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THE VERIFICATION ISSUE: KEY TO A U.S.-SOVIET ARMS ACCORD

INTRODUCTION

Soviet leader Mikhail Gorbachev's July 22 acceptance of the United States suggestion for a global ban on intermediate and shorter-range nuclear missiles means that a U.S.-Soviet agreement may be nearing completion. The military and political implications of such an agreement are subject to debate. The importance of very strict verification provisions is not. The record on past Soviet treaty violations is clear. This makes verification provisions perhaps the most critical element of any new treaty.

Recent technological advances, such as cruise missiles with both nuclear and conventional capabilities ("dual-capable"), deployment of large numbers of strategic and intermediate-range mobile missiles, diverse deployment modes on land, sea, and air-based launchers, and miniaturization of nuclear technology make verification even more difficult than in the past but also more important. Smaller and dual-capable systems are tougher to identify; and more important because cheating becomes even easier.

Moscow knows that the open and adversarial U.S. democratic political system forces Washington to comply with an arms control agreement. Moscow can verify or discover key arms control information merely by following the U.S. media, public debate, and congressional hearings. By contrast, the U.S. can have no such confidence, given Soviet treaty violations and Moscow's obsessive secrecy.

To ensure that compliance with a new treaty can be verified, the U.S. should:

1) make explicit to the U.S. and allied publics the connection of verification to U.S. security;

2) consider the impact upon strategic stability of potential Soviet non-compliance with any new treaties; and

3) **evaluate verification proposals** in the context of: a) the military significance of current Soviet violations; b) the role of deception and circumvention in Soviet strategy; c) the ability and disposition of Congress to judge and respond to Moscow's treaty compliance record; and d) current U.S. verification abilities.

Verification concerns, of course, played a crucial role in dooming SALT II. A bipartisan group of U.S. Senators raised grave doubts about SALT II's verifiability. Public opinion polls indicate that most Americans do not trust Moscow to observe an agreement. In one of the most recent surveys on the issue, 65 percent of those polled do not "trust the Soviet Union to keep its word."¹ And a Gallup Poll last year found that 81 percent of Americans believe that Moscow has not lived up to the terms of the SALT II Treaty.²

The U.S. must scrutinize the verifiability of any U.S.-Soviet arms treaty, whether it be for strategic, theater nuclear, or conventional weapons.³ Initial evidence indicates that the provisions of the much-discussed INF agreement are unlikely to be verifiable with confidence.

THE IMPORTANCE OF VERIFICATION

Verification is the process of determining treaty compliance. It involves the evaluation and interpretation of raw data supplied by the intelligence community mostly from photo-reconnaissance and electronic intercept satellites. Verification is important because any sudden and unexpected enhancement of Soviet nuclear capabilities, especially if unveiled by Moscow during a crisis, would be highly destabilizing and could jeopardize U.S. security. Example: if the U.S. adhered to a nuclear Comprehensive Test Ban Treaty (CTBT) while the Soviets continued nuclear testing undetected, only Moscow would modernize and increase the effectiveness of its offensive nuclear arsenal.

U.S. Approaches to Verification

U.S. verification requirements have shifted from President Harry Truman's 1950 demand for "foolproof" measures through on-site inspection (OSI), through the remote technical monitoring (national technical means) presaged by Dwight Eisenhower's 1955 "open skies" proposal for aerial inspection, to the current demands for combining such technical means with OSI.

Throughout these years, the U.S. dilemma has been that "we do not want to include anything in the treaty that we can't verify, and we don't want to exclude

1. *Public Opinion*, Summer 1986.

2. Gallup Poll, June 1986.

3. Verification would also be necessary for any future agreement concerning a phased transition to the deployment of strategic defenses.

anything that is [militarily] significant."⁴ SALT treaties counted launchers, rather than warheads. This was because the number of warheads could not be verified without the on-site inspection which Moscow refused to allow. Launchers however theoretically could be detected by reconnaissance satellites.

For the past 25 years, the definitions of "adequate inspection," "minimum intrusion," and "serious violation" have been subject to debate and compromise. The Reagan Administration changed the 1970s U.S. requirement of "adequate" to the more stringent test of "effective" verification--meaning an emphasis upon on-site inspection. The Administration had concluded that the verification provisions of the proposed 1979 SALT II agreement and the 1974 Threshold Test Ban Treaty, at least, were not effective.

Relaxed SALT Standards. During the SALT era of the 1970s, the acceptance of substantial uncertainty in verification compliance was seen as essential to bargaining flexibility. Extensive confidence was placed in what experts called "national technical means" of verification--meaning photographic and infra-red and other types of satellites; radar and other systems based on land, shipboard; or certain types of aircraft; and satellites for intercepting and collecting electronic emissions and signals in general. Breakthroughs in national technical means of verification--or NTM--were believed to have significantly reduced the value of secrecy to the Soviet military establishment.⁵ The U.S. therefore began by the late 1960s to discuss arms control provisions which previous verification limitations would have made unthinkable a decade or two earlier.

Relaxed standards for verification in the SALT era were also justified by assumptions that: 1) violations were "deterred" by the mere possibility of detection; 2) violations were "irrational" because of the inherent importance of the treaty; 3) violations were "irrelevant" because of the insignificance of clandestine advantages; 4) the capability to "monitor" or to "observe" was largely equivalent with the capability to "detect cheating" or to "verify" an agreement; and 5) the presence of a U.S.-Soviet Standing Consultative Commission where each side could bring complaints and expect a satisfactory response would promote the objectives of and compliance with agreements.

False Assumptions. Each of these assumptions has proved false.⁶ Yet they continue to influence the verification debate. Soviet violations have not been deterred and often have been militarily significant. The most serious examples of this are the development of the SS-25 ICBM in violation of SALT II and the installation of missile-tracking radar at Krasnoyarsk in violation of the 1972 Anti-Ballistic Missile Treaty. The intense U.S. debate over how to address these violations, moreover, reemphasizes that detection is not synonymous with a swift

4. See Amrom H. Katz, *Verification and SALT: The State of the Art and the Art of the State* (Washington, D.C.: The Heritage Foundation, 1979).

5. See Col. Robert Joseph DeSutter, USAF, *Arms Control Verification: Bridge Theories and the Politics of Expediency*, Doctoral thesis, Department of International Relations, University of Southern California, 1983.

6. The extent to which these assumptions became arms control orthodoxy can be seen from quotations presented in *ibid.*, *passim*.

and firm response to treaty violation. And these violations have been placed before the Standing Consultative Commission with minimal results.⁷

The U.S. negotiating position on verification was revised on August 24, 1987 and now calls for:

1) **Exchange of specified, comprehensive baseline data** covering systems limited by treaty and related support facilities and equipment, and updating of these data.

2) **On-site inspection/monitoring** to verify baseline data and to ensure compliance with the treaty limitations. Types of on-site inspection plus monitoring provisions include: a) initial inspection to confirm baseline data; b) inspections to verify elimination of systems reduced; c) short-notice inspection at a handful of pre-selected U.S. and Soviet "declared" facilities for the first five to ten years after the missiles are eliminated (the previous U.S. public position sought such inspection at all facilities and did not specifically reject challenge on-site inspection of U.S. allies); and d) no short-notice inspections would be permitted at U.S. and Soviet facilities in Europe. Previous U.S. demands for continuous monitoring of specified U.S. and Soviet facilities for the production, final assembly, repair and storage of treaty-limited systems were retracted by the Administration on August 24, 1987.

3) **Specialized procedures for destroying, dismantling, and converting Long-Range Intermediate Nuclear systems.** Such procedures would include on-site inspection. On-site inspection will be required at the destruction sites to confirm elimination of missiles, launchers, and specified launch-related support equipment.

4) **Specification of areas and facilities** where treaty-limited systems may be located. These are called Designated Deployment Areas and declared facilities.

5) **Prohibitions on the presence of the missiles** covered by the treaty elsewhere unless they are in authorized transit.

6) **Use of, and non-interference with, National Technical Means of verification.** These provisions would enhance U.S. confidence about what it knows about secretive Soviet nuclear capabilities. Such steps would include the broadcast of engineering measurements on missile flights, a ban on encrypting the transmission from missile test flights, and a ban on concealment measures that impede verification.

Soviet Approaches to Verification

Until very recently, the Soviet approach to verification was consistent and its rhetorical and actual negotiating positions were almost identical. Moscow

7. For background on responses to violations, Fred Charles Ikle, "After Detection--What?" *Foreign Affairs*, January 1961, pp. 208-220. The SCC's records remain closed to congressional scrutiny while the primary Soviet violations continue to be unresolved.

consistently had rejected verification measures that would permit outside inspectors actually to enter Soviet territory. All verification had to be accomplished via national technical means (primarily satellites) rather than the more probing on-site approach.

In the past several years, Moscow's rhetoric has shifted toward accepting the principle of on-site inspection. Yet its statements on this should be viewed cautiously. The reasons:

1) **there is no indication** at the Geneva talks, in sharp contrast to its propaganda, that Moscow is willing to accept meaningful on-site inspection; and

2) **where it has agreed to on-site inspection**, such as at the fall 1986 talks in Stockholm on conventional force confidence building measures, Moscow has insisted upon total control of access to its allies' territories.

SOVIET TREATY COMPLIANCE BEHAVIOR

The fact that Moscow has violated such arms agreements as SALT II and the ABM Treaty makes it necessary to bring verification provisions to the forefront of any arms agreement.⁸ Soviet violations have included both the development of forbidden systems and deliberate efforts to interfere with U.S. verification attempts.

Moscow has had to pay almost no political or military penalties for noncompliance. Western trade and financial overtures continue uninterrupted, while renewed arms control discussions have delayed such U.S. weapons programs as the MX missile, Trident D-5 submarine, and B-1 bomber. Militarily, meanwhile, Moscow has gained substantially from violating the arms control accords, as demonstrated by its advances in strategic defense and mobile ICBMs.

Moscow can achieve diplomatic dividends from non-compliance since the U.S. appears divided in countering significant Soviet violations.

VERIFICATION TECHNIQUES

National Technical Means (NTM)

In the 1970s confidence in new "national technical means," which facilitate data collection without violating the territorial sovereignty of the country under observation, was reflected in the U.S. negotiators' emphasis on SALT I's "landmark" NTM provisions. Today, there is far more skepticism about the detection capabilities of NTM, let alone the Soviet commitment not to impede them.

8. For information on Soviet violations, see "The President's Unclassified Report on Soviet Noncompliance with Arms Control Agreements," March 10, 1987.

The NTM product is an immense data stream. Distilling these massive amounts of material into intelligence assessments and then measuring the conclusions against treaty requirements is an inherently subjective process. Accurate interpretations are impeded further by the different, and frequently competing, bureaucratic and budgetary requirements between verification and intelligence.⁹

It is possible that NTM technical advances in seismic sensing, photoreconnaissance, and radar eventually may result in useful detection improvements. These advances could include improved electronics for satellite sensing across the electromagnetic spectrum and more powerful computers that can be used to enhance rapidly images, possibly objects even less than ten centimeters, the size of a pencil, immediately.

Unknown Potential. Advances in parallel computing (the concurrent or simultaneous execution of two or more processes in a single unit) presage the processing of multispectral and radar images on spacecraft by the early 1990s.

And the use of artificial intelligence, meaning the ability of a device to improve its performance based on past performance, has still unknown potential for filtering the immense information flow that already overburdens the U.S. intelligence community.

Future devices such as multispectral sensors that penetrate the night sky and cloud cover along with advanced radar techniques could provide additional monitoring abilities--developments which would be helpful to monitor the road-mobile Soviet SS-20 and SS-25 missiles.

Even these potential NTM developments, however, would not necessarily assure effective verification. First, the challenges to NTM monitoring seem to be growing at a faster pace than NTM technology is improving. Second, NTM advances easily can be offset by methods as simple as piling mobile missiles in storage sheds.

Ignoring Remote Areas. Further, NTM is constrained by the fact that the U.S. concentrates its limited verification resources only along a few strategically important paths in the USSR. What the U.S. would detect immediately at a Soviet missile and radar testing site such as Sary Shagan in Siberia could go undetected for months or longer if placed in remote unexamined areas. The Soviet construction of the Krasnoyarsk ABM radar in Siberia, in violation of the ABM Treaty, went undetected for approximately 18 months because U.S. intelligence did not know that it should be looking for it.

Current NTM capabilities have been unable to verify additional important compliance information. The U.S., for example, still is uncertain whether the mainstay heavy Soviet ICBM, the SS-18, has ten or fourteen or more warheads. Nor is there agreement about the exact accuracy of the SS-19 missile. Whether the

9. The severe disjunction between collecting and interpreting data was demonstrated conclusively by the "Team B" competitive analysis which the Ford Administration imposed on the CIA in 1976, as well as by the classic analyses of Albert Wohlstetter, one of the deans of U.S. strategic studies, on previous CIA underestimates of Soviet Capabilities. See Albert Wohlstetter, "Is There a Strategic Arms Race?" *Foreign Policy*, Summer and Fall 1974; later republished in *Strategic Review*, Fall 1974 and Winter 1975.

SS-25 ICBM carries two or three warheads, instead of the one it is believed to carry, is a question still unanswered. A new Soviet ground-based high-energy laser facility has been seen under construction at Dushabae in the Central Asian region, but the intelligence community is divided on its purpose and potential. Such cumulative uncertainties compound the military risks caused by violations.

The U.S. is also surprised repeatedly by the quantity and quality of new Soviet systems such as the SA-10 and SA-12 interceptor missiles.

Perhaps a greater problem, however, is ambiguity. Most evidence of possible violations is sketchy. As such, analysts are reluctant to call something a violation without the categorical proof that is unlikely to be obtained through NTM.

The Role of On-Site Inspection (OSI)

National Technical Means alone are not sufficient to provide verification confidence. OSI is therefore a crucial requirement for most arms agreements. The so-called intrusive means of OSI are necessary for verifying that required actions, such as dismantling and destruction of particular weapons or installations, have been taken. In addition, "challenge inspections," which permit a nation to inspect inside another nation at times and places of the inspecting nation's choosing, can be used to pin down questionable activities identified by NTM or intelligence sources inside the country being monitored.

Even OSI, however, has serious limitations and may not provide the necessary confidence in Soviet compliance. OSI can be undercut by evasion and by the Soviet penchant for obstruction, which was most dramatically demonstrated in the 1984 shooting in East Germany of Major Arthur Nicholson, stationed at the U.S. military mission at Potsdam.¹⁰ In addition, Maskirovka, the troubling Soviet program of strategic camouflage, concealment, and deception is extensive and pervasive. The CIA warns that "since the SALT I agreement, Soviet concealment activities have become more extensive and disturbing...it makes the detection of noncompliance considerably more difficult."¹¹

Challenge Inspections

Even if the U.S. could inspect known Soviet production facilities, verification would not be assured because: 1) the USSR's vast geography provides substantial space to hide production facilities; 2) intermediate-range nuclear missiles in particular are small and thus easily concealed; and 3) the facilities for producing missiles need not be very large and can be disguised as ordinary industrial facilities.

A partial solution to this problem is for the U.S. to have prompt, unhindered right of access to any facility which it believes could be producing prohibited

10. Carnes Lord, "Rethinking On-Site Inspection in U.S. Arms Control Policy," *Strategic Review*, Summer 1985.

11. CIA declassified memo, "Overview of Soviet Data Denial," June 17, 1986.

systems. Yet even such inspections might be insufficient to assure confidence, given all the ways that on-site inspection can be circumvented.

Supplementary On-Site Verification Measures

Supplementary verification measures might include a range of advanced concept technologies: tamper proof microchip identification tags could be placed on missiles, to assure an accurate base count, after which the missiles would be subject to unscheduled inspections to verify number limits; or operational constraints, such as restricting the deployment of mobile missiles to specific zones under electronic surveillance. Yet detailed inspection procedures at a missile plant are marginally helpful at best if the Soviets operate clandestine production facilities elsewhere.

OTHER TECHNICAL VERIFICATION OPTIONS¹²

Designation Measures

Various procedures have been offered from time to time to allay skepticism over verification. These include "designation measures" which involve each side's designating the location and function of certain types of military facilities or basing areas. Limits on mobile missiles, for example, could be verified by deploying the missiles in specifically configured arrangements. Although limited forms of deployment might assist verification, it could also increase vulnerability to a first strike. Such a risk is particularly true for the U.S. since the far greater destructive power of the more numerous Soviet ICBMs could devastate a constricted area.

Transparency Measures

"Transparency measures" are intended to improve the visibility of the weapons and actions monitored by national technical means. For example, in SALT II it was agreed that bombers with air-launched cruise missiles (ALCMs) could be deployed with external configurations, known as Functionally Related Observable Differences (FRODs), which would give them a distinctive appearance. Yet such FRODs could also be used to mislead, as well as to help identify a weapon system.

Collateral Measures

"Collateral measures" differentiate between permitted and non-permitted activities for the purpose of reducing verification ambiguity. To this end, for example, the ABM treaty stipulated that radars be deployed on a nation's periphery to distinguish an early warning radar from a battle management radar. An inward looking radar is used for "battle management"--destroying attacking missiles--where radars on a nation's periphery are useful primarily for warning of attack. The fact that the Krasnoyarsk radar is situated some 465 miles from the nearest border, Mongolia, and is oriented inward across approximately 2,248 miles of Soviet territory, is the basis for U.S. charges of Soviet violation of this particular collateral measure.

12. "Human intelligence" gathering through overt and covert means is also a part of any verification program.

VERIFICATION CHALLENGES

Totals at Time of Agreement

The total number of weapons which each side has at the time an agreement is reached is important. The Soviets, however, never release data on their weapons. Instead, Moscow merely accepts or rejects the data presented by the West. If Moscow, for example, accepts the U.S. estimate that it has 440 SS-20 launchers but really has 800 (which is not inconceivable after 8 years of production), then a 50 percent reduction which the West assumes would leave Moscow with 220 launchers would really leave it with 400.

Given serious verification uncertainties, as well as Moscow's penchant for cheating and deception, the quantitative base at the time of reductions must be definitively ascertained. In part to deal with this problem, the U.S. in 1981 proposed the so-called Zero Option to eliminate all INF systems. A base of zero would ease verification.

Easy to Control. Although, U.S. commentaries speak with some certainty about the number of existing SS-20s, for example, far less is known about the missiles than is implied. U.S. reconnaissance satellites count missile canisters, and the shelters in which they are housed (garages with sliding roofs through which the missiles can be fired), rather than actual missiles. Either way, the 56 foot long, mobile SS-20 is inordinately easy to conceal in any tunnel or moderately-sized building. Additional counting problems include reload capabilities with estimates for reloads running from 1 to 5 per launcher. Another difficulty is that the SS-20 bases are similar in appearance to the bases for the SS-25 ICBM. In fact, SS-20 bases have been converted into SS-25 bases. And the launchers for these two mobile missiles are very similar.

The counting problem for currently deployed SS-20s is significant. The 1986 Joint Chiefs of Staff posture statement, for example, acknowledges serious detection problems by saying that "36" SS-20 mobile missile launchers are "currently unlocated." These mobile missiles are deployed in covered bays (known as "garages") each of which is able to hold a "regiment" of nine missiles. The U.S. has so far been unable to verify the previous dismantling of SS-20 garages (as the Soviets announced in 1985) but believes that some missiles have in fact been removed. Thus missile "battalions" (groups of three missiles) from within each regiment may have been taken out of the garages. Uncertainty about where such missiles may now be located emphasizes the potential problems of verifying any INF accord.

Production and Deployment

Even if currently deployed systems can be detected, it is necessary to verify that new systems are not being produced clandestinely. This is particularly important for such mobile missiles as the Soviet SS-20, SS-24, and SS-25. Their combination of current or potential first-strike accuracy (targeted on Europe for the SS-20; the U.S. for the SS-24 and SS-25) and relative invulnerability to retaliation makes them particularly destabilizing weapons.

Production may be detected by the controversial "perimeter and portal" approach--monitoring production facilities in the hope of tracking the deployment of these missiles.¹³ Even such inspection, however, would leave verification in doubt. A concomitant right to unhindered "challenge" inspections would add a degree of assurance, but even then some uncertainty would remain.

A ban on an entire class of missile, such as the SS-20, would present more manageable verification problems than would limitations. Leaving 100 INF warheads (or 33 SS-20s) for each side, as was proposed by Moscow until very recently, inevitably would spur controversies over whether a particular missile is "permitted missile #32" or "prohibited missile #34." In the case of a complete ban, only a single missile need be detected to prove a violation.

Mobile Missiles

The matter of verifying mobile missiles has perplexed numerous government committees for the last five years. Mobility provides extensive opportunity for Soviet deception, compounding counting and concealment problems as well as increasing uncertainty about missile refire capabilities. Mobile missiles, for example, can be moved frequently and at night in the USSR's vast land space. They are more difficult to count since they cannot all be seen at once.

Intermediate range missiles, moreover, can be constructed easily in plants for strategic missiles, and vice versa. Missiles of one type could be included easily in exclusion areas for another type. In all cases, the current compliance record shows that the political and financial costs of deception are insignificant relative to the cost of the whole systems which are being deployed.

Verifying Warheads

The 1970s SALT process, on U.S. insistence, presumed to count Soviet warheads by ruling that the maximum number used in any single missile test would then be applied to the entire class of missiles. But the numbers derived from such counting rules can be significantly different from stockpile numbers derived from intelligence. For example, all Soviet SS-18s were presumed under SALT II to carry ten warheads although many U.S. intelligence experts, however, believe that they carry at least the 14 warheads with which they have been tested. But it is equally likely that such a missile could carry a single large yield warhead for exoatmospheric bursts for destroying communications or could carry more than 15 or 20 warheads. And very little is known about the quantity and quality of the Soviet nuclear stockpile.

13. Comparisons are often drawn with the relative ability to monitor SLBM production and deployment. Yet whereas submarine construction can be observed through NTM and the number of its launching tubes controlled, mobile ICBMs and IRBMs can be constructed in something like a car factory which would be impervious to NTM and beyond NIM.

Verifying Dual-Capable Systems

Attempts to distinguish between nuclear and conventional warheads for arms control purposes are particularly difficult. There are no external differences, for example, in the warheads of a cruise or tactical ballistic missile. It is unlikely that the Soviets will permit U.S. inspectors with geiger counters to wander through submarines to verify the warheads of sea-launched cruise missiles (SLCMs), as some U.S. enthusiasts have proposed.

Similar uncertainty applies to SS-20 warhead numbers--it is assumed that each missile has three nuclear warheads, but it is equally possible that such a missile cone could contain chemical weapons. The new Soviet ground-launched cruise missile, the SSC-X-4, could be deployed with either nuclear or conventional warheads. Even if on-site verification were possible, a conventional warhead could be replaced with a nuclear one as soon as the inspections ceased.

Nuclear Explosive Levels

Verification also remains a stumbling bloc to ratification of the 1974 Threshold Test Ban Treaty which limits the size of underground nuclear weapon tests to 150 kilotons. The 1987 President's Report to the Congress on Soviet Noncompliance concludes that: "Soviet nuclear testing activities for a number of tests constitute a likely violation of legal obligations under the Threshold Test Ban Treaty."

In addition to the record of violations, Threshold Test Ban Treaty verification problems are similar to those encountered elsewhere:

1) **the U.S. would have to rely on the Soviets** to volunteer critical information, in this instance the geographic and geodetic information on the testing site as well as the yield, date, depth, and coordinates of two weapon tests for calibration purposes both before and after the test;

2) **current U.S. measurement capabilities** are inadequate since they can detect the accuracy of a Soviet underground nuclear test only by a factor of two, meaning that the U.S. can detect a Soviet TTBT violation only if the yield exceeds the 150 kt limit by 100 percent or more; and

3) **the Soviets are resisting U.S. methods** for obtaining independently verified data, such as OSI and the insertion of a cable into the emplacement hole in the vicinity of a test.

Inadequate verification would enable the Soviets to continue current practices--potentially learning more than the U.S. about the higher yield warheads which complement Soviet doctrine and capabilities for striking first against U.S. ICBMs.

Conventional Forces

Counting people is far more complicated than it would appear. But problems of mobility, ease of concealment, inspection, and base line numbers for reductions are also present in the Mutual and Balanced Force Reduction (MBFR) talks, which

for more than a decade have attempted to reduce the level of conventional forces in Europe. Whereas the Soviets suggest verification through "mutual observation," NATO requires more precision, such as requiring Soviet replacement troops to pass through control points manned by NATO personnel. While it is easy to verify troops leaving the restricted areas, it is verifying the number of remaining or returning that is the real problem.

Manpower levels are difficult to verify: troops can be hidden under cover. Something so simple as donning civilian clothing underscores the counting difficulties, particularly on the combined territories of three or four countries at any moment.

Proposals to solve the conventional force verification problem include: notification to the other side of units to be withdrawn, observers being present at the withdrawal site and even being allowed to accompany the withdrawing unit to an agreed exit point, permanent exit/entry points, prenotification provisions for out of garrison activities, and annual post-reduction exchanges of data.¹⁴ There is a critical additional step in trying to limit Soviet conventional capabilities and to enhancing "confidence building measures." Not only do agreed restrictions on Soviet military maneuvers need to be verifiable, but the U.S. must be able to monitor the concurrent level of Soviet military activity outside the maneuver areas.

Chemical Weapons

Negotiations concerning chemical weapon controls, conducted principally at the Geneva 40-nation Conference on Disarmament, have encountered predictable problems about verification. The U.S. proposes: 1) destroying all stockpiles under international supervision; 2) monitoring production facilities through international inspection until destruction and by on-site instruments which would transmit data off-site; 3) preventing chemical plants, particularly those producing related chemicals such as insecticides, from subsequently making weapons; 4) mandatory challenge inspections to assure that the treaty is not violated at other sites; and 5) assuring that there is no right of refusal for inspections should allegations of violations arise.

Moscow's Refusal. Moscow refuses to accept mandatory inspections. The Soviets want the right to bar an inspection "in exceptional circumstances." That right of refusal is fundamentally different from the U.S. concept of challenge inspections, which require prompt access to facilities that may be violating a treaty. The U.S. believes that inspections would involve dozens rather than hundreds of plants, and has already worked closely with the chemical industry to develop methods for U.S. compliance.

To be sure, no chemical agreement can be 100 percent verifiable. The ease of producing chemical and biological weapons in small laboratories makes this one of the most difficult of verification problems. The risk involved is one reason that the U.S. has pushed for a global ban rather than banning chemicals in certain

14. Although the Soviets conceded the right of aerial inspection, they refused a U.S. demand that aircraft from neutral countries, rather than from the country under observation, should be used to carry observers. Nonetheless, this is presented as a breakthrough because Soviet territory will be inspected for the first time by foreign forces. The Soviets still resist exchanges of information down to the battalion levels. Since the Stockholm document was only signed in December 1986, Soviet compliance with the challenge inspections has yet to be demonstrated.

certain zones, such as Europe. A global ban makes it difficult to introduce surreptitiously an entire weapon system that includes its own distinctive trail of development. For chemical weapons to be militarily significant in Europe, for example, would require an estimated 500 agent tons, not including the weight of munitions. This could not be done undetected if the five U.S. requirements are met.

CONCLUSION

The U.S. verification package in the current INF negotiations imposes far more rigorous verification standards than have earlier U.S.-Soviet treaties. Washington is insisting that:

- 1) **missile test data be uncoded and national technical means be unimpeded;**
- 2) **missile deployment areas be specified;**
- 3) **information about missiles and launchers be exchanged;**
- 4) **agreement be reached on how missiles will be destroyed or dismantled;**

and

- 5) **each side must agree to inspectors and other monitoring.**

In reviewing any prospective arms control treaty, Congress should consider the extent to which:

- 1) **the dismantlement of Soviet weapons can be verified, with particular reference to mobile missiles;**
- 2) **the production of prohibited Soviet weapons can be monitored;**
- 3) **the inventory of existing Soviet weapons can be determined; and**
- 4) **Moscow will accept challenge inspections of suspected sites and violations.**

These factors should be weighed in the context of Soviet deception programs, the inadequacies of U.S. reconnaissance capabilities, the inherent U.S. domestic difficulties in determining Soviet violations and responding to them, and Soviet military doctrine practices in which arms control itself (irrespective of violations) is used as a principal instrument for strategic advantage by neutralizing Western areas of technological advantages.

Confronting the verification dilemma requires at least five additional steps:

- 1) **The U.S. should develop more authoritative examinations of Soviet military thinking.** American arms controllers' surprise at the Soviet emphasis on new heavy missiles, on mobile missiles, and on encryption comes in part from ignoring Soviet doctrine.

2) **The U.S. should proceed with the Strategic Defense Initiative (SDI).** With arms reduction, cheating can alter the balance significantly. This is especially true of hard to detect mobile ICBMs. SDI can help offset diminished confidence in U.S. means of verification.

3) **U.S. negotiators should call the Soviet bluff** of apparent willingness to accept genuine on-site inspection. Moscow knows that Americans are already divided over their own rigorous on-site inspection proposals which theoretically would permit Soviet inspectors in U.S. laboratories, factories, and test sites. Questions are raised about further Soviet espionage and even about self-imposed violations of Fourth Amendment property rights in the private sector. But the Soviets are exploiting these anxieties for propaganda purposes. In fact, it is extremely doubtful that the Soviets, with 98 percent of their landmass closed to foreigners, would ever permit similar U.S. inspection.

4) **The President or Congress should establish a commission** to report back quickly on the implications of emerging technologies for effective verification in the future.

5) **The current environment of risk, unverifiability, and Soviet deception** makes it essential that Congress have access to the records and transcripts of SALT's Standing Consultative Commission. These records, both in classified and in sanitized versions, no longer should be withheld from Congress. Any secrets in them, after all, already have been shared with the Soviets.

Any arms control treaty delivered to Congress will be subject to far more scrutiny on its verification provisions than SALT II. U.S. negotiators simply may state to Congress that there is an increasing range of problems which cannot be verified. Congress then must determine whether the agreement is acceptable. To this end, candor about Soviet violations and U.S. verification capabilities is indispensable.

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