a preliminary

proposal for the columns to be selected which was based on the experience in different laboratories which had different practices. No quantitative criteria were given for the selection of the columns.

The paper submitted here presents an objective and systematic approach for the optimal selection of gas chromatographic columns by using chemometrical methods and illustrates this approach starting from a consistent set of retention data.

**Optimal Selection of Gas Chromatographic Columns for the
Identification of Chemical Warfare Agents by means of
Retention Data applying Chemometrics in Chemical Weapon Control.**

JOSEF F.K.HUBER, ERNST KENNDLER, GREGOR REICH, WERNER HACK AND JOSEF WOLF.

Institute for Analytical Chemistry, University of Vienna
Währinger Str. 38, A-1090 Vienna, Austria

INTRODUCTION

Chemical compounds can be identified by the measurement of properties which depend on their chemical nature. In general several of such information parameters have to be determined for a safe identification. In principle this approach gives a multidimensional data matrix, X_{ik} .

$$\begin{array}{c}
 \text{Information parameters } k \\
 \hline
 \begin{array}{cccc}
 X_{11}, & X_{12}, & \dots, & X_{1m} \\
 X_{21}, & X_{22}, & \dots, & X_{2m} \\
 \vdots & & & \vdots \\
 X_{n1}, & X_{n2}, & \dots, & X_{nm}
 \end{array} \\
 \left. \begin{array}{c} \text{Components } i \\ \downarrow \end{array} \right\}
 \end{array}$$

Each component is determined by a m -dimensional vector and defines a point in the m -dimensional space. The identification is performed by comparing the measured data with a library of data. The certainty of the identification depends on the precision and accuracy and the dimensionality of the data.

In general the identification data matrix cannot be obtained by measurements in a mixture since the signals of the different components superimpose each other and the results cannot be interpreted. Therefore the mixture has to be separated before the measurement. The separation, however, is also based on properties which are specific for the components. Therefore the separation parameters can be also used for the identification of the single species. Usually high performance separation methods, such as chromatography, are applied for this purpose and retention data are used for the identification. In gas chromatography so-called retention indices are defined in order to reduce the process parameters to those depending on the chemical nature of the components. This aim is

achieved by standardization of the retention data by means of a reference scale defined by the n- alkanes.

Since the identification can be carried out only with a given probability, it is important to quantify the certainty of identification and to select conditions giving optimal results. This target can be achieved by applying chemometrical methods, especially information theory. In this work a number of chemical warfare agents, precursors and decomposition products were chosen as test set for the optimization. The test compounds cover a wide range in chemical nature.

THEORETICAL

Retention data

In gas chromatography the retention time (= average residence time) t_{Ri} of a component, i , is given by the following expression

$$t_{Ri} = \frac{L}{u}(1 + \kappa_i), \quad (1)$$

where L = length of the column,

u = average flow velocity of the carrier gas and

κ_i = capacity factor = $Q_i^{(s)}/Q_i^{(m)}$ = ratio of the amounts of i in the stationary phase, s , and in the mobile phase, m , in equilibrium.

In GC the capacity factor is a thermodynamic quantity depending on the molecular interaction of the analyte with the stationary phase, the volatility of the pure analyte and the volume ratio of the stationary and the mobile phase. For highly diluted solutions its is described by the equation

$$\kappa_i = \frac{RT n^{(s)}}{p_i^{(0)} \gamma_{i0}^{(s)} V^{(m)}} \quad (2)$$

where R = gas constant

T = temperature ($^{\circ}K$)

$p_i^{(0)}$ = vapour pressure of the pure compound i ,

$\gamma_{i0}^{(s)}$ = activity coefficient of component, i , at infinite dilution in the stationary phase

$V^{(m)}$ = mobile phase volume in the column and

$n^{(s)}$ = molar amount of stationary phase in the column

For the identification relevant are the activity coefficient, $\gamma_{i0}^{(s)}$ and the vapour pressure $p_i^{(0)}$. The ratio $n^{(s)}/V^{(m)}$ is of no meaning for the identification since it has the same value for all components in a given column.

By the definition of the retention index, I_{Ri} , effects not specific for the sample are eliminate. The retention index concept is based on the logarithmic interpolation between two standards with different carbon numbers n and $n + \Delta n$, respectively. ¹

$$I_{Ri} = 100_n + 100\Delta n \frac{\log \left(\frac{\kappa_i}{\kappa_n} \right)}{\log \left(\frac{\kappa_{n+\Delta n}}{\kappa_n} \right)} \quad (3)$$

This is a general definition allowing the use of an incomplete series of standards. Usually a complete series of standards is used and $n = 1$.

The combination of equs. 2 and 3 leads to the following expression:

$$I_{Ri} = 100n + 100\Delta n \frac{\log \left(\frac{p_n^{(o)} \gamma_n^{(s,o)}}{p_{io} \gamma_i^{(s,o)}} \right)}{\log \left(\frac{p_n^{(o)} \gamma_n^{(s,o)}}{p_{n+\Delta n} \gamma_{(n+\Delta n)}^{(s,o)}} \right)} \quad (4)$$

The retention index depends only on the vapour pressures of the pure compounds and of the activity coefficients of the analyte as well as of two standards.

Information theory for column assesment ²⁻⁵

The number of components which can be differentiated by one or more chromatographic columns is a measure of the column quality for identification. It can be characterized by means of the information theory.

The information content of a continuous signal can be calculated if the probability density function is known. If this function is unknown an approximate calculation of the information content can be carried out by a histogram with $k = \text{ld } n + 1$ intervals of a given width, ΔX , where n is the number of data. The information content is calculated by means of equation

$$H = - \sum_{r=1}^k p_r \text{ld } p_r + \text{ld } \Delta X - \text{ld } \sigma_E (2\pi e)^{1/2} \quad (5)$$

$$\text{with } \sum_{r=1}^b p_r = 1$$

where p_r = probability to find a retention index value within the interval r

σ_E = standard derivation of the error

$2\pi e$ = is a constant factor (e is the natural base of logarithms)

If retention indices are measured on columns with different retention characteristics a m- dimensional histogram results and the information content is calculated as follows

$$H(1, 2, \dots, m) = - \sum_{r=1}^{(m,k)} p_r(X_1, X_2, \dots, X_m) \text{ ld } p_r(X_1, X_2, \dots, X_m) + \text{ld} (\Delta X_1, \Delta X_2, \dots, \Delta X_m) - \text{ld} (2\pi e)^{(m/2)} \sigma_E^m \quad (6)$$

The function $p_r(X_1, X_2, \dots, X_m)$ describes the probability to find the retention indices of a compound in given intervals of the m- dimensional histogram.

EXPERIMENTAL

Apparatus

The experiments were carried out with a gas chromatograph equipped with flame ionization detector (FID), flame photometric detector (FPD), split/splitless injector and autosampler (model 7673, Hewlett Packard, Palo Alto, U.S.A.).

The hydrogen for the FID was supplied by a hydrogen generator (model 7525, Packard, Downers Grove, U.S.A.)

The signal processing and the control of the chromatograph was made with a computer based Chromatographic Worksystem (model HP 3359, Copyright 1984, 1985, 1986, 1987, 1988, 1989, Hewlett Packard).

Chemicals

The compounds selected as test set for the optimization of identification of chemical warfare agents, precursors and decomposition products by means of gas chromatographic retention data are presented in Table 1.

The specification of the gas chromatographic columns used are given in Table 2.

Nitrogen of 99,995% (v/v) purity (Air Liquide, Mitry-Mory, France) was used as carrier gas for the columns and make-up gas for the detector. Information on the standards used for the calculation of retention indices is given in Table 3.

The following solvents and reagents were used in the sample pretreatment and the preparation of sample solutions:

n-Pentane	99% (m/m)	E.Merck, Darmstadt, Germany
Diethylether	p.A.	- " -
Methanol	p.A.	- " -
KOH	p.A.	- " -

For the FID hydrogen supplied by a hydrogen generator and synthetic air of 99,995% (v/v) purity (Air Liquide) were used as burning gases.

Procedures

Gas chromatography:

The gas chromatographic columns were operated at constant temperature depending on the type of sample (see Table 4) with a carrier gas flow rate of 10 ml/min. The injector was heated to 250°C.

The FID was operated at 350°C with a hydrogen flow rate of 30 ml/min, an air flow rate of 400 ml/min and a make-up gas flow rate of 5 ml/min.

Table 1: Chemical warfare agents, precursors and decomposition products⁶⁻⁹

Compound	Purity % (m/m)	Function	Source
2-Chloroacetophenone	99%	Irritant for eyes	Aldrich-Chemie Steinheim, Germany
N-Methyl-bis-(2-chloro-ethyl)amine hydrochloride (HN2)	98%	Chemical warfare agent acting on skin base	" "
Tris(2-chloroethyl)amine hydrochloride (HN3)	96%	Chemical warfare agent acting on skin base	" "
Thiodiglycol	99%	Source material for Bis(2-chloroethyl)-sulfide (Mustard gas), hydrolysis product of Mustard gas	" "
1,4-Dithiane	97%	Decontamination product of Mustard Gas	" "
Methyl sulfoxide (DMSO)	99%	Mediator for the penetration into skin	" "
Methyl sulfone	98%	Oxidation product of DMSO	" "
Diisopropylfluorophosphate (DFP)	b.p. 62°C / 9mm	nerve gas	" "

Methylphosphonic acid	98%	Source material for the production of nerve gases	Aldrich-Chemie Steinheim, Germany
Methylphosphonic di-chloride	m.p. 35-37°	Source material for the production of nerve gases	- " -
Triethyl phosphate	99%	Source material for the production of nerve gases	- " -
Tributyl phosphate	99%	Source material for the production of nerve gases	- " -
3,3-Dimethyl-2-butanol	97%	Source material for the production of the nerve gas O-isopropyl methylphosphonofluoridate (Sarin)	- " -
3-Quinuclidinol	98%	Source materials for the production of benzoic acid chinuclidinol ester (Phsychochemical warfare agent)	Sigma Chemie, Deisenhofen, Germany
Benzoic acid	99%	Source materials for the production of benzoic acid chinuclidinol ester (Phsychochemical warfare agent)	Aldrich-Chemie Steinheim, Germany
Methyl salicylate	99%	Simulating compound for chemical warfare agents	- " -

Table 2. Specifications of gas chromatographic capillary columns

Code	Stationary phase	Internal diameter (mm)	Length (m)	Film thickness (μm)	Source
HP-1	Methyl silicone (MS)	0,53	5	2,65	Hewlett-Packard Palo Alto, U.S.A.
HP-5	Methyl silicone with 5% phenyl groups (MS5%Ph)	0,53	10	2,65	" - "
HP-17	Methyl silicone with 50% phenyl groups (MS50%Ph)	0,53	10	2,0	" - "
H-20M	Polyethyleneglycol M = 20.000 (PE)	0,53	10	1,33	" - "
SP TM -2380	Methylcyanopropyl silicone (CP)	0,53	15	0,2	Supelco Belleforte, U.S.A.

Table 3. n-Alkanes used as standards for the determination of retention indices

Compound	C-number	Purity	Source
n-heptane	7	GC-grade	E. Merck Darmstadt, Germany
n-octane	8	- " -	- " -
n-nonane	9	- " -	- " -
n-decane	10	- " -	- " -
undecane	11	99% (m/m)	Aldrich-Chemie Steinheim, Germany
dodecane	12	GC-grade	Chrompack Middelburg, The Netherlands
tridecane	13	- " -	- " -
tetradecane	14	- " -	- " -
pentadecane	15	- " -	- " -
hexadecane	16	- " -	- " -
heptadecane	17	- " -	- " -
octadecane	18	- " -	- " -
nonadecane	19	- " -	- " -
eicosane	20	- " -	- " -
docosane	22	- " -	- " -
tetracosane	24	- " -	- " -
octacosane	28	- " -	- " -
triacontane	30	purum >99% (m/m)	Fluka Buchs, Switzerland
dotriacontane	32	purum 99% (m/m)	- " -

Table 4. Measured retention indices

Analytes	Column			
	MS	MS(5%Ph)	MS(50%Ph)	CP
3,3-Dimethyl-2-butanol	722.8±1.7 (80)	735.6±0.5 (80)	812.7±0.7 (60)	1118.9±0.6(90)
	721.7±1.9 (100)	736.3±0.5 (100)	821.5±1.5 (80)	1114.0±0.4(110)
Methyl sulfoxid	777.3±0.8 (80)	829.4±0.5 (80)	1140.8±0.3(100)	1569.1±0.3(130)
	780.5±1.4 (100)	832.7±0.5 (100)	1144.1±0.9(120)	1584.0±0.4(150)
Methylphosphonic dichloride	802.1±0.4 (100)	844.6±0.4 (110)	(2)	(2)
	805.0±1.1 (120)	848.5±1.3 (130)	(2)	(2)
Methylphosphonic acid	838.9±0.1 (80)	875.5±0.1 (80)	1332.7±1.0(100)	1493.6±0.4(130)
	838.8±0.7 (100)	875.7±0.1 (100)	1130.3±0.4(120)	1501.3±0.6(150)
Methyl sulfone	849.0±2.1 (80)	914.1±0.4 (80)	1243.6±0.4(100)	1900.4±0.4(160)
	852.2±2.0 (100)	915.5±0.3 (100)	1251.2±0.5(120)	1913.1±0.5(180)
Diisopropylfluorophosphate (DFP)	929.2±0.1 (80)	956.4±0.6 (110)	1123.0±0.5(100)	1341.6±0.2(90)
	927.4±0.6 (100)	954.7±0.3 (130)	1119.4±0.4(120)	1342.0±0.4(110)
1,4-Dithiane	1038.0±0.4(100)	1083.9±0.4(110)	1341.1±0.6(130)	1618.9±0.2(130)
	1049.7±1.6(120)	1097.6±0.8(130)	1364.6±0.5(150)	1641.3±0.2(150)
N-Methyl-bis-(2-chloroethyl)amine (HN2)	1052.5±0.3(100)	1090.7±0.3(110)	1283.4±0.1(130)	1566.3±0.5(130)
	1058.5±0.2(120)	1096.8±0.3(130)	1292.9±0.3(150)	1574.5±0.7(150)

Triethyl phosphate	1081.4±0.7(120)	1118.5±0.4(140)	1362.1±0.7(130)	1656.1±0.7(130)	2011.2±0.3(110)
	1079.4±1.0(140)	1118.0±0.4(160)	1360.2±0.6(150)	1659.6±0.5(150)	2064.4±1.8(130)
Thiodiglykol	1132.6±1.4(120)	1190.4±0.6(140)	1514.3±0.2(160)	2382.8±1.0(190)	3064.3±2.1(180)(3)
	1140.4±0.5(140)	1199.5±0.5(160)	1534.0±1.2(180)	2393.1±0.4(210)	3190.9±1.7(200)(3)
3-Quinuclidinol	1151.9±0.9(120)	1200.7±0.7(140)	1466.4±1.5(130)	1985.4±0.7(190)	2326.8±0.4(130)
	1162.5±0.5(140)	1213.3±0.2(160)	1478.8±0.5(150)	2001.8±0.5(210)	2417.5±0.7(150)
Methyl salicylate	1174.7±1.1(120)	1216.4±0.3(140)	1426.7±0.6(130)	1808.6±0.4(160)	1998.3±0.4(110)
	1184.6±0.4(140)	1226.7±0.3(160)	1444.0±0.3(150)	1826.5±0.5(180)	2061.6±1.5(130)
2-Chloroacetophenone (CN)	1231.2±0.4(100)	1301.5±0.2(140)	1609.6±0.3(160)	2101.7±0.4(160)	2501.9±0.4(130)
	1240.9±0.3(120)	1312.1±0.2(140)	1628.4±0.1(180)	2113.9±0.6(180)	2581.8±0.7(150)
Tris-(2-chloroethyl)amine	1351.0±0.3(120)	1414.1±0.1(140)	1682.4±1.1(160)	2089.1±0.3(160)	2479.7±0.3(130)
	1361.4±0.2(140)	1423.7±0.2(160)	1698.8±0.1(180)	2101.6±0.3(180)	2560.7±0.7(150)
Tributyl phosphate	1612.5±1.1(180)	1650.9±0.3(200)	1882.5±0.6(190)	2117.2±0.4(190)	2539.7±0.6(150)
	1612.2±1.2(200)	1651.0±0.3(220)	1883.8±0.4(210)	2118.2±0.7(210)	2587.5±2.1(170)(3)
Benzilic acid (1)	1791.8±0.2(180)	1865.4±0.3(200)	2291.3±1.0(220)	2852.2±1.4(190)	3367.1±1.6(180)(4)
	1805.2±1.4(200)	1880.8±0.7(220)	2236.1±2.1(240)	2833.6±2.5(210)	3502.5±9.4(200)(4)

(1) Measured as methyl ester derivative.

(2) Compound decompose on highly polar columns.

(3) Extrapolation of the retention index to infinite dilution because of an asymmetrical peak of the analyt.

(4) Retention index calculated from retention data of the standards extrapolated to infinite dilution because of asymmetrical peaks of the n-alkanes.

Sample pretreatment:

The free acids benzoic acid and methylphosphonic acid cannot be run directly on a GC. They have to be derivatized to methyl esters by means of diazomethane. The reagent is prepared from N-nitroso urea: 13,2 g of the starting material is added under cooling in portions to a liquid-liquid mixture consisting of 35 ml of a 40% (m/m) aqueous solution of KOH and 100 ml diethylether. After termination of the reaction the diethylether phase containing the diazomethane is collected and stored in a refrigerator. The derivatization of the acids is performed by adding diazomethane solution to the sample until the development of nitrogen stops.

The chemical warfare agents of the β -chloroamine type are supplied as hydrochlorids. They have to be extracted as amines prior to gas chromatography. For this purpose 6,2 mg of HN2-hydrochlorid or 5,9 mg of HN3-hydrochlorid are dissolved in 2 ml and 1,5 ml, respectively, of 0.1% aqueous solution of KOH and extracted with 5 ml diethylether. In both cases a solution of 1 mg/ml base is obtained. Because of the toxicity of the agents a glove-box is used for this handling.

Inter- and extrapolation of retention indices to a given temperature:

Retention indices measured at different temperatures were inter- or extrapolated to a constant temperature on each column. The following approximative linear approach was used to calculate the retention index, $I_R^{(T_X)}$, at temperature T_X from the retention indices $I_R^{(T_2)}$ and $I_R^{(T_1)}$, respectively at the temperatures T_2 and T_1

$$I_R^{(T_X)} = \frac{I_R^{(T_2)} - I_R^{(T_1)}}{T_2 - T_1} (T_X - T_1) \quad (7)$$

The error resulting from this simplified calculation is included in the standard deviation, σ_E , of the error in eqs. 5 and 6.

Results and discussion

Determination of the retention index data

The retention indices of all test compounds were measured at two temperatures on each column. The results are presented in table 4 together with the standard deviation of the measurements. For an asymmetric peak the retention index is not constant but depends on the peak height. This is the consequence of a nonlinear distribution isotherm of the solute. By extrapolation of the retention index to infinite dilution the constancy of the retention data can be significantly improved. This extrapolation of retention data for nonsymmetric peaks is described in a previous paper.³

The experimental retention indices were inter- or extrapolated to a constant temperature for each column according to eqn.7. The results are given in table 5. The total error due to the measurement, the extrapolation to infinite solution and the conversion to constant temperature is estimated to be two retention index units.

Linear regression of the retention index data on different columns in pairs

The retention indices on different columns are compared in pairs by linear regression. The correlation coefficients are given in table 6 and the data are plotted in Figs. 1a - j. We can see that the columns MS and CP have the most noncorrelated retention characteristics. The columns with values for correlation coefficient above 0.900 are highly correlated, with values between 0.800 and 0.900 moderately correlated and with values below 0.800 low correlated. These conclusions are confirmed visually by the plots shown in Figs. 1a - j.

Characterization of the identification power by the information content

The information content of the retention indices was calculated according to eqn. 6 assuming a standard deviation of two for the error. The calculation was performed for the single columns as well as for each possible combination of columns. For the multiple columns it is assumed that the retention data of the same compound on different columns can be definitely attached to each other. This can be achieved without any doubt only by column switching. A less safe approach is the combination of retention data on the basis of the peak areas. In this case false attachments can be caused by the appearance of peak clusters or in the case of too small differences in peak areas. The simple combination of retention data on different columns can lead to artifacts as is demonstrated by an example taken from a library of retention data:

Table 5. Retention indices of chemical warfare agents, precursors and decomposition products extrapolated for a constant temperature on each column

Analytes	Columns and temperature			Retention index	CP (110°C)
	MS (120°C)	MS(5%Ph) (120°C)	PE (130°C)		
3,3-Dimethyl-2-butanol	727.7	737.4	843.5	1109.1	1265.3
Methyl sulfoxide	783.7	837.7	1145.8	1569.1	1999.9
Methyl sulfone	855.4	917.6	1255.0	1881.4	2621.2(2)
Methylphosphonic acid (1)	838.7	876.0	1013.1	1493.6	1847.9
Diisopropylfluorophosphate (DFP)	925.6	954.7	1117.6	1342.4	1646.1
1,4-Dithiane	1049.7	1097.6	1341.1	1618.9	1851.1
N-Methyl-bis-(2-chloro-ethyl)amine (HN2)	1058.5	1096.8	1283.4	1566.3	1741.2
2-Chloroacetophenone (CN)	1240.9	1296.2	1581.4	2083.4	2422.0

Triethyl phosphate	1081.4	1118.8	1362.1	1656.1	2011.2
Thiodiglycol	1132.6	1185.9	1484.8	2351.9	2087.1
3-Quinuclidinol	1151.9	1194.4	1466.4	1936.2	1746.3
Methyl salicylate	1174.7	1211.3	1426.7	1781.8	1998.3
Tris(2-chloroethyl) amine (HN3)	1351.0	1409.3	1657.8	2070.4	2398.7
Tributyl phosphate	1613.4	1650.6	1878.6	2114.2	2692.7(2)
Benzilic acid (1)	1751.6	1811.5	2892.9	3027.0	3267.2(3)

(1) Measured as methyl ester derivative.

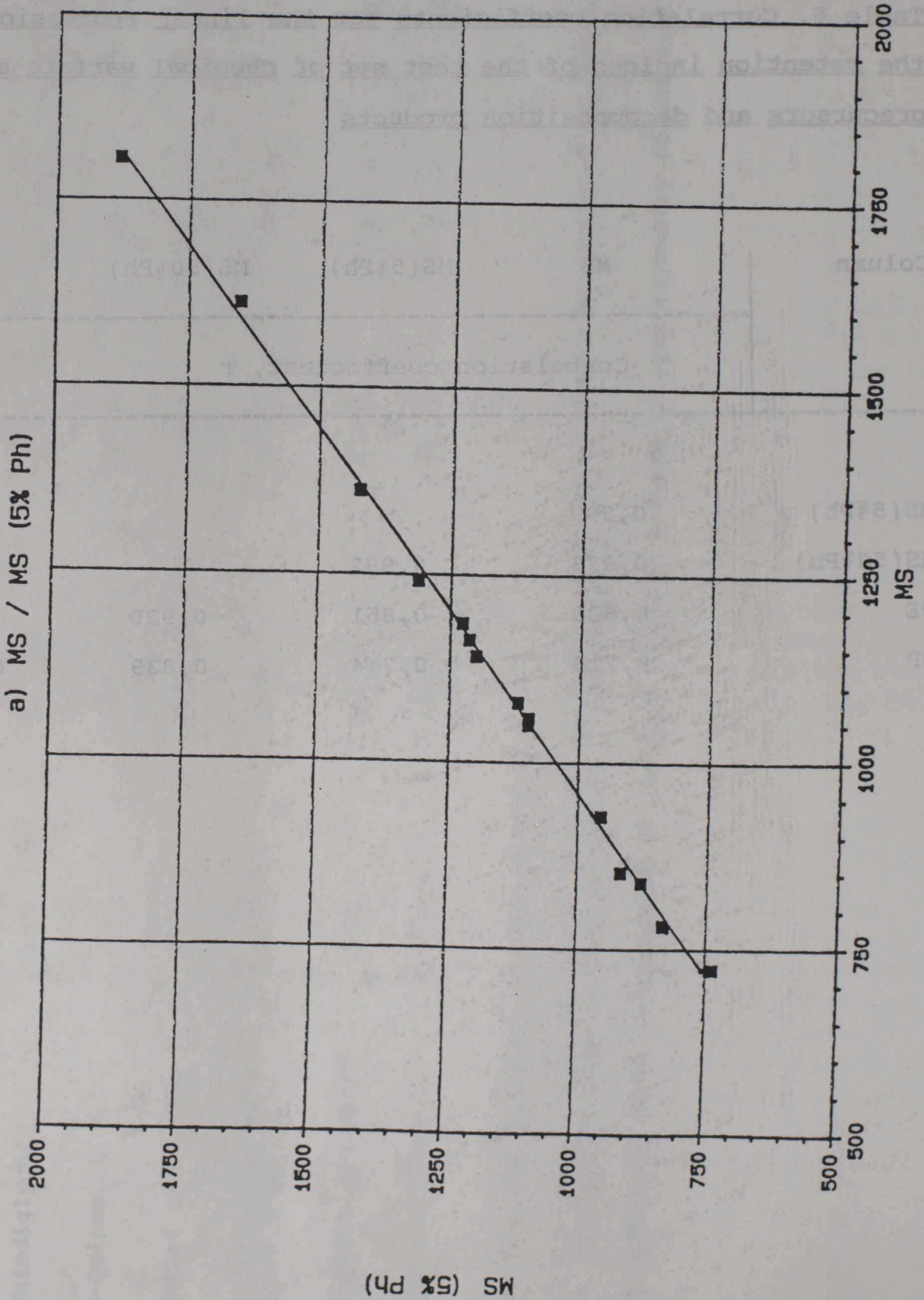
(2) Retention index calculated from the retention times of n-alkanes extrapolated to infinite dilution because of peak asymmetry of the standards.

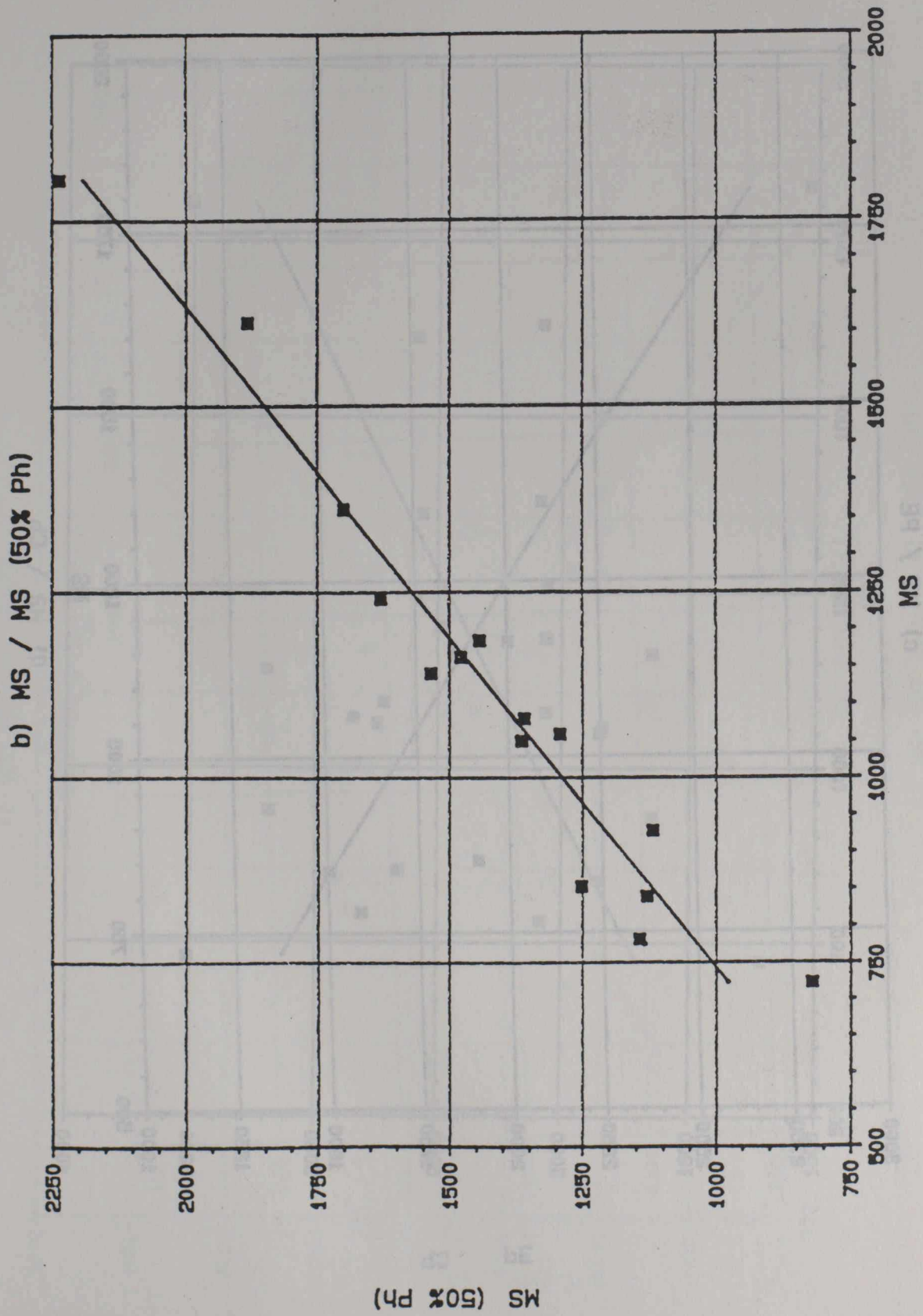
(3) Retention index extrapolated to infinite dilution because of peak asymmetry of the analyte.

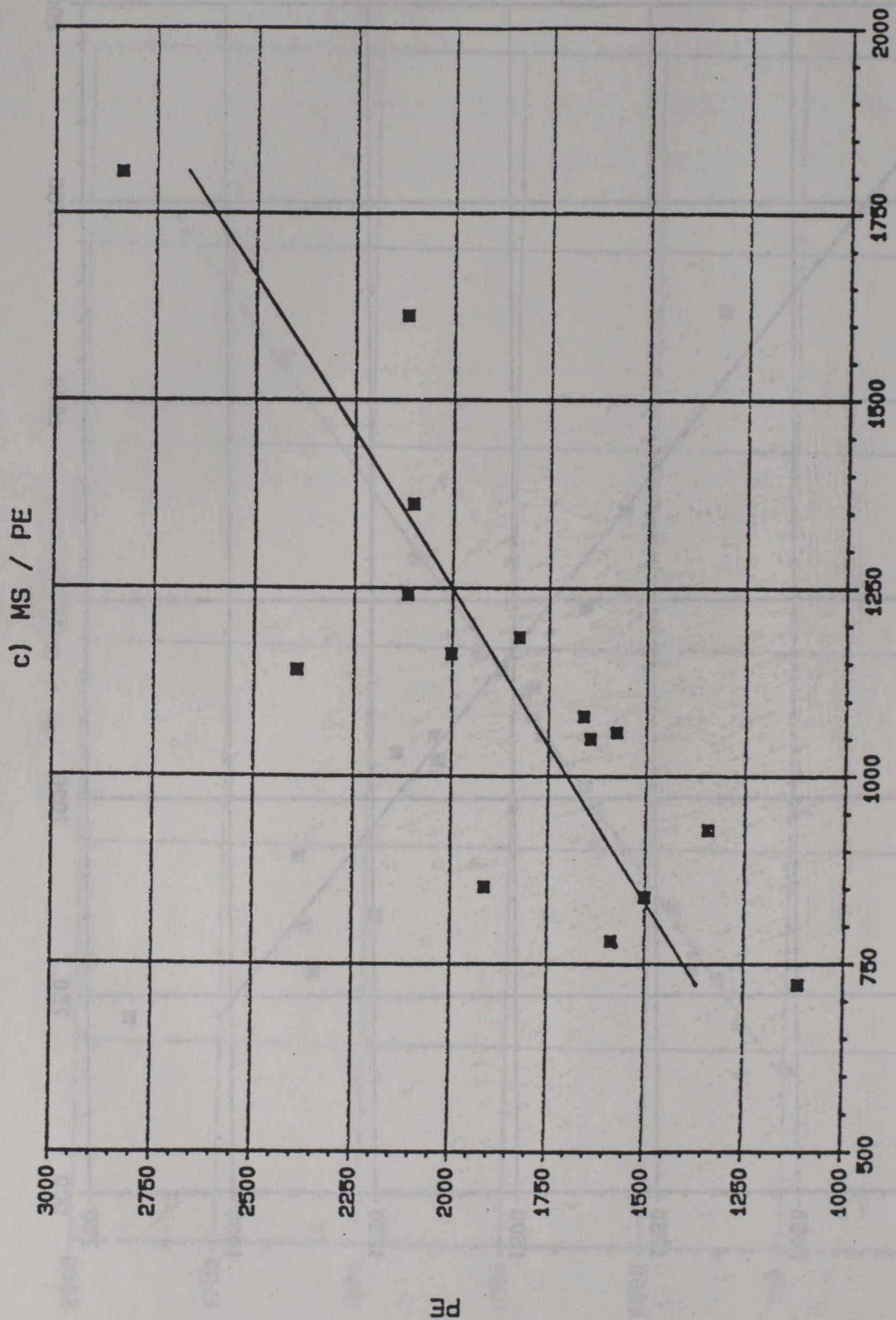
Table 6. Correlation coefficients for the linear regression of the retention indices of the test set of chemical warfare agents, precursors and decomposition products

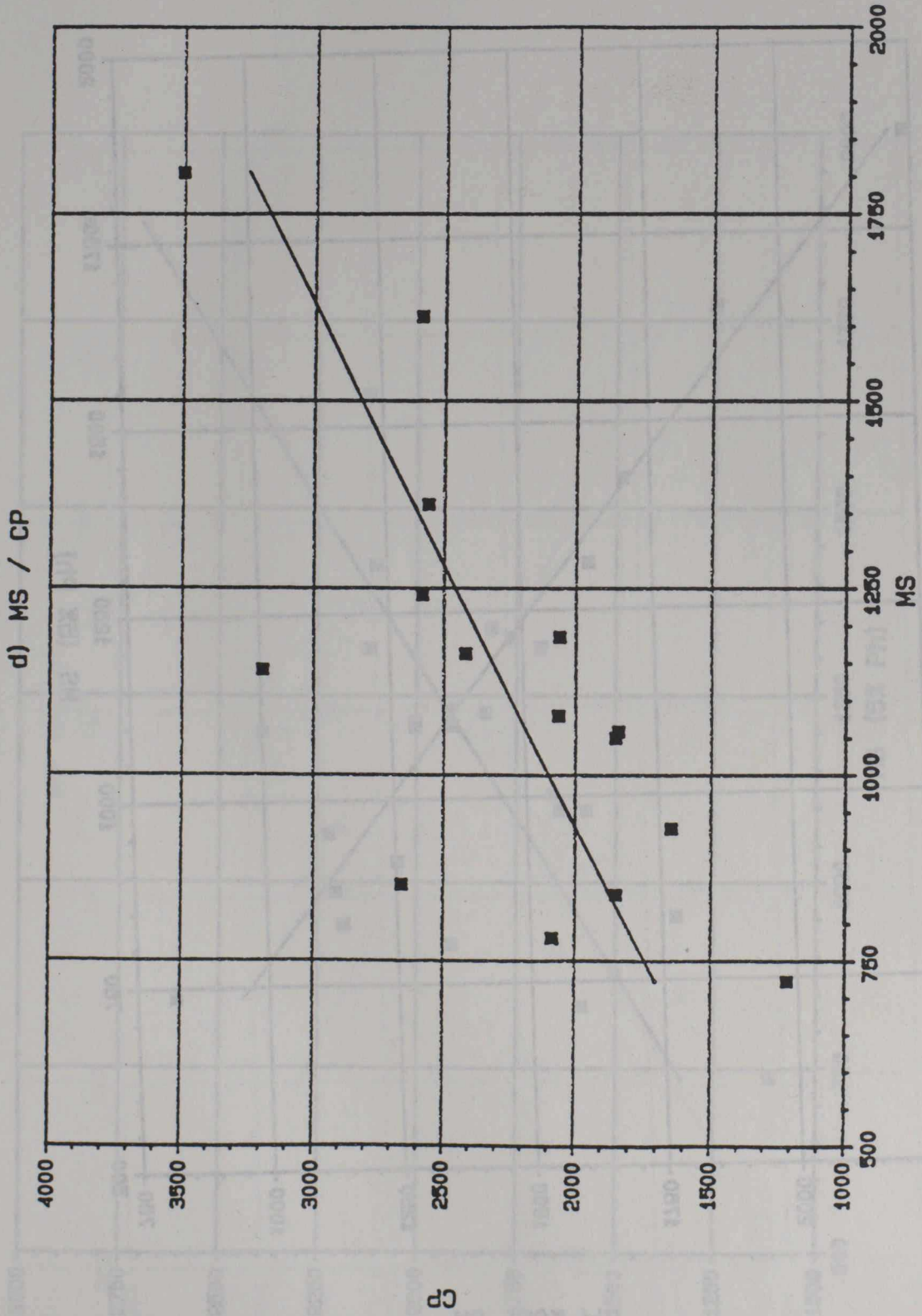
Column	MS	MS(5%Ph)	MS(50%Ph)	PE
Correlation coefficient, r				
MS(5%Ph)	0,999			
MS(50%Ph)	0,973	0,982		
PE	0,830	0,851	0,920	
CP	0,719	0,744	0,839	0,976

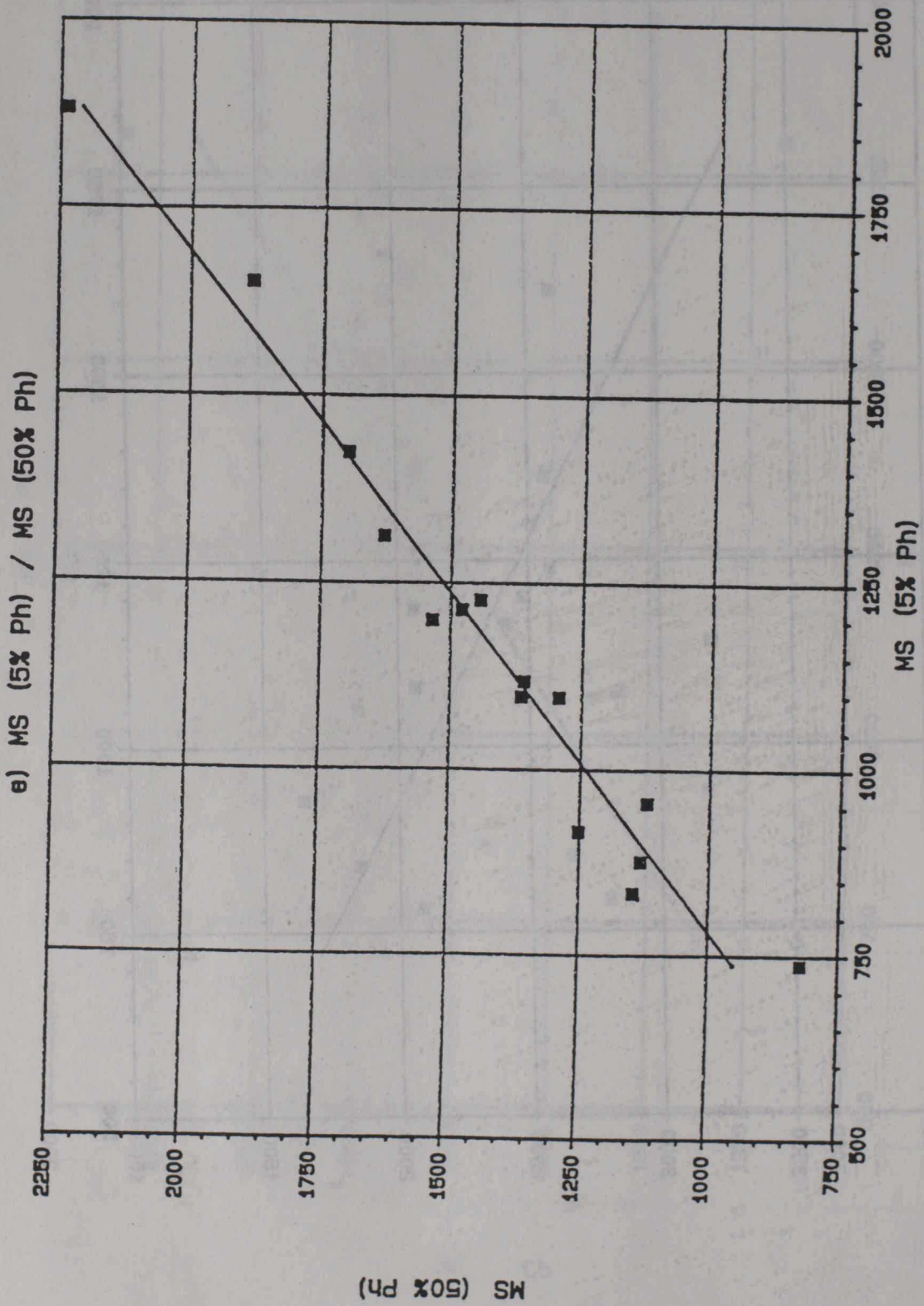
Fig. 1 Linear Regression of Retention Indices of Chemical Warfare Agents, Precursors and Decomposition Products for Pairs of Columns.

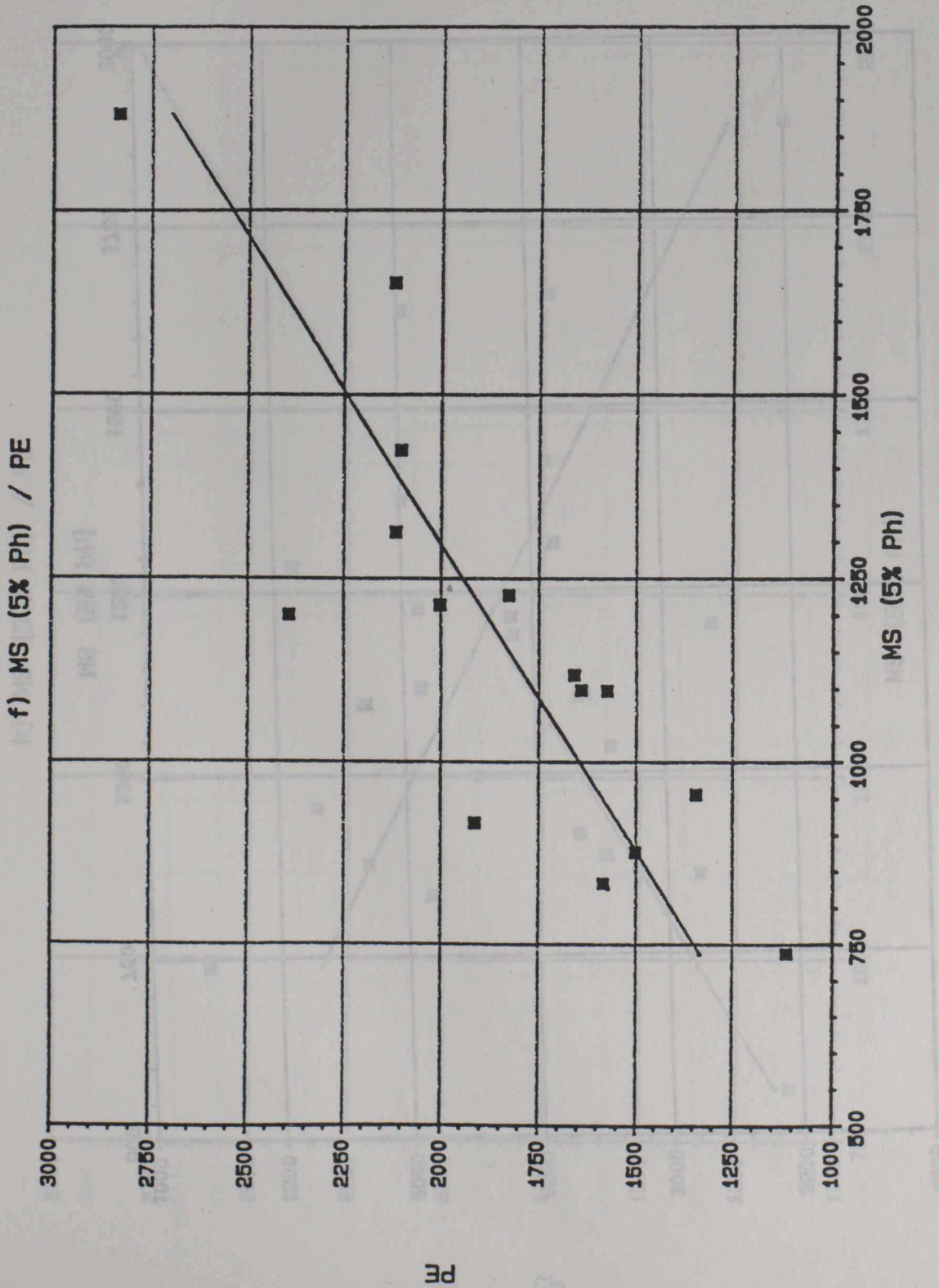


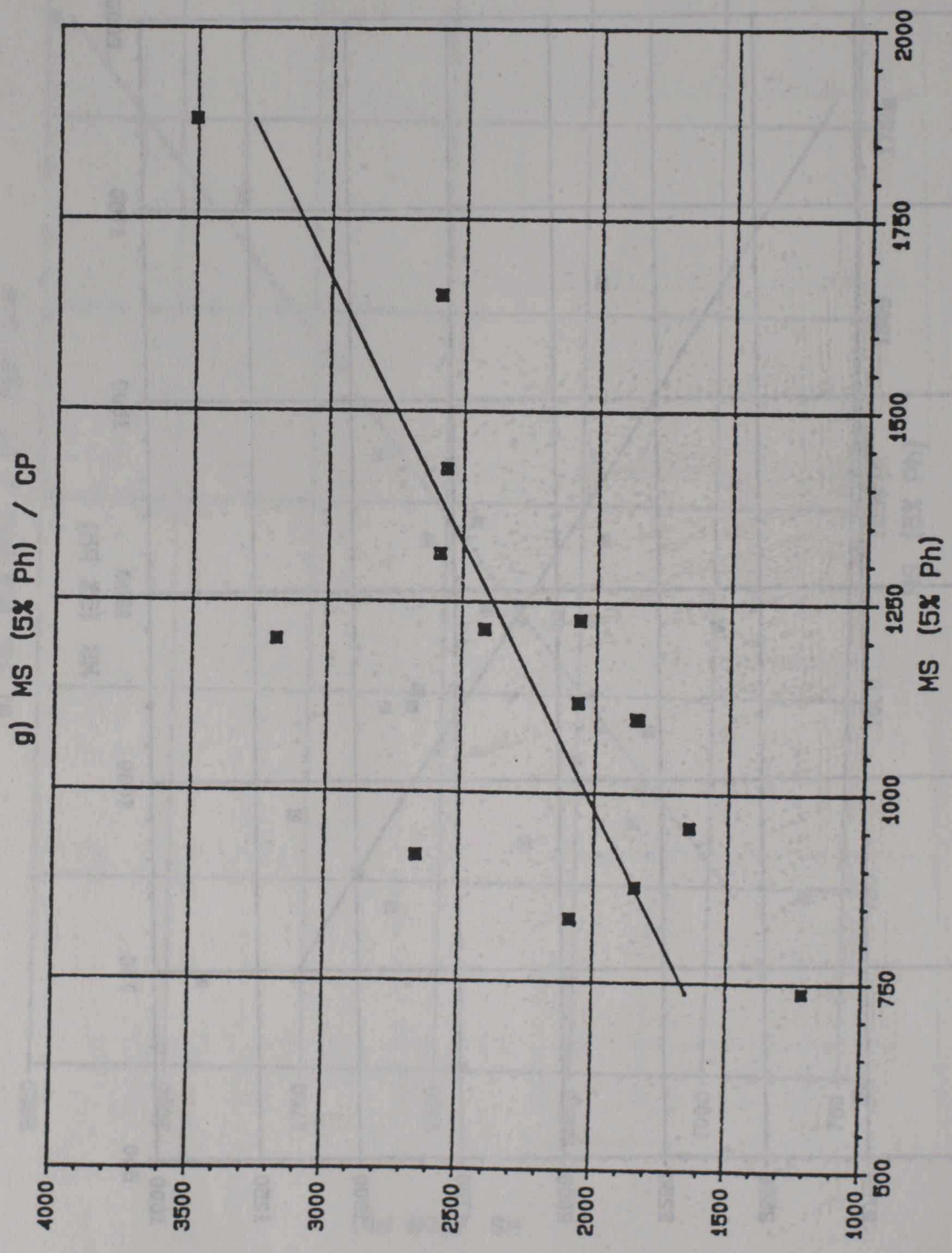


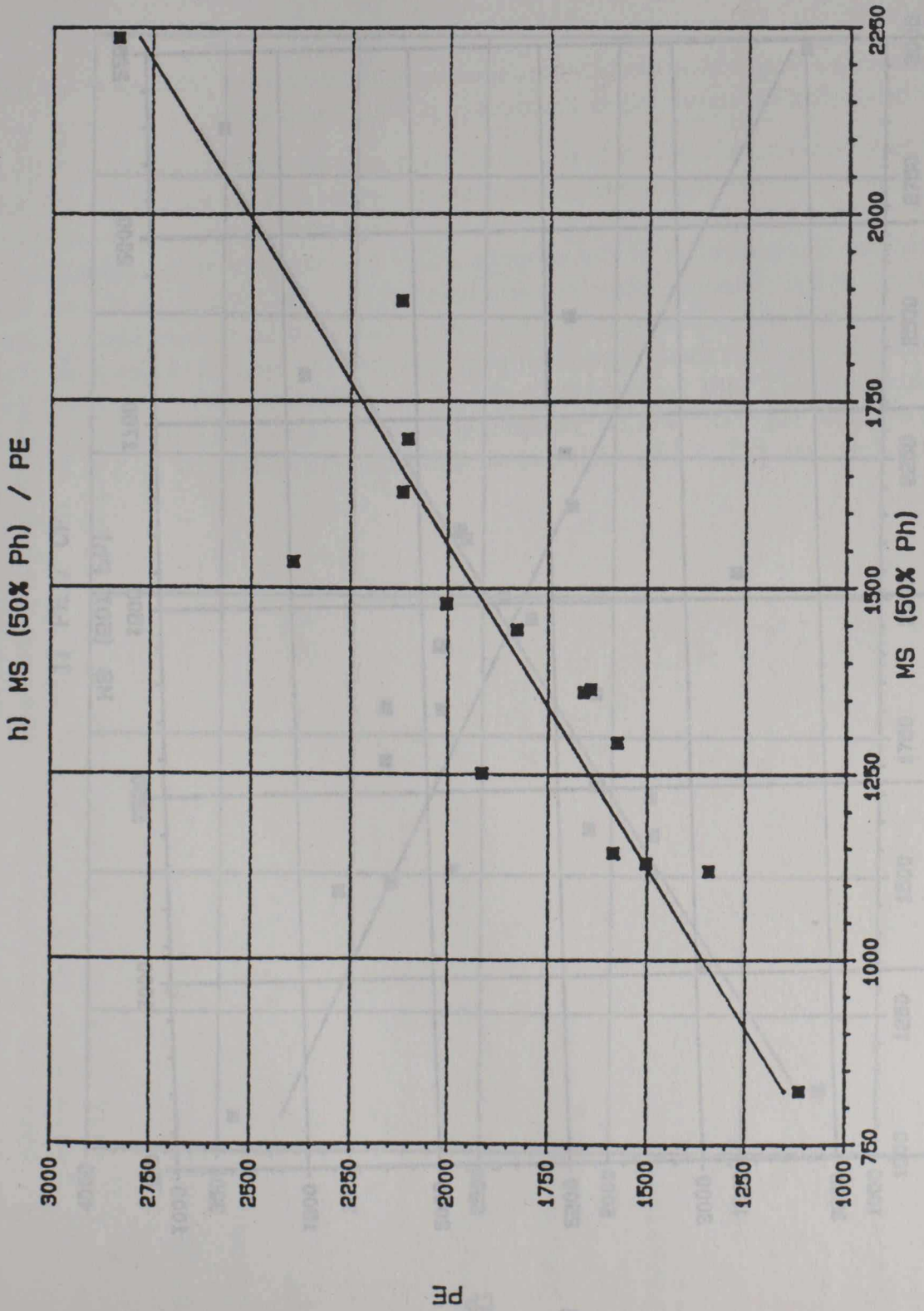


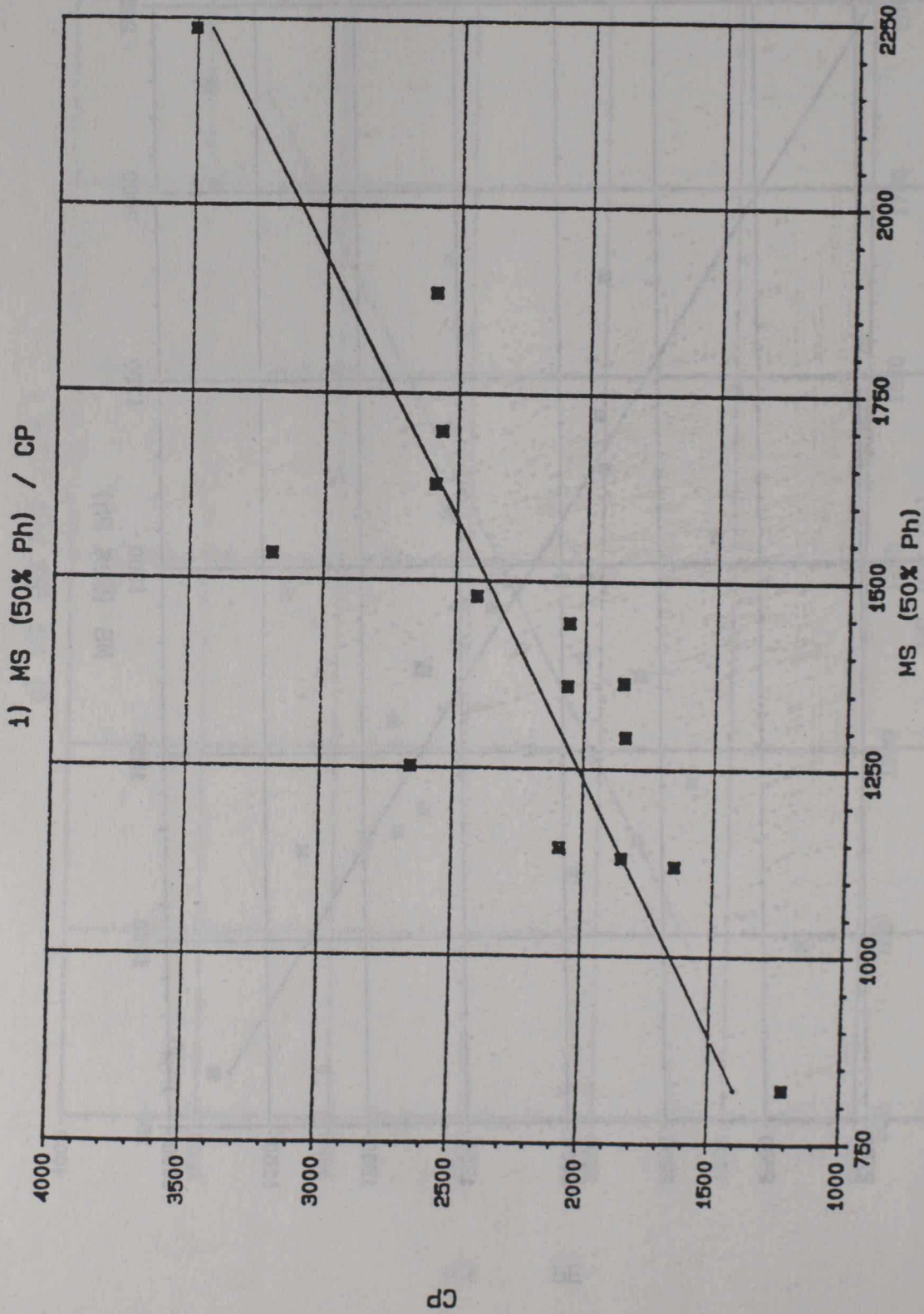






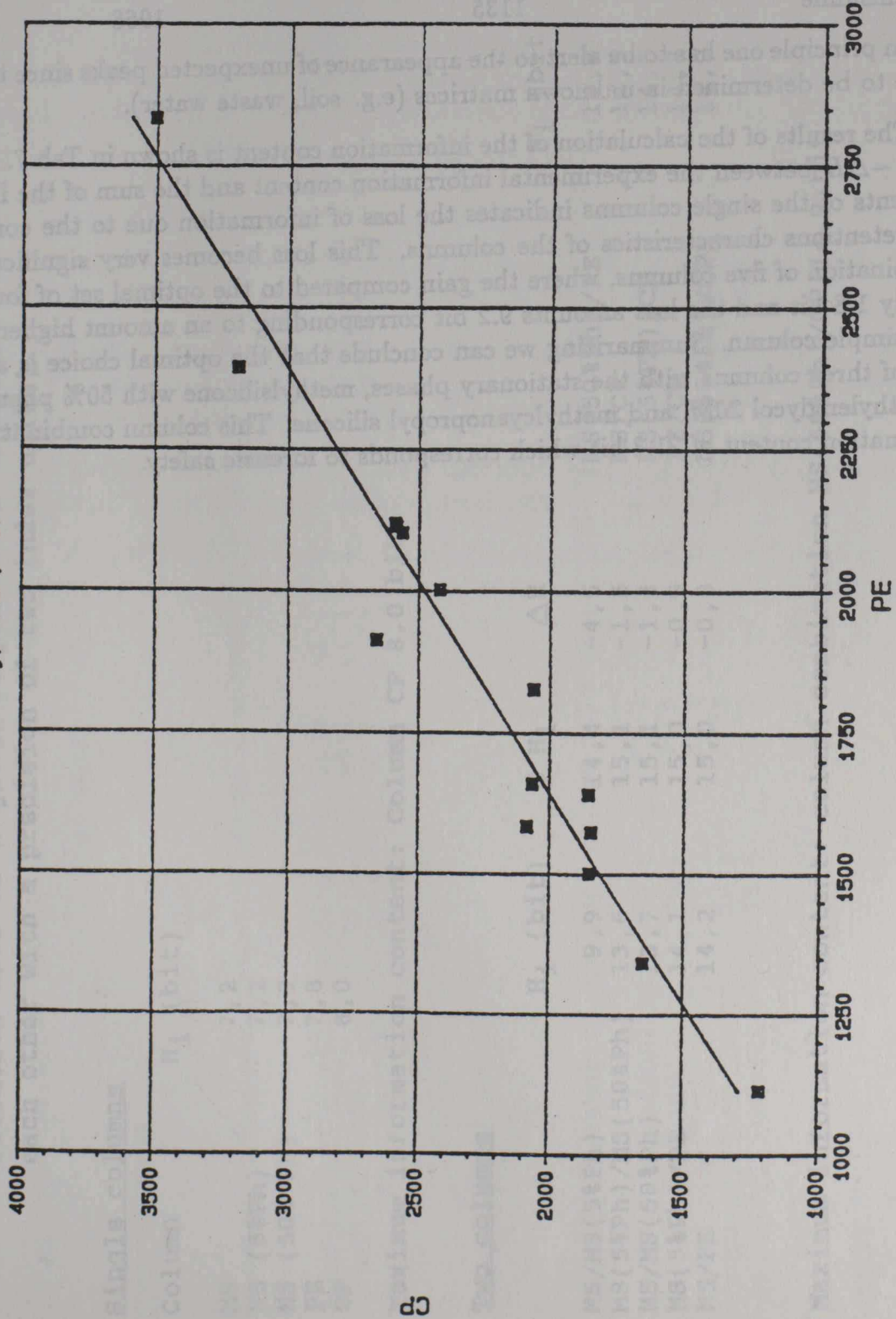






1) MS (50% Ph) / CP

1) PE / CP



Compound	Column	
	MS	PEG 20M
	Retention index	
Picolin acid methylester	1133	1969
O-Anisidine	1135	1968

In principle one has to be alert to the appearance of unexpected peaks since the analytes have to be determined in unknown matrices (e.g. soil, waste water).

The results of the calculation of the information content is shown in Tab.7. The difference $-\Delta H$ between the experimental information content and the sum of the information contents of the single columns indicates the loss of information due to the correlation of the retentions characteristics of the columns. This loss becomes very significant for the combination of five columns, where the gain compared to the optimal set of four columns is only 1.8 bit and the loss amounts 9.2 bit corresponding to an amount higher than that of a simple column. Summarizing we can conclude that the optimal choice is a combination of three columns with the stationary phases, methylsilicone with 50% phenyl groups, polyethylenglycol 20M, and methylcyanopropyl silicone. This column combination has an information content of 21.3 bit which corresponds to forensic safety.

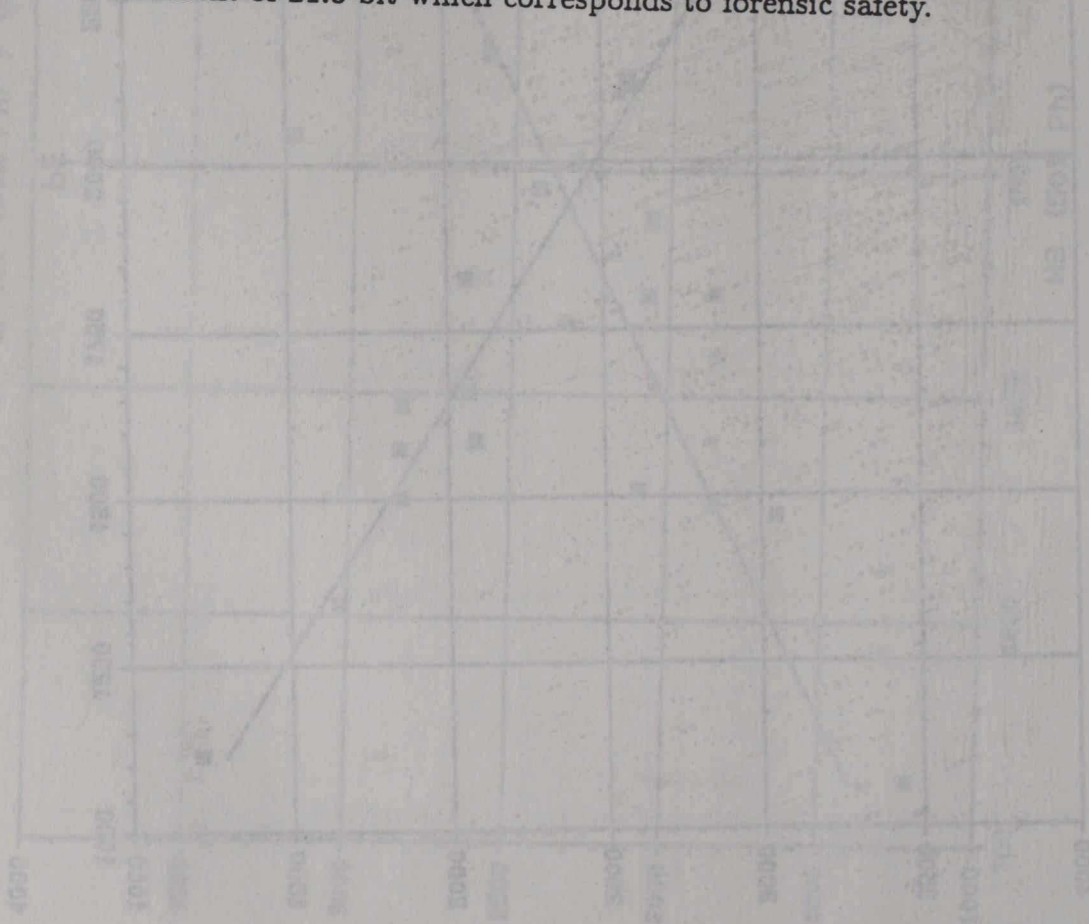


Table 7. Information content, H_i , of gas chromatographic columns for the identification of chemical warfare agents, precursors and decomposition products (it is assumed that the retention data of a given component on different columns can be clearly assigned to each other with a precision of two index units).

Single columns

Column	H_i (bit)
MS	7,2
MS (5%Ph)	7,2
MS (50% Ph)	7,9
PE	7,8
CP	8,0

Maximum information content: Column CP 8.0 bit

Two columns

	H_i (bit)	ΣH_i	ΔH
MS/MS(5%Ph)	9,9	14,4	-4,5
MS(5%Ph)/MS(50%Ph)	13,6	15,1	-1,5
MS/MS(50%Ph)	13,7	15,1	-1,4
MS(5%Ph)/PE	14,1	15,0	-0,9
MS/PE	14,2	15,0	-0,8

Maximum information content: column combination MS(50%Ph)/CP 14.9 bit

	H_i (bit)	ΣH_i	ΔH
	14,4	15,7	-1,3
	14,5	15,2	-0,7
	14,5	15,2	-0,7
	14,8	15,8	-1,0
	14,9	15,9	-1,0

Three columns

	H_i (bit)	ΣH_i	ΔH	H_i (bit)	ΣH_i	ΔH
MS/MS(5%Ph)/MS(50%Ph)	16,2	22,3	-6,1	MS/MS(50%Ph)/CP	20,7	-2,4
MS/MS(5%Ph)/PE	16,3	22,2	-5,9	MS(5%Ph)/MS(50%Ph)/CP	20,7	-2,4
MS/MS(5%Ph)/CP	16,7	22,4	-5,7	MS/PE/CP	21,2	-1,9
MS/MS(50%Ph)/PE	20,1	22,9	-2,8	MS(5%Ph)/PE/CP	21,2	-1,9
MS(5%Ph)/MS(50%Ph)/PE	20,1	22,9	-2,8	MS(50%Ph)/PE/CP	21,3	-2,4

Maximum information content: Column combination MS(50%PH)/PE/CP 21,3 bit

Four columns

	H_i (bit)	ΣH_i	ΔH	H_i (bit)	ΣH_i	ΔH
MS/MS5/MS(50%Ph)/PE	22,3	30,1	-7,8	MS/MS(50%Ph)/PE/CP	27,0	-3,9
MS/MS(5%Ph)/CP	22,9	30,3	-7,4	MS/MS(50%Ph)/PE/CP	27,1	-3,8
MS/MS(5%Ph)/PE/CP	23,0	30,2	-7,2			

Maximum information content: Column combination MS/MS(50%Ph)/PE/CP 27,1 bit

Five columns

	H_i (bit)	ΣH_i	ΔH
MS/MS(5%Ph)/MS(50%Ph)/PE/CP	28,9	38,1	-9,2

Literature

- [1] E. Kovats, *Helv. Chim. Acta*, 41 (1958) 1915.
- [2] D. L. Massart, A. Dijkstra, L. Kaufmann, *Evaluation and Optimization of Laboratory Methods and Analytical Procedures*; Elsevier Scientific Publishing Company, Amsterdam - Oxford - New York (1978).
- [3] J. F. K. Huber, E. Kenndler, G. Reich, *Quantitation of the Information Content of Multi-Dimensional Gas Chromatography and Low-Resolution Mass Spectrometry in the Identification of Doping Drugs*; *Journal of Chromatography*, 172 (1979) 15.
- [4] H. A. Sturges, *J. Am. Stat. Assoc.*, 21 (1926) 65.
- [5] E. Kenndler, *Anal. Chim. Acta*, 173 (1985) 239.
- [6] R. Klimmek, L. Szinicz and N. Weger, *Chemische Gifte und Kampfstoffe: Wirkung und Therapie*; Hippokrates Verlag Stuttgart 1983.
- [7] The Ministry for Foreign Affairs of Finland, *Standard Operating Procedures for the Verification of Chemical Disarmament. D.2. Second Proposal for Procedures Supporting the Reference Database*; Helsinki 1989.
- [8] Report of the ad hoc Committee on Chemical Weapons to the Conference on Disarmament; United Nations, Genf, August 1990.
- [9] P. A. D'Agostino, L. R. Provost, *Gaschromatographic Retention Indices of Chemical Warfare Agents and Simulants*; *Journal of Chromatography*, 331 (1985) 47.

CONFERENCE ON DISARMAMENT

CD/CW/WP.397

5 May 1992

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

AUSTRIA

Old Chemical Weapons

Description of a long-term storage facility under safe conditions

A large quantity of chemical weapon munitions which had been stored near Vienna was partially destroyed in an air raid towards the end of the Second World War, a very large number of grenades and rocket projectiles being dispersed over an area of about 1 sq. km.

During the period 1949-1950 these CW munitions were collected, sorted and provisionally buried.

In the years 1974 to 1976 more than 28,000 of the discovered grenades and rocket projectiles - CW munitions unsafe for transport and handling - were transferred to long-term storage under safe conditions. The grenades and rocket projectiles were placed in aluminium capsules which were then filled up with absorbent material and stored in ferroconcrete containers.

Five ferroconcrete containers lined with "NIROSTA" sheet-metal were built. After the aluminium capsules had been placed inside, the containers were filled with absorbent material. They were then closed with ferroconcrete lids and covered over with an approximately 4 metre thick earth layer.

These discovered CW munitions of the former German Wehrmacht are, by reason of their condition, no longer usable weapon stocks whose utilization for military purposes can be ruled out.

According to a 1990 report by the Technical University, Vienna, the grenades stored in ferroconcrete containers do not, in the light of present knowledge, constitute a threat to the environment.

GE.92-61407/4461B

Appendix 1Description of the definitively stored CW munitions1. Type and calibre

(a)	7.5 cm calibre grenades, unfused	4,346
(b)	10.5 cm calibre grenades, fused	23,240
(c)	15 cm calibre rocket projectiles, fused	1,108

Estimated total weight: approximately 390 tonnes.

2. Description of labelling discovered on the munitions

The grenades and rocket projectiles were found to bear only fragmentary colour and letter labelling, insufficient for reliable identification. A few of the 10.5 cm grenades bore the inscription "Nb".

3. Net weight

1.	7.5 cm grenades:	approximately 0.6 kg
2.	10.5 cm grenades	approximately 1.1 kg
3.	15 cm rocket projectiles	approximately 3.1 kg.

The weight of CW agent was estimated at approximately 30 tonnes. Since an indeterminate number of grenades and rocket projectiles were damaged, the actual weight of CW agent was probably below that figure.

4. Type of filling according to results of tests carried out to date

- (a) 7.5 cm grenades: no analysis results available
- (b) 10.5 cm grenades: N-LOST (nitrogen-mustard) revealed by four separate analyses (1949, 1964, 1972, 1989)
- (c) 15 cm rocket projectiles: no analysis results available.

The possibility that other chemical agents were also present in the discovered CW munitions cannot be ruled out, precise identification being impossible owing to the fragmentary nature of the colour and letter markings.

Precise identification of all chemical agents present would have necessitated opening all the grenades and rocket projectiles in order to take samples for analysis. In the case of munitions not safe for transport or handling, this cannot be done by ordinary technical means.

Today, such munitions are opened in installations with heavy containment and robotic equipment (e.g. JACAD).

5. Condition of the filling

The analysis reports on chemical agent samples from the 10.5 cm grenades mention that plug-like constituents (Dimeres) were also found in addition to liquid nitrogen mustard.

6. Types of fuses

(a) Most of the 10.5 cm grenades were equipped with small 23 Nebel Kl.AZ 23 Nb percussion fuses (see Annex 1).

The fuse casings were made of two separate materials:

(i) aluminium; external corrosion slight, security elements destroyed, percussion cap thermally initiabile;

(ii) aluminium/zinc alloy; partially decomposed, security elements destroyed, percussion cap thermally not initiabile.

(b) The 15 cm rocket projectiles were equipped with screwed-in tail fuses; the reports provide no further information.

7. Condition of the grenade casings

(a) All the grenades and rocket projectiles were corroded. Comparison of the corrosion phenomena of 1949 (when the munitions were first buried) with those of 1964 (first unearthing) and 1974 (storage in ferroconcrete containers) showed no significant changes in the surface corrosion picture.

(b) In 1989, when three of the 10.5 cm grenades were last opened, the external surface of the grenade casings were found to exhibit predominantly trough-shaped surface corrosion while the internal surfaces were seen to be of a uniformly dark-grey colour with many small trough-shaped dents but without penetration.

(c) In view of the general condition of the discovered CW munitions (mechanical deformations, damage, corrosive surface changes, condition of the fuses) utilization for a military purpose can be ruled out.

8. Longitudinal section (to scale) of each type of munitions

(a) Longitudinal section of a 7.5 cm grenade: Annex 2; discovered 7.5 cm grenades, see Annex 3.

(b) Longitudinal section of 10.5 cm grenades containing chemical agent: see Annexes 4 and 5.

(c) Longitudinal section of a 15 cm rocket projectile: see Annex 6.

Appendix 2

Description of the definitive storage facility

1. Preparatory measures taken with a view to definitive storage of the CW munitions
 - (a) Preparation of detailed working instructions.
 - (b) Technical safety arrangements for the personnel, the equipment and the environment; emergency arrangements (authorities, population, hospitals).
 - (c) Procurement of aluminium capsules, transport cages and absorbent material.
 - (d) Arrangements for power and water supply and waste water treatment and disposal; construction of the infrastructure, workshops and stores.
 - (e) Provision of service and decontamination premises; construction of the ferroconcrete containers.
 - (f) Establishment of sanitary, medical and ambulance services.
 - (g) Provision for suitable surveillance and security arrangements.
 - (h) Preparations for the necessary excavation work; provision of means of transport, construction machinery and vehicles.
2. Construction of ferroconcrete containers
 - (a) A total of five ferroconcrete containers were constructed using dense concrete, concrete quality B 225, reinforced with 50 mm thorium iron.
 - (b) Dimensions:
 - (i) Inside dimensions of the ferroconcrete containers:
Length: 7.5 m Width: 5 m Height: 1.8 m
 - (ii) Outside dimensions of the ferroconcrete containers:
Length: 9.1 m Width: 6.6 m Height: 3.4-4.0 m
2.3 wall and floor thickness: 80 cm
Lid (saddle roof) thickness: 80-140 cm (see annexes 7, 8, 9 and 10).
 - (c) The internal lining of the ferroconcrete containers consists of NIROSTA sheet metal, wall thickness 2.5 mm, welded to a grid.
 - (d) The lid of each ferroconcrete container is a saddle roof laid on top of a permanent shuttering.

3. Procurement of aluminium capsules, transport cages and absorbent material

(a) Aluminium capsules:

Two different sizes of deep-drawn aluminium capsules equipped with lids, wall thickness 1 mm were used, as follows:

- (i) Capsules of 120 mm diameter and 544 mm height for the 7.5 cm and 10.5 cm grenades;
- (ii) Capsules of 180 mm diameter and 1,100 mm height for the 15 cm calibre rocket projectiles.

(b) Transport cages:

A welded construction consisting of a square sheet-metal pan retained by four angle irons and reinforced by various flat irons was used.

(c) Absorbent material:

Burnt Kieselguhr of 0-0.2 mm particle size (diatomaceous earth) was used. Experiments established that one part by weight of the absorbent material absorbs about one part by weight of chemical agent.

The absorption capacity of the 225 tonnes of absorbent material employed is sufficient to absorb several times the quantity of chemical agent present.

4. Absorbent material filling installation

A simple above-ground silo with funnel and filling nozzle was erected. This above-ground silo was used for filling the aluminium capsules.

The aluminium capsules were taken to the silo by portable railway.

5. Procedure followed for the definitive storage of the CW munitions

(a) The earth layer covering the intermediate storage facility was stripped by construction machines to about 40 cm above the top of the pile.

(b) Each grenade and rocket was unearthed separately by hand.

(c) The unearthed munitions were mechanically hand-cleaned with wire brushes and scourers.

(d) The munitions were examined, inter alia, to ascertain the condition of the fuses and to detect any leakage of chemical agent and any deformations, cracks, distinguishing marks (colour rings, inscriptions, markings) or corrosion.

(e) The aluminium capsules were partially filled with absorbent material, as follows:

Two 7.5 cm grenades or one 10.5 cm grenade were placed inside each 120 mm diameter capsule, and one 15 cm rocket was placed inside each 180 mm diameter capsule; the aluminium capsules were then filled to the top with absorbent material and closed with aluminium lids.

(f) The NIROSTA-lined floor of each ferroconcrete container was covered with an approximately 10 cm deep layer of absorbent material.

(g) Sixteen 129 mm diameter capsules or four 180 mm capsules were stood inside a transport cage and taken to a ferroconcrete container.

(h) The transport cages carrying 16 aluminium capsules were deposited inside a ferroconcrete container by a mobile crane, while the 180 mm diameter capsules were placed separately in the empty spaces left between the transport cages.

Three layers of transport cages were superimposed on one another, some absorbent material being poured in after each layer (see annexes 11 and 12).

(i) The open ferroconcrete containers, thus filled, were covered with a permanent shuttering and the interstice was filled with absorbent.

(j) The actual ferroconcrete lid, in the form of a saddle roof, was placed on top of the permanent shuttering.

(k) Finally, the pit in which the ferroconcrete containers had been placed was covered flush to the ground with an approximately 4 m deep layer of earth (excavated material).

Appendix 3Evaluation of risks1. Evaluation of risk to groundwater

According to the 1990 report by the Technical University, Vienna, the CW munitions stored in ferroconcrete containers do not, in the light of present knowledge, constitute a threat to the environment.

Concentrations of N-LOST to within the ppb range can be detected by gas chromatography methods.

2. Evaluation of risk of spontaneous combustion

Such a reaction cannot be ruled out in principle but is unlikely to occur in the light of experience to date, especially if the status quo of the definitively stored CW munitions is maintained.

3. Possibilities of continuous testing for these risks and ascertainment of the condition of the CW munitions:

(a) Twelve Draeger-Stitz probes have been placed at a depth of 6 m along the perimeter of the container area for the purpose of testing container tightness. Measurements by Draeger tubes are currently taken at half-yearly intervals (see annex 13).

(b) Continuous examination of the condition of the CW munitions inside the containers is not possible.

4. Description of the present state of the chemical munitions

The state of the chemical munitions can be described only indirectly through observation of subsequently discovered munitions. It should be borne in mind that these subsequently discovered munitions have been exposed to considerably stronger corrosive effects than those stored in ferroconcrete containers for some 16 years under what are practically equilibrium conditions (see para. 1 (g), above).

5. Description of the present method of storage of subsequently discovered chemical munitions

A concrete bunker with a supporting wall was built to receive subsequently discovered CW munitions (about 100 grenades). The concrete bunker is surrounded on three sides by supporting walls with an embankment. The entrance is closed by a heavy safety door. The bunker holds two lidded seamlessly-welded aluminium containers of 5 mm wall thickness (see annex 14).

The two aluminium containers are filled with alternate layers of absorbent material and grenades, ending with a top layer of absorbent material.

The concrete bunker can be entered and air measurements can be taken.

(Signed): Stolz, February 1992

Bibliographical references:

1. Ing. Massak, Federal Ministry of the Interior, 1975
Disposal of Second World War grenades containing a chemical agent, with special attention to environmental protection.
2. Dr. Leeb, Federal Ministry of the Interior, 1976
Documents concerning the isolation of grenades containing a chemical agent.
3. Ing. Meindl, Federal Ministry of the Interior, 1964
Chief of the Mine Clearing Service: report.
4. Dr. Neuninger, Federal Ministry of the Interior, 1989
Recommendations concerning the disposal of grenades containing a chemical agent.
5. Dr. Neuninger, Federal Ministry of the Interior, 1989
Report on outdoor testing.
6. Draeger Brochure No. 343, 1989
Testing old dangerous waste using Draeger tubes (Draeger-Stitz probes).
7. Dr. Martens, Federal Army Testing Station No. 53, Munster, 1971
Concerning the elimination of CW munitions in the area of the Gross-Mittel/Austria munitions plant of the former German Wehrmacht: report and comments.
8. Vienna Technical University, Institute for Chemical Technology of Organic Substances, 1972
Prof. Dr. Prey: Elimination of grenades containing chemical warfare agent stored at the Gross-Mittel plant.
9. Dipl. Ing. Dworzak, Civil Engineer (Construction), Vienna, 1972
Ferroconcrete container for CW grenades: report
10. Vienna Technical University, Research Institute for the Chemistry and Technology of Petroleum Products, 1990
Prof. Dr. Schindelbauer: Analysis of the reaction behaviour of N-LOST from old CW grenades.
11. Federal Institute for Water Quality, Vienna, 1990
HR. Prof. Dr. Kohl: The aquatic toxicity of N-LOST reaction products: report.
12. Pawlas: Press archives on military and weapons subjects: munitions lexicon; various publications on weapons.

(Signed): Stolz, February 1992

ANNEX 1

COPYRIGHT 1977

Munitions-Lexikon Nr. :

72 018 - 100 - 1

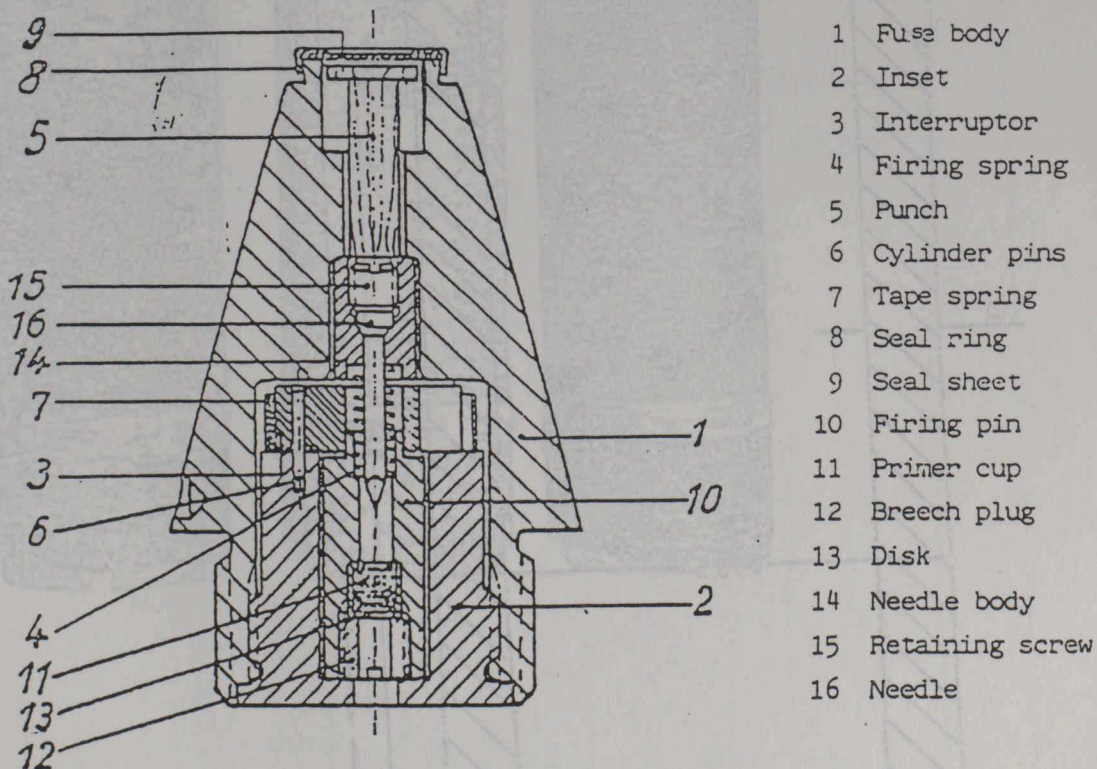
kl. A.Z. 23 Nb

Designation: Small Impact Fuse 23, Smoke

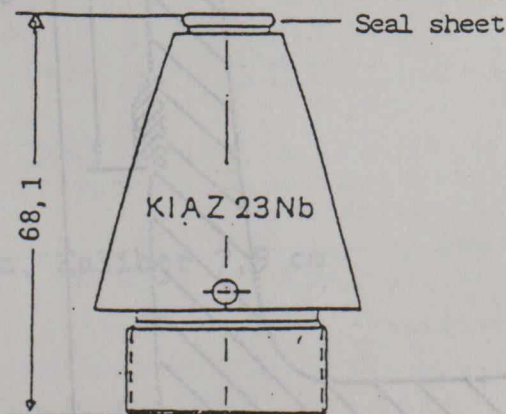
Application: Germany, World War II for Smoke-Granates, Caliber 7.5cm
Guns also for half-piece le.H.F.16 and le.H.F.18

Comment: Non-explosive, high sensitive Impact Fuse, secured by
flying interruptor for bullet with thread M33 x 1.5 for
adapter opening.

Material: Aluminium



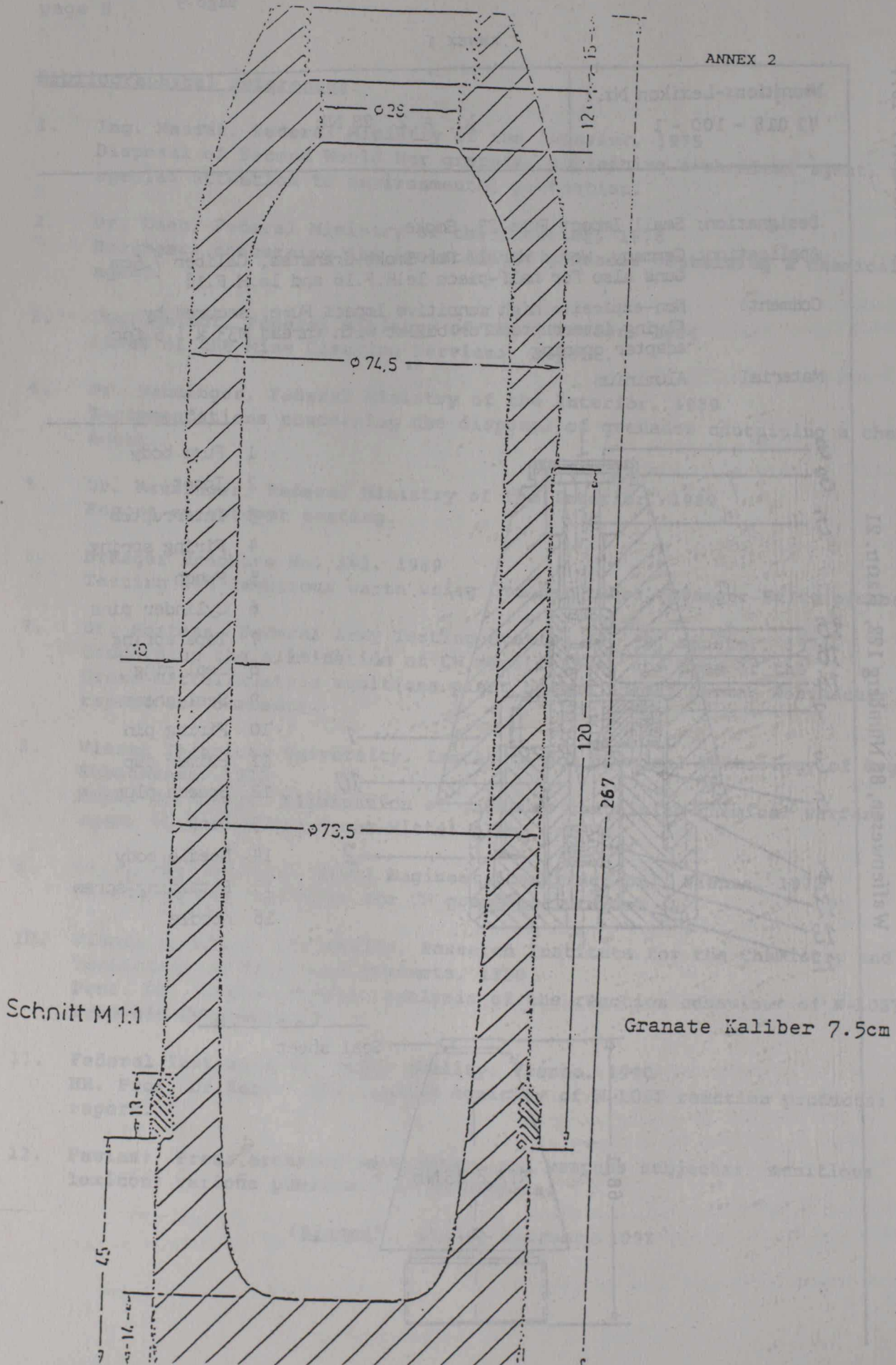
- 1 Fuse body
- 2 Inset
- 3 Interruptor
- 4 Firing spring
- 5 Punch
- 6 Cylinder pins
- 7 Tape spring
- 8 Seal ring
- 9 Seal sheet
- 10 Firing pin
- 11 Primer cup
- 12 Breech plug
- 13 Disk
- 14 Needle body
- 15 Retaining screw
- 16 Needle



KARL R. PAWLAS
Publizistisches Archiv für Militär- und
Waffenwesen, 85 Nürnberg 122, Hasstr. 21

Munitions-Lexikon
no-Handbook

ANNEX 2

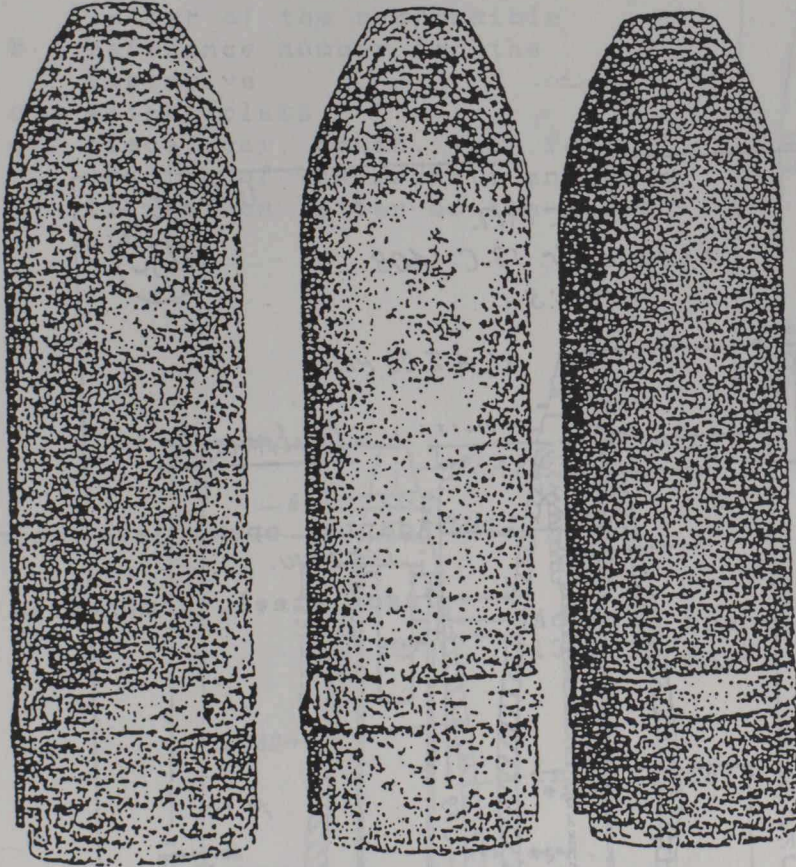


СЕРТИФИКАТ

Материал: Гранат
Содержит: Гранат
Калибр: 7,5 мм

Код: 100-100-100

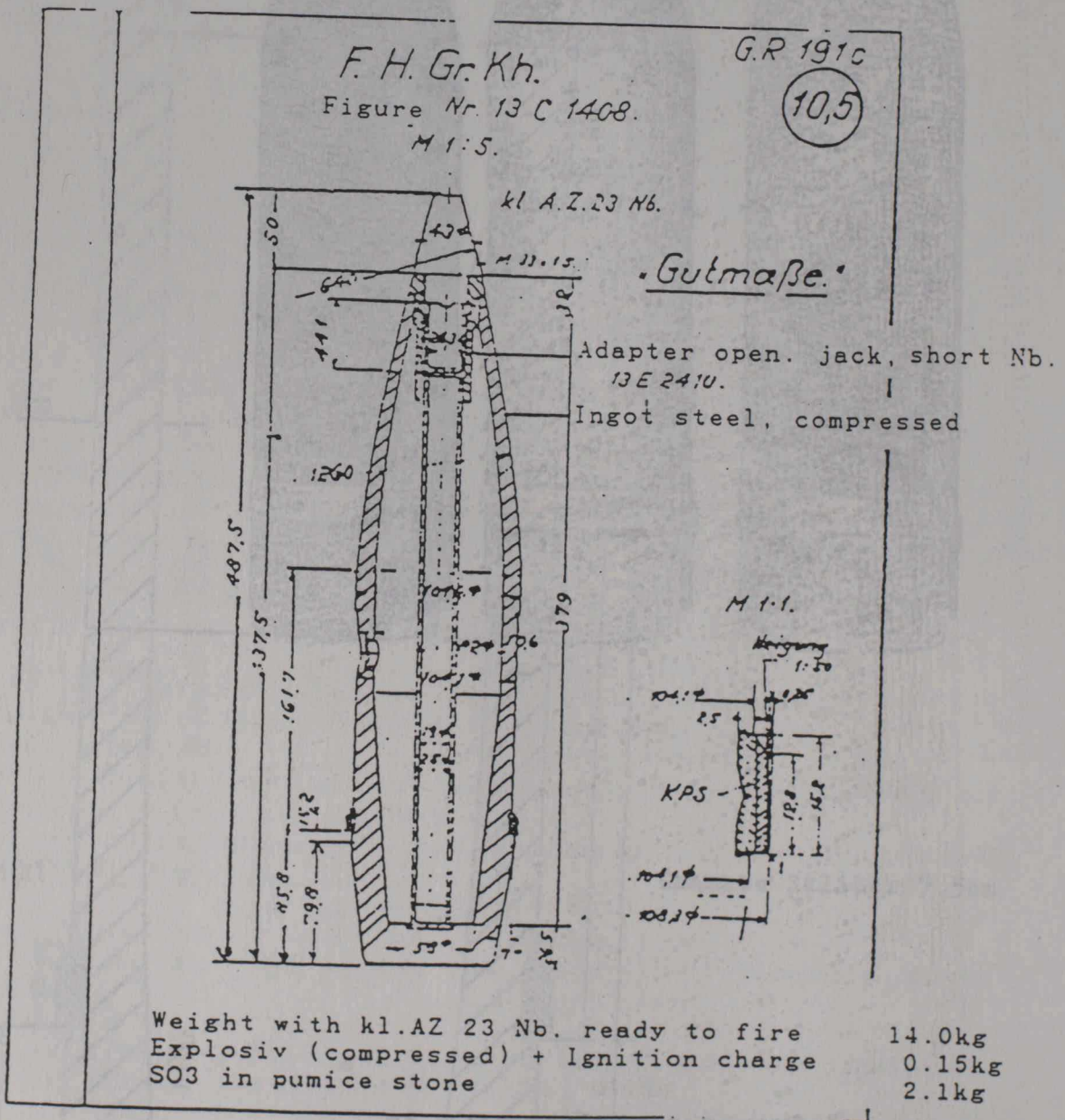
ANNEX 3



Granaten, Kaliber 7,5 cm

Warfare Agent - Granates

F.H.Gr.Kh. (with Central tube) contained Smoke- or Warfare-Agent.
 F.H.Gr.38 Kh (Green-Ring) was filled with 1.08kg LOST.
 F.H.Gr.39 ZB (Yellow-Ring) was filled with 1.7kg Winter-LOST.

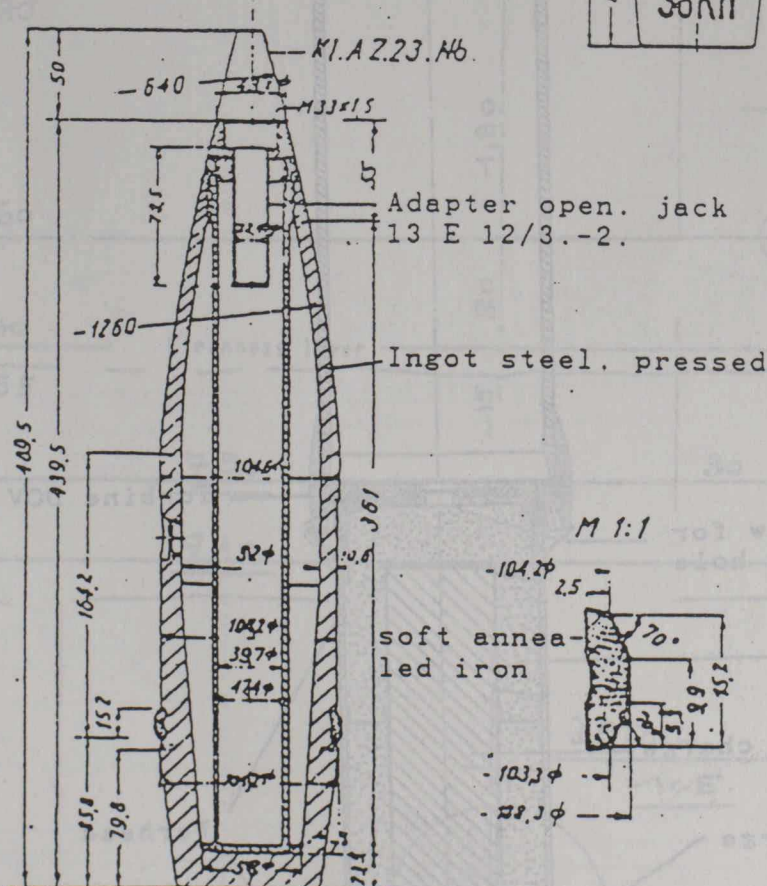
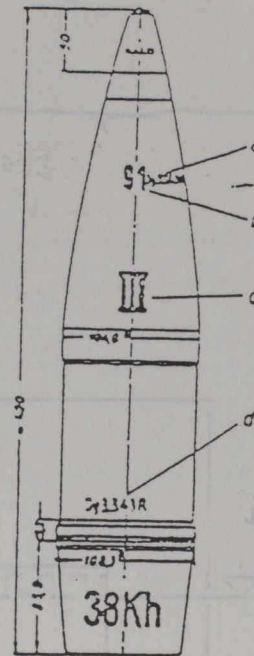


Picture 48: Field Howitzer - Granate. Central tube. F.H.Gr.Kh.

FH Gr 38 Kh
with kl. AZ 23

Labels for the shells

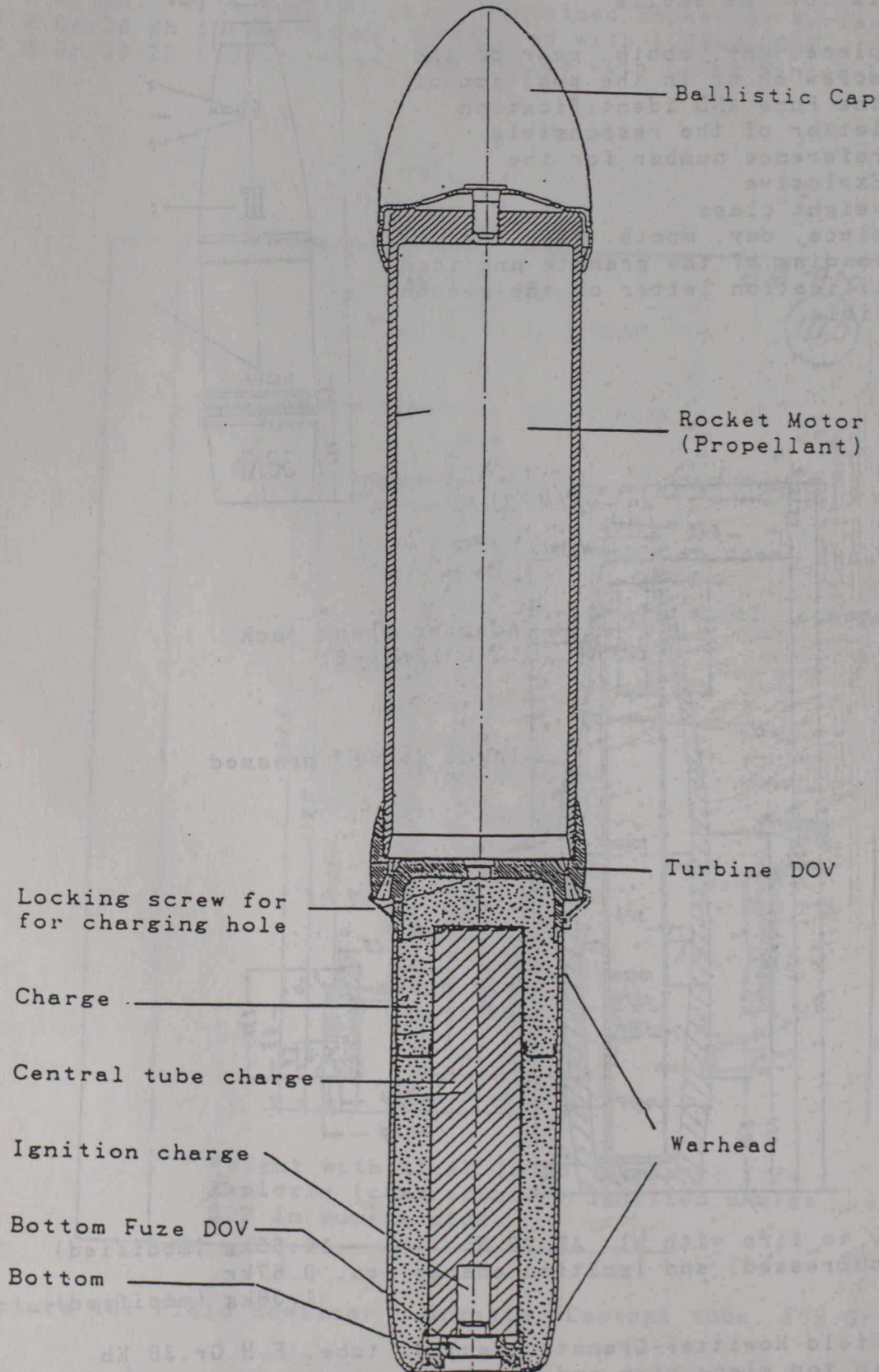
- a = place, day, month, year of the screw on or in the position of the Fuze AND identification letter of the responsible
- b = reference number for the Explosive
- c = weight class
- d = place, day, month, year for loading of the granate and identification letter of the responsible



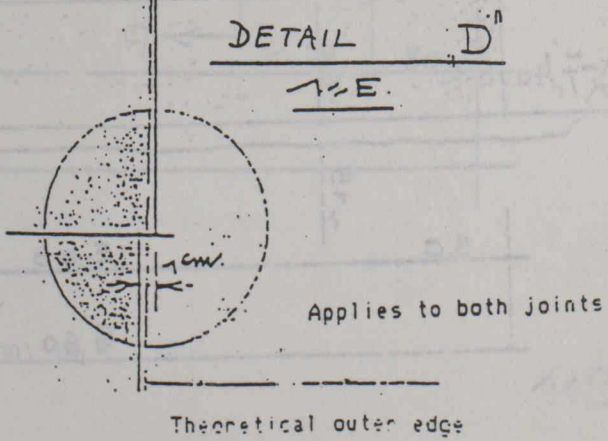
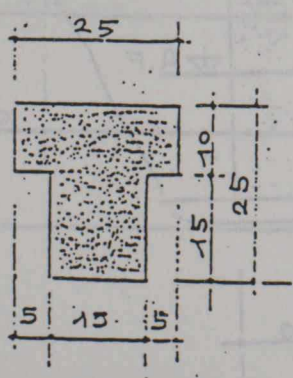
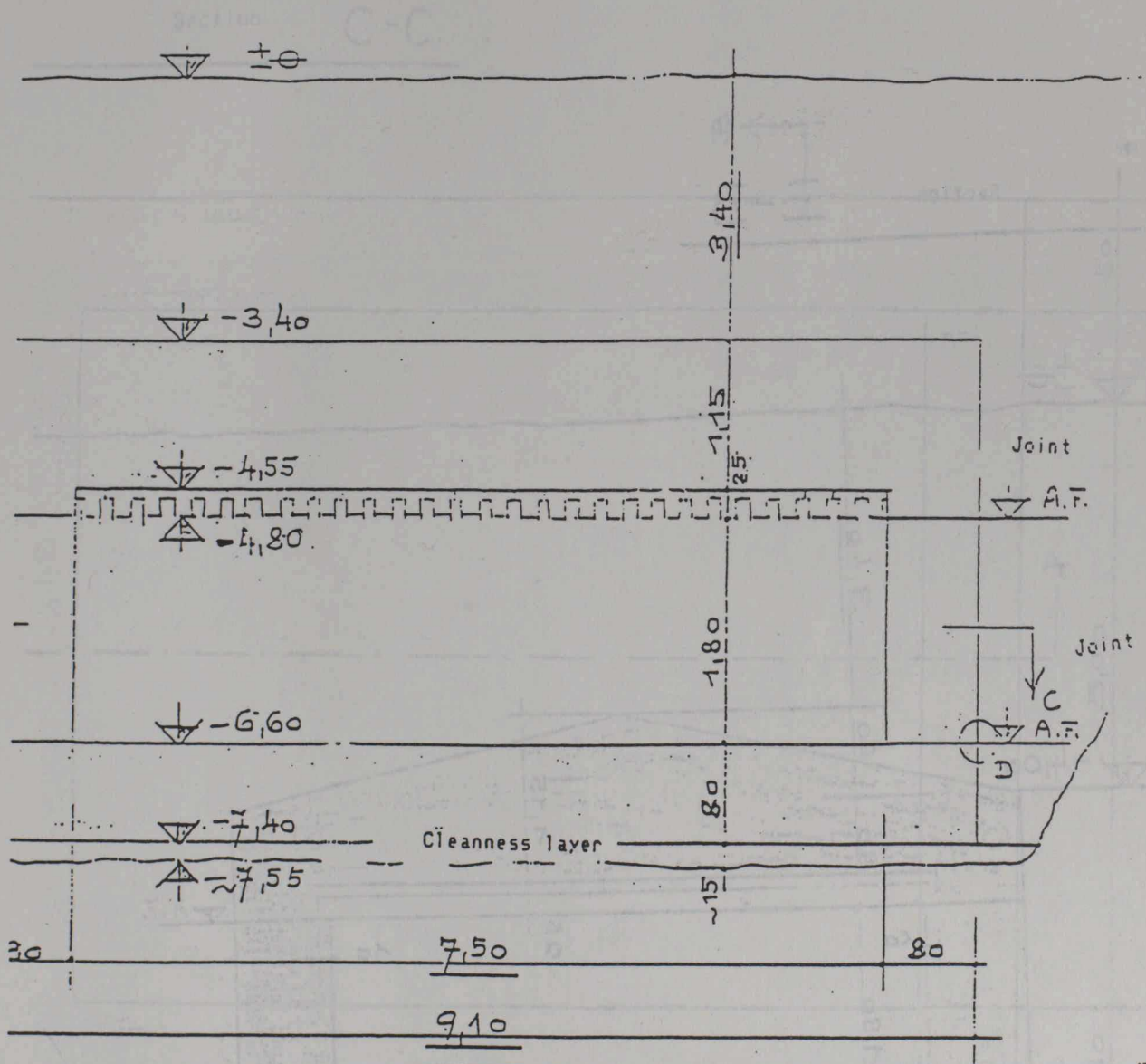
Weight, ready to fire with kl. AZ 23 Nb	14.53kg (modified)
Explosive (compressed) and Ignition charge	ca. 0.67kg
LOST	1.08kg (modified)

Picture 49: Field Howitzer-Granate, Central tube, F.H.Gr.38 Kh
in top plane view and sectional view

15 cm Wgr. 41 wKhNb, ready to fire
013 D 6068

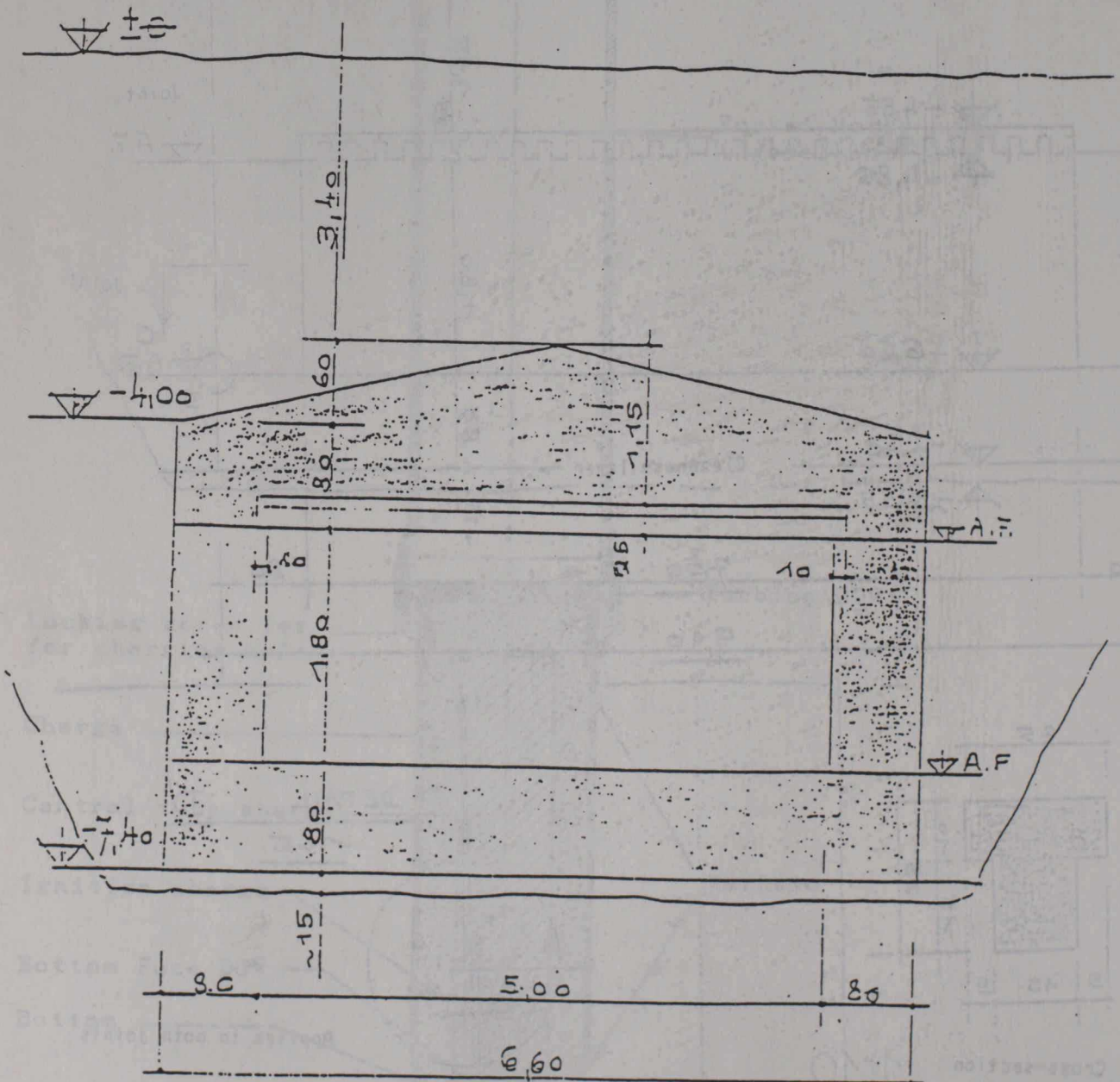


Section A-A

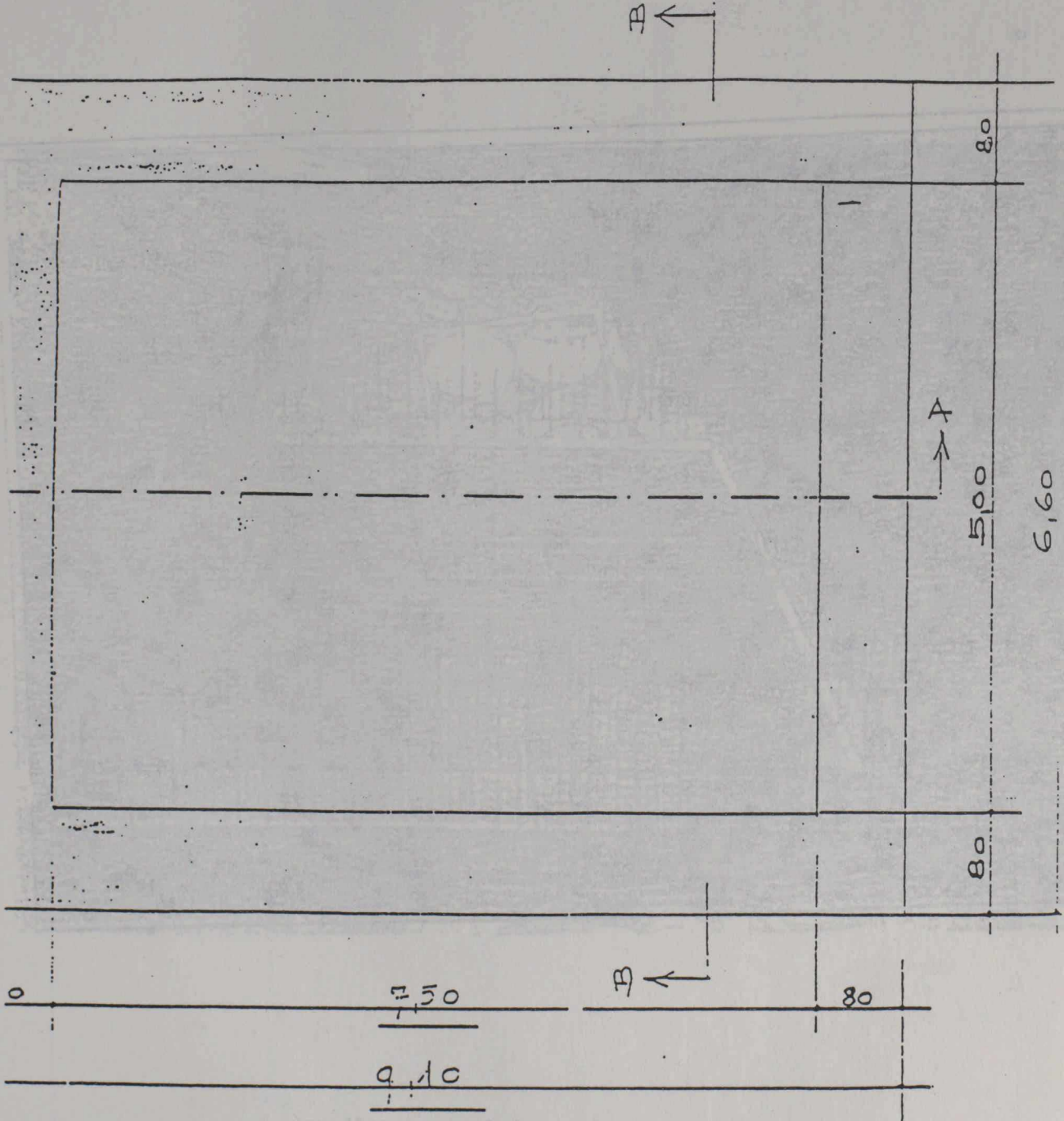


Section

E-B



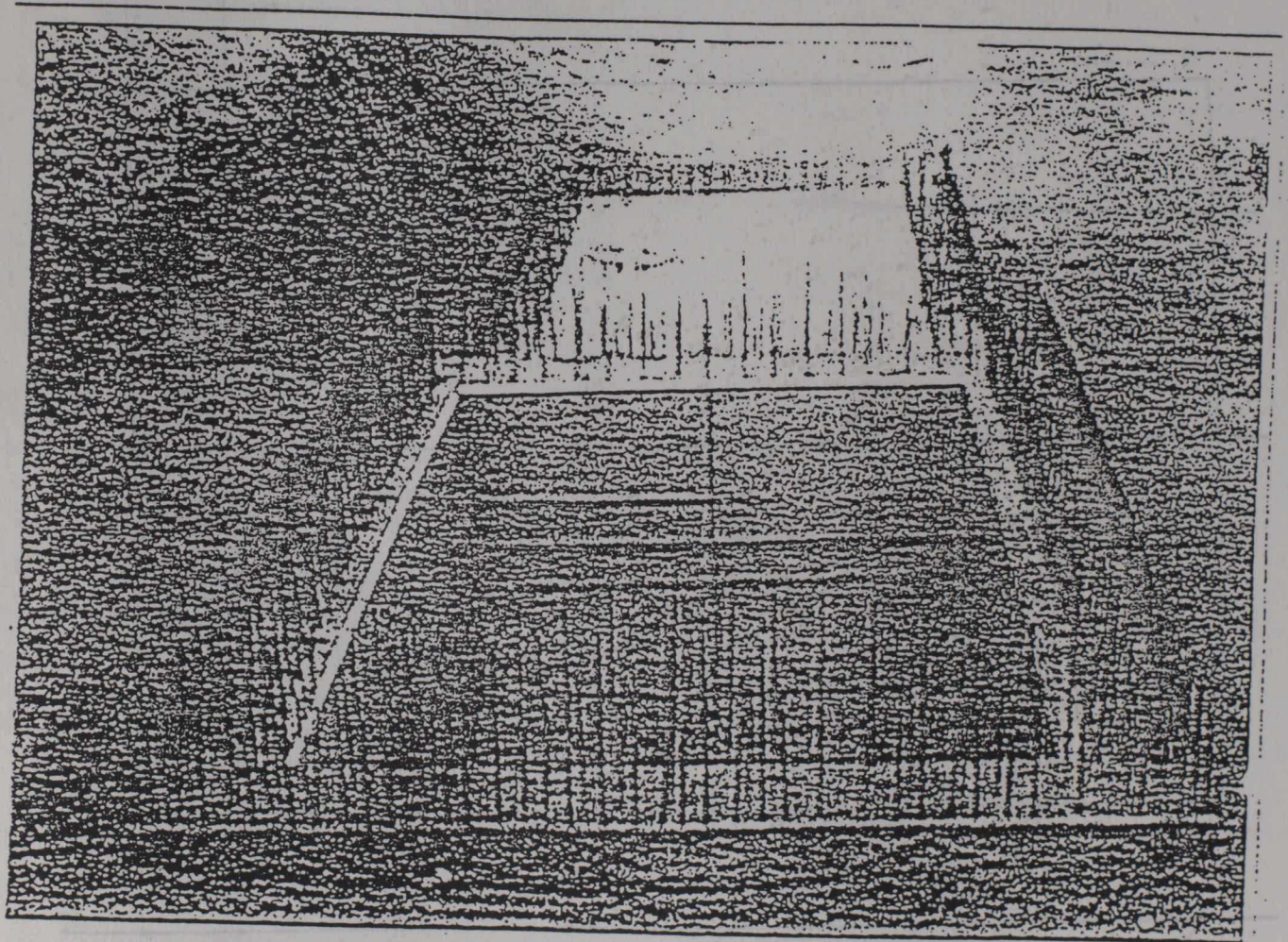
Section C-C



Shuttering supports

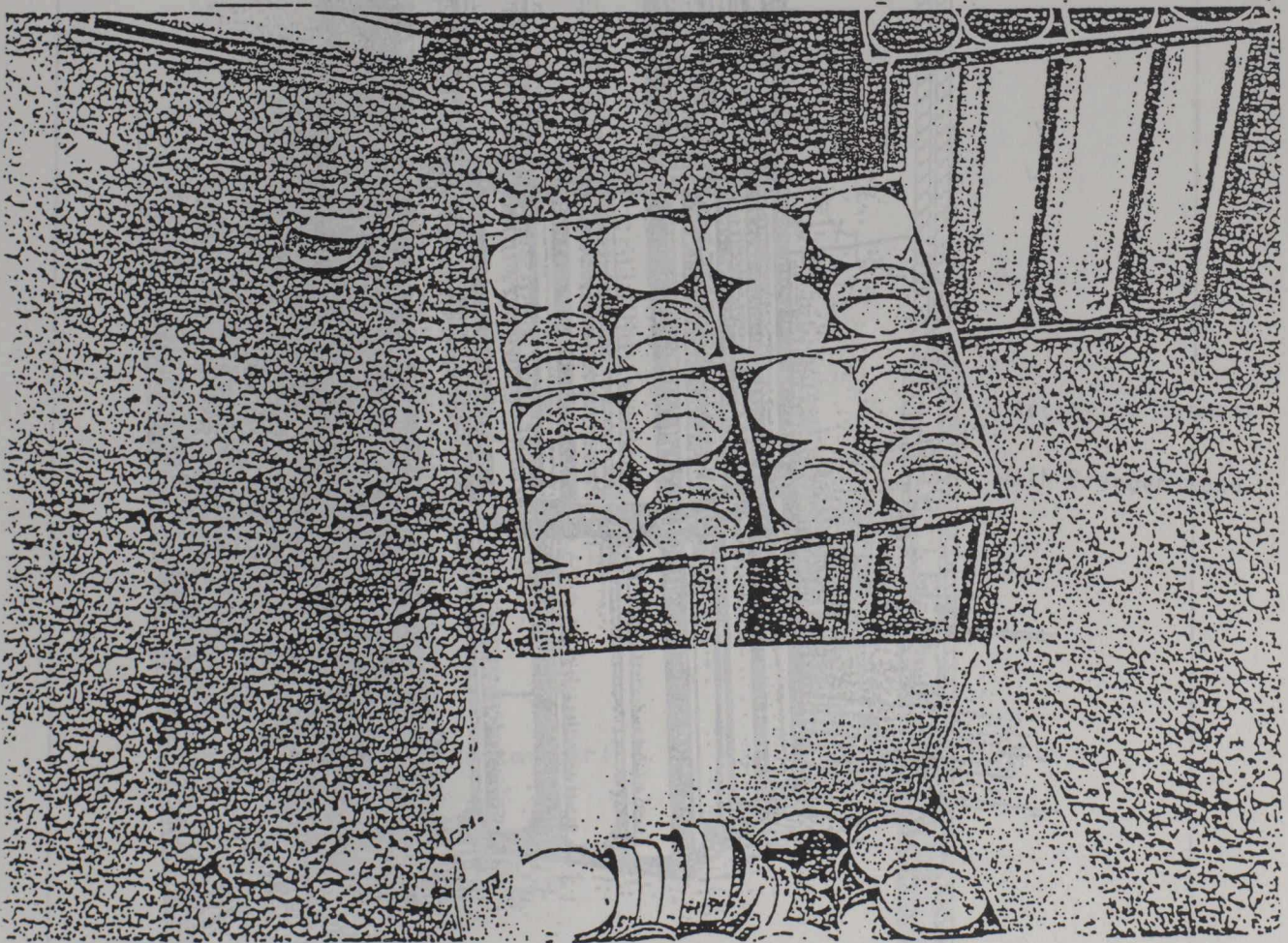
Finished parts (30)

1005

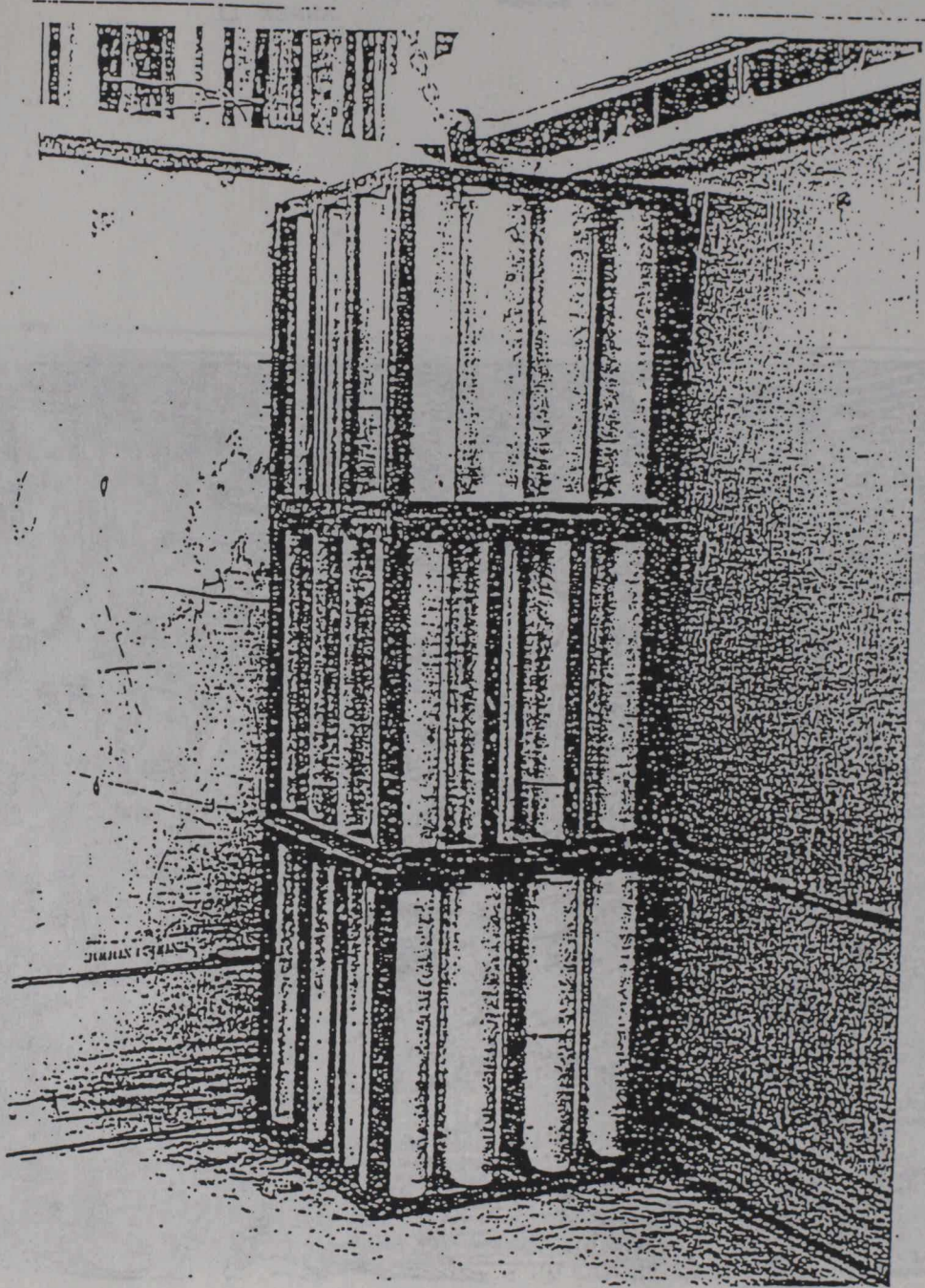


Two concrete containers, roofless

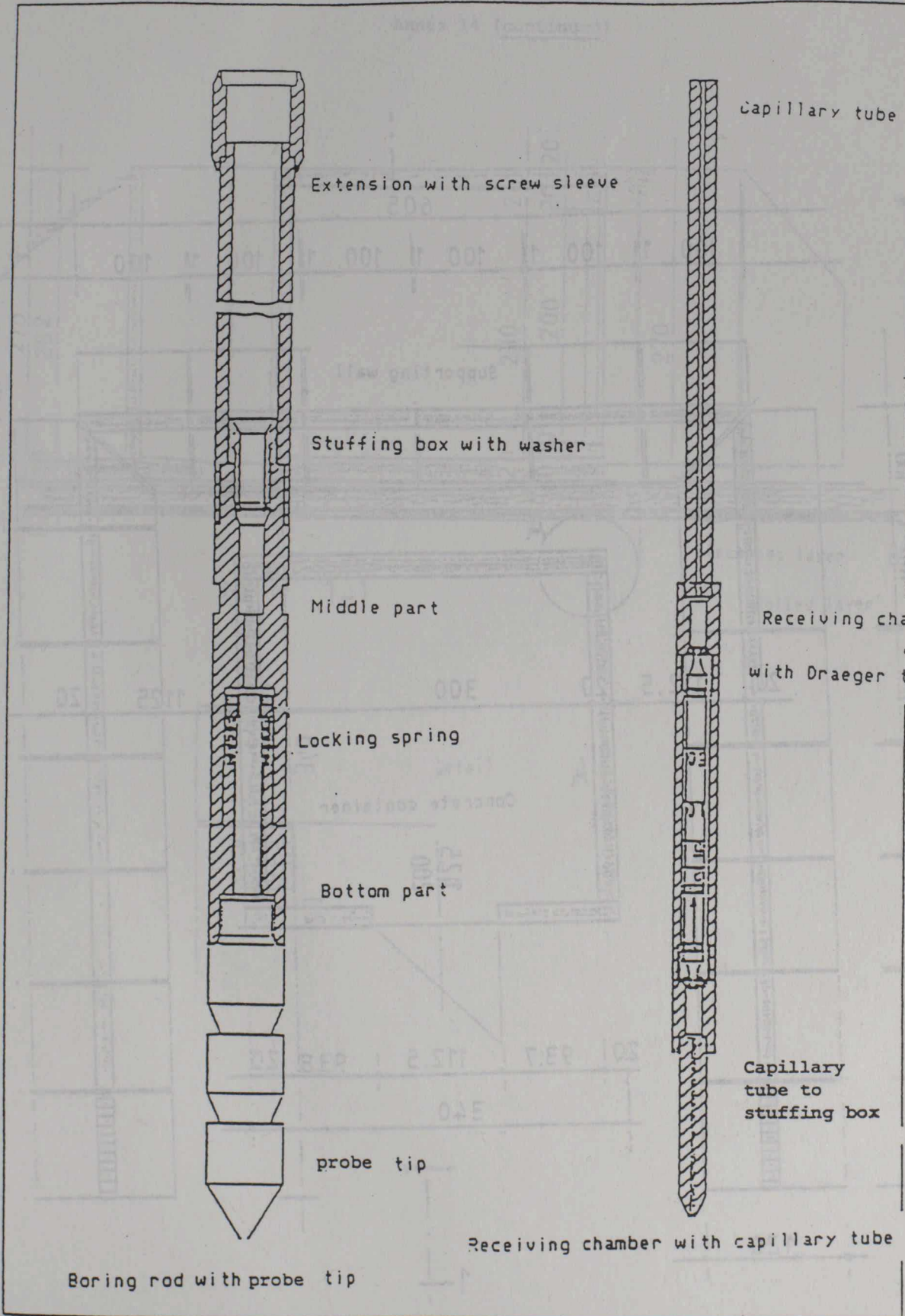
ANNEX 11

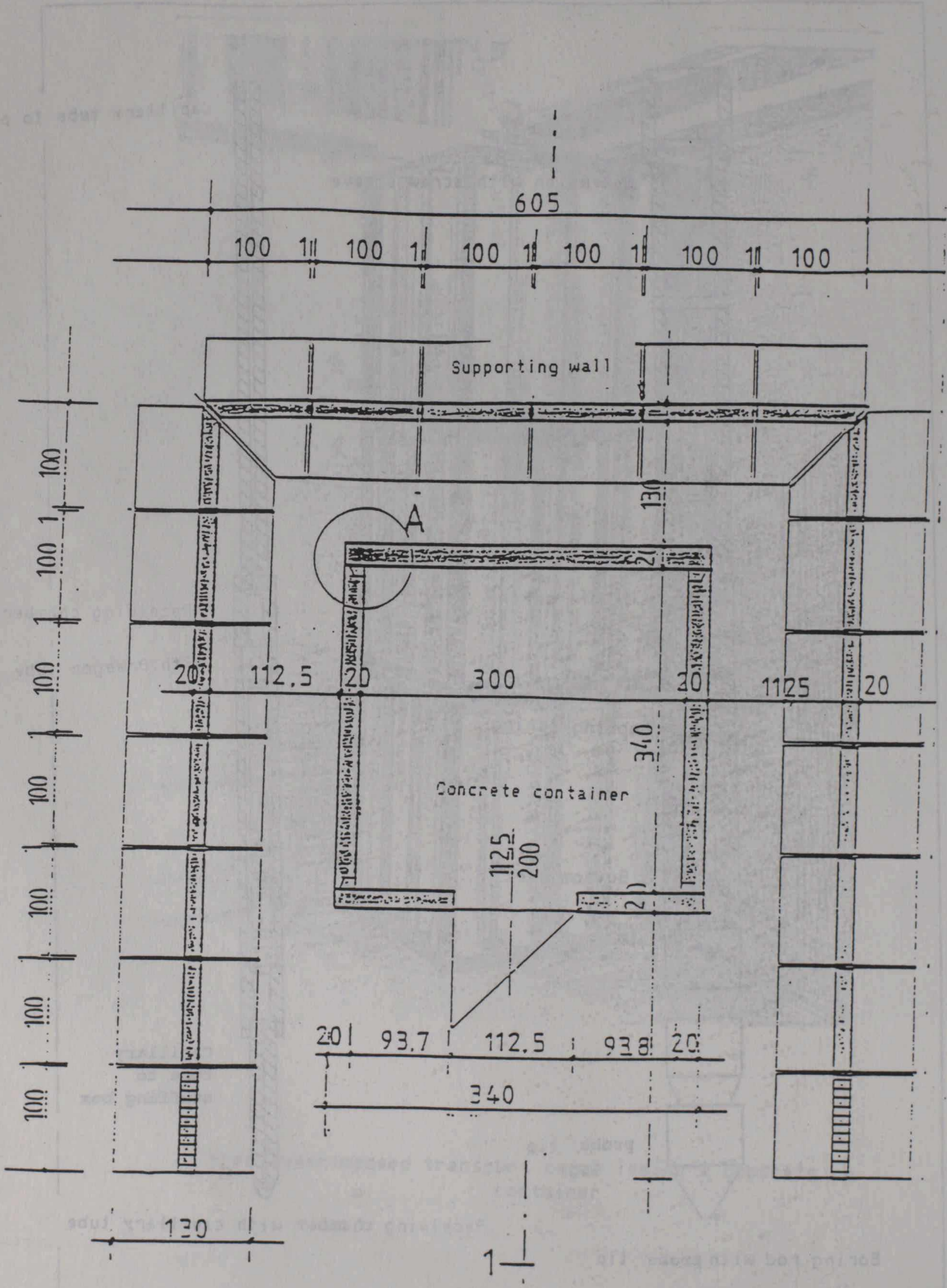


A full transport cage containing grenades placed inside aluminium capsules and filled with infusorial earth



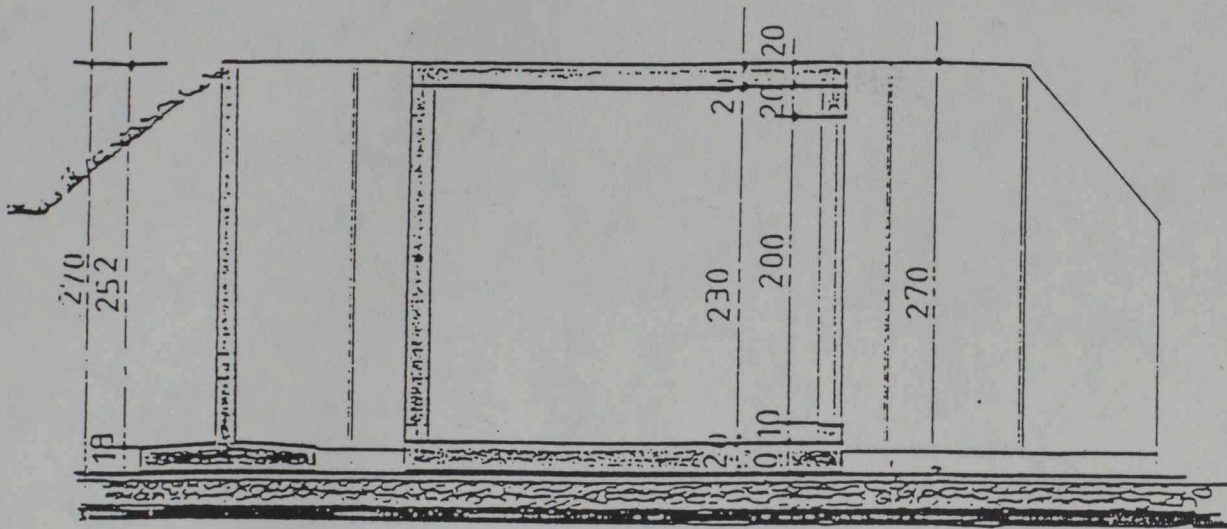
Three superimposed transport cages inside a concrete container





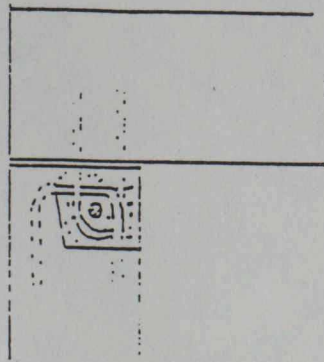
Plan drawing

Annex 14 (continued)



Section 1-1

Cleanness layer 880 5cm
Rolled layer 20cm



Detail A

Ad Hoc Committee on Chemical Weapons

AUSTRALIA, BELGIUM, CANADA, FRANCE, GERMANY, ITALY, JAPAN,
THE NETHERLANDS, UNITED KINGDOM, UNITED STATES OF AMERICA

Other Relevant Facilities

1. Declaration

Each State party will provide the Technical Secretariat within 60 days after the Convention enters into force for it, a declaration of facilities that produced by synthesis during the previous calendar year or anticipate producing in the next calendar year, more than 30 metric tonnes of a non-scheduled discrete organic chemical.

Such declaration shall provide only the name of the facility, its owner, company or enterprise operating it, if different; the location, including address; the main activities of the facility, and the approximate amount of production in the previous calendar year, expressed in one of the following ranges: 30-100 tonnes, 100-1000 tonnes, 1000-10,000 tonnes, or more than 10,000 tonnes.

Each State Party may declare its facilities on the basis of plant or plant site.

Each State Party shall update the declaration once each year.

The declaration of a plant or plant site under this section does not require it, in the event of a challenge inspection, to be subject to the provisions for declared facilities as set out in Part III of the Protocol on Inspection Procedures.

2. Verification

Inspection aims shall be to verify that, pursuant to the obligations under the Convention, activities are consistent with the information provided, including that non-declared chemicals listed on schedule 1 are not present.

The Technical Secretariat shall carry out on-site inspections of such plants/plant sites.

The Technical Secretariat shall select the particular facilities to be inspected on the basis of, inter alia, nominations by States Parties. No State Party shall be required to accept, per twelve month period, more than either 3 inspections plus a number corresponding to 5% of its facilities declared under this section or 15 inspections, whichever is lower. The Technical Secretariat shall endeavor to distribute inspections it initiates broadly among geographic regions.

The Technical Secretariat shall notify the inspected State Party of such inspections 5 days prior to the arrival of the inspectors at the site.

The inspection team shall have managed access within the whole plant site which is declared or within which the declared plant is located; the inspected State Party shall have the right to exercise managed access as specified in the Protocol on Inspections Procedures, Part. III. The period of inspection shall not last more than 24 hours; however, extensions may be agreed between the inspection team and the inspected State Party.

CONFERENCE ON DISARMAMENT

CD/CW/WP.399

18 May 1992

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

GERMANY

Cooperation of Signatory States with the Preparatory Commission

I.

1. Immediately after entry into force of the Chemical Weapons Convention, the Organization for the Prohibition of Chemical Weapons (OPCW) will have to fulfil widespread tasks and activities. A thorough analysis of the Draft Convention reveals that the Convention will place an extremely heavy workload on the Organization during the first year, in particular during the first months after entry into force. The Technical Secretariat will, inter alia, receive declarations of States Parties pursuant to Articles III, IV, V and VI. It will then within a short time period have to verify declarations on CW stockpiles, CW production facilities, CW destruction facilities as well as carry out other verification measures. In addition facility agreements will have to be negotiated, inspectors to be designated and agreements on points of entry to be concluded.

2. This enormous workload can only be mastered if the Technical Secretariat is well prepared to start full-scale operation on the day the Convention enters into force. Very careful planning of the preparation period by the Preparatory Commission is required.

Given its complex nature, it seems advisable to carry out the work of the Preparatory Commission in two phases:

- In the first phase the Provisional Technical Secretariat will start its work with a relatively small, qualified staff. At that stage the structure of the Technical Secretariat and a detailed staffing pattern will have to be elaborated, personnel requirements to be assessed and reliable calculations to be made on the length of time required to train the staff.
- In a second phase, based on the results of the planning period, the full-scale Technical Secretariat will be set up.

3. The key date for precise planning of the Preparatory Commission is the date of entry into force. The Preparatory Commission should be able to build its work on a reliable assumption about the date of entry into force. Given the projected size of the future Organization, it would be an unjustifiable waste of resources if the Preparatory Commission were required to prepare full-scale services of the Technical Secretariat without a definite time framework.

Undoubtedly, the latest draft provision on entry into force which provides for a minimum period of two years after opening of the Convention for signature, will help in planning the work of the Preparatory Commission. Since a maximum period cannot, however, be included in the text of the Convention, it would be important that Signatory States commit themselves to making every effort to ratify the Convention within this two-year period. Such a political commitment could be made either together with the adoption of the Convention or, at least, at the beginning of the second phase of the Preparatory Commission work.

4. Already in the first phase, the quality of planning of the Provisional Technical Secretariat will largely depend on submission of reliable data by Signatory States. In that context, data to be declared, pursuant to Articles III, IV, V and VI, paragraph 6, will be of primary importance.

In the second phase cooperation of Signatory States in testing equipment, training of future inspectors and inspection assistants as well as preparation of their designation will be necessary. Trial inspections will have to be conducted not only to train inspectors but also to gain sufficient experience for elaboration of a draft inspection manual and other guidelines on inspection as required in the Draft Convention. Pre-negotiations of facility

agreements, particularly concerning verification pursuant to Articles IV and V might be inevitable to meet the deadlines required for verification under these Articles.

Thus, the readiness of Signatory States to cooperate with the Preparatory Commission and the reliability of their information will have considerable influence on the quality of the work of the Commission. The Provisional Technical Secretariat will only be in a position to make reliable calculations, and planning for the build-up of the Secretariat, if Signatory States provide reliable information. If this information is not available, the Provisional Secretariat will have to provide for margins of security in its planning on personnel and equipment. This will increase the costs of the Preparatory Commission considerably.

In view of the overriding importance of a close cooperation between Signatory States and the Preparatory Commission, it is proposed that Signatory States declare their readiness to cooperate closely with the Preparatory Commission. Such a declaration could be contained in a separate resolution passed on the occasion of adopting the Convention at the General Assembly of the United Nations, or at a Signatory Conference.

Elements of a draft resolution are proposed in the following.

II.

Draft resolution

The General Assembly/Signatory Conference,

Having adopted the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction,

Having decided that the Preparatory Commission for the Organization for the Prohibition of Chemical Weapons be established,

Calls upon all States signing the Convention to cooperate closely with the Preparatory Commission and contribute to its work by, inter alia,

- (a) providing information on the progress of the ratification process;
- (b) providing information on
 - (i) chemical weapons stockpile facilities;
 - (ii) chemical weapons production facilities;
 - (iii) chemical weapons destruction facilities;
 - (iv) general data on chemicals and facilities relevant for verification pursuant to Article VI of the Convention;
 - (v) establishment of the National Authority;

- (c) cooperating in the following activities:
- (i) acquisition and testing of instruments and devices for monitoring inspection activities;
 - (ii) designation of instruments for inspection;
 - (iii) preparation for the designation of inspectors;
 - (iv) training of inspectors;
 - (v) pre-negotiation of facility agreements;
 - (vi) preparation for designation of points of entry.

CONFERENCE ON DISARMAMENT

CD/CW/WP.400

18 May 1992

Original: ENGLISH

Ad Hoc Committee on Chemical Weapons

Chairman of the Ad Hoc Committee on Chemical Weapons

WORKING PAPER FOR THE FINAL PHASE OF THE NEGOTIATIONS ON THE CHEMICAL WEAPONS CONVENTION

Table of Contents

	<u>Page</u>
Chairman's introductory note	2
Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction	3
Text on the establishment of a Preparatory Commission	147
Material to be submitted to the Preparatory Commission	151

Chairman's Introductory Note

1. This Working Paper is intended to facilitate the final phase of the CW-negotiations in two respects:

- it should help to resolve the outstanding issues on matters of substance; and
- it should provide delegations with a clear picture on how the non-controversial material contained in the "Rolling Text" can be transformed in a legal instrument.

2. The draft CW-Convention contained in this paper comprises two different categories of text:

(a) On the outstanding substantive issues, Bureau members are submitting their "visions" for compromise solutions. These portions of the text are marked by vertical lines on the margins of the respective pages. It is suggested that private and open-ended consultations focus now on these parts of the draft. (On four issues, the state of negotiations has not yet allowed the formulation of visions:

- composition of the Executive Council,
- transfers of scheduled chemicals to Non-States Parties,
- transfers of documentation relevant to the production of chemical weapons,
- revision of the order of destruction, and conversion of former CW production facilities, and related issues,
- seat of the Organization.)

(b) All the remaining (unmarked) text of the draft represents non-controversial material of the Rolling Text which has been restructured and edited by the Chairman in order to bring it closer to the form of a consistent legal instrument.

3. The "Text on the establishment of a Preparatory Commission" would not be a part of the Convention. It would have to be put into effect as a separate document, probably by a resolution of the U.N. General Assembly.

4. The "Material to be submitted to the Preparatory Commission" would not form part of the Convention either, but would be contained in the final report of the CD on the negotiations.

Annex 1: Table of Contents 44

Annex 2: Verification and Notification 45

Annex 3: Definitions and Criteria 46

Annex 4: Chemical Weapons 47

Annex 5: Chemical Weapons Production Facilities 48

Draft Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction 49

 I. The Organization 50

 II. Cooperation and East-Ending 51

 III. Assistance and Protection Against Chemical Weapons 52

 IV. Economic and Technological Development 53

 V. Measures to Address a Situation and to Ensure Compliance, including Sanctions 54

 VI. Relation to Other International Agreements 55

 VII. Settlement of Disputes 56

 VIII. Amendments and Changes 57

 IX. Duration and Withdrawal 58

 X. Status of the Annexes 59

 XI. Signature 60

 XII. Ratification 61

 XIII. Accession 62

 XIV. Entry into Force 63

 XV. Reservations 64

 XVI. Depositary 65

 XVII. Languages and Authentic Texts 66

TABLE OF CONTENTS

	<u>Page</u>
Preamble	7
I. General Obligations	8
II. Definitions and Criteria.....	9
III. Declarations	12
IV. Chemical Weapons	14
V. Chemical Weapons Production Facilities	17
VI. Activities not Prohibited Under the Convention .	20
VII. National Implementation Measures	22
VIII. The Organization	24
IX. Consultations, Cooperation and Fact Finding	32
X. Assistance and Protection Against Chemical Weapons.....	37
XI. Economic and Technological Development	39
XII. Measures to Redress a Situation and to Ensure Compliance, including Sanctions	40
XIII. Relation to Other International Agreements.....	41
XIV. Settlement of Disputes	42
XV. Amendments and Changes	43
XVI. Duration and Withdrawal	45
XVII. Status of the Annexes.....	46
XVIII. Signature	46
XIX. Ratification	46
XX. Accession	46
XXI. Entry into Force.....	46
XXII. Reservations.....	47
XXIII. Depositary.....	47
XXIV. Languages and Authentic Texts.....	47

4. The "Annexes" to be submitted to the Preparatory Commission would not form part of the Convention either, but would be contained in the final report of the CD on the negotiations.

PREAMBLE

The States Parties to this Convention,

Determined to act with a view to achieving effective progress towards general and complete disarmament under strict and effective international control, including the prohibition and elimination of all types of weapons of mass destruction,

Desiring to contribute to the realization of the purposes and principles of the Charter of the United Nations,

Recalling that the General Assembly of the United Nations Organization has repeatedly condemned all actions contrary to the principles and objectives of the Protocol for Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925 (the Geneva Protocol of 1925),

Recognizing that this Convention reaffirms principles and objectives of and obligations assumed under the Geneva Protocol of 1925, and the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction signed at London, Moscow and Washington on 10 April 1972,

Bearing in mind the objective contained in Article IX of the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction,

Determined for the sake of all mankind, to exclude completely the possibility of the use of chemical weapons, through the implementation of the provisions of this Convention, thereby complementing the obligations assumed under the Geneva Protocol of 1925,

Considering that the achievements in the field of chemistry should be used exclusively for the benefit of mankind,

Convinced that the complete and effective prohibition of the development, production, stockpiling and use of chemical weapons, and their destruction, represents a necessary step towards the achievement of these common objectives,

Have agreed as follows:

ARTICLE I

GENERAL OBLIGATIONS

1. Each State Party to this Convention undertakes never under any circumstances:

(a) To develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone;

(b) To use chemical weapons;

(c) To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention.

2. Each State Party undertakes to destroy chemical weapons which are in its possession within its territory and in the territory of another State Party, or under its jurisdiction or control in accordance with the provisions of this Convention.

3. Each State Party undertakes to destroy any chemical weapons production facilities it owns or possesses, or that are located in any place under its jurisdiction or control, in accordance with the provisions of this Convention.

4. Each State Party undertakes not to use herbicides as a method of warfare; such a prohibition should not preclude any other use of herbicides.

ARTICLE II

DEFINITIONS AND CRITERIA

For the purposes of this Convention:

1. "Chemical Weapons" means the following, together or separately:

(a) Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities involved are consistent with such purposes;

(b) Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals, as referred to above, which would be released as a result of the employment of such munitions and devices; or

(c) Any equipment specifically designed for use directly in connection with the employment of such munitions or devices specified in subparagraph (b) of this paragraph.

2. "Toxic Chemical" means:

Any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production.

3. "Precursor" means:

A chemical reactant which takes part at any stage in the production by whatever method of a toxic chemical.

4. "Chemical Weapons Production Facility":

(a) Means any equipment, as well as any building housing such equipment, that was designed, constructed or used at any time since 1 January 1946:

(i) As part of the stage in the production of chemicals ("final technological stage") where the material flows would contain, when the equipment is in operation:

(1) Any chemical listed on Schedule 1 in the Annex on Chemicals (hereinafter referred to as "Schedule 1 chemical"); or

(2) Any other chemical that has no use, above one tonne per year in the territory or in any other place under the jurisdiction or control of the State Party, for purposes not prohibited under this Convention, but can be used for chemical weapons purposes; or

(ii) For filling chemical weapons, including, inter alia, the filling of Schedule 1 chemicals into munitions, devices or bulk storage containers; the filling of scheduled chemicals into containers that form part of assembled binary munitions and devices or into chemical submunitions that form part of assembled unitary munitions and devices, and the loading of the containers and chemical submunitions into the respective munitions and devices;

(b) Does not mean:

(i) Any facility having a production capacity for synthesis of chemicals specified in sub-subparagraph (a) (i) of this paragraph that is less than one tonne;

(ii) Any facility in which a chemical specified in sub-subparagraph (a) (i) of this paragraph is or was produced as an unavoidable by-product of activities for purposes not prohibited under this Convention, provided that the chemical does not exceed three per cent of the total product and that the facility is subject to declaration and inspection under the Annex on Implementation and Verification (hereinafter referred to as "Verification Annex"); or

(iii) The single small-scale facility for production of Schedule 1 chemicals for purposes not prohibited under this Convention as referred to in the Verification Annex.

5. "Purposes not prohibited under this Convention" means:

(a) Industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes;

(b) Protective purposes, namely those related to protection against toxic chemicals;

(c) Military purposes not dependent upon the toxic properties of chemicals as a means of warfare;

(d) Domestic law enforcement and domestic riot control.

6. "Production Capacity" means:

The annual quantitative potential for manufacturing a specific substance based on the technological process actually used or, if the process is not yet operational, planned to be used at the relevant facility. It shall be deemed to be equal to the nameplate capacity or, if the nameplate capacity is not available, to the design capacity. The nameplate capacity is the product output under conditions optimized for maximum quantity for the production facility, as demonstrated by one or more test-runs. The design capacity is the corresponding theoretically calculated product output.

7. "Organization" means the Organization for the Prohibition of Chemical Weapons established pursuant to Article VIII of this Convention.

8. "Production" of a chemical means its formation through chemical reaction.

9. "Processing" of a chemical means a physical process, such as formulation, extraction and purification, in which a chemical is not converted into another chemical.

10. "Consumption" of a chemical means its conversion into another chemical via a chemical reaction.

ARTICLE III

DECLARATIONS

Each State Party shall submit to the Organization, not later than 30 days after the Convention enters into force for it, the following declarations, in which it shall:

1. With respect to chemical weapons:

(a) Declare whether it owns or possesses any chemical weapons, or whether there are any chemical weapons located in any place under its jurisdiction or control;

(b) Specify the precise location, aggregate quantity and detailed inventory of chemical weapons it owns or possesses, or that are located in any place under its jurisdiction or control, in accordance with Part IV (A), paragraphs 1 to 3, of the Verification Annex, except for those chemical weapons referred to in subparagraphs (c), (e) and (f) below;

(c) Report any chemical weapons in its territory that are owned and possessed by another State and located in any place under the jurisdiction or control of another State, in accordance with Part IV (A), paragraph 4, of the Verification Annex;

(d) Declare whether it has transferred or received, directly or indirectly, any chemical weapons since 1 January 1946 and specify the transfer or receipt of such weapons in accordance with Part IV (A), paragraph 5, of the Verification Annex;

(e) Declare whether it has on its territory old or abandoned chemical weapons, in accordance with Part IV (B) of the Verification Annex;

(f) Declare whether it has abandoned chemical weapons on the territory of other States, in accordance with Part IV (B) of the Verification Annex;

(g) Provide its general plan for destruction of chemical weapons that it owns or possesses, or that are located in any place under its jurisdiction or control, in accordance with Part IV (A), paragraph 6, of the Verification Annex.

2. With respect to chemical weapons production facilities:

(a) Declare whether it has or has had any chemical weapons production facility under its ownership or possession, or located in any place under its jurisdiction or control at any time since 1 January 1946;

(b) Specify any chemical weapons production facility it has or has had under its ownership or possession or that is or has been located in any place under its jurisdiction or control at any time since 1 January 1946, in accordance with Part V, paragraph 1, of the Verification Annex, except for those facilities referred to in subparagraph (c) below;

(c) Report any chemical weapons production facility in its territory that another State has or has had under its ownership and possession and that is or has been located in any place under the jurisdiction or control of another State at any time since 1 January 1946, in accordance with Part V, paragraph 2, of the Verification Annex;

(d) Declare whether it has transferred or received, directly or indirectly, any equipment for the production of chemical weapons since 1 January 1946 and specify the transfer or receipt of such equipment; in accordance with Part V, paragraphs 3 to 5, of the Verification Annex.

(e) Provide its general plan for destruction of any chemical weapons production facility it owns or possesses, or that is located in any place under its jurisdiction or control; in accordance with Part V, paragraph 6, of the Verification Annex.

(f) Specify actions to be taken for closure of any chemical weapons production facility it owns or possesses, or that is located in any place under its jurisdiction or control, in accordance with Part V, paragraph 1, of the Verification Annex.

(g) Provide its general plan for any temporary conversion of any chemical weapons production facility it owns or possesses, or that is located in any place under its jurisdiction or control, into a chemical weapons destruction facility, in accordance with Part V, paragraph 7, of the Verification Annex.

3. With respect to other facilities:

Specify the precise location, nature and general scope of activities of any facility or establishment under its ownership or possession, or located in any place under its jurisdiction or control, and that has been designed, constructed or used since 1 January 1946 primarily for development of chemical weapons. Such declaration shall include, inter alia, laboratories and test and evaluation sites.

4. With respect to domestic riot control and domestic law enforcement:

(a) Specify the name, structural formula and Chemical Abstract Service registry number of chemicals it intends to use; and

(b) Specify the types of munitions and devices that it intends to deploy to disperse the chemicals referred to in subparagraph (a) above.

ARTICLE IV

CHEMICAL WEAPONS

1. The provisions of this Article and the detailed procedures for its implementation shall apply to any and all chemical weapons owned or possessed by a State Party, or that are located in any place under its jurisdiction or control, except chemical weapons to which only Part IV (B) of the Verification Annex applies.

2. Detailed procedures for the implementation of this Article are set out in the Verification Annex.

3. All locations at which chemical weapons specified in paragraph 1 are stored or destroyed shall be subject to systematic international on-site verification through on-site inspection and monitoring with on-site instruments, in accordance with Part IV (A) of the Verification Annex.

4. Each State Party shall, immediately after the declaration under Article III paragraph 1 of this Convention has been submitted, provide access to chemical weapons specified in paragraph 1, for the purpose of systematic international on-site verification of the declaration through on-site inspection. Thereafter, each State Party shall not remove any of these chemical weapons, except to a chemical weapons destruction facility. It shall provide access to such chemical weapons, for the purpose of systematic international on-site verification.

5. Each State Party shall provide access to any chemical weapons destruction facilities and their storage areas, that it owns or possesses, or that are located in any place under its jurisdiction or control, for the purpose of systematic international on-site verification.

6. Each State Party shall destroy all chemical weapons specified in paragraph 1, pursuant to the Verification Annex and in accordance with the agreed rate and sequence of destruction (hereinafter referred to as "order of destruction"). Such destruction shall begin not later than one year after the Convention enters into force for it and shall finish not later than 10 years after entry into force of the Convention. A State Party is not precluded from destroying such chemical weapons at a faster rate.

7. Each State Party shall:

(a) Submit detailed plans for the destruction of chemical weapons specified in paragraph 1 no later than 180 days before each annual destruction period begins, in accordance with the Verification Annex, Part IV (A), paragraphs 20 to 26. The detailed plans shall encompass all stocks to be destroyed during the next annual period, and shall include the precise location and the detailed composition of the chemical weapons which are subject to destruction during that period;

(b) Provide information annually regarding the implementation of its plans for destruction of chemical weapons specified in paragraph 1; and

(c) Certify, not later than 30 days after the destruction process has been completed, that all chemical weapons specified in paragraph 1 have been destroyed.

8. If a State ratifies or accedes to this Convention after the 10 year period for destruction set out in paragraph 6, it shall destroy chemical weapons specified in paragraph 1 as soon as possible. The order of destruction for such a State Party shall be determined by the Executive Council.

9. Any chemical weapons discovered by a State Party after the initial declaration of chemical weapons shall be reported, secured and destroyed in accordance with Part IV (A) of the Verification Annex; or in the case of old and/or abandoned chemical weapons, as provided for in Part IV (B) of the Verification Annex.

10. Each State Party, during transportation, sampling, storage and destruction of chemical weapons, shall assign the highest priority to ensuring the safety of people and to protecting the environment. Each State Party shall transport, sample, store and destroy chemical weapons in accordance with its national standards for safety and emissions.

11. Any State Party which has on its territory chemical weapons that are owned or possessed by a State not Party to this Convention, or that are located in any place under the jurisdiction or control of a State not Party to this Convention, shall ensure that these chemical weapons are removed from its territory not later than 30 days after the Convention enters into force for it. If they are not removed within one year, the State Party may request the Organization/Technical Secretariat/other States Parties to provide assistance in the destruction of these chemical weapons.

12. Each State Party undertakes to cooperate with other States Parties that request information or assistance on a bilateral basis or through the Technical Secretariat regarding methods and technologies for the safe and efficient destruction of chemical weapons.

13. (a) In carrying out verification activities pursuant to this Article and Part IV (A) of the Verification Annex, the Organization shall consider measures to avoid unnecessary duplication of bilateral or multilateral agreements on verification of chemical weapons storage and their destruction among States Parties.

To this end, the Executive Council may decide to limit verification to measures complementary to those undertaken pursuant to such a bilateral or multilateral agreement, if it considers that:

- (i) Verification provisions of such an agreement are consistent with the verification provisions of this Article and Part IV of the Verification Annex;

(ii) Implementation of such an agreement provides for sufficient assurance of compliance with the relevant provisions of this Convention; and

(iii) Parties to the bilateral or multilateral agreement keep the Organization fully informed about their verification activities.

(b) If the Executive Council takes a decision pursuant to subparagraph (a), the Organization shall have the right to monitor the implementation of the bilateral or multilateral agreement.

(c) Nothing in this paragraph shall affect the obligation of a State Party to provide declarations pursuant to this Article and Part IV (A) of the Verification Annex.

14. Each State Party shall meet the costs of destruction of chemical weapons it is obliged to destroy. Costs for verification of destruction under this Article will be apportioned taking into account whether other bilateral or multilateral agreements concluded before the entry into force of this Convention already provided for verification of destruction of any chemical weapons declared under this Convention.

CHEMICAL WEAPONS PRODUCTION FACILITIES

1. The provisions of this Article and the detailed procedures for its implementation shall apply to any and all chemical weapons production facilities owned or possessed by a State Party, or that are located in any place under its jurisdiction or control.
2. Detailed procedures for the implementation of this Article are set out in the Verification Annex.
3. All chemical weapons production facilities specified in paragraph 1 shall be subject to systematic international on-site verification through on-site inspection and monitoring with on-site instruments in accordance with Part V of the Verification Annex.
4. Each State Party shall cease immediately all activity at chemical weapons production facilities specified in paragraph 1, except activity required for closure.
5. No State Party shall construct any new chemical weapons production facilities or modify any existing facilities for the purpose of chemical weapons production or for any other purpose prohibited under this Convention.
6. Each State Party shall immediately after the declaration under paragraph 2 of Article III has been submitted, provide access to chemical weapons production facilities specified in paragraph 1, for the purpose of systematic international on-site verification of the declaration through on-site inspections.
7. Each State Party shall:
 - (a) Close, not later than 90 days after the Convention enters into force for it, all chemical weapons production facilities specified in paragraph 1, in a manner that will render each facility inoperable, and give notice thereof; and
 - (b) Provide access to chemical weapons production facilities specified in paragraph 1, subsequent to closure, for the purpose of systematic international on-site verification in order to ensure that the facility remains closed and is subsequently destroyed.
8. Each State Party shall destroy all chemical weapons production facilities specified in paragraph 1 and related facilities and equipment, pursuant to the Verification Annex in accordance with an agreed rate and sequence of destruction (hereinafter referred to as "order of destruction"). Such destruction shall begin not later than one year after the Convention enters into force for it, and finish not later than ten years after entry into force of the Convention. A State Party is not precluded from destroying such facilities at a faster rate.

9. Each State Party shall:

(a) Submit detailed plans for destruction of chemical weapons production facilities specified in paragraph 1 not later than 180 days before the destruction of each facility begins;

(b) Provide information annually regarding the implementation of its plans for the destruction of all chemical weapons production facilities specified in paragraph 1; and

(c) Certify, not later than 30 days after the destruction process has been completed, that all chemical weapons production facilities specified in paragraph 1 have been destroyed.

10. If a State Party ratifies or accedes to this Convention after the ten-year period for destruction set out in paragraph 8, it shall destroy chemical weapons production facilities specified in paragraph 1 as soon as possible. The order of destruction for such a State Party shall be determined by the Executive Council.

11. Each State Party, during the destruction of the chemical weapons production facilities as specified in paragraph 1, shall assign the highest priority to ensuring the safety of people and to protecting the environment. Each State Party shall destroy these chemical weapons production facilities in accordance with its national standards for safety and emissions.

12. Chemical weapons production facilities specified in paragraph 1 may be temporarily converted for destruction of chemical weapons in accordance with the Verification Annex, Part V, paragraphs 18 to 25. Such a converted facility must be destroyed as soon as it is no longer in use for destruction of chemical weapons but, in any case, not later than ten years after entry into force of the Convention.

13. (a) In carrying out verification activities pursuant to this Article and Part V of the Verification Annex, the Organization shall consider measures to avoid unnecessary duplication of bilateral or multilateral agreements on verification of chemical weapons production facilities and their destruction among States Parties.

To this end, the Executive Council may decide to limit the verification to measures complementary to those undertaken pursuant to such a bilateral or multilateral agreement, if it considers that:

(i) Verification provisions of such an agreement are consistent with the verification provisions of this Article and Part V of the Verification Annex;

(ii) Implementation of the agreement provides for sufficient assurance of compliance with the relevant provisions of this Convention; and

(iii) Parties to the bilateral or multilateral agreement keep the Organization fully informed about their verification activities.

(b) If the Executive Council takes a decision pursuant to subparagraph (a), the Organization shall have the right to monitor the implementation of the bilateral or multilateral agreement.

(c) Nothing in this paragraph shall affect the obligation of a State Party to make declarations pursuant to this Article and Part V of the Verification Annex.

14. Each State Party shall meet the costs of destruction of chemical weapons production facilities it is obliged to destroy. Costs for verification of destruction under this Article will be apportioned taking into account whether other bilateral or multilateral agreements concluded before the entry into force of this Convention already provided for verification of destruction of any chemical weapons production facilities declared under this Convention.

ACTIVITIES NOT PROHIBITED UNDER 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 under this Convention; and

(b) Has the right, for the purposes defined in subparagraph 5 (d) of Article II, to use:

(i) Any chemical, such as CS (o-chloro-benzylidene-malononitril), CR (dibenz-(b,f)(1,4)-oxazepin) and CN (2-chloroacetophenone), which is not on the Schedules and which produces rapid, spontaneously reversible sensory irritation to humans and which is declared in accordance with subparagraph 4 (a) of Article III;

(ii) Those munitions and devices declared in subparagraph 4 (b) of Article III.

2. Each State Party shall adopt the necessary measures to ensure that toxic chemicals and their precursors are only developed, produced, otherwise acquired, retained, transferred, or used within its territory or in any other place under its jurisdiction or control for purposes not prohibited under this Convention.

To this end, each State Party shall subject toxic chemicals and their precursors listed in Schedules 1, 2 and 3 of the Annex on Chemicals, as well as facilities that produce, process or consume these toxic chemicals or precursors and other facilities as specified in the Verification Annex, that are located in its territory or in any other place under its jurisdiction or control, to international monitoring as provided in the Verification Annex.

3. Each State Party shall subject Schedule 1 chemicals to the prohibitions on production, acquisition, retention, transfer and use as specified in Part VI of the Verification Annex. It shall subject Schedule 1 chemicals and facilities specified in Part VI of the Verification Annex to monitoring by data reporting and international on-site verification in accordance with that Annex.

4. Each State Party shall subject chemicals listed in Schedules 2 and 3 and facilities specified in Parts VII and VIII of the Verification Annex to monitoring by data reporting and international on-site verification in accordance with that Annex.

5. Not later than 30 days after the entry into force of the Convention for it, each State Party shall declare data on relevant chemicals and facilities in accordance with the Verification Annex.

6. Each State Party shall make annual declarations regarding the relevant chemicals and facilities in accordance with the Verification Annex.

7. For the purpose of on-site verification, each State Party shall grant to the inspectors access to facilities as required in the Verification Annex.

8. In conducting verification activities, the Technical Secretariat shall avoid undue intrusion into the State Party's chemical activities for purposes not prohibited under this Convention and, in particular, abide by the provisions set out in the Annex on the Protection of Confidential Information (hereinafter referred to as "Confidentiality Annex").

9. The provisions of this Article shall be implemented in a manner which avoids, as far as possible, hampering the economic or technological development of States Parties and international co-operation in the field of chemical activities for purposes not prohibited under this Convention, including the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for purposes not prohibited under this Convention.

10. For the purposes of increasing the transparency of national programmes related to protective purposes, each State Party shall provide annually to the Technical Secretariat information on its programme, in accordance with procedures to be developed by the Preparatory Commission.

NATIONAL IMPLEMENTATION MEASURES

General undertakings

1. Each State Party shall, in accordance with its constitutional processes, adopt the necessary measures to implement its obligations under this Convention. In particular, it shall:

(a) Prohibit natural and legal persons anywhere in its territory or in any other place under its jurisdiction as recognized by international law from undertaking any activity prohibited to a State Party under this Convention, including enacting penal legislation with respect to such activity;

(b) Not permit in any place under its control any activity prohibited to a State Party under this Convention; and

(c) Extend penal legislation enacted under subparagraph (a) to any activity prohibited to a State Party under this Convention undertaken anywhere by natural persons, possessing its nationality, in conformity with international law.

2. Each State Party shall cooperate with other States Parties and afford the appropriate form of legal assistance to facilitate the implementation of the obligations under this Article.

3. Each State Party, during the implementation of its obligations under this Convention, shall assign the highest priority to ensuring the safety of people and to protecting the environment, and shall cooperate as appropriate with other States Parties in this regard.

Relations between the State Party and the Organization

4. In order to fulfil its obligations under this Convention, each State Party shall designate or establish a National Authority to serve as the national focal point for effective liaison with the Organization and other States Parties. Each State Party shall notify the Organization of its National Authority at the time that the Convention enters into force for it.

5. Each State Party shall inform the Organization of the legislative and administrative measures taken to implement this Convention.

6. Each State Party shall treat as confidential and afford special handling to information that it receives in confidence from the Organization in connection with the implementation of this Convention. It shall treat such information exclusively in connection with its rights and obligations under this Convention and in accordance with the provisions set out in the Confidentiality Annex.

7. Each State Party undertakes to cooperate with the Organization in the exercise of all its functions and in particular to provide assistance to the Technical Secretariat.

Relationship between the State Party and the Organization

1. In order to fulfill its obligations under this Convention, each State Party shall designate or establish a National Authority to serve as the national focal point for effective liaison with the Organization and other States Parties. Each State Party shall notify the Organization of its National Authority at the time that the Convention enters into force for it.
2. Each State Party shall inform the Organization of the legislative and administrative measures taken to implement this Convention.
3. Each State Party shall treat as confidential, and afford special handling to information that it receives in confidence from the Organization in connection with the implementation of this Convention. It shall treat such information exclusively in connection with its rights and obligations under this Convention and in accordance with the provisions set out in the Confidentiality Annex.

ARTICLE VIII

THE ORGANIZATION

A. GENERAL PROVISIONS

1. The States Parties to this Convention hereby establish the Organization for the Prohibition of Chemical Weapons, to achieve the object and purpose of this Convention, to ensure the implementation of its provisions, including those for international verification of compliance with it, and to provide a forum for consultation and cooperation among States Parties.

2. All States Parties to this Convention shall be members of the Organization. A State Party shall not be deprived of its membership in the Organization.

3. The seat of the Headquarters of the Organization shall be....

4. There are hereby established as the organs of the Organization the Conference of the States Parties, the Executive Council, and the Technical Secretariat.

5. The Organization shall conduct its verification activities provided for under this Convention in the least intrusive manner possible consistent with the timely and efficient accomplishment of their objectives. It shall request only the information and data necessary to fulfil its responsibilities under this Convention. It shall take every precaution to protect the confidentiality of information on civil and military activities and facilities coming to its knowledge in the implementation of this Convention and, in particular, shall abide by the provisions set out in the Confidentiality Annex.

6. The costs of the Organization's activities shall be paid by States Parties in accordance with the United Nations scale of assessment adjusted to take into account differences in membership between the United Nations and this Convention, and subject to the provisions of Articles IV and V of this Convention. Financial contributions of States Parties to the Preparatory Commission shall be deducted in an appropriate way from their contributions to the regular budget. The budget of the Organization shall comprise of two separate chapters relating to administrative and verification costs.

B. THE CONFERENCE OF THE STATES PARTIES

Composition, procedures and decision-making

8. The Conference of the States Parties (hereinafter referred to as "the Conference") shall be composed of all members of this Organization. Each State Party shall have one representative in the Conference, who may be accompanied by alternates and advisers.

9. The first session of the Conference shall be convened by the depositary not later than 30 days after the entry into force of the Convention.

10. The Conference shall meet in regular sessions which should be held annually unless it decides otherwise.

11. Special sessions of the Conference shall be convened:

(a) When decided by the Conference;

(b) When requested by the Executive Council;

(c) When requested by any State Party and supported by one-third of the States Parties; or

(d) In accordance with paragraph 21 to undertake reviews of the operation of this Convention.

Except in the case of subparagraph (d), the special session shall be convened not later than 30 days after receipt of the request by the Director General of the Technical Secretariat, unless specified otherwise in the request.

12. The Conference shall also be convened in the form of an Amendment Conference in accordance with Article XV, paragraph 2.

13. Sessions of the Conference shall take place at the seat of the Organization unless the Conference decides otherwise.

14. The Conference 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.

15. A majority of the members of the Organization shall constitute a quorum for the Conference.

16. Each member of the Organization shall have one vote in the Conference.

17. The Conference shall take decisions on questions of procedure by a simple majority of the members present and voting. Decisions on matters of substance should be taken as far as possible by consensus. If consensus is not attainable when an issue comes up for decision, the Chairman shall defer any vote for 24 hours and during this period of deferment shall make every effort to facilitate achievement of consensus, and shall report to the Conference prior to the end of this period. If consensus is not possible at the end of 24 hours, the Conference shall take the decision by a two-thirds majority of members present and voting unless specified otherwise in this Convention. When the issue arises as to whether the question is one of substance or not, that question shall be treated as a matter of substance unless otherwise decided by the Conference by the majority required for decisions on matters of substance.

Powers and functions

18. The Conference shall be the principal organ of the Organization. It shall consider any questions, matters or issues within the scope of this Convention, including those relating to the powers and functions of the Executive Council and the Technical Secretariat. It may make recommendations and take decisions on any questions, matters or issues related to this Convention raised by a State Party or brought to its attention by the Executive Council.

19. The Conference shall oversee the implementation of this Convention, and act in order to promote its object and purpose. The Conference shall review compliance with this Convention. It shall also oversee the activities of the Executive Council and the Technical Secretariat and may issue guidelines in accordance with this Convention to either of them in the exercise of their functions.

20. The Conference shall:

(a) Consider and adopt at its regular sessions the report of the Organization, consider other reports and adopt the programme and budget of the Organization, submitted by the Executive Council;

(b) Decide on the scale of financial contributions to be paid by States Parties pursuant to paragraph 6;

(c) Elect the members of the Executive Council;

(d) Appoint the Director-General (hereinafter referred to as "the Director-General");

(e) Approve the Rules of Procedure of the Executive Council submitted by the latter;

(f) Establish such subsidiary organs as it finds necessary for the exercise of its functions in accordance with this Convention;

(g) Foster international cooperation for peaceful purposes in the field of chemical activities;

(h) Review scientific and technological developments that could affect the operation of the Convention and, in this context, direct the Director-General to establish a Scientific Advisory Board to enable him, in the performance of his functions, to render specialized advice in areas of science and technology relevant to this Convention, to the Conference, the Executive Council or States Parties. The Scientific Advisory Board shall be composed of independent experts appointed in accordance with terms of reference adopted by the Conference;

(i) Consider and approve at its first session any draft provisions and guidelines that the Preparatory Commission has elaborated pursuant to specific provisions of this Convention unless specified otherwise therein;

(j) Establish at its first session the voluntary fund for assistance in accordance with Article X;

(k) Take the necessary measures to ensure compliance with this Convention and to redress and remedy any situation which contravenes the provisions of this Convention, in accordance with Article XIII;

(l) Consider and decide to grant, all or in part, temporary exemptions from the contributions to States Parties, if so requested.

21. The Conference shall not later than one year after the expiry of the fifth and the tenth year from the entry into force of this Convention and at such other times within that time period as may be decided upon, convene in special sessions to undertake reviews of the operation of this Convention. Such reviews shall take into account any relevant scientific and technological developments. At intervals of five years thereafter, unless otherwise decided upon, further sessions of the Conference shall be convened with the same objective.

C. THE EXECUTIVE COUNCIL

Composition, procedure and decision-making

22.

23. The Executive Council shall meet for regular sessions. Between regular sessions, it shall meet as often as may be required for the fulfilment of its functions.

24. The Executive Council shall elaborate and submit its rules of procedure to the Conference for approval and elect its Chairman.

Powers and functions

25. The Executive Council shall be the executive organ of the Organization. It shall be responsible to the Conference. The Executive Council shall carry out the powers and functions entrusted to it under this Convention, as well as those functions delegated to it by the Conference. In so doing, it shall act in conformity with the recommendations, decisions and guidelines of the Conference and assure their proper and continuous implementation.

26. The Executive Council shall promote the effective implementation of, and compliance with, this Convention. It shall supervise the activities of the Technical Secretariat, cooperate with the National Authority of each State Party and facilitate consultations and cooperation among States Parties at their request.

27. The Executive Council shall:

(a) Consider and submit to the Conference the draft programme and budget of the Organization;

(b) Consider and submit to the Conference the draft report of the Organization on the implementation of this Convention, the report on the performance of its own activities and such special reports as it deems necessary or which the Conference may request;

(c) Make arrangements for the sessions of the Conference including the preparation of the draft agenda.

28. The Executive Council may request the convening of a special session of the Conference.

29. The Executive Council shall:

(a) Conclude agreements or arrangements with States and international organizations on behalf of the Organization, subject to prior approval by the Conference;

(b) Conclude agreements with States Parties in connection with Article X and supervise the voluntary fund, referred to in Article X;

(c) Approve agreements or arrangements relating to the implementation of verification activities, negotiated by the Technical Secretariat with States Parties.

30. The Executive Council shall consider any issue or matter within its competence, affecting this Convention and its implementation, including concerns regarding compliance, and cases of non-compliance, and, as appropriate, inform States Parties and bring the issue or matter to the attention of the Conference.

31. In its consideration of doubts or concerns regarding compliance and cases of non-compliance, including, inter alia, abuse of the rights provided for under this Convention, the Executive Council shall consult with the States Parties involved and, as appropriate, request the State Party to take measures to redress the situation within a specified time. To the extent that the Executive Council considers further action to be necessary, it shall take, inter alia, one or more of the following measures:

(a) Inform all States Parties of the issue or matter;

(b) Bring the issue or matter to the attention of the Conference;

(c) Make recommendations to the Conference regarding measures to redress the situation and to ensure compliance.

The Executive Council shall, in cases of particular gravity and urgency, bring the issue or matter, including relevant information and conclusions directly to the attention of the United Nations General Assembly and the United Nations Security Council. It shall at the same time inform all States Parties of this step.

D. THE TECHNICAL SECRETARIAT

32. The Technical Secretariat shall assist the Conference and the Executive Council in the performance of their functions. The Technical Secretariat shall carry out the verification measures provided for in this Convention. It shall carry out the other functions entrusted to it under this Convention as well as such functions delegated to it by the Conference and the Executive Council.

33. The Technical Secretariat shall:

(a) Prepare and submit to the Executive Council the draft programme and budget of the Organization;

(b) Prepare and submit to the Executive Council the draft report of the Organization on the implementation of this Convention and such other reports as the Conference or the Executive Council may request;

(c) Provide administrative and technical support to the Conference, the Executive Council and subsidiary organs;

(d) Address and receive communications on behalf of the Organization to and from States Parties on matters pertaining to the implementation of this Convention;

(e) Provide technical assistance and technical evaluation to States Parties in the implementation of the provisions of this Convention, including evaluation of scheduled and unscheduled chemicals.

34. The Technical Secretariat shall:

(a) Negotiate agreements or arrangements relating to the implementation of verification activities with States Parties, subject to approval by the Executive Council;

(b) Administer the voluntary fund referred to in Article X, compile declarations made by the States Parties and register, when requested, bilateral agreements concluded between States Parties or between a State Party and the Organization for the purposes of Article X.

35. The Technical Secretariat shall inform the Executive Council of any problem that has arisen with regard to the execution of its functions, including doubts, ambiguities or uncertainties about compliance with this Convention that have come to its notice in the performance of its verification activities and that it has been unable to resolve or clarify through its consultations with the State Party concerned.

36. The Technical Secretariat shall comprise a Director-General, who shall be its head and chief administrative officer, inspectors and such scientific, technical and other personnel as may be required.

37. The Inspectorate shall be a unit of the Technical Secretariat and shall act under the supervision of the Director-General.

38. The Director-General shall be appointed by the Conference upon the recommendation of the Executive Council for a term of four years, renewable for one further term, but not thereafter.

39. The Director-General shall be responsible to the Conference 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 services shall be the necessity of securing the highest standards of efficiency, competence and integrity. Only citizens of States Parties shall serve as the Director-General, as 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 necessary for the proper execution of its responsibilities.

40. The Director-General shall be responsible for the organization and functioning of the Scientific Advisory Board referred to in paragraph 20 (h). The Director-General shall, in consultation with States Parties, appoint members of the Scientific Advisory Board who shall serve in their individual capacity. The members of the Board shall be appointed on the basis of their expertise in the particular scientific fields relevant to the implementation of this Convention. The Director-General may also, as appropriate, in consultation with members of the Board, establish temporary working groups of scientific experts to provide recommendations on specific issues. In regard to the above, States Parties may submit lists of experts to the Director-General.

41. In the performance of their duties, the Director-General, the inspectors and other members of the staff shall not seek or receive instructions from any Government or from any other source external to the Organization. They shall refrain from any action that might reflect on their positions as international officers responsible only to the Conference and the Executive Council.

42. Each State Party shall respect the exclusively international character of the responsibilities of the Director-General, the inspectors and the other members of the staff and not seek to influence them in the discharge of their responsibilities.

E. PRIVILEGES AND IMMUNITIES

43. The Organization shall enjoy in the territory and in any other place under the jurisdiction or control of a State Party such legal capacity and such privileges and immunities as are necessary for the exercise of its functions.

44. Delegates of States Parties, together with their alternates and advisers, representatives appointed to the Executive Council together with their alternates and advisers, the Director-General and the staff of the Organization shall enjoy such privileges and

immunities as are necessary in the independent exercise of their functions in connection with the Organization.

45. The legal capacity, privileges, and immunities referred to in this Article shall be defined in agreements between the Organization and the States Parties as well as in an agreement between the Organization and the State in which the headquarters of the Organization is seated. These agreements shall be developed by the Preparatory Commission.

46. Notwithstanding paragraphs 44 and 45, the privileges and immunities enjoyed by the Director-General and the staff of the Technical Secretariat during the conduct of verification activities shall be those set out in Part II, Section B of the Verification Annex.

ARTICLE IX

CONSULTATIONS, CO-OPERATION AND FACT-FINDING

1. States Parties shall consult and cooperate, directly among themselves, or through the Organization or other appropriate international procedures, including procedures within the framework of the United Nations and in accordance with its Charter, on any matter which may be raised relating to the object and purpose or the implementation of the provisions of this Convention.
2. States Parties shall make every possible effort to clarify and resolve, through exchange of information and consultations among them, any matter which may cause doubt about compliance with this Convention, or which gives rise to concerns about a related matter which may be considered ambiguous. A State Party which receives a request from another State Party for clarification of any matter which the requesting State Party believes causes such doubts or concerns shall provide the requesting State Party, not later than seven days after the request, with information sufficient to answer the doubts or concerns raised along with an explanation of how the information provided resolves the matter. Nothing in this Convention shall affect the right of any two or more States Parties to arrange by mutual consent for inspections or any other procedures among themselves to clarify and resolve any matter which may cause doubts about compliance or gives rise to concerns about a related matter which may be considered ambiguous. Such arrangements shall not affect the rights and obligations of any State Party under other provisions of this Convention.

Procedure for requesting clarification

3. 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 this Convention. The Executive Council shall provide appropriate information and data in its possession relevant to such concerns.
4. 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 this Convention. In such a case, the following shall apply:

(d) If the requesting State Party deems the clarification to be inadequate, it shall have the right to request the Executive Council to obtain from the requested State Party further clarification;

(e) For the purpose of obtaining further clarification requested under subparagraph (d) of this paragraph, the Executive Council may establish 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) If the requesting State Party considers the clarification obtained under subparagraphs (d) and (e) of this paragraph to be unsatisfactory, it shall have the right to request a special meeting of the Executive Council in which States Parties involved that are not members of the Executive Council shall be entitled to take part. 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.

5. A State Party shall also 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 this Convention. The Executive Council shall respond by providing such assistance as appropriate.

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

7. If the doubts or concerns of a State Party about compliance have not been resolved within 60 days after the submission of the request for clarification to the Executive Council, or it believes its doubts warrant urgent consideration, notwithstanding its right to request an on-site challenge inspection, it shall have the right to request a special session of the Conference in accordance with Article VIII. In such a special session, the Conference shall consider the matter and may recommend any measure it deems appropriate to resolve the situation.

Procedures for Challenge Inspections

8. (a) Each State Party has the right to request an on-site challenge inspection of any facility or location in any other State Party for the sole purpose of clarifying and resolving any questions concerning compliance with the provisions of this Convention, and to have this inspection conducted anywhere without delay by an inspection team designated by the Director-General and in accordance with the Verification Annex.

(b) Each State Party is under the obligation to keep the request within the scope of this Convention and to provide in the request all appropriate information on the concern regarding compliance with this Convention as specified in the Verification Annex. Each State Party shall refrain from unfounded requests, care being taken to avoid abuse. The challenge inspection shall be carried out for the sole purpose of determining facts relating to compliance.

9. For the purpose of verifying compliance with the provisions of this Convention, each State Party shall permit the Technical Secretariat to conduct on-site challenge inspections pursuant to paragraph 8.

10. Pursuant to a challenge of its facility or location, and in accordance with the procedures provided for in the Verification Annex, a State Party has:

(a) The right and the obligation to make every reasonable effort to demonstrate its compliance with this Convention and, to this end, to enable the inspection team to fulfil its mandate;

(b) The obligation to provide access within the requested site for the sole purpose of establishing facts relevant to the request; and

(c) The right to take measures to protect sensitive installations, and to prevent disclosure of confidential information, not related to this Convention.

11. (a) The requesting State Party may, subject to the agreement of the inspected State Party, send a representative who may be a national either of the requesting State Party or of a third State Party, to observe the conduct of the inspection.

(b) The inspected State Party shall then grant access to the observer in accordance with the Verification Annex.

(c) The inspected State Party shall, as a rule, accept the proposed observer, but if the inspected State Party exercises a refusal, that fact shall be recorded in the final report.

12. (a) The requesting State Party shall present a request for an on-site challenge inspection to the Director-General.

(b) The Director-General shall immediately ascertain that the request meets the requirements specified in the Verification Annex (Part IX, paragraph 3), and, if necessary, assist the requesting State Party in filing the request accordingly. When the request fulfils the requirements, preparations for the inspection shall begin.

(c) The Director-General shall transmit the request to the inspected State Party and the members of the Executive Council 12 hours prior to the planned arrival of the inspection team at the point of entry.

(d) After having been informed of the inspection request, the Executive Council shall take note of the Director-General's action on the request and shall keep the case under its consideration throughout the inspection procedure. However, its deliberations shall not delay the inspection process.

(e) If it considers the request to be frivolous, abusive or clearly beyond the scope of this Convention as described in paragraph 8 of this Article, the Executive Council may, within 12 hours after having received the inspection request, decide by consensus against carrying out the inspection. Neither the requesting nor the inspected State Party shall participate in such a decision. If the Executive Council decides against the inspection, preparations shall be stopped, no further action on the request shall be taken, and the States Parties concerned shall be informed accordingly.

13. The Director-General shall issue a mandate for the conduct of the inspection. The mandate shall be the request referred to in paragraph 8 put into operational terms, and shall conform with the request.

14. The inspection shall be conducted in accordance with Part IX or, in the case of alleged use, in accordance with Part X of the Verification Annex. The inspection team shall be guided by the principle of conducting the inspection in the least intrusive manner possible, consistent with the effective and timely accomplishment of its mission.

15. The inspected State Party shall assist the inspection team throughout the inspection and facilitate its task. If the inspected State Party proposes, pursuant to Part IX, Section C of the Verification Annex, arrangements to demonstrate compliance with this Convention, alternative to full and comprehensive access, it shall make every reasonable effort, through consultations with the inspection team, to reach agreement on the modalities for establishing the facts with the aim of demonstrating its compliance.

16. The final report shall contain the factual findings as well as an assessment by the inspection team of the degree and nature of access and cooperation granted for the satisfactory implementation of the inspection. The Director-General shall promptly transmit the final report of the inspection team to the requesting State Party, to the inspected State Party, to the Executive Council and to all other States Parties. The Director-General shall further transmit promptly to the Executive Council the assessment(s) of the requesting and of the inspected States Parties, as well as the view(s) of other States Parties which may be conveyed to the Director-General for that purpose, and then provide them to all States Parties.

17. (a) The Executive Council shall, in accordance with its powers and functions, review the final report of the inspection team as soon as it is presented, and deal appropriately with:

(i) The concern regarding compliance as expressed in the inspection request;

(ii) The question of whether the request had been within the scope of this Convention;

(iii) The question of whether the right to request a challenge inspection had been abused.

(b) If the Executive Council considers, in keeping with its powers and functions, further action to be necessary, it shall take the appropriate measures to redress the situation and to ensure compliance with this Convention, including specific proposals to the Conference.

(c) The requesting State Party and the inspected State Party shall have the right to participate in the review process. The Executive Council shall inform the States Parties and the next Conference of the outcome of the process.

(d) If the Executive Council has made specific recommendations to the Conference, the Conference shall consider action in accordance with Article XII.

ARTICLE X

ASSISTANCE AND PROTECTION AGAINST CHEMICAL WEAPONS

1. For the purposes of this Article, "Assistance" means the coordination and delivery to States Parties of protection against chemical weapons, including, inter alia, the following: detection equipment and alarm systems; protective equipment; decontamination equipment and decontaminants; medical antidotes and treatments; and advice on any of these protective measures.
2. Nothing in this Convention shall be interpreted as impeding the right of any State Party to conduct research into, develop, produce, acquire, transfer or use means of protection against chemical weapons, for purposes not prohibited under this Convention.
3. Each State Party undertakes to facilitate, and shall have the right to participate in, the fullest possible exchange of equipment, material and scientific and technological information concerning means of protection against chemical weapons.
4. The Technical Secretariat shall establish, not later than 180 days after entry into force of the Convention and maintain, for the use of any requesting State Party, a data bank containing freely available information concerning various means of protection against chemical weapons as well as such information as may be provided by States Parties.

The Technical Secretariat shall also, within the resources available to it, and at the request of a State Party, provide expert advice and assist the State Party in identifying how its programmes for the development and improvement of a protective capacity against chemical weapons could be implemented.
5. Nothing in this Convention shall be interpreted as impeding the right of States Parties to request and provide assistance bilaterally and to conclude individual agreements with other States Parties concerning the emergency procurement of assistance.
6. Each State Party undertakes to provide assistance through the Organization and to this end to elect to take one or more of the following measures:
 - (a) To contribute to the voluntary fund for assistance to be established by the Conference at its first session;
 - (b) To conclude, if possible not later than 180 days after the Convention enters into force for it, agreements with the Organization concerning the procurement, upon demand, of assistance;

(c) To declare, not later than 180 days after the Convention enters into force for it, the kind of assistance it might provide in response to an appeal by the Organization. If, however, a State Party subsequently is unable to provide the assistance envisaged in its declaration, it is still under the obligation to provide assistance in accordance with this paragraph.

7. Each State Party has the right to request and, subject to the procedures set out in paragraphs 8, 9 and 10, to receive assistance and protection against the use or threat of use of chemical weapons if it considers that:

(a) Chemical weapons have been used against it;

(b) It is threatened by actions or activities by any State that are prohibited for States Parties by Article I of this Convention.

8. The request, substantiated by relevant information, shall be submitted to the Director-General, who shall transmit it immediately to the Executive Council and to all States Parties.

The Director-General shall initiate, not later than 24 hours after receipt of the request, an investigation in order to provide foundation for action. He shall complete the investigation within 72 hours and forward a report to the Executive Council. If additional time is required for completion of the investigation, an interim report shall be submitted within the same time-frame. The additional time required for investigation shall not exceed 72 hours. It may however be further extended by similar periods. Reports at the end of each additional period shall be submitted to the Executive Council. The investigation shall, as appropriate and in conformity with the request and the information accompanying the request, establish relevant facts related to the request as well as the type and scope of assistance and protection needed.

9. The Executive Council shall meet not later than 24 hours after receiving an investigation report to consider the situation and shall take a decision by simple majority within the following 24 hours on whether to instruct the Technical Secretariat to provide assistance. The Technical Secretariat shall immediately transmit to all States Parties and relevant international organizations the investigation report and the decision taken by the Executive Council. When so decided by the Executive Council, the Director-General shall provide assistance immediately. For this purpose, the Director-General may cooperate with the requesting State Party, other States Parties and relevant international organizations. The States Parties shall make the fullest possible efforts to provide assistance.

10. If the information available from the ongoing investigation or other reliable sources would give sufficient proof that there are victims of use of chemical weapons and immediate action is indispensable, the Director-General shall notify all States Parties and shall take emergency measures of assistance, using the resources the Conference has placed at his disposal for such contingencies. The Director-General shall keep the Executive Council informed of actions undertaken pursuant to this paragraph.

ARTICLE XI

ECONOMIC AND TECHNOLOGICAL DEVELOPMENT

1. The provisions of this Convention shall be implemented in a manner which avoids, as far as possible, hampering the economic or technological development of States Parties to this Convention, and international cooperation in the field of chemical activities for purposes not prohibited under this Convention including the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for purposes not prohibited under this Convention.

2. Each State Party shall, subject to the provisions of this Convention:

(a) Have the right, individually or collectively, to conduct research with, to develop, produce, acquire, retain, transfer, and use chemicals;

(b) Undertake to facilitate, and have the right to participate in, the fullest possible exchange of chemicals, equipment and scientific and technical information relating to the development and application of chemistry for purposes not prohibited under this Convention;

(c) Not maintain in regard to other States Parties any arbitrary restrictions which would impede trade in and the development and promotion of scientific and technological knowledge in the field of chemistry for purposes not prohibited under this Convention;

(d) Undertake to review its existing national regulations in the field of trade in chemicals in order to render them consistent with the object and purpose of this Convention;

This provision shall be without prejudice to the generally recognized principles and applicable rules of international law.

ARTICLE XII

MEASURES TO REDRESS A SITUATION AND TO ENSURE COMPLIANCE,
INCLUDING SANCTIONS

1. The Conference shall take the necessary measures, as set out in paragraphs 2, 3 and 4 of this Article, to ensure compliance with this Convention and to redress and remedy any situation which contravenes the provisions of this Convention. In considering action pursuant to this paragraph, the Conference shall take into account all information and recommendations on the issues submitted by the Executive Council.

2. In case where a State Party has been requested to take measures to redress a situation raising problems with regard to its compliance, and where the State Party fails to fulfil the request within the specified time, the Conference may - inter alia - restrict or suspend the State Party's rights and privileges under this Convention until it undertakes the necessary action to conform with its obligations under this Convention.

3. In cases where serious damage to the object and purpose of this Convention may result from actions prohibited under this Convention, in particular by Article I, the Conference may recommend collective measures to States Parties in conformity with international law.

4. The Conference shall in cases of particular gravity, bring the issue, including relevant information and conclusions, to the attention of the United Nations General Assembly and the United Nations Security Council.

5. The Conference and the Executive Council are separately empowered, subject to authorization from the General Assembly of the United Nations, to request the International Court of Justice to give an advisory opinion on any legal question arising within the scope of the activities of the Organization. An agreement between the Organization and the United Nations shall be concluded for this purpose in accordance with Article VIII, paragraph 29 (a).

6. This Article is without prejudice to Article IX or to the provisions on measures to redress a situation and to ensure compliance, including sanctions.

ARTICLE XIII

RELATION TO OTHER INTERNATIONAL AGREEMENTS

Nothing in this Convention shall be interpreted as in any way limiting or detracting from the obligations assumed by any State under the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, signed at Geneva on 17 June 1925, and under the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, signed at London, Moscow and Washington on 10 April 1972.

ARTICLE XIV

SETTLEMENT OF DISPUTES

1. Disputes that may arise concerning the application or the interpretation of this Convention shall be settled in accordance with the relevant provisions of this Convention and in conformity with the provisions of the Charter of the United Nations.
2. When a dispute arises between two or more parties relating to the interpretation or application of this Convention, the parties concerned shall consult together with a view to the expeditious settlement of the dispute by negotiation or by other peaceful means of the parties' choice, including recourse to appropriate organs of this Convention and, by mutual consent, referral to the International Court of Justice in conformity with the Statute of the Court. The States Parties involved shall keep the Executive Council informed of actions being taken.
3. The Executive Council may contribute to the settlement of a dispute by whatever means it deems appropriate, including offering its good offices, calling upon the States Parties to a dispute to start the settlement process of their choice and recommending a time-limit for any agreed procedure.
4. The Conference shall consider questions related to disputes raised by States Parties or brought to its attention by the Executive Council. The Conference shall, as it finds necessary, establish or entrust organs with tasks related to the settlement of these disputes in conformity with Article VIII, paragraph 20 (f).
5. The Conference and the Executive Council are separately empowered, subject to authorization from the General Assembly of the United Nations, to request the International Court of Justice to give an advisory opinion on any legal question arising within the scope of the activities of the Organization. An agreement between the Organization and the United Nations shall be concluded for this purpose in accordance with Article VIII, paragraph 29 (a).
6. This Article is without prejudice to Article IX or to the provisions on measures to redress a situation and to ensure compliance, including sanctions.

ARTICLE XV

AMENDMENTS AND CHANGES

1. Any State Party may propose amendments or changes to this Convention. Proposals for amendments shall be subject to the procedures in paragraphs 2 and 3. Proposals for changes, as specified in paragraph 4, shall be subject to the procedures in paragraph 5.
2. The text of a proposed amendment shall be submitted to the Director-General for circulation to all States Parties. It shall be considered only by an Amendment Conference. Such an Amendment Conference shall be convened if one-third or more of the States Parties notify to the Director-General not later than 30 days after its circulation that they support further consideration of the proposal. The Amendment Conference shall be held immediately following a regular session of the Conference unless the requesting States Parties ask for an earlier meeting. In no case shall an Amendment Conference be held less than 60 days after the circulation of the proposed amendment.
3. Amendments shall enter into force for all States Parties 30 days after deposit of the instruments of ratification or acceptance by all the States Parties referred to under subparagraph (b) below:
 - (a) When adopted by the Amendment Conference by a positive vote of a majority of all States Parties with no State Party casting a negative vote; and
 - (b) Ratified or accepted by all those States Parties casting a positive vote at the Amendment Conference.
4. In order to ensure the viability and the effectiveness of the Convention, provisions in the Annexes shall be subject to changes in accordance with paragraph 5, if proposed changes are related only to matters of an administrative or technical nature. All changes to the Annex on Chemicals shall be made in accordance with paragraph 5. Section A of the Confidentiality Annex shall not be subject to changes in accordance with paragraph 5.
5. Proposed changes referred to in paragraph 4 shall be made in accordance with the following procedures:
 - (a) The text of the proposed changes shall be transmitted together with the necessary information to the Director-General. Additional information for the evaluation of the proposal may be provided by any State Party and the Director-General. The Director-General shall promptly communicate any such proposals and information to all States Parties and the Executive Council;
 - (b) Not later than 60 days after its receipt, the Director-General shall evaluate the proposal to determine all its possible consequences for the provisions of this Convention and its implementation and shall communicate any such information to all States Parties and the Executive Council;

(c) The Executive Council shall examine the proposal in the light of all information available to it. Not later than 90 days after its receipt, the Executive Council shall notify its recommendation to all States Parties for consideration. States Parties shall acknowledge receipt within 10 days;

(d) If the Executive Council recommends to all States Parties that the proposal be adopted, it shall be considered approved if no State Party objects to it not later than 90 days after receipt of the recommendation. If the Executive Council recommends that the proposal be rejected, it shall be considered rejected if no State Party objects to the rejection not later than 90 days after receipt of the recommendation;

(e) If a recommendation of the Executive Council does not meet with the acceptance required under subparagraph (d), a decision on the proposal shall be taken as a matter of substance by the Conference at its next session;

(f) If a proposal is rejected by the Executive Council or the Conference as not fulfilling the requirements of paragraph 4, a State Party may submit it to the Director-General as a proposed amendment in accordance with paragraph 2;

(g) The Executive Council may itself propose changes, making use of information provided by the Director-General. In such cases, subparagraphs (d) and (e) shall be applied accordingly;

(h) The Director-General shall notify all States Parties of any decision under this paragraph;

(i) Changes approved under this procedure shall enter into force for all States Parties 180 days after the date of notification by the Director-General of their approval unless another time period is recommended by the Executive Council or decided by the Conference.

ARTICLE XXI

ENTRY INTO FORCE

1. This Convention shall enter into force 180 days after the date of the deposit of the 65th instrument of ratification, but in no case earlier than two years after its opening for signature.

2. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Convention, it shall enter into force on the 36th day following the date of deposit of their instrument of ratification or accession.

ARTICLE XVI

DURATION AND WITHDRAWAL

1. This Convention shall be of unlimited duration.

2. Each State Party shall, in exercising its national sovereignty, have the right to withdraw from this Convention if it decides that extraordinary events, related to the subject matter of this Convention, have jeopardized the supreme interests of its country. It shall give notice of such withdrawal 90 days in advance to all other States Parties, the Executive Council, the Depositary and the United Nations Security Council. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests.

3. The withdrawal of a State Party from this Convention shall not in any way affect the duty of States to continue fulfilling the obligations assumed under any relevant rules of international law, particularly the Geneva Protocol of 1925.

B. Proposed changes referred to in paragraph 4 shall be made in accordance with the following procedures:

(a) The text of the proposed changes shall be transmitted together with the necessary information to the Director-General. Additional information for the evaluation of the proposal may be provided by any State Party and the Director-General. The Director-General shall promptly communicate any such proposals and information to all States Parties and the Executive Council.

(b) Not later than 90 days after its receipt, the Director-General shall evaluate the proposal and delineate all its possible consequences for the provisions of this Convention and its implementation and shall communicate any such information to all States Parties and the Executive Council.

ARTICLE XVII

STATUS OF THE ANNEXES

The Annexes form an integral part of this Convention. Any reference to this Convention includes the Annexes.

ARTICLE XVIII

SIGNATURE

This Convention shall be open for signature for all States before its entry into force.

ARTICLE XIX

RATIFICATION

This Convention shall be subject to ratification by States Signatories according to their respective constitutional processes.

ARTICLE XX

ACCESSION

Any State which does not sign this Convention before its entry into force may accede to it at any time.

ARTICLE XXI

ENTRY INTO FORCE

1. This Convention shall enter into force 180 days after the date of the deposit of the 65th instrument of ratification, but in no case earlier than two years after its opening for signature.
2. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Convention, it shall enter into force on the 30th day following the date of deposit of their instrument of ratification or accession.

ARTICLE XXII

RESERVATIONS

The Articles of this Convention shall not be subject to reservations. The Annexes of this Convention shall not be subject to reservations incompatible with its object and purpose.

ARTICLE XXIII

DEPOSITARY

The Secretary-General of the United Nations is hereby designated as the Depositary of this Convention and shall, inter alia:

- a) Promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification or of accession and the date of the entry into force of this Convention, and of the receipt of other notices;
- b) Transmit duly certified copies of this Convention to the Governments of all signatory and acceding States; and
- c) Register this Convention pursuant to Article 102 of the Charter of the United Nations.

ARTICLE XXIV

LANGUAGES AND AUTHENTIC TEXTS

This Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations.

ANNEX ON CHEMICALS

Contents

Pages

A. Guidelines for Schedules of Chemicals	49
B. Schedules of Chemicals	51

A. GUIDELINES FOR SCHEDULES OF CHEMICALS

Guidelines for Schedule 1

1. The following criteria shall be taken into account in considering whether a chemical should be included on Schedule 1:

(a) It has been developed, produced, stockpiled or used as a chemical weapon as defined in Article II;

(b) It poses otherwise a high risk to the objectives of this Convention by virtue of its high potential for use for activities prohibited under this Convention because one or more of the following conditions is met:

(i) It possesses a chemical structure closely related to that of other toxic chemicals listed on Schedule 1, and has, or can be expected to have, comparable properties;

(ii) It possesses such lethal or incapacitating toxicity as well as other properties that would enable it to be weaponized and used as a chemical weapon;

(iii) It may be used as a precursor in the final single technological stage of production of a toxic chemical listed on Schedule 1, regardless of whether this stage takes place in facilities, in munitions or elsewhere;

(c) It has little or no use for purposes not prohibited under this Convention.

Guidelines for Schedule 2

2. The following criteria shall be taken into account in considering whether a toxic chemical not listed on Schedule 1 or a precursor to a Schedule 1 or Schedule 2 chemical should be included in Schedule 2:

(a) It poses a significant risk to the objectives of the Convention because it possesses such lethal or incapacitating toxicity as well as other properties that could enable it to be weaponized and used as a chemical weapon;

(b) It may be used in one of the chemical reactions at the final stage of formation of a chemical listed on Schedules 1 or 2;

(c) It poses a significant risk to the objectives of the Convention by virtue of its importance in the production of a chemical listed on Schedules 1 or 2;

(d) It is not produced in large commercial quantities but in quantities consistent with the aim of fulfilling the verification measures stipulated in Article VI.

Guidelines for Schedule 3

3. The following criteria shall be taken into account when considering whether a toxic chemical or precursor, not listed in other Schedules, should be included on Schedule 3:

(a) It has been produced, stockpiled or used as a chemical weapon;

(b) It poses otherwise a risk to the objectives of this Convention because it possesses such lethal or incapacitating toxicity as well as other properties that might enable it to be weaponized and used as a chemical weapon;

(c) It poses a risk to the objectives of this Convention by virtue of its importance in the production of one or more chemicals listed on Schedule 1 or Schedule 2;

(d) It may be produced in large commercial quantities for purposes not prohibited under this Convention.

B. SCHEDULES OF CHEMICALS

The following Schedules list toxic chemicals and their precursors. For the purpose of implementing this Convention, these Schedules identify chemicals that are subject to monitoring according to the provisions of the Verification Annex. Pursuant to Article II, subparagraph 1 (a), these Schedules do not constitute a definition of chemical weapons.

Chemicals marked "u" on Schedule 1, or "*" on Schedule 2, are subject to special thresholds for declaration and verification, as specified in Parts VII and VIII of the Verification Annex.

Schedule 1

- | | (CAS number) |
|--|--------------|
| 1. O-Alkyl ($\leq C_{10}$, incl. cycloalkyl) alkyl
(Me, Et, n-Pr or i-Pr)-phosphonofluoridates | |
| e.g. Sarin: O-Isopropyl methylphosphonofluoridate | (107-44-8) |
| Soman: O-Pinacolyl methylphosphonofluoridate | (96-64-0) |
| 2. O-Alkyl ($\leq C_{10}$, incl. cycloalkyl) N,N-dialkyl
(Me, Et, n-Pr or i-Pr) phosphoramidocyanidates | |
| e.g. Tabun: O-Ethyl N,N-dimethyl
phosphoramidocyanidate | (77-81-6) |
| 3. O-Alkyl (H or $\leq C_{10}$, incl. cycloalkyl) S-2-dialkyl
(Me, Et, n-Pr or i-Pr)-aminoethyl alkyl
(Me, Et, n-Pr or i-Pr) phosphonothiolates and
corresponding alkylated and protonated salts | |
| e.g. VX: O-Ethyl S-2-diisopropylaminoethyl
methyl phosphonothiolate | (50782-69-9) |
| 4. Sulphur mustards: | |
| 2-Chloroethylchloromethylsulphide | (2625-76-5) |
| Mustard gas (H): Bis(2-chloroethyl)sulphide | (505-60-2) |
| Bis(2-chloroethylthio)methane | (63869-13-6) |
| Sesquimustard (Q): 1,2-Bis(2-chloroethylthio)ethane | (3563-36-8) |
| 1,3-Bis(2-chloroethylthio)-n-propane | (63905-10-2) |
| 1,4-Bis(2-chloroethylthio)-n-butane | |
| 1,5-Bis(2-chloroethylthio)-n-pentane | |
| Bis(2-chloroethylthiomethyl)ether | (63918-90-1) |
| O-Mustard (T): Bis(2-chloroethylthioethyl)ether | (63918-89-8) |
| 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. Saxitoxin (u) (35523-89-8)
8. Ricin (u)
9. Alkyl (Me, Et, n-Pr or i-Pr) phosphonyldifluorides
e.g. DF: Methylphosphonyldifluoride (676-99-3)
10. O-Alkyl (H or $\leq C_{10}$, incl. cycloalkyl) O-2-dialkyl
(Me, Et, n-Pr or i-Pr)-aminoethyl alkyl
(Me, Et, N-Pr or i-Pr) phosphonites and
corresponding alkylated and protonated salts
e.g. QL: O-Ethyl O-2-diisopropylaminoethyl
methylphosphonite (57856-11-8)
11. Chloro Sarin: O-Isopropyl methylphosphonochloridate(1445-76-7)
12. Chloro Soman: O-Pinacolyl methylphosphonochloridate(7040-57-5)

Schedule 2

1. Amiton: O,O-Diethyl S-[2-(diethylamino)ethyl]
phosphorothiolate (78-53-5)
and corresponding alkylated and protonated salts
2. PFIB: 1,1,3,3,3-Pentafluoro-2-(trifluoromethyl)-
1-propene (382-21-8)
3. BZ: 3-Quinuclidinyl benzilate (*) (6581-06-2)
4. Botulinum toxin (*) (93382-43-1)
5. Chemicals, except for those listed in Schedule 1 or 3,
containing a phosphorus atom to which is bonded one methyl,
ethyl or propyl (normal or iso) group but not further
carbon atoms.
e.g. Methylphosphonyl dichloride (676-97-1)
Dimethyl methylphosphonate (765-79-6)
6. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) phosphoramidic
dihalides
7. Dialkyl (Me, Et, n-Pr or i-Pr) N,N-dialkyl
(Me, Et, n-Pr or i-Pr)-phosphoramidates
8. Arsenic trichloride (7784-34-1)
9. 2,2-Diphenyl-2-hydroxyacetic acid (76-93-7)
10. Quinuclidin-3-ol (1619-34-7)
11. N,N-Dialkyl (Me, Et, n-Pr or i-Pr)
aminoethyl-2-chlorides and corresponding
protonated salts
12. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-ols
and corresponding protonated salts

13. N,N-Dialkyl (Me, Et, n-Pr or i-Pr) aminoethane-2-thiols
and corresponding protonated salts
14. Thiodiglycol: bis(2-hydroxyethyl)sulphide (111-48-8)
15. Pinacolyl alcohol: 3,3-dimethylbutan-2-ol (464-07-3)

Schedule 3

1. Phosgene (75-44-5)
2. Cyanogen chloride (506-77-4)
3. Hydrogen cyanide (74-90-8)
4. Chloropicrin: Trichloronitromethane (76-06-2)
5. Phosphorus oxychloride (10025-87-3)
6. Phosphorus trichloride (7719-12-2)
7. Phosphorus pentachloride (10026-13-8)
8. Trimethyl phosphite (121-45-9)
9. Triethyl phosphite (122-52-1)
10. Dimethyl phosphite (868-85-9)
11. Diethyl phosphite (762-04-9)
12. Sulphur monochloride (10025-67-9)
13. Sulphur dichloride (10545-99-0)
14. Thionyl chloride (7719-09-7)
15. Triethanolamine (102-71-6)
16. Ethyldiethanolamine
17. Methyldiethanolamine
18. Fonofos: O-Ethyl S-phenyl ethylphosphono-
thiolothionate (944-22-9)
19. N,N-Dimethylaminoethanol
and corresponding protonated salts (108-01-0)
20. N,N-Diethylaminoethanol
and corresponding protonated salts (100-37-8)

ANNEX ON IMPLEMENTATION AND VERIFICATION
("VERIFICATION ANNEX")

Contents

	<u>Page</u>
<u>Part I: Definitions</u>	60
<u>Part II: General Rules of Verification</u>	
A. Designation of inspectors and inspection assistants	65
B. Privileges and immunities	66
C. Standing arrangements	68
Points of entry	68
Arrangements for use of unscheduled aircraft	69
Administrative arrangements	69
Approved equipment	70
D. Pre-inspection activities	71
Notification	71
Entry into the territory of the inspected State Party or Host State and transfer to the inspection site	71
Pre-inspection briefing	72
E. Conduct of inspections	72
General rules	72
Safety	72
Communications	73
Inspection team and inspected State Party rights	73
Collection, handling and analysis of samples	74
Extension of inspection duration	75
Debriefing	75
F. Departure	75
G. Reports	75
H. Application of general provisions	76
<u>Part III: General provisions for verification measures pursuant to Articles IV, V and VI</u>	
A. Initial inspections and facility agreements	77
B. Standing arrangements	78
C. Pre-inspection activities	78

Contents (continued)

Page

Part IV (A): Destruction of Chemical Weapons
and its Verification pursuant to Article IV

A. Declarations	79
Chemical weapons.....	79
Declaration of chemical weapons pursuant to Article III paragraph 1 (c).....	81
Declaration of past transfers and receipts....	81
Submission of the general plan for destruction of chemical weapons	81
B. Measures to secure the storage facility and storage facility preparation	82
C. Destruction	83
Principles and methods for destruction of chemical weapons.....	83
Order of destruction	83
Detailed annual plans for destruction	85
D. Verification	86
International verification of declarations of chemical weapons by on-site inspections.....	86
Systematic monitoring of storage facilities ..	87
Inspections and visits	87
International verification of the destruction of chemical weapons	88
Chemical weapons storage facilities at chemical weapons destruction facilities	90
Systematic international on-site verification of destruction of chemical weapons.....	90

Contents (continued)

Page

Part IV (B): Old and/or abandoned chemical weapons

A. General.....	92
B. Regime for old chemical weapons.....	92
C. Regime for abandoned chemical weapons.....	93

Part V: Destruction of chemical weapons production facilities and its verification pursuant to Article V

A. Declarations	95
Declarations of chemical weapons production facilities	95
Declarations of chemical weapons production facilities pursuant to Article III paragraph 2 (c).....	97
Declaration of past transfers and receipts....	97
Submission of the general plan for destruction....	97
Submission of annual plans for destruction....	98
B. Destruction	99
General principles for destruction of chemical weapons production facilities.....	99
Principles and methods for closure of a chemical weapons production facility.....	99
Technical maintenance of chemical weapons production facilities prior to their destruction....	99
Principles and methods for temporary conversion of chemical weapons production facilities into chemical weapons destruction facilities.....	100
Principles and methods related to destruction of a chemical weapons production facility.....	101
Order of destruction.....	102
Detailed plans for destruction.....	103
Review of detailed plans.....	104
C. Verification	105
International verification of declarations of chemical weapons production facilities by initial on-site inspections	105
International verification of chemical weapons production facilities and cessation of their activities	106
International verification of destruction of chemical weapons production facilities	107
International verification of temporary conversion of a chemical weapons production facility into a chemical weapons destruction facility.....	107

Contents (continued)

Page

Part VI: Activities not prohibited under the Convention in accordance with Article VI:

Regime for Schedule 1 chemicals and facilities related to such chemicals

A. General provisions	109
B. Transfers	109
C. Production	110
General principles for production.....	110
Single small-scale facility	110
Other facilities	110
D. Declarations.....	110
Single small-scale facility	110
Other facilities	112
E. Verification.....	113
Single small-scale facility.....	113
Other facilities	114

Part VII: Activities not prohibited under the Convention in accordance with Article VI:

Regime for Schedule 2 chemicals and facilities related to such chemicals

A. Declarations.....	115
Declarations on aggregate national data.....	115
General provisions on declarations on plants..	115
Declarations on past activities.....	116
Chemical(s)	116
Facility	116
Notification on anticipated activities.....	117
Past production of chemicals on Schedule 2 for chemical weapons purposes.....	117
Procedural provisions.....	117
Information of States Parties.....	118
B. Verification.....	118
General.....	118
Initial inspections.....	118
Subsequent inspections.....	119
Inspection aims.....	120
Inspection procedures.....	120
C. Notification of Inspection.....	121

Contents (continued)

Page

Part VIII: Activities not prohibited under the Convention in accordance with Article VI:

Regime for chemicals on Schedule 3, facilities related to such chemicals, and other facilities relevant to the objectives of the Convention

A.	Declarations.....	122
	Declarations of aggregate national data.....	122
	General provisions on the declarations of facilities.....	122
	Declarations of past activities.....	123
	Notification of anticipated activities.....	123
	Procedural provisions.....	124
	Information of States Parties.....	124
B.	Verification.....	124
	General.....	124
	Inspection aims.....	125
	Inspection procedures (Type 2).....	125
C.	Notification of inspection.....	126

Part IX: Challenge inspections pursuant to Article IX

A.	Designation and selection of inspectors and inspection assistants	127
B.	Pre-inspection activities	127
	Notification	127
	Entry into the territory of the inspected State Party or Host State	129
	Alternative determination of final perimeter..	129
	Verification of location	130
	Securing the site, exit monitoring	130
	Pre-inspection briefing and inspection plan ..	131
	Perimeter activities	132
C.	Conduct of inspections	133
	General rules	133
	Managed access	134
	Observer	135
	Duration of inspection	136
D.	Post-inspection activities.....	136
	Departure.....	136
	Reports.....	136

Contents (continued)

Page

Part X: Investigations in cases of alleged use of chemical weapons

A.. General 137

B. Pre-inspection activities 137

Request for an investigation 137

Notification 137

Assignment of inspection team 138

Dispatch of inspection team 138

Briefings 138

C. Conduct of inspections 139

Access 139

Sampling 139

Extension of inspection site 139

Extension of inspection duration 139

Interviews 139

D. Reports 140

Procedures 140

Contents 140

E. States not Party 140

PART I:

DEFINITIONS

1. "Approved Equipment" means the devices and/or instruments necessary for the performance of the inspection team's duties that have been certified by the Technical Secretariat in accordance with agreed procedures. Such equipment may also refer to the administrative supplies or recording materials that would be used by the inspection team.

2. "Buildings" as referred to in the definition of chemical weapons production facility in Article II comprise specialized buildings and standard buildings.

a) "Specialized Building" means:

(i) Any building, including underground structures, containing specialized equipment in a production or filling configuration;

(ii) Any building, including underground structures, which has distinctive features which distinguish it from buildings normally used for chemical production or filling activities not prohibited under this Convention.

b) "Standard Building" means any building, including underground structures, constructed to prevailing industry standards for facilities not producing super-toxic lethal or corrosive chemicals.

3. "Challenge Inspection" means the inspection of any facility or location in a State Party requested by another State Party pursuant to Article IX,

4. "Discrete Organic Chemical" means any organic chemical compound, identifiable by chemical name, by structural formula, if known, and by Chemical Abstracts Service registry number, if assigned.

5. "Equipment" as referred to in the definition of chemical weapons production facility in Article II comprise specialized equipment and standard equipment.

a) "Specialized Equipment" means:

(i) The main production train, including any reactor or equipment for product synthesis, separation or purification, any equipment used directly for heat transfer in the final technological stage, such as in reactors or in product separation, as well as any other equipment which has been in contact with any Schedule 1 chemical, or any other chemical that has no use in the territory or in any other place under the jurisdiction or control of the State Party for purposes not prohibited under this Convention above 1

tonne per year but can be used for chemical weapons purposes, or would be if the facility were operated;

- (ii) Any chemical weapon filling machines;
- (iii) Any other equipment specially designed, built or installed for the operation of the facility as a chemical weapons production facility, as distinct from a facility constructed according to prevailing commercial industry standards for facilities not producing super-toxic lethal or corrosive chemicals, such as: equipment made of high-nickel alloys or other special corrosion-resistant material; special equipment for waste control, waste treatment, air filtering, or solvent recovery; special containment enclosures and safety shields; non-standard laboratory equipment used to analyse toxic chemicals for chemical weapons purposes; custom-designed process control panels; dedicated spares for specialized equipment.

b) "Standard Equipment" means:

- (i) Production equipment which is generally used in the chemical industry and is not included in the types of specialized equipment;
- (ii) Other equipment commonly used in the chemical industry, such as fire-fighting equipment, guard and security/safety surveillance equipment, medical facilities, laboratory facilities, communications equipment.

6. "Facility" in the context of Article VI means any of the industrial sites as defined below ("plant site", "plant" and "unit").

a) "Plant Site" (Works, Factory) means the local integration of one or more plants, with any intermediate administrative levels, which are under one operational control and includes common infrastructure, such as:

- (i) Administration and other offices;
- (ii) Repair and maintenance shops;
- (iii) Medical centre;
- (iv) Utilities;
- (v) Central analytical laboratory;
- (vi) Research and development laboratories;
- (vii) Central effluent and waste treatment area; and
- (viii) Warehouse storage.

b) "Plant" (Production facility, Workshop) means a relatively self-contained area, structure or building containing one or more units with auxiliary and associated infrastructure, such as:

- (i) Small administrative section;
- (ii) Storage/handling areas for feedstock and products;
- (iii) Effluent/waste handling/treatment area;
- (iv) Control/analytical laboratory;
- (v) First aid service/related medical section; and
- (vi) Records associated with the movement into, around and from the site, of declared chemicals and its feedstock or product chemicals formed from it, as appropriate.

c) "Unit" (Production unit, Process unit) means the combination of those items of equipment, including vessels and vessel set up, necessary for the production, processing or consumption of a chemical.

7. "Facility Agreement" means an agreement or arrangement between a State Party and the Organization relating to a specific facility subject to routine inspection.

8. "Host State" means the State on whose territory lie facilities of another State subject to inspection under this Convention.

9. "In-Country Escort" means individuals specified by the inspected State Party and, if appropriate, by the Host State to accompany and assist the inspection team during the in-country period.

10. "In-Country Period" means the period from the arrival of the inspection team at a point of entry until its departure from the State at a point of entry.

11. "Initial Inspection" means the first on-site inspection of facilities to verify data declared pursuant to Articles IV, V and VI and this Annex.

12. "Inspected State Party" means the State Party to this Convention on whose territory or in any other place under its jurisdiction or control an inspection pursuant to this Convention takes place, or the State Party to this Convention whose facility on the territory of a Host State is subject to such an inspection.

13. "Inspection Assistant" means an individual designated by the Director-General as set out in Part II, Section A of this Annex to assist inspectors in an inspection, such as medical, security and administrative personnel and interpreters.

14. "Inspection Mandate" means the instructions issued by the Director-General to the inspection team for the conduct of a particular inspection.

15. "Inspection Manual" means the compilation of additional procedures for the conduct of inspections to be developed by the Director-General.

16. "Inspection Site" means any area or facility at which the inspection is carried out and which is specifically defined in the respective facility agreement or inspection request or mandate or inspection request as expanded by the alternative or final perimeter.

17. "Inspection Team" means the group of inspectors and inspection assistants assigned by the Director-General to conduct a particular inspection.

18. "Inspector" means an individual designated by the Director-General according to the procedures as set out in Part II, Section A of this Annex, to carry out an inspection in accordance with this Convention.

19. "Model Agreement" means a document specifying the general form and content for an agreement concluded between a State Party and the Organization for fulfilling the verification provisions specified in this Annex.

20. "Observer" means a representative of a requesting State Party designated by the State Party to observe a challenge inspection.

21. "Organic Chemical" means any chemical belonging to the class of chemical compounds consisting of all compounds of carbon except for its oxides, sulphides and metal carbonates.

22. "Perimeter" in case of challenge inspection means the external boundary of the inspection site, either defined by geographic coordinates or by description on a map.

(a) "Requested Perimeter" means the inspection site perimeter as specified in conformity with paragraph 6 of Part IX of this Annex;

(b) "Alternative Perimeter" means the inspection site perimeter as specified, alternatively to the requested perimeter, by the inspected State Party; It shall conform to the requirements of paragraph 16 of Part IX of this Annex;

(c) "Final Perimeter" means the final inspections site perimeter as agreed in negotiations between the inspection team and the inspected State Party, in accordance with paragraphs 15 to 20 of Part IX of this Annex ;

(d) "Declared Perimeter" means the external boundary of the site within which a facility declared pursuant to Articles III, IV, V and VI is located;

23. "Period of Inspection" means the period of time from arrival of the inspection team at the inspection site until its departure from the inspection site, exclusive of time spent on briefings before and after the verification activities.

24. "Point of Entry"/"Point of Exit" mean a location designated for the in-country arrival of inspection teams for inspections pursuant to this Convention or for their departure after completion of their mission.

25. "Requesting State Party" means a State Party which has requested a challenge inspection pursuant to Article IX.

26. "Routine Inspections" means the international on-site inspection of facilities pursuant to Articles IV, V and VI.

Part II:

GENERAL RULES OF VERIFICATION

A. DESIGNATION OF INSPECTORS AND INSPECTION ASSISTANTS

1. Not later than 30 days after entry into force of the Convention the Technical Secretariat shall communicate, in writing, to all States Parties the names, nationalities and ranks if applicable, of the inspectors and inspection assistants proposed for designation, as well as a description of their qualifications and professional experiences.

2. Each State Party shall immediately acknowledge receipt of the list of inspectors and inspection assistants, proposed for designation communicated to it. Any inspector and inspection assistant included in this list shall be regarded as designated unless a State Party, within 30 days after acknowledgement of receipt of the list, declares its non-acceptance.

In the case of non-acceptance, the proposed inspector or inspection assistant shall not undertake or participate in verification activities within the territory or in any other place under the jurisdiction or control of the State Party which has declared its non-acceptance. The Director-General shall, as necessary, submit further proposals in addition to the original list.

3. Verification activities under this Convention shall only be performed by designated inspectors and inspection assistants.

4. Subject to the provisions of paragraph 5 below, a State Party has the right at any time to object to an inspector or inspection assistant who has already been designated. It shall notify the Technical Secretariat of its objections and include the reason for the objection. Such objections shall come into effect 30 days after receipt by the Technical Secretariat. The Technical Secretariat shall immediately inform the State Party concerned of the withdrawal of the designation of the inspector or inspection assistant.

5. A State Party that has been notified of an inspection shall not seek to have removed from the inspection team for that inspection any of the designated inspectors or inspection assistants named in the inspection team list.

6. The number of inspectors or inspection assistants accepted by and designated to a State Party must be sufficient to allow for availability and rotation of appropriate numbers of inspectors and inspection assistants.

7. If, in the opinion of the Director-General the non-acceptance of proposed Inspectors or inspection assistants impedes the designation of a sufficient number of inspectors or inspection assistants or otherwise hampers the effective fulfilment of the task of the Technical Secretariat, the Director-General shall refer the issue to the Executive Council.

8. Whenever amendments to the above-mentioned lists of Inspectors and inspection assistants are necessary or requested, replacement inspectors and inspection assistants shall be designated in the same manner as set out with respect to the initial list.

9. The members of the inspection team carrying out an inspection of a facility of a State Party located in the territory of another State Party shall be designated in accordance with the procedures set out in this Annex as applied both to the inspected State Party and the Host State.

B. PRIVILEGES AND IMMUNITIES

10. Each State Party shall, within 30 days after acknowledgement of receipt of the list of inspectors and inspection assistants or of changes thereto, provide multiple entry/exit and/or transit visas and other such documents to enable each inspector or inspection assistant to enter and to remain on the territory of that State Party for the purpose of carrying out inspection activities. These documents shall be valid for at least 24 months from the date of their provision to the Technical Secretariat.

11. To exercise their functions effectively, inspectors and inspection assistants shall be accorded privileges and immunities as set out in subparagraphs (a) to (i). Privileges and immunities shall be granted to members of the inspection team for the sake of this Convention and not for the personal benefit of the individuals themselves. Such privileges and immunities shall be accorded to them for the entire period between arrival on and departure from the territory of the inspected State Party or Host State, and thereafter with respect to acts previously performed in the exercise of their official functions.

(a) The members of the inspection team shall be accorded the inviolability enjoyed by diplomatic agents pursuant to Article 29 of the Vienna Convention on Diplomatic Relations of 18 April 1961.

(b) The living quarters and office premises occupied by the inspection team carrying out inspection activities pursuant to this Convention shall be accorded the inviolability and protection accorded the premises of diplomatic agents pursuant to Article 30 of the Vienna Convention on Diplomatic Relations.

(c) The papers and correspondence, including records, of the inspection team shall enjoy the inviolability accorded to all papers and correspondence of diplomatic agents pursuant to Article 30 of the Vienna Convention on Diplomatic Relations. The inspection team shall have the right to use codes for their communications with the Technical Secretariat.

(d) Samples and approved equipment carried by members of the inspection team shall be inviolable subject to provisions contained in this Convention and exempt from all customs duties. Hazardous samples shall be transported in accordance with relevant regulations.

(e) The members of the inspection team shall be accorded the immunities accorded to diplomatic agents pursuant to paragraphs 1, 2 and 3 of Article 31 of the Vienna Convention on Diplomatic Relations.

(f) The members of the inspection team carrying out prescribed activities pursuant to this Convention shall be accorded the exemption from dues and taxes accorded to diplomatic agents pursuant to Article 34 of the Vienna Convention on Diplomatic Relations.

(g) The members of the inspection team shall be permitted to bring into the territory of the inspected State Party or Host State, without payment of any customs duties or related charges, articles for personal use, with the exception of articles the import or export of which is prohibited by law or controlled by quarantine regulations.

(h) The members of the inspection team shall be accorded the same currency and exchange facilities as are accorded to representatives of foreign Governments on temporary official missions.

(i) The members of the inspection team shall not engage in any professional or commercial activity for personal profit on the territory of the inspected State Party or that of the Host State.

12. When transiting the territory of non-inspected States Parties, inspectors shall be accorded the privileges and immunities enjoyed by diplomatic agents pursuant to Article 40, paragraph 1 of the Vienna Convention on Diplomatic Relations.

13. Without prejudice to their privileges and immunities the members of the inspection team shall be obliged to respect the laws and regulations of the inspected State Party or Host State and, to the extent that is consistent with the inspection mandate, shall be obliged not to interfere in the internal affairs of that State. If the inspected State Party or Host State Party considers that there has been an abuse of privileges and immunities specified in this Annex, consultations shall be held between the State Party and the Director-General to determine whether such an abuse has occurred and, if so determined, to prevent a repetition of such an abuse.

14. The immunity from jurisdiction of members of the inspection team may be waived by the Director-General in those cases when the Director-General is of the opinion that immunity would impede the course of justice and that it can be waived without prejudice to the implementation of the provisions of this Convention. Waiver must always be express.

15. Observers shall be accorded the same privileges and immunities accorded to inspectors pursuant to this section, except for that accorded pursuant to subparagraph 11 (d) above.

C. STANDING ARRANGEMENTS

Points of entry

16. Each State Party shall designate the points of entry and shall supply the required information to the Technical Secretariat not later than 30 days after the Convention enters into force. These points of entry shall be such that the inspection team can reach any inspection site from at least one point of entry within 12 hours. Locations of points of entry shall be provided to all States Parties by the Technical Secretariat.

17. Each State Party may change the points of entry by giving notice of such change to the Technical Secretariat. Changes shall become effective 30 days after the Technical Secretariat receives such notification to allow appropriate notification to all States Parties.

18. If the Technical Secretariat considers that there are insufficient points of entry for the timely conduct of inspections or that changes to the points of entry proposed by a State Party would hamper such timely conduct of inspections, it shall enter into consultations with the State Party concerned to resolve the problem.

19. In cases where facilities or areas of an inspected State Party are located in the territory of another State Party or where the access from the point of entry to the facilities or areas subject to inspection requires transit through the territory of another State Party, the inspected State Party shall exercise the rights and obligations concerning such inspections in accordance with this Annex. States Parties on whose territory facilities or areas of other States Parties subject to inspection are located shall facilitate the inspection of those facilities and shall provide for the necessary support to enable the inspection team to carry out its tasks in a timely and effective manner. States Parties through whose territory transit is required to inspect facilities or areas of an inspected State Party shall facilitate such transit.

20. In cases where facilities or areas of an inspected State Party are located in the territory of a non-State Party, the State Party subject to inspection shall take all necessary measures to ensure that inspections of those facilities can be carried out in accordance with the provisions of this Annex. A State Party that has one or more facilities on the territory of a non-State Party shall take all necessary measures to ensure acceptance by the Host State of inspectors and inspection assistants designated to that State Party. If an inspected State Party is unable to ensure access, it shall demonstrate that it took all necessary measures to ensure access.

Arrangements for use of unscheduled aircraft

21. For inspections pursuant to Article IX and for other inspections where timely travel is not feasible using scheduled commercial transport, an inspection team may need to utilize aircraft owned or chartered by the Technical Secretariat. Not later than 30 days after entry into force of the Convention, each State Party shall inform the Technical Secretariat of the standing diplomatic clearance number for non-scheduled aircraft transporting inspection teams and equipment necessary for inspection into and out of the territory in which an inspection site is located. Aircraft routings to and from the designated point of entry shall be along established international airways that are agreed upon between the States Parties and the Technical Secretariat as the basis for such diplomatic clearance.

22. When a non-scheduled aircraft is used, the Technical Secretariat shall provide the inspected State Party with a flight plan, through the National Authority, for the aircraft's flight from the last airfield prior to entering the airspace of the State in which the inspection site is located to the point of entry, no less than six hours before the scheduled departure time from that airfield. Such a plan shall be filed in accordance with the procedures of the International Civil Aviation Organisation applicable to civil aircraft. For its owned or chartered flights, the Technical Secretariat shall include in the remarks section of each flight plan the standing diplomatic clearance number and the appropriate notation identifying the aircraft as an inspection aircraft.

23. No less than three hours prior to the scheduled departure of the inspection team from the last airfield prior to entering the airspace of the country in which the inspection is to take place, the inspected State Party or Host State Party shall ensure that the flight plan filed in accordance with paragraph 22 of this section is approved so that the inspection team may arrive at the point of entry by the estimated arrival time.

24. The inspected State Party shall provide parking, security protection, servicing and fuel as required by the Technical Secretariat for the aircraft of the inspection team at the point of entry when such aircraft is owned or chartered by the Technical Secretariat. Such aircraft shall not be liable for landing fees, departure tax, and similar charges. The Technical Secretariat shall bear the cost of such fuel, security and servicing.

Administrative arrangements

25. The inspected State Party shall provide or arrange for the amenities necessary for the inspection team such as communication means, interpretation services to the extent necessary for the performance of interviewing and other tasks, transportation, working space, lodging, meals and medical care. In this regard, the inspected State Party shall be reimbursed by the Organization for such costs incurred by the inspection team.

Approved equipment

26. Subject to paragraph 28 of this section there shall be no restriction by the inspected State Party on the inspection team bringing on to the inspection site such approved equipment which the Technical Secretariat has determined to be necessary to fulfil the inspection requirements. The Technical Secretariat shall prepare and, as appropriate, update a list of approved equipment, which may be needed for the purposes described above, and regulations governing such equipment which shall be in accordance with this Annex. In establishing the list of approved equipment and these regulations, the Technical Secretariat should ensure that safety considerations for all the types of facilities at which such equipment is likely to be used, are taken fully into account. A draft list of approved equipment shall be developed by the Preparatory Commission.

27. The equipment shall be in the custody of the Technical Secretariat and be designated, calibrated and approved by the Technical Secretariat. The Technical Secretariat shall, to the extent possible, select that equipment which is specifically designed for the specific kind of inspection required. Designated and approved equipment shall be specifically protected against unauthorized alteration.

28. The inspected State Party shall have the right, without prejudice to the prescribed time-frames, to inspect the equipment in the presence of inspection team members at the point of entry, i.e., to check the identity of the equipment brought in or removed from the territory of the inspected State Party or Host State. To facilitate such identification, the Technical Secretariat shall attach documents and devices to authenticate its designation and approval of the equipment. The inspection of the equipment shall also ascertain to the satisfaction of the inspected State Party that the equipment meets the description of the approved equipment for the particular type of inspection. The inspected State Party may exclude equipment not meeting that description or equipment without the above-mentioned authentication documents and devices. Agreed procedures for the inspection of equipment shall be developed by the Preparatory Commission.

29. In cases where the inspection team finds it necessary to use equipment available on site not belonging to the Technical Secretariat and requests the inspected State Party to enable the team to use such equipment, the inspected State Party shall comply with the request to the extent it can.

D. PRE-INSPECTION ACTIVITIES

Notification

30. The Director-General shall notify the State Party prior to the planned arrival of the inspection team at the point of entry and within the prescribed time-frames where specified of its intention to carry out an inspection.

31. Notifications made by the Director-General shall, if not specified otherwise in other Parts of this Annex, include the following information:

- (a) The type of inspection;
- (b) The point of entry;
- (c) The date and estimated time of arrival at the point of entry;
- (d) The means of arrival at the point of entry;
- (e) The site to be inspected;
- (f) The names of inspectors and inspection assistants;
- (g) If appropriate, aircraft clearance for special flights.

32. The inspected State Party shall acknowledge the receipt of a notification by the Technical Secretariat of an intention to conduct an inspection immediately upon receipt of such notification.

33. In the case of an inspection of a facility of a State Party located in the territory of another State Party both States Parties shall be simultaneously notified in accordance with paragraphs 31 and 32.

Entry into the territory of the inspected State Party or Host State and transfer to the inspection site

34. The State Party or Host State Party which has been notified of the arrival of an inspection team, shall ensure its immediate entry into the territory and shall through an in-country escort or by other means do everything in its power to ensure the safe conduct of the inspection team and its equipment and supplies, from its point of entry to the inspection site(s) and to a point of exit.

35. The inspected State Party or Host State Party shall as necessary assist the inspection team in reaching the inspection site within 12 hours from the arrival at the point of entry.

Pre-inspection briefing

36. Upon arrival at the inspection site and prior to the commencement of the inspection, the inspection team shall be briefed, with the aid of maps and other documentation as appropriate, by facility representatives on the facility, the activities carried out there, safety measures and administrative and logistic arrangements necessary for the inspection. The time spent for the briefing shall be limited to the minimum necessary and in any event not exceed three hours.

E. CONDUCT OF INSPECTIONS

General Rules

37. The members of the inspection team shall discharge their functions in accordance with the provisions of this Convention, as well as rules established by the Director-General and facility agreements between States Parties and the Organization.

38. The inspection team shall strictly observe the inspection mandate issued by the Director-General. It shall refrain from activities going beyond this mandate.

39. The activities of the inspection team shall be so arranged as to ensure on the one hand the timely and effective discharge of the inspector's functions and, on the other, the least possible inconvenience to the inspected State Party or Host State and disturbance to the facility or other location inspected. The inspection team shall avoid unnecessarily hampering or delaying the operation of a facility and avoid affecting its safety. In particular, the inspection team shall not operate any facility. 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 inspected facility to have them performed. The representative shall carry out the request to the extent possible.

40. In the performance of their duties on the territory of an inspected State Party, the members of the inspection team shall, if the inspected State Party so requests, be accompanied by representatives of the inspected State Party, but the inspection team must not thereby be delayed or otherwise hindered in the exercise of its functions.

41. Detailed procedures for the conduct of inspections shall be developed for inclusion in the inspection manual by the Director-General, taking into account guidelines to be developed by the Preparatory Commission and the Executive Council.

Safety

42. In carrying out their activities, inspectors and inspection assistants shall observe safety regulations established at the inspection site, including those for the protection of controlled environments within a facility and for personal safety. In order to implement these requirements, appropriate detailed procedures shall be developed by the Preparatory Commission.

Communications

43. Inspectors shall have the right throughout the in-country period to communicate with the Headquarters of the Technical Secretariat. For this purpose they may use their own, duly certified, approved equipment and/or may request that the inspected State Party or Host State Party provide them with access to other telecommunications. The inspection team shall have the right to use its own two-way system of radio communications between personnel patrolling the perimeter and other members of the inspection team.

Inspection team and inspected State Party rights

44. The inspection team shall, in accordance with the relevant articles and annexes of this Convention as well as with facility agreements and procedures set out in the inspection manual, have the right to unimpeded access to the inspection site. The items to be inspected will be chosen by the inspectors.

45. Inspectors shall have the right to interview any facility personnel in the presence of representatives of the inspected State Party with the purpose of establishing relevant facts. Inspectors shall only request information and data which are necessary to the conduct of the inspection, and the inspected State Party shall furnish such information upon request. The inspected State Party shall have the right to object to questions posed to the facility personnel if those questions are deemed not relevant to the inspection. If the head of the inspection team objects and states their relevance, the questions shall be provided in writing to the inspected State Party for reply. The inspection team may note any refusal to permit interviews or to allow questions to be answered and any explanations given, in that part of the inspection report that deals with the cooperation of the inspected State Party.

46. Inspectors shall have the right to inspect documentation and records they deem relevant to the conduct of their mission.

47. Inspectors shall have the right to have photographs taken at their request by representatives of the inspected State Party or of the inspected facility. The capability to take instant development photographic prints shall be available. The inspection team shall determine whether photographs conform to those requested and, if not, repeat photographs shall be taken. The inspection team and the inspected State Party shall each retain one copy of every photograph.

48. The representatives of the inspected State Party shall have the right to observe all verification activities carried out by the inspection team.

49. The inspected State Party shall receive copies, at its request, of the information and data gathered about its facility(ies) by the Technical Secretariat.

50. Inspectors shall have the right to request clarifications in connection with ambiguities that arise during an inspection. Such requests shall be made promptly through the representative of the

inspected State Party. The representative of the inspected State Party shall provide the inspection team, during the inspection, with such clarification as may be necessary to remove the ambiguity. In the event that questions relating to an object or a building located within the inspection site are not resolved, the object or building shall, if requested, be photographed for the purpose of clarifying its nature and function. If the ambiguity cannot be removed during the inspection, the inspectors shall notify the Technical Secretariat immediately. The inspectors shall include any such unresolved question, relevant clarifications and a copy of any photographs taken in the inspection report.

Collection, handling and analysis of samples

51. Representatives of the inspected State Party or of the inspected facility shall take samples at the request of the inspection team in the presence of inspectors. If so agreed in advance with the representatives of the inspected State Party or of the inspected facility, the inspection team may take samples itself.

52. Where possible, the analysis of samples shall be performed on-site. The inspection team shall have the right to perform on-site analysis of sample using approved equipment brought by it. At the request of the inspection team, the inspected State Party shall, in accordance with agreed procedures, provide assistance for the analysis of samples on-site. Alternatively, the inspection team may request that appropriate analysis on-site be performed in its presence.

53. The inspected State Party has the right to retain portions of all samples taken or take duplicate samples and be present when samples are analysed on-site.

54. The inspection team shall, if it deems it necessary, transfer samples for analysis off-site at laboratories designated by the Organization.

55. The Director-General shall have the primary responsibility for the security, integrity and preservation of samples and for ensuring that the confidentiality of samples transferred for analysis off-site is protected. The Director-General shall do so in accordance with procedures developed by the Preparatory Commission for inclusion in the inspection manual. He shall

a) establish a stringent régime governing the collection, handling, transport and analysis of samples;

b) certify the laboratories designated to perform different types of analysis;

c) oversee the standardization of equipment and procedures at these designated laboratories and mobile analytical equipment and procedures, and monitor quality control and overall standards in relation to the certification of these laboratories and mobile equipment/procedures; and

d) select from among the designated laboratories those which shall perform analytical or other functions in relation to specific investigations.

56. When off-site analysis is to be performed samples shall be analysed in at least two designated laboratories. The Technical Secretariat shall ensure the expeditious processing of the analysis. The samples shall be accounted for by the Technical Secretariat and any unused samples or portions thereof shall be returned to the Technical Secretariat.

57. The Technical Secretariat shall compile the results of the laboratory analysis of samples relevant to compliance with this Convention and include them in the final inspection report. The Technical Secretariat shall include in the report detailed information concerning the equipment and methodology employed by the designated laboratories.

Extension of Inspection Duration

58. Periods of inspection may be extended by agreement with the representative of the inspected State Party.

Debriefing

59. Upon completion of an inspection the inspection team shall meet with representatives of the inspected State Party and the personnel responsible for the inspection site to review the preliminary findings of the inspection team and to clarify any ambiguities. The inspection team shall provide to the representatives of the inspected State Party its preliminary findings in written form according to a standardized format together with a list of any samples and copies of written information and data gathered and other material to be taken off site. The document shall be signed by the head of the inspection team. In order to indicate that he has taken notice of the contents of the document the representative of the inspected State Party shall countersign the document. This meeting shall be completed within 24 hours of the completion of the inspection.

F. DEPARTURE

60. Upon completion of the post-inspection procedures, the inspection team shall leave, as soon as possible, the territory of the inspected State Party or the Host State.

G. REPORTS

61. Not later than 10 days after the inspection, inspectors shall prepare a factual final report on the activities conducted by them and on their findings. It shall only contain facts relevant to compliance with this Convention, as provided for under the inspection mandate. The report shall also provide information as to the manner in which the State Party inspected cooperated with the inspection team. Differing observations made by inspectors may be attached to the report. The report shall be kept confidential.

62. The final report shall immediately be submitted to the inspected State Party. Any written comments, which the inspected State Party may immediately make on its findings shall be annexed to it. The final report together with annexed comments made by the inspected State Party shall be submitted to the Director-General not later than 30 days after the inspection.

63. Should the report contain uncertainties, or should cooperation between the National Authority and the inspectors not measure up to the standards required, the Director-General shall approach the State Party for clarification.

64. If the uncertainties cannot be removed or the facts established are of a nature to suggest that obligations undertaken under this Convention have not been met, the Director-General of the Technical Secretariat shall inform the Executive Council without delay.

H. APPLICATION OF GENERAL PROVISIONS

65. The provisions of this Part shall apply to all inspections conducted pursuant to this Convention, except that where the provisions of this Part differ from the provisions set forth for specific types of inspections in Parts III to X of this Annex, the latter provisions related to specific types of inspections shall take precedence.

PART III:

GENERAL PROVISIONS FOR VERIFICATION MEASURES PURSUANT
TO ARTICLES IV, V AND VI

A. INITIAL INSPECTIONS AND FACILITY AGREEMENTS

1. Each facility declared and subject to on-site inspection pursuant to Articles IV and V, and Part VI paragraphs 8 to 11 of this Annex, shall be liable to receive an initial inspection from the inspectors promptly after the facility is declared. The purpose of the initial inspection of the facility shall be to verify information provided and to obtain any additional information needed for planning future verification activities at the facilities, including on-site inspections and the use of continuous on-site instruments and to work on the facility agreements.
2. States Parties shall ensure that the verification of declarations and the initiation of the systematic monitoring can be accomplished by the Technical Secretariat at all facilities within the agreed time frames after the Convention enters into force.
3. Each State Party shall conclude a facility agreement with the Organization for each facility declared and subject to on-site inspection pursuant to Articles IV and V, and Part VI paragraphs 8 to 11 of this Annex. Except for a chemical weapons destruction facility, these agreements shall be completed within 180 days after the Convention enters into force for the State Party or after the facility has been declared for the first time. For a chemical weapons destruction facility, the facility agreement shall be completed no less than ... before the facility begins operation. The facility agreements shall be based on models for such agreements and provide for detailed arrangements which shall govern inspections at each facility. The model agreement shall include provisions to take into account future technological developments.
4. Each facility declared pursuant to Part VII of this Annex shall be liable to receive an initial inspection not later than three years after entry into force of the Convention for the State Party concerned. The question of the requirement for individual facility agreements covered in Part VII of this Annex shall be addressed by the Preparatory Commission. Each State Party shall conclude a facility agreement with the Organization not later than 180 days after the initial visit for facilities designated as requiring an individual facility agreement.
5. 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 inspections.

B. STANDING ARRANGEMENTS

6. Where applicable, the Technical Secretariat shall have the right to instal and use continuous monitoring instruments and systems and seals in conformity with the relevant provisions in this Convention and the facility agreements between States Parties and the Technical Secretariat. Such installation shall take place in the presence of the representatives of the inspected State Party.

7. The inspected State Party shall, in accordance with agreed procedures, have the right to inspect any instrument used or installed by the inspection team and to have it tested in the presence of representatives of the inspected State Party.

8. The inspected State Party shall provide the necessary preparation and support for the establishment of continuous monitoring instruments and systems.

9. In order to implement paragraphs 7 and 8 above, appropriate detailed procedures shall be developed by the Preparatory Commission.

10. The inspected State Party shall immediately notify the Technical Secretariat if an event at a facility subject to systematic international monitoring occurs, or may occur, which may have an impact on the monitoring system. The inspected State Party shall coordinate subsequent actions with the Technical Secretariat with a view to restoring the operation of the monitoring system and establishing interim measures, if necessary, as soon as possible.

11. The inspection team shall verify during each inspection that the monitoring system functions correctly and that emplaced seals have not been tampered with. In addition, visits to service the monitoring system may be required to perform any necessary maintenance or replacement of equipment, or to adjust the coverage of the monitoring system as required.

12. In the event that the monitoring system indicates any anomaly, the Technical Secretariat shall immediately take action to determine whether this resulted from equipment malfunction or activities at the facility. If, after this examination the problem remains unresolved, the Technical Secretariat shall immediately ascertain the actual situation, including through immediate on-site inspection of, or visit to, the facility if necessary. The Technical Secretariat shall report any such problem immediately after its detection to the State Party which shall assist in its resolution.

C. PRE-INSPECTION ACTIVITIES

13. The inspected State Party shall be notified of routine inspections no less than 24 hours in advance of the planned arrival of the inspection team at the point of entry.

14. The inspected State Party shall be notified of initial inspections no less than 72 hours in advance of the estimated time of arrival of the inspection team at the point of entry.

PART IV (A):

DESTRUCTION OF CHEMICAL WEAPONS AND ITS VERIFICATION PURSUANT TO
ARTICLE IV

A. DECLARATIONS

Chemical Weapons

1. The declaration of chemical weapons by a State Party pursuant to Article III, paragraph 1 (b), shall include the following:
 - (a) The aggregate quantity of each chemical declared;
 - (b) The precise location of each chemical weapons storage facility, expressed by:
 - (i) Name;
 - (ii) Geographical coordinates; and
 - (iii) A detailed site diagram, including a boundary map and the location of bunkers/storage areas within the facility.
 - (c) The detailed inventory for each chemical weapons storage facility including:
 - (i) Chemicals defined as chemical weapons in accordance with Article II;
 - (ii) Unfilled munitions, sub-munitions, devices and equipment defined as chemical weapons;
 - (iii) Equipment specially designed for use directly in connection with the employment of munitions, sub-munitions, devices or equipment referred to in (i) and (ii) of this subparagraph;
 - (iv) Chemicals specifically designed for use directly in connection with the employment of munitions, sub-munitions, devices or equipment under sub-subparagraphs (i) and (ii).
2. For the declaration of chemicals referred to in paragraph 1 (c) (i) the following shall apply:
 - (a) Chemicals shall be declared in accordance with the Schedules specified in the Annex on Chemicals;
 - (b) For a chemical not listed in the Schedules in the Annex on Chemicals the information required for possible assignment of the chemical to the appropriate Schedule 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;

(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, each chemical shall be identified and the percentage of each shall be provided, and the mixture shall be declared under the category of the most toxic chemical. If a component of a binary chemical weapon consists of a mixture of two or more chemicals, each chemical shall be identified and the percentage of each provided;

(e) Binary chemical weapons shall be declared under the relevant end product within the framework of the categories of chemical weapons referred to in paragraph 16 of this Part of this Annex. The following supplementary information shall be provided for each type of binary chemical munition/device;

(i) The chemical name of the toxic end-product;

(ii) The chemical composition and quantity of each component;

(iii) The actual weight ratio between the components;

(iv) Which component is considered the key component;

(v) The projected quantity of the toxic end-product calculated on a stoichiometric basis from the key component, assuming 100 per cent yield. A declared quantity (in tonnes) of the key component intended for a specific toxic end-product shall be considered equivalent to the quantity (in tonnes) of this toxic end product calculated on a stoichiometric basis assuming 100 per cent yield.

(f) For multicomponent chemical weapons, the declaration shall be analogous to that envisaged for binary chemical weapons;

(g) 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:

(i) Type;

(ii) Size or calibre;

(iii) Number of items; and

(iv) Nominal weight of chemical fill per item.

(h) For each chemical the total weight present at the storage facility shall be declared;

(i) In addition, for chemicals stored in bulk, the percentage purity shall be declared, if known.

3. For each type of unfilled munitions, sub-munitions, devices or equipment, referred to in paragraph 1 (c) (ii), the information shall include:

- (a) The number of items;
- (b) The nominal fill volume per item;
- (c) The intended chemical fill.

Declaration of chemical weapons pursuant to Article III subparagraph 1 (c)

4. The declaration of chemical weapons pursuant to Article III paragraph 1 (c) shall contain all information specified in paragraphs 1 to 3 above. It is the responsibility of the State Party on whose territory the chemical weapons are located to make appropriate arrangements with the other State to ensure that the declarations are made. If the State Party on whose territory the chemical weapons are located is not able to fulfil its obligations under this paragraph, it shall state the reasons therefor.

Declaration of past transfers and receipts

5. A State Party that has transferred or received chemical weapons since 1 January 1946 shall declare these transfers or receipts pursuant to Article III subparagraph 1 (d), provided the amount transferred or received exceeded one tonne per chemical per year in bulk and/or munition form. This declaration shall be made according to the inventory format in paragraphs 1 and 2. This declaration shall also indicate the supplier and recipient countries, the timing of the transfers or receipts and, as precisely as possible, the current location of the transferred items. When not all the specified data are available for transfers or receipts of chemical weapons for the period between 1 January 1946 and 1 January 1970, the State Party shall declare whatever information is still available to it and provide an explanation as to why it cannot submit a full declaration.

Submission of the general plan for destruction of chemical weapons

6. The general plan for destruction of chemical weapons submitted pursuant to Article III paragraph 1 (g) shall provide an overview of the entire national chemical weapons destruction programme of the State Party and information on the efforts of the State Party to fulfil the destruction requirements contained in this Convention. The plan shall specify:

- (a) A general schedule for destruction, giving types and approximate quantities of chemical weapons planned to be destroyed in each annual destruction period for each existing chemical weapons destruction facility and, if possible, for each planned chemical weapons destruction facility;

(b) The number of chemical weapons destruction facilities existing or planned to be operated over the destruction period;

(c) For each existing or planned chemical weapons destruction facility:

(i) Name and location; and

(ii) The types and approximate quantities of chemical weapons, and the type (for example, nerve agent or blister agent) and approximate quantity of chemical fill, to be destroyed;

(d) Plans and programs for training personnel for the operation of destruction facilities;

(e) National standards for safety and emissions that the destruction facilities must satisfy;

(f) Information on the development of new methods for destruction of chemical weapons and on the improvement of existing methods;

(g) Cost estimates for destroying the chemical weapons; and

(h) Any issues which could adversely impact on the national destruction programme.

B. MEASURES TO SECURE THE STORAGE FACILITY AND STORAGE FACILITY PREPARATION

7. 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 facilities and shall prevent any movement of its chemical weapons out of the facilities, except their removal for destruction.

8. A State Party shall ensure that chemical weapons at its storage facilities are configured to allow ready access for verification in accordance with paragraphs 27 to 35 of this Part of this Annex.

9. While a storage facility remains closed for any movement of chemical weapons out of the facility other than their removal for destruction, activities necessary for maintenance and safety monitoring by national authorities, including standard maintenance of chemical weapons, may continue at the facility.

10. Maintenance activities of chemical weapons shall not include:

(a) Replacement of agent or of munition bodies;

(b) Modification of the original characteristics of munitions, or parts or components thereof.

11. All maintenance activities shall be subject to monitoring by the Technical Secretariat.

Principles and methods for destruction of chemical weapons

12. "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.

13. Each State Party shall determine how it shall destroy chemical weapons, 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 facilities.

14. Each State Party shall ensure that its chemical weapons destruction facilities 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.

Order of destruction

15. The order of destruction of chemical weapons is based on the obligations specified in Article I and the other Articles of this Convention, including obligations regarding systematic international on-site verification. It takes into account interests of States Parties for undiminished security during the destruction period; confidence-building in the early part of the destruction stage; gradual acquisition of experience in the course of destroying chemical weapons; and applicability irrespective of the actual composition of the stockpiles and the methods chosen for the destruction of the chemical weapons. The order of destruction is based on the principle of levelling out.

16. For the purpose of destruction, chemical weapons declared by each State Party are divided into three categories:

Category 1: Chemical weapons on the basis of Schedule 1 chemicals and their parts and components;

Category 2: Chemical weapons on the basis of all other chemicals and their parts and components;

Category 3: Unfilled munitions and devices, and equipment specifically designed for use directly in connection with employment of chemical weapons.

17. A State Party shall start:

(a) The destruction of Category 1 chemical weapons not later than one year from the date the Convention enters into force for it, and shall complete the destruction not later than 10 years after the entry into force of the Convention. Taking into account the principle of levelling out, Category 1 chemical weapons shall be destroyed in equal annual increments from the beginning of the destruction period until the end of the eighth year after the

Convention enters into force. The maximum quantity remaining at the end of the eighth year after the entry into force of the Convention shall not exceed 500 tonnes or 20 per cent of the quantity of chemical weapons declared by the State Party at the entry into force for it, whichever is less. The remaining quantity of Category 1 chemical weapons shall be destroyed in equal annual increments in the following two years. The comparison factor is chemical weapon agent tonnes;

(b) The destruction of Category 2 chemical weapons not later than one year from the date the Convention enters into force for it and shall complete the destruction not later than five years after the entry into force of the Convention. Category 2 chemical weapons shall be destroyed in equal annual increments throughout the destruction period. The comparison factor for such weapons is the weight of the chemicals within Category 2; and

(c) The destruction of Category 3 chemical weapons not later than one year from the date the Convention enters into force for it, and shall complete the destruction not later than five years after the entry into force of the Convention. Category 3 chemical weapons shall be destroyed in equal annual increments throughout the destruction period. The comparison factor for unfilled munitions and devices is expressed in nominal fill volume (m^3) and for equipment in number of items.

18. For the destruction of binary chemical weapons the following shall apply:

(a) For the purposes of the order of destruction, a declared quantity (in tonnes) of the key component intended for a specific toxic end product shall be considered equivalent to the quantity (in tonnes) of this toxic end product calculated on a stoichiometric basis assuming 100 per cent yield.

(b) A requirement to destroy a given quantity of the key component shall entail a requirement to destroy a corresponding quantity of the other component, calculated from the actual weight ratio of the components in the relevant type of binary chemical munition/device.

(c) If more of the other component is declared than is needed, based on the actual weight ratio between components, then the excess shall be destroyed over the first two years after destruction operations begin.

(d) At the end of each subsequent operational year a State Party may retain an amount of the other declared component that is determined on the basis of the actual weight ratio of the components in the relevant type of binary chemical munition/device.

19. For multicomponent chemical weapons the order of destruction shall be analogous to that envisaged for binary chemical weapons.

Detailed annual plans for destruction

20. The detailed plans submitted to the Technical Secretariat not less than 180 days before each annual destruction period pursuant to Article IV paragraph 7 (a) shall specify for each chemical weapons destruction facility:

- (a) Name, address, and location;
- (b) A detailed site diagram;
- (c) The quantity of each specific type of chemical weapon planned to be destroyed at the facility in the coming year; and
- (d) Detailed schedule of activities for the coming year, identifying time allocation to design, construction or modification of the facility, installation of equipment, equipment check-out and operator training, destruction operations for each specific type of chemical weapon, and anticipated periods of inactivity.

21. A State Party shall provide, for each of its chemical weapons destruction facilities, detailed facility information to assist the Technical Secretariat in developing preliminary inspection procedures for use at the facility.

22. The detailed facility information for each destruction facility shall include the following information:

- (a) Name, address and location;
- (b) Detailed, annotated facility drawings;
- (c) Facility design drawings, process drawings, and piping and instrumentation design (P&ID) drawings;
- (d) Detailed technical descriptions, including design drawings and instrument specifications, for the equipment required for: removing the chemical fill from the munitions, devices, and containers; temporarily storing the drained chemical fill; destroying the chemical agent; and destroying the munitions, devices, and containers;
- (e) Detailed technical descriptions of the destruction process, including material flow rates, temperatures and pressures, and designed destruction efficiency;
- (f) Design capacity for each specific type of chemical weapon;
- (g) A detailed description of the products of destruction and the method of their ultimate disposal;
- (h) A detailed technical description of measures to facilitate inspections in accordance with this Convention;

(i) A detailed description of any temporary holding area at the destruction facility that will be used to provide chemical weapons directly to the destruction facility, including site and facility drawings and information on the storage capacity for each specific type of chemical weapon to be destroyed at the facility;

(j) A detailed description of the safety and medical measures in force at the facility;

(k) A detailed description of the living quarters and working premises for the inspectors; and

(l) Suggested measures for international verification.

23. A State Party shall provide, for each of its chemical weapons destruction facilities, the plant operations manuals, the safety and medical plans, the laboratory operations and quality assurance and control manuals, and environmental permits that have been obtained, except that this shall not include material previously provided.

24. A State Party shall promptly notify the Technical Secretariat of any developments that could affect inspection activities at its destruction facilities.

25. Agreed deadlines for submission of the information specified in paragraphs 21 to 24 shall be developed by the Preparatory Commission.

26. After a review of the detailed facility information for each destruction facility, the Technical Secretariat, if the need arises, shall enter into consultation with the State Party concerned in order to ensure its chemical weapons destruction facilities are designed to assure the 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.

D. VERIFICATION

International verification of declarations of chemical weapons by on-site inspections

27. The purpose 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 III.

28. The 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.

29. The inspectors 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.

30. As the inventory progresses, 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 during the inventory. After completion of the inventory, such seals will be removed unless otherwise agreed.

Systematic monitoring of storage facilities

31. The purpose of the international systematic monitoring of storage facilities shall be to ensure that no undetected removal of chemical weapons takes place.

32. 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 monitoring with on-site instruments and systematic verification by international on-site inspections.

33. When all chemical weapons have been removed from the storage facility, the Technical Secretariat shall certify the declaration of the National Authority to that effect. After this certification, the Technical Secretariat shall terminate the international systematic monitoring of the storage facility and shall promptly remove any on-site instruments installed by the inspectors.

Inspections and visits

34. The particular storage facility to be inspected shall be chosen by the Technical Secretariat in such a way as to preclude the prediction of precisely when the facility is to be inspected. The guidelines for determining the frequency of systematic on-site inspections are to be elaborated by the Director-General, taking into account guidelines drawn up by the Preparatory Commission.

35. The Technical Secretariat shall notify the inspected 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 Technical Secretariat shall specify the purpose of the inspection or visit.

36. The inspected State Party shall make any necessary preparations for the arrival of the Inspectors and shall ensure their expeditious transportation from their point of entry to the storage facility. The agreement on subsidiary arrangements will specify administrative arrangements for inspectors.

37. The inspected State Party shall provide the inspection team upon its arrival at the chemical weapons storage facility to carry out an inspection, with the following data on the facility:

- (a) the number of storage buildings and storage locations;

(b) for each storage building and storage location, the type and the identification number or designation, shown on the site diagram; and

(c) for each storage building and storage location at the facility, the number of items of each specific type of chemical weapon, and, for containers that are not part of binary munitions, the actual quantity of chemical fill in each container.

38. In carrying out an inventory, within the time available, inspectors:

(a) shall have the right to use any of the following inspection techniques:

(i) inventory all the chemical weapons stored at the facility;

(ii) inventory all the chemical weapons stored in specific buildings or locations at the facility, as chosen by the inspectors; or

(iii) inventory all the chemical weapons of one or more specific types stored at the facility, as chosen by the inspectors; and

(b) shall have the right to check all items inventoried against agreed records.

39. Inspectors shall, in accordance with agreements on subsidiary arrangements:

(a) 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; and

(b) Have the right, during the first and any subsequent inspection of each chemical weapons storage facility, to designate munitions, devices, and containers from which samples are to be taken, and to affix to such munitions, devices, and containers a unique tag that will indicate an attempt to remove or alter the tag. A sample shall be taken from a tagged item at a chemical weapons storage facility or a chemical weapons destruction facility as soon as it is practically possible in accordance with the corresponding destruction programs, and, in any case, not later than by the end of the destruction operations.

International verification of the destruction of chemical weapons

40. The purpose of verification of destruction of chemical weapons shall be:

(a) To confirm the identity and quantity of the chemical weapons stocks to be destroyed; and

(b) To confirm that these stocks have been destroyed.

41. On the basis of this Convention and the detailed destruction facility information, and as the case may be, on experience from previous inspections, the Technical Secretariat shall prepare a draft plan for inspecting the destruction of chemical weapons at each destruction facility. The plan shall be completed and provided to the inspected State Party for comment by no less than ... before the facility begins destruction operations pursuant to the agreement. Any differences between the Technical Secretariat and the inspected State Party should be resolved through consultations. Any unresolved matter shall be forwarded to the Executive Council for appropriate action with a view to facilitating the full implementation of this Convention.
42. The Technical Secretariat shall conduct an initial visit to each chemical weapons destruction facility of the inspected State Party no less than ... before each facility begins destruction operations pursuant to the agreement, to allow it to familiarize itself with the facility and assess the adequacy of the inspection plan.
43. In the case of an existing facility where chemical weapons destruction operations have already been initiated, the inspected State Party shall not be required to decontaminate the facility before the Technical Secretariat conducts an initial visit. The duration of the visit shall not exceed 5 days and the number of visiting personnel shall not exceed 15.
44. The agreed detailed plans for verification, with an appropriate recommendation by the Technical Secretariat, shall be forwarded to Executive Council for review. The Executive Council shall review the plans with a view to approving them, consistent with verification objectives and obligations under this Convention. It should also confirm that verification schemes for destruction are consistent with verification aims and are efficient and practical. This review should be completed not less than ... before the destruction period.
45. Each member of the Executive Council may consult with the Technical Secretariat on any issues regarding the adequacy of the plan for verification. If there are no objections by any members of the Executive Council, the plan shall be put into action.
46. 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 Conference.
47. The detailed facility agreements for chemical weapons destruction facilities shall specify, taking into account the specific characteristics of the destruction facility and its mode of operation:
- (a) Detailed on-site inspection procedures; and
 - (b) Provisions for continuous monitoring by on-site instruments and human presence.

48. Inspectors shall be granted access to each chemical weapons destruction facility no less than ... before the commencement of the destruction, pursuant to this Convention, at the facility. Such access shall be for the purpose of supervising the installation of the inspection equipment, inspecting this equipment and testing its operation, as well as for the purpose of carrying out a final engineering review of the facility. For the case of an existing facility where chemical weapons destruction operations have already been initiated, destruction operations shall be stopped for the minimum amount of time required, not to exceed ..., for installation and testing of the inspection equipment. Depending on the results of the testing and review, the State Party and the Technical Secretariat may agree on additions or changes to the detailed facility agreement for the facility.

49. The inspected State Party shall notify, in writing, the inspection team leader at a chemical weapons destruction facility no less than four hours prior to the departure of each shipment of chemical weapons from a chemical weapons storage facility to that destruction facility. This notification shall specify the name of the storage facility, the estimated times of departure and arrival, the specific types and quantities of chemical weapons being transported, whether any tagged items are being moved, and the method of transportation. This notification may include notification of more than one shipment. The inspection team leader shall be promptly notified, in writing, of any changes in this information.

Chemical weapons storage facilities at chemical weapons destruction facilities

50. The inspectors shall verify the arrival of the chemical weapons at the destruction facility, *inter alia*, by checking seals on cargo and/or the means of transport and shall verify the accuracy of the inventory of the chemical weapons transported and the storing of these chemical weapons. They shall employ, as appropriate, agreed seals, markers or other inventory control procedures to facilitate an accurate inventory of the chemical weapons in this storage facility.

51. As soon and as long as chemical weapons are stored at chemical weapons storage facilities located at chemical weapons destruction facilities, these storage facilities shall be subject to international systematic monitoring in conformity with the relevant agreements on subsidiary arrangements.

52. At the end of an active destruction phase, inspectors shall make an inventory of the chemical weapons that have been removed from the storage facility to be destroyed. They shall verify the accuracy of the inventory of the chemical weapons remaining employing inventory control procedures as referred to in paragraph 50.

Systematic international on-site verification of destruction of chemical weapons

53. The inspectors shall be granted access to conduct their activities at the chemical weapons destruction facilities and the

chemical weapons storage facilities located at such facilities during the entire active phase of destruction.

54. At each chemical weapons destruction facility, to provide assurance that no chemical weapons are diverted and that the destruction process has been completed, inspectors shall have the right to monitor through physical presence, observation and agreed equipment:

- (a) The receipt of chemical weapons at the facility;
- (b) The temporary holding area for chemical weapons and the specific type and quantity of chemical weapons stored in that area;
- (c) The specific type and quantity of chemical weapons being destroyed;
- (d) The process of destruction;
- (e) The end product of destruction;
- (f) The mutilation of metal parts; and
- (g) The integrity of the destruction process and of the facility as a whole.

55. Inspectors shall have the right to tag, for sampling, munitions, devices, or containers located in the temporary holding areas at the chemical weapons destruction facilities.

56. To the extent that it meets inspection requirements, information from routine facility operations, with appropriate data authentication, shall be used for inspection purposes.

57. 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.

58. Inspectors shall, in accordance with agreements on subsidiary arrangements:

- (a) Have unimpeded access to all parts of the chemical weapons destruction facilities, and the chemical weapons storage facilities located at such facilities including any munitions, devices, bulk containers, or other containers, therein. The items to be inspected shall be chosen by the Inspectors in accordance with the verification plan that has been agreed to by the inspected State Party and approved by the Executive Council;

- (b) Monitor the systematic on-site analysis of samples during the destruction process; and

- (c) Receive, if necessary, samples taken at their request from any devices, bulk containers and other containers at the destruction facility or the storage facility thereat.

PART IV (B)

OLD AND/OR ABANDONED CHEMICAL WEAPONS

A. GENERAL

1. Any old and/or abandoned chemical weapons declared in accordance with the provisions of this Convention shall be destroyed as specified Sections B and C.

B. REGIME FOR OLD CHEMICAL WEAPONS

2. The term old chemical weapons means chemical weapons which were produced before 1925, or chemical weapons produced between the period of 1925 and 1946 which have been determined by the Technical Secretariat to have deteriorated to such an extent that they can no longer be used as chemical weapons.

3. A State Party which has old chemical weapons on its territory shall, not later than 30 days after the entry into force of the Convention for it, submit to the Technical Secretariat all relevant information concerning these old chemical weapons. A State Party which discovers old chemical weapons on its territory after the entry into force of the Convention for it shall, not later than 180 days after the discovery, submit to the Technical Secretariat all relevant information concerning these old chemical weapons.

4. The Technical Secretariat shall conduct the necessary inspections in order to verify that the old chemical weapons informed to it by the State Party in accordance with Article III subparagraph 1 (e) meet the definition of old chemical weapons contained in paragraph 2 above.

5. In the event that the verification conducted by the Technical Secretariat determines that the old chemical weapons in question were produced before 1925, they shall be exempted from the destruction obligation as provided for in Part IV (A) of the Verification Annex.

6. In the event that the verification conducted by the Technical Secretariat determines that the old chemical weapons in question were produced between the period of 1925 and 1946 but deteriorated to such an extent that they can no longer be used as chemical weapons, they shall be destroyed in accordance with a destruction plan containing a time limit and order of destruction which may differ from that set out in Article IV paragraph 6 of this Convention and Part IV (A) of this Annex. The destruction plan for these chemical weapons shall be approved by the Executive Council, which shall be kept informed of the implementation of this destruction plan.

7. Nothing in the provisions of this Section shall prevent each State Party from destroying old chemical weapons produced before 1925. For this purpose, a State Party may request technical assistance from the Technical Secretariat.

C. REGIME FOR ABANDONED CHEMICAL WEAPONS

8. The term abandoned chemical weapons means chemical weapons abandoned by a State after 1 January 1925 on the territory of a State Party to this Convention without the consent of the latter.

9. A State Party which has discovered abandoned chemical weapons in its territory (hereinafter referred to as the "Territorial State") shall, not later than 30 days after the entry into force of the Convention for it, submit to the Technical Secretariat all relevant information concerning the abandoned chemical weapons. A State Party which discovers abandoned chemical weapons after the entry into force of the Convention for it shall, not later than 90 days after the discovery, submit to the Technical Secretariat all relevant information concerning these abandoned chemical weapons.

10. A State Party which has abandoned chemical weapons in the territory of another State Party (hereinafter referred to as the "Abandoning State") shall, not later than 30 days after the entry into force of the Convention for it, submit to the Technical Secretariat all relevant information concerning the abandoned chemical weapons.

11. The Technical Secretariat shall conduct the necessary inspections in order to verify all relevant information submitted pursuant to paragraphs 9 and 10 for the purpose of establishing evidence concerning the identity of the Abandoning State.

12. a) In the event that the Technical Secretariat, as a result of the verification, determines the identity of the Abandoning State, the Territorial State shall have the right to request the Abandoning State which bears responsibilities on the chemical weapons it has abandoned to enter into consultations for the purpose of destroying such chemical weapons in cooperation with the Territorial State.

b) The consultations with a view to establishing a mutually agreed plan shall be held within 30 days after the request and shall not last more than 180 days. Once the plan for destruction is mutually agreed, it shall be transmitted to and approved by the Executive Council. The destruction shall be completed in accordance with Article IV and Part IV (A) of this Annex. Any extension period needed for the destruction of these chemical weapons beyond the time limit set out in Article IV should be approved by the Executive Council.

c) In the event the the Abandoning State refuses to enter into consultations, the Territorial State shall have the right to bring the matter to the Executive Council for mediation and decision.

d) In the event that the consultations fail to reach agreement concerning the mutually agreed plan to destroy the abandoned chemical weapons, either State Party shall have the right to resolve the matter in accordance with Article XIV of this Convention.

13. In the event that the identified Abandoning State denies the finding of the Technical Secretariat, the Territorial State shall resolve the matter in accordance with Article XIV.

14. In the event that the Abandoning State cannot be identified and determined or is not a State Party to the Convention, the Territorial State may request the Organization/Technical Secretariat/other State Parties to provide assistance in the destruction of the discovered abandoned chemical weapons.

PART V:

DESTRUCTION OF CHEMICAL WEAPONS PRODUCTION FACILITIES AND ITS
VERIFICATION PURSUANT TO ARTICLE V

A. DECLARATIONS

Declarations of chemical weapons production facilities

1. The declaration of chemical weapons production facilities by a State Party pursuant to Article III paragraph 2 (b) shall contain for each facility:

(a) The name of the facility, names of the owners, and names of the companies or enterprises operating the facility since 1 January 1946;

(b) 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;

(c) A statement whether it is a facility for the manufacture of chemicals that are defined as chemical weapons or whether it is a facility for the filling of chemical weapons, or both;

(d) The date when the construction of the facility was completed and the periods during which any modifications to the facility were made, including the installation of new or modified equipment, that significantly changed the production process characteristics of the facility;

(e) Information on the chemicals defined as chemical weapons that were manufactured at the facility; the munitions, devices, and containers that were filled at the facility, and the dates of the beginning and cessation of such manufacture or filling:

(i) For chemicals defined as chemical weapons that were manufactured at the facility, such information shall be expressed in terms of the specific types of chemicals manufactured, indicating the chemical name in accordance with the assigned International Union of Pure and Applied Chemistry nomenclature, structural formula, and the Chemical Abstracts Service registry number, if assigned, and in terms of the amount of each chemical expressed by weight of chemical in tonnes;

(ii) For munitions, devices and containers that were filled at the facility, such information shall be expressed in terms of the specific type of chemical weapons filled and the weight of the chemical fill per unit.

(f) The production capacity of the chemical weapons production facility:

- (i) For a facility where chemical weapons were manufactured, production capacity shall be expressed in terms of the annual quantitative potential for manufacturing a specific substance on the basis of the technological process actually used or, in the case of processes not actually used, planned to be used at the facility;
 - (ii) For a facility where chemical weapons were filled, production capacity shall be expressed in terms of the quantity of chemical that the facility can fill into each specific type of chemical weapon a year.
- (g) For each chemical weapons production facility that has not been destroyed, a description of the facility including:
- (i) A site diagram;
 - (ii) A process flow diagram of the facility; and
 - (iii) An inventory of buildings at the facility, and specialized equipment at the facility and of any spare parts for such equipment;
- (h) The present status of the facility, stating:
- (i) The date when chemical weapons were last produced at the facility;
 - (ii) Whether the facility has been destroyed, including the date and manner of its destruction; and
 - (iii) Whether the facility has been used or modified prior to the date of the entry into force of the Convention for an activity not related to the production of chemical weapons, and if so, information on what modifications have been made, the date such non-chemical weapons related activity began and the nature of such activity, indicating, if applicable, the kind of product.
- (i) A specification of the measures that have been taken by the State Party for closure of, and a description of the measures that have been or will be taken by the State Party to inactivate the facility;
- (j) A description of the normal pattern of activity for safety and security at the inactivated facility; and
- (k) A statement as to whether the facility will be converted for the destruction of chemical weapons and, if so, the dates for such conversions.

Declarations of chemical weapons production facilities pursuant to Article III paragraph 2 (c)

2. The declaration of chemical weapons production facilities pursuant to Article III paragraph 2 (c) shall contain all information as specified in paragraph 1. It is the responsibility of the State Party on whose territory the facility is or has been located to make appropriate arrangements with the other State to ensure that the declarations are made. If the State Party on whose territory the facility is or has been located is not able to fulfil this obligation, it shall state the reasons therefor.

Declarations of past transfers and receipts

3. A State Party that has transferred or received chemical weapons production equipment since 1 January 1946 shall declare these transfers and receipts pursuant to Article III paragraph 2 (d) and in accordance with paragraph 5 below. When not all the specified data are available for transfer and receipt of such equipment for the period between 1 January 1946 and 1 January 1970, the State Party shall declare whatever information is still available to it and provide an explanation as to why it cannot submit a full declaration.

4. Chemical weapons production equipment referred to in paragraph 3 means:

(a) Specialized equipment;

(b) Equipment for the production of equipment specifically designed for use directly in connection with chemical weapons employment; and

(c) Equipment designed or used exclusively for producing non-chemical parts for chemical munitions.

5. The declaration concerning transfer and receipt of chemical weapons production equipment shall specify:

(a) Who received/transferred the chemical weapons production equipment;

(b) The identity of such equipment;

(c) Date of transfer;

(d) Whether the equipment was destroyed, if known;

(e) Current disposition, if known.

Submission of general plans for destruction

6. For each chemical weapons production facility, a State Party shall supply the following information:

(a) Envisaged time-frame for measures to be taken; and

(b) Methods of destruction.

7. For each chemical weapons production facility that a State Party intends to convert temporarily into a chemical weapons destruction facility, the State Party shall supply the following information:

(a) Envisaged time-frame for conversion into a destruction facility;

(b) Envisaged time frame for utilizing the facility as a chemical weapons destruction facility;

(c) Description of the new facility;

(d) Method of destruction of special equipment;

(e) Time-frame for destruction of the converted facility after it has been utilized to destroy chemical weapons; and

(f) Method of destruction of the converted facility.

Submission of annual plans for destruction

8. The State Party shall submit an annual plan for destruction not less than 90 days prior to the beginning of the coming destruction year. The annual plan shall specify:

(a) Capacity to be destroyed;

(b) Name and location of the facilities where destruction will take place;

(c) List of buildings and equipment that will be destroyed at each facility; and

(d) Planned method(s) of destruction.

9. A State Party shall submit an annual report on destruction not later than 90 days after the end of the previous destruction year. The annual report shall specify:

(a) Capacity destroyed;

(b) Name and location of the facilities where destruction took place;

(c) List of buildings and equipment that were destroyed at each facility;

(d) Method(s) of destruction.

10. For a chemical weapons production facility declared pursuant to Article III paragraph 2 (c), it is the responsibility of the State Party on whose territory the facility is or has been located to make appropriate arrangements to ensure that the declarations specified in paragraphs 6 to 9 are made. If the State Party on whose territory the facility is or has been located is not able to fulfil this obligation, it shall state the reasons thereof.

General principles for destruction of chemical weapons production facilities

11. Each State Party shall decide on methods to be applied for the destruction of chemical weapons production facilities, according to the principles laid down in Article V and in this Annex.

Principles and methods for closure of a chemical weapons production facility

12. The purpose of the closure of a chemical weapons production facility is to render it inoperable.

13. Agreed measures for closure shall be taken by a State Party with due regard to the specific characteristics of each facility. Such measures shall include, inter alia:

(a) Prohibition of occupation of the specialized buildings and standard buildings of the facility except for agreed activities;

(b) Disconnection of equipment directly related to the production of chemical weapons, including, inter alia, process control equipment and utilities;

(c) Decommissioning of protective installations and equipment used exclusively for the safety of operations of the chemical weapons production facility;

(d) Installation of blind flanges and other devices to prevent the addition of chemicals to, or the removal of chemicals from, any specialized process equipment for synthesis, separation or purification of chemicals defined as a chemical weapon, any storage tank, or any machine for filling chemical weapons, the heating, cooling, or supply of electrical or other forms of power to such equipment, storage tanks, or machines; and

(e) Interruption of rail, road and other access routes for heavy transport to the chemical weapons production facility except those required for agreed activities.

14. While the chemical weapons production facility remains closed, a State Party may continue safety and physical security activities at the facility.

Technical maintenance of chemical weapons production facilities prior to their destruction

15. A State Party may carry out standard maintenance activities at chemical weapons production facilities only for safety reasons, including visual inspection, preventive maintenance, and routine repairs.

16. All planned maintenance activities shall be specified in the general and detailed plans for destruction. Maintenance activities shall not include:

(a) Replacement of any process equipment;

(b) Modification of the characteristics of the chemical process equipment; or

(c) Production of chemicals of any type.

17. All maintenance activities shall be subject to monitoring by the Technical Secretariat.

Principles and methods for temporary conversion of chemical weapons production facilities into chemical weapons destruction facilities

18. Measures pertaining to the temporary conversion of chemical weapons production facilities into chemical weapons destruction facilities shall ensure that the regime for the temporarily converted facilities is at least as stringent as the regime for chemical weapons production facilities that have not been converted.

19. Chemical weapons production facilities converted into chemical weapons destruction facilities before the Convention enters into force shall be declared under the category of chemical weapons production facilities.

They shall be subject to an initial visit by inspectors, who shall confirm the correctness of the information about these facilities. Verification that the conversion of these facilities was performed in such a manner as to render them inoperable as chemical weapons production facilities shall also be required, and shall fall within the framework of measures provided for the facilities that are to be rendered inoperable not later than 90 days after the Convention enters into force.

20. A State Party that intends to carry out a conversion of chemical weapons production facilities shall submit to the Technical Secretariat, not later than 30 days after entry into force for it, or not later than 30 days after a decision has been taken for temporary conversion, a general facility conversion plan, and subsequently shall submit annual plans.

21. Should a State Party have the need to convert to a chemical weapons destruction facility an additional chemical weapons production facility that had been closed after the Convention entered into force for it, it shall inform the Technical Secretariat thereof no less than 90 days prior to conversion. The Technical Secretariat, in conjunction with the State Party, shall make sure that necessary measures are taken to render that facility, after its conversion, inoperable as a chemical weapons production facility.

22. A facility converted for the destruction of chemical weapons shall not be more fit for resuming chemical weapons production than a chemical weapons production facility which has been closed and is under maintenance. Its reactivation shall require no less time than that required for a chemical weapons production facility that has been closed and is under maintenance.

23. Converted chemical weapons production facilities shall be destroyed not later than 10 years after the Convention enters into force.

24. Any measures for the conversion of any given chemical weapons production facility shall be facility-specific and shall depend upon its individual characteristics.

25. The set of measures carried out for the purpose of converting a chemical weapons production facility into a chemical weapons destruction facility shall not be less than that which is provided for the disabling of other facilities to be carried out during the three months after the Convention enters into force.

Principles and methods related to destruction of a chemical weapons production facility

26. A State Party shall destroy equipment and buildings covered by the definition of a chemical weapons production facility as follows:

(a) All specialized equipment and standard equipment shall be physically destroyed;

(b) All specialized buildings and standard buildings shall be physically destroyed.

27. A State Party shall destroy facilities for producing unfilled chemical munitions and equipment for chemical weapons employment as follows:

(a) Facilities used exclusively for production of non-chemical parts for chemical munitions or equipment specifically designed for use directly in connection with chemical weapons employment, shall be declared and destroyed. The destruction process and its verification shall be conducted according to the provisions of Article V and this Annex that govern destruction of chemical weapons production facilities;

(b) All equipment designed or used exclusively for producing non-chemical parts for chemical munitions shall be physically destroyed. Such equipment, which includes specially designed moulds and metal-forming dies, may be brought to a special location for destruction;

(c) All buildings and standard equipment used for such production activities shall be destroyed or converted for purposes not prohibited under this Convention, with confirmation as necessary through consultations and inspections as provided for under Article IX.

(d) Activities for purposes not prohibited under this Convention may continue while destruction or conversion proceeds.

Order of destruction

28. The order of destruction of chemical weapons production facilities is based on the obligations specified in Article I and the other Articles of this Convention, including obligations regarding systematic international on-site verification. It takes into account interests of States Parties for undiminished security during the destruction period; confidence-building in the early part of the destruction stage; gradual acquisition of experience in the course of destroying chemical weapons production facilities; and applicability irrespective of the actual characteristics of the facilities and the methods chosen for their destruction. The order of destruction is based on the principle of levelling out.

29. A State Party shall, for each destruction period, determine which chemical weapons production facilities are to be destroyed and carry out the destruction in such a way that not more than what is specified in paragraph 30 and 31 below remains at the end of each destruction period. A State Party is not precluded from destroying its facilities at a faster pace.

30. The following provisions shall apply to chemical weapons production facilities that produce Schedule 1 chemicals:

(a) A State Party shall start the destruction of such facilities not later than one year after the Convention enters into force for it, and shall complete it not later than 10 years after the Convention enters into force. For a State which is a Party at the entry into force of the Convention, this overall period shall be divided into three separate destruction periods, namely, years 2-5, years 6-8, and years 9-10. For States which become a Party after the entry into force of the Convention, the destruction periods shall be adapted, taking into account paragraphs 27 and 28 above;

(b) Production Capacity shall be used as the comparison factor for such facilities. It shall be expressed in agent tonnes, taking into account the rules specified for binary chemical weapons;

(c) Appropriate agreed levels of production capacity shall be established for the end of the eighth year after the Convention enters into force. Production capacity that exceeds the relevant level shall be destroyed in equal increments during the first two destruction periods;

(d) A requirement to destroy a given amount of capacity shall entail a requirement to destroy any other chemical weapons production facility that supplied the Schedule 1 facility or filled the Schedule 1 chemical produced there into munitions or devices;

(e) Chemical weapons production facilities that have been converted temporarily for destruction of chemical weapons shall continue to be subject to the obligation to destroy capacity according to the provisions of this paragraph.

31. A State Party shall start the destruction of chemical weapons production facilities not covered in paragraph 29 above not later than one year from the date the Convention enters into force for it, and should complete it not later than five years after the Convention enters into force.

Detailed plans for destruction

32. Not less than 180 days before destruction of a chemical weapons production facility, a State Party shall provide to the Technical Secretariat the detailed plans for destruction of the facility, including proposed measures for verification of destruction referred to in paragraph 32 (f), with respect to, inter alia:

(a) Timing of the presence of the Inspectors at the facility to be destroyed; and

(b) Procedures for verification of measures to be applied to each item on the declared inventory.

33. The detailed plans for destruction of each chemical weapons production facility shall contain:

(a) Detailed time schedule of the destruction process;

(b) Layout of the facility;

(c) Process flow diagram;

(d) Detailed inventory of equipment, buildings and other items to be destroyed;

(e) Measures to be applied to each item on the inventory;

(f) Proposed measures for verification;

(g) Security/safety measures to be observed during the destruction of the facility; and

(h) Working and living conditions to be provided for inspectors.

34. If a State Party intends to convert temporarily a chemical weapons production facility for use in the destruction of chemical weapons, it shall notify the Technical Secretariat not less than 120 days before undertaking any conversion activities. The notification shall:

(a) Specify the name, address, and location of the facility;

(b) Provide a site diagram indicating all structures and areas that will be involved in the destruction of chemical weapons and also identify all structures of the chemical weapons production facility that is to be temporarily converted;

(c) Specify the types of chemical weapons, and the type and quantity of chemical fill to be destroyed;

(d) Specify the destruction method;

(e) Provide a process flow diagram, indicating which portions of the production process and specialized equipment will be converted for the destruction of chemical weapons;

(f) Specify the seals and inspection equipment potentially affected by the conversion, if applicable; and

(g) Provide a schedule identifying the time allocated to design, temporary conversion of the facility, installation of equipment, equipment check-out, destruction operations, and closure.

35. In relation to the destruction of a facility that was temporarily converted for destruction of chemical weapons, information should be provided in accordance with paragraphs 32 and 33.

Review of detailed plans

36. On the basis of the detailed plan for destruction 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 destruction 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 for appropriate action with a view to facilitating the full implementation of this Convention.

37. To ensure that the provisions of Article V and this Annex are fulfilled, the combined plans for destruction and verification shall be agreed upon between the Executive Council and the State Party. This agreement should be completed, no less than 60 days before the planned initiation of destruction.

38. 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.

39. 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 Conference. The resolution of any differences over methods of destruction should not delay the execution of other parts of the destruction plan that are acceptable.

40. 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 destruction shall proceed by the continuous on-site monitoring and presence of inspectors.

41. Destruction and verification shall proceed according to the agreed plan. The verification shall not unduly interfere with the destruction process and shall be conducted through the presence of inspectors on-site to witness the destruction.

42. If required verification or destruction actions are not taken as planned, all States Parties should be so informed.

C. VERIFICATION

International verification of declarations of chemical weapons production facilities by initial on-site inspections

43. The Technical Secretariat shall conduct an initial inspection of each chemical weapons production facility in the period between 90 and 120 days after the entry into force of the Convention.

44. The purposes of the initial inspection shall be:

(a) To confirm that the production of chemical weapons has ceased and that the facility has been inactivated in accordance with this Convention;

(b) To permit the Technical Secretariat to familiarize itself with the measures that have been taken to cease production of chemical weapons at the facility;

(c) To permit the inspectors to install temporary seals;

(d) To permit the inspectors to confirm the inventory of buildings and specialized equipment;

(e) To obtain information necessary for planning inspection activities at the facility, including use of tamper-indicating seals and other agreed equipment, which shall be installed pursuant to the detailed facility agreement for the facility; and

(f) To conduct preliminary discussions regarding a detailed agreement on inspection procedures at the facility;

45. Inspectors 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.

46. 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 inspected State Party. Inspectors may return to maintain and verify the integrity of the devices.

47. If, on the basis of the initial inspection, the Director-General believes that additional measures are necessary to inactivate the facility in accordance with this Convention, the Director-General may request, no later than 135 days after the entry into force of the Convention for a State, that such measures be implemented by the inspected State Party no later than 180 days after entry into force of the Convention for it. At its

discretion, the inspected State Party may satisfy the request. If it does not satisfy the request, the inspected State Party and the Director-General shall consult to resolve the matter.

International verification of chemical weapons production facilities and cessation of their activities

48. The purpose of the international systematic monitoring of a chemical weapons production facility shall be to ensure that any resumption of production of chemical weapons or removal of declared items would be detected at this facility.

49. The detailed facility agreement for each chemical weapons production facility shall specify:

(a) Detailed on-site inspection procedures, which may include:

- (i) Visual examinations;
- (ii) Checking and servicing of seals and other agreed devices; and
- (iii) Obtaining and analysing samples;

(b) Procedures for using tamper-indicating seals and other agreed equipment to prevent the undetected reactivation of the facility, which shall specify:

- (i) The type, placement, and arrangements for installation; and
- (ii) The maintenance of such seals and equipment; and

(c) Other agreed measures.

50. The seals or other approved equipment provided for in a detailed agreement on inspection measures for that facility shall be placed no later than 240 days after the entry into force of the Convention for a State. Inspectors shall be permitted to visit each chemical weapons production facility for the installation of such seals or equipment.

51. During each calendar year, the Technical Secretariat shall be permitted to conduct up to four inspections of each chemical weapons production facility.

54. The guidelines for determining the frequency of systematic on-site inspections are to be elaborated by the Preparatory Commission. The particular production facility to be inspected shall be chosen by the Technical Secretariat in such a way as to preclude the prediction of precisely when the facility is to be inspected.

International verification of destruction of chemical weapons production facilities

55. The purpose of international verification of destruction of chemical weapons production facilities shall be to confirm that the facility is destroyed in accordance with the obligations under this Convention and that each item on the declared inventory is destroyed in accordance with the agreed detailed plan for destruction.

56. When all items on the declared inventory have been destroyed, the Technical Secretariat shall certify, in writing, the declaration of the State Party to that effect. After this certification, the Technical Secretariat shall terminate the international systematic monitoring of the chemical weapons production facility and shall promptly remove all devices and monitoring equipment installed by the inspectors.

57. After this certification, the State Party shall make the declaration that the facility has been destroyed.

International verification of temporary conversion of a chemical weapons production facility into a chemical weapons destruction facility

58. Not later than 90 days after receiving the initial notification of the intent to convert temporarily a production facility, the inspectors shall have the right to visit the facility to familiarize themselves with the proposed temporary conversion and to study possible inspection measures that will be required during the conversion.

59. Not later than 60 days after such a visit, the Technical Secretariat and the inspected State Party shall conclude a transition agreement containing additional inspection measures for the temporary conversion period. The transition agreement shall specify inspection procedures, including the use of seals, monitoring equipment, and inspections, that will provide confidence that no chemical weapons production takes place during the conversion process. This agreement shall remain in force from the beginning of the temporary conversion activity until the facility begins operation as a chemical weapons destruction facility.

60. The inspected State Party shall not remove or convert any portion of the facility, or remove or modify any seal or other agreed inspection equipment that may have been installed pursuant to this Convention until after the conclusion of the transition agreement.

61. Once the facility begins operation as a chemical weapons destruction facility, it shall be subject to the provisions of this Annex applicable to chemical weapons destruction facilities. Arrangements for the pre-operation period shall be governed by the transition agreement.

62. During destruction operations the inspectors shall have access to all portions of the temporarily converted chemical weapons production facilities, including those that are not directly involved with the destruction of chemical weapons.

63. Prior to the commencement of work at the facility to convert it temporarily for chemical weapons destruction purposes and after the facility has ceased to function as a facility for chemical weapons destruction, the facility shall be subject to the provisions of this Annex applicable to chemical weapons production facilities.

PART VI

ACTIVITIES NOT PROHIBITED UNDER THE CONVENTION
IN ACCORDANCE WITH ARTICLE VI

REGIME FOR SCHEDULE 1 CHEMICALS AND FACILITIES
RELATED TO SUCH CHEMICALS

A. GENERAL PROVISIONS

1. A State Party shall not produce, acquire, retain or use Schedule 1 chemicals outside the territories of States Parties and shall not transfer such chemicals outside its territory except to another State Party.
2. A State Party shall not produce, acquire, retain, transfer or use Schedule 1 chemicals unless:
 - (a) The chemicals are applied to research, medical, pharmaceutical or protective purposes, and
 - (b) The types and quantities of chemicals are strictly limited to those which can be justified for such purposes, and
 - (c) The aggregate amount of such chemicals at any given time for such purposes is equal to or less than one tonne, and
 - (d) The aggregate amount for such purposes acquired by a State Party in any calendar year through production, withdrawal from chemical weapons stocks and transfer is equal to or less than one tonne.

B. TRANSFERS

3. A State Party may transfer Schedule 1 chemicals outside its territory only to another State Party and only for research, medical, pharmaceutical or protective purposes in accordance with paragraph 2 above.
4. Chemicals transferred shall not be re-transferred to a third State.
5. Not less than 30 days prior to any transfer to another State Party both States Parties shall notify the Technical Secretariat of the transfer.
6. Each State Party shall make a detailed annual declaration regarding transfers during the previous calendar year. The declaration shall be submitted not later than 90 days after the end of that year and shall for each Schedule 1 chemical that has been transferred include the following information:
 - (a) The chemical name, structural formula and Chemical Abstracts Service registry number, if assigned;

(b) The quantity acquired from other States or transferred to other States Parties. For each transfer the quantity, recipient and purpose should be included.

C. PRODUCTION

General principles for production

7. Each State Party, during production under paragraphs 8 to 12, shall assign the highest priority to ensuring the safety of people and to protecting the environment. Each State Party shall conduct such production in accordance with national standards for safety and emissions.

Single small-scale facility

8. Each State Party that produces Schedule 1 chemicals for research, medical, pharmaceutical or protective purposes shall carry out the production at a single small-scale facility approved by the State Party, except as set out in paragraphs 10, 11 and 12 below.

9. The production at a single small-scale facility shall be carried out in reaction vessels in production lines not configured for continuous operation. The volume of such a reaction vessel shall not exceed 100 litres while the total volume of all reaction vessels with a volume exceeding 5 litres shall not be more than 500 litres.

Other facilities

10. Production of Schedule 1 chemicals in aggregate quantities not exceeding 10 kg per year may be carried out for protective purposes at one facility outside a single small-scale facility. This facility shall be approved by the State Party.

11. Production of Schedule 1 chemicals in quantities of more than 100 g per year may be carried out for research, medical or pharmaceutical purposes outside a single small-scale facility in aggregate quantities not exceeding 10 kg per year per facility. These facilities shall be approved by the State Party.

12. Synthesis of Schedule 1 chemicals for research, medical or pharmaceutical purposes, but not for protective purposes, may be carried out at laboratories in aggregate quantities less than 100 g per year per facility (10 g per year for ultratoxic substances which are marked "u" in the Annex on Chemicals). These facilities shall not be subject to any obligation relating to declaration and verification as specified in Section D and E.

D. DECLARATIONS

Single small-scale facility

13. Each State Party that plans to operate a single small-scale facility shall provide the Technical Secretariat with the location and a detailed technical description of the facility, including an inventory of equipment and detailed diagrams. For existing facilities, this information shall be provided not later than 30

days after the Convention enters into force for the State Party. Information on new facilities shall be provided not less than 180 days before operations are to begin.

14. Each State Party shall give advance notification to the Technical Secretariat of planned changes related to the initial declaration. The notification shall be submitted not less than 180 days before the changes are to take place.

15. A State Party producing Schedule 1 chemicals at a single small-scale facility shall make a detailed annual declaration regarding the activities of the facility for the previous calendar year. The declaration shall be submitted not later than 90 days after the end of that year and shall include:

(a) Identification of the facility;

(b) For each Schedule 1 chemical produced, acquired, consumed or stored at the facility, the following information:

(i) The chemical name, structural formula and Chemical Abstracts Service registry number, if assigned;

(ii) The methods employed and quantity produced;

(iii) The name and quantity of precursor chemicals listed on Schedules 1, 2, or 3 used for production of Schedule 1 chemicals;

(iv) The quantity consumed at the facility and the purpose(s) of the consumption;

(v) The quantity received from or shipped to other facilities in the State Party. For each shipment the quantity, recipient and purpose should be included;

(vi) The maximum quantity stored at any time during the year; and

(vii) The quantity stored at the end of the year; and

(c) Information on any changes at the facility during the year compared to previously submitted detailed technical descriptions of the facility including inventories of equipment and detailed diagrams.

16. Each State Party producing Schedule 1 chemicals at a single small-scale facility shall make a detailed annual declaration regarding the projected activities and the anticipated production at the facility for the coming calendar year. The declaration shall be submitted not less than 90 days before the beginning of that year and shall include:

(a) Identification of the facility;

(b) For each Schedule 1 chemical produced, consumed or stored at the facility, the following information:

(i) The chemical name, structural formula and Chemical Abstracts Service registry number, if assigned;

(ii) The quantity anticipated to be produced and the purpose of the production; and

(c) Information on any anticipated changes at the facility during the year compared to previously submitted detailed technical descriptions of the facility including inventories of equipment and detailed diagrams.

Other facilities

17. For each facility referred to in paragraphs 10 and 11, a State Party shall provide the Technical Secretariat with the name, location and a detailed technical description of the facility or its relevant part(s) as requested by the Technical Secretariat. The facility producing Schedule 1 chemicals for protective purposes shall be specifically identified. For existing facilities, this information shall be provided not later than 30 days after the Convention enters into force for the State Party. Information on new facilities shall be provided not less than 180 days before operations are to begin.

18. Each State Party shall give advance notification to the Technical Secretariat of planned changes related to the initial declaration. The notification shall be submitted not less than 180 days before the changes are to take place.

19. Each State Party shall, for each facility, make a detailed annual declaration regarding the activities of the facility for the previous calendar year. The declaration shall be submitted not later than 90 days after the end of that year and shall include:

(a) Identification of the facility

(b) For each Schedule 1 chemical the following information:

(i) The chemical name, structural formula and Chemical Abstracts Service registry number, if assigned;

(ii) The quantity produced and, in case of production for protective purposes, methods employed;

(iii) The name and quantity of precursor chemicals listed on Schedules 1, 2, or 3 used for production of Schedule 1 chemicals;

(iv) The quantity consumed at the facility and the purpose of the consumption;

(v) The quantity transferred to other facilities within the State Party. For each transfer the quantity, recipient and purpose should be included;

- (vi) The maximum quantity stored at any time during the year; and
- (vii) The quantity stored at the end of the year; and
- (c) Information on any changes at the facility or its relevant part(s) during the year compared to previously submitted detailed technical description of the facility.

20. Each State Party shall, for each facility, make a detailed annual declaration regarding the projected activities and the anticipated production at the facility for the coming calendar year. The declaration shall be submitted not less than 90 days before the beginning of that year and shall include:

- (a) Identification of the facility;
- (b) For each Schedule 1 chemical the following information:
 - (i) The chemical name, structural formula and Chemical Abstracts Service registry number, if assigned; and
 - (ii) The quantity anticipated to be produced, the time period(s) when the production is anticipated to take place and the purposes of the production; and
- (c) Information on any anticipated changes at the facility or its relevant part(s), during the year compared to previously submitted detailed technical descriptions of the facility.

E. VERIFICATION

Single small-scale facility

21. The aim of verification activities at the single small-scale facility shall be to verify that the quantities of Schedule 1 chemicals produced are correctly declared and, in particular, that their aggregate amount does not exceed one tonne.
22. The facility shall be subject to systematic international on-site verification, through on-site inspection and monitoring with on-site instruments.
23. The number, intensity, duration, timing and mode of inspections for a particular facility shall be based on the risk to the objectives of this Convention posed by the relevant chemicals, the characteristics of the facility and the nature of the activities carried out there. Appropriate guidelines shall be developed by the Preparatory Commission.
24. The purpose of the initial inspection shall be to verify information provided concerning the facility, including verification of the limits on reaction vessels set out in paragraph 8.

25. Not later than 180 days after the entry into force of the Convention for a State Party, it shall conclude an agreement, based on a model agreement, with the Organization, covering detailed inspection procedures for the facility.

26. Each State Party planning to establish a single small-scale facility after the entry into force of the Convention for it shall conclude an agreement, based on a model agreement, with the Organization, covering detailed inspection procedures for the facility before it begins operation or is used.

27. Model agreements shall be developed by the Preparatory Commission.

Other facilities

28. The aim of verification activities at any facility referred to in paragraphs 10 and 11 shall be to verify that:

(a) The facility is not used to produce any Schedule 1 chemical, except for the declared chemicals;

(b) The quantities of Schedule 1 chemicals produced, processed or consumed are correctly declared and consistent with needs for the declared purpose; and

(c) The Schedule 1 chemical is not diverted or used for other purposes.

29. The facility shall be subject to systematic international on-site verification through on-site inspection and monitoring with on-site instruments.

30. The number, intensity, duration, timing and mode of inspections for a particular facility shall be based on the risk to the objectives of this Convention posed by the quantities of chemicals produced, the characteristics of the facility and the nature of the activities carried out there. Appropriate guidelines shall be developed by the Preparatory Commission.

31. Not later than 180 days after the entry into force of the Convention for a State Party, it shall conclude agreements with the Organization, based on a model agreement covering detailed inspection procedures for each facilities.

32. Each State Party planning to establish such a facility after the entry into force of the Convention shall conclude an agreement with the Organization before the facility begins operation or is used.

PART VII

ACTIVITIES NOT PROHIBITED UNDER THE CONVENTION IN ACCORDANCE WITH
ARTICLE VI:

REGIME FOR SCHEDULE 2 CHEMICALS AND FACILITIES RELATED TO SUCH
CHEMICALS

A. DECLARATIONS

The initial and annual declarations to be provided by a State Party under paragraphs 5 and 6 of Article VI may be made on the basis of plant or plant site, and shall include:

Declaration of aggregate national data

1. Aggregate national data on the quantities produced, processed, consumed, imported and exported of each chemical listed in Schedule 2 in the previous calendar year, as well as the quantitative specification of import and export for each country involved.

2. Such quantities shall be calculated:

(a) In case of production, processing and consumption on the basis of individual facility data above a threshold of 500 kg;

(b) In case of foreign trade on the basis of individual export and import transactions above a threshold of 500 kg.

General provisions on declaration of facilities

3. Declarations are required for :

(a) All facilities that produced, processed or consumed during any of the previous three years or are anticipated to produce, process or consume in the next year more than one tonne of a chemical listed on Schedule 2, or more than 1 kg of a chemical designated "*" in the Annex on Chemicals;

(b) Facilities that produced at any time since 1 January 1946 a chemical in Schedule 2 for chemical weapons purposes;

4. Declarations are not required for formulations of Schedule 2 products containing a low concentration of the scheduled chemical except in such cases where the total weight present in these formulations and the relative ease of recovery of the scheduled chemical from the formulation are deemed to pose a risk to the purposes of this Convention. Provisions concerning appropriate percentages, weights of scheduled chemicals and ease of recovery shall be developed by the Preparatory Commission.

Declaration on past activities

5. For each facility declarations shall include the following information on Schedule 2 chemicals as well as on the facility itself:

Chemical(s)

(a) The chemical name, common or trade name used by the facility, structural formula, and Chemical Abstracts Service registry number, if assigned;

(b) The total amount produced, processed, consumed, imported and exported in the previous calendar year or, in the case of the initial declaration as required in Article VI, paragraph 4, in each of the three previous calendar years;

(c) The purpose(s) for which the chemical(s) were produced, consumed or processed:

(i) Processing and consumption on site (specify product type);

(ii) Sale or transfer within the country (specify, if to other domestic industry, trader or other destination with an indication, and if possible, final product type);

(iii) Direct export (specify which country);

(iv) Other - specify.

Facility

(d) The name of the plant and the owner, company, or enterprise operating the plant if the declaration has been made on the basis of plant;

(e) The name of the plant site in which the plant is located and the name of the owner, company, or enterprise operating the plant site;

(f) The precise location of the plant (including the address, location of the plant site, location of the plant within the plant site including the specific building or structure number, if any);

(g) The main orientation (purpose) of the plant;

(h) Whether the plant is dedicated to producing, processing or consuming the listed chemical or is multi-purpose;

(i) The production capacity of the plant for the declared Schedule 2 chemical(s);

(j) Which of the following activities are performed with regard to the Schedule 2 chemicals(s):

- (i) Production;
- (ii) Processing;
- (iii) Consumption;
- (iv) Other - specify (e.g. storage).

Notification of anticipated activities

6. The notification relating to anticipated activities as required in paragraph 1 shall follow the same format as provided for in the preceding paragraph. In addition, the anticipated time period(s) of production, processing or consumption are to be notified.

Past production of chemicals on Schedule 2 for chemical weapons purposes

7. Declarations required under subparagraph 3 (b) above shall include the following information:

(a) The chemical name, common or trade name used by the plants for chemical weapon production purposes, structural formula, and Chemical Abstracts Service registry number, if assigned;

(b) The dates the chemical was produced and the quantity produced;

(c) The location to which the chemical was delivered and the final product produced there (if known).

Procedural provisions

8. Each State Party shall submit, when the Convention enters into force for it:

(a) Initial declarations not more than 30 days later (Article VI, paragraph 4) on past and anticipated activities;

(b) Subsequent annual declarations relating to past activities not later than 31 March for the preceding calendar year, starting in the year which follows the year of entering into force;

(c) Subsequent annual notifications relating to anticipated activities not later than 31 October for the following calendar year. Subsequently planned notifiable activities in the same reporting year shall be notified not later than five days before this additional planned activity begins. The first annual notification is due by the end of the first October during which this Convention has been in force.

Information to States Parties

9. The list of facilities declared under this Part of this Annex together with the information provided under subparagraphs 4 (a), (d), (f), (g) and (j) shall be transmitted by the Technical Secretariat to all States Parties within 30 days after declarations have become due.

B. VERIFICATION

General

10. International on-site verification provided for in paragraph 4 of Article VI shall, under this Part of this Annex, be carried out by the Technical Secretariat through on-site inspections of those facilities declared which produced, processed or consumed during any of the previous three years or are anticipated to produce, process or consume in the next year more than 10 tonnes of a chemical listed in Schedule 2, or more than 10 kg of a chemical designated "*" in the Annex on Chemicals.

Formulations of Schedule 2 products containing a low concentration of the scheduled chemical are exempted from the monitoring provisions of this Part of this Annex in such cases where the total weight present in those formulations and the relative ease of recovery of the scheduled chemical from the formulation are deemed to pose a risk to the purposes of this Convention. Appropriate percentages, weights of scheduled chemicals and ease of their recovery shall be developed by the Preparatory Commission.

11. The draft programme and budget of the Organization to be submitted by the Executive Council pursuant to Article VIII, subparagraph 27 (a) shall contain, as a separate item, an indicative draft programme and budget for verification under this Part.

12. The Technical Secretariat shall:

(a) Perform initial inspections of declared facilities in accordance with paragraph 13 below;

(b) Select facilities for subsequent inspections and designate whether type 1 or type 2 inspection procedures shall be applied, in accordance with paragraph 14 below.

(c) Conduct type 1 or 2 inspections in accordance with the guidelines set out in paragraphs 15 and 16.

Initial inspections

13. Each facility specified in paragraph 9 above shall receive an initial inspection as soon as possible but preferably not later than three years after entry into force of the Convention. Facilities declared after this period should receive an initial inspection not later than one year after production, processing or consumption is first declared. Selection of facilities shall be made by the Technical Secretariat in such a way as to preclude the prediction of precisely when the facility is to be inspected.

After completion of the initial inspection the Technical Secretariat, in accordance with the guidelines in paragraph 16 below, shall designate the facility for type 1 or type 2 inspection procedures for subsequent on-site inspection.

Subsequent inspections

14. Having received the initial inspection, and designation, each facility specified in paragraph 9 shall be subject to on-site inspections.

15. In selecting particular facilities for inspection, the Technical Secretariat shall:

(a) Give due consideration to 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;

(b) Choose the particular facility to be inspected in such a way as to preclude the prediction of precisely when the plant is to be inspected;

(c) Not inspect one facility more than twice per year.

16. In designating particular facilities for either type 1 or type 2 inspections the Technical Secretariat shall take into account the following guidelines:

(a) Guidelines related to the listed chemical:

(i) Toxicity of the intermediates or end products;

(b) Guidelines related to the Schedule 2 plant:

(i) Actual production;

(ii) Production capacity;

(iii) Processing or consumption;

(iv) Quantity produced, processed or transferred;

(c) Guidelines related to the plant site:

(i) Production capability;

(ii) Capability and convertability for initiating production, storage and filling of toxic chemicals;

(iii) Quantity of Schedule 2 chemicals stored on-site;

(iv) Quantity of feedstock chemicals for Schedule 2 chemicals stored on site;

(v) Location of the plant site and infrastructure for transportation.

Inspection aims

17. The general aim of inspections shall be to verify that activities are in accordance with obligations under the Convention and consistent with the information provided in declarations on facilities. Particular aims of inspections at facilities declared under this Part of this Annex shall include verification of:

- (a) The absence of any Schedule 1 chemical;
- (b) Consistency with declarations of levels of production, processing or consumption of Schedule 2 chemicals;
- (c) The absence of non-declared chemicals listed in Schedules 2 or 3 above thresholds for declaration;
- (d) Non-diversion of chemicals listed in Schedule 2 for purposes prohibited under this Convention.

Inspection procedures

18. Inspections shall be carried out in accordance with agreed guidelines and other relevant provisions of this Annex and the Confidentiality Annex.

19. In particular, for facilities designated for type 1 inspections:

- (a) A facility agreement for the declared Schedule 2 plant will be developed, if appropriate, during the initial inspection;
- (b) Access to records will be provided, as appropriate, to provide assurance that there has been no overproduction or diversion of the declared chemical;
- (c) The inspection team shall also have the right to visually inspect other parts of the plant site (including feedstock storage areas, product storage areas, and central effluent and waste treatment areas), in consultation with the inspected State Party;
- (d) Sampling and analysis will be undertaken to check for the absence of undeclared scheduled chemicals and their stable by-products and degradation products;
- (e) If, in the course of the inspection the inspected State Party indicates the existence of a facility, such as a research and development laboratory which it wishes to limit access to or exempt from the inspection, it is for this Party to demonstrate to the satisfaction of the inspection team that activities at the facility in question are consistent with the declared activities of the plant site.

19. For facilities declared under this Part of this Annex and designated for type 2 inspections, procedures in Part VIII paragraphs 18 to 24 shall apply.

20. For both types of inspection:

The areas of a facility to be inspected include:

- (a) Areas where feed chemicals (reactants) are delivered and/or stored;
- (b) Areas where manipulative processes are performed upon the reactants prior to addition to the reaction vessel;
- (c) Feed lines as appropriate from subparagraph (a) and/or subparagraph (b) of this paragraph to the reaction vessel together with any associated valves, flow meters, etc.;
- (d) The external aspect of the reaction vessel and its ancillary equipment;
- (e) Lines from the reaction vessel leading to long- or short-term storage or for further processing of the designated chemical;
- (f) Control equipment associated with any of the items under subparagraphs (a) to (e);
- (g) Equipment and areas for waste and effluent handling;
- (h) Equipment and areas for disposition of chemicals not up to specification.

C. NOTIFICATION OF INSPECTION

21. A State Party shall be notified by the Technical Secretariat of the decision to inspect no less than 24 hours prior to the arrival of the inspection team at the site.

PART VIII

ACTIVITIES NOT PROHIBITED UNDER THE CONVENTION IN ACCORDANCE WITH
ARTICLE VI:

REGIME FOR CHEMICALS ON SCHEDULE 3, FACILITIES RELATED TO SUCH
CHEMICALS, AND OTHER FACILITIES RELEVANT TO THE OBJECTIVES OF THE
CONVENTION

A. DECLARATIONS

The initial and annual declarations to be provided by a State Party under paragraphs 5 and 6 of Article VI may be made on the basis of plant or plant site, and shall include:

Declarations of aggregate national data

1. Aggregate national data for the previous calendar year on the quantities produced, consumed, imported and exported of each chemical listed in Schedule 3, as well as a quantitative specification of import and export for each country involved.

2. Such quantities shall be calculated:

(a) In case of production, processing and consumption, on the basis of individual plant data above a threshold of 10 tonnes;

(b) In case of foreign trade, on the basis of individual export and import transactions above a threshold of 10 tonnes.

General provisions on the declarations of facilities

3. Declarations are required for all:

(a) Facilities that produced during the previous year or are anticipated to produce or consume in the next year more than 30 tonnes of chemicals listed on Schedule 3;

(b) Facilities that produced at any time since 1 January 1946 a chemical in Schedule 3 for chemical weapons purposes; and

(c) Capable facilities (See CD/1116, pages 198-199).

4. Declarations are not required for formulations of Schedule 3 products containing a low concentration of the scheduled chemical except in such cases where the total weight present in these formulations and the relative ease of recovery of the scheduled chemical from the formulation are deemed to pose a risk to the purposes of this Convention. Appropriate percentages, weights of scheduled chemicals and ease of the recovery of the scheduled chemical from the formulation shall be developed by the Preparatory Commission.

Declarations on past activities

5. Declarations required under subparagraph 3 (a) above shall include the following information on the Schedule 3 chemical(s):

(a) The chemical name, common or trade name used by the facility, structural formula, and Chemical Abstracts Service registry number, if assigned;

(b) The approximate amount of production or consumption of the chemical in the previous calendar year, expressed in the ranges: 30 to 100 tonnes specified to the nearest 10 tonnes, 100 tonnes to 1,000 tonnes specified to the nearest 100 tonnes, and above 1,000 tonnes specified to the nearest 1,000 tonnes; and

(c) The purpose(s) for which the chemical(s) were produced or consumed.

6. Declarations required under subparagraph 3 (b) above shall include the following information:

(a) The chemical name, common or trade name used by the facility, structural formula, and Chemical Abstracts Service registry number, if assigned;

(b) The dates the chemical was produced and the quantity produced;

(c) The location to which the chemical was delivered and the final product produced there, if known.

7. Declarations required under subparagraphs 3 (a), (b) and (c) shall include the following information:

(a) The name of the facility and of the owner, company, or enterprise operating the facility; and of the owner, company or enterprise operating the plant(s) if declaration is made on the basis of plant site;

(b) The precise location of the facility including its address;

(c) Within the plant site, the number of plants which are declared under Part VIII of this Annex; and

(d) The main activities of the facility.

Notifications of anticipated activities

8. The notifications relating to anticipated activities as required in paragraph 1 shall follow the same format as provided for in the preceding paragraph.

Procedural provisions

9. Each State Party shall submit, when the Convention enters into force for it:

(a) Initial declarations not more than 30 days later (Article VI, paragraph 5) on past and anticipated activities;

(b) Subsequent annual declarations relating to past activities not later than 31 March for the preceding calendar year, starting in the year which follows the year after the entry into force;

(c) Subsequent annual notifications relating to anticipated activities not later than 31 October for the following calendar year. Subsequently planned notifiable activities in the same reporting year shall be notified not later than five days before this additionally planned activity begins. The first annual notification is due by the end of the first October during which the Convention has been in force.

Information to States Parties

10. The list of all facilities declared under Part VII of this Annex together with the information provided under this Part, paragraphs 4 (a), 6 (a), 6 (b) and 6(d) shall be transmitted by the Technical Secretariat to all States Parties within 60 days after declarations have become due.

B. VERIFICATION

General

11. International on-site verification provided for in paragraph 4 of Article VI shall be carried out by the Technical Secretariat through on-site inspections at facilities declared under this Part of this Annex:

(a) Producing or consuming in excess of 200 tonnes aggregate of any Schedule 3 chemicals above the declaration of 30 tonnes; and

(b) Capable facilities (See CD/1116, pages 198-199).

12. Facilities producing or consuming formulations of Schedule 3 products containing a low concentration of the scheduled material are exempted from the monitoring provisions under this Part of this Annex in such cases where the total weight present in those formulations and the relative ease of recovery of the scheduled chemical from the formulation are deemed to pose a risk to the purposes of this Convention. Appropriate percentages, weights of scheduled chemicals and ease of their recovery shall be developed by the Preparatory Commission.

13. The draft programme and budget of the Organization to be submitted by the Executive Council pursuant to Article VIII, paragraph 27 (a), shall contain, as a separate item, an indicative draft programme and budget for verification under this Part VIII of this Annex.

14. The random selection of plant sites for surveillance of data and random selective visits shall be conducted by the Technical Secretariat through appropriate mechanisms, including the use of specially designed computer software, and taking into account the geographical spread of inspections.

15. Under this Part of this Annex, the maximum number of inspections to be received by a State Party shall not exceed three plus 5 per cent of the number of specific declarations by it under this Part of this Annex.

16. No facility site shall receive more than two inspections per year under the provisions of this Part of this Annex. This, however, will not limit inspections pursuant to Article IX.

Inspection aims

17. At facilities declared under this Part of this Annex, the general aim of inspections shall be to verify that activities are in accordance with obligations under the Convention and consistent with the information provided in declarations.

Inspection procedures (type 2)

18. Inspection procedures shall be carried out in accordance with the Confidentiality Annex.

19. There will be no facility agreement, unless requested by the inspected State Party.

20. At the beginning of the inspection of the facility, the inspected State Party shall indicate the precise location of all Schedule 2, Schedule 3 and other relevant plants within the plant site.

21. The inspection team shall have the right to request access to related common infrastructure, including relevant feedstock and product storage areas and vessels, process control and analytical laboratory, medical centre and central effluent and waste treatment areas, and means of disposal. The inspection team may also request access to other plants within the plant site. Access to these areas will be granted under the rules of managed access (Part IX, Section C of this Annex).

22. Sampling and on-site analysis may be undertaken, where appropriate, to check for the absence of undeclared scheduled chemicals.

23. The inspection team may be provided access to company records, in situations in which the inspection team and the inspected State Party agree that such access will assist in achieving the objectives of the inspection.

24. Details of inspection procedures shall be developed and elaborated by the Preparatory Commission and subsequently endorsed by the Conference.

C. NOTIFICATION OF INSPECTION

25. A State Party shall be notified by the Director-General of the decision to inspect a facility at least 5 days prior to the arrival of the inspection team at the site.

PART IX:

CHALLENGE INSPECTIONS PURSUANT TO ARTICLE IX

A. DESIGNATION AND SELECTION OF INSPECTORS AND INSPECTION ASSISTANTS

1. Inspections under Article IX shall only be performed by Inspectors and inspection assistants especially designated for this function. In order to designate Inspectors and inspection assistants for inspections under Article IX, the Director-General shall, by selecting inspectors and inspection assistants from among the full-time inspectors and inspection assistants for routine inspection activities, establish a list of proposed inspectors and inspection assistants. It shall comprise a sufficiently large number of inspectors and inspection assistants having the necessary qualification, experience, skill and training, to allow for flexibility in the selection of the inspectors, taking into account their availability, the need for rotation and, as far as possible, wide geographical representation. The designation of inspectors and inspection assistants shall follow the procedures provided for under Part II, Section A of this Annex.

2. The Director-General shall determine the size of the inspection team and select its members taking into account the circumstances of a particular request. No national of the requesting State Party, or the inspected State Party shall be a member of the inspection team.

B. PRE-INSPECTION ACTIVITIES

Notification

3. The request for a challenge inspection to be submitted to the Director-General shall contain at least the following information:

(a) the State Party to be inspected and, if applicable, the host State;

(b) the point of entry to be used;

(c) the size and type of the inspection site;

(d) the concerns regarding compliance with the Convention including a specification of the relevant provisions of the Convention about which concerns have arisen and of the nature and circumstances of the suspected non-compliance as well as any further relevant information on the specific concerns regarding compliance;

(e) the name of the observer of the requesting State Party.

The requesting State Party may submit any additional information it deems necessary.

4. The requesting State Party shall notify the Director-General of the location of the inspection site in due time for the Director General to be able to provide this information to the inspected State Party not less than 12 hours prior to the planned arrival of the inspection team at the point of entry.

5. The inspection site shall be designated by the requesting State Party as specifically as possible by providing a site diagram related to a reference point with geographic coordinates specified to the nearest second if possible. If possible, the requesting State Party shall also provide a map with a general indication of the inspection site and a diagram specifying as precisely as possible the perimeter of the site to be inspected.

6. The requested perimeter shall:

(a) Run at least a 10 metre distance outside any buildings or other structures;

(b) Not cut through existing security enclosures;

(c) Run at least a 10 metre distance outside any existing security enclosures that the requesting State Party intends to include within the requested perimeter;

7. If the requested perimeter does not conform with the specifications of paragraph 6 above, it shall be redrawn by the inspection team so as to conform with this provision.

8. The Director-General shall within one hour acknowledge to the requesting State Party receipt of its request.

9. The Director-General shall inform the Executive Council about the request as submitted, and the location of the inspection site as specified in paragraph 5 above, not less than 12 hours prior to the planned arrival of the inspection team at the point of entry. Contemporaneously, the inspected State Party shall receive the same information.

10. The Director General shall also notify the inspected State Party as soon as possible of the size of the inspection team as well as of relevant information regarding aircraft and other travel arrangements, if applicable.

11. Upon arrival of the inspection team at the point of entry, the inspected State Party shall be informed by the inspection team of the inspection mandate.

Entry into the territory of the inspected State Party or Host State

12. In accordance with Article IX, paragraph 12, the Director-General shall dispatch an inspection team as soon as possible after a request is received by the Technical Secretariat. The inspection team shall arrive at the point of entry specified in the request in the minimum time possible, consistent with the provisions of paragraphs 9 and 10 above.

13. If the requested perimeter is acceptable to the inspected State Party, it shall be designated as the final perimeter as early as possible but in no case later than 24 hours after the arrival of the inspection team at the point of entry. The inspected State Party shall transport the inspection team to the final perimeter of the inspection site. Such transportation shall be accomplished as soon as practicable, and shall take in any case no more than 12 hours after agreement on the perimeter.

14. For all declared facilities (Articles III, IV, V, and VI), the following procedures would apply:

(a) If the requested perimeter is contained within or conforms with the declared perimeter, the declared perimeter shall be considered the final perimeter, with one exception: if agreed by the inspected State Party, the final perimeter may be made smaller to conform with that requested by the requesting State Party.

(b) The inspected State Party shall transport the inspection team to the final perimeter as soon as practicable, but in any case shall ensure their arrival at the perimeter not later than 12 hours after the arrival of the inspection team at the point of entry.

Alternative determination of final perimeter

15. At the point of entry, if the inspected State Party cannot accept the requested perimeter, it shall propose an alternative perimeter as soon as possible, but in any case not later than 24 hours after the arrival of the inspection team at the point of entry. Differences shall be negotiated between the inspected State Party and the inspection team with the aim of reaching agreement on a final perimeter.

16. The alternative perimeter should be designated as specifically as possible in accordance with paragraph 6 above. It shall include the whole of the requested perimeter and should as a rule bear a close relationship to the latter, taking into account natural terrain features and man-made boundaries. It should normally run close to the surrounding security barrier if such a barrier exists. The inspected State Party should seek to establish such a relationship between the perimeters by a combination of at least two of the following means:

(a) An alternative perimeter that does not extend to an area significantly greater than that of the requested perimeter;

(b) An alternative perimeter that is a short, uniform distance from the requested perimeter;

(c) At least part of the requested perimeter is visible from the alternative perimeter.

17. If the alternative perimeter is acceptable to the inspection team, it shall become the final perimeter and the inspection team shall be transported from the point of entry to that perimeter as soon as possible, but in any case no longer than 12 hours after acceptance.

18. If a final perimeter is not readily agreed, the perimeter negotiations at the point of entry shall be concluded as early as possible, but in no case shall they continue more than 24 hours after the arrival of the inspection team at the point of entry. If no agreement is reached at the point of entry, the inspected State Party shall transport the inspection team to a location at the alternative perimeter as soon as practicable, but in any case shall ensure their arrival at the location no later than 12 hours after the expiration of the time period for the perimeter negotiations at the point of entry.

19. Once at the location, the inspected State Party shall provide the inspection team with prompt access to the alternative perimeter to facilitate negotiations and agreement on the final perimeter and access within the final perimeter.

20. If no agreement is reached within 72 hours after the arrival of the inspection team at the location, the alternative perimeter shall be designated the final perimeter.

Verification of location

21. To help establish that the site to which the inspection team has been transported corresponds to the site specified by the requesting State Party, the inspection team shall have the right to use location-finding equipment and have such equipment and other approved equipment installed according to its directions. The inspection team may verify their location by reference to local landmarks identified from maps. The inspected State Party shall assist them in this task.

Securing the site, exit monitoring

22. No later than 12 hours after the arrival of the inspection team at the point of entry, the inspected State Party shall identify all exit points for all land, air, and water vehicles from the requested perimeter. In this regard, it shall begin collecting factual information of all vehicular exit activity from the requested perimeter. It shall provide this information to the inspection team upon its arrival at the alternative or final perimeter, whichever occurs first.

23. This obligation may be met by collecting factual information in the form of traffic logs, photographs, video recordings, or data from chemical evidence equipment provided by the inspection

team to monitor such exit activity. Alternatively, the inspected State Party may also meet this obligation by allowing one or more members of the inspection team independently to maintain traffic logs, take photographs, make video recordings of exit traffic, or use chemical evidence equipment, and conduct other activities as may be agreed between the inspected State Party and the inspection team.

24. Upon the inspection team's arrival at the alternative perimeter or final perimeter, whichever occurs first, securing the site, which means exit monitoring procedures by the inspection team, shall begin.

25. Such procedures shall include: the identification of vehicular exits; the making of traffic logs, the taking of photographs, and the making of video recordings by the inspection team. The inspection team has the right to go, under escort, to any other part of the perimeter to check there is no other exit activity.

26. Additional procedures for exit monitoring activities as agreed upon by the inspection team and the inspected State Party could include, inter alia:

- (a) Use of sensors;
- (b) Random selective access;
- (c) Sample analysis.

27. All activities for securing the site and exit monitoring shall take place within a band around the outside of the perimeter, not to exceed 50 meters in width, measured outward.

28. The inspection team has the right to inspect on a managed access basis vehicular traffic exiting the site. The inspected State Party shall make every reasonable effort to demonstrate to the inspection team that any vehicle subject to inspection to which the inspection team is not granted full access is not being used for purposes related to the compliance concerns raised in the inspection request.

29. Personnel and vehicles entering and personnel and personal passenger vehicles exiting the site are not subject to inspection.

30. The application of the above procedures may continue for the duration of the inspection, but may not unreasonably hamper or delay the normal operation of the facility.

Pre-inspection briefing and inspection plan

31. To facilitate development of an inspection plan, the inspected State Party shall provide a safety and logistical briefing to the inspection team prior to access.

32. The pre-inspection briefing shall be held in accordance with Part II, paragraph 36. In the course of the pre-inspection briefing, the inspected State Party may indicate to the inspection team the equipment, documentation or areas it considers sensitive

and not related to the purpose of the inspection. Additionally, personnel responsible for the site will brief the team on the physical layout and other relevant characteristics of the site; the team shall be provided with a map or sketch drawn to scale showing all the structures and significant geographic features at the site. The team shall also be briefed on availability of facility personnel and records.

33. After the pre-inspection briefing the inspection team shall prepare, on the basis of the information available and appropriate to it, an initial inspection plan which specifies the activities to be carried out by the inspection team, including the specific areas of the site to which access is desired. The plan shall also specify whether the inspection team will be divided into subgroups. The plan shall be made available to the representatives of the inspected State Party and the inspection site. Its implementation shall be consistent with the provisions of Section C below, including those related to access and activities.

Perimeter activities

34. Upon the inspection team's arrival at the final or alternative perimeter, whichever occurs first, the team shall have the right to commence immediately perimeter activities in accordance with the procedures set forth in this section, and to continue these activities until the completion of the inspection.

35. In conducting the perimeter activities, the inspection team shall have the right to:

(a) use monitoring instruments (consistent with Part II, paragraphs 26 to 29);

(b) take wipes, air, soil or effluent samples, and

(c) conduct any additional activities which may be agreed between the inspection team and the inspected State Party.

36. The perimeter activities of the inspection team may be conducted within a band around the outside of the perimeter up to 50 metres in width measured outward from the perimeter. If the inspected State Party permits, the inspection team may also have access to any building or structure within the perimeter band. All directional monitoring shall be oriented inward. For facilities declared under Articles III, IV, V and VI, at the discretion of the inspected State Party, the band could run inside, outside, or on both sides of the declared perimeter.

General rules

37. The inspected State Party shall be under the obligation to provide access within the requested perimeter as well as, if different, the final perimeter. The extent and nature of access to a particular place or places within these perimeters shall be negotiated between the inspection team and the inspected State Party on a managed access basis.
38. The inspected State Party shall provide access within the requested perimeter as soon as possible, but in any case no later than 108 hours after the arrival of the inspection team at the point of entry in order to clarify the concerns regarding compliance with the Convention raised in the inspection request.
39. In meeting the requirement to provide access as specified in paragraph 37, the inspected State Party shall be under the obligation to allow the greatest degree of access taking into account any constitutional obligations it may have with regard to proprietary rights or searches and seizures. The inspected State Party has the right under managed access to take such measures as are necessary to protect national security. The provisions in this paragraph may not be invoked by the inspected State Party to conceal evasion of its obligations not to engage in activities prohibited by the Convention.
40. In the event that the inspected State Party provides less than full access to places, activities, or information, it shall be under the obligation to make every reasonable effort to provide alternative means to satisfy the compliance concerns that generated the challenge inspection.
41. Upon arrival at the final perimeter of facilities declared under Articles IV, V and VI, access shall be granted following the pre-inspection briefing and discussion of the inspection plan which shall be limited to the minimum necessary and in any event shall not exceed three hours. For facilities declared under Article III, paragraph 3 negotiations will be conducted and managed access commenced within 12 hours of arrival at the final perimeter.
42. In carrying out the inspection in accordance with the request, the inspection team shall use only those methods necessary to provide sufficient relevant facts to clarify doubts about compliance with the provisions of the Convention, and shall refrain from activities not relevant thereto. It shall collect and document such evidence as is related to the compliance with the Convention by the inspected State Party but shall neither seek nor document information which is clearly not related thereto, unless the inspected State Party expressly requests it to do so. Any material collected and subsequently found not to be relevant shall not be retained.
43. The inspection team shall be guided by the principle of conducting the inspection in the least intrusive manner possible, consistent with the effective and timely accomplishment of its

mission. Wherever possible, it shall begin with the least intrusive procedures it deems acceptable and proceed to more intrusive procedures only as it deems necessary.

Managed access

44. The inspection team shall take into consideration suggested modifications of the inspection plan and proposals which may be made by the inspected State Party, at whatever stage of the inspection including the pre-inspection briefing, to ensure that sensitive equipment, information or areas, not related to chemical weapons, are protected.

45. The inspected State Party shall designate the perimeter entry/exit points to be used for access. The inspection team and the inspected State Party shall negotiate: the extent of access to any particular place or places within the final and requested perimeters as provided in paragraph 46 below; the particular inspection activities (including sampling) to be conducted by the inspection team; the performance of particular activities by the inspected State Party; and the provision of particular information by the inspected State Party.

46. In conformity with the relevant provisions in the Confidentiality Annex the inspected State Party shall have the right to take measures to protect sensitive installations and prevent disclosure of confidential data not related to chemical weapons. Such measures may include, inter alia:

- (a) removal of sensitive papers from office spaces;
- (b) shrouding of sensitive displays, stores, and equipment;
- (c) shrouding of sensitive pieces of equipment, such as computer or electronic systems;
- (d) logging off of computer systems and turning off of data indicating devices;
- (e) restriction of sample analysis to presence or absence of chemicals on Schedules 1, 2 and 3 or appropriate degradation products;
- (f) using random selective access techniques whereby the inspectors are requested to select a given percentage or number of buildings of their choice to inspect; the same principle can apply to the interior and content of sensitive buildings;
- (g) in exceptional cases, giving only individual inspectors access to certain parts of the inspection site.

47. The inspected State Party shall make every reasonable effort to demonstrate to the inspection team that any object, building, structure, container or vehicle to which the inspection team has not had full access, or which has been protected in accordance with paragraph 46 above, is not used for purposes related to the compliance concerns raised in the inspection request.

48. This may be accomplished by means of, inter alia, the partial removal of a shroud or environmental protection cover, at the discretion of the inspected State Party, by means of a visual inspection of the interior of an enclosed space from its entrance, or by other methods.

49. For facilities declared under Articles IV, V, and VI, the following shall apply:

(a) For facilities with facility agreements, access and activities within the final perimeter shall be unimpeded within the boundaries established by the agreements.

(b) For facilities without facility agreements, negotiation of access and activities shall be governed by the applicable general inspection guidelines established under the Convention.

(c) Access greater than that granted for inspections under Articles IV, V and VI shall be managed in accordance with procedures of this section.

50. For facilities declared under Article III, paragraph 3, the following shall apply: If the inspected State Party, using procedures of paragraphs 45 and 46 in this section, has not granted full access to areas or structures not related to chemical weapons, it shall make every reasonable effort to demonstrate to the inspection team that such areas or structures are not used for purposes related to the compliance concerns raised in the inspection request.

Observer

51. In accordance with the provisions of Article IX, paragraph 11 on the participation of an observer in the inspection, the requesting State Party shall liaise with the Technical Secretariat to coordinate the arrival of its observer at the same point of entry as the inspection team within a reasonable period of the inspection team's arrival.

52. The observer shall have the right throughout the period of inspection to be in communication with the embassy of the requesting State Party located in the host State or, in the case of absence of an embassy, with the requesting State Party itself. The inspected State Party shall provide means of communication to the observer.

53. The observer shall have the right to arrive at the inspection site (the alternative or final perimeter, wherever the inspection team arrives first) and to have access to the inspection site as granted by the inspected State Party. The observer shall have the right to make recommendations to the inspection team, which the team shall take into account to the extent it deems appropriate. Throughout the inspection, the inspection team shall keep the observer informed about the conduct of the inspection and the findings.

54. Throughout the in-country period, the inspected State Party shall provide or arrange for the amenities necessary for the observer such as communication means, interpretation services, transportation, working space, lodging, meals and medical care. All the costs in connection with the stay of the observer on the territory of the inspected State Party or the host State shall be borne by the requesting State Party.

Duration of inspection

55. The period of inspection shall not exceed 84 hours, unless extended by agreement with the inspected State Party.

D. POST-INSPECTION ACTIVITIES

Departure

56. Upon completion of the post-inspection procedures at the inspection site, the inspection team and the observer of the requesting State Party shall proceed promptly to a point of entry and shall then leave the territory of the inspected State Party in the minimum time possible.

Reports

57. The inspection report shall summarize in a general way the activities conducted by the inspection team and the factual findings of the inspection team, particularly with regard to the concerns regarding compliance with the Convention cited in the request for the challenge inspection and shall be limited to information directly related to the Chemical Weapons Convention. It shall also include an assessment by the inspection team of the degree and nature of access and cooperation granted to the inspectors and the extent to which this enabled them to fulfil their mandate. Detailed information relating to the concerns regarding compliance with the Convention cited in the request for the challenge inspection shall be submitted as an Appendix to the final report and be retained within the Technical Secretariat under appropriate safeguards to protect sensitive information.

58. The Inspectors shall within 72 hours of their return to their primary work location submit a preliminary inspection report to the Director-General. The Director-General shall promptly transmit the preliminary report to the requesting State Party, the inspected State Party and to the Executive Council. A draft final report shall be made available to the inspected State Party within 20 days of the completion of the inspection for identification of any non-CW-related information it considers should due to its confidentiality not be circulated outside the Technical Secretariat. The Technical Secretariat shall consider proposals for changes to their draft final report made by the inspected State Party and, using its own discretion, wherever possible, adopt them. The final report shall then be submitted within 30 days of the completion of the inspection to the Director-General for further distribution and consideration in accordance with Article IX paragraphs 16 and 17.

PART X:

INVESTIGATIONS IN CASES OF ALLEGED USE OF CHEMICAL WEAPONS

A. GENERAL

1. Investigations of alleged use of chemical weapons, initiated pursuant to Articles IX or X of this Convention, shall be conducted in accordance with this Verification Annex and detailed procedures to be established by the Director-General.
2. The following additional provisions address specific procedures required in cases of alleged use of chemical weapons.

B. PRE-INSPECTION ACTIVITIES

Request for an investigation

3. The request for an investigation of an alleged use of chemical weapons to be submitted to the Director-General, to the extent possible, should include the following information:

(a) The State Party on whose territory use of chemical weapons is alleged to have taken place;

(b) The point of entry or other suggested safe routes of access;

(c) Location and characteristics of the area(s) where chemical weapons are alleged to have been used;

(d) When chemical weapons are alleged to have been used;

(e) Types of chemical weapons believed to have been used;

(f) Extent of alleged use;

(g) Characteristics of the possible toxic chemicals;

(h) Effects on humans, animals and vegetation;

(i) Request for specific assistance, if applicable.

4. The requesting State Party may submit at any time any additional information it deems necessary.

Notification

5. The Director-General shall immediately acknowledge receipt to the requesting State Party of its request and inform the Executive Council and all States Parties.

6. If applicable, the Director-General shall notify the State Party on whose territory an investigation has been requested. The Director-General shall also notify other States Parties if access to their territories might be required during the investigation.

Assignment of inspection team

7. The Director-General shall prepare a list of qualified experts whose particular field of expertise could be required in an investigation of alleged use of chemical weapons and constantly keep this list updated. This list shall be communicated, in writing, to all States Parties not later than 30 days after entry into force of the Convention and after each change to the list. Any qualified expert included in this list shall be regarded as designated unless a State Party, not later than 30 days after its receipt of the list, declares its non-acceptance.

8. The Director-General shall select the leader and members of an inspection team from the inspectors already designated for challenge inspections taking into account the circumstances and specific nature of a particular request. In addition, inspection team members may be selected from the list of qualified experts when, in the view of the Director-General, expertise not available among inspectors already designated is required for the proper conduct of a particular investigation.

9. When briefing the inspection team the Director-General shall include any additional information provided by the requesting State Party, or any other sources, to ensure that the inspection can be carried out in the most effective and expedient manner.

Dispatch of inspection team

10. Immediately upon the receipt of a request for an investigation of alleged use of chemical weapons the Director-General shall, through contacts with the relevant States Parties, request and confirm arrangements for the safe reception of the team.

11. The Director-General shall dispatch the team at the earliest opportunity, taking into account the safety of the team.

12. If the team has not been dispatched within 24 hours from the receipt of the request, the Director-General shall inform the Executive Council and the States Parties concerned about the reasons for the delay.

Briefings

13. The inspection team shall have the right to be briefed by representatives of the inspected State Party upon arrival and at any time during the inspection.

14. Before the commencement of the inspection the inspection team shall prepare an inspection plan to serve, inter alia, as a basis for logistic and safety arrangements. The inspection plan shall be updated as the need arises.

C. CONDUCT OF INSPECTIONS

Access

15. The inspection team shall have the right of access to any and all areas which could be affected by the alleged use of chemical weapons. It shall also have the right of access to hospitals, refugee camps and other locations it deems relevant to the effective investigation of the alleged use of chemical weapons. For such access, the inspection team shall consult with the inspected State Party.

Sampling

16. The inspection team shall have the right to collect samples, of types and in quantities it considers necessary. If the inspection team deems it necessary, and if so requested by it, the inspected State Party shall assist in the collection of samples under the supervision of inspector(s) or inspection assistant(s). The inspected State Party shall also permit and cooperate in the collection of appropriate control samples from areas neighbouring the site of the alleged use and from other areas as requested by the inspection team.

17. Samples of importance in the investigation of alleged use include toxic chemicals, munitions and devices, remnants of munitions and devices, environmental samples (air, soil, vegetation, water, snow, etc.) and biomedical samples from human or animal sources (blood, urine, excreta, tissue etc.).

18. When duplicate samples cannot be taken and the analysis is performed at off-site laboratories, any remaining sample shall, if so requested, be returned to the inspected State Party after the completion of the analysis.

Extension of the inspection site

19. When the inspection team during an inspection deems it necessary to extend the investigation into a neighbouring State Party the Director-General shall notify that State Party about the need for access to its territory and request and confirm arrangements for the safe reception of the team.

Extension of inspection duration

20. If the inspection team deems that safe access to a specific area relevant to the investigation is not possible, the requesting State Party shall be informed immediately. If necessary, the period of inspection shall be extended until safe access can be provided and the inspection team will have concluded its mission.

Interviews

21. The inspection team shall have the right to interview and examine persons who may have been affected by the alleged use of chemical weapons. It shall also have the right to interview eyewitnesses of the alleged use of chemical weapons and medical personnel and/or other persons who have treated or have come into contact with persons who may have been affected by the alleged use

of chemical weapons. The inspection team shall have access to medical histories, if available, and be permitted to participate in autopsies as appropriate of the persons who may have been affected by the alleged use of chemical weapons.

D. REPORTS

Procedures

22. The inspection team shall not later than 24 hours after its arrival in the territory of the inspected State Party send a situation report to the Director-General. It shall further throughout the investigation send progress reports as necessary.

23. The inspectors shall not later than 72 hours after their return to their primary work location submit an interim report to the Director-General of the Technical Secretariat. The Director-General shall promptly transmit the report to the Executive Council and all States Parties. The final report shall be submitted to the Director-General of the Technical Secretariat within 30 days of their return to their primary work location.

Contents

24. The situation report shall indicate any urgent need for assistance and any other relevant information. The progress reports shall indicate any further need for assistance that might be identified during the course of the investigation.

25. The final report shall summarize the factual findings of the inspection, particularly with regard to the alleged use cited in the request. In addition a report of an investigation of an alleged use shall include a description of the investigation process, tracing its various stages, with special reference to

(a) the locations and time of sampling and in situ analyses; and

(b) supporting evidence, such as the records of interviews, the results of medical examinations and scientific analyses, and the documents examined by the inspection team.

26. If the inspection team collects through, inter alia, identification of any impurities or other substances during laboratory analysis of samples taken, any information in the course of its investigation that might serve to identify the origin of any chemical weapons used, that information shall be included in the report.

E. STATES NOT PARTY

27. In the case of alleged use of chemical weapons involving a State not Party to this Convention or in territory not controlled by a State Party, the Organization shall closely cooperate with the Secretary-General of the United Nations. If so requested, the Organization shall put its resources at the disposal of the Secretary-General of the United Nations.

ANNEX ON THE PROTECTION OF CONFIDENTIAL INFORMATION
("CONFIDENTIALITY ANNEX")

Contents

	<u>Page</u>
A. General principles for the handling of confidential information.....	142
B. Employment and conduct of personnel in the Technical Secretariat.....	144
C. Measures to protect sensitive installations and prevent disclosure of confidential data in the course of on-site verification activities.....	145
D. Procedures in case of breaches or alleged breaches of confidentiality.....	145

A. GENERAL PRINCIPLES FOR THE HANDLING OF CONFIDENTIAL INFORMATION

1. The obligation to protect confidential information shall pertain to the verification of both civil and military activities and facilities. Pursuant to the general obligation set out in Article VIII, the Organization shall:

(a) Require only the minimum amount of information and data necessary for the timely and efficient carrying out of its responsibilities under this Convention;

(b) Take measures necessary to ensure that inspectors and other staff members of the Technical Secretariat meet the highest standards of efficiency, competence, and integrity;

(c) Develop agreements and regulations to implement the provisions of this Convention and shall specify as precisely as possible the information to which the Organization shall be given access by a State Party.

2. The Director-General shall have the primary responsibility for ensuring the protection of confidential information. The Director-General shall establish a stringent regime governing the handling of confidential information by the Technical Secretariat, and in doing so, shall observe the following guidelines:

(a) Information shall be considered confidential if:

(i) It is so designated by the State Party from which the information was obtained and to which the information refers; or

(ii) In the judgement of the Director-General, its unauthorised disclosure could reasonably be expected to cause damage to the State Party to which it refers or to the mechanisms for implementation of this Convention;

(b) All data and documents obtained by the Technical Secretariat shall be evaluated by the appropriate unit of the Technical Secretariat in order to establish whether they contain confidential information. Data required by States Parties to be assured of the continued compliance with this Convention by other States Parties shall be routinely provided to them. Such data shall encompass:

(i) The initial and annual reports and declarations provided by States Parties under Articles III, IV, V and VI;

(ii) General reports on the results and effectiveness of verification activities; and

(iii) Information to be supplied to all States Parties in accordance with the provisions of this Convention;

- (c) No information obtained by the Organization in connection with implementation of this Convention shall be published or otherwise released, except, as follows:
- (i) General information on the implementation of this Convention may be compiled and released publicly in accordance with the decisions of the Conference or the Executive Council;
 - (ii) Any information may be released with the express consent of the State Party to which the information refers;
 - (iii) Information classified as confidential shall be released by the Organization only through agreed procedures which ensure that the release of information only occurs in strict conformity with the needs of this Convention;
- (d) The level of sensitivity of confidential data or documents shall be established, based on criteria to be applied uniformly in order to ensure their appropriate handling and protection. For this purpose, a classification system shall be introduced, which by taking account of relevant work undertaken in the preparation of this Convention shall provide for clear criteria ensuring the inclusion of information into appropriate categories of confidentiality and the justified durability of the confidential nature of information. While providing for the necessary flexibility in its implementation the classification system shall protect the rights of States Parties providing confidential information. A draft classification system shall be developed by the Preparatory Commission;
- (e) Confidential information shall be stored securely at the premises of the Organization. Some data or documents may also be stored with the National Authority of a State Party. Sensitive information, including inter alia, photographs, plans and other documents required only for the inspection of a specific facility may be kept under lock and key at this facility.
- (f) To the greatest extent consistent with the effective implementation of the verification provisions of this Convention, information shall be handled and stored by the Technical Secretariat in a form that precludes direct identification of the facility to which it pertains;
- (g) The amount of confidential information removed from a facility shall be kept to the minimum necessary for the timely and effective implementation of the verification provisions of this Convention;
- (h) Access to confidential information shall be regulated in accordance with its classification. The dissemination of confidential information within the Organization shall be on a strictly need-to-know basis;
3. The Director-General shall report annually to the Conference on the implementation of the regime governing the handling of confidential information by the Technical Secretariat.

4. Each State Party shall treat information which it receives from the Organization in accordance with the level of confidentiality established for that information. Upon request, a State Party shall provide details on the handling of information provided to them by the Organization.

B. EMPLOYMENT AND CONDUCT OF PERSONNEL IN THE TECHNICAL SECRETARIAT

5. Conditions of staff employment shall be such as to ensure that access to and handling of confidential information shall be in conformity with the procedures established by the Director-General in accordance with part A of this Annex.

6. Each position in the Technical Secretariat shall be governed by a formal position description that specifies the scope of access to confidential information, if any, needed in that position.

7. The Director-General, the inspectors and other members of the staff shall not disclose even after termination of their functions to any unauthorised persons any confidential information coming to their knowledge in the performance of their official duties. They shall not communicate to any State, organisation or person outside the Technical Secretariat any information to which they have access in connection with their activities in relation to any State Party.

8. In the discharge of their function inspectors shall only request the information and data which are necessary to fulfil their mandate. They shall not make any records of information collected incidentally and not related to verification of compliance with this Convention.

9. The staff shall enter into individual secrecy agreements with the Technical Secretariat covering their period of employment and a period of five years after it is terminated.

10. In order to avoid improper disclosures, inspectors and staff members shall be appropriately advised and reminded about security considerations and of the possible penalties that they would incur in the event of improper disclosure.

11. Not less than 30 days before an employee is given clearance for access to confidential information that refers to activities in the territory or in any other place under the jurisdiction or control of a State Party, the State Party concerned shall be notified of the proposed clearance. For inspectors the notification of a proposed designation shall fulfil this requirement.

12. In evaluating the performance of inspectors and any other employees of the Technical Secretariat, specific attention shall be given to the employee's record regarding protection of confidential information.

C. MEASURES TO PROTECT SENSITIVE INSTALLATIONS AND PREVENT DISCLOSURE OF CONFIDENTIAL DATA IN THE COURSE OF ON-SITE VERIFICATION ACTIVITIES

13. States Parties may take such measures as they deem necessary to protect confidentiality, provided that they fulfil their obligations to demonstrate compliance in accordance with the relevant Articles and the Verification Annex. When receiving an inspection the State Party may indicate to the inspection team the equipment, documentation or areas that it considers sensitive and not related to the purpose of the inspection.

14. Inspection teams shall be guided by the principle of conducting on-site inspections in the least intrusive manner possible consistent with the effective and timely accomplishment of their mission. They shall take into consideration proposals which may be made by the State Party receiving the inspection, at whatever stage of the inspection, to ensure that sensitive equipment or information, not related to chemical weapons, is protected.

15. Inspection teams shall strictly abide by the provisions set out in the relevant Articles and Annexes of this Convention governing the conduct of inspections. They shall fully respect the procedures designed to protect sensitive installations and to prevent the disclosure of confidential data.

16. In the elaboration of subsidiary arrangements/facility attachments due regard shall be paid to the requirement of protecting confidential information. Agreements on inspection procedures for individual facilities shall also include specific and detailed arrangements with regard to the determination of those areas of the facility to which inspectors are granted access, the storage of confidential information on-site, the scope of the inspection effort in agreed areas, the taking of samples and their analysis, the access to records and the use of instruments and continuous monitoring equipment.

17. The report to be prepared after each inspection shall only contain facts relevant to compliance with this Convention. The report shall be handled in accordance with the regulations established by the Organization governing the handling of confidential information. If necessary, the information contained in the report shall be processed into less sensitive forms before it is transmitted outside the Technical Secretariat and the inspected State Party.

D. PROCEDURES IN CASE OF BREACHES OR ALLEGED BREACHES OF CONFIDENTIALITY

18. The Director-General shall establish necessary procedures to be followed in case of breaches or alleged breaches of confidentiality, taking into account recommendations made by the Preparatory Commission.

19. The Director-General shall oversee the implementation of individual secrecy agreements. The Director General shall promptly initiate an investigation if, in his judgement, there is sufficient indication that obligations concerning the protection of confidential information have been violated. The Director-General shall also promptly initiate an investigation if an allegation concerning a breach of confidentiality is made by a State Party.

20. The Director-General shall impose appropriate punitive and disciplinary measures on staff members who have violated their obligations to protect confidential information. In case of serious breaches the immunity from jurisdiction may be waived by the Director-General.

21. States Parties shall, to the extent possible, cooperate and support the Director-General in investigating any breach or alleged breach of confidentiality and in taking appropriate action in case a breach has been established.

22. The Organization shall not be held liable for any breach of confidentiality committed by members of the Technical Secretariat.

23. For breaches involving both a State Party and the Organization a "Commission for the settlement of disputes related to confidentiality", set up as a subsidiary ad hoc body of the Conference of the States Parties, shall consider the case. This Commission shall be appointed by the Conference. Rules governing its composition and operating procedures shall be adopted by the Conference at its first session.

TEXT ON THE ESTABLISHMENT OF A PREPARATORY COMMISSION 1/

1. For the purpose of carrying out the necessary preparations for the effective operation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, and for preparing for the first session of the Conference of the States Parties of this Convention, the Preparatory Commission for the Organisation on the Prohibition of Chemical Weapons (hereinafter referred to as "the Commission") shall be established.
2. The Depositary of the Convention shall convene the Commission not later than 30 days after the Convention has been signed by 50 States. The Commission shall be convened at the venue of the Organisation.
3. The Commission shall be composed of all States which sign the Convention before its entry into force. Each signatory State shall have one representative in the Commission, who may be accompanied by alternates and advisers.
4. The expenses of the Commission including of the provisional Technical Secretariat, 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 and timing of signature. The Commission and the provisional Technical Secretariat may also benefit from voluntary contributions.
5. All decisions of the Commission should be taken by consensus. If notwithstanding the efforts of representatives to achieve consensus, an issue comes up for voting, the Chairman of the Commission shall defer the vote for 24 hours and during this period of deferment shall make every effort to facilitate achievement of consensus, and shall report to the Commission prior to the end of the period. If consensus is not possible at the end of 24 hours, the Commission shall take decisions on questions of procedure by a simple majority of the members present and voting. Decisions on matters of substance shall be taken by two-thirds majority of the members present and voting. When the issue arises as to whether the question is one of substance or not, that question shall be treated as a matter of substance unless otherwise decided by the Commission by the majority required for decisions on matters of substance.

1/ The 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 it or in a resolution annexed to the Final Act adopting the Convention at a Signatory Conference. In the latter case the first sentence of paragraph 1 should read: "There is hereby established the Preparatory Commission for the Organisation on the Prohibition of Chemical Weapons for the purpose of....."

6. The Commission shall have such legal capacity as necessary for the exercise of its functions and the fulfillment of its purposes.

7. The Commission shall:

(a) Elect its Chairman and other officers, adopt its rules of procedures, determine its place of meeting, meet as often as necessary and establish such committees as it deems useful;

(b) Appoint its Executive Secretary;

(c) Establish a provisional Technical Secretariat to assist the Commission in its activity and to exercise such functions as the Commission may determine, and appoint the necessary staff in charge of preparatory work concerning the main activities to be carried out by the Technical Secretariat to be established by the Convention. Only nationals of signatory States can be appointed to the provisional Technical Secretariat.

8. The Commission shall make arrangements for the first session of the Conference of the States Parties, including the preparation of a draft agenda and draft rules of procedure.

9. The Commission shall undertake, inter alia, the following tasks concerning the organisation and work of the Technical Secretariat and requiring immediate attention after the entry into force of the Convention:

(a) Elaboration of detailed staffing pattern of the Technical Secretariat, including decision-making flow charts;

(b) Assessments of personnel requirements;

(c) Staff rules for recruitment and service conditions;

(d) Recruitment and training of technical personnel and support staff;

(e) Organization of office and administrative services;

(f) Establishment of administrative and financial regulations;

(g) Purchase of equipment.

10. The Commission shall undertake, inter alia, the following tasks on matters of the Organisation requiring immediate attention after the entry into force of the Convention:

(a) Preparation of programme of work and budget of the first year of activities of the Organisation;

(b) Preparation of detailed budgetary provisions for the future Organisation taking into account that the budget shall contain separate chapters relating to administrative and verification costs;

(c) Preparation of the scale of financial contributions to the Organisation.

11. The Commission shall elaborate draft provisions and guidelines wherever this task is attributed to it by specific provisions of the Convention including, inter alia:

(a) Guidelines on detailed procedures for verification and for the conduct of inspections;

(b) Models for facility agreements;

(c) Guidelines for provisions regarding Scheduled chemicals in low concentrations, including in formulations;

(d) The lists of approved equipment for inspection, and for continuous monitoring;

(e) The system of classification of confidential information and the procedures to be followed in cases of breaches or alleged breaches of confidentiality.

12. The Commission shall:

(a) Facilitate the exchange of information between signatory States concerning legal and administrative measures for the implementation of the Convention and, if requested, give advice to signatory States on these matters;

(b) Prepare such studies, reports and records as it deems necessary.

13. The Commission shall prepare a final report on all matters within its mandate for the first session of the Conference and the first meeting of the Executive Council.

14. The property, functions and recommendations of the Commission shall be transferred to the Organisation at the first session of the Conference. The Commission shall make recommendations to the Conference on this matter.

15. The Commission shall remain in existence until the conclusion of the first session of the Conference.

MATERIAL TO BE TRANSMITTED TO THE PREPARATORY COMMISSION

- I. Material on the preparation period (CD/1116, pages 225 to 233)
- II. Common understandings (See page 151).
- III. Classification system of confidential information (CD/1116, pages 221 to 223).
- IV. Models for agreements (CD/1116, pages 200 to 216)
- V. Possible factors identified to determine the number, intensity, duration, timing and mode of inspection of facilities handling Schedule 2 chemicals (CD/1116, page 186)
- VI. Captive use (See page 152)
- VII. Factors which might be taken into account for lower thresholds of certain Schedule 2 chemicals (See page 153)
- VIII. Toxicity determinations (CD/1116, pages 68 to 72)

COMMON UNDERSTANDINGS

The following Common Understandings were adopted by the Conference together with the final draft Convention, as contained in CD/.... They are not incorporated into the final draft Convention, and are not a part thereof, but form a part of the negotiation record.

1. Common understanding relating to Article I:

It is the understanding of the Committee that the scope of the prohibition of use of chemical weapons includes prohibition of use against States not Parties to the Convention.

2. Common understanding related to Article XIV:

It is the understanding of the Committee that the competence of existing international administrative tribunals (United Nations Administrative Tribunal or International Labour Office Administrative Tribunal) for staff disputes might be recognized, subject to the rules of relevant organizations, through an appropriate resolution of the Conference of States Parties

CAPTIVE USE

Schedule 1 chemicals

Exeptions from the restriction on production of Schedule 1 chemicals are, for the very rare instances likely to arise, best made on a case by case basis.

Schedule 2 chemicals

The possibility of changing from a type 1 to a type 2 inspection is covered in the provisions of paragraph of Part VII of the Verification Annex.

Page 2, paragraph 2 (a):

- delete the word "and".

Page 5, Table of Contents:

- Article IV should read "amendments" (delete the words "and Changes").

Page 11, paragraph 10, last sentence:

- replace the words "within one year" by "within 30 days".

Page 17, paragraph 2, third line:

- after the words "Verification Annex" insert the word "and".

Page 23:

- paragraph 2 (a) second line:

- delete the word "and" between the words "trade" and "and".

- paragraph 2 (a) third line:

- delete the line referring to the margin.

Page 31:

The title of Article IV should read "amendments" (delete the words "and Changes").

Page 35, Section 2, second paragraph, first line:

- replace "Parts VII and VIII" by "Parts VI and VIII".

FACTORS WHICH MIGHT BE TAKEN INTO ACCOUNT FOR LOWER THRESHOLDS OF
CERTAIN SCHEDULE 2 CHEMICALS

1. An assessment of what constitutes a militarily significant quantity of the chemical.
2. The effective dose of the chemical, or some function of it.
3. Whether the chemical has previously been produced, stockpiled or used as a chemical weapon.

1. Article XIV of the Convention:

It is the understanding of the Committee that the competence of existing international administrative tribunals (United Nations Administrative Tribunal or International Labour Office Administrative Tribunal) for staff disputes might be relevant, subject to the rules of relevant organizations, through an appropriate resolution of the Conference of States Parties.

Ad Hoc Committee on Chemical Weapons

Chairman of the Ad Hoc Committee on Chemical Weapons

WORKING PAPER FOR THE FINAL PHASE OF THE NEGOTIATIONS
ON THE CHEMICAL WEAPONS CONVENTION

Corrigendum

Page 2, paragraph 2 (a):

- delete the third tick.

Page 5, Table of Contents:

- Article XV should read "Amendments" (delete the words "and Changes").

Page 15, paragraph 11, last sentence:

- replace the words "within one year" by "within 30 days".

Page 17, paragraph 8, third line:

- after the words "Verification Annex" insert the word "and".

Page 39,

- paragraph 2 (c), second line:

- delete the word "in" between the words "trade" and "and".

- paragraph 2 (a) and (b):

- delete line marking in the margins.

Page 43

The title of Article XV should read "AMENDMENTS" (delete the words "AND CHANGES").

Page 51, Section B, second paragraph, third line:

- replace "Parts VII and VIII" by "Parts VI and VII".

Page 52, Schedule 2, item 12:

- after the words "protonated salts" add "except for those listed in Schedule 3".

Page 118, paragraph 10, 2nd subparagraph, third line:

- after the words "of this Annex" insert the word "except".

Page 124, paragraph 12, fourth line:

- after the words "this Annex" insert the word "except".

Pages 148-149:

- paragraphs 9 to 12 and 15 should be marked with lines in the margins.

Page 151:

- II. "Common Understandings", "page 151" should read "page 152".
- VI. "Captive Use", "page 152" should read "page 153".
- VII. "Factors which might be taken...", "page 153" should read "page 154".

Page 153, second paragraph, second line:

- insert "13" after the word "paragraph".

AHCCW
Chair-
man

CD/CW/WP.400
Rev.1

Draft Convention on the
Prohibition of the Devel-
opment, Production, Stock-
piling and Use of Chemical
Weapons and on their Dest-
truction

22.6.92

NOT REPRODUCED

* * *

AHCCW
Chair-
man

CD/CW/WP.400
Rev.2

Draft Convention on the
Prohibition of the Devel-
opment, Production, Stock-
piling and Use of Chemical
Weapons and on their Dest-
truction

10.8.92

NOT REPRODUCED

* * *

1952
Department of the Interior
Bureau of Land Management
Washington, D.C.

NOT RECORDED

1952
Department of the Interior
Bureau of Land Management
Washington, D.C.

NOT RECORDED

Ad Hoc Committee on Chemical Weapons

SWITZERLAND AND SWEDEN

Anatomy of a Chemical Plant Site

1. Introduction

The future Chemical Weapons Convention will introduce the concept of routine verification and challenge inspections in the chemical industry engaged in producing organic chemicals. The most relevant parts of the chemical industry in this context are those which produce highly developed organic specialities such as plant protection agents and pharmaceutical active ingredients. Here we find complicated and sensitive technical installations as well as intricate development and production organizations.

This paper tries to present and elucidate the substance and the structures of a representative plant site inspectors might be confronted with. Not all the facilities to be found today are on the same level of technological development, but the basic technical substance and the methods employed will be the same everywhere.

The paper is intended as a common background for the discussions on various verification regimes for the chemical industry. Different assumptions can be made regarding, e.g., what should be the basis for declarations and inspections, and the consequences of the assumptions then evaluated using the presented hypothetical plant site as a model.

2. General Remarks

The hypothetical plant site presented here as an example is mainly dedicated to the production of agrochemical active ingredients and formulated products as well as pharmaceutical specialities. It is part of

a larger international enterprise; therefore, the amount of basic research carried out in the location is very limited. However, there are adequate facilities for applied research and development in connection with the usual production programme.

For a comprehensive overview of this plant site we have to take into account both technical and organizational aspects. Sufficient detail is given in both respects; therefore, this description may be useful for those engaged in verification activities.

The essential information about the plant site is presented in four parts. Section 3 offers a plant site overview and refers to the problems of works planning in order to enable the readers to understand and interpret a given situation.

Section 4 explains the organization of the plant site by presenting three charts which indicate the different hierarchical levels. There are well defined individual responsibilities and authorities attached to every management position. These important facts are normally contained in the job descriptions which are an essential part of the company records.

Section 5 contains the necessary detailed information about buildings and technical installations. A plan of the plant site is included together with lists indicating the purpose of the different buildings and structures. On the basis of this information, it is possible to locate a particular technical or administrative activity.

Section 6 part is dedicated to the introduction of the concept of "Supply and Production Chain". All the necessary details are elucidated. Such a concept could be of help for the definition of those parts of a plant site which should be included in a particular inspection. In order to demonstrate the practical implications of this concept, an example is presented in which the production of a Schedule 2 chemical is assumed. The movements of all the materials are listed in a table as well as indicated on the works plan.

Finally, the most important technical terms used in this paper are listed in the appendix together with explanations.

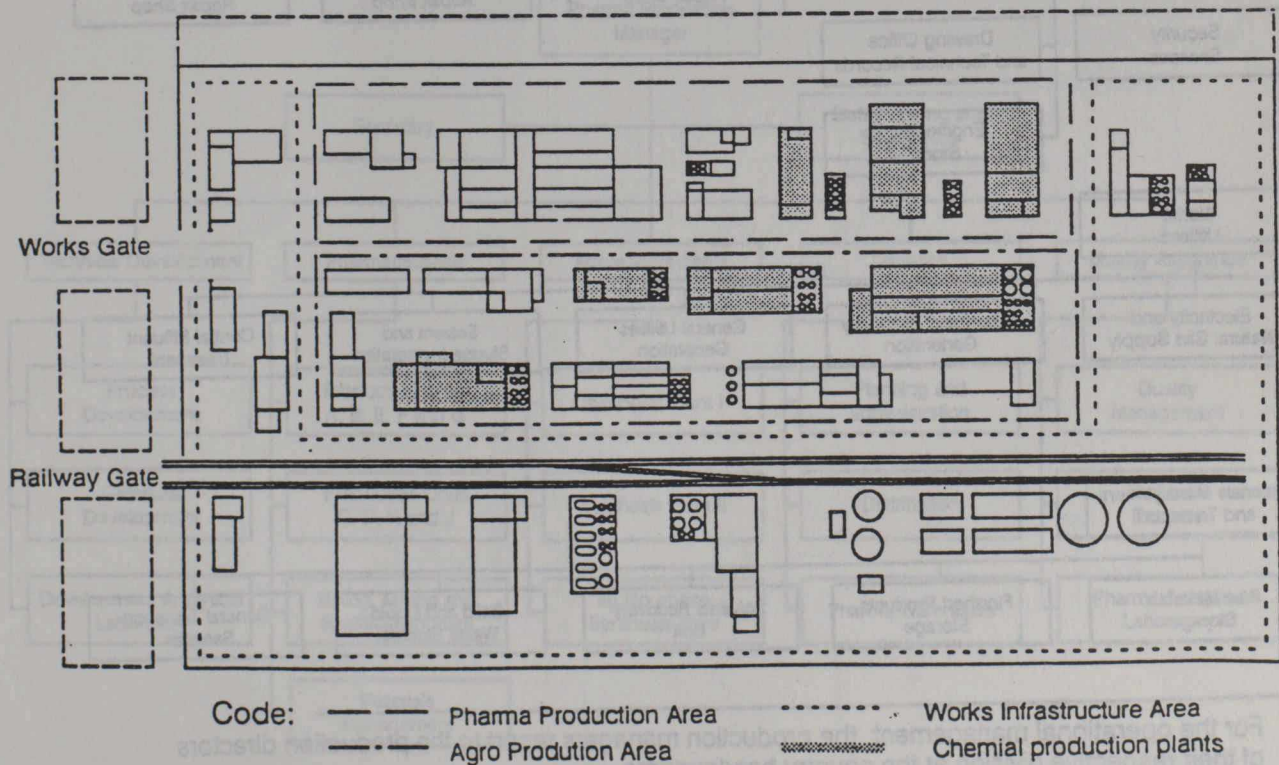
3. Plant Site Overview

The plan of the plant site as given in figure 1 shows three separate zones: Agro production area, pharma production area and works infrastructure area. Transport of materials to and from the site takes place either by motor vehicles or railway.

The works infrastructure is substantial; it contains both administration and laboratory buildings as well as large technical installations such as tank farms, warehouses, utility generation, solvent and solid waste incineration and effluent treatment facilities. The detailed plan of the plant site in figure 2, together with section 5, 'Detailed Information about the Plant Site', allows the identification of the specific function of the different buildings and structures.

Plant sites in the chemical industry may look different depending on the way they have been started and developed. In one instance, a site may have developed out of an ancient nucleus; then it may appear to be ill placed and look rather disorganized since production areas and infrastructure are not clearly separated. In another instance, the site may have started as a "green field" project; then it is likely to have standardized buildings and structures as well as clearly delimited areas for the different purposes.

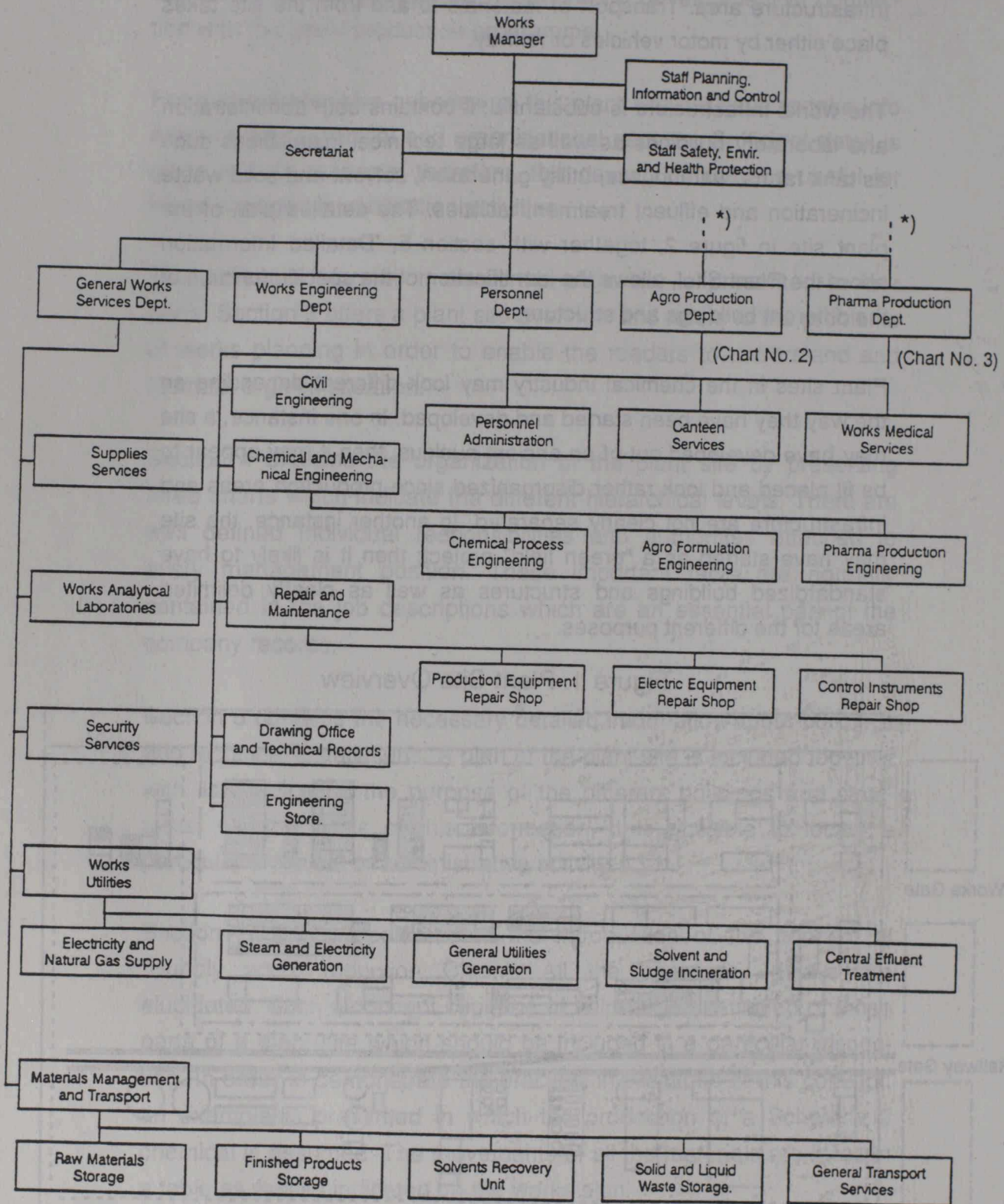
Figure 1. Plant Site Overview



4. Organization of the Plant Site

The following three organizational charts outline the formal organization at the plant site with the actual chains of command.

Chart No. 1



*) For the operational management, the production managers report to the production directors of their respective division at the country headquarters. For the administrative and technical management, they report to the works manager.

Chart No. 2

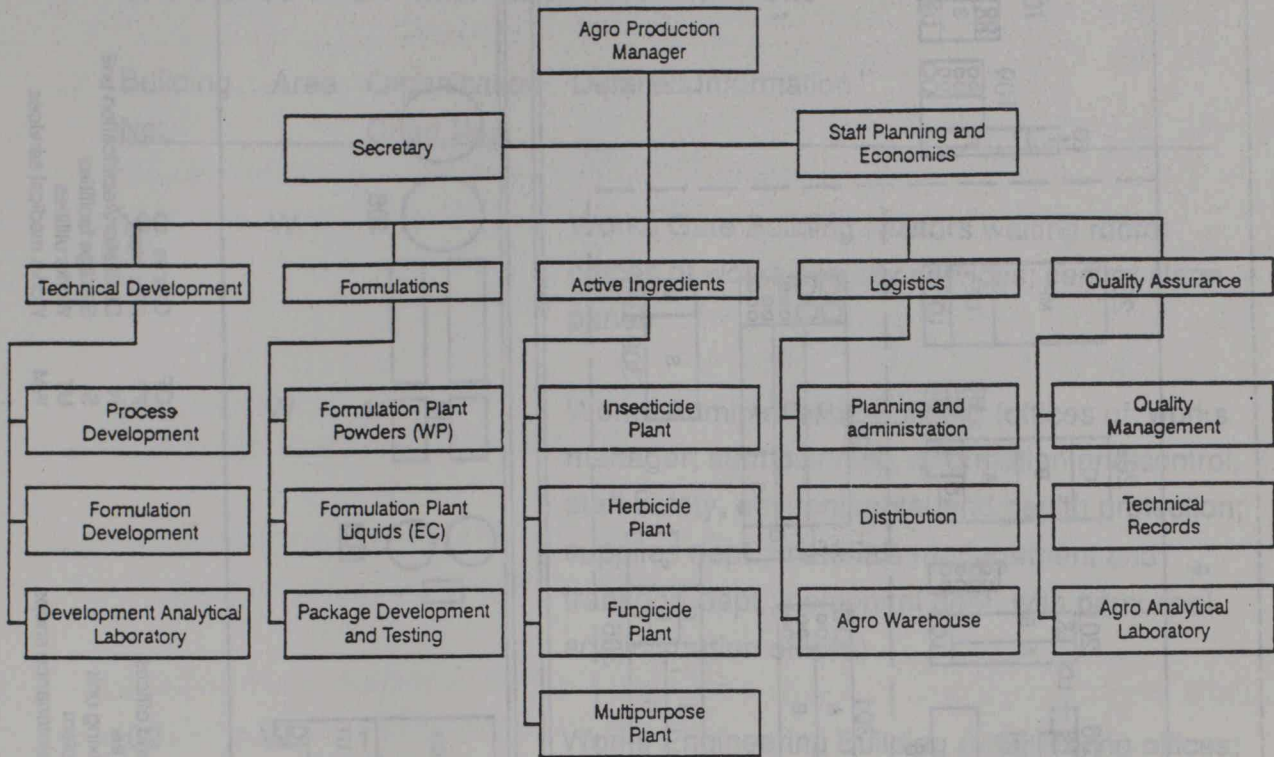


Chart No. 3

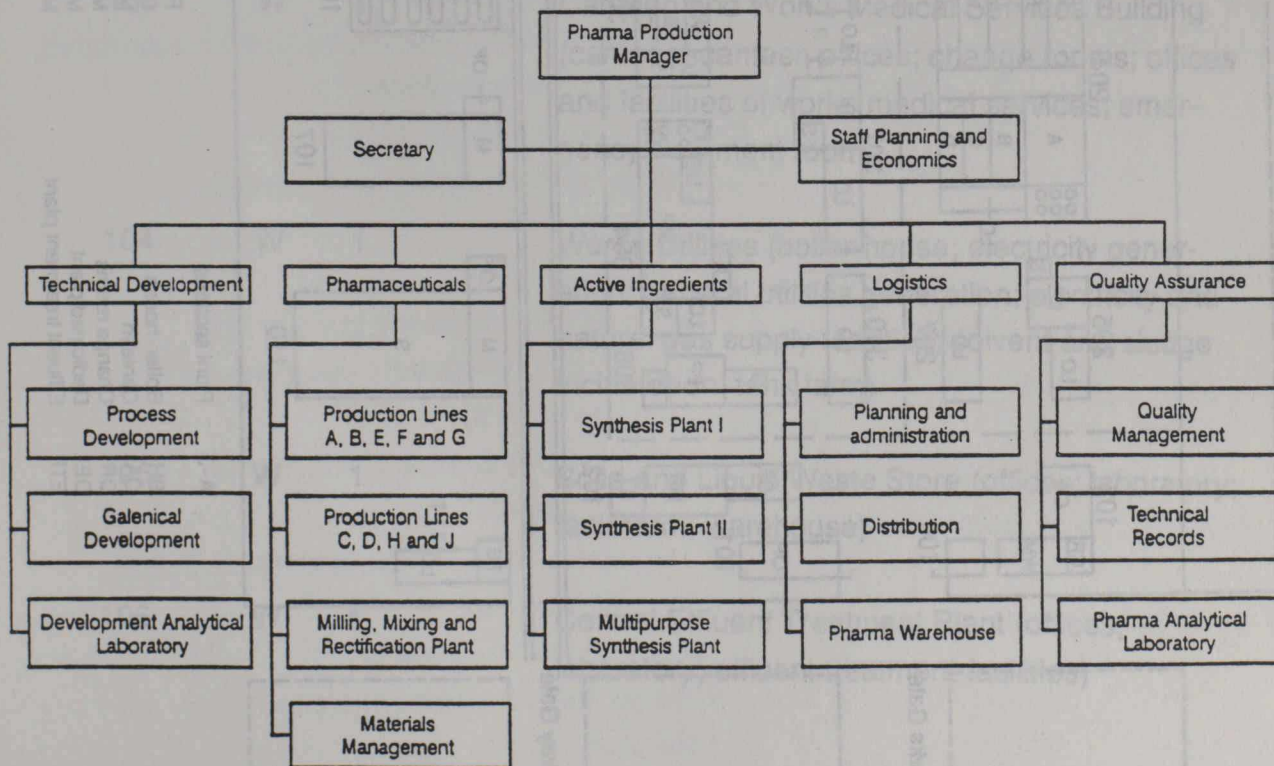
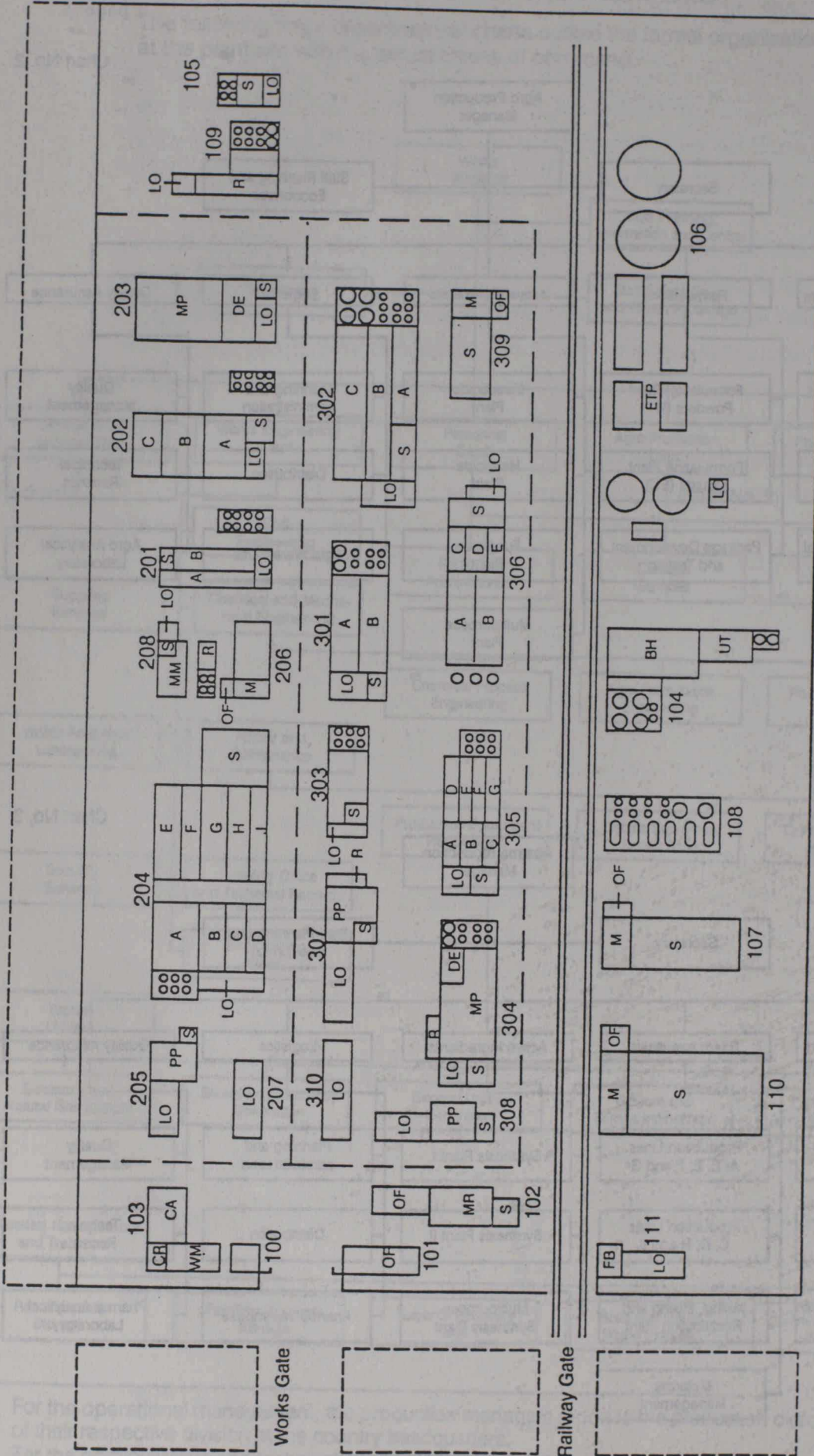


Figure 2

Plan of the Plant Site



- A-J Plant sections
- BH Boiler-house
- CA Canteen
- CR Change rooms
- DE Dedicated plant
- ETP Effluent treatment plant
- FB Fire brigade
- LO Laboratories and offices
- M Marshalling area
- MM Milling and mixing unit
- MP Multipurpose plant
- MR Repair and maintenance shops
- OF Offices
- PP Pilot plant
- R Distillation/rectification unit
- S Storage facilities
- UT Works utilities
- WM Works medical services

5. Detailed Information about the Plant Site

Building No.	Area	Organization Chart No.	Detailed Information
100	W	1	Works Gate Building (visitors waiting room; offices of works security services; central alarm panel)
101	W	1	Works Administration Building (offices of: works manager; staff planning, information and control; staff safety, environmental and health protection; supplies dept.; materials management and transport dept.; personnel dept. with personnel administration offices)
102	W	1	Works Engineering Building (engineering offices; drawing and records office; repair and maintenance offices; repair and maintenance shops; engineering store)
103	W	1	Canteen and Works Medical Services Building (canteen, canteen offices; change rooms; offices and facilities of works medical services; emergency treatment room)
104	W	1	Works Utilities (boiler-house; electricity generation; general utilities generation; electricity and natural gas supply facilities; solvent and sludge incineration; tank farm)
105	W	1	Solid and Liquid Waste Store (offices; laboratory; tank farm; warehouse)
106	W	1	Central Effluent Treatment Plant (offices, laboratory; effluent treatment facilities)

Building No.	Area	Organization Chart No.	Detailed Information
107	W	1	Raw Materials Warehouse (offices; marshalling area; storage facilities)
108	W	1	Raw Materials Tank Farm
109	W	1	Solvents Recovery Unit (offices; laboratory; distillation and rectification facilities; tank farm)
110	W	1	Finished Products Warehouse (offices; marshalling area; storage and shipping facilities)
111	W	1	Works Analytical Laboratory and Fire Brigade Building (analytical offices and laboratories; fire brigade facilities; works garages)
201	PH	3	Pharma Synthesis Plant I containing: <ul style="list-style-type: none"> - Production Unit A (continuous/batch, automated, 1 solid active ingredient) - Production Unit B (continuous/batch, automated, 3 solid active ingredients) - Plant offices and laboratory - Storage area for pallets and containers - Tank farm
202	PH	3	Pharma Synthesis Plant II containing: <ul style="list-style-type: none"> - Production Unit A (batch, automated, 3 solid active ingredients) - Production Unit B (batch, automated, 4 solid active ingredients) - Production Unit C (batch, automated, 8 solid active ingredients) - Plant offices and laboratory - Storage area for pallets and containers - Tank farm

Building No.	Area	Organization Chart No.	Detailed Information
203	PH	3	<p>Pharma Multipurpose Synthesis Plant containing:</p> <ul style="list-style-type: none"> - Multipurpose plant section (batch, manual operation, 12 solid and 4 liquid active ingredients) - Dedicated plant section (batch, manual operation, 1 solid and 1 liquid active ingredient) - Plant offices and laboratory - Storage area for pallets and containers
204	PH	3	<p>Pharma Production Plant containing:</p> <ul style="list-style-type: none"> - Production lines A and B (solid forms, large capacity) - Production lines E, F and G (solid forms, small capacity) - Production lines C and D (liquid forms, large capacity) - Production lines H and J (liquid forms, small capacity) - Plant offices - Quality assurance plant laboratory - Storage facilities for pallets, containers and packing materials - Tank farm
205	PH	3	<p>Pharma Development Building containing:</p> <ul style="list-style-type: none"> - Process Development Section (offices and laboratories, pilot plant, storage area for pallets and containers) - Galenical Development Section (offices and laboratories, pilot plant, storage area for pallets and containers) - Development Analytical Laboratory (offices and laboratories)

Building No.	Area	Organization Chart No.	Detailed Information
206	PH	3	Pharma Warehouse (offices and storage facilities for intermediates, active ingredients, quarantine products and packing materials)
207	PH	3	Pharma Administration Building containing: <ul style="list-style-type: none">- Offices of production manager and secretariat- Offices of Staff Planning and Economics- Offices of Logistics Dept. (planning, distribution, warehousing)- Offices of Quality Assurance Dept. (quality management, technical records and pharma analytical laboratories)
208	PH	3	Milling, Mixing and Rectification Plant containing: <ul style="list-style-type: none">- Milling, mixing and packing section- Distillation and rectification section- Plant offices and laboratory- Storage area for pallets and containers- Tank farm
301	AG	2	Insecticide Plant containing: <ul style="list-style-type: none">- Production Unit A (continuous/batch, automated, 2 liquid active ingredients)- Production Unit B (continuous/batch, automated, 1 liquid active ingredient)- Plant offices and laboratory- Storage area for pallets and containers- Tank farm

Building No.	Area	Organization Chart No.	Detailed Information
302	AG	2	<p>Herbicide Plant containing:</p> <ul style="list-style-type: none"> - Production Unit A (continuous/batch, automated, 1 liquid active ingredient) - Production Unit B (continuous/batch, automated, 1 solid active ingredient) - Production Unit C (continuous/batch, semi-automatic, 2 solid active ingredients) - Distillation/rectification section (open-air structure) - Plant offices and laboratory - Storage area for pallets and containers - Tank farm
303	AG	2	<p>Fungicide Plant containing:</p> <ul style="list-style-type: none"> - Production Unit (batch, semi-automatic, 3 solid active ingredients) - Plant offices and laboratory - Storage area for pallets and containers - Tank farm
304	AG	2	<p>Multipurpose Plant containing:</p> <ul style="list-style-type: none"> - Multipurpose plant section (batch, manual operation, 4 solid and 3 liquid active ingredients) - Dedicated plant section (batch, semi-automatic, 2 solid active ingredients) - Distillation/rectification section (open-air structure) - Plant offices and laboratory - Storage area for pallets and containers - Tank farm

Building No.	Area	Organization Chart No.	Detailed Information
305	AG	2	Formulation Plant "Liquids" (EC) containing: <ul style="list-style-type: none">- Formulation Train A (large capacity)- Formulation Train B (large capacity)- Formulation Train C (small capacity)- Filling and Packing Lines D, E and F (small and medium packs)- Filling and Packing Line G (large packs and drums)- Plant offices and laboratory- Storage area for pallets, containers and packing materials- Tank farm
306	AG	2	Formulation Plant "Powders" (WP) containing: <ul style="list-style-type: none">- Formulation Train A (large capacity)- Formulation Train B (small capacity)- Filling and Packing Line C (small packs)- Filling and Packing Lines D and E (medium and large packs)- Plant offices and laboratory- Storage area for pallets, containers and packing materials- Silo farm
307	AG	2	Process Development Building containing: <ul style="list-style-type: none">- Development offices- Development laboratories- Pilot plant- Development analytical laboratory- Distillation/rectification section (open-air structure)- Storage area for pallets and containers

Building No.	Area	Organization Chart No.	Detailed Information
308	AG	2	Formulation Development Building containing: <ul style="list-style-type: none">- Development offices- Development laboratories- Technical laboratories- Pilot plant- Storage area for pallets and containers
309	AG	2	Agro Warehouse (offices and storage facilities for intermediates, active ingredients, quarantine products and packing materials)
310	AG	2	Agro Administration Building containing: <ul style="list-style-type: none">- Offices of production manager and secretariat- Offices of Staff Planning and Economics- Offices of Logistics Dept. (planning, distribution and warehousing)- Offices of Quality Assurance Dept. (quality management, technical records and agro analytical laboratories)- Package development (office and testing laboratory)

6. Supply and Production Chain

A particular chemical compound is always produced in at least one specific production unit which is located in a plant. The plant is the smallest administrative unit.

If a production unit is part of a multi-purpose plant, the set-up of the pieces of equipment actually used is a temporary one and specified in the appropriate description of the technological process.

A plant may contain several production units or - in the case of a multi-purpose plant - pieces of equipment used for other purposes. It is, therefore, necessary to define those production units and pieces of equipment within the plant which are actually - continuously or temporarily - used for the production of the chemical compound in question and which are, therefore, relevant in case of an inspection.

During the production of the chemical compound, pieces of equipment and installations outside the plant actually producing the chemical are also - either continuously or temporarily, directly or indirectly - used and are, therefore, also relevant in case of an inspection; they are usually part of the works infrastructure.

The totality of all the pieces of equipment and installations - either inside or outside the plant - relevant in case of an inspection is covered by the technical term "Supply and Production Chain". This chain extends from the raw materials storage facilities to the finished products warehouse as well as to the solid and liquid waste disposal, the waste gas purification and the central effluent treatment; it is usually specified in the respective description of the technological process to be found in the plant files.

The supply and production chain may include the following pieces of equipment, installations or systems:

- Raw materials storage facilities and tank farms
- Raw materials transport systems and transfer lines
- Intermediate storage spaces or tanks for raw materials
- Reactors, vessels and associated process equipment
- Receivers, columns, heat exchangers, condensers, reboilers, filters, driers and pumps
- Process and utility lines and valves

- Process control equipment and systems
- Intermediate storage facilities and tanks for intermediate products and active ingredients
- Grinders, mills, mixers, sieves, granulators, silos as well as filling equipment for solids and liquids
- Storage facilities and tanks for finished products
- Off-gas and waste air purification systems
- Pretreatment and storage facilities for solid and liquid wastes
- Incinerators for solid and liquid wastes
- Effluent pretreatment systems
- Central effluent treatment plants
- Dump sites for solid waste.

A Hypothetical Supply and Production Chain

In order to illustrate this concept, a hypothetical example is presented. It is assumed that an insecticide containing a P-CH₃ bond - a Schedule 2A chemical by definition - is produced. The consecutive operations are listed below and the example is illustrated in figure 3. The movement of materials in figure 3 is divided into three categories: 1. Raw materials, active ingredients and products. 2. Spent solvents, residues and effluents, and, 3. Samples for checking. For reasons of clarity, only the buildings and structures of interest in the exemplified 'Supply and Production Chain' are marked on the works plan.

<u>Op.</u>	<u>Movement of Materials</u>	<u>Movement of Samples</u>
1	7 solid raw materials, one solid intermediate and 3 liquid raw materials in drums are delivered to B.107 (raw materials warehouse).	
2	4 liquid raw materials are delivered to T.F.108 (raw materials tank farm).	
3		Samples of raw materials and intermediate are sent to B.111 (works analytical laboratory) for checking.

They conform to specification, and raw material quarantine is lifted.

4 6 solid raw materials (pallets) and one solid intermediate (container) are transferred from B.107 to B.304 (Agro multipurpose plant).

5 3 liquid raw materials are transferred (containers and transfer lines) from T.F.108 to T.F.304.

6 Synthesis of liquid active ingredient (insecticide) in a five stage reaction in the multipurpose section of B.304.

3 samples of process intermediates are sent to B.310 (Agro analytical laboratories) for checking. Results are according to requirements.

7 Raw active ingredient is purified by rectification in the R-section of B.304.

Sample of finished active ingredient is sent to B.310 (Agro analytical laboratories) for checking. Product conforms to specification, and quarantine is lifted.

8 Finished active ingredient is transferred in containers from B.304 to B.309 (Agro warehouse).

9 Spent solvent X in containers is transferred from B.304 to B.104 (works utilities) for incineration.

10 Spent solvent Y in containers is transferred from B.304 to B.109 (solvents recovery unit).

11 Solvent Y is recovered by rectification in B.109.

Sample of recovered solvent is sent to B.310 (Agro analytical laboratories) for checking. Solvent conforms to specification, and quarantine is lifted.

12 Recovered solvent is returned from B.109 to T.F.304, and residue transferred to B.105 (waste store).

13 One liquid and one solid residue are transferred from B.304 to B.105 (waste store).

14 Aqueous effluent is pretreated in B.304.

Sample of pretreated effluent is sent to B.106 (laboratory of effluent treatment plant) for checking. Results are according to requirements, and effluent is cleared for transfer.

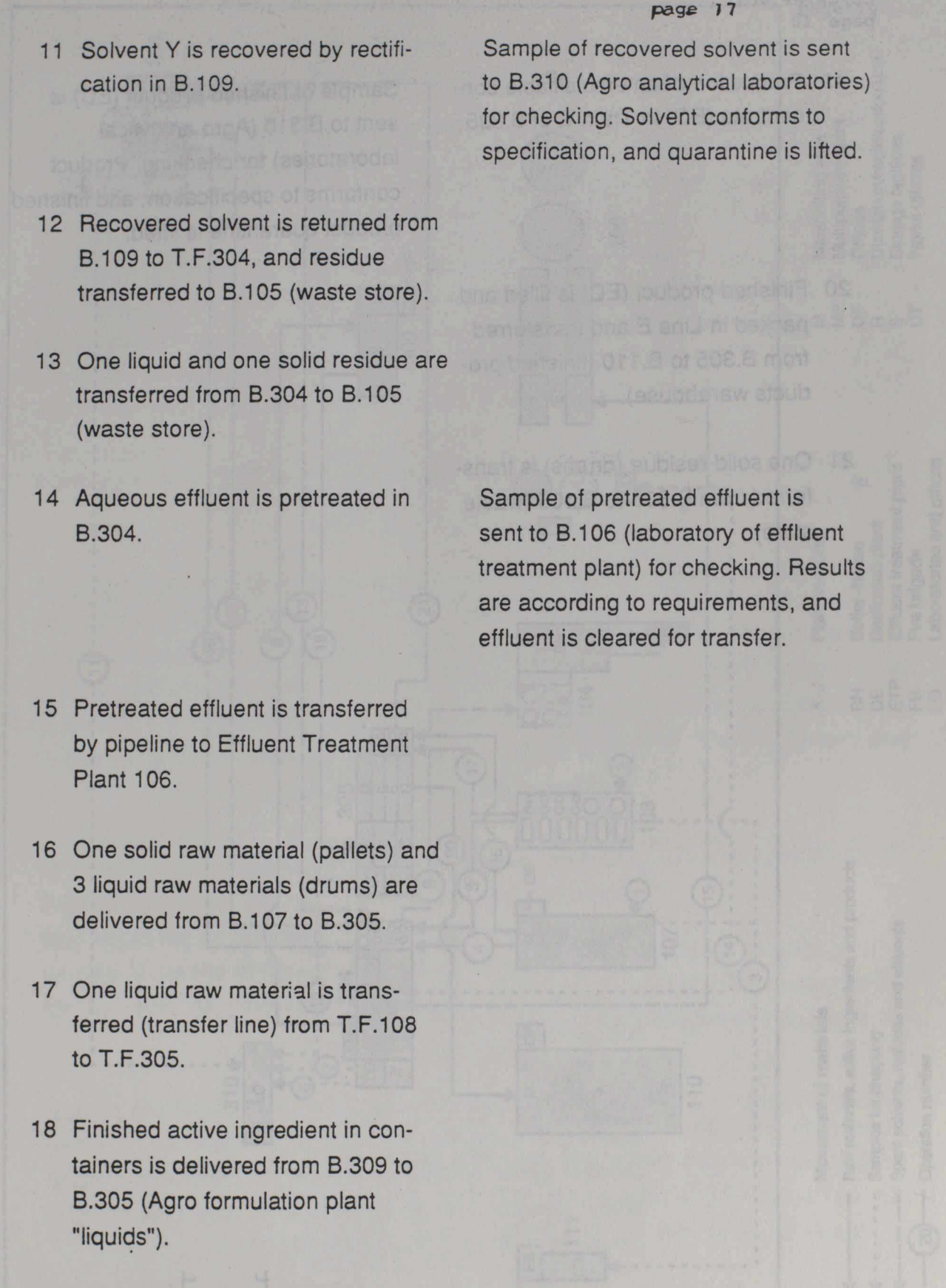
15 Pretreated effluent is transferred by pipeline to Effluent Treatment Plant 106.

16 One solid raw material (pallets) and 3 liquid raw materials (drums) are delivered from B.107 to B.305.

17 One liquid raw material is transferred (transfer line) from T.F.108 to T.F.305.

18 Finished active ingredient in containers is delivered from B.309 to B.305 (Agro formulation plant "liquids").

Example of a supply and production chain



19 Production of an emulsifiable concentrate (EC) in Train C of B.305.

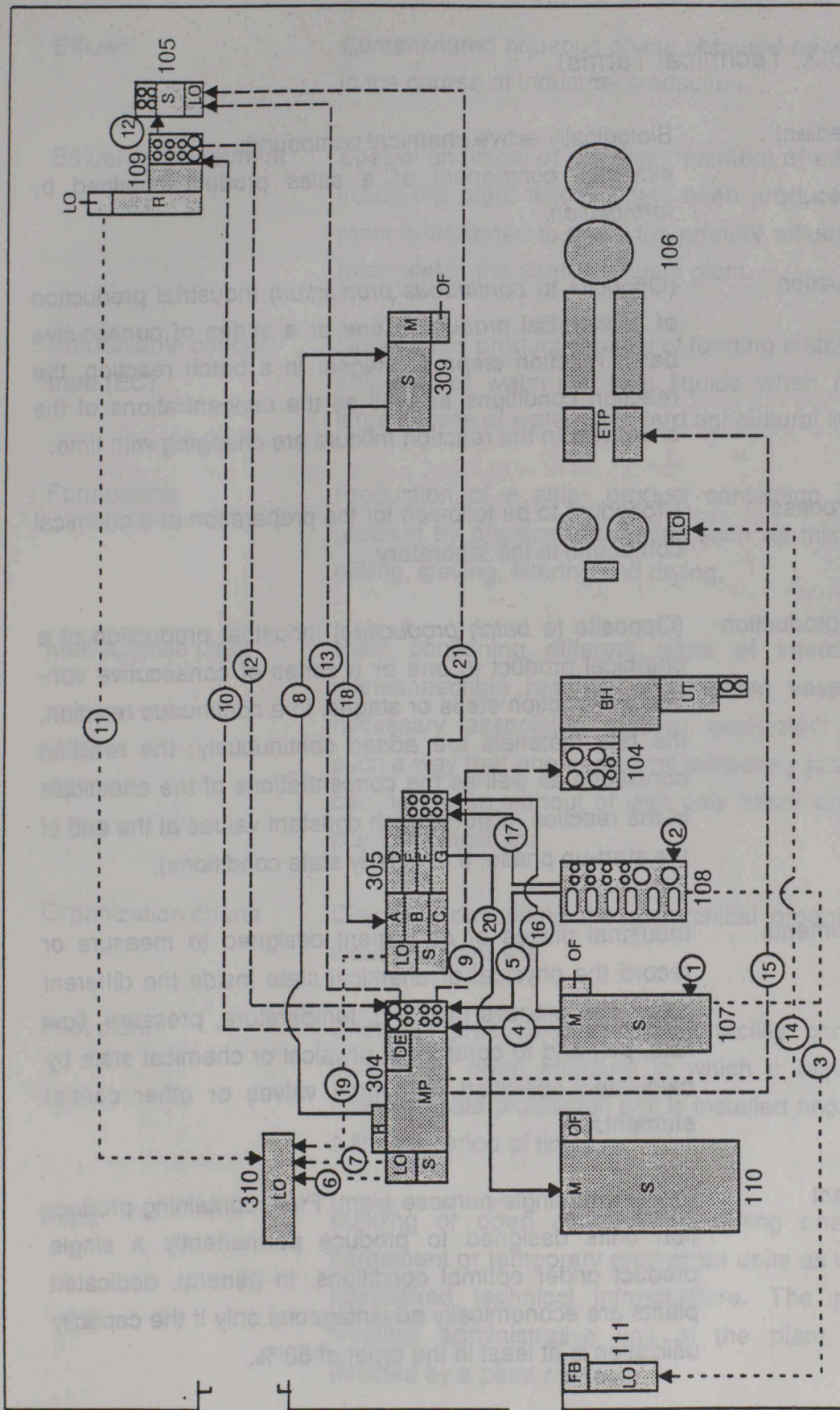
Sample of finished product (EC) is sent to B.310 (Agro analytical laboratories) for checking. Product conforms to specification, and finished product quarantine is lifted.

20 Finished product (EC) is filled and packed in Line E and transferred from B.305 to B.110 (finished products warehouse).

21 One solid residue (drums) is transferred from B.305 to B.105 (waste store).

Figure 3

Example of a supply and production chain



- Movement of materials**
- Raw materials, active ingredients and products
 - - - Samples for checking
 - - - Spent solvents, residues and effluents
 - Operation number
-
- Plant sections**
- | | | | | | |
|-----|--------------|-----------------|--------------------------|--------------|--------------------------|
| A-J | BH | DE | ETP | FB | LO |
| | Boiler-house | Dedicated plant | Effluent treatment plant | Fire brigade | Laboratories and offices |
-
- M** **MP** **OF** **R** **S** **UT**
- | | | | | | |
|------------------|--------------------|---------|--------------------------------|--------------------|-----------------|
| Marshalling area | Multipurpose plant | Offices | Distillation/recification unit | Storage facilities | Works utilities |
|------------------|--------------------|---------|--------------------------------|--------------------|-----------------|

(APPENDIX, Technical Terms)

Active ingredient (a.i.)	Biologically active chemical compound; essential component of a sales product obtained by <i>formulation</i> .
Batch production	(Opposite to <i>continuous production</i>) Industrial production of a chemical product in one or a series of consecutive batch reaction steps or stages. In a batch reaction, the reaction conditions as well as the concentrations of the chemicals in the reaction mixture are changing with time.
Chemical process	Procedure to be followed for the preparation of a chemical compound in the laboratory.
Continuous production	(Opposite to <i>batch production</i>) Industrial production of a chemical product in one or a series of consecutive con- tinuous reaction steps or stages. In a continuous reaction, the raw materials are added continuously; the reaction conditions as well as the concentrations of the chemicals in the reaction mixture reach constant values at the end of the start-up phase, (i.e. steady state conditions).
Control instruments	Industrial pieces of equipment designed to measure or record the physical or chemical state inside the different parts of a process unit (e.g. temperature, pressure, flow rate, pH) and to control the physical or chemical state by calculated operation of control valves or other control elements.
Dedicated plant	(Synonym: single-purpose plant) Plant containing produc- tion units designed to produce permanently a single product under optimal conditions. In general, dedicated plants are economically advantageous only if the capacity utilization is at least in the order of 80 %.

Effluent	Contaminated aqueous phase obtained as waste material in the course of industrial production.
Effluent pretreatment	Special chemical or physical treatment of effluent, usually inside the plant where it has been produced. The treatment is designed to make the primary effluent suitable for treatment in the central effluent plant.
Emulsifiable concentrate (EC)	Liquid sales product capable of forming a stable emulsion of water-insoluble liquids when mixed with a large excess of water (standard agricultural formulation).
Formulation	Production of a sales product containing an active ingredient by physical processes such as mixing, grinding, milling, sieving, filtering and drying.
Multipurpose plant	Plant containing different sizes of interconnected or interconnectible reaction and holding vessels with the necessary associated process equipment arranged in such a way that one or several temporary production units can be set up without or with only minor equipment and plant modifications.
Organization charts	Diagrams describing the hierarchical organization of an industrial plant site.
Pilot plant	Chemical process development facility consisting of a building or open structure in which a temporary intermediate scale production unit is installed and operated for a limited period of time.
Plant	Building or open structure containing one or several permanent or temporary production units as well as some specialized technical infrastructure. The plant is the smallest administrative unit of the plant site and is directed by a plant manager.

Plant section	Part of a (large) plant used for a particular purpose and fitted with the appropriate installations.
Plant site	(Synonym: Works) Top administrative unit; includes all the plants and is directed by the works manager. The plant site has a complete technical infrastructure and is, therefore, autonomous at both the administrative and technical levels.
Process step or stage	One of the consecutive chemical reactions or physical operations of a process, carried out in a defined section of the production unit (usually one main piece of equipment with associated process equipment).
Production area	Administrative sub-unit of a large plant site; it usually includes several plants located in the same section of the plant site and making products of a similar character.
Production unit	Permanent or temporary set of interconnected pieces of equipment in which - over one or several process steps - a particular chemical product is produced. The production unit is the essential part of the <i>supply and production chain</i> .
Quality assurance	Activity within the production management endeavouring to maintain the predetermined quality standards in products and operations.
Raw materials	In this context: Starting materials consumed or processed in industrial production.
Solid and liquid waste	By-products of a production process which are unsuitable for recovery and have to be disposed of (e.g. filter cake, distillation residue, contaminated solvent).

Solvents recovery	Under certain conditions, contaminated solvents can be purified by a combination of chemical and physical treatments (e.g. neutralization, extraction, rectification) and re-used as raw materials.
Supply and production chain	Entirety of all the pieces of equipment, installations and systems which are used - continuously or temporarily, directly or indirectly - for the production of a particular chemical product. Most of this information is usually contained in the <i>technological process</i> to be found in the plant files.
Technological process	Procedure to be followed for the industrial production of a chemical product in a production unit. This usually includes all the technical information required for the design, construction, commissioning, safe operation and maintenance of the production unit.
Wettable powder (WP)	Solid sales product capable of forming a stable suspension when dispersed in a large excess of water (standard agricultural formulation).
Works engineering	Entirety of the support functions required for the planning, design, construction, installation, commissioning, repair and maintenance of production units as well as buildings, structures, tank farms and the works infrastructure.
Works utilities	Energies and basic media required for the operation of a production unit such as electric energy, steam, compressed air, instrument air, nitrogen, natural gas, high temperature heating and cooling media, process water and ice.

Solvent recovery - Under certain conditions, contaminated solvent can be recycled through distillation or other separation techniques. Recovery of solvent is essential for economic and environmental reasons. Recovery of solvent is essential for economic and environmental reasons.

Plant effluent - Effluent from the plant is treated in a wastewater treatment plant before being discharged to the environment.

Process - The process is a continuous process. It involves the use of various chemical and physical processes to produce the final product. The process is a continuous process. It involves the use of various chemical and physical processes to produce the final product.

Technology - The technology used in this process is advanced. It involves the use of various chemical and physical processes to produce the final product. The technology used in this process is advanced. It involves the use of various chemical and physical processes to produce the final product.

Water - Water is used in the process. It is used for various purposes, including cooling, washing, and as a reactant. Water is used in the process. It is used for various purposes, including cooling, washing, and as a reactant.

Energy - Energy is used in the process. It is used for various purposes, including heating, cooling, and as a reactant. Energy is used in the process. It is used for various purposes, including heating, cooling, and as a reactant.

Solid and liquid - Solid and liquid waste are produced during the process. They are collected and disposed of in a safe and environmentally sound manner. Solid and liquid waste are produced during the process. They are collected and disposed of in a safe and environmentally sound manner.

Chemical weapons : working
papers of the Ad Hoc
Committee on Chemical
Weapons

LIBRARY E A / BIBLIOTHÈQUE A E



3 5036 01029404 2

