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CAPABILITY OF THE UNITED STATES TO
MONITOR COMPLIANCE WITH THE START II
TREATY

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OF THE

SELECT COMMITTEE ON INTELLIGENCE
UNITED STATES SENATE



MARCH 27 (legislative day, MARCH 26), 1996.—Ordered to be printed

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Mr. SPECTER, from the Select Committee on Intelligence,
submitted the following

REPORT

BACKGROUND

The START II Treaty, which was signed in Moscow on January 3, 1993, builds upon the reductions that are being implemented pursuant to the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms signed at Moscow on July 31, 1991 (the START I Treaty). The START I Treaty requires a reduction of thirty to forty percent in the overall number of long-range nuclear warheads deployed by both Parties, with a fifty percent reduction in the most threatening systems. The START II Treaty will further substantially reduce those numbers. The START II Treaty's central limits require the Parties to reduce their strategic offensive arms so that specified limits are reached by the year 2003, with the possibility of those limits being reached by the end of the year 2000 if both Parties agree on a program of U.S. assistance within a year after entry into force.

There are five Parties to the START I Treaty: the United States and, as START I Treaty successors to the Soviet Union, the Republic of Belarus, the Republic of Kazakstan, and Ukraine, as well as the Russian Federation. In contrast, the START II Treaty is bilateral: The United States and the Russian Federation are its only Parties since, in association with the Lisbon Protocol, the other three Parties to the START I Treaty have pledged and are proceeding to eliminate strategic offensive arms located on their territories. Nevertheless, the START II Treaty draws upon the START I Treaty for definitions, counting, rules, prohibitions, and verification provisions and only modified those as necessary to meet unique requirements of the START II Treaty. The START II Treaty

is therefore built upon the START I Treaty and could not enter into force without the prior entry into force of the START I Treaty.

SCOPE OF THE COMMITTEE'S EFFORT

The U.S. Senate Foreign Relations Committee has formal responsibility for reviewing all treaties before they are acted upon by the full U.S. Senate, in light of the full spectrum of policy concerns. The U.S. Senate Select Committee on Intelligence has prepared this report, as well as a classified report of over 100 pages, to support the ratification process by providing the Senate its assessment of the arms control monitoring and counterintelligence issues raised by this Treaty.

This report is the culmination of the Committee's work over the last thirteen years monitoring the progress of the START negotiations. The Committee has routinely reviewed START progress and addressed START monitoring capabilities in its annual Intelligence Authorization Acts. Committee members and staff have met numerous times with U.S. negotiators, in both Washington and Geneva. The Committee has expressed its views on verification issues to the negotiators and to other senior level officials both formally and informally.

In preparation for the Senate vote on advice and consent to ratification of the START II Treaty, Committee staff held numerous staff briefings; reviewed hundreds of documents, including National Intelligence Estimates of U.S. capabilities to monitor compliance with START provisions and written statements from the Director and Deputy Director of Central Intelligence; and asked numerous formal questions for the record. Committee staff also travelled to our intelligence operations to gain a more detailed, first-hand knowledge of how the Intelligence Community collects, and how its analysts use, information bearing upon other countries' compliance with arms control agreements signed by the United States.

On May 12, 1993, the Committee held a closed hearing on the START II Treaty, its implementation and its counterintelligence and security implications. Testimony was taken at this hearing from the Honorable Linton Brooks, U.S. Negotiator for Strategic Offensive Arms; Major General Gary Curtin, USAF, Deputy Director for International Negotiations, J-5, the Joint Staff; and Dr. Lawrence Gershwin, National Intelligence Officer for Strategic Programs.

On March 1, 1995, the Committee held a closed hearing on U.S. monitoring capabilities and the risks and implications of violations by the other party to the Treaty. At this hearing, the Committee took testimony from Mr. Douglas MacEachin, Deputy Director for Intelligence, Central Intelligence Agency; Ambassador Linton Brooks, Chief U.S. START Negotiator; and Dr. Amy Sands, Assistant Director, Bureau of Intelligence, Verification and Information Support, U.S. Arms Control and Disarmament Agency.

The Committee has also received numerous responses to questions for the record that were submitted to the Executive branch after these hearings, and the results of these inquiries have been integrated into this report.

Throughout the Committee's efforts, experts in the U.S. Intelligence Community have provided generously of their time and in-

sight. They also produced a detailed and honest analysis of the strengths and limitations of U.S. monitoring capabilities, in 1993, and an update of this and a related analysis in 1995. The Committee has been especially pleased to find in these analyses a straightforward discussion of the differences between agencies on some major issues. The Report of the Committee draws heavily on the 1993 analysis and could not have been prepared without the Intelligence Community's assistance.

TEXTUAL, LEGAL AND REGIONAL ISSUES

The President's submission to the Senate

The Treaty between the United States of America and the Russian Federation on Further Reduction and Limitation of Strategic Arms (the START II Treaty) consists of the main Treaty text and three documents which are integral parts thereof:

The Protocol on Procedures Governing Elimination of Heavy ICBMs and on Procedures Governing Conversion of Silo Launchers of Heavy ICBMs Relating to the Treaty Between the United States of America and the Russian Federation on Further Reduction and Limitation of Strategic Offensive Arms (the Elimination and Conversion Protocol);

The Protocol on Exhibitions and Inspection of Heavy Bombers Relating to the Treaty Between the United States of American and the Russian Federation on Further Reduction and Limitation of Strategic Offensive Arms (the Exhibitions and Inspections Protocol); and

The Memorandum of Understanding on Warhead Attribution and Heavy Bomber Data Relating to the Treaty Between the United States of American and the Russian Federation on Further Reduction and Limitation of Strategic Offensive Arms (the Memorandum on Attribution).

Also submitted to the Senate for its information were documents that are associated with, but not integral parts of, the START II Treaty. These included three exchanges of letters between the two sides, addressing SS-18 missiles on the territory of Kazakstan, heavy bomber armaments, and heavy ICBM silo conversion. Although not submitted for the advice and consent of the Senate to ratification, these documents are relevant to the consideration of the START II Treaty by the Senate.

The Treaty text

As noted earlier, there is an integral relationship between the START I Treaty and the START II Treaty with respect to the formalities of the entry into force of the two Treaties, and this is true also with respect to every aspect of implementation of the START II Treaty. Indeed, paragraph 1 of Article V states that, except as otherwise specifically provided for, "the provisions of the START I Treaty, including the verification provisions, shall be used for implementation of this Treaty." Thus, whenever a question arises, reference must be made to the START I Treaty. It is on this basis that the terms used throughout the START II Treaty have their meaning. This means that terms such as "reduction and limitation"

and “strategic offensive arms” are to be understood in precisely the same manner as in the START I Treaty.

Article 1, paragraph 1, obligates the United States and Russia each to reduce its ICBMs and ICBM launchers, SLBMs and SLBM launchers, and heavy bombers, along with ICBM and SLBM warheads and heavy bomber nuclear armaments, so that by seven years after entry into force of the START Treaty neither party has more than a total of 4250 warheads attributable to deployed ICBMs, deployed SLBMs and deployed heavy bombers, as counted pursuant to Articles III and IV of the Treaty. Paragraph 2 of Article 1 sets forth sublimits within the overall 4250 limit that each party must observe: (a) 2160 for deployed SLBMs; (b) 1200 for those types of ICBMs to which more than one warhead is attributed; and (c) 650 for deployed heavy ICBMs.

Paragraph 3 of Article 1 provides that once a party has fulfilled its obligations pursuant to paragraph 1, it shall continue the reductions process so that by January 1, 2003, it does not have more than a total of 3500 warheads attributable to its deployed ICBMs, deployed SLBMs and deployed heavy bombers. Paragraph 4 of Article 1 establishes the sublimits applicable to the aggregate of 3500 (or less if a party decides on a lower aggregate number for itself), as follows: (a) 1750 for warheads attributed to deployed SLBMs; (b) zero for warheads attributed to deployed ICBMs of types to which more than one warhead is attributed; and (c) zero for warheads attributed to deployed heavy ICBMs.

The effect of these reductions is that by January 1, 2003, the aggregate number for deployed warheads must not exceed 3500 (no more than 1750 of which can be attributed to deployed SLBMs) and neither party may have a deployed launcher of an ICBM to which more than one warhead is attributed, a deployed launcher of heavy ICBMs, or any heavy ICBMs or heavy-ICBM launch canisters. Such language is redundant, as the only deployed heavy ICBM (the SS-18) is in fact a deployed ICBM of a type to which more than one warhead is attributed and, under the terms of both the START and the START II Treaties, the number of warheads attributed to heavy ICBMs may not be reduced through downloading. In light of the separate reference to heavy ICBMs that is maintained throughout the START Treaty and in the START II Treaty for other purposes, however, the separate treatment in subparagraph 4(c) of Article 1 is designed to leave no doubt that the complete elimination of heavy ICBMs is necessary.

Under the rules for elimination, launchers may be either destroyed or converted and, in most cases, the missiles need not be destroyed. All heavy ICBM silo launchers must be destroyed (except for ninety that may be converted under stringent procedures) and all heavy ICBMs and their launch canisters must also be destroyed. There is no specific legal obligation in START II to reduce at a given rate; thus, Russia is not obligated to eliminate or convert a minimum of thirty-five SS-18 silo launchers a year, although the START I commitment (in letters of July 30, 1991, signed by the U.S. and Soviet representatives) to eliminate twenty-two per year remains. Eliminating or converting substantially fewer than thirty-five per year over a sustained period, however, could cause concern

with regard to compliance with the commitment, as the Executive branch has noted.

Article II states the exception to the above requirement for launchers which are allowed under the START I Treaty at space launch facilities. ICBM launchers that have been converted to launch an ICBM of a different type shall not be capable of launching an ICBM of a former type. (This does not include those silos for ICBMs which have been reduced in the number of warheads they can launch, which will remain capable of launching such missiles with more than the attributed number of warheads.) No more than ninety silo launchers of heavy ICBMs may be converted in this way; the remainder must be physically destroyed. Only SS-25-type ICBMs can be installed in the converted heavy launchers. Each party has the right to inspect the destruction of heavy ICBMs and their launcher canisters, as well as the conversion of silo launchers for heavy ICBMs. Both parties agree not to transfer heavy ICBMs to any recipient whatsoever. Neither party will produce, acquire, flight-test, or deploy ICBMs to which more than one warhead is attributed.

Article II sets forth the rules for reducing the warhead attribution of (i.e., for downloading) existing types of ICBMs and SLBMs other than heavy ICBMs. Like the START I Treaty, START II bans downloading of heavy ICBMs and of new types of ICBMs and SLBMs. The parties can exceed the START I limit on total warhead downloading of 1250 and the 500-warhead limit on downloading ICBMs and SLBMs other than the U.S. Minuteman III ICBM and the Russian SS-19 SLBM. This article allows the United States to maintain its sea-based leg of the Triad while meeting the limit of 1,750-SLBM warheads, and it allows the Russians to download 105 SS-19 ICBMs from six warheads to one, thus allowing them to retain the missiles after the January 1, 2003, deadline for the removal of MIRVed ICBMs. Reentry vehicle platform destruction is not required in this case, allowing the Russians to meet the lower limits in a more economical manner than that which will still be required for downloading to meet START I obligations (but perhaps making uploading—the restoration of downloaded warheads—a more feasible breakout scenario). The uploading of downloaded ICBMs or SLBMs is banned.

Article IV establishes the constraints on heavy bombers. This specifies that the number of nuclear warheads attributed to a deployed heavy bomber shall be equal to the number of nuclear weapons with which any bomber of that type or variant is actually equipped. This is a significant departure from the START I Treaty, under which 150 U.S. and 180 Soviet ALCM-equipped heavy bombers were discounted up to fifty percent and only one warhead was attributed to heavy bombers equipped for nuclear weapons other than long-range nuclear ALCMs. For START II purposes, the United States successfully argued that each bomber should be counted as having the largest number of nuclear weapons for which any bomber of that type or variant would be actually deployed. Both sides agreed that the number of warheads attributed to a heavy bomber of a given type or variant of a type would be the number listed in the Memorandum on Attribution.

The Memorandum requires a one-time exhibition of one heavy bomber of each type and variant for the purpose of demonstrating the number of nuclear weapons for which such bombers are actually equipped. These exhibitions are to be conducted no later than 180 days after entry into force. Each Party can increase or decrease the number of warheads for which a heavy bomber is actually equipped, but this requires another exhibition of the same sort as just described.

Each party may reorient to a conventional role those heavy bombers that have never been accountable under the START I Treaty as heavy bombers equipped for long-range nuclear ALCMs. The right to reorient bombers to a conventional role is in addition to the right under START I to convert, using specified procedures, no more than seventy-six heavy bombers to heavy bombers equipped for non-nuclear armaments. Heavy bombers which are reoriented to a conventional role are to be segregated as to basing and may not be used in nuclear missions or nuclear exercises, nor can their crews train or exercise for nuclear missions. Each party has the right to return heavy bombers to a nuclear role once, with ninety-days' notice. Reoriented bombers must be based at least one hundred kilometers away from storage areas for heavy-bomber nuclear armaments, and are subject to inspection. If only some bombers of a given type are reoriented, then those bombers must be distinguished from the nuclear types in a manner observable by National Technical Means.

The Committee has found no aspects of the START II text that are likely to cause compliance issues because of the manner in which they are worded. Indeed, START II, by banning flight-tests and deployment of MIRVed ICBMs after 2003, may lessen the likelihood of compliance issues regarding the number of re-entry vehicles with which an ICBM is equipped or tested; it should generally be easier to determine the presence or absence of MIRVs than to determine (or agree upon) whether a numerical limit has been exceeded.

One aspect of START II may increase the likelihood of compliance concerns related to START I. By banning MIRVed ICBMs after 2003, START II is likely to lead Russia to produce and deploy more SS-25-type mobile ICBMs. Increased reliance upon that system could cause Russia to approach the limit of 250 non-deployed mobile ICBMs in Article IV, paragraph 1(a), of START I. Given U.S. uncertainties regarding total production numbers for Russian ICBMs, analysts may well, at some point, be unable to assure U.S. policy makers that Russia does not have enough undeclared mobile ICBMs to exceed this START I limit. Possession of undeclared missiles would be a START violation in any case, but concern that any such missiles would also violate a START I numerical limit might make the issue more salient.

One aspect of START I, which is also relevant to START II, has already required diplomatic discussions and a new Joint Statement (issued by START I's Joint Compliance and Inspection Commission on September 28, 1995). This is the question of when a space launch vehicle (or SLV) shall also be considered an ICBM or SLBM. The Committee's 1992 report on START I monitoring capabilities (S. Rpt. 102-431) indicated a compliance issue could result

from the fact that START did not specify how SLV stages must differ from the first stages of ICBMs or SLBMs in order not to be subject to the Treaty's limits.¹ The SLV issue is discussed in some detail later in the present report.

START II and the States of the former Soviet Union

The Executive branch believes the likelihood is small that rising political tensions between the states of the former Soviet Union would adversely affect the drawdowns under the START treaties in the near term. Russia has agreements with Ukraine, Belarus and Kazakstan that are supposed to result in the elimination or the withdrawal of the strategic nuclear forces that were on their territory when the USSR dissolved.

Kazakstan

At START I entry into force (EIF), the Russians declared two ICBM bases in Kazakstan with a total of 104 SS-18 heavy ICBM silos and sixty-nine deployed SS-18 ICBMs; fifty-three at Derzhavinsk, with thirty-one deployed ICBMs; and fifty-two silos at Zhangiz Tobe, with thirty-eight deployed ICBMs. Since EIF, the fifty-two silos at Zhangiz Tobe have been eliminated; the United States has conducted a closeout inspection of this base.

Roughly half of the original fifty-two declared silos at the Derzhavinsk base have been eliminated. In the September 5, 1995, START I Notification of Annual Schedule for Conversion and Elimination applicable to the Republic of Kazakstan during Treaty Year Two, Russia indicated that the last twenty-four SS-18 ICBM silos would be eliminated by July 2, 1996.

At EIF, the Russians also declared two non-deployed SS-18 ICBMs at the Leninsk Test Range, as well as ten SS-18 test silos. The two missiles were eliminated earlier this year and roughly half of the SS-18 test silos have been eliminated.

Ukraine

Pursuant to the terms of the January 1994 Russia-U.S.-Ukraine agreement, Moscow is to provide Ukraine with nuclear fuel rods for the latter's power reactors as a form of compensation for the return of the warheads. Earlier this year, a suspension of warhead withdrawals was announced, due to compensation issues. Although the nuclear weapons remaining in Ukraine are scheduled to be returned to Russia by May/June 1996, further compensation difficulties could cause additional delays. The compensation issue may have been somewhat defused by the recent Russian-Ukrainian agreement under which Russia will purchase from Ukraine some thirty-two SS-19s, nineteen Tu-160 blackjack and twenty-five Tu-95 strategic bombers, and nearly 300 cruise missiles.

Ukraine manufactured two of Russia's most modern MIRVed ICBMs, the SS-18 and the SS-24. At least to the extent that tensions persist between Ukraine and Russia, the feasibility of cheating scenarios involving covert production of those systems may be significantly diminished. The United States had the right under

¹ Senate Select Committee on Intelligence, *Capability of the United States to Monitor Compliance with the START Treaty*, S. Rpt. 102-431 (September 29, 1992), p. 9.

START I, to conduct perimeter and portal continuous monitoring (PPCM) at the SS-24 final assembly facility at Pavlohrad to count the number of ICBMs, if any, that exited that portal. Since SS-24 production ended, however, the U.S. right to conduct PPCM at Pavlohrad ceased as of May 31, 1995; PPCM can only be conducted there again if SS-24 production should resume.

Belarus

To date all but eighteen of the single-warhead SS-25 ICBMs and their warheads originally deployed in Belarus have been returned to Russia. Two regiments remain, one at Lida and the other at Mozyr.

The withdrawals appeared to be proceeding on schedule until July 1995, when Belarusian President Lukashenko reportedly suspended nuclear weapons shipments to Russia, claiming that Belarus should be fairly compensated for economic and financial hardships stemming from the departure of Russian troops and environmental damage at former Russian missile sites. Belarusian officials have stated that all SS-25s will be withdrawn by the end of 1996, the date specified in their bilateral agreement ratified by the Belarusian Supreme Soviet in November 1993. However, in the Committee's view, President Lukashenko's recent tendencies to act in a more authoritarian and arbitrary manner suggest that the original withdrawal schedule is not guaranteed.

The Intelligence Community has a general understanding of the various bilateral and multilateral agreements involving Russia, Ukraine, Belarus and Kazakstan for the return of nuclear weapons in the newly independent states. The Intelligence Community indicates that any suspension or cessation in the withdrawals can be detected with high confidence.

START I does not ban production in the non-Russian states of items banned by START II. Ukraine was the producer of major START II-banned items (i.e., the SS-18 and SS-24). If START II should not be ratified, Russia might turn to Ukraine to replace those SS-18s and SS-24s that Russia decided to maintain under START I when they reached the end of their service life. In any event, Ukraine may attempt to maintain cooperation with Russia on future missile programs and to develop space launch vehicles; but Russia has not announced any plans to purchase such items.

Missile proliferation, however, continues to be of concern. There has been proliferation activity in both Russia and elsewhere, as exemplified by the reported seizure of Russian "advanced guidance equipment, such as accelerometers and gyroscopes," in transit to Iraq.² Some of this activity may well occur without official government knowledge, as designers or producers make their own deals. The Russian Government professes support of the goals of the Missile Technology Control Regime (MTCR), and it would constitute a START Treaty violation to sell strategic systems.

²"U.N. Is Said to Find Russian Markings on Iraq-Bound Equipment," *The Washington Post*, December 15, 1995, p. A30.

Intelligence support

The Intelligence Community, represented by the Special Assistant to the DCI for Arms Control, was deeply involved in the senior-level interagency process that led to the development of U.S. positions during the START II negotiations. The Community presented critical analysis of the implications of the breakup of the Soviet Union for that country's nuclear infrastructure, which provided insights into Russian negotiating behavior. Moreover, the Intelligence Community helped design specific provisions that were included in the Treaty to complement U.S. monitoring capabilities and to interact synergistically with national intelligence means to enhance those monitoring capabilities.

U.S. MONITORING CAPABILITIES

As is the case with START I monitoring, the United States will rely upon a combination of capabilities—including imagery, signals intelligence, human intelligence, open-source information and the verification provisions of the START I and START II Treaties—to monitor compliance with the provisions of START II. Those verification provisions include on-site inspections, exhibitions of equipment for either on-site or satellite-based observation, perimeter and portal continuous monitoring (PPCM), notifications, unencrypted telemetry, and exchanges of data, including telemetry. Despite the strapped resources and systems and personnel reductions thus far in the post-Cold War era,³ the Intelligence Community assesses a high probability of detecting questionable activity that might be contrary to the Treaty.

The Committee agrees with the Intelligence Community that U.S. National Technical Means are generally sufficient to monitor compliance with both START Treaties. Congress has endeavored to maintain and enhance those capabilities in the intelligence budget for Fiscal Year 1996, as well as in past years. The Committee has concern, however, that U.S. capabilities could be insufficient if competition for scarce collection and analytic resources were intense and if Russian practices were to change in ways designed to impede U.S. monitoring. As noted below, the Committee recommends that the President be required to certify the sufficiency of U.S. monitoring capabilities regarding those START II provisions relating to ICBM and SLBM capabilities and to report to Congress on how such sufficiency will be assured. The Committee also urges the Executive branch to pursue a firm policy regarding Russian actions that may violate the terms of START I or START II, including the verification provisions of those Treaties.

Monitoring Russian missile tests

The Intelligence Community's monitoring confidences reflect a vastly changed world from that of a decade ago. The end of the Cold War has brought a substantial refocusing of U.S. intelligence from the old Soviet Union to a much wider variety of threats to the national security. Indicative of this change is the fact that in the

³The Director of Central Intelligence summarized these difficulties in a public statement on January 10, 1995; see *Worldwide Intelligence Review*, Hearing before the Select Committee on Intelligence of the United States Senate, S. Hrg. 104-15, p. 5.

Fiscal Year 1996 budget process, the Department of Defense opposed funding the COBRA DANE radar in Shemya, Alaska. In order to protect that important arms control monitoring system, the U.S. Arms Control and Disarmament Agency (ACDA) stepped in and took responsibility for its funding. The Congress instead restored full funding for the COBRA DANE platform in the FY 1996 Intelligence Authorization Act, an action that both Defense Appropriations Subcommittees have sustained.

Some other systems that monitor Russian missile tests face uncertain funding futures or are increasingly diverted to other intelligence priorities, or even to non-intelligence functions. Although intelligence officials remain confident of overall U.S. monitoring capabilities, they have acknowledged that these actions affect those capabilities.

The Committee finds it unacceptable that coverage by National Technical Means of Russian strategic missiles—still the systems with by far the greatest capability to effect the nuclear destruction of U.S. territory—should be available only at the expense of other important intelligence priorities. The Committee recommends that the resolution of advice and consent to ratification of the START II Treaty be conditioned on a requirement that the President certify and, within ninety days of depositing instruments of ratification, submit to the Congress a plan for ensuring, continued adequate monitoring of Russian ICBM and SLBM capabilities.

Treaty provisions to enhance monitoring

All START I provisions designed to enhance verification, including those that guarantee access to telemetry data from ballistic missile test flights, will continue to apply under START II. In addition, START II provides for supplementary on-site inspections that will enhance the Intelligence Community's ability to monitor the Treaty's unique provisions. The value of these Treaty provisions for U.S. monitoring varies, depending on the task. In some cases, the United States can obtain the same information from other sources. In other cases, the information gained—particularly from on-site inspections—will be unique and will help to reduce many of the Intelligence Community's uncertainties over time.

In addition to the START I Treaty's thirteen types of inspections, START II's new on-site inspection provisions will be as follows:

The United States will have the right to observe the elimination of all declared SS-18 missile airframes that are not launched, as well as all launch canisters from declared SS-18s.

The United States will have the right to confirm by direct measurement that five meters of concrete have been poured into converted SS-18 silos, as well as to observe the entire process of concrete pouring, and to measure the inner diameter of the restrictive ring installed in the upper portion of each silo.

The United States will have the right to conduct four additional RV inspections per year at converted SS-18 silos to confirm the single-RV load of the new SS-25-type missile, observe the upper portion of its canister for identification purposes, and confirm the continued presence of the restrictive ring.

During special heavy bomber exhibitions and all short-notice inspections of heavy bombers after the START I baseline period (which has already ended), the United States will have the right to inspect the interiors of weapons bays and external weapons attachment points.

Dealing with the "Parallel Accounts" issue

The START I and START II Treaties account for some systems differently. In addition, START II requires the monitoring of several elements that are not monitored under START I. The major systems that could potentially be affected by these differences in accounting are heavy bombers and SS-18 and SS-19 ICBMs.

Under START I, the number of warheads attributed to each bomber type was a negotiated figure and was not the number of warheads which that type of heavy bomber was actually capable of carrying. START II provides that the number of warheads attributed to heavy bombers be the number of warheads declared to be carried by each bomber type. The chart below illustrates the differences in the warhead attribution for each of the Russian heavy bomber types:

	START I	START II
BLACKJACK	8	12
BEAR H16	8	16
BEAR H6	8	6
BEAR G	1	2

The START II Treaty right to "reorient" up to one hundred heavy bombers to being conventional heavy bombers creates another difference between the two Treaties' accounting rules. START I does not make any provisions for conventional bombers. Therefore, a group of bombers under START I could be counted as having eight warheads per bomber, while under START II they were considered "reoriented" conventional heavy bombers with zero warheads. While the United States may "reorient" some of its heavy bombers, Russia has indicated no intent to do so.

The difference in attributing warheads for the SS-19 ICBM arises because of the different counting rules for downloaded missiles in the two Treaties. Under START I, ICBMs may not be counted as having been downloaded by more than four warheads. In START II, by contrast, Russia is permitted to download the six-warhead SS-19 ICBM to a single warhead. While START II permits up to 105 ICBMs to be downloaded in this manner and to count as single-warhead ICBMs, they would still count in START I as having either two or four warheads (depending on whether or not the Russians installed a new RV platform required in START I if a missile is to be credited as being downloaded by more than two warheads).

The Executive branch reports that it has taken steps to preclude confusion between START I and START II accounting. Thus, when START II enters into force, U.S. inspection teams will be provided both START I and START II data to support their inspections. A single inspection will do double duty for both treaties, so a thorough knowledge of both treaties by team members (especially team chiefs) will be essential. The Department of Defense On-Site In-

spection Agency (OSIA) is planning specific training sessions for its inspectors and escorts highlighting the accounting difference between START I and START II. In addition, OSIA will revise its current START I inspection reports and coordinate with the other Parties to ensure that START I and START II accounting are properly accomplished and documented in the formal inspection reports on both sides.

START II MONITORING TASKS

The tasks and monitoring confidences associated with monitoring Russian compliance with START II will be similar to those for START I. The primary task under START II is to monitor reductions of Russian strategic offensive arms beyond those mandated by START I, in particular the elimination of all MIRVed ICBMs. Additional tasks include:

- Monitoring the ban on the production, flight-testing, acquisition, and deployment of MIRVed ICBMs after January 1, 2003 (or perhaps earlier);

- Ascertaining that the conversion of up to 90 SS-18 silos, the elimination of all other SS-18 silos, and the elimination of SS-18 missiles and canisters are carried out according to the specified procedures;

- Monitoring downloaded SS-19s to confirm that each carries only a single warhead;

- Monitoring new types of ICBMs to ascertain that they do not have a MIRV capability;

- Monitoring the number of nuclear weapons with which Russian heavy bombers are actually equipped; and

- Monitoring any heavy bombers reoriented for conventional roles to ensure that they do not carry nuclear weapons and that they or their crews are not used in training for nuclear missions.

START II provides for additional on-site inspections that will help the Intelligence Community accomplish some of these monitoring tasks. START I provisions calling for notifications of all movement of Treaty-limited items will also assist the United States in monitoring eliminations, conversions, and new deployments.

PRINCIPAL STRENGTHS IN START II MONITORING

The Intelligence Community judges that it can monitor with virtual certainty the elimination or conversion of declared items and the number of deployed silo-based ICBMs, SLBMs and heavy bombers that remain in the force. Treaty provisions designed to enhance verification play important roles in augmenting U.S. National Technical Means in this regard. The ten annual RV inspections permitted under START I will help assure, over time, that those silos are not being used for MIRVed missiles, and the four extra RV inspections at converted SS-18 silos that are provided for in START II will add assurance regarding heavy ICBMs.

One particularly important aspect of START II verification would be the on-site inspection of SS-18 heavy ICBM silo conversions, to guard against a break-out scenario involving speedy reconversion of SS-18 silos. In accordance with Section II paragraph 6, of the Protocol on Procedures Governing Elimination of Heavy ICBMs and on

Procedures Governing Conversion of Silo Launchers of Heavy ICBMs, U.S. inspectors could either physically witness the pouring of the five meters of concrete in the bottom of the silo or measure silo depth before and after the concrete was poured. In order to guard against improper implementation of the conversion procedures, the Committee urges the Executive branch to exercise its START II Treaty “right to observe the entire process of pouring concrete into each [SS-18] silo . . . that is to be converted, and to measure the diameter of the restrictive ring.”

The Intelligence Community generally expects to be able to monitor the ban on flight-testing of MIRVed ICBMs after 2003, assuming it receives the good telemetry data mandated by START I. The Committee notes the importance of the START I provisions regarding the transmission and provision of missile flight test telemetry and interpretive data, and urges the Executive branch to adopt the firmest practicable policy regarding Russian compliance with those provisions.

MOST SERIOUS START II MONITORING UNCERTAINTIES

Monitoring missile production and storage and, consequently, the number of non-deployed missiles is inherently difficult. At facilities where the United States conducts continuous perimeter and portal monitoring, the Intelligence Community’s uncertainties are low. Uncertainties are higher, however, in estimates of missile production at facilities not subject to continuous monitoring or on-site inspection. As the Director of Central Intelligence stated in the START I context, “it is possible that some undeclared missiles have been stored at unidentified facilities.”⁴

As in 1992, when the Committee reported on U.S. capabilities to monitor compliance with the START I Treaty, a cheating scenario involving covert production and deployment of mobile ICBMs—and especially of MIRVed ICBMs—and their launchers would be particularly worrisome.⁵ The Committee continues to believe that the possible existence of covert, non-deployed mobile missiles must remain an important U.S. intelligence target.

Uncertainties in the estimates of numbers of non-deployed missiles will make it difficult for the Intelligence Community to determine whether all SS-18 airframes have been declared and eliminated as required by START II. On the other hand, SS-18 missiles and canisters are not mobile, are the largest ballistic missile system in the Russian force, and require substantial equipment for handling and transport. Storing and maintaining a covert force of any significant size would be a major undertaking and would increase the risk of detection. As SS-18 silos are destroyed or converted, moreover, the military utility of any undeclared missiles should steadily diminish. The Intelligence Community is quite confident of its ability to monitor the essentially irreversible conversion of SS-18 silos.

Because heavy bomber weapon loadings can easily be changed, the Intelligence Community will find it difficult to determine whether Russian heavy bombers are equipped with more than the

⁴ *The START Treaty*, Hearings before the Committee on Foreign Relations, United States Senate, S. Hrg. 102-607, Pt. 2 (June 23, 25, 26 and 30, 1992), p. 160.

⁵ Senate Select Committee on Intelligence, *Capability of the United States* . . . , p.6.

number of nuclear weapons they are declared to carry. As noted earlier, however, at least START II attributes more nuclear weapons to these bombers than does START I. When the Committee considered this matter in the START I context, the Executive branch emphasized that "heavy bombers are inherently stabilizing, and . . . they play a more important role in the U.S. strategic force structure than in the Russian. . . ." General Curtin noted at the time that cheating scenarios "that involve heavy bombers and ALCMs . . . generally pose little risk of militarily significant violations. Heavy bombers and ALCMs are slow flyers which offer little potential for a surprise attack."⁶

MONITORING THE NUMBER OF RVS ON A MISSILE

As the Committee noted in its 1992 report, U.S. intelligence alone cannot reliably monitor the number of re-entry vehicles actually on a deployed missile. But on-site inspections of randomly-selected missiles can lead to a statistical confidence, over time, that the Russians have not deployed illegal missiles at declared locations.⁷ START II would not change the feasibility of cheating scenarios that might involve the "uploading" of downloaded missiles, although its provisions permitting more downloading than under START I, its ban on MIRVed ICBMs after 2003 and its lower limits on total nuclear warheads could increase the perceived benefit of a successful cheating scenario.

Downloading always carries the risk, moreover, that Russia would engage in a breakout option. That is, while it might not be practicable for the Russians to covertly upload their downloaded missiles, they could more-or-less-overtly upload the missiles in the event of a serious crisis.

The Joint Staff representative at the Committee's May 12, 1993, hearing testified that, in the Joint Staff's view, no potential cheating scenario posed a sufficient threat that would be judged militarily significant by the United States. Specifically addressing the risk of a Russian breakout through missile uploading, he added that the U.S. side's ability to restore its own forces to higher levels would be more than equal to the challenge.

THE ISSUE OF SPACE LAUNCH VEHICLES (SLVs) BASED ON ICBMS

Both START I and START II permit the elimination of ICBMs and SLBMs "by using such missiles for delivering objects into the upper atmosphere or space," i.e., by use as a space launch vehicle (or SLV), although that term is not used in the treaties. Russia has tested and advertised at least two SLVs based upon ICBMs: the "Rokot" SLV, based on the SS-19; and the "Start" SLV, based on the SS-25. (The "Start" SLV uses the Russian-language word for "start," which is unrelated to the Treaty acronym.) No telemetry or START Treaty-required notifications were provided for the tests of

⁶ *Ibid.*, p. 7.

⁷ *Ibid.* While the likelihood of finding a given illegal missile might be small, one can conclude from elementary sampling theory that the probability of detecting at least one such missile would be substantial if illegal missiles were deployed in a large number of silos subject to inspection. The Intelligence Community is confident that with the fourteen RV inspections permitted annually under START I and START II, consistent findings of compliance would produce, within a few years, a very high level of confidence that no significant number of illegal missiles was deployed at declared sites.

these vehicles, and Russia asserted in 1994 and early 1995 that so long as the whole SLV was clearly different from an ICBM or SLBM, it was not (or should not be) covered by the START Treaty. The United States objected to those statements and actions at the time.

In March of 1995, a "Start" SLV exited the Votkinsk Machine Building Plant in two sections, which triggered a START Treaty provision (the Twenty-eighth Agreed Statement) that could force reclassification of the SS-25 ICBM as a missile that is transported in stages. U.S. insistence upon implementation of that START Treaty provision had the potential to make Russian compliance with the Treaty impossible, because U.S. inspectors would have gained the right to inspect the insides of each SS-25 missile canister—in the field, as well as at the Votkinsk exit portal—to ensure that it did not contain *two* SS-25 first stages.

Faced with both this embarrassing dilemma and high-level U.S. concern (which included discussions between Vice President Gore and Russian Prime Minister Chernomyrdin), Russia at length agreed to the U.S. interpretation of the START Treaty and, on September 28, 1995, initialed Joint Statement Number 21 on Space Launch Vehicles that Incorporate First Stages or ICBMs or SLBMs. The first paragraph of the Joint Statement states that all the Parties to START I: . . . confirm that the first stage of an ICBM or SLBM . . . that is incorporated into a space launch vehicle is subject to the provisions of the Treaty, and that, for the purposes of the Treaty, such a space launch vehicle is subject to the provisions of the Treaty relating to ICBMs or SLBMs as an ICBM or SLBM of that type.

This provision has several implications, which are spelled out in later paragraphs of the Joint Statement. First, it makes clear that merely adding new features to an old first stage does not remove that first stage from START (or, by implication, from START II if that treaty should enter into force). Secondly, the whole SLV that incorporates a Treaty-limited first stage—and not just the first stage of that SLV—is covered by START. Hence, pursuant to the Thirty-first Agreed Statement to START I, telemetry from launches of such an SLV must include telemetry from the later stages until "such objects either are in orbit or have achieved escape velocity." Finally, an SLV using the first stage of an ICBM or SLBM of a given type will count as an ICBM or SLBM of that type, rather than as a new type of ICBM or SLBM.

The second paragraph of the Joint Statement makes clear that the Parties can agree, on a case-by-case basis, not to require that an ICBM stored in a canister be reclassified as one stored in stages, just because an SLV based on it is stored in stages. The third paragraph specifies that the SS-25 will not be reclassified as a result of the "Start" SLV, "provided that the sections of the launch canister of the 'Start' space launch vehicle are maintained, stored, and transported together, solely in this configuration, until the 'Start' space launch vehicle is prepared at a space launch facility or test range for launch."

The eighth paragraph of the Joint Statement confirms that a space launch facility may be located outside the territory of a Party to START. It also confirms, however, that the Party "shall retain

ownership and control of such ICBMs or SLBMs, including such space launch vehicles, as well as their launchers and support equipment." Thus, a space launch vehicle that uses the first stage of an ICBM or SLBM may not be exported, but it may be launched from a declared foreign site. An SLV that only uses one or more upper stages from an ICBM or SLBM, however, would not be subject to such START I or START II limitations.

RUSSIAN START II COMPLIANCE INCENTIVES

Russian critics of START II argue that the Treaty benefits the United States because it does little to restrict heavy bombers and SLBMs, which are considered U.S. strengths, while it bans MIRVed ICBMs. They also argue that Russia cannot afford the new single-RV ICBMs that START II compliance will require it to field. The Executive branch has assured the Committee, however, that, on balance, there is little incentive for Russia to cheat on either START I or START II.

The disincentives for Russia to cheat are substantial. Many cheating scenarios, such as the reconversion of converted SS-18 silos, would risk U.S. detection. The most feasible cheating scenarios would yield only small gains; thus, covertly reMIRVing all the 105 single-RV SS-19s allowed under START II would increase the number of Russian RVs by only about fifteen percent. And such scenarios as the covert production of large numbers of ICBMs and their launchers would require a considerable investment of scarce resources.

Despite these disincentives, however, the Committee urges the Intelligence Community to base its collection and analysis priorities upon a more cautious appreciation of the record of Soviet and Russian compliance with arms control agreements. Thus, it is hard to see how a purely rational analysis would have led the Soviet Union to build a large phased array radar near Krasnoyarsk. In the future, outmoded Russian doctrine could persist because of individual or collective inertia in adjusting to a changed world; or bureaucratic rivalries could lead a portion of the Russian military to resist central decisions to comply with START provisions.

U.S. READINESS TO IMPLEMENT START II VERIFICATION

The Department of Defense On-Site Inspection Agency (OSIA) would be ready to implement START II as soon as it was ratified and entered into force. START I baseline operations began on March 1, 1995, so that treaty's 120-day intensive period will not overlap with START II operations. From a logistical standpoint, START II inspections and eliminations would closely resemble those conducted under INF and START I. Team composition would be as in INF and START I, with the same mixture of weapons specialists, linguist(s), and team leadership. And START II does not make any additional U.S. facilities subject to inspection (although an additional portion of Whiteman AFB, the area where the B-2 is deployed, will become subject to inspection under START II).

OSIA notes that an accelerated schedule of inspections may be required if the schedule for Phase II reductions under START II should be accelerated. Such an acceleration could necessitate formation of additional teams to ensure OSIA capability to perform

inspection and escort functions under both regimes simultaneously while continuing to perform INF Treaty inspections until 2001. This is to be done out of currently planned START/INF resources.

The FY 1996-1997 President's Budget submission for OSIA contains \$8.9 million for START II implementation during FY 1994-1997. OSIA estimates an additional cost of \$23.7 million for it to meet its Treaty-related requirements during the period FY 1998-2003. The major part of the budget consists of travel, airlift, and logistical support costs for U.S. inspections of Russian eliminations of SS-18s and S-24s, SS-18 silo conversions, and re-entry vehicle on-site inspections, with very small amounts dedicated to U.S. escort of Russian inspectors, equipment, training, and other minor costs. There is no continuous monitoring regime under START II, and therefore no continuous monitoring cost.

OSIA's figures are somewhat higher than earlier estimates by DoD; they take into account the likely need for two inspections of each SS-18 heavy ICBM silo conversion. As much as two-thirds of total verification costs would be for on-site inspection of the SS-18 silo conversions. As noted earlier, the Committee considers those inspections to be especially important and urges the Executive branch to exercise its full rights to observe the pouring of the concrete plugs.

Budget estimates assume that the United States will exercise all of its START II on-site inspection rights, including those for the elimination of all SS-18 missiles and their launch canisters, the conversion of ninety SS-18 silos and the four additional reentry vehicle on-site inspections allowed annually at converted SS-18 silos, and heavy bomber inspection and protection. The estimates do not include expenses related to National Technical Means, but the great majority of such expenses would have to be borne anyway in order to satisfy policy makers' needs for information on Russian strategic systems.

COUNTERINTELLIGENCE AND SECURITY CONCERNS

The Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASDC3I) is responsible for providing security policy guidance to the DoD components. The Defense Treaty Inspection Readiness Program (DTIRP) will provide the same support for START II as that provided for START I. The program assists new sites to determine their vulnerabilities and develop appropriate treaty compliant and cost efficient security countermeasures. As an integral part of the OSIA site preparation program, DTIRP arms control security specialists have provided support to START II facilities such as Whiteman Air Force Base and systems such as the B-2 Bomber, participated in START I Special Right of Access exercises, and provided continued support during mock inspections.

Two sets of provisions in the START II Treaty, both related to bomber inspections, highlight the issue of safeguarding sensitive information. In general, the most important aspect of the bomber issue is that under START II, Russia will be able to inspect the U.S. B-2 stealth bomber. The U.S. Air Force is developing an inspection implementation plan that will ensure protection of sensitive information during inspections or exhibitions, but will also

ensure that U.S. treaty obligations are met, and the Executive branch has assured the Committee that these inspections can readily be managed to avoid the compromise of classified information.

For purposes of complying with START II, all deployed heavy bombers would be counted as carrying the actual number of nuclear weapons for which the bomber is equipped. A modified verification regime requires each Party to exhibit one heavy bomber of each type to demonstrate the number of nuclear weapons for which the bomber is actually equipped. The inspecting Party is entitled to "visually inspect" those portions of the exterior of the bomber that are equipped for weapons, as well as the weapons bay of the bombers, "but not to inspect other portions of the exterior or the interior." The Party whose bomber is being inspected has the right to shroud the portions of the bomber not being inspected.

START II also provides that up to 100 heavy bombers (except cruise missile carriers) can be reoriented to non-nuclear roles instead of being destroyed in order to meet the Treaty's bomber weapons ceiling. The Treaty further provides that such bombers can later be "returned" to a nuclear role. Bombers that have been reoriented to conventional roles must have differences observable by national technical means of verification and visible during inspection in order to distinguish them from nuclear-armed bombers with nuclear roles. During inspections, the inspecting Party is entitled to "visually inspect" those portions of the exterior of the bomber that have the "observable differences," but not to inspect other portions of the exterior or the interior. Again, shrouding is permitted as to the portions of the bombers not subject to inspection.

Whenever Russian on-site inspectors visit the United States or American inspectors visit Russia, there is a risk that Russian personnel will take the opportunity to pursue espionage objectives. The FBI is responsible for protecting against this threat at home, and OSIA is the lead agency for responding to the threat overseas. The Committee believes that the counterintelligence challenges inherent in START II will be no greater than those of past treaties, and that U.S. agencies are capable of handling these challenges.