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Verifying a Chemical Weapons Convention

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Introduction

The establishment of an effective verification system has been one of the most challenging tasks in the negotiations on a global ban on chemical weapons. It was clear from the outset, that due to the very nature of the obligations of a Chemical Weapons Convention, an imaginative and novel approach was called for in order to provide for the necessary confidence in compliance with the treaty. Compared, for example, to the INF treaty, where the object of agreement (intermediate range nuclear missiles) is clearly defined and identifiable, the situation with chemical weapons is more elusive. The ability of National Technical Means to verify compliance with obligations assumed under a CWC is limited at best. This suggests a verification approach going beyond the narrowly defined framework of those facilities and activities which are directly or indirectly related to chemical weapons and which have to be declared under the Convention. The Geneva negotiations broke new ground in the field of verification, in particular with the all-embracing measure of challenge inspection, for which there was no prior precedent in the history of arms control and disarmament.

The Verification System

Following intensive negotiations over the past several years, a coherent approach to the verification issue has emerged, designed to provide an adequate level of verifiability. This conceptually well-developed verification system consists of three elements:

1) *Verification of chemical weapons stocks and production facilities and their destruction:* The complete destruction of declared chemical weapons stocks and production facilities is to be achieved through a structured and verified process until its completion by the end of the tenth year after the entry into force of the Convention.

2) *Verification of non-production of chemical weapons:* Relevant non-prohibited activities of the chemical industry are verified by way of graded verification regimes subjecting chemicals listed on schedules and the facilities producing, processing or consuming those chemicals to international monitoring. As only a very limited number of facilities actually produce the chemicals listed in the schedules and would thus be declared and verified, ad hoc verification measures have been proposed as a complementary verification means designed to cover all facilities and plant sites of the chemical industry which might be misused for the production of chemical weapons.

3) *Clarification and verification procedures in case of ambiguous situations and doubts about compliance:* In order to satisfy itself of the compliance of other States Parties, each State Party may enter into consultations with other States Parties, request the Organization of the Chemical Weapons Convention to assist it in clarifying any situation regarding compliance or it may request that a short-notice challenge inspection be conducted by the Organization anywhere in another State Party.

* The views expressed are those of the author and do not necessarily reflect positions of the Government of the Federal Republic of Germany.

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These three basic elements provide for an integrated system. While elements one and two are of a routine character, linked to declared facilities and activities, element three may be considered as non-routine, in so far as suspicions or uncertainties are at the root of requests for the implementation of clarification procedures or for challenge inspections. The measures provided for under element three may be directed towards any facility or activity of concern to a State Party regardless of whether it is declared or undeclared, military or civil. The all-embracing challenge inspections provide for the ultimate "safety net."

In order to provide for an effective and orderly implementation of all kinds of on-site inspections provided for, the draft Convention also contains a Protocol on Inspection Procedures, which sets out in detail the rights and obligations of both the inspectors of the Technical Secretariat, which is part of the Organization, and the inspected State Party. In addition, an entire annex of the Convention is devoted to provisions governing the protection of confidential information and sensitive equipment and installations in the implementation of verification measures.

There is agreement among delegations at the negotiating table in Geneva that effective verification is of crucial importance for the effectiveness and success of a future Convention. Likewise, the concept of the verification system as outlined above seems to enjoy broad acceptance. However, important differences remain, primarily with regard to two verification instruments: challenge inspection and ad hoc verification measures. Unfortunately, the Summer negotiations of this year's session of the CD demonstrated that these differences do not concern only technical aspects, but are fundamental in character. In particular, China and some other Non-aligned countries have expressed their reservations. It thus seems useful to examine in some detail the concept underlying challenge inspection and ad hoc verification measures and to address some of the as yet unresolved problems connected with them. Such an examination must be made against the backdrop of the requirement to provide for effective and reliable verification, taking as a yardstick the criterion of "assured detectability."

Challenge Inspection

The idea of challenge inspection can be traced back to the draft treaty proposed by the United States in 1984. However, serious negotiations commenced only when the Soviet Union accepted mandatory challenge inspection without the right of refusal in August 1987. Despite intensive efforts undertaken since then, the issue of challenge inspection has not yet been resolved. All negotiating parties acknowledge the need for challenge inspection as a means to clarify doubts about compliance. However, as recent developments in the negotiations have shown, some delegations still have difficulties in accepting a verification regime which provides for the possibility of States Parties requesting an on-site inspection any time and anywhere on the territory of another State Party without that State Party being permitted to refuse such a request.

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Challenge inspections are the cornerstone of the verification system. They provide for an effective means to

- clarify uncertainties and suspicions which may arise;
- place activities in violation of the Convention, in particular those which are outside declared facilities (for example, hidden chemical weapons stocks), under a risk of detection and thus deter them; and
- offset insufficiencies of national technical means to verify compliance.

Reviewing the past negotiations on challenge inspection, the following unresolved points can be identified:

Scope of challenge inspections. Under present provisions of the rolling text only a comparatively small number of facilities would be subject to declaration and verification. This contrasts with the large number of sites and facilities in which treaty violation might take place. Therefore, challenge inspections are, above all, to provide access to non-declared facilities or sites. Due to the variety of possible violations, these facilities or sites elude any definition.

The above considerations led to the concept of "anywhere, anytime" inspections, which, since 1987, was propagated by Western and Eastern delegations alike, and which was held as a pivotal point of the envisaged challenge inspection regime.

Some delegations seem to have difficulties with the unrestricted scope of application of challenge inspections. One recent proposal envisages that challenge inspections shall only be conducted "in any facility, location or installation relevant to the compliance with or implementation of the Convention." It remains unclear what "relevant" means and who would be empowered to pass judgment on whether a facility targeted for a challenge inspection is relevant or not. Such a restriction of the scope of challenge inspections is not only legally imprecise and, therefore, conducive to unnecessary disputes among States Parties, but it might also provide a pretext for refusing a request for a challenge inspection. It would undermine the role that challenge inspections are to play within the overall verification system, since it would no longer be sure that concerns about compliance of other States Parties could in all cases be clarified with the help of on-site inspections.

Protection of sensitive installations. The protection of sensitive information and installations unrelated to chemical weapons is a legitimate concern. In the course of the negotiations, due attention has been paid to this problem. A visible outcome of the work undertaken in this regard is the Annex on the Protection of Confidential Information, which was established in 1989 and which contains a comprehensive set of provisions pertaining to all verification activities.

In the case of challenge inspections, the issue of access to be granted to the challenged site has been at the center

of interest. [In the case of routine inspections (with the exception of ad hoc verification, see below), access is regulated by facility agreements to be concluded between the inspected State Party and the technical Secretariat for each facility subject to routine inspection.] To make challenge inspection palatable to the Soviet Union, which until 1987 opposed mandatory access, the United Kingdom in 1986 proposed "alternative measures." This concept has remained rather undeveloped, in particular as concurrently a concept called "managed access" has been discussed. Managed access refers to inspection procedures and permissible measures to be taken by the inspected side to prevent the disclosure of sensitive information in the course of an on-site inspection. By way of contrast, alternative measures seemed to imply the possibility that a challenged State Party might deny any access to the site targeted by the challenging State Party and instead might be allowed to offer other means to demonstrate its compliance with the Convention.

The question of access still is a contentious core issue. In 1989, provisions on managed access were elaborated within the framework of the Protocol on Inspection Procedures. This work, which was undertaken with a view to facilitate the solution of the challenge inspection issue, brought about a carefully balanced approach to the issue of access: While the team of international inspectors is granted the access to the inspection site they deem necessary for the effective conduct of their mission, they are also under the obligation to conduct the inspection in the least intrusive manner possible and to refrain from activities going beyond their inspection mandate. And the inspected State Party has the right to propose ways and means for the actual conduct of the inspection, and may take certain measures, for example, the logging off of computers and the shrouding of objects to protect sensitive information.

Although the inspection team is granted the final say on the necessary degree of access, safeguards are built in to prevent misuse and to ensure that the concerns of the inspected State Party regarding the protection of confidential information are taken into account. Of course, this approach does not necessarily preclude the possibility that the inspected State Party referring to its sovereignty might, in an exceptional case, deny access requested by the inspection team. However, in such a case, the inspected State party will have to answer for this in the Executive Council and possibly the Conference of the States Parties, the political organs of the Organization. In any event, the inspected State Party--and this is the cardinal point of the whole challenge inspection concept--is under the obligation to demonstrate compliance with the Convention.

The problem of protecting sensitive installations cannot be resolved in the abstract. Practical experience is needed. In order to gain such experience, some States, in particular the United Kingdom and the Federal Republic of Germany, have conducted trial challenge inspections of sensitive military and commercial facilities. The results of those trials suggest that some form of access can be granted even to highly sensitive military installations and that an effective challenge inspection is feasible without any significant loss

of confidential information. They have demonstrated that the access to an inspection site is the subject of an intensive negotiating process between the inspected State Party and the inspection team. The experience gained also suggests that provided the inspected State Party is willing to demonstrate its compliance and the inspection team is discharging its task in a professional way not going beyond its mandate, the case mentioned above--a State Party refusing access demanded by the inspection team--might never occur.

Practical experience also shows that the list of measures to protect sensitive installations--included under the heading "managed access" in the Protocol on Inspection Procedures--is far from exhaustive. A good example is provided by the British RANSAC (random selective access) concept, which was presented to the Conference on Disarmament this year in a working document recording the results of the series of challenge inspections undertaken by the United Kingdom: In order to prevent the inspection team from getting a precise picture enabling them to make, for example, a complete inventory of what is stored in which quantities at an ammunition storage site, the inspection team is not permitted to inspect all storage bunkers, but it may only randomly select a certain percentage of bunkers for inspection.

In order to alleviate concerns about the risk of the disclosure of sensitive information, it is necessary to concentrate on the further development of the managed access concept. Trial challenge inspections are an indispensable means to achieve progress in this field. They also prompt States Parties to reconsider and get a better understanding of what really must be classified as confidential, and thus be protected. Indeed, it was only after having conducted a series of trial challenge inspections of sensitive facilities under nearly realistic conditions, that the United Kingdom concluded that the "alternative measures" concept was no longer needed.

Mandatory access should remain a standard feature of challenge inspections. If the Convention were to allow a requested State Party to refuse access, the entire concept of challenge inspection would be jeopardized. For potential violators, the perceived risk of detection would be considerably reduced. Suspected of breaching the Convention, they might resort to the option of denying access, thus making it impossible for the Organization to collect sufficient evidence by way of an on-site inspection and to assess whether the State Party in question is in compliance or not.

Despite legitimate concerns over possible losses of sensitive information, confidence should be placed in the professionalism and work ethic of the international inspectorate. In addition, it has to be pointed out that the inspection activities under the Convention are not taking place in a vacuum, but are subject to close supervision, not least also by political bodies, which would force the Technical Secretariat to discharge its functions--in particular in the field of verification--objectively, lest it be accused of partiality.

Role of the requesting State and the Organization in the conduct and evaluation of a challenge inspection. The question of whether challenge inspections are primarily a bilateral or multilateral verification instrument has given rise to protracted ideological debates in the negotiations. Non-aligned countries were seen to be favoring a strictly multilateral approach, whereas Western countries have emphasized the bilateral aspect of challenge inspections.

The debates on this issue have grown somewhat out of proportion and have lacked a sufficient sense of the realities of practical implementation of inspections. In order to overcome the ideological hurdles erected in the course of the discussions, it would seem necessary to proceed from the following general observations:

Challenge inspections are to be considered multilateral, as they are part of a multilateral Convention, granting equal rights to each of its Parties. Compliance is a concern of all Parties. Challenge inspections are bilateral insofar as they are triggered by requests of a single State Party for an on-site inspection to be conducted by an inspection team of the Organization on the territory of another State Party. This seems to be a legitimate procedure, as each State Party should be able to seek reassurance in case it has doubts about the compliance of another State Party. If each State Party has the right to obtain this reassurance by requesting challenge inspections, this would enhance confidence in the Convention and thus be beneficial to the multilateral Convention regime as a whole.

The issue of the multilateral vs. bilateral nature of challenge inspection has been reflected in particular in the diverging views which have been expressed on the roles of the Executive Council and the challenging State Party with regard to the evaluation of the results of a challenge inspection. By looking at the political and practical circumstances under which a Convention will be implemented, one may come to the following conclusions:

First, it seems unrealistic to assume that the Executive Council, a political body of the Organization, consisting of representatives of sovereign States, can be prevented from discussing the results of a challenge inspection communicated to it and expressing its own opinion on whether or not the State Party is in compliance.

Second, the requesting State or any other State cannot be prevented from drawing its own conclusions regarding the results of a challenge inspection and taking those measures it considers necessary to maintain its national security, even if its assessment is not shared by the Executive Council. No individual State can be bound to decisions or measures adopted by the Executive Council which it perceives as jeopardizing its national security.

Taking these basic considerations as a point of departure, the process following the completion of a challenge inspection may be subdivided into two phases:

- a technical phase, encompassing the procedures for the submission of the inspection report; and

- a political phase, encompassing the evaluation of the report and possible further action by the political organs of the Organization or possibly the UN Security Council, as well as other individual States Parties affected--or considering themselves affected--by the results of a challenge inspection.

As the inspection report is of crucial importance, the Convention needs to contain provisions governing its contents and dissemination. Those provisions are basically procedural in nature and thus can already be found in the relevant parts of the Protocol on Inspection Procedures.

The political phase starts once the factual inspection report is being evaluated by States Parties or the political organs of the Organization. It would seem difficult and also not advisable to prescribe in the Convention what actions the Executive Council or individual States Parties have to take. This, however, does not mean that possible political actions would take place in a legal vacuum. The general rules of international law governing the relations between sovereign States and the maintenance of international peace and security apply in any event. In addition, actions of the Executive Council and the conference of the States Parties are governed by the relevant provisions on their powers and functions already contained in the draft Convention.

Another matter of divergent views is the role of the representative of the requesting State Party in observing a challenge inspection. Some Non-aligned countries question whether the requesting State should be given the right to send such an observer. By way of contrast, Western countries consider this right to be indispensable.

A misunderstanding of the function of the observer might be the reason for this disagreement: The primary task of the observer is to verify that the inspection team conducts the inspection in a proper and professional way. As such, it should be in the interest also of the inspected State Party to have an observer of the requesting State Party present: His presence would provide additional reassurance to the requesting State Party, while at the same time minimize the possibility that the requesting State Party rejects the findings of the inspection team under the pretext that it has not done its job properly.

The observer is not a member of the inspection team. Therefore, he would not necessarily have to be granted the same degree of access to the inspection site as the inspection team. The inspected State Party should have the right to regulate the observer's access in order to prevent him from gathering sensitive intelligence.

The above-mentioned considerations lead to the conclusion that the requesting State Party should be given the right to send an observer.

The nature of challenge inspection. The confrontational nature and the political implications of a request for challenge inspection have, for a long time, been a major issue in the discussions. While some delegations, in particular on the part of the Non-aligned countries, tried to make challenge inspections into a highly politicized instrument of truly exceptional character, others wanted to ensure that challenge inspections are a standard means of verification, the use of which should not be excluded by political hurdles which are put too high.

This issue does not seem to be a major stumbling block any longer. There now seems to be broad support for re-naming challenge inspections "inspections on request." This step seems to be logical in light of the following considerations:

- Challenge inspections are certainly non-routine in the sense that they are not implemented on a regular basis, as are the other verification measures of the Convention, but are triggered on account of doubts about compliance.

- At the same time, challenge inspections, like all other on-site inspections, are to provide reassurance of compliance by not relying solely on declarations or assertions of States Parties, but by checking on-site. In this regard, all inspection measures are of the same "routine" nature.

- Challenge inspections might be considered confrontational, as they seem to imply an allegation of non-compliance. However, all inspections might be considered accusatory or confrontational, as they can be interpreted as constituting disbelief in declarations made by States Parties.

- The nature of challenge inspection is a matter of perception. Perceptions might differ between individual people; in any event, it seems that challenge inspections must be considered as a matter of right, and accepted as an integral and usable element of the verification system.

- The purpose of verification is to build up and maintain confidence. Challenge inspections must be perceived as a legitimate means to serve this end.

The practical implementation of the Convention will show how challenge inspections will be perceived and utilized. The CSCE Stockholm Document of 1986 is a case in point in this regard. It provides for the possibility of requesting on-site inspections in cases of doubts about compliance. In practice, these inspections are requested without there being any real concerns about, or indications of, non-compliance. All parties to the Stockholm Document now seem to accept requests for on-site inspections as a matter of right and routine, without any negative political implications.

Misuse of challenge inspection. The misuse of challenge inspection cannot be ruled out altogether. Possible misuses are a concern shared by many delegations at the negotiating table. However, a United States proposal to establish a "fact-finding panel" as a political "filter" which would decide

whether or not a request for a challenge inspection is warranted, did not receive much support. To many delegations, the idea of a "fact-finding panel" seemed not only to be discriminatory, but they also rejected the establishment of such a "filter" because in many or even most cases it may be difficult or impossible to establish objectively whether or not a request for a challenge inspection is justified. For a while it seemed that the idea of a "filter" would fade away; however, the notion has been resuscitated recently by China.

In examining the issue of possible misuse of challenge inspections, one would first have to address the question of what a State can hope to gain from misusing the instrument of challenge inspection when sensitive installations are adequately protected by managed access procedures. An obvious and blatant misuse of the instrument of challenge inspection would not pass unnoticed by the community of nations. A "misuser" would have to reckon with political repercussions affecting his prestige and standing.

In addition, a State misusing challenge inspections will have to face the risk that the challenged State could retaliate in kind, i.e., that it could in turn challenge the challenger. Such a reaction to a perceived misuse would of course, also constitute a misuse. However, this latter kind of misuse will probably be tolerated and might prove to be the best deterrent against misuse in the first place.

Ad Hoc Verification

In January 1988, the Federal Republic of Germany submitted a proposal for "ad hoc checks." It did so with a view to strengthening the verification system, and in particular to meet concerns expressed about the ease with which chemical weapons could be produced clandestinely in existing facilities of the chemical industry.

The existing non-production verification regime in the rolling text (Article VI) provides only for the declaration and verification of those facilities of the chemical industry which actually produce beyond certain threshold amounts the substances listed in the schedules contained in the Annex on Chemicals of the draft Convention. In consequence, only a very limited number of facilities would be covered. Indeed, most countries in the world--even some highly developed ones--would not be affected by the existing Article VI regime, their chemical industry thus remaining completely unmonitored.

In principle, almost any facility of the chemical industry designed to perform chemical reactions can be used or converted to produce chemical warfare agents or their precursors. And because of increased safety standards worldwide, the number of facilities which can handle highly toxic chemicals has sharply increased over the last few years. In addition to technical capabilities, the existing facilities of the chemical industry would also provide an excellent camouflage for breaches of the Convention. It could be difficult to penetrate this camouflage with available national technical means.

The ad hoc check concept, as proposed by the Federal Republic of Germany, has been designed as a routine measure at the disposal of the Organization. As such, it is restricted to all relevant production facilities of the chemical

industry which, according to an agreed definition, each State Party would have to list in so called "national registers." From this register, the Technical Secretariat would select, at random, facilities to be inspected in an unintrusive manner. The sole purpose of these checks would be to ascertain whether, at the time of the check, any chemical substances listed in the schedules of the Annex on Chemicals and unaccounted for by declarations are being produced. As basically the whole chemical industry would be subjected to them, ad hoc checks would provide a significant deterrent against using facilities of the chemical industry for activities prohibited under the Convention. A State Party nevertheless intending to violate the Convention would be forced to carry out its illicit activities outside the facilities declared in its national register; this would most likely be conspicuous and detectable by national technical means (for example, construction of a new and unlisted chemical plant for the production of chemical warfare agents in militarily significant quantities).

Following the German proposal of "ad hoc checks," the United Kingdom in Spring 1989 proposed "ad hoc inspections," which aimed at all facilities which would remain undeclared under the Convention. According to the British approach, each State Party would be entitled, subject to a quota system, to select any facility on the territory of another State Party and have an ad hoc inspection carried out there any time. Unlike challenge inspections, the request for ad hoc inspections would not have to be based on doubts about compliance. This, however, tends to make ad hoc inspections more intrusive than challenge inspections: The inspection team would not have a clear mandate based on a violation suspected and indicated in the request. Rather, it would have to look for every possible violation of the Convention.

Intensive consultations among Western delegations took place in the second half of 1989 and in the first months of 1990, with a view to achieving a common Western proposal. As a result, Australia, as a Western coordinator, presented in April 1990 an outline for "ad hoc visits," a concept which draws on both the German and British approaches and which suggests that:

- all chemical production facilities capable of producing chemicals on the schedules in the Annex on Chemicals be declared in national registers and be subject to ad hoc visits; and
- both individual States Parties and the Technical Secretariat be granted the right to request ad hoc visits subject to a quota system. [There would be a limit on the total number of ad hoc visits that could be requested annually by each State Party and by the Technical Secretariat.]

Regrettably, this summer some delegations, mainly from the Non-aligned Group, expressed fundamental reservations and called into question the need for ad hoc verification measures. They did so without addressing the purpose these measures were intended by their proponents to serve within the verification system as a whole. The 1990 session of the Conference on Disarmament ended on this note, without any progress achieved on ad hoc verification.

The issue of ad hoc verification measures will have to be taken up again. Many delegations consider ad hoc veri-

fication indispensable to address in a routine way the possibility of clandestine chemical weapons production in existing facilities of the chemical industry. To come to terms with the issue, the following points seem to require particular attention:

Nature of ad hoc verification. There is a widespread misperception about the function of ad hoc verification measures. Many delegations to this day consider them to constitute some sort of hybrid between routine and challenge inspections. Ad hoc verification--also in the form of the latest proposal for ad hoc visits--is, however, clearly of a routine character. It is to complement the existing non-production verification regime in the rolling text.

As with other routine verification measures, ad hoc visits must be based on declarations in the form of national registers (see below) to be submitted by individual States Parties. Consistent with all other routine measures, the Technical Secretariat should be granted the right to initiate the ad hoc visits. Some delegations have expressed the fear that this would lead to a politicization of the Technical Secretariat, as it would have to make the choice as to which facilities among the many declared in the national registers would receive an ad hoc visit. However, it has to be assumed that the Technical Secretariat will approach this task with circumspection. It will certainly go out of its way to make a balanced selection of facilities to be inspected in order not to appear politically biased.

Also, the fact that ad hoc visits are subject to a quota system underlines the routine character of this verification instrument. Under the existing concept, every State Party would be allocated a quota, which would be the same for all States Parties. The quota to be allocated to the Technical Secretariat should exceed the one allocated to each State Party. In addition to this quota, a limit on the number of inspections that each State Party would be required to accept annually (passive quota) should be envisaged in order to ensure that States Parties are not unduly burdened by requests for ad hoc visits. The passive quota need not necessarily be equal for all States Parties. Rather, the parties with the largest number of facilities listed in their national registers might be required to accept more ad hoc visits than parties with a relatively small chemical industry.

Passive quotas also raise the question of preventing misuse (for example, a State Party might ask a friendly State to use up its passive quota). This problem might be resolved either by an informal understanding, as in the case of the Stockholm Document, or by explicit provisions, for example, to the effect that only a part of the passive quota might be earmarked for ad hoc visits requested by individual States Parties.

Establishment of national registers. National registers were first proposed by the Federal Republic of Germany as the basis for the selection of facilities to be inspected by ad hoc checks. In addition, national registers can also be considered as a confidence-building measure, as they are to list all relevant facilities of the chemical industry worldwide, according to an agreed format.

If national registers, in which States Parties formally declare all relevant facilities of their chemical industries, are to serve as reliable bases for ad hoc visits, they must be

feasible and easily implementable by all States Parties. In addition, it has to be ensured that confidential information is protected.

Taking account of these requirements and the fact that the capability of existing facilities is hard to define unambiguously, the Federal Republic of Germany in April of this year proposed a broad approach, the most notable features of which are:

- Rather than the facility--a term frequently used but not clearly defined--a "plant site" is taken as the basic unit of registration. A plant site is the broadest category which may be used; it means the local integration of one or more production facilities, together with the accompanying infrastructure, amounting sometimes to a large complex of facilities.
- Only those plant sites would have to be declared at which chemical reactions are performed, and where the total annual amount of production exceeds 10 tons.
- National registers would only include the minimum amount of information necessary to enable a meaningful selection of plant sites to be inspected. No sensitive details, for example as regards the equipment or processes used, would have to be divulged in the national register.

The conduct of ad hoc visits. The original German proposal stipulated that ad hoc checks be implemented in the least intrusive manner possible. The purpose of ad hoc checks has been described as "to verify on a routine basis whether, at the time of the check, substances listed in the Annex on Chemicals of the rolling text and not declared for facilities on the plant site are being produced." To fulfill this purpose, the inspection effort would only comprise the taking of samples and the on-site analysis of the samples with the help of a mobile mass spectrometer, which could be programmed to identify only the mass spectra of listed chemicals. Only a negative check would be made, and substances other than those listed would not be identified. Thus, the concerns expressed about the protection of sensitive information would be fully met.

Adopting the aforementioned inspection format would also mean that an ad hoc check would be a matter of hours rather than days, as with the current non-production verification system, which is cumbersome and time-consuming in particular with regard to the verification of Schedule 2 substances (key precursors), where the establishment of material balances is a main--even if questionable--feature. Experience has also demonstrated that with the help of mass spectrometry, it might not only be possible to detect whether at the time of the check listed substances are being produced, but traces of substances which had earlier been produced in the inspected facility, as well.

In approaching the issue of intrusiveness, one must also keep in mind that there will be no facility agreements for the facilities and plant sites listed in the national register. As a rule, the listed facilities will not be prepared for a proper inspection. No precautions have been taken, as is the case with Schedule 2 facilities, to protect sensitive information unrelated to chemical weapons. Recently, in order to come to terms with this situation, facility access agreements to be concluded between the inspection team

and the inspected side immediately prior to the visit have been suggested. However, the negotiation of such an agreement might be used by the inspected side to delay the commencement of the inspection. In addition, such an agreement would seem expendable if the inspection effort is restricted to simple sample-taking and analysis on site.

The question as to whether or not the inspection team should be granted access to the facility's records has received a lot of attention in discussions on ad hoc verification. Records and the process and market data contained therein are particularly sensitive for the chemical industry. With the above definition of the purpose of ad hoc visits, the checking of records would not be necessary.

Only in case a chemical listed in the Annex on Chemicals and unaccounted for by a declaration made by the inspected State Party is detected, is there a need to pursue the matter further. Chemicals listed in Schedule 1 are subject to narrowly defined restrictions. Thus, they should not occur during an ad hoc visit in an industrial scale production unit. The situation is more complicated with Schedule 2 and 3 chemicals, the production of which is not limited, but only subject to declaration beyond certain thresholds. Thus, the mere occurrence of the production of Schedule 2 or 3 substances unaccounted for in the declarations made by the inspected State Party does not necessarily constitute a violation. However, the inspection team might want to be assured that the facility in question produces the substances below the thresholds which would trigger a declaration. Or the inspection team would like to check, for example, in the case of a Schedule 3 production, which is not subject to on-site inspection under the current Article VI, whether the production amounts have been correctly declared.

However, in order to maintain the character of ad hoc visits, the inspection team should not be granted the right to check records of the facility. This would turn ad hoc visits from a purely qualitative into a quantitative measure, making them too intrusive and thus unacceptable. Rather, a cooperative solution should be considered, in which the inspected party would in the case of an unaccounted for occurrence of scheduled chemicals be provided the opportunity to present evidence demonstrating that it is in compliance with the Convention.

In most cases, this will not pose a problem, because the inspected State Party will do everything to satisfy the inspectors that no activities prohibited under the Convention or subject to declaration obligations take place. If the inspected State Party refuses to cooperate, or if the information provided to the inspection team is insufficient, the Organization would have to be notified. The inspected State Party might then run the risk of receiving a request for a challenge inspection, as its uncooperative behavior might have given rise to doubts about compliance.

It has to be admitted, however, that the checking for Schedule 2 and 3 substances constitutes a complication for ad hoc verification. It would merit reexamination, whether it is not possible to restrict ad hoc visits to checking the absence of Schedule 1 chemicals. Schedule 1 contains the most dangerous chemical warfare agents. If those substances are adequately verified, it would not be necessary also to include their precursors, listed in Schedules 2 and 3. The dual purpose agents contained in Schedule 3, in particular

hydrogen cyanide and phosgene, warfare agents of World War I, are today produced in such large quantities for civil purposes worldwide that it would be really difficult and perhaps not very meaningful to try to verify their production by way of ad hoc visits.

Conclusion

No arms control or disarmament agreement is 100 per cent verifiable. Likewise, no verification system, however sophisticated it may be, will be fool-proof in its practical implementation. Still, the verification system of any agreement must be designed to deter violations and to provide all Parties with the necessary confidence in compliance of other Parties. Admittedly, the degree of assurance to be provided by the verification provisions of a Convention is not entirely susceptible to objective analysis, since political considerations will also play a role. Nevertheless, one might always identify a certain standard which must be met by a verification system, necessary for it to be termed effective.

For the Chemical Weapons Convention, this standard will certainly imply that verification should not merely be restricted to the so far rather few facilities which would have to be declared under the Convention. Rather, the possibility to verify through on-site inspections non-declared facilities and activities should be provided for. In this regard, challenge inspections play a key role. They constitute the most important element of the verification system. Thus, their effectiveness and stringency should not be impaired, nor should their scope of application be narrowed.

Challenge inspection and ad hoc verification measures have been designed specifically to meet the requirements of the Chemical Weapons Convention. Thus, comparisons with verification mechanisms discussed or agreed upon in other areas might not be appropriate. Also, the fact that the negotiations in Geneva have broken new ground with these two measures should not be taken as a reason to file objections.

The experience gained in Geneva during the negotiations aimed at achieving an effective verification system might prove beneficial also for other arms control fora. Indeed, challenge inspections, which represent the most far-reaching verification measure ever envisaged, would be an important precedent. It might mark an important step towards the realization of the commonly held objective of more openness and transparency at a global level.

Unfortunately, negotiations in Geneva have demonstrated that a number of States still have difficulties in accepting intrusive verification measures. Sometimes it seems that only lip-service is being paid to the principle of effective verifiability. It seems that in particular on challenge inspection, difficulties have been exaggerated, certain problems been politicized and blown out of proportion in order to avoid entering into firm commitments. It is to be hoped that following the disappointing results of the 1990 session, the Conference on Disarmament will take a fresh look at the verification issue. Only in this way urgently needed progress will be achieved on the verification issue, which is of crucial importance for the overall success of the endeavors to achieve an effective global ban on chemical weapons.

What follows is taken from the Sussex-Harvard rolling CBW chronology. The intervals covered in successive Bulletins have a one-month overlap in order to accommodate late-received information. The basic chronology, which is continuously updated, is fuller and provides complete citations of sources. For access to it, apply to Julian Perry Robinson at the Science Policy Research Unit, University of Sussex, Brighton, BN1 9RF, England.

1 May The US Defense Logistics Agency has postponed a planned procurement of 1.3 million chemical protective suits until such time as the military commands concerned revalidate their requirements. This action, disclosed in a GAO report released today, has been taken "in view of the changing threat and constrained funding." More than 3.5 million suits are currently deployed to prepositioning sites or held in supply depots. {GAO/NSIAD-90-162}

1 May In the US House of Representatives, a Judiciary subcommittee holds hearings on the Kastenmeier bill, HR 237, to incorporate the 1972 Biological Weapons Convention into US domestic law. The administration recommends that the bill be amended to conform with the one already adopted by the Senate [see 21 Nov] {prepared statement of Thomas Graham, Jr, General Counsel, US ACDA}. The next day, the bill is considered by the full Judiciary Committee, which marks up an amendment in the nature of a substitute bill identical to the Senate's. This is passed unanimously by the House on 8 May as the Biological Weapons Anti-Terrorism Act of 1989 {CR 8 May, pp. H2065-8}. The bill now goes forward for signature by President Bush.

2 May In the US House of Representatives, a Veterans Affairs subcommittee holds hearings on HR 3004, a bill that would provide benefits to sick Vietnam-War veterans who claim that their illnesses have resulted from exposure to Agent Orange [see 29 Mar]. The Senate has already passed such a bill. Both bills would create an independent panel of scientists under the auspices of the National Academy of Sciences to review studies on health aspects of exposure to herbicides. A report by a private panel of seven scientists reviewing data on exposure to the Orange-contaminant dioxin had been released the day previously by its joint sponsors, the American Legion, Vietnam Veterans of America and the National Veterans Legal Services Project. {SFC 2 May}

3 May The *Washington Post* reports that in March, a few days before fire broke out in the Libyan chemical plant at Rabta [see 14 Mar and 6 Apr], the Libyan foreign ministry had proposed to West European diplomats that, if Western countries would pay for the construction of a new factory to manufacture medicines at a site under Western supervision, the Rabta factory would be closed down.

The *Post* also reports that a European diplomat who had just been taken to visit the Rabta plant had said that it appeared deserted, its military checkpoints gone, and its anti-aircraft defenses withdrawn {WP 3 May}. Later the West German weekly *Bunte* reports that Libya is building a new poison-gas factory at an underground site at Sebha, 650 km south of Tripoli, with German firms apparently again being involved {Deutschlandfunk 4 May in FBIS-WEU 4 May}.

The FRG embassy in Tripoli confirms that two West Germans are still being held without formal charge or explanation by Libyan authorities four weeks after being arrested [see 19 Mar] {G 3 May}. An official Libyan statement had just said that "investigations are continuing in order to reveal the circumstances of the fire" at Rabta, and that the two Germans were being interrogated in this connection {JANA 1 May in FBIS-NES 2 May}.

3 May The *Washington Post*, attributing an internal US Defense Department study of the Gulf War, says that the civilian poison-gas casualties at Halabja in March 1988 [see 18 and 21 Mar 88] had resulted from CW bombardments by Iranian forces as well as Iraqi. Evidence for this had apparently been drawn from the fact that Iran had said many of the Halabja victims had died from cyanide whereas, according to a Pentagon official, "we know Iraq does not use cyanide gas." The Pentagon study, described as an "operational history" of the decisive final stages of the war, is said to include a detailed reconstruction of the Halabja fighting based on undisclosed "highly classified sources." {WP 3 May}

The Iranian Government issues a strong denial. {Tehran domestic service 4 May in FBIS-NES 4 May}

4 May US Secretary of State James Baker III and USSR Foreign Minister Eduard Shevardnadze meet in Bonn prior to "two-plus-four" talks on German unification. It is later reported in the US press, with attribution to unidentified "senior US officials," that they had under detailed consideration a package of proposals regarding the projected bilateral CW agreement [see 26 Apr] which the US side had put forward in April, and that the package included an offer to halt production of CW weapons by a specific date provided the Soviet side agreed to other proposals in the package {WT 8 May}. Such an offer had evidently been sought by the Soviet side earlier [see 26 Apr]. A detailed Soviet response is expected later in the month in Moscow, at the next round of ministerial talks.

5 May In Melbourne, the Administrative Appeals Tribunal rules that exposure to Agent Orange [see 29 Mar] during the Vietnam War contributed to the subsequent death of an Australian infantryman from a malignant schwannoma, a cancer of the nervous system, and that his widow was therefore entitled to a war-widow's pension. {*New Scientist* 12 May}

8 May US Secretary of Health and Human Services Louis Sullivan tells the World Health Assembly in Geneva that the United States intends to destroy its remaining stocks of live smallpox virus. He urges the Soviet Union, which has the world's only other repository for samples of the virus, to do the same. {Reuter as in WT 9 May}

9 May Press commentary on the reported US offer to stop production of binary munitions ahead of the CWC [see 4 May] includes speculation on what the US side is expecting in return from the Soviet side. One US report, attributing unidentified "Administration officials," says the USSR has been asked to commit itself to a specific schedule for the destruction of CW weapons under the bilateral agreement; and that the USSR has also been asked to accept, in the multilateral CWC negotiations, the US "2-percent solution" [see 27 Feb and 13 Mar]. {NYT 9 May}

Novosti Press Agency releases a statement by the head of the Soviet CD delegation, Serguei Batsanov. About the 2-percent solution it says: "The right to preserve chemical weapons, even if in small numbers, would mean the perpetuation of the chemical threat, the more so that the US intends to realize this right unilaterally, or jointly with the Soviet Union at the most. This could create a situation where the convention on the elimination of chemical weapons would not be carried out to the full. However, the US proposal is not bad overall. It has an aspect that concerns the need to guarantee the universal application of the convention and wide representation of states. Although the Soviet Union does not think that the preservation of 500 tonnes of toxic agents would encourage the participation of other States in the convention, as the US expects, this problem cannot be removed from the agenda. It should be settled politically, and efforts to this end are being made at the talks."

As to a specific Soviet chemdemil schedule, Minister Batsanov says that the Soviet Union would face difficulties "because the corresponding draft national program is still being discussed by the USSR Supreme Soviet." {Novosti Press Agency, press release in London no. PR06990}

11 May In South Africa, *Vrye Weekblad* reports that a secret agency of the Defence Ministry, the Civilian Cooperation Bureau, had, during the previous year, contaminated with cholera bacteria the drinking water of a refugee camp in Namibia, this action being part of an international campaign to sabotage Namibia's transition to independence. {AP as in NYT 12 May}

13 May The West German minister of state in the Chancellor's office in charge of intelligence services, Lutz Stavenhagen, speaks as follows in Jerusalem, at a seminar at the Hebrew University: "We have reason to believe that [in Libya] a second [poison gas] plant similar to Rabta is being planned. We successfully managed to cut that part out in which German companies have been involved." The

plant was, he said, at Sebha [see 3 May]. He also said that the Federal Republic was convinced that the fire that was initially thought to have destroyed the Rabta plant was a hoax intended to fool US reconnaissance satellites [see also 6 Apr] {DTel & Reuter as in IHT 14 May}. The day previously, *Die Welt* had reported action by the Federal government to block a shipment of equipment to the second plant. {*Die Welt* 12 May in FBIS-WEU 15 May}

14 May The lead editorial in the *New York Times* urges President Bush to abandon the 2-percent solution. {NYT 14 May}

15 May In West Germany, the environmental organization BUND advocates study of the on-site incineration option for destroying the US CW-weapons stockpile at Clausen in view of the dangers of transporting the weapons out of the country [see 24 Apr]. {*Pirnsensers Zeitung* 16 May}

15 May For a British television documentary screened today, the former Defense Minister of Israel, Yitzhak Rabin, had said: "If Iraq will do it, they'll get back a strike with the strength of a hundred times more." He was responding to a question about "Saddam Hussein's recent threat to use chemical weapons against Israel if the Israelis attack Iraq." {BBC 15 May in FBIS-NES 17 May}

16-17 May The US Senate considers S.195, its CW-counter proliferation sanctions bill [see 13 Nov] {CR 16 & 17 May}. The White House threatens to veto it {WT 17 May}, preferring the House bill [which would provide for discretionary rather than automatic sanctions]. The Senate nevertheless approves the bill, somewhat amended {CQ 19 May}.

16-19 May In Moscow there is a new round of Baker-Shevardnadze ministerial talks in preparation for the US-Soviet summit at the end of the month. Secretary Baker tells the press that a "trailblazing" agreement on chemical weapons would be signed at the summit [see 4 May], saying: "I believe that this agreement is very significant, particularly as it provides a real pathway towards a global ban on horrific weapons that we already know from bitter experience actually get used" {transcript in NYT 20 May}. He says that, as part of the accord, the United States has agreed that its CW-weapons production should stop immediately {NYT & WP 20 May}.

18 May In the United States, Secretary of Veterans Affairs Edward J Derwinski decides that Vietnam veterans with soft-tissue sarcoma are to become eligible for disability payments. The day previously his department's Veterans Advisory Committee on Environmental Hazards had found from a literature review that there was "at least as likely as not" a significant statistical association between soft-tissue sarcoma and exposure to dioxin, a contaminant of the herbicide Agent Orange [see also 2 May]. {NYT & WP 19 May}

21 May In Prague, the Czechoslovak Foreign Ministry convenes a consultative meeting of representatives of 20 federal and national ministries to consider the CWC and its implementation. The meet-

ing is told that Czechoslovakia has voiced its readiness to host the treaty's International Organization in Prague. The meeting is also told that Czechoslovakia is considering withdrawing its Geneva-Protocol reservations. {CTK 21 May in FBIS-EEU 23 May}

21 May In the United States, a defense contractor is working on an "enhanced kinetic-energy warhead" for use against tactical ballistic missiles containing CW payloads, so *Inside the Army* reports; Army Missile Command had awarded the contract, for design and testing, to Martin Marietta Missile Systems in early April {*Inside the Army* 21 May, *Defense Industry Report* 24 May, DN 4 Jun}. A company press release speaks of tests done by the company having "demonstrated that simulated threat payloads burned when hit by the...warhead," though the Army's Joint Tactical Missile Defense Management Office say that "burning is not the only kill mechanism" {DW 9 Jul}. The Army is said to envisage the warhead as an all-purpose device for use on the *Patriot* missile and all future anti-ballistic weapons such as ERINT, the extended-range interceptor missile {DW 13 Aug}.

The as-yet-unreleased May 1990 *Report to Congress on the Strategic Defense Initiative* reportedly states that a "Theater Missile Defense (TMD) lethality project is assessing reactive agents and aerodynamic dispersion as a means of destroying chemical warheads," and that the project has "demonstrated lethality against this significant TMD threat." {*Inside the Army* 2 Jul}

22 May President Bush signs S.993, the "Biological Weapons Anti-Terrorism Act of 1989" [see 1 May], into US public law, thereby implementing the provisions of the 1972 Biological Weapons Convention within the United States. His statement upon doing so includes the following: "Scrupulous compliance with the obligations of that Convention and similar prohibitions against the use of chemical weapons are essential to the security of all mankind. I call upon the leaders of all nations to join us in our drive to rid the world of biological and chemical weapons and to do everything in their power to stop the proliferation of these weapons of mass destruction. We must halt and reverse the threat that comes from such weapons and their proliferation. This Act that I sign today is a measured but important step in that direction." {Official statement, Office of the Press Secretary}

25 May The Inter-Parliamentary Union concludes its five-day conference in Bonn on disarmament, attended by representatives of the parliaments of 61 countries. On the CW negotiations its final report says: "Parliaments have an important role to play in achieving the universality of the convention. They should take action so that as many States as possible adhere to the convention at the initial stage; they have an exceptional role in decision-making on the participation of their countries in the convention" {CD/1023}. The keynote speaker on chemical weapons had been the head of the French delegation at the CD, Ambassador Pierre Morel.

26 May In Bonn, the Greens in Parliament hold a public expert hearing on CW-weapons, and launch an appeal calling upon the

GLOSSARY OF ABBREVIATIONS FOR NEWS CHRONOLOGY

ACR	<i>Arms Control Reporter</i>	DD	<i>Defense Daily</i>	JDW	<i>Jane's Defence Weekly</i>
AFP	Agence France Press	DN	<i>Defense News</i>	MEED	<i>Middle East Economic Digest</i>
AN	<i>Atlantic News</i>	DPA	Deutsche Presse Agentur	LAT	<i>Los Angeles Times</i>
AP	Associated Press	DW	<i>Defense Week</i>	NYT	<i>New York Times</i>
CBW	Chemical/biological warfare	DTel	<i>Daily Telegraph</i> (London)	Obs	<i>Observer</i> (London)
CD	Conference on Disarmament	FAZ	<i>Frankfurter Allgemeine Zeitschrift</i>	SFC	<i>San Francisco Chronicle</i>
CD/	CD document series	FBIS	Foreign Broadcast Information Service (Washington)	SovN	<i>Soviet News</i> (USSR Embassy, London)
CN	<i>Current News Early Bird</i> (US Dept. of Defense)	FedR	<i>Federal Register</i>	ST	<i>Sunday Times</i> (London)
CQ	<i>Congressional Quarterly</i> (Weekly Report)	FR	<i>Frankfurter Rundschau</i>	TL	<i>Times</i> (London)
CR	<i>Congressional Record</i> (Daily Edition)	FT	<i>Financial Times</i> (London)	TZ	<i>Tageszeitung</i> (West Berlin)
CW	Chemical warfare	G	<i>Guardian</i> (London)	SovR	<i>Sovetskaya Rossiya</i>
CWC	The projected Chemical Weapons Convention	GAO	Government Accounting Office	STel	<i>Sunday Telegraph</i> (London)
CWCB	<i>Chemical Weapons Convention Bulletin</i>	HansC	<i>Hansard</i> (Commons)	UPI	United Press International
DerS	<i>Der Spiegel</i>	IDR	<i>International Defense Review</i>	WP	<i>Washington Post</i>
		IHT	<i>International Herald Tribune</i>	WT	<i>Washington Times</i>
		INA	Iraqi News Agency (Baghdad)	WSJ	<i>Wall Street Journal</i>
		Ind	<i>Independent</i> (London)		
		JANA	Jamahiriya News Agency		

Federal Government to postpone the retrograde of US stocks [see 15 May] pending further risk assessment. {TZ 28 May}

28-30 May In Baghdad, there is an emergency summit meeting of the Arab League. President Saddam Hussein of Iraq says in his opening address: "it behooves us to declare clearly that if Israel attacks and strikes, we will strike powerfully. If it uses weapons of mass destruction against [the Arab] nation, we will use against it the weapons of mass destruction in our possession" [see also 18 Apr]. {Baghdad domestic service 28 May in FBIS-NES 29 May; FT, Ind, IHT & NYT 29 May}

President Hosni Mubarak of Egypt reaffirms [see 16 Apr] his "proposal to make the Middle East an area free of weapons of mass destruction: the nuclear, chemical and biological weapons." {Cairo domestic service 28 May in FBIS-NES 29 May, G 29 May}

The final communiqué emphasizes support for "Iraq's legitimate right to self defence and its right to defend itself against any aggression with whatever means it sees fit." {AP as in SFC 31 May}

28-30 May In Umeå, Sweden, the National Defence Research Institute hosts an international symposium on "Improving Confidence-Building Measures for the Biological Weapons Convention." Invited were representatives of all laboratories that had been declared in accordance with the information exchanges agreed following the second BWC review conference [see 15 Apr 89] as well as foreign- and defence-ministry officials from the declaring countries. Participating are people from Bulgaria, Canada, Czechoslovakia, France, FRG, GDR, the Netherlands, the Soviet Union, Sweden, the United Kingdom and the United States.

31 May In Pyongyang, a "new disarmament proposal for peace on the Korean peninsula" is adopted by a joint meeting of the Central People's Committee, the Standing Committee of the Supreme People's Assembly and the Administration Council of the Democratic People's Republic of Korea {CD/1007}. It makes no mention of the earlier idea [see 24 Aug and 21 Sep 89] that the peninsula should become a CW-weapon-free zone.

31 May In Nordenham, FRG, Federal and US officials host a media day on the projected retrograde of US CW-weapons [see 26 May] through the port via which the weapons had originally been introduced.

31 May In Washington, President Bush and President Gorbachev begin their 3-day summit meeting.

1 June In Bonn, the Bundestag passes legislation [see 30 Mar] barring West Germans from working on nuclear, biological or chemical weapons, even abroad, and outlawing the participation of German companies or foreign subsidiaries in the development or production of such weapons in other countries, or trade in them. {DPA 1 Jun in FBIS-WEU 1 Jun; Reuter as in IHT 2-3 Jun}

1 June In Washington, President Bush and President Gorbachev sign an *Agreement between the United States of America and the Union of Soviet Socialist Republics on Destruction and Non-Production of Chemical Weapons and on Measures to Facilitate the Multilateral Convention on Banning Chemical Weapons*. The main provision is that both sides will reduce their CW stockpiles to 5000 agent-tonnes each by the end of 2002, with on-site inspections to confirm destruction; an inspection protocol is to be negotiated by the end of the year. It is also agreed, first, that production of CW weapons will cease as soon as the bilateral agreement is ratified by both sides and, second, that they will make a joint proposal to the CD that, eight years after entry into force of the multilateral CWC --by which time they will have further reduced their stocks to 500 agent-tonnes--a special conference of CWC States-parties be convened to determine "in accordance with agreed principles" whether the destruction process should go to completion over the next two years.

A joint understanding of what those "agreed principles" should be is set out in an appended "agreed statement": "an affirmative decision would require the agreement of a majority of the states parties that attend the special conference, with such majority including those states parties attending the special conference that had taken the following three steps: (a) presented officially and publicly, before December 31, 1991, before the Conference on Disarmament,

a written declaration that they were at the time of that declaration in possession of chemical weapons; (b) signed the multilateral convention within thirty days after it was opened for signature; and (c) became a party to the multilateral convention no later than one year after its entry into force." {Full text printed in CWCB No. 8 and in CD/1001}

The White House announces that it will submit the bilateral accord to Congress "for its review and approval" {NYT 2 Jun}. Administration officials, saying that the accord had been cast not as a treaty but as an executive agreement, had earlier stated that President Bush wished to get the broader backing of both houses of Congress rather than just the two-thirds majority of the Senate required for a formal treaty {CQ 26 May}. Submission to the Congress--whether for simple majority vote of both houses or, as leading senators prefer, two-thirds majority of the Senate--is to be delayed until the accord's inspection protocol has been negotiated {CQ 9 Jun}.

President Bush and President Gorbachev also sign a *United States-USSR Joint Statement on Non-Proliferation* which declares "their commitment to preventing the proliferation of nuclear weapons, chemical weapons, and missiles capable of carrying such weapons and certain other missiles and missile technologies" and which specifies bilateral "actions to advance these commitments." The measures that are listed for CW weapons in the statement include a joint declaration "that a multilateral, effectively verifiable chemical weapons convention...is the best long-term solution to the threat to international security posed by the use and spread of chemical weapons, and that non-proliferation measures are considered a step toward achieving such a convention."

The listing also says that the United States and the Soviet Union "are taking steps to strengthen the 1925 Geneva Protocol by:

"Encouraging States that are not parties to accede;

"Confirming their intention to provide active support to the United Nations Secretary-General in conducting investigations of reported violations of the Protocol;

"Affirming their intention to consider the imposition of sanctions against violators of the Protocol, including those under Chapter VII of the United Nations Charter;

"Agreeing to consult promptly in the event of a violation of the Protocol to discuss possible bilateral and multilateral actions against the offender, as well as appropriate assistance to the victims of such violation." {CD/1001}

6-8 June In the Soviet Union, US inspectors visit a CW-weapon storage site in accordance with the Wyoming Memorandum of Understanding. {WT 8 Jun}

7-8 June Meeting in ministerial session in Turnberry, UK, the North Atlantic Council issues a communiqué which includes the following: "We believe the US-Soviet agreement on reducing chemical weapons stockpiles [see 1 Jun] will provide great impetus towards the earliest possible conclusion of the convention for an effectively verifiable, global and comprehensive ban on chemical weapons now being negotiated, which remains our goal. All Allies hereby state their intention to be among the original signatories to the convention and to promote its early entry into force. We call on all other states to undertake a similar commitment. We reaffirm our determination to work to prevent the proliferation of nuclear and chemical weapons and of missiles capable of carrying such weapons." {CD/1006}

9 June The US Army publishes its *Final Second Supplemental Environmental Impact Statement* on the Johnston Atoll Chemical Agent Disposal System (JACADS) for the storage and ultimate disposal of the US CW stockpile in West Germany [see 20 Mar]. The *Statement* reflects comments made on its draft, and concludes that JACADS can cope with the European stocks "in a safe and environmentally acceptable manner." Comments are due within 30 days.

11 June China denies that it is helping Libya [see 14 Mar] or any other country to develop chemical weapons, as had recently been suggested in a complaint by the US administration. Also, unidentified US officials had been quoted in the press as saying that China might have been selling CW precursor chemicals to Libya, and that a US intelligence report three months previously had spoken of a Chinese presence at Rabta. {WP & NYT 7 Jun, IHT 8 Jun, AFP as in IHT 12 Jun}

11 June In Mannheim, West Germany, the trial begins of Jürgen Hippenstiel-Imhausen, implicated in the construction of the Libyan chemical plant at Rabta, and charged with violating export and tax laws [see 22 Mar] {Reuter as in G 12 Jun}. He pleads guilty, admitting nonpayment of taxes on \$11.4 million profits {IHT 14 Jun}. In a prepared statement he says that the project had begun in 1984 when the Iraqi businessman Ishan Barbouti contacted him about supplying a factory to make "pharmaceuticals and insecticides," to be built, he later learned, "on the edge of a technology center in Libya"; he assumed "responsibility and overall management" for the \$136 million project {NYT 14 Jun, AP as in WT 14 Jun}.

11 June US Defense Secretary Dick Cheney says, in a speech before the American-Israel Public Affairs Committee, that "23 foreign countries have confirmed or suspected chemical warfare programs, and 10 have or may have biological warfare programs." He says they include Iran, Iraq, Syria, Libya and North Korea. {UPI 11 Jun as in CN 12 Jun}

12 June In Geneva the CD reconvenes for its summer session.

12 June Sweden, at the CD, states its intention of becoming "one of the original parties" to the CWC, in which context it proposes "the convening of a well-prepared conference at ministerial level, aimed at achieving the simultaneous signing by all States." {CD/ PV.555}

12 June Austria submits to the CD the comprehensive report on its National Trial Inspection [see 10 Aug 89]. {CD/999}

12 June US Secretary of State James A Baker III says that the Administration's "tentative and initial decision" is to submit the bilateral Washington CW agreement [see 1 Jun] to both houses of Congress for approval by simple majority. He was testifying before the Senate Foreign Relations Committee, most of whose members were critical of the decision. Next day he gives similar testimony before the House Foreign Affairs Committee. {CQ 16 Jun, DN 18 Jun, WSJ 5 Jul}

13 June The US General Accounting Office, in a report {GAO/NSIAD-90-155} released today on the chemdemil program, says that cost estimates for the program almost doubled between October 1985 and March 1988 to \$3,407 million and will continue to grow {AP as in WP 14 Jun, DN 18 Jun}. To the reasons adduced by the Army for its probable inability to complete the program by 30 April 1997 as current legislation requires [see 5 Apr], the GAO report adds "strong citizen opposition to these plants in some states and the Army's failure to allow sufficient time to obtain environmental permits." The GAO recommends that the Army delay issuing chemdemil equipment purchasing orders or soliciting bids for chemdemil construction contracts until it has established realistic estimates of receipt dates for all the requisite permits.

The Army's Deputy Program Manager for Chemical Demilitarization, Charles Baronian, later says that the program may eventually cost another \$2,000 million to complete {DW 2 Jul}.

14 June *The Wall Street Journal* publishes a long article reviewing recent reports of Yellow Rain in Laos which it says may be government toxic warfare directed against "mostly Hmong resistance fighters"; it is critical of the US Government for failing to investigate the reports properly {*Indochina Digest* 3-9 Jun, WSJ 14 Jun}. However, the Thai Deputy Governor of Nan province, on the Lao border, had denied the presence of toxic chemicals two months previously and identified the substance as bee pollen {*Bangkok Post* 18 Apr}.

14-15 June The Federal German government hosts a second workshop on technical aspects of CWC verification in Munster to which CD member-states and participating non-members had been invited to send representatives. The purpose is to "demonstrate already available instruments which can be used for on-site inspections under a CW Convention." The instruments on display--a wall-thickness meter, an electronic stethoscope, mobile X-ray and gamma-ray equipment for radiography, devices for neutron-activation analysis, a mobile mass spectrometer and the latest version of the SNAL (sample now, analyze later) system--have already been successfully used in trial inspections conducted by the FRG.

The Federal Armed Forces chemdemil incinerator at Munster, soon to be augmented with a rotary kiln furnace, is also visited. {CD/1026}

15 June In the Senate, the Committee on Foreign Relations holds hearings on sanctions against Iraq. Administration officials oppose trade sanctions despite the "abysmal" human rights record of Iraq and its use of CW weapons, arguing that US farmers would be hurt more than the Baghdad government. {NYT 16 Jun, UPI as in SFC 16 Jun}

18 June In London, officials of the new Bulgarian government meet with the Scotland Yard detective investigating the 1978 murder of Georgi Markov [see 17 Feb]. {Reuter as in IHT 21 Jun}

18 June The *Washington Times* reports that US intelligence sources say that Libya with Chinese assistance is building an underground CW-weapons factory at an unidentified location several hundred miles south of Tripoli, estimated to be two years away from completion [see also 13 May and 11 Jun] {WT 18 Jun}. Commenting on the story, White House press spokesman Marlin Fitzwater says only that the Administration is assessing reports that Libya might be building a new CW-weapons factory and does not have any conclusions to give {WT 19 Jun, AP as in SFC 19 Jun}. Unidentified officials reportedly say that the *Times* story is not correct and that the CIA has not confirmed reports of the new factory {WP 19 Jun}; while there were indications of Libya wanting to build the new factory, there was no proof that it was actually doing so {NYT 19 Jun}.

Ten days later there are reports of two West German companies being under Federal investigation on suspicion of involvement, according to unidentified "government sources," in the building of the new factory, the evidence reportedly including "CIA air surveillance photographs." {DTel, IHT, NYT & WP 28 Jun}

18 June The report on the second US National Trial Inspection, which had been conducted in a facility in Baltimore owned by Alcolac Inc where thiodiglycol (a Schedule 2 chemical) is produced [see 20-21 Mar], is finalized for release in Geneva. The principal conclusion of the report is that the Technical Secretariat of the international CWC Organization is going to be confronted by "a limited number" of civil chemical-industry facilities whose adequate inspection will necessitate a "broader mandate" than the draft CWC currently envisages: "This facility was an excellent example, where both the chemicals and the equipment were present to produce a Schedule 1 chemical. Extensive freedom at the site is required for verification. Access to the ultimate destination of the Schedule 2 chemical is warranted to assure no prohibited Schedule 1 chemicals are being produced." {CD/CW/WP.301}

18-21 June In the United States, a team of 15 Soviet officials led by Nikita Smidovich, the deputy head of the Soviet CD delegation, visits Tooele Army Depot in Utah, including the new chemdemil facility there, in accordance with the Wyoming bilateral memorandum of understanding [see 6-8 Jun]. {*Tooele Transcript Bulletin* 19 Jun, *Deseret News* 20 Jun, *Vremya* 19 Jun in FBIS-SOV 20 Jun, TASS 22 Jun in FBIS-SOV 25 Jun}

19-21 June The Australia Group meets in Paris for one of its regular twice-yearly meetings. According to a report in the US military press, there is agreement that its CW counterproliferation efforts should be extended to technology and equipment as well as listed chemicals; that they should be supplemented with BW counterproliferation efforts [see 27 Apr]; and that, on chemicals, there are to be improvements in the information exchanges and in the export-control standards. Also, several non-member countries (unidentified) are to be asked to place export controls on precursor chemicals. {DN 25 Jun}

The US State Department subsequently informs the Congress that, at the meeting, "we secured agreement to control additional chemicals, expand the group's activities into biological weapons non-proliferation, pursue further standardization, and create an export data base"; and that "we secured agreement by all countries to send out advisories to all their companies which could export biological substances and equipment capable of helping make BW agents" {Richard A Clarke, prepared statement before the House Foreign Affairs Subcommittee on Arms Control, International Security and Science, 11 Jul}. The Arms Control & Disarmament Agen-

cy likewise testifies that the Australia Group "is in the process of issuing a paper to warn industry, the scientific community, and other relevant organizations of the risks of inadvertently aiding CW proliferation" (Bradley Gordon, prepared statement before the House Foreign Affairs Subcommittee on Arms Control, International Security and Science, 11 Jul).

21 June The German Democratic Republic introduces at the CD a report on a Practice Challenge Inspection it had conducted at a chemical industry plant in March 1990 (CD/PV.558, CD/996). The plant inspected was the WOFATOX factory of the Chemiekombinat Bitterfeld in Wolfen, producing parathion-methyl pesticide. [The Bitterfeld Chemical Combine had been the subject of reports in the Western press some years previously describing it as the location of a CW weapons factory. {e.g., *Welt am Sonntag* 2 Mar 86 in FBIS-WEU 5 Mar 86}] The mandate of the PCI had been to "verify whether or not at the WOFATOX-plant...any organophosphorous chemical listed under schedule 1 has been produced." The approach under trial was a "layered inspection methodology," a graduated procedure in which increasingly intrusive steps are taken only after findings from preceding steps have been assessed. The report concluded that the methods used would give sound results provided the inspectors were permitted sufficient flexibility. Further, the report concluded from studies done with a simulant of Schedule-1 chemicals that it had been possible "to demonstrate the feasibility of exploiting memory effects in a chemical plant in order to identify residues of former production at trace level." Also submitted to the CD was a detailed account of the methods of trace-analysis that had been used to study plant-memory effects in the PCI (CD/998), as well as recommendations for overall challenge-inspection methodology (CD/997).

21 June Argentina, at the CD, expresses disquiet about "the emergence of two negotiating authorities on...chemical weapons, one in a multilateral framework and, simultaneously, the other in a bilateral one," noting that "bilateral agreements and arrangements are beginning to take shape that are attached like juridical artificial limbs to the general text of the convention." These, it says, are "generating a two-track method of negotiation, in which States negotiate with one eye on a table seating 40 States (plus observers) and the other on what may be negotiated in other, more limited forums"--a harmful trend because "it ultimately legitimizes an implicit veto." (CD/PV.558)

25-29 June In Geneva, representatives of chemical industry worldwide meet, first among themselves and then with CD negotiators, to discuss CWC issues (CD/PV.560). The US Chemical Manufacturers Association submits several position papers for consideration. They include draft papers on procedures for protecting "confidential business information" during implementation of the CWC; on procedures for "ad hoc verification"; on the problems involved in listing scheduled chemicals generically rather than specifically; and on the question of Inspectorate access to shipments of chemicals. On the first three of these topics the European chemical industry, represented by the Conseil European des Federations de l'Industrie Chimique (CEFIC), also submitted papers.

26 June Finland informs the CD that it intends to be "among the original parties" to the CWC, and reiterates its offer "to place our own existing verification laboratory at the disposal of the future [CWC] organization for use as the central laboratory."

The CD is also informed that export-control legislation will enter into force in Finland next month which will subject 37 potential CW precursors to export-licensing requirements and place another 13 on a warning list. (CD/PV.559)

26 June USSR Foreign Minister Eduard Shevardnadze writes, in an article published in today's *Pravda*: "We can only welcome the fact that the defense industry is helping the country to survive, to correct the economy, and is organizing the production of civilian output. But we must also talk about the problems. Why, for instance, are those who affected to strengthen the country's security by manufacturing chemical weapons, and continuing to produce them when no one else in the world was doing so, now keeping quiet? Now we either have to develop the technology and spend at least 3 billion rubles to destroy these weapons, or else these toxins will turn whole regions into wasteland."

He continues: "It seems that certain comrades still do not believe the state's policy is really to ensure that nuclear and chemical weapons are destroyed on a reciprocal basis, that troops and armaments are cut, and that we are guided by the principles of sufficiency and non-offensive defense." (Pravda 26 Jun in FBIS-SOV 26 Jun)

26 June In West Germany, US soldiers begin packing the nerve-gas munitions that are in storage at Clausen Army Depot into special transportation containers in readiness for their retrograde to Johnston Atoll later in the summer [see 31 May] (TASS 26 Jun in FBIS-SOV 27 Jun, *Stars and Stripes* as quoted in CN 27 Jun). The retrograde cannot commence, however, until the US Defense Secretary has certified to the Congress that the chemdemil facility on Johnston Atoll works.

27 June In West Germany, at a regional court in Mannheim, a 5-year prison sentence is passed on Jürgen Hippenstiel-Imhausen, convicted of tax-evasion and export-law violation [see 11 Jun]; sentencing him, the judge says: "You knowingly delivered to Libya an installation suitable for the production of poison-gas weapons" (NYT & WP 28 Jun). There is further implication of Salzgitter Industriebau GmbH [see 31 Jan 89] at the heart of the venture (DerS 2 Jul in FBIS-WEU 5 Jul).

Shortly afterwards, Ishan Barbouti--believed to be the general contractor for the complex at Rabta [see 11 Jun]--dies suddenly in a London hospital. (G 7 Jul)

28 June President Saddam Hussein of Iraq, in an interview published today by *The Wall Street Journal*, says: "Iraq is in possession of binary chemical weapons. Our scientists and military men calculate this is sufficient enough to deter an Israeli nuclear attack." He had been asked how a long war with Israel might be possible. (WSJ 28 Jun)

Unidentified "Israeli military intelligence experts" are subsequently reported as saying that, although Iraq has now deployed surface-to-surface missiles capable of reaching Tel Aviv, they believe that Iraq has not yet succeeded in developing a chemical (or biological) warhead to mount on the missiles; aircraft would have to be used instead. (WP 2 Jul)

28 June The United States and the Soviet Union jointly submit to the CD Ad Hoc Committee the proposal agreed to in the Washington bilateral CW agreement [see 1 Jun] that the CWC should provide for a review conference eight years after its entry into force to determine whether states parties should be required to destroy all their remaining stocks of CW weapons (CD/CW/WP.303). The proposal is in the form of additional or revised language for Article IV, Article VIII and the Annex to Article IV of the draft CWC, including the revisions proposed in the joint USA-USSR order-of-destruction proposal [see 9 Apr] which envisages residual stockpiles at Year 8 no greater than 500 agent-tonnes of Schedule-1 CW weapons.

Introducing the joint proposal at the plenary session of the CD, the leader of the USSR delegation says that it is a compromise "that takes into account both elements of the United States proposal known as the "2 per cent" proposal and the criticism of that initial American proposal by the USSR [see 9 May] and a number of other participants in the negotiations" (CD/PV.560).

28 June Mongolia tells the CD that it has decided to withdraw the reservation it had made when ratifying the 1925 Geneva Protocol. (CD/PV.560)

28 June In Washington, a General Accounting Office report (GAO/NSIAD-90-10) is released critical of DS2, a standard CW-agent decontaminant of which some 20 million litres had been produced since the early 1960s (LAT 29 Jun). DS2 is a mixture comprising 2 percent caustic soda, 28 percent methoxyethanol and 70 percent diethylene triamine. The report cites the hazardousness of DS2 under current Service storage and use practices, and recommends that it be replaced. Testifying before the House Government Operations environment subcommittee, the US Army says that this cannot happen before the turn of the century (DW 9 Jul).

29 June-2 July Another Pugwash/SIPRI Thiodiglycol Project meeting is held in Geneva. There are 23 participants--American, Australian, Austrian, British, Canadian, Czechoslovak, Dutch, East German, Egyptian, Finnish, French, Japanese, Soviet, Swedish and West German--most of them either technical advisers to their national CD delegations, academic scientists, or from the chemical industry. The project is addressing the practical problems liable to be encountered during implementation of CWC-verification provisions in their application to "dual purpose" chemicals, with the mustard-gas precursor thiodiglycol being chosen for case-study. (Pugwash Newsletter July)

30 June On Johnston Atoll in the Pacific, the US Army initiates the 16-month operational verification test of its JACADS chemdemil facility [see 26 Jun], beginning with the destruction of a pallet of sarin-filled M55 rockets. As this long-delayed start-up of fullscale incinera-

tion commences, a team of US Defense and State Department officials prepares to begin a briefing tour of 11 South Pacific nations {DW 9 Jul}. During 4-14 July and 21 July-3 August the system is shut-down for investigation of possible faults {DTel 6 Aug}.

30 June In Hungary a Free Democrat Party politician, Gabor Demsky, says that Soviet troops withdrawing from Hungary buried barrels of tear gas and chemical weapons. {UPI as in CN 3 Jul}

3 July GDR Foreign Minister Markus Meckel, during an address to the CD that advances several proposals for developing and strengthening CBW disarmament, says that "even before the [CW] convention takes effect the non-proliferation of chemical weapons must become a well-established law of international life"; and he suggests that CW-non-possessor states should make declarations renouncing acquisition of chemical weapons. {CD/PV.561}

3-4 July In Czechoslovakia, Practice Challenge Inspections are conducted at a chemical factory in Pardubice and at an Army installation, both in East Bohemia. The Foreign Ministry says that a report will shortly be submitted to the CD. {CTK 4 Jul in FBIS-EEU 5 Jul}

5 July Norway and Finland introduce into the CD the latest reports from their respective CW verification research programs {CD/PV.562}. The Norwegian report is on a sorbent extraction technique for optimizing sample preparation for use in a general procedure for screening use-verification samples that might contain CW agent {CD/1008, CD/1019}. The Finnish report--the 15th volume in the Blue Book series--describes and develops recommendations from the international interlaboratory comparison of test procedures reported during the Spring session [see 11 Apr] {CD/1009}.

5 July The US Defense Department tells the Senate Armed Services Committee that, in the light of the ban on future production of CW weapons agreed in the recent bilateral CW accord with the USSR [see 1 Jun], the Services now need up to \$30 million in additional RDT&E funds over the next two years to certify certain of their unitary CW munitions, such as aircraft bombs, for delivery by modern weapons. {Senate report no. 101-384}

7 July In Germany, the West Berlin newspaper *Die Tageszeitung* reports that former party-members (unidentified) of the East German SED say that "huge amounts of Soviet poison gas" are stored in the GDR {TZ 7 Jul}. Subsequently, Bonn officials (also unidentified) reportedly confirm that there are 20-30,000 tons of Soviet CW agents at 6-8 storage locations in the GDR {*Berliner Morgenpost* 10 Jul}. These reports also speak of suspected CW-agent production in the recent past at VEB Arzneimittelwerk Dresden and maybe also at VEB Düngemittelwerk Rostock. The allegations are rejected by the GDR Defense and Disarmament Ministry, the GDR Foreign Ministry and the General Staff of the Soviet forces in the country {G 11 Jul, Reuter as in WT 11 Jul, AN no. 2242}.

9 July Greenpeace International publishes a detailed commentary on the US Army's final second environmental impact statement on JACADS, the Johnston Atoll chemdemil system [see 9 and 30 Jun]. The commentary recommends that "existing chemical weapons stockpiles remain segregated in above-ground, monitored, retrievable storage" and that, in any "decommissioning" of the weapons, "no material whatsoever should be released to the environment in gaseous, liquid or solid phase during the decommissioning process." It urges that "a joint research program be established between US and Soviet scientists to research environmentally sound detoxification processes." {*Greenpeace Review of Johnston Atoll Chemical Agent Disposal System (JACADS) Final Second Supplemental Environmental Impact Statement (June 1990) for the Storage and Ultimate Disposal of the European Chemical Munition Stockpile: Addendum to Greenpeace Comments on Previous JACADS Environmental Impact Statements, and Supplements*}

10 July The seven Heads of State or Government meeting in Houston, Texas, for the 1990 Economic Summit of Industrialized Nations issue an agreed *Statement on Transnational Issues* referring to "the threat to international security posed by the proliferation of nuclear, chemical and biological weapons," and declaring agreement to "pursue efforts to prevent the diversion of chemical precursors at a national level, as well as in the relevant Western fora," in addition

to an agreement to "be vigilant about the danger of potential diversions in the field of biological technologies."

Another such agreed statement includes language on the possibility of new World Bank loans to China. There is press commentary linking the two issues, with specific reference to the US complaints about Chinese sales of CW precursor chemicals to Libya [see 11 Jun]. Unidentified US officials are quoted as saying that, although the Chinese government had halted those sales, a second Chinese manufacturer had subsequently agreed to ship 10,000 tons of the chemicals to Libya. {WT 12 & 13 Jul}

11 July The British government, responding to a Parliamentary question about reports of CW in Angola [see 22 Feb], writes: "A number of soil and vegetation samples purported to be from Angola have been examined by Government experts. The samples have not been found to contain any traces which would indicate the use of chemical weapons." {HansC 11 Jul}

11 July In the US House of Representatives, the Foreign Affairs Subcommittee on Arms Control holds hearings on proliferation and arms control with Administration witnesses testifying. The Assistant Secretary of State for Politico-Military Affairs, Richard Clarke, states: "About twenty countries are pursuing offensive chemical weapons programs. About ten countries have biological weapons programs." He tells the Subcommittee of a trip through East-European countries recently completed by his Deputy for Nonproliferation Affairs, Elizabeth Verville, during which she urged adoption of export controls similar to those of Australia-Group member states [see 19-21 Jun]. Later, he says: "The unfortunate fact is that a number of countries are in violation of the Biological Weapons Convention (BWC) of 1972. We have detailed these countries in classified hearings." He adds: "We have been holding consultations with key allies in anticipation of next year's review conference of the BWC. We have also discussed the matter with the Soviets, but we have insisted that the Soviets satisfy our serious concerns about their own compliance with the BWC before we proceed to discuss strengthening the convention." {Prepared statement}

The Deputy for Nonproliferation Policy in the Office of the Assistant Secretary of Defense for International Security Affairs, Henry D Sokolski, speaks of a recently introduced Defense Department practice of debarbing or suspending any US or foreign firm doing business with the Department or bidding on Defense contracts if it violates its own country's proliferation-related export-control regulations. He speaks, too, of the Defense Department having established, in Autumn 1989, a Proliferation Countermeasures Working Group under his chairmanship. {Prepared statement}

11 July In Washington, an unidentified Defense Department spokesman reportedly says that Defense Secretary Dick Cheney is withdrawing his department's request for \$140 million in FY 1991 procurement funds for binary chemical artillery shell and bombs [see 29 Jan and 5 Apr], and that he has issued guidance to be prepared to halt production of all CW weapon systems, mothballing the production facilities, as soon as the bilateral Washington CW agreement [see 1 Jun] enters into force, probably some time next year. The Department will, however, continue with its request for RDT&E funds for the MLRS binary warhead, as well as upgrading Service capabilities for aircraft delivery of existing non-binary CW munitions [see 5 Jul] {LAT 12 Jul}. Defense Department spokesman Pete Williams confirms this information the following day {WT 13 Jul, JDW 21 Jul}. It later transpires that the Defense Secretary had informed the Senate Armed Services Committee of his decision on 5 July [q.v.] {Senate report no. 101-384}.

12 July The United Kingdom submits to the CD a paper analyzing the results of six Practice Challenge Inspections [see 15 Jun 89] it had conducted at military or other government installations, including a nuclear-weapons establishment during February 1990 and a "sensitive communications centre" in April {CD/1012}. Foreign-Office Minister William Waldegrave says: "We discovered: (a) Managed access is the key to a balance between the protection of legitimate security interests and the degree of intrusiveness necessary for effective verification. (b) There is no UK site so sensitive from the national security viewpoint that we could not allow some form of access within the site, appropriately managed, to an international inspection team under the provisions on challenge inspection of a Chemical Weapons Convention." The paper describes techniques

for managing access, including the RANSAC (random selective access) system. The Minister states his government's view that, under the CWC challenge inspection regime, "there should be no sanctuary sites, safe from inspection."

He adds: "Challenge inspection should therefore be a regular element of the verification regime; it need not necessarily carry the assumption that the Convention is being breached. For this reason...we should find a less combative title for this procedure, as others have suggested. 'Inspection on request' is one option." {CD/PV.564}

13 July In the United States, the Senate Armed Services Committee announces the results of its mark-up of the 1991 Defense Authorization bill. For the binary program, all full-scale development and production funding is denied, not only the items which the Defense Secretary had just withdrawn [see 11 Jun] but also the RDT&E funding for the MLRS binary warhead. The committee, however, does invite the Defense Department to submit a request for reprogramming a part of the still-fenced FY 1990 authorization for 155mm GB2 procurement, namely \$47 million, in order to complete a Technical Data Package for the MLRS warhead {Senate report no. 101-384}.

14 July French Foreign Minister Roland Dumas, in an interview on the CW negotiations published today by *Jane's Defence Weekly*, says that the CWC could be concluded next year. On linkage he says: "Certain countries view chemical weapons as a counterweight to the nuclear capability which they claim other countries possess. Chemical weapons are not 'the poor man's nuclear weapons.' In view of their effects and their destructive capacity, the two types of weapons cannot be compared." {JDW 14 Jul}

15 July In the FRG, a group of local residents backed by the Greens [see 26 May] petition the Cologne Administrative Court for an emergency injunction to halt Operation Lindwurm, the transportation out of the country of the US CW-weapons stockpile held at Clausen, near Kaiserslautern [see 26 Jun] {FAZ 18 Jul in FBIS-WEU 19 Jul, DTel 25 Jul}. The court decides against the petition five days later.

The plea, citing official information released during the CW "media day" at Pirmasens [see 7 Mar], describes the stockpile as comprising 102,000 artillery shell of 155mm and 203 mm calibre containing 395 tonnes of GB and VX nerve gases.

16 July The British government, in the course of a written response to a Parliamentary question about military research in universities, says that its Chemical Defence Establishment currently has 64 contracts and agreements with 33 universities and polytechnics, worth £7.9 million in all. {HansC 16 Jul}

16 July Romania furnishes the CD with data on its production and consumption of scheduled chemicals according to the format proposed in CD/828 {CD/1014, CD/1014/Rev.1}. Introducing the paper later, the leader of the Romanian delegation states that, "in substance, it says that Romania does not possess chemical weapons, that there are no such weapons on its territory and that my country has no intention of producing or acquiring them either now or in the future" [see also 13 Feb]. He reaffirms Romania's "complete readiness to be an original signatory of a universal convention totally banning chemical weapons" {CD/PV.567}.

17 July Australian Foreign Minister Gareth Evans announces his government's support for the projected US chemdemil operations on Johnston Atoll [see 9 Jul], citing an evaluation by Australian government scientists [see 20 Mar] of the US Army's environmental impact assessments. {Melbourne Overseas Service 18 Jul in FBIS-EAS 20 Jul, NZPA-AAP as in *New Zealand Herald* 18 Jul}

18 July In the GDR, a team of 13 Bundeswehr inspectors is welcomed by the head of the National People's Army (NVA) Chemical Service, Major-General Karl-Heinz Nagler, in Storkow (near Berlin) on their visit to NVA sites both there and in Brettin, near Brandenburg {DPA 18 Jul in FBIS-WEU 19 Jul}. Following the recent reports of CW weapons being stored in the GDR [see 7 Jul], the GDR had invited the FRG to send a team to inspect any NVA facilities it chose, so the CD is subsequently told by the leader of the GDR delegation, who added: "This invitation was accepted and three facilities were inspected... Although final evaluations of the inspection

results are still being made, we have received preliminary information saying that minor quantities of Schedule 1 chemicals for protective purposes have been found in the inspected places, which range far below the envisaged 1-tonne threshold, but that no chemical weapons were discovered." {CD/PV.569}

The West German news agency DPA includes the following in a dispatch: "Secret Service circles in Bonn outlined today that there are seven [poison-gas] depots in the GDR, two in Czechoslovakia and three in Poland.... [They] went on to report that a Soviet [poison-gas] depot in Hungary had already been cleared. The Soviets had also closed down a depot in the GDR. According to these reports around 15,000 tonnes were previously stored in the GDR [see also 24 Oct 89]. The Soviets are trying to transport the chemical weapons back to their country as quickly and unobtrusively as possible. Three NVA depots in Storkow, Brettin and Oranienbaum have been cleared. The NVA had returned the poison-gas ammunition to the Soviets, it was explained. It was therefore to be assumed that the Bundeswehr officers would "no longer find anything" on their inspection of NVA sites" {DPA 18 Jul in FBIS-WEU 19 Jul}. "Special tank railroad cars" had apparently been observed at suspected sites {IDR no. 8/1990}.

19 July Bulgaria furnishes the CD with data, in CD/828 format, on its production and consumption of scheduled chemicals, including the declaration that "Bulgaria does not produce or store CW" {CD/1017}. Introducing the paper later, the deputy leader of the Bulgarian delegation reaffirms his country's "readiness...to sign the future chemical weapons convention as soon as it is open for signature" {CD/PV.567}.

19 July The Netherlands submits a report to the CD on a practice challenge inspection conducted at a military airbase on 27 March. A conclusion of the report is that challenge inspections of the type currently envisaged can serve their purpose without endangering legitimately secret information, provided "managed access measures" are applied [see also 12 Jul]. The report presents recommendations, including ones on rules applicable to observers. {CD/1018}

19 July Mexico speaks at the CD plenum of an apparent loss of momentum in the CWC negotiations. Its representative, Ambassador Marín Bosch, criticizes the idea [see 28 Jun] that "the principal possessors of chemical weapons should arrogate to themselves the right to keep a percentage of their arsenals and reserve to themselves the right of veto to determine, eight years after it enters into force, whether participation in the multilateral convention is sufficient to proceed to the total elimination of chemical weapons." He warns that "initiatives aimed at seeking perfection in the verification regime could be interpreted as delaying tactics or lack of political will to conclude the negotiations." And, in relation to the recent informal CD meeting with chemical-industry representatives [see 25-29 Jun], he says that, although the CD "will continue to give attention" to their concerns, the fundamental objective of the CWC "is the strengthening of the security of States, and not the protection of industrial interests." He adds: "we should also bear in mind that trade unions in the chemical industry have begun to show interest in our negotiations, and we believe that the Committee should examine the comments that they have made on our draft convention." {CD/PV.566}

20 July The US Army, having now received public and regulatory comments on its second supplemental environmental impact statement for JACADS [see 6 and 9 Jul], issues a public record of its decision to move its European CW stockpile from Clausen in West Germany to Johnston Atoll in the Pacific for eventual destruction there. {FedR 23 Jul, pp. 29880-81}

US Defense Secretary Cheney, in a letter to the Governor of Hawaii, says that 5.2 percent of the US CW-agent stockpile tonnage is held on Johnston Island and 1.4 percent in Germany. {CR 3 Aug, pp. S12129-30}

23 July The US Defense Secretary certifies to the Congress that actual agent-filled CW munitions have been safely destroyed in the Johnston Atoll incinerator [see 30 Jun] {CR 3 Aug, pp. S12129-30}. He thereby satisfies a precondition for the transportation of chemical weapons out of Germany laid down in the 1990 Defense Appropriations Act [see 13 Nov 89]. Another such precondition, in the 1990 Defense Authorization Act [see 6 Nov], he had satisfied some

months previously with his certification that "an adequate United States binary chemical munitions stockpile will exist before any withdrawal of the existing stockpile from its present locations [sic] in Europe is carried out" {Senate report no. 101-384}.

24 July Yugoslavia speaks at the CD plenum of the CWC negotiations now being "in a truly critical phase, which cannot even stand slowing down without risking to fall back." Its representative, Ambassador Kosin, characterizes the 8th-year-pause proposal [see 28 Jun] as being less likely to achieve its "proclaimed intention" of promoting universality than to serve in practice "as an incentive to the production and even proliferation of chemical weapons." He states that "Yugoslavia intends to be an original signatory of the convention." {CD/PV.567}

24 July At the CD, the Group of 21 makes a collective statement of opposition to the US-Soviet 8th-year-pause proposal [see 28 Jun]. It says that the revisions proposed in CD/CW/WP.303 "will have negative effects because they *inter alia* put conditions and postpone the decision for the total elimination of chemical weapons, give rights to States based on the possession of chemical weapons and create a situation of legal uncertainty about the scope and the implementation of the multilateral convention." The statement continues: "The Group emphasizes that the ultimate goal must be a non-discriminatory convention of universal adherence." It states once again the Group's "position that the future convention on chemical weapons should prohibit the use of such weapons under any circumstances from the date the convention enters into force." {CD/PV.567}

In his response to the statement, the leader of the USSR delegation says that the proposal "does not affect the obligation of complete destruction of chemical weapons set out...in article I of the draft convention," adding: "The Soviet delegation would like to confirm its position in favor of an unconditional ban on the use of chemical weapons within the framework of the draft of the future convention" {CD/PV.567}. The leader of the US delegation, in his comments on the statement, says that he does not associate himself with "Ambassador Batsanov's remarks...about retaliatory use." {CD/PV.567}

26 July The German Democratic Republic submits to the CD a report on a practice challenge inspection conducted in March at one of its army ammunition depots (unidentified). The basic aim of the trial had, according to the report, been to "test existing conceptions on challenge inspections and make national preparations for the implementation of the convention." {CD/1020}

26 July Czechoslovakia submits to the CD reports on two practice challenge inspections undertaken earlier in the month [see 3-4 Jul]. One had been conducted at a phosgene-consuming herbicide production unit within a multipurpose chemical facility, VCHZ Synthesia Pardubice. Its basic aim had, according to the report, been to "check the possibility of misuse of the inspected facility equipment for producing chemicals on Schedules 1 and 2, the presence of declared chemicals on Schedule 3 and their use and the absence of non-declared chemicals" {CD/1021}. The other trial had been conducted at an artillery brigade facility also at Pardubice in East Bohemia, and had aimed "to verify the present absence of chemical weapons at the facility" {CD/1022}.

26 July The leader of the Netherlands delegation suggests to the CD ways for speeding up the CWC negotiations {CD/PV.568}. He speaks especially of the concept of challenge inspection, which he sees as pivotal not only to the present draft CWC but also to "opening up the world for arms control and disarmament," and says that "the development of adequate procedures for managed access" will do much to solve its remaining problems. He is scathing about certain positions that have been adopted on the concept, such as the advocacy of a "filter mechanism." He also deplores the "efforts...made to block further consideration" of the Australian proposal on ad hoc verification [see 9 Apr]. He expresses support in the following terms for a ministerial-level meeting of the CD [see 22 Feb and 12 Jun]:

"The CD could envisage such a meeting at the beginning of our negotiating period next year. On that occasion Ministers could not only set a deadline for the termination of the [CWC] negotiations later that year, but also give directions on the lines along which problems should be solved. Second, Ministers might want to meet

again later that year, just before the expiry of the deadline. The remaining problems would all have to be solved then and there. Ministers could then also consider the follow-up, including the manner in which universality of adherence to the convention could be achieved. In this context, it is proper to recall the intention of the North Atlantic allies, as stated in the final communiqué of the Turnberry ministerial meeting [see 7-8 Jun], to be among the original signatories to the CW convention and to promote its early entry into force."

26 July Indonesia speaks at the CD of "a foreseeable possibility that we might have to destroy chemical weapons which were abandoned in our territory." {CD/PV.568}

26 July The transportation of the US CW stockpile out of West Germany begins. It will last for more than a month {FRG, Defense Ministry, press communique no. XXVII/49, 23 Jul; FR 27 Jul, WP as in IHT 27 Jul, *The European* 27-29 Jul, Reuter as in IHT 28-29 Jul}. But there are reports of slippage in the due date--said to be 18 September--for departure of the weapons from Nordenham {CN 1 Aug citing DerS 30 Jul}.

27 July In Israel, the Minister for Energy and Infrastructure, Science and Technology, Professor Yuval Ne'eman (the physicist who is also head of Tehiya, a political party of the far right), is broadcast as follows responding to a question about Iraqi CW weapons: "In my opinion, we have an excellent answer: threatening the enemy with the same wares. Undoubtedly, the preparation of chemical weapons is no problem nowadays, and when confronted with such an enemy, it is necessary to prepare the appropriate answer. I have no doubt that even today we can provide an answer to such a threat" {Jerusalem domestic service 27 Jul in FBIS-NES 27 Jul; DTel 28 Jul}. The Israeli Defense Ministry refuses to comment on the statement {IHT 28-29 Jul}. Next day, Professor Ne'eman tells a reporter that he does not know whether Israel in fact has CW weapons {Jerusalem domestic service 28 Jul in FBIS-NES 30 Jul}.

27 July The US Senate adopts an amendment proposed by Senator D'Amato [see 20 Apr] to the 1990 Farm bill which would prohibit government credits and the sale of arms or sensitive technology to Iraq {NYT 27 Jul, Reuter as in DTel 28 Jul, WP 28 Jul}.

In Iraq the next day there is talk of retaliatory sanctions against the United States, according to the official Iraqi News Agency. {AP as in *Sacramento Bee* 29 Jul}

28 July-3 August In the United States, a team of 15 Soviet officials led by the deputy head of the USSR CD delegation, Nikita Smidovich, visits three more chemical facilities [see 18-21 Jun] in accordance with the Wyoming bilateral Memorandum of Understanding. During 28-30 July, the team is at a commercial chemical production facility in West Virginia [see 4 Apr 89]; during 31 July-2 August, the former chemical-weapons production facility at Rocky Mountain Arsenal near Denver, Colorado; and during 3 August, the chemical-weapons storage facility at the Army's Pueblo Depot Activity, also in Colorado. {US Army, Pueblo Depot Activity news release, 25 Jul; *Denver Post* 31 Jul & 1 Aug, *Gazette-Telegraph* (Colorado Springs) 4 Aug}

31 July In Vanuatu, leaders of the 15 nations of the South Pacific Forum begin their 21st annual conference, during which they will be considering, among other matters, the US incineration of CW weapons on Johnston Atoll [see 20 Jul], including the widespread concern that yet more materials may be brought into the region for disposal {AFP 31 Jul in FBIS-EAS 1 Aug}. The New Zealand government had, the day previously, released a study by its Department of Scientific and Industrial Research concluding that the US chemdemil would not harm people or the environment {AFP 31 Jul in FBIS-EAS 1 Aug}. Australian Prime Minister Bob Hawke, having released his government's similar report [see 17 Jul] {DTel 31 Jul}, tells the press he had proposed that the Forum should send an independent scientific mission to assess the incineration. He is reported as saying that his support for the US program is based on the condition that the weapons to be burned be limited to those already on the atoll, those located in West Germany, and others in the Pacific region {Melbourne overseas service 31 Jul in FBIS-EAS 1 Aug}.

In speaking here of "others," Prime Minister Hawke may have been referring to the US mustard-gas munitions recently found in the Solomon Islands, where they had been abandoned at the end of World War II. {STel 29 Jul, *Pacific Research* August}

31 July In the Sudan, according to a report two weeks later in the Egyptian opposition daily newspaper *Al-Wafd*, ten planeloads of "weapons whose use is internationally restricted" arrive from Iraq. The report follows unconfirmed rumors that the military junta in Khartoum has been using CW weapons in the southern part of the country, against the Sudanese People's Liberation Army [see 10 Jan 89] {G 13 Aug}.

31 July Peru proposes to the CD that the CWC should require states parties "to establish an assistance and environmental protection fund for the promotion and implementation in developing countries of prevention and environmental decontamination programs in the industrial and sanitation sectors," the fund to be managed by the CWC Organization. {CD/1024}

Peru also puts forward draft treaty language proposing, in effect, that the CWC should cease to bind non-possessors of CW-weapons if any possessor state retains stocks beyond the 10th year of the treaty [see also 24 Jul]. {CD/1025}

1 August The South Pacific Forum [see 31 Jul] adopts and issues a communiqué reportedly condemning the US plan to transport the European CW stockpile to Johnston Atoll for incineration but accepting that the CW weapons already there should be destroyed. The communiqué is to be discussed over the next two days at a "post Forum dialogue meeting" with senior government observers from Britain, Canada, China, France, Japan and the United States {DTel 2 Aug}. The US State Department complains about the "hostile language" of the communiqué {DTel 6 Aug}.

1 August In a US district court in Hawaii, an injunction against the shipment of US nerve-gas weapons from Germany [see also 15 Jul] to Johnston Atoll is sought by Greenpeace USA, the Institute for the Advancement of Hawaiian Affairs and the World Council of Indigenous Peoples. The court denies the request for a temporary restraining order, but sets a date--20 August--for a hearing on a preliminary injunction. {AFP 2 Aug in FBIS-EAS 2 Aug, UPI as in IHT 11-12 Aug}

1 August In the GDR, the Thuringian newspaper *Tagespost* asks whether recent outbreaks of illness in three villages in the Hermsdorfer Kreuz area may not be due to a concealed CW-weapons depot [see also 7 Jul]. A senior defense-ministry official says: "the National People's Army does not have any chemical weapons there. In addition, there is no facility of the Soviet Army in this area that would be suitable as a depot for poison gas" {*Neues Deutschland* 2 Aug in FBIS-EEU 7 Aug}. NVA Chemical Services specialists subsequently take soil and water samples from the area; their preliminary findings are reported to reveal no trace of CW agents {*Berliner Zeitung* (East Berlin) 8 Aug in FBIS-EEU 10 Aug}.

2 August Iraq invades Kuwait.

Attributing unidentified "US intelligence sources," the *Washington Times* later reports that the invading force carried CW weapons with it, mostly in the form of artillery shells. The report continued: "Intelligence sources said US satellites photographed specially equipped Iraqi troops unloading chemical weapons from stockpiles in Iraq during the buildup of forces before the invasion. In addition to artillery shells, intelligence analysts also discerned aerial bombs believed to contain deadly chemical arms being readied for Iraq's air force" {WT 6 Aug}. Yet according to the *Washington Post*, also attributing unidentified "US intelligence sources," no CW artillery shell were moved into Kuwait, although decontamination equipment was {WP 7 Aug}.

2 August At the CD, the leader of the French delegation, Ambassador Pierre Morel, speaks of a linkage between the CWC efforts and the Vienna and START talks, such that "any delays in the chemical negotiations relative to the other two would give increased military significance to the existing stockpiles and means and could jeopardize the general movement towards disarmament which is now under way in earnest." He presents a close analysis of the current state of the CWC negotiations, concluding that "they must

now be advanced, by a political decision, into their final phase, which will be next year's session." He continues:

"We therefore propose that the Conference begin its next session in January 1991 by meeting at the ministerial level to examine the status of the negotiations at that time, identify approaches needed to complete them, set a relatively short time-limit and give the corresponding instructions to delegations. The latter would then get down to work with the conclusion of a final agreement clearly in mind and would negotiate under the ministers' direct control. Then, when the time came, the Ministers would return to Geneva to settle the final text of the convention" [see also 26 Jul]. {CD/PV.570}

2 August Argentina tells the CD that a Commission for the Study of the Draft Convention on the Prohibition of Chemical Weapons has just been set up by presidential decree. Among other functions, it is to serve as a bridge towards the establishment of an Argentinian National Authority as envisaged in article VII of the rolling text. {CD/PV.570}

2 August In Moscow, *Pravda* publishes an interview with the chief of the USSR Defense Ministry Chemical Troops, Col-Gen Stanislav Veniaminovich Petrov, in which he urges the Supreme Soviet to speed up its consideration of the five alternative plans for the USSR chemdemil program that had been submitted in March [see 1 Apr]. His view, he says, is that "the most desirable option is to create one or two highly automated, safe and ecologically clean facilities located in parts of the country where there is a low population density." He adds: "According to preliminary estimates, about R3 billion will be needed." {*Pravda* 2 Aug in FBIS-SOV 6 Aug}

Here and in other public releases around this time both by himself and by another senior Soviet CW defense figure, new information about past Soviet CW programs is disclosed {*Izvestiya* 7 Aug in FBIS-SOV 8 Aug; *APN Military Bulletin* June-July; *Pravdelstvenny Vestnik* no. 29 as in SovN no. 6539}. A figure of 40,000 tonnes of chemical agents, rather than the "no more than 50,000 tonnes" hitherto stated, is given for the total size of the Soviet CW stockpile. Mustard and lewisite account for one quarter of the "chemical weapons stocks existing in the USSR" with "phosphor-organic agents in ammunition" constituting the other three quarters. Of the 40,000 tonnes, "10,000 tonnes are stockpiles of chemical weapons that were accumulated in the prewar years and during the war...[and now] are obsolete and outdated and are of no value as weapons in the light of current requirements." Since 1970 "some 438 tonnes of various types of chemical weapons have been destroyed." During the 1980s, three "stationary installations" were built for destroying mustard and lewisite items that "could not be stored for safety considerations, and also to try out a technology of destruction." Two of these installations "have completed their service life." The third is for extracting arsenic from lewisite, a conversion process which is also proposed in the draft *State Program for the Destruction of Chemical Weapons in the USSR*.

2 August In Washington US District Court, the American Legion and others bring a joint action against the US Government seeking to compel completion of the federal study, cancelled in 1987, on the health effects of Agent Orange on Vietnam-War veterans and their children. {AP as in *Sacramento Bee* 3 Aug, NYT 22 Aug}

3 August The US Senate is told by Senator Inouye (Hawaii) that neither Soviet chemical weapons nor those of any other foreign nation [see 31 Jul] will be destroyed in the Johnston Atoll chemdemil facility. {CR 3 Aug, pp. S12129-30}

3 August In Kosovo province, Yugoslavia, the Albanian-language newspaper *Rilindja* publishes testimony by Dr Bernard Benedetti, a doctor for *Médecins du Monde* who had been in the province during height of the troubles earlier in the year [see 20-22 Mar]. "I assert that more than 3000 young people and minors were poisoned in the January to May period"; and he said that the samples he had taken and had had analyzed by two laboratories in France suggested the involvement of a poison similar to the pesticide lindane. {*Rilindja* (Pristina) 3 Aug in FBIS-EEU 10 Aug}

4-9 August In Geneva, representatives of the US Congress and the USSR Supreme Soviet end their conference on the prohibition of CW weapons [see 13 Mar], during which there had been particular attention to the coming ratification by the two parliaments of the

bilateral destruction agreement [see 1 Jun]. There had been discussion of the problem connected with, as Moscow radio puts it, "the absence to date in our country of a broad technical base for the destruction of chemical weapons" [see 11 Feb and 2 Aug]. {*Izvestiya* 21 Jun in FBIS-SOV 25 Jun; Moscow domestic service 11 Aug in FBIS-SOV 13 Aug}

6 August At the CD the Chairman of the CW Ad Hoc Committee, Ambassador Hyttenius of Sweden, issues a document summarizing the still-inconclusive consultations he had been conducting on the vexed issue of challenge inspection. The document records proposals for revisions to the Article IX treaty language he had proposed earlier in the session [see 17 Apr]. It also records agreement to use the term "inspection on request" rather than "challenge inspection" [see 12 Jul], and to deal with investigations of alleged use under Article IX. {CD/CW/WP.316}

7 August In the USSR, the political committee of the Constitutional Democrats party adopts a statement asserting the citizen's right to carry weapons of self-defense, "including firearms and tear and nerve paralyzing agents," asserting also that such weapons should be made available by the state "at accessible prices." {Moscow world service 8 Aug in FBIS-SOV 9 Aug}

7-16 August In Geneva, there is a new round of US-Soviet bilateral negotiations on the CW weapons ban, with work proceeding on implementation of the June bilateral destruction agreement and elaboration of its inspection protocol, which is to be completed by the end of the year. The leader of the Soviet delegation, Serguei Batsanov, describes the talks as "productive." A further round of bilaterals is to be held in the Autumn. {AN no. 2248, TASS 17 Aug in FBIS-SOV 21 Aug}

8 August France submits a report to the CD on its first exploratory practice challenge inspection, which had been conducted on 6-7 June at a "not particularly sensitive" army ammunition depot. A conclusion drawn in the report is the necessity of carrying out further trials. {CD/1029}

8 August Canada submits a report to the CD on its second national trial inspection. The NTI had been conducted in a multipurpose pharmaceutical site at the Merck Frosst Canada Inc facilities in Pointe Claire, Quebec. It focussed not so much on the production of a model Schedule-2 chemical as on its consumption and compounding, examining (a) the possibilities and impact on confidential business information of using an audit trail to verify compliance and (b) the use of quality-control procedures to complement audit-trail inspection. {CD/1030/Rev.1}

8 August In Saudi Arabia an enormous buildup of US and, later, other foreign forces begins following the Iraqi occupation of Kuwait [see 2 Aug].

US officials reportedly tell NATO allies of intelligence suggesting that Iraq has moved CW munitions into southern Kuwait and that it has loaded chemical weapons onto aircraft {WP 8 Aug, FT 9 Aug, Reuter as in IHT 9 Aug}. But the Chairman of the US Joint Chiefs of Staff, General Colin Powell, tells a news conference that the intelligence is "somewhat ambiguous," saying also, however, that US troops had taken with them anti-CW protective clothing and medical supplies {AP and Reuter as in IHT 9 Aug, DW 13 Aug}. House Armed Services Committee chairman Les Aspin says he had been told that Iraq had "rather publicly loaded and then downloaded [chemical weapons] from aircraft. And they did it rather in the open expecting us to see it... I think it was a rather deliberate move on their part, probably...as [a military] deterrence to us" {WP 9 Aug}. There are reports of Iraqi *Scud* missiles having been moved into Kuwait, with much accompanying speculation about CW warheads for the missiles {WSJ 9 Aug}. But Israeli Defense Minister Moshe Arens tells an interviewer next day that "to the best of our knowledge [Saddam Husayn] does not have missiles with gas-carrying warheads" [see also 28 Jun] {*Yedi'ot Aharonot* (Tel Aviv) 10 Aug in FBIS-NES 10 Aug}.

President Bush, during his televised address on the crisis, says that any use by Iraq of its CW weapons "would be dealt with very, very severely" {WP 9 Aug}. Over the next few days, according to US officials speaking unattributably to the press, the message privately conveyed by the US Government to Iraq is that the US is prepared to use all of its capabilities in response to a poison-gas attack, including its force of tactical nuclear weapons {WT 16 Aug}.

Demand for anti-CW protective equipment nevertheless builds up rapidly within the region, creating a market which producers around the world rush to supply {WP 10 Aug, TELAM 10 Aug in FBIS-LAT 13 Aug, Ind 11 Aug, AFP 13 & 14 Aug in FBIS-WEU 15 Aug, DTel & WP 15 Aug, Reuter as in NYT 16 Aug, DW 18 Aug, TL 23 Aug, FT & WT 24 Aug, Obs 26 Aug}. The US Defense Logistics Agency has been operating 24-hour-a-day emergency supply centers nationwide, its orders including \$50-million worth of CW respirators and protective overgarments [see 1 May] {WP 22 Aug}.

8 August In the FRG, the Mannheim public prosecutor tells reporters that it suspects Imhausen Chemie [see 27 Jun] of having supplied Libya with plans not only for the chemical-weapons plant at Rabta but also for a second such plant, using a Federal research grant to pay employees working on the project {WP 9 Aug}. The US consul in Stuttgart later reports to the State Department that the second set of plans, code-named "Pharma 200," is believed by the prosecutor's office to be for the projected factory in the Sebha oasis [see 18 Jun] {*Inside the Pentagon* 23 Aug}.

9 August In Athens, the Iraqi ambassador to Greece, Abdel Fetah Al-Khezreji, tells a news conference that his country will use CW weapons if it is attacked. {DTel 10 Aug}

9 August In the US House of Representatives, the Government Operations Subcommittee on Human Resources reports its conclusion, after 14 months of investigation, that the Reagan Administration had "obstructed" the Federal health study of Vietnam-War veterans exposed to Agent Orange which the Congress had mandated in 1979 [see 2 Aug]. This obstruction then lead to cancellation of the study in 1987, because of White-House fears of enormous compensation claims from veterans {NYT 10 Aug, *Science* 31 Aug}. A senior federal Health official, Dr. James O Mason, who had headed the National Centers for Disease Control at the time of the study, says the committee's report {House report no. 101-672} "is for the most part factually incorrect" {NYT 22 Aug}.

10 August China distributes a paper at the CD detailing its position on challenge inspection. The paper refers to the consultations on the issue conducted by the Chairman of the CW Ad Hoc Committee [see 6 Aug] and says that the "Chinese delegation finds it necessary to reiterate [see 12 Apr] its principled position and suggestions, in the hope that they will be seriously considered and objectively reflected." The paper reaffirms Chinese opposition to, *inter alia*, the principles that states parties should be obliged to accept challenge inspections and that there should be no sites safe from such inspection. {CD/1031}

10 August In the CD, the CW Ad Hoc Committee adopts its report to the conference presenting a new rolling text {CD/1033}. As usual the report is in three parts: a technical section; the rolling text proper--i.e., the latest version of the draft CWC, now 164 pages long--in Appendix I; and, in Appendix II, additional material on which consensus is emerging.

14 August In the GDR, a team of Bundeswehr experts arrives, after 24 hours notice, at a Soviet army storage facility near Hohenleipisch to check for the presence of CW weapons. They find no such weapons nor any sign of recent storage [see also 18 Jul]. The inspection is the first to be conducted under the terms of a confidence-building accord between Moscow and Bonn. {TASS 13 Aug in FBIS-SOV 14 Aug; ADN as reported by Reuter as in CN 15 Aug; TASS 16 Aug in FBIS-SOV 17 Aug}

14 August Iran introduces into the CD a report on the national trial inspection which it had conducted in June at a plant producing the organophosphorus pesticide DDVP from the Schedule-3 chemical trimethyl phosphite. {CD/PV.573}

15 August Iraqi President Saddam Hussein offers Iran a peace treaty on Iranian terms, thus in effect formally ending the 1980-88 Gulf War.

15 August In Israel, the army announces that it has gas masks ready for distribution to all 4.5 million citizens within 4-5 days, but, despite great popular demand, government officials order delay {LAT 16 Aug}. There is much protest, and opinion within the government divides publicly {FT 21 Aug, WT 22 Aug}. The matter goes to Cabinet on 22 August, where it is decided to defer decision and to establish a subcommittee to recommend distribution when and if it saw fit to do so {FT 23 Aug}.

15 August In Florida, a US federal court indicts a Spaniard and a West German on charges of conspiring illegally to export to Libya, among other things, toxic chemical artillery shells from the United States. {SFC 16 Aug}

16 August The USSR expresses support at the CD for the idea of a special ministerial-level meeting to accelerate the CWC negotiation [see 2 Aug]. Soviet representative Serguei Batsanov speaks of the advance preparations needed to make such a meeting worthwhile. He reviews the political problems still outstanding, suggesting ways forward. On the issue of promoting universality of adherence to the CWC, he talks of "a possibility of introducing additional export restrictions on specific chemical products to countries which refuse to become parties."

He speaks, too, of the Biological Weapons Convention and of ways for strengthening it that might be considered during the 1991 Review Conference, notably as regards verification. He reaffirms Soviet support for the idea of a verification protocol, outlining possible provisions. For example, he suggests the compilation of "national biological registers," the facilities listed in which would be subject to inspection at any time without right of refusal. {Official text}

16 August US Ambassador Stephen Ledogar speaks at the CD about the gains made in the CWC negotiation thus far during the 1990 session, prefacing his review, however, as follows: "Progress was not...what we had hoped for this year. For the US part, our review of key chemical weapons issues was only concluded this month. But many others in this room contributed to the delay as well. And as the US made its conclusions known on several vital questions, a certain atmosphere of recrimination and finger-pointing replaced the dispassionate discussion of national perspectives that should be the medium of serious negotiation. We are likely to conclude this session of our conference, I regret to say, on a sour note."

In the course of his statement he reiterates US CW armament policy, referring as he does so to "the sad developments of the last two weeks": "If we are attacked with chemical weapons, we must have a variety of response options, including the option to respond in kind so long as we still have some chemical weapons." {Official text}

18 August "Iraq will not use chemical weapons unless the United States uses nuclear weapons against it," Iraqi Foreign Minister Tariq Aziz says in an ABC television interview [see also 9 Aug]. {NA 18 Aug in FBIS-NES 20 Aug}

21 August At the CD, the Chairman of the CW Ad Hoc Committee, Ambassador Hyltenius, introduces his report with its new rolling text [see 10 Aug]. He mentions specifically four new features of the draft CWC: the texts on alleged-use verification, on order of destruction, on amendments, and on settlement of disputes. As to the new Appendix-II material, he draws attention to the texts on jurisdiction

and control, on old chemical weapons, and on "measures to redress a situation" (meaning the question of sanctions).

He reports that there is agreement that the leader of the Soviet delegation, Serguei Batsanov, should be appointed as his successor in the chair for 1991. {Official text}

21 August The CD agrees that it should convene in three sessions of 10, 7 and 7 weeks respectively (rather than two sessions of 12 weeks, as at present and in earlier years) during 1991, the opening plenaries to be held on 22 January, 14 May and 23 July, and that there should be fewer plenary sessions {CD/1036}. New rules of procedure are adopted accordingly {CD/8/Rev.3}.

21-22 August In the USSR, a team of US specialists visits the chemdemil training facility at Chapayevsk. Team leader Dr. Robert Mikulak tells *Izvestiya* that the visit is taking place within the framework of the June bilateral CW destruction agreement [see 1 Jun]. A Soviet return visit is to tour the US chemdemil facility on Johnston Atoll. {AN no. 2248; TASS 22 Aug in FBIS-SOV 23 Aug; *Izvestiya* 25 Aug in FBIS-SOV 30 Aug}

23 August The Federal German Economics Ministry announces that 59 West German companies are under investigation for alleged offenses concerning delivery of armament equipment to Iraq, especially CW-related equipment. Six people had been arrested the previous week on suspicion of illegal involvement in the Iraqi CW program, including a former BND agent. {NYT 18 Aug, FT 24 Aug, DPA 28 Aug in FBIS-WEU 29 Aug}

24 August The summer session of the CD ends.

25 August Arriving in Saudi Arabia from Fort Benning, Georgia, is the 608th Ordnance Company, a unit with experience in handling CW weapons gained on Johnston Atoll. {FT 28 Aug}

25-30 August In the USSR, the team of US specialists that had been visiting Chapayevsk [see 21-22 Aug] is in Dzerzhinsk, inspecting the country's largest chemical center, including what TASS describes as "special production facilities mothballed since the mid-1940s which are to be dismantled in the near future" {TASS 30 Aug in FBIS-SOV 30 Aug}. The team also makes a two-day visit to a chemical-weapons storage facility at Kambarka, where Lewisite has been stored in steel tanks since the beginning of the 1950s {TASS 24 Aug in FBIS-SOV 24 Aug; *Vremya* 27 Aug in FBIS-SOV 28 Aug}

28 August In Saudi Arabia, the commander of the joint forces, Lt-Gen Prince Khalid Bin-Sultan, responds as follows during a televised interview to a question about the CW weapons of Saddam Hussein: "we are fully aware of his limited capabilities, and we also know--and he knows it full well--that should he use [chemicals] it would cause the total destruction of Iraq. At the same time, with regard to the Saudi Armed Forces, we are prepared for this type of warfare. I would like to stress that towns and civilians are least exposed to this danger, because in fact Saddam will head first for the military concentrations." {Riyadh television service 28 Aug in FBIS-NES 29 Aug}

Shortly afterwards, the country's director of civil defense, Gen Hashem Abdulrahman, announces that King Fahd has ordered his government to purchase gas masks for every Saudi citizen and resident foreigner, some 12 million people in all. {WP 31 Aug}

29 August The US Army's chemdemil plant on Johnston Atoll is 32 months behind schedule and will go at least \$190 million over its \$371 million budget, according to a General Accounting Office report released today [see also 13 Jun]. {GAO-NSIAD-90-222; AP as in SFC 30 Aug; NYT 31 Aug}

30 August In Angola, the Chief of the General Staff states that the Angolan Air Force has never used chemical weapons. He is responding to accusations made in Lisbon by UNITA [see also 11 Jul]. {Luanda domestic service 30 Aug in FBIS-AFR 31 Aug}

The CWC Negotiations

Following is a checklist of contributions made at the CD by member states and by participating non-members.

Country	A	B	C	D	E	F
<hr style="border-top: 1px solid black;"/> CD Member States <hr style="border-top: 1px solid black;"/>						
Algeria	..	..	..	..	..	..
Argentina	**	..	..	..	..	..
Australia	CD/907	CD/907	CD/910	..	..	..
Belgium	PV.424	..	CD/917	..	..	CD/1006
Brazil	PV.460	..	CD/895	..	..	..
Bulgaria	PV.457	CD/1017	..	..	..	PV.567
Burma	PV.452	..	..	..	..	..
Canada	PV.433	..	CD/987 CD/1030	..	..	CD/1006
China	PV.453	..	..	..	..	..
Cuba	..	..	..	..	..	..
Czechoslovakia	CD/878	CD/949	CD/900	CD/1021	CD/1022	..
Egypt	PV.459	..	CD/958	..	..	..
Ethiopia	PV.487	..	..	..	..	..
FR Germany	PV. 437	WP.207	CD/912	CD/950	CD/975 CD/983	CD/930
France	PV.484	..	CD/913 CD/960	..	CD/1029	CD/1006
German DR	CD/871	CD/871	CD/899	CD/996	CD/1020	..
Hungary	PV.437	CD/969	CD/890	..	..	..
India	PV.459	..	CD/988	..	..	..
Indonesia	PV.437	..	..	..	..	..
Iran	..	..	PV.573	..	..	..
Italy	PV.437	WP.220	CD/893	..	..	PV.547
Japan	PV.424	WP.281	WP.228	..	..	..
Kenya	PV.499	..	..	..	..	PV.499

[A] Declaration of possession or non-possession of chemical weapons

[B] Provision of CW-capability and chemical industry data

[C] Report on a trial routine inspection

[D] Report on a non-routine inspection trial in industry

[E] Report on a non-routine inspection trial in military facilities

[F] Declaration of intent to become an original signatory to the CWC

Country	A	B	C	D	E	F
Mexico	PV.421	..	..	..	..	..
Mongolia	PV.442	..	..	..	..	..
Morocco	PV.367	..	..	..	..	..
Netherlands	PV.309	WP.203	CD/924	CD/925	CD/1018	CD/1006
Nigeria	**	..	..	..	..	..
Pakistan	PV.339	..	..	..	..	..
Peru	PV.472	..	..	..	..	..
Poland	PV.419	CD/985	..	..	..	PV.503
Romania	PV.440	CD/1014	..	..	..	PV.553
Soviet Union	PV.400	WP.264	CD/894	..	CD/966	CD/931
Sri Lanka	..	..	..	..	..	..
Sweden	PV.481	WP.280	WP.216	..	..	PV.555
United Kingdom	PV.474	WP.206	WP.249	..	CD/921 CD/1012	CD/1006
United States	CD/711	..	CD/922 WP.301	..	..	CD/1006
Venezuela	**	..	..	..	..	..
Yugoslavia	PV.550	..	CD/982	..	..	PV.567
Zaire	..	..	..	..	..	..
----- Participating Non-Members -----						
Austria	PV.471	WP.238 CD/971	CD/999	..	..	..
Bahrain	**	..	..	..	..	..
Bangladesh	..	..	..	..	..	..
Cameroon	..	..	..	..	..	..
Chile	**	..	..	..	..	..
Denmark	CD/991	CD/991	..	..	..	CD/1006
Finland	PV.441	WP.297	WP.233	..	..	PV.559
Ghana	..	..	..	..	..	..
Greece	**	..	..	..	..	CD/1006
Holy See	..	..	..	..	..	..
Honduras	..	..	..	..	..	..
Iraq	**	..	..	..	..	..
Ireland	**	..	..	..	..	..

Country	A	B	C	D	E	F
Israel	..	..	..	..	..	..
Jordan	..	..	..	..	..	..
Korea, North	PV.529	..	..	..	..	..
Korea, South	PV.573	..	..	..	..	..
Kuwait	**	..	..	..	..	..
Libya	..	..	..	..	..	..
Malaysia	**	..	..	..	..	..
New Zealand	PV.445	..	..	..	..	..
Norway	PV.448	WP.221	WP.285	..	..	CD/1006
Oman	..	..	..	..	..	..
Portugal	..	..	..	..	..	CD/1006
Qatar	**	..	..	..	..	..
Senegal	**	..	..	..	..	..
Spain	PV.422	..	..	..	..	CD/1006
Sudan	..	..	..	..	..	..
Syria	..	..	..	..	..	..
Switzerland	PV.270	..	WP.247	..	..	..
Tunisia	..	..	..	..	..	..
Turkey	..	..	..	..	..	CD/1006
UAR	..	..	..	..	..	..
Uruguay	..	..	..	..	..	..
Vietnam	PV.498	..	..	..	..	..
Zimbabwe	**	..	..	..	..	..

Note: The cutoff date for data is early August 1990. The citations are of CD documentation only, meaning that contributions made in other fora--indicated by a double asterisk (**)--are not listed. The double period (..) indicates that such data has not been submitted to the CD nor to any other fora. The listing will be updated in a subsequent issue of the *Bulletin*, so readers are asked to inform us of any errors or omissions.

"PV" stands for "CD/PV," meaning the verbatim records of the CD in plenary session. "CD/" indicates a plenary working paper. "WP" stands for "CD/CW/WP," the working papers of the CD Ad Hoc Committee on Chemical Weapons; such papers are cited only when the contribution is not also distributed at plenary level, for papers not so distributed are in effect withheld from the general public.

Some Recent Publications

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Some Relevant Events

* The seventeenth round of US-USSR bilateral chemical weapons talks will be held in late October.

* At Aberdeen Proving Ground, Maryland, the US Army Chemical Research, Development and Engineering Center will hold a "Scientific Conference on Chemical Defense Research." The conference is open to government personnel and contractors. For more information call Joe Williams (301) 671-4144.

* At the Centre for Advanced Training and Education in the School of Biological Sciences, University of Birmingham, England, a specialist conference on "Chemical Weapons: Environmental and Public Health Aspects," will be convened on 21 November. The focus is public health management in the case of accidental or terrorist use of CBW agents. For more information, contact the Centre's director, Dr. Peter Patel (UK tel 021-414-5882).

* In Geneva the CD Ad Hoc Committee on Chemical Weapons reconvenes for open-ended consultations from 26 November-21 December.

* In Washington, DC the American Association for the Advancement of Science (AAAS) Program on Science, Arms Control and National Security will hold a colloquium on CBW proliferation and arms control on 14 December. For more information contact Ray Orkwis at (202) 326-6490.

* In Geneva, the final session of the CD Ad Hoc Committee on Chemical Weapons under its 1990 chairmanship will take place from 8-18 January.

* In Moscow the UN Institute for Disarmament Research (UNIDIR) will hold a conference on measures to increase the effectiveness of the BWC from 28-30 January 91.

* In Washington, DC the Annual Meeting of the AAAS will run from 14-19 February 91. There will be a panel entitled "Chemical and Biological Weapons: Elimination or Proliferation?"

This issue marks the start of the *Chemical Weapons Convention Bulletin's* third year in production. If you have not renewed your subscription yet by sending \$10 to cover this and the next three issues, please do so soon.

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