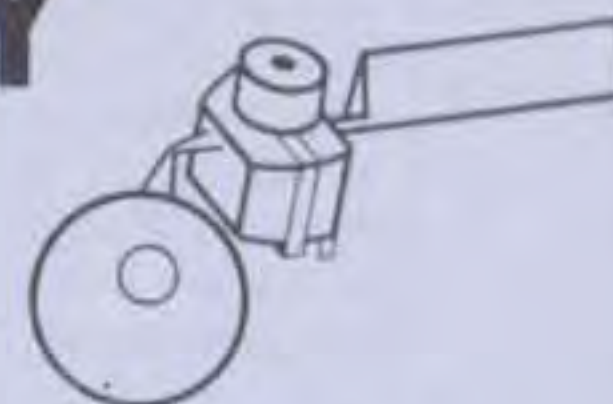


TRUST AND VERIFY



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The Soviet Republics and Arms Control

In response to proposals in President Bush's State of the Union Address for further deep cuts in strategic nuclear forces, Russian President Yeltsin proposed even greater cuts.

The Bush proposals would eliminate all land-based multiple warhead missiles; limit sea-based warheads to around 2 300, as well as limit the number of nuclear bombers with only 20 B-2s being produced. In total, about 50% of post-START strategic warheads would be removed, taking the US to roughly 4 700 warheads, and the former Soviet Union to around 4 300 - 4 500.

In a statement, released by the TASS News Agency, President Yeltsin called for cuts to go further, to around 2 000 - 2 500 strategic warheads each. He also called for the US and Russia to cease targeting each other with their remaining nuclear forces, and announced that US cities are no longer targeted by Russia. Initially he called for a response from the UK, France and China to his proposals, but accepted after talks with UK premier John Major that no reciprocation was yet necessary from the smaller nuclear powers. His final proposal was for global defence systems to replace the US "Star Wars" SDI programme.

The position in the FSU with regard to location, numbers and command and control of nuclear weapons is still far from clear. Strategic nuclear weapons in Belarus, the Ukraine and Kazakhstan are nominally under central Army control, but this control looks increasingly unreliable. The nature of actual operational control is far from certain. It is also unclear whether President Yeltsin can speak for the other republics with strategic nuclear weapons in the matter of arms cuts.

Location of silos for the strategic nuclear weapons are supposedly known but there are also mobile launchers. Gorbachev and Yeltsin originally planned that eventually all strategic nuclear weapons should be moved to Russia and destroyed there, but other pressures may mean they remain dispersed in the Republics but under Russian control. Mistrust of Russian intentions has led Kazakhstan to say it will retain its weapons as long as Russia does, while Ukraine wants its weapons destroyed on its territory despite there being no destruction facilities there at present. If weapons are transferred to Russia, probably to the Nizhnyaya Tura site, the Republics want them dismantled under international supervision. In such circumstances the process of destruction of the Republic's nuclear weapons could take up to a decade. "States which have neither the necessary expertise, facilities or experience, let alone the financial resources, will be responsible for the transport, storage, dismantlement and destruction of thousands of nuclear weapons" (*Financial Times*, 15/1/1992).

Russia itself fears the spread of nuclear expertise and the possibility that if Ukraine's and Kazakhstan's nuclear weapons are dismantled in their territories those Republics could gain possession of a great deal of both highly enriched uranium and weapons-grade plutonium. Edward Shevardnadze has warned that "nuclear warheads and even complete nuclear weapons could fall into the hands of some paramilitary organisation".

The FSU had up to 14,000 (estimates greatly vary) tactical nuclear weapons, deployed in up to 11 Republics. After the Gorbachev unilateral responses to US unilateral measures scrapping and storing most tactical nuclear weapons, such weapons were supposed to be transferred to Russia for collection and destruction. This process seems to be going according to plan. One confidence-building measure that has been suggested is that former warhead bunkers in the Republics be inspected, the tactical weapons accounted for, and the bunkers sealed and placed under international supervision. The Black Sea Fleet's tactical nuclear weapons stocks also merit attention, particularly in the light of recent agreement on Black Sea Fleet command.

Apart from strategic and nuclear weapons there are said to be some 50,000 tons of chemical agents in the FSU. Sergei Batsanov, Russian Ambassador to the UN Disarmament Conference in Geneva, said the FSU's CW stocks and production facilities were all now exclusively in Russia and Russia had sole command and responsibility for destruction.

CBW Conference

Verification issues came up many times in presentations and discussion at the 3rd Annual International Conference on Chemical Warfare, entitled "The 2nd Gulf war and the CBW threat" which was held in Brussels on 29 - 30 November 1991. There were over 80 participants. *Trust and Verify* Editor, Declan McHugh reports:

Hot topics for discussion were the findings from the UNSCOM inspections in Iraq and the CWC negotiations in Geneva.

In his presentation, Medical Colonel Jan Willems first started talking of verification of the use of CW agent. He said that verification of nerve gas use was much more difficult than verification of, for example, mustard gas use. The reason was that days after mild cases of nerve gas poisoning symptoms had disappeared while in severe cases death occurred and corpses showed very few symptoms; no blistering or pigmentation of skin for example as is found with mustard gas cases. Difficulty in positive identification is also caused by the fact that Cholinesterase inhibition which is a feature of nerve gas attack is to a lesser extent also caused by mustard gas. Mass spectrometry can reveal whether mycotoxins have been used.

Willems then went on to talk of Iraq. He said that it appeared that the first nerve gas the Iraqis manufactured had been Tabun. Tabun had been found in an unexploded bomb in 1984 by a UN team. They appeared to have discontinued its production in 1987 and started Sarin production. Hydroxysarin, a breakdown product of Sarin was found at the Halabja site in Northern Iraq in 1988 by German scientists.

He showed slides taken by members of the UN Special Commission team at the Iraqi Muthana chemical establishment. The Sarin manufacture plant at the Muthana plant at Samarra had escaped allied bombing but Allied bombing of the 'filling station' where chemical agents were put into munitions had completely destroyed it and 15 other sites with the result that Sarin was to be found leaking from rockets and low concentrations of CW agents were still detectable in the open air by the UN team. Pilot plants had escaped destruction and were found to contain equipment supplied by many different firms from a number of countries. Willems said that the West had provided Iraq with all the necessary precursors and the high technology equipment. West Germany, for example, had made the storage site.

Nevertheless, Iraq had problems weaponising its CW agents. 30 CW warheads had been manufactured for the AlHussein modified Scud ballistic missile, but this missile was not capable of transporting CW over long distances and there were problems relating to the heating in space of the CW agent and possible detachment in space of the CW receptacle. Non-use of such missiles may have been due to Iraq fears of abortive or backfiring launches. Neither precision, range nor security of use were available to Iraq.

Joachim Badelt from Germany affirmed that in fact of the 55 companies worldwide who supplied Iraq's CW programme, 22 were from Germany. German companies supplied processing equipment, precursors and expertise. 7 'pesticide' plants had been sold to Iraq by one German company alone. Badelt felt that exports of dual-capable goods were still not adequately covered by German law. Only 80,000 export licenses out of 80 million were reviewed annually. Badelt pointed out that in 1992-93 the export laws of the EC would have to be harmonised to a much greater degree. Germany could implement economic embargoes of states which refused to join a Chemical Weapons Convention (CWC), and this would have a strong effect. At least all 50 chemicals on the Australian Group's list are now on the German national restrictions list.

Graham Pearson of the British Chemical Defence Establishment (CDE) at Porton Down stressed the importance of taking photographs and, if possible, video footage to establish proof of locations where samples are collected. Such evidence can be checked with LANDSAT satellite imagery of the terrain. UN missions did in fact use satellite navigation and GPS. Pearson also recommended that there should be proof (presumably by tagging) that samples had not been tampered with between collection and laboratory analysis.

Peter Herby of the Quaker United Nations Office in Geneva said that after the Gulf war began there had been little progress on the CWC, but there had been some movement on procedures for verification of alleged use of CW and settlement of disputes. May 1992 had been set as the goal for signing of a CWC. However, the US had abandoned its position (proposed by Bush in 1984) on 'anytime, anyplace, anywhere' challenge inspections. The new position was co-sponsored by Japan and the UK, and

co-tabled by Australia so that wider discussion could follow. The new US position was that delays of up to one week before inspections took place should be allowed, and the ultimate right to refuse. The change was thought to be due to US intelligence concerns over technical secrets in the US chemical industry but it was justified by the US as a compromise position which if adopted would be more likely to persuade states like India and Pakistan to join the CWC. Other states felt very strongly that verification measures would be heavily diluted under such proposals. Herby's opinion was that placing short-term interest over long-term Treaty compliance by effective verification measures was a bad idea. This had happened when the BWC verification measures had been dropped to get a Treaty signed and it was much harder to graft such measures on late. (See "In-the-news" section for info on an exciting new game!)

Nicholas Sims, Senior Lecturer at LSE, agreed with Herby on the importance of Treaty verification measures. He thought the US change of position was "short-sighted, dangerous and doctrinaire and must be resolutely opposed and overcome". In 1968 the British had pushed hard for verification measures for the BWC but had been overruled. He wanted to see universal BW research restraint; if this was not possible then there needed to be some international constraints on research. Sims pointed out that if a CWC was to be signed in 1992 then it would only be the beginning of the verification regime. There were possibilities in the installation of detectors but no complete guarantee against proliferation could be given. 100% proof of treaty compliance was not possible.

Iraq admitted in August 1991 that it had a research project at Salman Pak but said this was the only site and that it was only carrying out research. They said they were studying Anthrax, Botulus and Gas Gangrene.

Sims said in March 1992 in Geneva that an Ad Hoc group of inspectors will be discussing ways of verifying compliance on BW. Iraq may argue that other states should also have such inspection regimes imposed on them and that otherwise it is discrimination. Measures that have been applied in Iraq may indeed become the benchmark for verification even though the US position is that it is unconvinced effective verification of a BWC is possible, and argues that the regime imposed on Iraq is a special case. Sims believes that if intrusive onsite inspections (and other verification measures being applied in Iraq which have not been previously applied elsewhere) do prove effective, they should be applied to all BW states. The Geneva meeting must be allowed to take fully into account the effectiveness of the uniquely intrusive inspection regime imposed on Iraq. Such intrusive regimes may make the UN aim of general and complete disarmament possible. Sims noted however that only four people had been appointed to cover future Iraqi compliance with the BWC.

There was some disagreement between participants about how technically feasible and easy it was to convert, say, a fertiliser plant to one capable of making organo-phosphorous weapons. Herbert de Bisschop of the Royal Military Academy in Brussels warned against making warning and banning lists of CW agents definitive because there could be evolutions which would be out of the scope of such lists. Graham Pearson also expressed this worry.

Graham Pearson said that in a situation where CW protection was well developed, and therefore the utility of CW much reduced, he believed that there should be as intrusive measures as could be achieved and as careful

export controls as possible to stop and pre-empt proliferation.

START Update

START has yet to be ratified by Congress, and the Soviet parliament dissolved before it could ratify the Treaty. Tortuous legal problems are the result. Since START does not specify which 5,000 strategic nuclear weapons should be destroyed, the distribution of reductions across the Republics will have to be negotiated. If Russia becomes recognised as the FSU successor Party to START then it will have to ensure that the strategic nuclear weapons of Ukraine, Belarus and Kazakhstan are eliminated. However, if Russia under START is only given equal status to these three, it would be tantamount to a legal recognition that those Republics owned their strategic nuclear weapons. In December 1992, an ICBM, under central control, was test fired in Kazakhstan. Since the test data was coded, this is a technical violation of START. If the CIS is recognised as the main Party then negotiations between the four may solve the problem. It is difficult to see, in any case, how the Republics can meet their obligations without Western aid. The seven years destruction period mandated under START now looks optimistic.

There are tricky questions about verification: will START verification now proceed bilaterally between the US and each Republic, or will it be conducted between the US and a pooled Republican team of inspectors, or will it be a multilateral process? What entity verifies US compliance?

CFE and CFE1a Update

The November 1990 CFE Treaty will now be signed by the 8 Republics from the CIS who fall within its geographical scope. They are: Armenia, Azerbaijan, Belarus, Georgia, Moldova, Russia, Ukraine, and Kazakhstan. However Kazakhstan did not send a representative to the Nato meeting. It is still hoped that renegotiation of the Treaty will not be necessary. Any amendment, it has now been agreed, would only be considered after the Treaty enters into force 40 months after ratification. Ratification is to occur after an agreement on force levels in and between the Republics; there are some worries about how smooth such negotiations will be.

There has been some suggestion that pressure may be forthcoming from Hungary, Czechoslovakia, and particularly Poland to reallocate equipment. All are worried about the Ukraine's ambitions for its own army and the substantial equipment holdings it would possess under CFE. Current weapon holdings by the Republics must now be declared before any reallocation does occur. It is hoped that CFE implementation may be ready by March.

A draft for the proposed CFE1a Treaty on personnel ceilings is being studied in Vienna. It has 3 parts: a) a definition of national ceilings, b) a list of participating states with their numerical ceilings and c) national commitments not to exceed a certain number of military personnel. The establishment of these personnel limits will only create minimal verification requirements beyond those already required for CFE (since personnel and equipment are closely linked). CFE1a verification measures will "provide adequate levels of overall assurance also with respect to monitoring compliance with manpower limits". Some inspection provisions may need extending.

Non-Proliferation Treaty Update

Ukraine has repeated (19/1/1992) its intention to join the NPT as a non-nuclear state. Kazakhstan and Belarus have issued such statements in the past. In fact, under a very literal interpretation of the NPT these three Republics are arguably already non-nuclear weapon states since, although they have nuclear weapons on their territories, none of them "manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967" (Article 1X.3). Russia, however, does not meet these criteria. If the other three Republics had direct control of the nuclear weapons on their territories they could not accede to the NPT, but joint CIS control might allow accession in the same way that West Germany can be a member of the NPT despite having nuclear weapons on its territories and a say in their control. The problem of the status of Russia itself vis a vis the NPT could conceivably be solved by proxy if the CIS were recognised as the NPT successor to the USSR. Russia would remain a nuclear weapon state while not acceding to the Treaty itself. If the CIS does become recognised as the NPT successor the transfers of any of the Republics' weapons to the West or anywhere else would be prohibited by NPT Article 1.

In The News

Soviet Braindrain

The Monterey Institute of International Studies has produced a 3 page bulletin "Coping with the Soviet Nuclear Brain Drain: an Environmental Approach" by George Perkovich and William C. Potter, December 1991, which suggests a way to help prevent the feared nuclear braindrain from the CIS to states with nuclear programmes. The Institute suggests that nuclear scientists be paid by the West to redeploy their skills to help repair the environmental damage caused by nuclear weapons production in the CIS. This would both ensure scientists stayed at home and would also help restore the CIS economy. Other nuclear powers such as the US and UK would also benefit from the knowledge gained: the US Department of Energy faces a \$300 billion bill to clean up US nuclear sites. The plan could be financed with less than 10% of the \$400 million authorised by Congress for Soviet warhead dismantlement.

North and South Korea Agree to be Nuclear Weapon Free

North Korea has concluded an agreement with South Korea on 13/1/92 which declares that the peninsula should be nuclear-free. North Korea will also now accept IAEA full-scope inspections, presumably including inspection of its 30 Megawatt nuclear reactor which is apparently capable of producing 30 grammes of weapons-grade plutonium every day. At present this reactor is not under a safeguards agreement as the older Soviet reactor is.

In return for North Korean cooperation the US has issued a statement saying that all bases in South Korea are nuclear-free and that 'Team Spirit' joint military exercises with South Korea would be halted. Japanese plans to acquire 100 tons of plutonium over the next 20 years by reprocessing carried out by the UK and France could, however, result in moves by both North and South Korea to ensure their own access to plutonium supplies.

Supplies to Iraq

It has been revealed that German companies played a large part in the supply of components for Iraq's planned large-scale gas centrifuge uranium-enrichment programme. It is not certain that all the components for the planned 10,000 centrifuges were available before the Gulf war, or whether any have been concealed. No trace of a pilot plant has been found.

George Bush says in a report to Congress released on 14/1/92 that Iraq still possessed "large numbers of undeclared ballistic missiles". Iraq has however been cooperating with the UN in its attempts to inspect and clean up storage sites for chemical weapons and munitions. Iraq may begin this year to destroy these materials under supervision.

Proliferation News

Dick Cheney, US Defence Secretary, said on the 9 January 1992 that 8 or 9 developing countries could have nuclear weapons by the end of the century. None was named. The US is now considering a change of targeting policy: some warheads would be retargeted from the FSU to "reasonable adversaries", whether nuclear-capable or non nuclear-capable. There could be implications for the NPT which is up for renewal in 1995 since non-nuclear signatories have attached great weight to the assurances they had been given by the US and UK which stated that the nuclear power concerned would not launch a nuclear attack on a non-nuclear state. The US change of policy could result in a renewed scramble to join the nuclear 'club'.

UNSCOM - a step ahead of the psychics!

Apologies are due to Derek Boothby, Deputy Director for Operations, UNSCOM, New York, after our little, tongue-in-cheek piece entitled 'UN team turns to psychics for help' in the November 1991 Trust and Verify. Derek has been in touch and wished to make it clear that neither information nor aid from the psychic investigation team mentioned in the piece were solicited by UNSCOM, or indeed acted upon. We regret if the impression was given that UNSCOM is in any way frivolous in the planning and conduct of its operations.

The Perimeter Game

Following on from last year's silly season of proposals at the CWC negotiations in Geneva, some rather enterprising international personnel have invented "PERIMETER - a challenging game". The board game is

about a challenge inspection under the future Chemical Weapons Convention as proposed in July by the US, UK, Australia and Japan (the UK performing what amounts to a 180 degree turn in policy). Using dice and a team of players the game starts in the parking lot of the Point of Entry and a player can spend some time hanging around in there! The negotiation of the provisional, final perimeters and access is so instructive that this game should be compulsory study for all national and international inspecting teams and most importantly for policy makers and negotiators - we might even get them to see sense, who knows.

Publications

VERTIC's Director, Dr Patricia Lewis is co-editor of the forthcoming (March 1992, 400p, \$35) "Verification at Vienna", along with Jurgen Altmann, Henny Van Der Graaf, and Peter Markl. CFE reductions are discussed in the context of changing political and military developments in Europe. Not only are CFE verification measures discussed, possible verification measures for future treaties are also covered.

Scientists for Global Responsibility have a series of new publications: "Psychological Aspects of the Gulf War" by Dr Christopher French; "The Ultimate Disposal of Fissile Material from Nuclear Weapons" by Roger Harrison; "Nuclear Terrorism" by Dr Frank Barnaby; "Your Career and the Arms Industry - Information for Science and Engineering Students"; and "Verification and Disarmament" by VERTIC Director Dr Patricia Lewis.

These publications are available from Scientists for Global Responsibility, Unit 3, Down House, The Business Village, Broomhill Road, London SW18 4JQ.

VERTIC News

The Royal Astronomical Society, in a jointly sponsored venture with VERTIC, is holding an all-day discussion meeting on the 14 February entitled "The Detection and Recognition of Underground Nuclear Explosions". There will be presentations from a number of leading scientists in this field covering the issues of Seismic Monitoring, Technical Work of the Geneva Conference on Disarmament, Remote Sensing, Radioisotope Monitoring, and Ionospheric Disturbance. The meeting will be held at the Geological Society Lecture Theatre, Burlington House, Piccadilly, London W1. It will start at 10.00am. If you would like more information please contact the VERTIC office. UK readers have a leaflet about the meeting enclosed with this issue.

What is VERTIC?

VERTIC is an independent organisation aiming to research and provide information on the role of verification technology and methods in present and future arms control 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.

Voluntary Subscriptions: The production of this bulletin entails considerable cost to VERTIC so we would welcome a subscription of £12 (individual) or £20 (organisation) for a year's issues. Thank you to those who have sent a subscription. Anyone wishing to contribute information for inclusion in "Trust and Verify" should send it to the VERTIC office.

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VERTIC, 8 John Adam Street, London WC2N 6EZ, Tel: 071 925 0867 Fax: 071 925 0861