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Forty-third session
Agenda item 63

CHEMICAL AND BACTERIOLOGICAL (BIOLOGICAL) WEAPONS

Report of the Secretary-General

1. At its forty-third session, the General Assembly adopted resolution 42/37 C of 30 November 1987, the operative part of which reads as follows:

"The General Assembly,

"...

"1. Renews its call to all States to observe strictly the principles and objectives of the 1925 Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, and condemns all actions that violate this obligation;

"2. Urges all States to be guided in their national policies by the **need** to curb the **spread of chemical weapons;**

"3. Recognizes the *need*, upon the *entry into force* of a chemical weapons convention, to review the modalities available to the Secretary-General for the investigation of reports of the possible **use of chemical weapons;**

"4. Requests the Secretary-General to carry out investigations in response to reports that may be brought to his attention by any Member State concerning the **possible use of chemical and bacteriological (biological) or toxin weapons that may constitute a violation of the 1925 Geneva Protocol or other relevant rules of customary international law in order to ascertain the facts of the matter, and to report promptly the results of any such investigation to all Member States;**

"5. Requests the Secretary-General, with the assistance of qualified experts provided by interested Member States, to develop further technical

guidelines and procedures available to him for the timely and efficient investigation of such reports of the possible use of chemical and bacteriological (biological) or toxin weapons;

"6. Also requests the Secretary-General, in meeting the objective set forth in paragraph 4 above, to compile and maintain lists of qualified experts provided by Member States whose services could be made available at short notice to undertake such investigations, and of laboratories with the capability to undertake testing for the presence of agents the use of which is prohibited;

"7. Further requests the Secretary-General, in meeting the objectives of paragraph 4 above:

"(a) To appoint experts to undertake investigation of the reported activities;

"(b) Where appropriate, to make the necessary arrangements for experts to collect and examine evidence and to undertake such testing as may be required;

"(c) To seek, in any such investigation, assistance as appropriate from Member States and the relevant international organisations;

"8. Requests Member States and the relevant international organizations to co-operate fully with the Secretary-General in the above-mentioned work;

"9. Requests the Secretary-General to submit a report to the General Assembly at its forty-third session on the implementation of the present resolution."

2. Pursuant to paragraph 5 of the resolution, the Secretary-General appointed a group of qualified experts, which held one session at Geneva between 15 and 19 August 1988.

3. By a letter dated 19 August 1988, which is reproduced in annex I to the present report, the Chairman of the group of qualified experts, inter alia, informed the Secretary-General that, although a very substantial amount of work was accomplished, the group felt that it was not in a position to submit a final consolidated report at the conclusion of its session as intended. The Chairman also expressed the group's firm opinion that the work could be successfully completed if more time were provided. Accordingly, the letter contains the request that due consideration be given by the General Assembly at its forty-third session to the possibility of extending the time period for completion of the work involved.

4. The Secretary-General attaches the highest importance to the task entrusted to him in pursuance of resolution 42/37 C, and endorses the request of the group of qualified experts. Accordingly, he recommends that more time be provided for completing the mandate outlined in paragraph 5 of resolution 42/37 C, with the assistance of the group of qualified experts who were appointed by him.

5. Furthermore, pursuant to the same resolution, the Secretary-General, in a note verbale dated 21 March 1988, inter alia, drew the attention of all Member States to paragraph 6 of the resolution, *and* in that connection stated that he would appreciate receiving names of qualified experts and of laboratories that might be in a position to provide for the purposes referred to *In* the resolution. To date replies have been received from 20 Member States and they are contained in annex II to the present report ,

ANNEX I

Letter dated 19 August 1988 from the Chairman of the group of qualified experts established in pursuance of General Assembly resolution 42/37 C, addressed to the Secretary-General

Sir,

I have the honour to inform you that the group of qualified experts appointed by you in pursuance of paragraph 5 of General Assembly resolution 42/37 C held one session at Geneva from 15 August to 19 August 1988. The qualified experts appointed by you were the following:

- Dr. Gustav Andersson, Ph.D.
Swedish Defence Research Establishment
NBC Defence Department
Head of Chemical Division
Umeå, Sweden
- Dr. Pierre Jean-Marie Canonne
Chief Pharmaceutical Chemist of the Armed Forces
Scientific Adviser to the Mission of France to the Disarmament Conference
(Geneva)
- Maj.-Gen. Dr. Ismat A. Ess, M.B., B.Ch., D.M., Ph.D.
Egyptian Armed Forces (retired)
Cairo, Egypt
- Lt.-Gen. Anatoly D. Kuntzevitch
Professor
Academician of the Union of Soviet Socialist Republics Academy of Sciences
Moscow, Union of Soviet Socialist Republics
- Mr. Peter Poptchev
First Secretary
United Nations and Disarmament Department
Ministry of Foreign Affairs
Sofia, Bulgaria
- Dr. Barbara A. B. Seiders
Physical Scientist
Bureau of Verification and Intelligence
United States Arms Control and Disarmament Agency
Washington, D.C., United States of America

His Excellency
Javier Pérez de Cuéllar
Secretary-General of the United Nations
New York

In commencing its work, the group took note of its mandate as contained in paragraph 5 of resolution 42/37 C, which requests the Secretary-General, with the assistance of qualified experts provided by interested Member States, to develop further technical guidelines and procedures available to him for the timely and efficient investigation of reports concerning possible use of chemical and bacteriological (biological) or toxin weapons that may constitute a violation of the 1925 Geneva Protocol or other relevant rules of customary international law. In considering its mandate as stipulated in paragraph 5, the group was of the opinion that it would be useful to take due account also of paragraphs 4, 6, 7 and 8 of the resolution.

Pursuant to the above-mentioned resolution, the group of qualified experts was mandated to prepare papers that would cover the scientific, technical and legal issues related to the development of the guidelines and procedures referred to in paragraph 5 of the resolution and subsequently to exchange views and draft a consolidated report for the Secretary-General.

The group decided that, while the procedures devised earlier in the Secretary-General's report, as contained in document A/39/488, would provide a basis for its work, it was agreed that a new structure for its report would more adequately accommodate the various developments that had taken place in this field since the submission of the previous report.

In undertaking its work, the group shared a common vision with respect to a number of fundamental principles, as set out below:

(a) As stated by the General Assembly in resolution 42/37 C, the Secretary-General is requested to carry out investigations in response to reports that may be brought to his attention by any Member State concerning the possible use of chemical and bacteriological (biological) or toxin weapons that may constitute a violation of the 1925 Geneva Protocol or other relevant rules of customary international law in order to ascertain the facts of the matter, and report promptly the results of any such investigation to all Member States,

(b) Because the possible use of chemical, bacteriological (biological) or toxin weapons represents a uniquely grave affront to the security and well-being of all Member States, any and all requests to the Secretary-General for investigation of the allegations of such use should be promptly investigated. Furthermore, the results of any such investigation should be reported to all Member States without delay, upon conclusion of the investigation.

(c) Having undertaken to co-operate with the Secretary-General in any investigations concerning allegations of use, Member States should be called upon to acknowledge responsibility to receive any such investigation at the request of the Secretary-General and to grant timely access to the site of the incident in question to the team of qualified experts sent on his behalf,

(d) All possible avenues and mechanisms should be explored to uphold the authority of the Geneva Protocol and to enhance its deterrent value.

(e) The technical procedures that serve to guide the conduct of the investigation of possible use of chemical, bacteriological (biological) or toxin weapons should, without question, ensure the detection and identification of classical chemical and biological agents, and should also be conducive to the detection and identification of agents that may have been used for the first time as agents of warfare.

(f) The procedures and guideline⁸ for investigation of possible use of chemical, bacteriological (biological) or toxin weapon⁸ should be consistent with the progress and thrust of the work in the Ad Hoc Committee on a Chemical Weapons Convention at the Conference on Disarmament and should in no way detract from the progress that has been accomplished on the Chemical Weapons Convention,

(g) In order to carry out investigations of the possible use of chemical, bacteriological (biological) or toxin weapon⁸ in a timely manner and with the highest possible competence, the Secretary-General should have at his disposal the services of experts sufficient in number and for the duration necessary to complete successfully the wide range of technical work attendant on such investigations.

In addition to enjoying a common understanding of the numerous principles fundamental to the objective of the work, the qualified experts pursued the successful completion of the work in a spirit of professionalism, co-operation and accommodation. The work of the group was supported by the views and contributions provided by various Member States as well as by concrete proposals provided by individual member⁸ of the group to substantiate introduction of these proposals in the course of discussions. In addition, the work of the group benefited greatly by ready availability to them of practical experience derived by members who had served on investigation teams. None the less, it is with great disappointment that the group must report that it was unable to complete its work in the time allowed,

From the outset of the exercise it became evident that the political, legal and technical aspects of the subject-matter involved were of an interlocking nature. Among the issues that would need to be explored further are the following: questions relating to the scope and cost of the activities and services required for the responsible conduct of such sensitive investigations and questions of: exactly how to translate the common understanding of underlying principles into the modalities and procedure⁸ required. Accordingly, although a very substantial amount of work was accomplished in these as well as other areas, the group felt that it was not possible to submit a final consolidated report at the conclusion of its session as intended and, given the interrelated nature of the issues, that it would be ill-advised to submit an interim report covering only certain areas,

In the course of its work, the group took into account, *inter alia*, the discussions that had taken place on the subject at the forty-second session of the General Assembly and the fifteenth special session of the General Assembly, the third special session devoted to disarmament, as well as in other forums. The group addressed on numerous occasions the provisions contained in the draft text of a Chemical Weapons Convention now being negotiated at the Conference on Disarmament.

It also had before it documentation and literature relevant to its work. In the course of the deliberations of the group, additional sources of information relevant to its work was brought to the attention of the group. However, because of the large volume of material involved and additional material that would need to be considered, it was not possible to review fully all the material in the time available.

In addition, the group was cognisant of the note verbale of the Secretary-General to all Member States, dated 21 March 1968, inter alia, drawing their attention to paragraph 6 of General Assembly resolution 42/37 C requesting the names of qualified experts and laboratories, as well as the replies received.

The group was apprised of the interest expressed by a number of Member States to contribute informally to its work. In this respect, the group decided that given the severe time constraints it would only be in a position to review the papers made available to it.

During the session, the group was able to conduct preliminary consultations with certain relevant international organizations with a view to obtaining information useful for its work.

Indeed it is a source of great satisfaction to the group as a whole that the co-operative, constructive and businesslike atmosphere that prevailed throughout the session was instrumental in facilitating its task. In this connection, the group is of the firm opinion that the work of the group could be successfully completed if more time were provided. Accordingly, on behalf of the group, I request that due consideration be given by the General Assembly at its forty-third session to the possibility of extending the time-period for completion of the work involved.

The members of the group of qualified experts wish to express their gratitude for the assistance that they received from members of the Secretariat of the United Nations and of the specialized agencies and other organizations of the United Nations system and look forward to their continued support and co-operation. They wish, in particular, to thank Mr. Yasushi Akashi, Under-Secretary-General for Disarmament Affairs, Mr. Sohrab Kheradi, Principal Officer in the Department for Disarmament Affairs, who served as Secretary of the group, and Ms. Agnès Marcaillou, Political Affairs Officer in the Department, who served as Deputy Secretary of the group.

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

(Signed) Ernst A. EZZ
Chairman of the group of qualified
experts established in pursuance of
General Assembly resolution 42/37 C

ANNEX II

Replies received from Member States

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AUSTRIA

[Original: English]

[30 August 1988]

The Permanent Mission of Austria to the United Nations has the honour to advise that the names of the Austrian experts remain the same as those published in document A/38/435, i.e. Professor Dr. Machata and Professor Dr. Moese.

BELGIUM

[Original: French]

[11 August 1988]

The Permanent Representative of Belgium to the United Nations has the honour to submit herewith the list of qualified Belgian experts on chemical and bacteriological weapons:

H. d O Bischoop, M.S. Eng. Ph.D.

Laboratoire de détection • ♦ d'identification d'agents chimiques du Département
NBC (Laboratory for the Detection and Identification of Chemical Agents of
the Nuclear, Biological and Chemical Department)
Services techniques de la Force Terrestre [Land Forces Technical Services]
Quartier Major Housiaux
1801 Vilvoorde

J. Willems, M.D. Ph.D.

Ecole royale du Service médical [Royal Medical Service School]
Casernes Léopold
9000 Gand

D. Lison, M.D.

Laboratoire de toxicologie médicale des Services techniques de la Force
Terrestre [Medical Toxicology Laboratory of the Land Forces Technical
Service 6]
Quartier Major Housiaux
1801 Vilvoorde

BRAZIL

[Original: English]

[15 June 1988]

Following are the names of qualified experts and laboratories for the purposes referred to in paragraph 6 of resolution 42/37 C:

(a) Expert8 qualified to carry out investigation8 concerning the possible use of **chemical weapons** :

(i) Doctor Otto **Vicente Perroni**

NORQUISA

Praia da Botafogo, 228 Gr. 1202

Phone: (021) 551-1388. Rio de Janeiro - RJ

(ii) Doctor Rodrigo **José Thedeim Silvado**

PETROQUISA - Assessoria de Meio Ambiente

Rua Burnoe Aires, 40

Phone: (021) 296-5131. Rio de Janeiro - RJ

(iii) Doctor **Francisco Ascendino** Ribeiro Filho

NORQUISA

Praia de Botafogo, 226 Gr. 1202

Phone: (021) 551-1388. Rio de Janeiro - RJ

(b) **Laboratories** qualified to undertake **testing** for the presence of chemical agents:

CENPES - **Contra de Pesquisa e Desenvolvimento**

teopoldo **Miguez de Mello, PETROBRAS**

Ilha do Fundão, Quadra 7, Cidade **Universitária**

Phone: (021) 598-6388. Rio de Janeiro - RJ

BRUNEI DARUSSALAM

[Original: English]

[28 March 1988]

The Permanent **Representative** of Brunei Darussalam would like to inform the **Secretary-General** that he does not have available any names of qualified **experts** and of **laboratories** that the Permanent Representative could provide **for the purpose** referred to in the resolution.

CANADA

[Original : English]

[21 July 1988]

The Permanent Representative is **pleased** to inform the **Secretary-General** that the Canadian **authorities** are prepared to have the laboratories at **Defence Research Establishment Suffield (DRES)** and **Defence Research Establishment Ottawa (DREO)** provide for the **purposes** referred to in resolution 42/37 C.

CENTRAL AFRICAN REPUBLIC

[Original : French]

[6 June 1988]

1. The Permanent Mission of the Central African Republic to the United Nations has the honour to inform the Secretary-General that the Central African Republic does not have a qualified expert capable of detecting the effects of chemical and bacteriological weapons for the purposes indicated in paragraph 6 of resolution 42/37 C.

2. However, the Government of the Central African Republic will spare no effort to inform the Secretariat in timely fashion of the names of nationals of the Central African Republic who are capable of carrying out such work, in the interests of the international community as a whole.

DENMARK

[Original; English]

[27 September 1988]

1. The Permanent Representative of Denmark has the honour to submit the following information on Danish reports and laboratories, that could be made available to undertake investigations as mentioned in paragraph 4 of resolution 42/37 C:

- (a) Staten8 Veterinære Serumlaboratorium**
(The State Veterinary Serum Laboratory)
27 Bülowsvej
Postbox 373
DK 1503 Copenhagen V
- (b) Staten8 Veterinære Institut for Virusforskning**
(The State Veterinary Institute for Virus Research)
Lindholm
DK 4771 Kalvehave

(Virus-causing livestock diseases.)
- (c) Veterinærdirektoratet8 Laboratorium**
(The State Veterinary Service Food Control Laboratory)
Kongensgade 16
DK 4100 Ringsted

(Competence within the area of food microbiology.)

- (d) **Civilforvarets** Analytiak-Kemiske Laboratorium
(Analytical-Chemical Laboratory of the Danish Civil **Defence** and **Emergency**
Planning Agency)
18 Vordingborggade
DK 2100 Copenhagen O

(Chemical **weapons**, but *not* biological *weapons*.)

- (e) Denmark8 **Tekniske Højskole. Institut for Organisk Kemi**
(The Technical **University of Denmark. Departmsnt of Organic Chemistry**)
Building 201
DK 2800 Lynqby

- (f) Staten8 **Seruminstitut**
80 Amager Boulevard
DK 2300 Copenhagen S

(Micro-organisms **Class I and II**, plus a few **Clan8 III**.)

- (g) **Sundhedstyrelsen**
(National Board of Health)
13 **Amaliegade**
Postbox 2020
DK 1012 **Copenhagen K**

(Will by **previous** arrangement be able to refer to human-medical
toxicologists.)

2. It is assumed that requests from the **Secretary-General** to provide laboratories and experts will be made **through** official channels in order to conduct further negotiation8 with the laboratories and expert8 involved.

3. Furthermore, it is assumed that if the need arises for recruitment of experts, appropriate provision will be made for their safety, and the **longest** possible notice given with a view to obtaining the necessary vaccinations, practical training, etc., as well as leave of absence from their present jobs.

FINLAND

[Original: English]

[26 April 1988]

The following is a list of qualified experts and laboratory facilities with the capability to undertake testing.

A. Laboratory

Name:

Finnish Project on the Verification of Chemical Disarmament

Field of expertise:

- Chemical warfare methodology in general;
- Laboratory for *detection* of chemical warfare agents;
- Methods developed for the detection of ng-levels of agents and their degradation products in environmental samples;
- Expertise and instrumentation for structure elucidation of unknown toxic compounds;
- Ability to spike control samples with chemical warfare agents.

Points of contact:

1. Project Director, Jorma K. Miettinen
2. Project Co-ordinator, Marjatta Rautio

Mailing address and telephone number for point of contact:

Prof. Jorma K. Miettinen
University of Helsinki
Unionink. 35
SF-00170 Helsinki
Finland
Tel. 358-0-449038 or 358-0-1924391

Dr. Marjatta Rautio
Department of Chemistry
University of Helsinki
Vuorik. 20
SF-00100 Helsinki
Tel. 358-0-629728 or 358-0-481389
Telex 244-1002125 FINUH attn: Rautio

General nature of laboratory:

University research laboratory

Specific facilities and equipment:

Tonic agent handling facility) full range of analytical capabilities, including high resolution gas chromatography, high-performance liquid chromatography, ● nrymatic analyrir, high resolution mass spectrometry, MS/MS, 400 MHz NMR spectrometry ● quipped with a multinuclear probe, and retention spectrometry.

Relevant experience:

Methods for detection in pq-love1 and identification in ng-level of chemical warfare agents in rnvironmental samples. Eleven reports on analyrir of chemical warfare agents publihrd.

B. Experts

Name of experts:

Mr. Jorma K. Miettinen (see above)

Mr. Antti Hesso 1/

Mt. Risto Kostiainen 2/

Mr. Olli Kostiainen 2/

Field of expertise:

Instrumental analysis of chemical warfare agents, collection of samples from field sites.

Current position:

Research chemist; 1/ Institute of Occupational Health, 2/ Finnish Project for the Verification of Chemical Disarmament

Mailing address:

University of Helsinki
Department of Chemistry
Vuorikatu 20
SF-00100 Helsinki
Finland

Telephone numbers to reach expert rapidly:

Via points of contact

Educational background:

Orqonic analytical chemist

Relevant **experience**:

Field sampling and analysis of chemical warfare agents

Language proficiency:

English

Citizenship:

Finnish

Possibility of **bringing** with him his own **equipment**:

- Protection equipment:
- Field detection equipment:
- Sampling and packaging equipment.

FRANCE

[Original: French]

[23 September 1988]

1. The experts responsible for investigations in the field can be selected on request in the establishments mentioned below, in accordance with the fields of **specialization** indicated:

(a) **Chemical analysis - sampling**

(i) Centre **d'études** du Bouchet

Direction des recherches, **études** et techniques

Sous-direction "**Défense** NBC" [Bouchet Research Centre, Research and Technology Directorate, Nuclear, Biological and Chemical Defence Sub-directorate]

26 boulevard Victor

75996 Paris **Armées**

(ii) Laboratoire central de la **Préfecture** de Police

[Central Police Laboratory]

39 bis rue de Dantzig

75015 Paris

(b) **Chemical analysis - toxicology**

(i) Centre **d'études** du Bouchet (see (a) (i) above)

/...

(ii) Hôpital d'instruction des armées du Val de Grâce
Laboratoire de biochimie • ♦ de toxicologie clinique
[Val de Grâce Military Teaching Hospital, Biochemistry and Clinical
Toxicology Laboratory]
74 boulevard de Port-Royal
75230 Paris Cédex 05

(c) Infectious diseases - bacteria and viruses

(i) Centre de recherche du Service de santé des armées
[Research Centre of the Military Health Service]
Boîte postale 87
38702 La Tronche

(ii) Institut de médecine tropicale du Service de santé des armées
(Tropical Medicine Institute of the Military Health Service)

(d) Forensic medicine - anatomical pathology

Institut médico-légal
Préfecture de Police [Institute of Forensic Medicine, Police Headquarters]
2 place Mazas
75012 Paris

(e) Animal pathology

(i) Ecole nationale vétérinaire [National Veterinary School]
7 avenue du Général de Gaulle
94700 Maisons-Alfort

(ii) Institut d'élevage et de médecine vétérinaire des pays tropicaux
[Institute of Tropical Animal Husbandry and Veterinary Medicine]
10 rue Pierre Curie
94700 Maisons-Alfort

(f) Phytopathology - effect of pesticides

(i) Institut national agronomique [National Agronomic Institute]
16 rue Claude Bernard
75005 Paris

(ii) Institut national de la recherche agronomique
Département de phytopharmacie et de toxicologie
[National Agronomic Research Institute, Department of Phytopharmacology
and Ecotoxicology]
Domaine de Brouessy
Magny-les-Hameaux
76470 Saint-Rémy-lès-Chevreuse

2. The experts from these various establishments are qualified to operate in the field, given reasonable notice, and could possibly provide the necessary equipment for *an-rite analysis and sampling*.

3. The laboratories which could assist in analysing the samples gathered during an investigation are listed below. The names of the expert consultants responsible, in co-operation with the field experts, for interpreting the results of the laboratory analyses and, possibly, the results of the *analytical* carried out in the field, are indicated in the case of some of these laboratories.

(a) Chemical analysis

- (i) Centre d'études du Bouches (see (a) (i) above)
- (ii) Laboratoire central de la Préfecture de Police (see (a) (ii) above)
(Professor Henri Viellard)
- (iii) Laboratoire central de recherches et analyses
Service de la répression des fraudes [Central Research and Analysis
Laboratory, Fraud Prevention branch]

(b) Toxicology - mycotoxicology

- (i) Laboratoire de biochimie et de toxicologie
Clinique de l'Hôpital du Val de Grâce (see (b) (ii) above)
(Biochemistry and Toxicology Laboratory, Clinic of the Val de Grâce
Hospital)
- (ii) Laboratoire de toxicologie clinique de l'Hôpital Fernand Widal
[Clinical Toxicology Laboratory of the Fernand Widal Hospital]
(Mrs. Marie-Louise Efthymiou)
200 rue du Faubourg Saint. Denis
75475 Paris Cédex 10
- (iii) Laboratoire central d'hygiène alimentaire
[Central Food Hygiene Laboratory]
(Dr. Cumont)
47 rue de Dantzig
75015 Paris

(c) Bacteriology and virology

- (i) Centre de recherche du Service de santé des armées (see (c) (i) above)
- (ii) Institut de médecine tropicale du Service de santé des armées
(see (c) (ii) above)
- (iii) Laboratoire national de la santé [National Health Laboratory]
(Dr. Alain Chippaux)
25 boulevard Saint Jacques
15014 Paris

(iv) Institut Pasteur [Pasteur Institute]
(Professors Herbert Marcovich and Pierre Sureau)
25 rue du Docteur Roux
75015 Paris

(d) Forensic medicine - anatomical pathology

Institut médico-légal (see (d) above)
(Professor Michèle Rudler)

(e) Animal pathology

(i) Ecole nationale vétérinaire (see (e) (i) above)
(Professor Toma)

(ii) Institut d'élevage • ♦ de médecine vétérinaire des pays tropicaux
(see (e) (ii) above)
(Dr. Provost)

(f) Plant pathology

(i) Institut national agronomique (see (f) (i) above)
(Dr. Coleno)

(ii) Institut national de la recherche agronomique (see (f) (ii) above)

GERMANY, FEDERAL REPUBLIC OF

[Original: English]

[22 June 1988]

1. In his note the Secretary-General requests the transmission of the names of qualified experts and laboratories to carry out investigations on the possible use of chemical and bacteriological (biological) or toxin weapons that may constitute a violation of the 1925 Geneva Protocol or other relevant rule of customary international law in order to ascertain the facts of the matter and to report promptly the results of any such investigation to all Member States as referred to in resolution 42/37 C.

2. Relevant information concerning the Federal Republic of Germany is provided in the attached list:

(a) Experts

(i) Prof. Dr. Hellmut Hoffman

Born in Reichenberg on 7 November 1926.

**1948-1957 Studied chemistry in Frankfurt and Mainz (DSc).
From 1957 Research Assistant at the University of Mainz.
From 1962 Lecturer in organic and theoretical organic chemistry.
1966 Bayer AG chemical concern,
Head of chemical research in the plant protection division.
1968 Appointed supernumerary professor at Mainz University.
1977 Honorary Professor at Wuppertal Comprehensive University,
specializing in the chemistry and technology of plant protection
● contr, principally insecticides.**

For many years Professor Hoffman has been adviser to the Federal Government ● and the delegation of the Federal Republic of Germany to the Committee on Disarmament.

(ii) Prof. Dr. Lothar Leistner

Born in Aue on 23 July 1927,

**1947-1953 Studied veterinary medicine at Leipzig and Berlin.
1952-1954 Research Assistant at the Free University of Berlin.
From 1954 Microbiological research at the Federal Institute for Meat
Research in Kulmbach, Federal Republic of Germany.
1959-1961 Visiting scientist at the American Meat Institute Foundation,
Chicago.
1961-1962 Probationer at the Institut Pasteur de Lille.
1962-1963 Euratom, Fontenay-aux-Roses.
1963-1966 Assistant Professor at Iowa State University, Ames.**

**Since 1966 Professor and Director at the Department of Microbiology,
Toxicology and Hygiene of the Federal Institute for Meat
Research, Kulmbach, specializing in microbiology and toxicology of
foodstuffs.**

(b) Laboratory

**Facilities at the following establishment in the Federal Republic of Germany
could be made available, if necessary, for the purposes of resolution 42/37 C:**

**Wehrwissenschaftliche Dienststelle der Bundeswehr für ABC-Schutz
D-3042 Münster/Ortze
Humboldtstrasse**

**Since the staffing of this institution and the responsibilities of individual
experts are subject to change, requests for assistance should be addressed to
the Director of the institution.**

IRAQ

[Original: Arabic]

[13 July 1988]

1. Iraq nominal68 the experts whose names and fields of specialization follow:

Colonel Ihsan Abd al-hir al-Shamma'
Physician; internist

Colonel Mu'tasim Sa'id al-Wnttrr
Pharmacologist; Master's degree in toxicology

Lieutenant Colonel Nabil Wadi' Ziya
Chemist; Master's degree in pharmacological chemistry

Lieutenant Colonel Yasin Shalman Hasan
Physician; Master's degree in clinical chemistry

Major Husayn Hasan Kharnub
Chemist; Doctorate in analytical chemistry

2. The Mission further has the honour to convey its regrets that it is not possible for Iraqi laboratories to be used for the purpose stated in the note of the Secretary-General.

NETHERLANDS

[Original: English]

[11 August 1988]

The Acting Permanent Representative of the Kingdom of the Netherlands to the United Nations has the honour to submit hereunder the names of the qualified experts for the purposes referred to in resolution 42/37:

- Mr. M. van Zelm
Director, Chemical Research
Prins Maurits Laboratorium
TNO (Rijswijk - The Netherlands)

- Dr. H. L. Bottr
Head, Research Group on
Analytical Chemistry
Prins Maurits Laboratorium
TNO (Rijswijk - The Netherlands)

NEW ZEALAND

[Original: English]

[11 August 1988]

The Chargé d'affaires a.i. of New Zealand has the honour to advise that the Government Of New Zealand wishes to nominate two experts competent to assist in the investigation of allegations of chemical and bacteriological or toxin weapons use together with one laboratory capable of undertaking testing for the presence of agents the use of which is prohibited:

(a) Experts

Ralph Edwards, FRCP (London), FRACP, MAACT
Director, National Toxicology Group
Associate Professor in Clinical Toxicology
Medical Assessor for Medicines Adverse Reactions
Pacific Regional Secretary of the World Federation of Poison Control and
Clinical Toxicology Centres

Wayne A. Temple, Ph.D., C.Chem, FRSC, FNZIC, MAACT
Scientific Director, National Toxicology Group
National Representative, Toxicology Section, International Union for Pure and
Applied Chemistry.

(b) Laboratory

The Chemistry Division of the Department of Scientific and Industrial Research
Private Bag
Wellington

(Noted that this laboratory was nominated by New Zealand following a request in 1983.)

NORWAY

[Original: English]

[27 April 1988]

The laboratories and contact persons in Norway would be:

- Professor Frode Fonnum
Director, Norwegian Defence Research Establishment
Division for Environmental Toxicology
P.O. Box 27
2007 Kjeller
Norway

- Dr. Tove Omland
Director, Norwegian Defence Microbiological Laboratory
Geitmyrsveien 75
0426 Oslo 4
Norway

PHILIPPINES

[Original; English]

[13 July 1988]

The Permanent Representative of the Philippines has the honour to transmit herewith the names of qualified Philippine experts and laboratories who may assist the Secretary-General in investigations on chemical and bacteriological or toxin weapons:

(a) Experts

Miss Rosario Martin
Senior Research Chemist
Bureau of Food and Drugs
Department of Health
Alabang, Muntinlupa
Metro Manila

Dr. Clara Lim-Sylirngco
Professor of Chemistry
College of Science
University of the Philippines
Diliman, Queson City

Dr. Edwin Magallona
Vice-Chancellor
University of the Philippines
Los Banos, Laguna

Dr. William Padolina
Director
National Institute of Biotechnology and Applied Microbiology
University of the Philippines
Los Banos, Laguna

Dr. Armando Andaya
Department of Biology
College of Science
De La Salle University
Taft Avenue, Manila

Prof. Amorita Castillo
College of Pharmacy
University of the Philippines
Manila

Dr. Quintin L. Kintanar
Executive Director
Philippine Council for Health Research and Development
Department of Science and Technology
Bicutan, Tagig, Metro Manila

Dr. Nella Cortes-Maramba
Department of Pharmacology
College of Medicine
University of the Philippines
Manila

Ms. Angelita Reyes
Department of Biochemistry
College of Medicine
University of the Philippines
Manila

Prof. Lina Somera
Department of Environmental and Occupational Health
College of Public Health
University of the Philippines
Manila

Dr. Eulalia Venson
Biology and Toxicology Department
Industrial Technology Development Institute
Department of Science and Technology
Bicutan, Tagig
Metro Manila

Ms. Erlinda Gonzales
Environment Management Bureau
Department of Environment and Natural Resources
P. Gil St., Manila

Dr. Modesto T. Chua
Philippine Institute of Pure and Applied Chemistry (PIPAC)
Ateneo de Manila University
Loyola Heights, Katipunan Road
Diliman, Quezon City

Dr, Flora L. Santos
Analytical Measurements Research Group
Atomic Research Division
Philippine Nuclear Research Institute (PNRI)
Don Mariano Marcos Avenue
Diliman, Quezon City

Ms. Ester Ajon/Auxilia Tan/Mr, Jobert Ochoa
Microbiological Services Unit
Natural Science Research Institute
University of the Philippines
Diliman, Quezon City

Ms. Belleflor Gonzales/Evangeline Santiago/Criselda Africa
Analytical Services Laboratory
Natural Science Research Institute
University of the Philippines
Diliman, Quezon City

(b) Laboratories

Philippine Institute of Pure and Applied Chemistry
Ateneo de Manila University
Loyola Heights, Katipunan Road
Diliman, Quezon City

Philippine Nuclear Research Institute (PNRI)
Don Mariano Marcos Avenue
Diliman, Quezon City

Natural Science Research Institute
University of the Philippines
Diliman, Quezon City

Department of Environmental and Occupational Health
College of Public Health
University of the Philippines
Manila

Biology and Toxicology Department
Industrial Technology Development Institute
Department of Science and Technology
DOST Compound, Gen. Santos Avenue
Bicutan, Taguig
Metro Manila

Department of Biochemistry
College of Medicine
University of the Philippines
Manila

Department of Pharmacology
College of Medicine
University of the Philippines
Manila

College of Pharmacy
University of the Philippines
Manila

Environment Management Bureau
Department of Environment and Natural Resources
P. Gil St., Manila

Bureau of Food and Drug
Department of Health
Alabang, Muntinlupa
Metro Manila

SPAIN

[Original: Spanish]

(3 August 1988)

1. The Spanish experts are as follows:

Colonel Alejandro Rodríguez Carmona. Active reserve. Diploma in hygiene and bacteriology. In 1966 attended the Third International Course on Military Health. Professor of Hygiene and Preventive Medicine at the Universidad Complutense de Madrid.

Colonel Manuel Ros Linares. Available for employment. Attaché to the Military Government in Madrid. Nine years of experience as Professor at the Centro de Enseñanza de Armas Nucleares Biológicas y Químicas (Teaching Centre for Nuclear, Biological and Chemical Weapons). Specialist in nuclear, biological and chemical weapons.

Captain José Luis Poves. Professor at the Academia de Sanidad Militar and the Centro de Enseñanza de Armas Nucleares Biológicas y Químicas; five years of experience.

Commandant José Luis Rodríguez Zaso. Now serving in the Parque y Laboratorio Central de Veterinaria Microbiológica [Animal park and Central Laboratory for Microbiological and Veterinary Studies]. Specialist in nuclear, biological and chemical weapons.

Captain Carlos Mediavilla Bravo. Serving in the Parque y Laboratorio Central de Veterinaria Microbiológica [Animal park and Central Laboratory for Microbiological and Veterinary Studies]. Specialist in nuclear, biological and chemical weapons.

Captain Fernando Mourenza Fernández of the **Cuorpo de Ingenieros de Armamento y Construcción** [Corps of Engineers for Armaments and Construction]. Has experience of laboratory work in chemical weapons. Is serving in the **Laboratorio Quimico central** (Central Chemical Laboratory) at **La Marañosa**;

Lieutenant **Alfredo Fernández López** of the **Cuorpo de Ingenieros de Armamento y Contrucción** [Corps of Engineers for Armaments and Construction]. Has experience of laboratory work in chemical weapons. Is serving in the **Laboratorio Quimico central** [Central Chemical Laboratory] at **La Marañosa**;

Commandant Luis Villalonga Martínez, Professor of the **Escuela de Estado Mayor** [Staff College], specialist in nuclear, biological and chemical weapons, with extensive teaching experience and many publications.

2. At the same time, the Permanent Mission of Spain is glad to make available the following installation for the purposes of testing mentioned in resolution 42/17 C.

Laboratorio Quimico de la Fábrica de la Marañosa
Dirección General de Armamento y Material
Ministerio de Defensa
Madrid

This laboratory may carry out certain identification tests of chemical abrasives.

SWEDEN

[Original : English]

[14 June 1988]

(a) Laboratories with the capability to undertake testing for the presence of agents, the use of which is prohibited:

Chemical and bacteriological (biological) and toxin agents:

Swedish Defence Research Establishment
Department of NBC Defence
S-901 82 Umeå

Tel: int + 46 90 189230
Telex: 54922 FOAUME S
Telefax: int + 90 186902

/...

Bacteriological (biological) and toxin agents:

National Bactrriologicrl Laboratory
Lundagatan 2
E-105 21 Stockholm
Sweden

Tel: int + 46 8 7351000
Telex: 11911 SBL S
Telefax: int + 8 7303248

- (b) **Qualified experts at the Swedish defence research establishment, whose services could be made available at short notice to undertake such investigations as referred to in resolution 42/37 C**

Dr. Gustav Andersson (chemical and toxin weapons)

Dr. Anita Meyerhöffer (chemical and toxin weapons)

Dr. Sven-Åke Persson (chemical and bacteriological (biological) and toxin weapons, medical ● rpctr)

Dr. Roger Roffey (bacteriological (biological) and toxin weapons)

Dr. Johan Santesson (chemical and toxin weapons)

Further experts can, if the need arises, be suggested by the Directors of the two laboratories mentioned above.

UNION OF SOVIET SOCIALIST REPUBLICS

(Original; Russian)

(21 July 1988)

1. **The Soviet Union condemn and will continue to condemn vehemently the use of chemical or bacteriological weapons, in violation of the 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, to which the USSR has been a party since 1928. Any violation of that Protocol is inadmissible, runs counter to civilised norms and cannot be justified on any grounds.**

2. **The Soviet Union, which advocates a strengthening of the régime ● established by the Geneva Protocol, intends to support the investigation by the Secretary-General of reports of possible use of chemical and bacteriological (biological) or toxin weapons. The Soviet Union informs the Secretary-General that the following ● reports have been appointed to participate in the investigation of cases of the use of chemical weapons!**

Major-General Igor Borisovich Evstafyev, Doctor of Technical Sciences;
Lieutenant-Colonel Vadim Pavlovich Zubrilin, Master of Chemical Sciences;
Lieutenant-Colonel Aleksei Innokentyevich Bannikov, Master of Medical Sciences;
Colonel Anatoly Evgenyevich Gusakov, Master of Chemical Sciences;
Colonel Nikolai Andreevich Loehadkin, Master of Medical Sciences;
Colonel Yury Arkadyevich Gorbunov, Master of Chemical Sciences.

The following ● nprtr have been appointed to participate in the investigation of cases of the use of bacteriological weapons:

Major-General Konstantin Sergeevich Ivanov, Doctor of Medical Sciences;
Colonel Viktor Filippovich Korolkov, Master of Medical Sciences;
Colonel Leonid Petrovich Sviridov, Doctor of Medical Sciences;
Colonel Vladimir Pavlovich Chichov, Doctor of Medical Sciences.

3. The ● xprtr included in this list will be able, when called, to proceed immediately to the place where an investigation is being conducted.

4. The Soviet Union will be prepared to provide, in the future, laboratories for carrying out analyses in connection with the Secretary-General's investigation of cases of the use of chemical and bacteriological weapons.

UNITED REPUBLIC OF TANZANIA

[Original: English]

[28 March 1988]

The United Republic of Tanzania, at the moment, does not have qualified experts whose service could be made available at short notice to undertake investigation regarding the possible use of chemical and bacteriological (biological) or toxin weapons that may constitute a violation of the 1925 Geneva Protocol or other relevant rules of customary international law.

UNITED STATES OF AMERICA

[Original: English]

[July 1988]

1. Submitted herewith are lists of experts and laboratories in the United States that can be utilized by the Secretary-General of the United Nations to assist in the conduct of short-notice investigations of alleged uses of chemical and bacteriological (biological) or toxin weapons that may constitute a violation of the 1925 Geneva Protocol.

2. The experts whose names are submitted have a broad background in analytical, organic and biochemistry, biology, virology, toxicology and field-site sample collection techniques and analysis. The listed laboratories are experienced and equipped to test for various types of chemical, bacteriological and toxin agents.

(a) Experts:

(i) Name of expert:

Benjamin Y. H. Liu

Field of expertise:

All aspects of chemical science, including sampling, dissemination, detection, morphological and analytical.

Current position:

Chairman, Department of Mechanical Engineering
University of Minnesota

Mailing address:

Department of Mechanical Engineering
University of Minnesota
111 Church Street SE
Minneapolis, MN 55455

Telephone number:

(612) 625-6574

Educational background:

B.S., Mechanical Engineering, University of Nebraska
Ph.D., Mechanical Engineering, University of Minnesota

Relevant experience:

Experienced in all aspects of aerosol science. Chairman of Special Panel for Aerosol Sampling Subsystems on the CB Mini-Detector and Mini-Mr88 Spectrophotometer. Has also served on or chaired many panels concerned with atmospheric pollution.

Citizenship:

United States

(ii) **Name of expert:**

Matthew S. Meselson

Field of expertise:

Molecular biology of nucleic acids; mechanisms of DNA recombination and repair; gene control and evolution.

Current position:

Cabot Professor of Natural Science
Harvard University

Mailing address:

Department of Biology, Biochemistry and Molecular Biology
7 Divinity Avenue
Cambridge, MA 02138

Telephone number:

(617) 493-2264 (office)

Educational background:

Ph.D., University of Chicago
Ph. D., California Institute of Technology

Relevant experience:

Instrumental in negotiating the 1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction. Active in the public review of scientific data supporting the United States position associated with yellow rain.

Citizenship:

United States

(iii) Name of expert:

Honk L. C. Meuselaar

Field of expertise:

Instrumental techniques for real-time detection and identification of micro-organisms and other materials of biological origin; microanalysis of chemical and biological materials; forensic pathology.

Current position:

Professor of Materials Science and Engineering, University of Utah
Adjunct Professor of Pathology, University of Utah
Director, Microanalysis Center, University of Utah

Mailing address:

Center for Microanalysis
Building 61, Room 214
University of Utah
Salt Lake City, Utah 84112

Telephone number:

(801) 581-4200 (office)

Educational background:

M.D., Free University of Amsterdam, 1966
Ph.D., Analytical Chemistry, University of Amsterdam, 1974

Relevant experience:

Experience in analysis of biological materials; biological sampling; research in instrumentation for real-time detection and identification of micro-organisms; microanalytical research.

Citizenship:

United States

(iv) Name of expert:

Leonard Newman

Field of expertise:

Environmental chemistry
Development of analytical methods
Solvent • reaction mechanisms
Complex ion equilibria
Atmospheric and solution kinetics

Current position:

Head, Environmental Chemistry Division
Brookhaven National Laboratory

Mailing address:

Environmental Chemistry Division
Brookhaven National Laboratory
Bldg. 426
Upton, NY 11973

Telephone number:

(516) 282-4467

Educational background:

B.S., Polytechnic Institute of New York, 1952
Ph.D., Chemistry, MIT, 1956

Relevant experience:

Chairman, Special STAS Panel on Sample Analysis convened in 1986 and 1997. Served on several panels concerned with atmospheric chemistry, including atmospheric *affect* of nuclear materials.

Citizenship:

United States

(v) Name of expert:

John L. Middlebrook

Field of expertise:

Toxins

Current position:

Chief, Department of Toxinology

Mailing address:

United States Army Medical Research Institute of Infectious Diseases
Ft. Detrick
Frederick, Maryland 21701

Telephone number:

(301) 663-7211 (office)

Educational background:

B.S., Chemistry, 1968, Pacific University, Forest Grove, Oregon
Ph.D., Biochemistry, 1971, Duke University, Chapel Hill, North Carolina
Postdoctoral fellowship, 1972-1974, Stanford University Medical School,
Palo Alto, California

Relevant experience:

Knowledge and experience in toxins of biological origin, their mechanisms of action, pathogenesis, prophylaxis and therapy.

Citizenship:

United States

(vi) Name of expert:

David L. Bunner

Field of expertise:

Toxins

Current position:

Chief, Pathophysiology Division

Mailing address:

United States Army Medical Research Institute of Infectious Diseases
Ft. Detrick
Frederick, Maryland 21701

Telephone number:

(301) 663-7181 (office)

Educational background:

B.S., biology, 1961, Ohio Stat. University
M.D., Ohio State University
Board-certified in ● ndocrinology and internal medicine

Relevant experience:

Research and management in toxinology since 1980.

Citizenship:

Vni ted States

(vii) **Name of expert:**

Clarence J. Peters

Field of expertise:

Viral infections

Current position:

Deputy Commandor and Chief, Disease Assessment Division

Mailing address:

United States Army Medical Research Institute of Infectious Diseases
Ft. Detrick
Frederick, Maryland 21701

Telephone number:

(301) 663-7193 (office)

Educational background:

B.A., Chemistry, 1961, Rice University
M.D., 1966, John8 Hopkins University
Board-cartifird in internal medicine

Relevant experience:

Research and management in virology, pathogenesis, prevention and therapy
Of viral dir.8808 since 1977.

Citizenship:

Vnitrd States

(viii) Name of expert:

Martin H. Crumrine

Field of expertise:

Bacterial toxins

Current position:

Chief, Bacteriology Division

Mailing address:

United States Army Medical Research Institute Of Infectious Diseases
Ft. Detrick
Frederick, Maryland 21701

Telephone number:

(301) 663-7341 (office)

Educational background:

B.S., Bacteriology, 1967, Kansas State University
M.S., Microbiology, 1970, Kansas State University
Ph.D., Medical Microbiology, 1971, Kansas State University

Relevant experience:

Experience in numerous food-borne and infectious diseases, their prevention and therapy, and rapid diagnosis and identification of bacteria and their toxins.

Citizenship:

United States

(ix) Name of expert:

Joshua Lederberg

Field of expertise:

Biotechnologist credited with the discovery that founded the field of biotechnology. Received the Nobel Prize for that work in 1958. Reviewed the evidence for yellow fever for the highest government level.

Current position:

President
Rockefeller University
Now York, Now York

Mailing address:

President
Rockefeller University
Now York, Now York 10021-6399

Telephone number:

(212) 576-8000

Educational background:

B.A., Columbia University
Ph.D., Microbiology, Yale University

Relevant experience:

Dr. Lederberg has served on several cabinet-level committees responsible for reviewing the work of other scientists. Through these assignments he has become highly familiar with the use or suspected use of chemical and biological agents in warfare. With this knowledge and his unquestionable scientific credentials, he is an outstanding candidate to lead or be a member of any investigative team.

Citizenship:

United States

(x) Name of expert:

M. Frederick Hawthorne

Field of expertise:

Inorganic and organometallic chemistry related to development of the basic understanding of boron hydride systems and utilisation of new reactive systems for synthesis.

Current position:

Professor Of Chemistry
University of California at Los Angeles
Los Angeles, California

Mailing address:

Department of Chemistry
University of California at Los Angeles
Los Angeles, California

Telephone number:

(213) 825-7378/7412

Educational background:

B.A., Pomona College, Pomona, California
Ph.D., University of California, Los Angeles, California

Relevant experience:

Dr. Hawthorne is currently chairman of the United States Army Board on Army Science and Technology on Chemical/Biological Technology. He has detailed knowledge of the problems of the technologies involved with the identification and decontamination of chemical warfare agents. In addition, Professor Hawthorne is recognized as an international authority on mechanisms of organometallic derivatives, homogeneous catalysis and the application of these materials to immunochemical problems.

Citizenship:

United States

(xi) **Name of expert:**

Michael A. Wartell

Field of expertise:

Physical chemistry; forensic chemistry.

Current position:

Vice-President for Academic Affairs
Humboldt State College

Mailing address:

Humboldt State College
Arcata, California 95521

Telephone number:

(707) 826-3722

Educational background:

B.S., Chemistry, University of New Mexico, 1967
M.S., Physical Chemistry, Yale University, 1968
Ph.D., Physical Chemistry, Yale University, 1971

Relevant experience:

Follow, American Academy of Forensic Sciences; has conducted studies and served as an expert witness in the field of forensic chemistry.

Citizenship:

United States

(b) **Laboratories:**

(i) **Name of laboratory:**

United States Army Medical Research Institute of Infectious Diseases
(USAMRIID)

Field of expertise:

Basic research on bacterial, viral, rickettsial and toxin disease agents and means of prophylaxis and therapy, rapid diagnosis and agent identification.

Point of contact:

David L. Huxsoll, DVM, Ph.D.
Commander

Mailing address and telephone number of point of contact:

United States Army Medical Research Institute of Infectious Diseases
Ft. Detrick
Frederick, Maryland 21701
(301) 663-2833

General nature of laboratory:

Government medical research and development laboratory

Specific facilities and equipment:

Suite of Biosafety Level 4 containment laboratories 20-bed general medical ward, 16-bed research ward that can be isolated into a self-contained environment.

Relevant experience:

Research on infectious diseases and toxins, and development of vaccines and drugs, diagnostic and agent identification methods, and patient decontamination procedures.

(ii) Name of laboratory:

Battelle Columbus Laboratories

Field of expertise:

Detection and analysis of toxic chemicals; toxicology.

Point of contact:

Dr. David Clark/Dr. Ron Joiner

Mailing address and telephone number of point of contact:

Battelle Columbus Laboratories
505 King Avenue
Columbus, Ohio 43201
(telephone: (614) 879-5238/5118 or 424-5753)

General nature of laboratory:

Non-profit research laboratory

Specific facilities and equipment:

Toxic agent handling facility; full range of analytical capabilities, including GC/MS

Relevant experience:

Has conducted numerous projects in chemical agent identification, detection and analysis, as well as toxicology, for a variety of government agencies and industrial concerns.

(iii) Name of laboratory:

ITT Research Institute

Field of expertise:

Detection and analysis of toxic chemicals; toxicology

Point of contact:

Dr. Hugh O'Neill

Mailing address and telephone number of point of contact:

ITT Research Institute
10 West 35th Street
Chicago, IL 60610
(telephone: (312) 3567-4267)

General nature of laboratory:

Non-profit research laboratory

Specific facilities and equipment:

Toxic agent handling facility; full range of analytical capabilities, including GC/MS

Relevant experience:

He8 conducted numerous projects in chemical agent identification, detection and analysis, as well as toxicology, for a variety of government agencies and industrial concerns.

(iv) Name of laboratory:

Midwest Research Institute

Field of expertise:

Detection and analysis of toxic chemicals; toxicology,

Point of contact:

Dr. James Spigarelli

Mailing address and telephone number of point of contact:

Midwest Research Institute
425 Volker Boulevard
Kansas City, Missouri
(telephone: (816) 753-7600)

General nature of laboratory:

Non-profit research laboratory

Specific facilities and equipment:

Toxic agent handling facility; full range of analytical capabilities, including GC/MS

Relevant experience:

Has conducted numerous projects in chemical agent identification, detection and analysis, as well as toxicology, for a variety of government agencies and industrial concerns.

(v) Name of laboratory:

Southern Research Institute

Field of expertise:

Detection and analysis of toxic chemicals; toxicology,

Point of contact:

Dr. Herbert C. Miller

Mailing address and telephone number of point of contact:

Southern Research Institute
P.O. Box 55305
Birmingham, Alabama 35255
(telephone: (205) 323-6592)

General nature of laboratory:

Non-profit research laboratory

Specific facilities and equipment:

Toxic agent handling facility; full range of analytical capabilities, including GC/MS

Relevant experience:

Has conducted numerous projects in chemical agent identification, detection and analysis, as well as toxicology, for a variety of government agencies and industrial concerns.

(vi) Name of laboratory:

United States Army Chemical Research, Development and Engineering Center

Field of expertise:

Basic and applied research in chemical and biological warfare defence.

Point of contact:

Dr, Joseph J. Vervier

Mailing address and telephone number of point of contact:

United States Army Chemical Research, Development and Engineering Center
Attn: SMCCR-TD
Aberdeen Proving Ground, MD 21010-5423
(telephone: (301) 671-4364)

General nature of laboratory:

Government research laboratory

Specific facilities and equipment:

Toxic agent handling facility; full range of analytical capabilities, including GC/MS

Relevant experience:

Conducts basic and applied research in chemical and biological warfare defence. Extensive experience in investigating alleged use of chemical and biological warfare agents and their identification, detection and analysis, as well as toxicology.