The series of meetings, known as 'Verex', held in Geneva, was established by the third review conference of the BWC, held in 1991. Unlike many other arms control treaties, the BWC contains no verification mechanisms.

The Verex meetings looked at 20 possible verification methods, some of which follow on from confidence-building measures, such as declarations, agreed in 1986. However, of 134 parties to the BWC, only 34 have participated in the confidence-building measures.

Ukraine and nuclear weapons

On 3 September, President Yeltsin and of Russia and President Kravchuk of Ukraine reached an verbal agreement on the transfer of missiles and their nuclear weapons on Ukrainian soil to Russia for dismantling in exchange for fuel for Ukraine's nuclear power stations.

This agreement also included provisions for the transfer of Ukraine's share of the Black Sea Fleet to Russia to offset the debt owed by the former for oil and gas, and a deal for the Fleet to continue to use the port of Sevastopol, which is in Ukrainian territory.

The verbal agreement was backed up by a protocol that was signed by the two states' Prime Ministers a few days later.

Within a few days, the Russians decided to annul this protocol. The stated reason for the dispute is that a text printed in the Ukrainian press on 9 September no longer referred to 'all missiles' but instead referred to 'the missiles mentioned specifically in this text'.

This is not to say that other states should not re-examine their systems.

Definitional problems

The Scott Inquiry was set up after the collapse of the trial of three people from the Matrix-Churchill company. They were prosecuted for exporting machine tools that was specially designed for defence purposes. But when is a machine tool 'specially designed'?

Most high-value machine tools, such as those manufactured by Matrix-Churchill, are computerized, and may be used to create anything from automotive components to shell casings.

The product depends on the software running the machine tool. However, software is poorly defined in the Export of Goods Control Order. It would follow that a company could export a general-purpose machine tool loaded with software to manufacture washing machine parts and then, at a later date, install software for manufacturing artillery shell casings.

Richard Guthrie
It is the view of the Russians that these ‘amendments’ have materially changed the meaning of the protocol and would allow Ukraine to keep some missiles. The status of the original verbal agreement is unclear.

Belarus and the NPT
It has been pointed out that the deposition of accession by Belarus to the Non-Proliferation Treaty on 22 July has not yet been mentioned in Trust & Verify. Apologies.

For the record, Armenia deposited its instrument of accession on 15 July.

Clinton UNGA speech
On 27 September, President Clinton gave his first speech to the United Nations General Assembly. The speech gave only broad policy outlines, with few details. However, a factsheet issued by the White House covered more ground.

The following are the major points in the categories used by the White House.

Fissile Material
• To undertake a ‘comprehensive approach’ to the growing accumulation of fissile material from dismantled nuclear weapons and within civil nuclear programs, including:
  - seeking to eliminate stockpiles of highly-enriched uranium (HEU) or plutonium, and to subject such materials that already exist to the highest standards of safety, security and international accountability;
  - proposing a ‘multilateral convention prohibiting the production of highly-enriched uranium or plutonium for nuclear explosives purposes or outside of international safeguards’ — a fissile materials cut-off;
  - encouraging more restrictive regional arrangements to constrain fissile material production;
  - submitting US fissile materials no longer required for nuclear weapons purposes to inspection by the International Atomic Energy Agency (IAEA);
  - pursuing the purchase of HEU from the former Soviet Union and other countries and its conversion to peaceful use as reactor fuel;
  - exploring means to limit the stockpiling of plutonium from civil nuclear programs, and seeking to minimize the civil use of highly-enriched uranium;
  - initiating a comprehensive review of long-term options for plutonium disposition [sic]. Russia and other states would be invited to participate.

The President noted that the US does not encourage the civil use of plutonium and, accordingly, does not itself engage in plutonium reprocessing for either nuclear power or nuclear explosive purposes. However, he stated that the US ‘will maintain its existing commitments regarding the use of plutonium in civil nuclear programs in Western Europe and Japan.’

Export Controls
• To harmonize domestic and multilateral export controls ‘to the greatest extent possible’. Although the need to lead the international community or overriding national security or foreign policy interests may justify unilateral export controls in specific cases.

Nuclear Proliferation
• To make every effort to secure the indefinite extension of the Non-Proliferation Treaty in 1995.
• To seek to ensure that the IAEA has the resources needed to implement its ‘vital’ safeguards responsibilities, and to work to strengthen the IAEA’s ability to detect clandestine nuclear activities.

Missile Proliferation
• To maintain strong US support for the Missile Technology Control Regime (MTCR); to support ‘prudent’ expansion of the MTCR’s membership; and to promote regional efforts to reduce the demand for missile capabilities.
• The United States will not support the development or acquisition of space-launch vehicles in countries outside the MTCR; ‘For MTCR member countries, we will not encourage new space launch vehicle programs, which raise questions on both non-proliferation and accountability grounds.’ The United States will, however, consider exports of MTCR-controlled items to MTCR member countries for peaceful space launch programs on a case-by-case basis.’

Chemical and Biological Weapons
• To promote new measures to provide increased transparency of activities and facilities that could have biological weapons applications.
• ‘We call on all nations — including our own — to ratify the Chemical Weapons Convention quickly so that it may enter into force by January 13, 1995.’

Regional Nonproliferation Initiatives.
• To make special efforts to address the proliferation threat in regions of tension such as the Korean peninsula, the Middle East and South Asia, including efforts to address the underlying motivations for weapons acquisition, and to promote regional confidence-building steps.
• To encourage a non-nuclear Korean peninsula to secure North Korea’s full compliance with its non-proliferation commitments and effective implementation of the North-South denuclearisation agreement.
• To promote dialogue and confidence-building steps to create the basis for ‘a Middle East free of weapons of mass destruction’; to contain Iran’s nuclear, missile, and CBW ambitions, while preventing reconstruction of Iraq’s activities in these areas.
• To encourage India and Pakistan ‘to proceed with multilateral discussions of non-proliferation and security issues, with the goal of capping and eventually rolling back their nuclear and missile capabilities.’
• To intensify efforts to ensure that the former Soviet Union, Eastern Europe and China do not contribute to the spread of weapons of mass destruction and missiles.

PRD-8
The UNGA speech by President Clinton follows on from reports of the contents of Presidential Review Directive 8 (PRD-8) which covers the policy of the US with regard to proliferation of weapons and their technologies.

PRD-8, a classified document, was rumoured to propose changes to exports controls and controls on fissile materials. These may now have been superseded by the UNGA speech.

UK response
In response to the President’s speech, the UK Foreign and Commonwealth Office issued the following statement:

We shall naturally wish to consider very carefully the implications for our nuclear deterrent of the proposal for a cut-off convention, but we recognise the potentially valuable contribution which a multilateral convention prohibiting the production of plutonium and highly-enriched uranium for explosives purposes
could make to non-proliferation and we will want to
explore the potential benefits fully and positively in
our approach to this issue. We are hopeful of being
able to work towards a multilateral agreement of the
kind proposed by the US.

This marks a shift in policy. The last public statement
of the British position by Jonathan Aitken, Minister
of State for Defence Procurement, who stated in July
1992 that ‘Unlike the nuclear superpowers, the United
Kingdom does not have large stocks of surplus fissile
material upon which to draw. But United Kingdom
production will continue to be kept at the minimum
level necessary to satisfy our nuclear deterrent and naval
reactor needs.

Inhumane Weapons Convention
It now seems likely that there may be a conference held
to review the implementation of the Inhumane Weapons
Convention, also known as the UN Weaponry
Convention.

Article 8 of the Convention allows that, after the
Convention has been in force for 10 years, any single
party may request the UN Secretary-General to organize
a review conference. The Convention entered into force
on 2 December 1983.

France has, apparently, already approached the United
Nations regarding the holding of such a conference. In
its declaration made on signing the Convention, France
reiterated points it had made earlier:

Regrets that thus far it has not been possible for the
States which participated in the negotiation of the
Convention to reach agreement on the provisions
concerning the verification of facts which might be
alleged and which might constitute violations of the
undertakings subscribed to.

It therefore submits the right to submit, possibly in
association with other States, proposals aimed at
filling that gap at the first conference to be held
pursuant to article 8 of the Convention and to utilize,
as appropriate, procedures that would make it
possible to bring before the international community
facts and information which, if verified, could
constitute violations of the provisions of the
Convention and the Protocols annexed thereto.

The prospects of such a conference may also encourage
states that have signed the treaty to ratify it, lest they
be excluded from the conference, or only allowed to
attend as observers. For example, both the United
Kingdom and United States have signed the Convention
(on 10 April 1981 and 8 April 1982 respectively), but
neither has so far ratified it.

Iraq gives list of companies
The Iraqi government has provided the UN Special
Commission (UNSCOM) a list of companies from which
they imported materials, equipment and technologies to
support their programmes for weapons of mass
destruction and ballistic missiles.

A UK source with UNSCOM connections, who had not
seen a copy of the list, stated that he personally felt
that, until all information had been revealed by the
Iraqis, no list of suspect companies should be published.
If UNSCOM publishes its own list, it would not surprise
me if the Iraqis then produced a list of the companies
already known about’.

Matrix Churchill
Further indications of the high level of overt Iraqi
involvement in the Matrix Churchill machine tools
company have come to light.

Dr Safa al-Habobi, former chairman of Matrix Churchill,
has now been appointed to the post of oil minister in the
Iraqi government. He was formerly the deputy director
of the Military Industrial Commission and is wanted for
questioning in the US in connection with the Atlanta
banking scandal.

The post of oil minister is a sensitive one, as Iraq is
prevented from exporting oil because of UN sanctions.
One condition for the lifting of sanctions is the provision
of further information on Iraq's procurement
programme; it may be no coincidence that Dr al-Habobi
will now be representing Iraq in negotiations on the
lifting of sanctions.

Convention on Biological Diversity
The first significant post-Rio meeting on the Biological
Diversity Convention will be held in Geneva from 11 to
15 October 1993. The Intergovernmental Committee
for the Convention on Biological Diversity (ICBBD) will
meet to begin preparations for the first Conference of
the Parties to the Convention.

The ICBBD now has a secretariat led by Angela Cropper
(Trinidad). She is backed up by Dr Kaiman Mulongoy
(biotechnologist, Zaire), Dr Arturo Martinez (biologist,
Argentina), Susan Bragdon (lawyer, USA), Lone
Johansen (communications, Denmark), Song Li
(economics, China) and Mamb Chakraborty (economics,
India).

For further information on the Convention contact:
Convention on Biological Diversity, 15 chemin des
Anémones, CP 356, CH-1219 Chatelaine, Geneva,
Switzerland; tel. +41 22 979 9111, fax. +41 22 797
2512.

Immediately prior to the intergovernmental meeting a
‘Global Biodiversity Forum’ will be held at the World
Conservation Union (IUCN) in Gland, Switzerland.
The aim of the Forum is to promote further dialogue on
biodiversity amongst interested sectors of society. For
further information contact Jeff McNeely, IUCN, Avenue
de Mauverney, Gland, Switzerland; tel. +41 22 999
0001.

Climate Change Convention
As of 14 September 1993, 33 states had ratified,
acceded to or accepted the UN Framework Convention
on Climate Change. It will enter into force 90 days after
the deposition of the 50th ratification, accession or
acceptance.

Details given below are for ratification unless otherwise
noted. Dates cited are the dates upon which
instruments of ratification etc. were received by the
United Nations.

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**CD membership changes**

On 28 January 1993 the Conference on Disarmament (CD) appointed Australian Ambassador Paul O'Sullivan as its 'Special Coordinator' for the issue of expanding its membership. He reported back to the CD in August.

The recommendations for additional members was planned with the intention of keeping a balance between the regional groupings. Adding fewer than the suggested number could have led to an imbalance occurring. The suggested number has the added benefit of bringing the CD membership up to about one-third of the UN membership - the same proportion it had when the original CD had on its establishment.

It had been hoped, had all gone well, that new members could take their seats at the start of the 1994 session. However, delays have occurred as objections have been made by some existing members against some proposed members. All CD decisions are taken on a consensus basis.

The suggested list of new members is:

- Austria
- Bangladesh
- Belarus
- Cameroon
- Chile
- Colombia
- Democratic Peoples' Republic of Korea
- Finland
- Iraq
- Israel
- New Zealand
- Norway
- Republic of Korea
- Senegal
- Slovakia
- South Africa
- Spain
- Switzerland
- Syria
- Turkey
- Ukraine
- Viet Nam
- Zimbabwe

If all of the suggested states became parties to the CD, it would bring the total membership to 60. Some reports have listed this total as 61 by including 'Yugoslavia'. There is agreement in the CD that the Socialist Federal Republic of Yugoslavia, an original CD member, has ceased to exist. However, there has been no agreement on successor arrangements, nor on removal of the nameplate 'Yugoslavia'. There is an understanding that representatives of the Federal Republic of Yugoslavia (Serbia-Montenegro) will not attempt to occupy the 'Yugoslavia' seat.

**VERTIC News**

**Verification 1993**

By the time that this issue of Trust & Verify has been posted, copies of Verification 1993 will have been delivered from the printers. The book is the latest in VERTIC's series of yearbooks.

A cumulative index for the three yearbooks produced so far is included with this edition of Trust & Verify as well as an order form for books from this series.

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**Trust & Verify**

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What is VERTIC?

VERTIC is an independent organization aiming to research and provide information on the role of verification technology and methods in present and future arms control and environmental agreements. VERTIC co-ordinates six working groups comprising 21 UK consultants and 11 overseas advisors. VERTIC is the major source of information on verification for scientists, policy makers and the press. VERTIC is funded primarily by grants from foundations and trusts and its independence is monitored by an Oversight and Advisory Committee.

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Chinese nuclear test - 5 October 1993

This supplement has been prepared in response to the Chinese nuclear test of 5 October 1993, which was anticipated and subsequently identified by VERTIC.

CTB background
Negotiations for a comprehensive test ban (CTB) are due to start at the Conference on Disarmament in Geneva in early 1994. The chances of successful negotiations for a CTB are better now than they have been for nearly 15 years. CTB prospects have been enhanced in recent years by the declaration of moratoria by the Russians in October 1991 and the French in April 1992 and the adoption of a pre-CTB stance by the United States Congress which led to a US moratorium on testing.

President Bush had been reluctant to sign the Congressional ban on testing into law. President Clinton has been more supportive of the CTB policy.

International responses

US position
In response to the Chinese test, President Clinton gave instructions to the Department of Energy to make preparations for a possible resumption of testing.

Before the test, the US position had been to extend the Congressionally-mandated moratorium, that had expired on 1 July 1993, to 30 September 1994, providing no other state tested during this period.

On extending the moratorium, the President said:

Additional nuclear tests could help us prepare for a test ban and provide us with some additional improvements in safety and reliability. However, the price we would pay in conducting those tests now by undercutting our own non-proliferation goals and ensuring that other nations would resume testing outweighs these benefits.

Unless other states carry out many tests, it seems highly unlikely that the US will, in fact carry out any tests before September 1996, at which point the US is prohibited by domestic legislation from carrying out any tests unless another state does so.

French position
The French position is more complicated than that of the US. When France declared its moratorium in April 1992, it stated that 'tests would resume if other nuclear powers did not follow suit'.

In July 1993, France declared itself to be in favour of a CTB and established a group of experts to study the implications of a permanent cessation of testing on French nuclear forces and to study whether further tests would be required before a test ban entered into force.

The group of experts have, reportedly, stated that a few more tests would enhance the country's computer modelling techniques. Officials have been keen to stress that before the moratorium took effect, France was in the middle of a warhead development programme.

President Mitterrand and Prime Minister Balladur issued a statement on 6 October stating that contact would be made with the American, British and Russian governments 'with a view to studying the consequences of the [Chinese] nuclear test'.

Indications are that, the group of experts' report notwithstanding, the French government will not resume testing in the immediate future, although preparations are underway.

Other positions
The British government described the test as 'regrettable'. Many non-nuclear-weapon states have condemned the test.

Chinese nuclear programme
China exploded its first nuclear device in 1964. It has now carried out a total of 38 known nuclear weapons tests.

It is estimated that China currently has 300-400 nuclear warheads in stockpile, of at least 5 different designs. These include land-based and submarine-based ballistic missiles and air-delivered weapons. There have also been indications that China has developed nuclear land mines and atomic demolition munitions.

VERTIC activities
VERTIC was able to break the news of the test within three hours of it taking place. This test marks the second time that a test by the Chinese has been anticipated by VERTIC. Chinese testing was the subject of a VERTIC press briefing on 22 September.

The majority of VERTIC's work in this field has been carried out by Vipin Gupta, a Marshall Scholar at the Centre for Remote Sensing, Imperial College, London.

Previous analysis
In August 1992, on the basis of satellite imagery, VERTIC concluded that the Chinese were preparing to carry out more nuclear tests. The prediction was published in Trust & Verify No. 30, July/August 1992.

A Landsat Thematic Mapper image taken on 25 June that year showed distinct signs of testing-related
features. Although the image, even when spectrally-enhanced, did not allow sufficient detail to enable an observer to tell which prepared test facilities had been used, there was at least one more prepared site than the number of tests carried out at that location. This indicated that preparations for at least one more test had taken place.

On 25 September 1992, the Chinese carried out a test with an explosive yield of approximately 8 kT and a magnitude of 5.2 on the Richter scale.

**Identifying the latest Chinese test**
The breaking of the news of the Chinese test by VERTIC astounded many people who know that this organization doesn't possess any seismic equipment of its own.

The test took place 3.5 seconds before 02:00 GMT on Tuesday 5 October 1993. By 04:45 GMT, VERTIC had the seismic data, collated from the returns of 71 stations, that confirmed a test had taken place.

VERTIC cannot take all the credit for this. The source of this data was a computer database at the US Geological Survey's National Earthquake Information Centre (NEIC), based in Golden, Colorado, USA which collates seismic data from civilian stations automatically.

Having been confident that a test would take place and knowing the geographical layout of the test site, VERTIC staff established a computer system to hook up to this database from London every 30 minutes and ask the NEIC for any new data for the area of the Lop Nor test site.

At approximately 04:30 GMT, the NEIC system had collated the data for Lop Nor and 15 minutes later this was recognized by the VERTIC computer programme installed on a portable machine which then made a loud noise to wake up the dedicated staff member who had taken it home with him.

Within a few minutes of the alarm, the technical data was automatically sent to VERTIC staff via electronic mail and analyzed. A rapid response plan was then executed less than three hours after the test had taken place and before Chinese or US governments had made their announcements. News of the test went around around the world within 90 minutes.

**Chinese test press coverage**
The press coverage of the test was extensive. VERTIC provided the technical details associated with the test such as the detonation time, location derived from satellite imagery, shaft orientation, and yield range. VERTIC also presented the political implications of the test.

Most press reports included a credit to VERTIC. The test identification also led to a feature article on the work of VERTIC in *The Independent*.

**Chinese test press briefing**
On Thursday 22 September, VERTIC held a press briefing at the Royal Society of Arts building in London. Presentations included a video of the Lop Nor test site, produced by Vipin Gupta from satellite imagery, including images acquired by the US Landsat satellite.

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