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AN ASSESSMENT OF THE UTILITY OF ON-SITE INSPECTION FOR INF TREATY VERIFICATION

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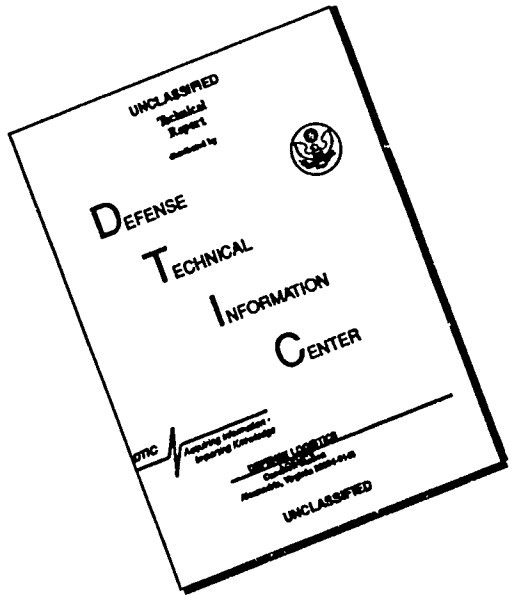

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20 ABSTRACT (Continue on reverse side if necessary and identify by block number) [redacted] National Technical Means

This report analyzes the utility of on-site inspection (OSI) for enhancing Intermediate-Range Nuclear Force (INF) treaty verification of Soviet compliance with US-proposed collateral limits on short-range ballistic missiles (SRBMs). It outlines a detailed verification regime that relies on manned OSI teams to help verify limitations on Soviet SRBM deployments. It also assesses the OSI regime's potential impact on US Pershing deployments. Finally, the report reviews the history of American policy concerning on-site inspection and evaluates the overall utility of OSI in support of NTM. Keywords?

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[redacted] SUMMARY

[redacted] PURPOSE.

[redacted] This study analyzed the extent to which manned on-site inspection (OSI) can enhance U.S. confidence in verifying proposed collateral limits on certain Soviet short-range intermediate nuclear forces (INF). The report outlines an OSI regime employing human inspectors to assist national technical means (NTM) in verifying Soviet compliance with an INF treaty freeze on the number of nuclear missiles and launchers permitted for the SS-12/22 Scaleboard and SS-23. The report also analyzes the overall utility of OSI for treaty verification and the reciprocal impact of an OSI regime on U.S. Pershing deployments.

[redacted] OBSERVATIONS AND CONCLUSIONS.

[redacted] Most postwar U.S. arms control and disarmament proposals included some form of inspection, but because of OSI's intrusiveness, very few of the final treaties permit it. Since the mid-1970s, two factors have renewed U.S. interest in OSI: (1) the pursuit of more ambitious arms control goals, including reductions of missiles and mobile launchers; and (2) persistent American political concern over Soviet treaty compliance. (See Section 2, pp. 14 and 32-34.)

[redacted] An OSI regime would permit monitoring restricted objects at close range. However, because the OSI team's access depends on the other side's cooperation, OSI is best viewed as an adjunct--not as an alternative--to NTM. In this role, OSI can support several verification objectives, including resolving ambiguities revealed by NTM. [redacted]

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[redacted] (See Section 3, pp. 56-61.) [redacted]

[redacted]

[redacted]

CIA + DOS (b)(1)+(3)

[redacted]

To be effective, on-site inspection for Soviet SRBM deployment sites must be part of a multilayered verification regime that integrates NTM with various cooperative measures, including human OSI.

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[redacted] APPROACH.

[redacted] To formulate an OSI regime, PSR made a detailed review of finisned intelligence works on Soviet SRBMs, worked closely with imagery analysts from the Central Intelligence Agency and the Defense Intelligence Agency, and received continuing guidance from Consolidated Verification Group members through briefings and two OSI working sessions hosted by PSR. The historical analysis of U.S. policy on OSI was based on interviews and a review of documents from the Arms Control and Disarmament Agency. PSR's assessment of the implications of OSI for Pershing deployments benefited from discussions with the Army Staff.

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PREFACE

[redacted]

This report is intended to support the Defense Nuclear Agency's arms control/force modernization research program. Its purpose is to assess how an on-site inspection (OSI) regime that relies on human inspection teams might be employed to help verify limits on Soviet short-range missile systems that were proposed by the United States in its draft Intermediate-Range Nuclear Force (INF) Treaty. This report also evaluates the OSI regime's potential impact on U.S. Pershing deployments.

Research for this report was performed by the Military Operations and Policy Analysis division of Pacific-Sierra Research Corporation, under the overall direction of Dennis M. Gormley. The Principal Investigator was John C. Baker, with major contributions provided by Douglas M. Hart and Raymond T. Doherty. This report was reviewed and approved by Dennis M. Gormley, Assistant Vice-President for Military Operations and Policy Analysis, and Gordon O. Moe, Executive Vice-President.

Pacific-Sierra Research Corporation is grateful for the thorough and timely support of Lt. Col. Thomas A. Gladstone, USAF, the contract technical monitor for this research. PSR also would like to acknowledge the assistance of the Imagery Analysis Division (DB-5B) of the Defense Intelligence Agency, the Office of Imagery Analysis of the Central Intelligence Agency and the Arms Control and Disarmament Agency.

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LIST OF ILLUSTRATIONS

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LIST OF TABLES

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SECTION 1

[redacted] INTRODUCTION

[redacted] By including limits on mobile missile launchers*, the U.S.-proposed Intermediate-Range Nuclear Force (INF) treaty faces certain unique and rather difficult problems for verifying Soviet treaty compliance. Earlier strategic offensive arms agreements focused solely on limiting launchers that were either at fixed locations or large enough to be difficult to conceal for any period of time. To achieve effective verification of the number of deployed Soviet nuclear missiles and mobile launchers, the United States is considering on-site inspection (OSI) as one of several U.S.-USSR cooperative measures. The aim of this report is to analyze how an OSI regime might specifically assist national technical means (NTM) in verifying Soviet compliance with proposed limits on shorter range INF (SRINF) deployments.

[redacted] PROPOSED LIMITS ON SOVIET SRINF SYSTEMS.

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CIA + DOS (b)(1) + (b)(3)

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[redacted] ASSESSING OSI'S UTILITY FOR TREATY VERIFICATION.

[redacted] To ensure that Soviet compliance with the proposed SRINF limits can be verified effectively, the United States is considering various U.S.-Soviet cooperative measures, including on-site inspection. PSR was tasked to evaluate the potential contribution of manned OSI teams for verifying inventory limits on Soviet deployment sites. As a way of realistically assessing the requirements and shortcomings of manned OSI, we formulated an OSI regime based on the specific characteristics of Soviet SS-12/22 Scaleboard deployments. The value of this work is three-fold:

- First, it addresses an important INF treaty verification question related to verifying the Soviet SRINF inventory.
- Second, many aspects of an OSI regime for SRINF systems are directly relevant to other Soviet mobile missiles, such as the SS-20.

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- Third, it offers national decisionmakers a much more solid basis for making judgments than existed previously on the utility and the desirability of manned OSI for treaty verification.

[redacted] Manned OSI can uniquely contribute to treaty verification because of the inspectors' proximity to the object being limited. Unlike national technical means (NTM) of verification, however, the viability of any OSI regime depends greatly on the active cooperation of the other treaty party. Consequently, OSI should not be considered a substitute for NTM, but rather a unique adjunct to it.

[redacted] Any assessment of the overall utility of OSI for treaty verification is driven by two considerations: what is expected of OSI and what can be achieved in structuring an OSI regime. Manned OSI inspectors can potentially contribute to each of the basic verification objectives:

- Resolving ambiguities
- Deterring treaty noncompliance
- Detecting treaty violations.

OSI's utility in performing each function, however, is very sensitive to the nature and scope of OSI team access. To some degree, the more that is demanded of OSI, the more intrusive the OSI regime must become. Thus, to maximize the utility of an OSI regime for treaty verification, the agreement must involve fairly intrusive arrangements. Yet such arrangements may not be acceptable to the United States or its allies, let alone negotiable with the Soviet Union.

[redacted] STUDY ORGANIZATION AND APPROACH.

[redacted] PSR's work has concentrated on formulating an OSI regime designed to enhance verification of proposed U.S. limits on Soviet SRINF deployments. Although the study evaluates the reciprocal impact of OSI for U.S. Pershing I deployments, it makes no effort to assess the negotiability of various OSI arrangements. Nevertheless, we have

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outlined a range of alternatives for each major OSI provision in an effort to identify potential trade-offs between verification confidence and levels of intrusiveness.

[redacted] This report analyzes a wide range of issues associated with on-site inspection. Section 2 reviews the history of American policy concerning OSI. Section 3 contains an evaluation of the overall utility of OSI and its relationship to NTM. Section 4 outlines a manned OSI regime related to verifying limits on Soviet SRINF deployments, and Section 5 assesses its implications for U.S. Pershing I deployments. Background information on the U.S. OSI field test program and Pershing operations and deployments appear in the appendices.

[redacted] There are also two additional volumes to this study. One contains a more detailed assessment of the OSI arrangements relevant to Soviet SS-12/22 and SS-23 deployments presented in Section 4. The other volume formulates a mathematically derived decisionmaking strategy for allocating a given number of on-site inspections.

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SECTION 2

[redacted] HISTORY OF ON-SITE INSPECTION IN AMERICAN POLICY

[redacted] The role of on-site inspection (OSI) in American arms control and disarmament policy has changed substantially since 1945. After World War II, the United States held on-site inspection to be the main means for verifying Soviet compliance with proposed disarmament agreements until the advent of space-based surveillance systems in the early 1960s (Table 2-1). Nevertheless, national technical means (NTM) of verification soon eclipsed OSI in U.S. arms control policy. In recent years, however, changing political and verification requirements have renewed American interest in measures that go beyond NTM, including on-site inspection.

[redacted] This evolution of OSI in U.S. postwar policy can be divided into three main periods. Two important factors distinguish each period: (1) the type of arms control and disarmament objectives being sought and (2) the relationship between on-site inspection and national technical means of verification.

[redacted] COMPREHENSIVE DISARMAMENT: THE CENTRALITY OF INSPECTION.

[redacted] General and complete disarmament (GCD) was the proclaimed objective of several early postwar U.S. disarmament proposals. Until the focus of U.S.-Soviet negotiations shifted in the early 1960s to more limited arms control agreements, ambitious disarmament plans were a major feature of U.S. policy. Given the intense political and military competition between the West and the Soviet Union, early disarmament negotiations were largely propaganda exercises that played to world opinion. Lacking adequate NTM, the United States mainly proposed various inspection schemes to verify Soviet treaty compliance.

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[redacted]

Table 2-1. U.S. on-site inspection policy, 1945-1980[a]

[redacted]

Year	Major Arms Control Agreements	Major U.S. Proposals	Relevant Studies and Tests
1945-		*Baruch Plan (1946)*	*Acheson-Lilienthal Report (1946)*
1950-		*Open Skies Proposal (1955)*	
			Geneva Expert Conferences (1958)
	Antarctic Treaty (1959)		
1960-			*ACDA Inspection Study Group Report (1962)*
	Hot Line Agreement (1963)		
	Limited Test Ban Treaty (1963)		*ACDA/DOD CLOUD GAF Test Program (1963-1968)*
		Strategic Nuclear Delivery Vehicle Freeze Proposal (1964)	
		Bomber Destruction Proposal (1964)	
1965-			
	Outer Space Treaty (1967)		
	Nonproliferation Treaty (1968)[b] *(IAEA provisions)*		*ACDA Field Test Program (1968-1970)*
1970-			
	Seabed Treaty (1971)		
	SALT I Agreements (1972)		
	Vladivostok Accord (1974)		
	Threshold Test Ban Treaty (1974)		
1975-			
	Biological Weapons Convention (1975)		
	Peaceful Nuclear Explosives Treaty (1976)	*Comprehensive Test Ban Negotiations (1976-1980)*	*MBFR-related studies (1978-1980)*
	SALT II Treaty (1979)	*Proposed MBFR-Associated Measures (1979)*	
1980-			

[redacted]

a. Italicized entries contained some form of OSI.

b. Nuclear weapon parties to the NPT Treaty are not formally obligated to allow International Atomic Energy Agency inspection of their nuclear facilities.

[redacted]

[redacted]

[redacted] The first U.S. nuclear disarmament proposal was presented on 14 June 1946 to the U.N. Atomic Energy Commission.* In it the Truman administration called for banning all nuclear bombs and for creating an international agency responsible for controlling atomic energy activities. Known later as the Baruch Plan after the U.S. representative Bernard Baruch, it proposed establishing an international Atomic Development Authority to control, license, or inspect virtually all forms of peaceful atomic energy activities to prevent nations from acquiring atomic weapons. American nuclear weapon disarmament would proceed in stages after establishment of this international control system.

[redacted] The comprehensive control system of the Baruch Plan was based essentially on the earlier Acheson-Lilienthal report, which had concluded that international control of all aspects of atomic products (from mining to production) was essential to achieve effective limitation.† Baruch's major modification was to add strong provisions for enforceable sanctions against treaty violators. They included condign punishment for violators and permitted no veto of punishments by U.N. Security Council members.

[redacted] In many respects, the Baruch Plan passed considerably beyond inspection in proposing international control of the entire atomic energy establishment. This preference for international control over inspection reflected a concern by the Acheson-Lilienthal committee that the purely negative role associated with inspection was neither

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*[redacted] U.S. Department of State, Documents on Disarmament: 1945-1959, Vol. I, (Washington, D.C.: GPO, 1960), p. 7.

†[redacted] A Report on the International Control of Atomic Energy, prepared for the Secretary of State's Committee on Atomic Energy by a Board of Consultants, David E. Lilienthal, Chairman (Washington, D.C., March 6, 1946), pp. 4-8. The report strongly emphasized that while there was a need for inspection as a component of a larger system of international controls, "systems of inspections cannot by themselves" serve as effective safeguards against violations and evasions.

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[redacted]

desirable nor adequate in dealing with the problem of covert nuclear weapon development. On-site inspection appeared useful in a supporting role: inspections of raw material deposits and certain nationally managed atomic energy facilities.

[redacted] Soviet rejection of the Baruch Plan revealed one of the fundamental East-West disputes over disarmament and control. The USSR argued that the United States must give up atomic weapons before control could be negotiated, but the United States maintained that control must precede disarmament. Furthermore, the USSR found unacceptable the obligation of international controls and inspections and the absence of any veto power.

[redacted] Following the Baruch Plan, the need for effective inspection arrangements became a central tenet of the American disarmament position through the 1950s. Because of the deteriorating East-West political situation and the advent of the Korean War, the next important U.S. proposal was not until July 1955, when President Eisenhower announced his Open Skies proposal at the Geneva Conference of Heads of Governments. This plan sought to reduce the threat of surprise attack and to relax the level of tension between the United States and the USSR through two steps:

- Exchange of complete blueprints of the entire U.S. and Soviet military establishments
- Reciprocal facilities for aerial photography in each country.*

[redacted] The Soviet Union's response drew on its earlier 10 May 1955 proposal before the U.N. Disarmament Commission that called for manned control posts at various transportation centers and airfields to prevent surprise attack as part of a staged disarmament process.† Subsequently, the United States refined its Open Skies plan to include reciprocal U.S. and Soviet test areas for developing aerial and ground inspection

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*[redacted] Documents on Disarmaments: 1945-1959, Vol. I, pp. 456-488.

†[redacted] Ibid., pp. 470 and 521.

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techniques and the exchange of technical missions to study methods of control, inspection, and reporting. The Eisenhower proposal was considered a political and propaganda success for the United States.

[redacted] The next important development related to inspection and control occurred in 1958, when two Conferences of Experts were convened in Geneva with representatives from the East and West. One studied methods for detecting possible violations of a complete ban on nuclear testing, and the other sought to identify measures for minimizing the possibility of surprise nuclear attack. If nothing else, the conferences illustrated the enormousness and complexity associated with the inspection regimes at the time. For example, the system envisaged by the experts to monitor a ban on nuclear tests in the atmosphere, under water, and under ground included a network of "160 to 170 land-based control posts. . .and about 10 ships."* These monitoring sites, distributed globally, would need about 30 personnel each. One of their responsibilities would be undertaking on-site inspections of suspected nuclear explosions.

[redacted] The work on nuclear testing begun in the Conference of Experts contributed eventually to the 1963 Limited Test Ban Treaty. In comparison, the conference on surprise attack foundered from the beginning because of a mismatch between American technical experts and Soviet political representatives. The Soviet proposed system of ground control posts was seen in the West as little better than an exercise in self-inspection.

[redacted] The United States and USSR did reach some agreement on the question of inspection in the 1959 treaty that demilitarized Antarctica. The treaty provisions entitle designated observers of the signatories to inspect any or all of the stations, installations, and equipment of the nations located in Antarctica.† Since 1959, the United States has

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*[redacted] Documents on Disarmament, 1945-1959, Vol. II, pp. 1108-1109.

†[redacted] U.S. Arms Control and Disarmament Agency, Arms Control and Disarmament Agreements: Texts and Histories of Negotiations, (Washington, D.C.: GPO, 1982) pp. 19-27.

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[redacted]

exercised its right of inspection through periodic visits to foreign stations. The most recent occurred in early 1983, when the U.S. delegation inspected the stations of several foreign nations, including four of the USSR. Although this treaty set an important precedent for OSI, the unique conditions of Antarctica limit its applicability to other agreements.

[redacted] LIMITED ARMS CONTROL AGREEMENTS: THE PREEMINENCE OF NTM.

[redacted] In the 1960s, a major shift occurred in the American approach to the control and reduction of armaments. Gradually, the emphasis on major disarmament proposals gave way to more limited agreements aimed at specific arms control objectives. Encouraging and facilitating this change in focus was the advent of space-based sensors with significant capabilities for monitoring. Although the United States continued to propose and study on-site inspection, its importance in American arms control policy sharply declined. Through the mid-1970s, the United States looked almost exclusively to NTM to verify treaty compliance.

[redacted] The Decline of OSI.

[redacted] Many factors contributed to the diminished importance of OSI by the late 1960s. A very important factor was the changing conceptual basis of the American approach to arms control and disarmament. Following the empty-handed negotiations of the 1950s, the West began to pursue more limited and negotiable arms control objectives. These partial measures aimed at enhancing the stability of the existing strategic balance by reducing the risks of war and by constraining the competition in nuclear arms. Rather than the multilateral bloc-to-bloc character of the earlier negotiations, the new arms control approach emphasized the greater productivity of bilateral U.S.-USSR negotiations that avoided the limelight. Negotiation in June 1963 of the bilateral Hot Line agreement establishing a direct communication link between the American and Soviet governments indicated this new trend.

[redacted] The Limited Test Ban Treaty (LTBT), also signed in 1963, symbolized changing U.S. arms control objectives and verification requirements. In the late 1950s, multilateral talks concerning a

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complete ban on nuclear testing began as a result of growing domestic and worldwide concern over the hazardous effects of nuclear fallout from atmospheric testing. As the negotiations languished for several years in different forums, American and Soviet disagreement over the control system necessary for verifying a complete ban on nuclear testing became a major obstacle to a final agreement.

[redacted] Verifying a ban on underground testing was complicated by the difficulty of detecting smaller yield explosions as well as by the problem of distinguishing seismic readings of nuclear detonations from those of earthquakes. The U.S. approach to verification involved a sound technical basis for determining the number of required on-site inspections and permanently located seismic stations in each country. By 1961, the United States concluded that, as part of a global network, about 19 manned monitoring stations were needed on Soviet territory with the right to conduct annually up to 20 on-site inspections of ambiguous seismic events.*

[redacted] The Soviets rejected Western proposals with the claim that NTM were sufficient for verifying a complete test ban. Arguing that the question of an OSI quota was a political issue rather than a scientific question, the Soviets expressed willingness to agree to a maximum of three on-site inspections annually. Soviet representatives also argued against large OSI quotas on the basis that they provided opportunities for foreign espionage and that to undertake an inspection was tantamount to an official accusation of cheating.

[redacted] By January 1963, the final U.S.-USSR stalemate occurred over the control issue. At that point, the United States had reduced its official proposed annual OSI quota to seven inspections but pushed for

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*[redacted] U.S. Department of State, Documents on Disarmament: 1960 (Washington, D.C.: GPO, 1961), p. 178.

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seven unmanned seismic stations.* The USSR stood firm at a maximum of three annual inspections and three unmanned seismic stations on Soviet territory. Focusing only on the disparity in numbers, however, can be misleading. Even more important was the inability of the Americans and Soviets to agree on OSI procedures, staffing, and the inspection area required to verify a full test ban. Recognizing by 1963 that a complete nuclear test ban was unattainable, Kennedy and Khrushchev signed the Limited Test Ban Treaty prohibiting nuclear weapon testing in the atmosphere, in outer space, or under water. Each side would rely on national means to verify treaty compliance.

[redacted] The Limited Test Ban Treaty, therefore, marked two important departures from prior American policy. First, it represented a clear shift away from comprehensive disarmament plans in favor of more feasible, partial measures aimed at promoting strategic stability through arms control. Second, U.S. acceptance of national technical means of verification as the sole instrument for ensuring treaty compliance signaled a break with the traditional U.S. verification requirement for some form of inspection or presence within the Soviet homeland to safeguard against possible treaty violations.

[redacted] American interest in OSI as a practical instrument for verification diminished further after the 1964 American nuclear freeze proposal. In January 1964, President Lyndon Johnson proposed a "verified freeze on the number and characteristics of strategic nuclear offensive and defense vehicles." This proposal would limit the number of U.S. and Soviet strategic missiles, bombers, and antiballistic missile systems as well as restrict their modernization. The United States proposed that verification provisions would include extensive on-site inspection at declared missile and aircraft production

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*[redacted] According to one well-informed source, the United States offered the USSR in private seven inspections annually but was willing to accept six as a yearly quota. See Glenn T. Seaborg, Kennedy, Khrushchev, and the Test Ban (Berkeley: University of California Press, 1981), pp. 187-189.

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facilities and at space launch and missile test sites.* Additionally, an agreed quota would be set aside for inspections of suspected violations located elsewhere. The USSR rejected the U.S. freeze proposal, publicly criticizing the highly intrusive nature of its OSI scheme.

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[redacted] The Rise of NTM.

[redacted] Beginning in the early 1960s, the United States could afford to deemphasize its reliance on inspection because of dramatic improvements in various national technical means for verification. Most important was the advent of U.S. reconnaissance satellites that greatly enhanced the American capability to monitor Soviet military developments. Space-based sensors not only provided more effective coverage than high-altitude reconnaissance aircraft or ground-based inspection teams, but they also were accepted eventually as a legitimate means of observation by the USSR.† In addition, satellite photography

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*[redacted] U.S. Arms Control and Disarmament Agency, Documents on Disarmament: 1964 (Washington, D.C.: GPO, 1965), pp. 367-373.

†[redacted] Soviet acceptance of the legitimacy of NTM has not been without certain reservations. See Stuart A. Cohen, "The Evolution of Soviet Views on SALT Verification: Implications for the Future," in William C. Potter, ed., Verification and SALT: The Challenge of Deception (Boulder, Colorado: Westview Press, 1980), pp. 54-59.

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was well suited for monitoring U.S. and Soviet strategic arms deployments that, by the 1960s, increasingly took the form of large, silo-based ICBMs and SLBM launchers on nuclear-powered submarines. Such weapon systems require considerable time and effort to construct and, once operational, are not easily hidden.

[redacted] Equally important, however, was the growing recognition within the U.S. government of the potential offered by photoreconnaissance satellites for monitoring arms control regimes. Soviet rejection of the American freeze proposal also encouraged U.S. analysts to consider whether verifiable arms control limits were possible with only national technical means of verification. By the mid-1960s, many U.S. experts had come to believe that no progress in U.S.-Soviet arms control agreements was possible if the United States held OSI to be a prerequisite. Consequently, the U.S. government began to study whether NTM alone was sufficient for verifying treaty compliance.

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[redacted] Extensive Studies of OSI.

[redacted] Despite the major shift in American thinking on arms control and verification needs, on-site inspection continued to have a limited role during the 1960s. This was partly a legacy of U.S.-Soviet politics concerning general and complete disarmament plans that persisted into

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the early 1960s. Another foundation for OSI's resiliency was the Arms Control and Disarmament Agency (ACDA), established in 1961. ACDA, in conjunction with the Defense Department, was responsible for undertaking a series of field tests and technical studies that evaluated various OSI techniques.

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The most extensive series of field exercises evaluated OSI techniques applicable to verifying "forces-in-being" limits on conventional force deployments. In 1968, they culminated in Exercise FIRST LOOK that evaluated different types of OSI inspection subsystems, using aerial or ground mobile teams, for ascertaining the order of battle (OOB) of British military forces located in a 2000 square mile area in southern England.

[redacted] The CLOUD GAP/Field Test program provided useful information concerning OSI techniques and problems. A major shortcoming, however, stemmed from its general lack of relevance to on-going arms control efforts and the absence of significant support from either ACDA, the Defense Department, or Congress.* Alternatively, the CLOUD GAP/Field Test exercises did reveal to some degree the basic limitations of OSI as a practical verification instrument that could not be appreciated fully until field testing. Ironically, OSI field testing occurred when the

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* [redacted] U.S. Congress. House Foreign Affairs Committee, Committee Print: Review of Arms Control Legislation and Organization, 93rd Congress, 2nd sess., (Washington, D.C.: GPO, 1974), p. 16.

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preeminence of national technical means of verification was at its greatest.

[redacted] Limited Applications for OSI.

[redacted] Limited forms of on-site inspection were embodied in various treaties negotiated during the 1960s and early 1970s. For the most part, OSI provisions were accepted for agreements such as the Antarctic Treaty aimed at creating denuclearized or demilitarized regimes. These included the 1967 Outer Space Treaty and the 1972 Seabed Arms Control Treaty. Both treaties provided for certain types of access to or direct observation of installations or activities found in those regimes, proving that OSI provisions are more acceptable when they do not apply to a country's own territory or to militarily sensitive activities.

[redacted] A related case in the 1960s concerns the 1968 Non-Proliferation Treaty (NPT) and its provisions for inspection as part of the International Atomic Energy Agency (IAEA) safeguard systems. Although formally excluded from IAEA safeguards, including routine inspections by IAEA representatives, the United States offered to accept IAEA safeguards on U.S. nuclear facilities excepting those with direct national security significance. A U.S.-IAEA agreement to this effect was eventually negotiated. The Soviet Union, originally refusing to make a similar offer, more recently has declared its willingness to accept IAEA safeguards on its civilian nuclear facilities.*

[redacted] OSI and the SALT Talks.

[redacted] The U.S.-Soviet nuclear arms control agreements negotiated during the early 1970s affirmed the preeminent role of NTM in the American verification approach. In the SALT I Accords,, the Antiballistic Missile (ABM) Treaty, and interim agreement limiting offensive strategic missile systems, the United States and Soviet Union agreed to use only national technical means to verify compliance. Both

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*[redacted] Milton R. Benjamin, "Soviets Involved in A-Plant Site Inspection Talks," The Washington Post, 20 May 1983.

[redacted]

[redacted]

sides also agreed not to interfere with each other's NTM or to use deliberate concealment to impede NTM verification. The 1974 Threshold Test Ban Treaty limiting underground nuclear testing to below 150 kilotons and the Vladivostok Accord on strategic offensive arms limitations both continued this practice.

[redacted] Despite the predominant role of NTM, however, on-site inspection surfaced as a contentious issue in the initial SALT I negotiations. The question of how to verify limits on missiles deployed with multiple warheads resurrected the OSI issue in 1969 and 1970.

[redacted] American views on the value of negotiating mutual limits on strategic ballistic missiles armed with multiple independently targetable reentry vehicles (MIRVs) were clearly ambivalent. The U.S. lead in MIRV development was the main technological edge the United States enjoyed in the on-going negotiations. But over the longer term, the USSR would derive an advantage from MIRVed missiles because of its larger number of strategic ballistic missiles and their greater throw-weight capability. Furthermore, verifying limits on numbers of MIRVed missiles would be complicated once the United States and USSR had flight tested and deployed such missiles.

CIA + DOS (b)(1) (b)(3)

[redacted]

DAMO-ODO (b)(1)

DIA (b)(1)

[redacted]

[redacted]

[redacted]

CIA, DOS, DIA (b)(1)

[redacted] DAMO OTC (b)(1)

By 1970, the Nixon administration was under pressure on the issue of MIRV limits. Arms control proponents in the administration and in Congress urged the United States to propose serious limitations on MIRVed missiles in SALT, while others strongly opposed any restrictions on the American MIRV program. Sensitive to these competing demands, the White House decided to propose a MIRV ban that required on-site inspection for verification as part of a larger package of strategic arms limitations offered to the USSR. The proposed OSI regime was not limited to verifying MIRVed missiles. As part of the U.S. comprehensive limitation proposal, the MIRV ban was tied to on-site inspection of Soviet antiaircraft missile sites to minimize the danger that they would be upgraded to intercept the residual force of single-warhead strategic missiles.

The Soviets flatly rejected the U.S. proposal, contending that the SALT negotiations had been entered on the premise that NTM would suffice for verifying compliance. Additionally, the likelihood of Soviet acceptance was also undercut because the proposal clearly favored the United States by banning MIRV testing and deployment, but not the further production or stockpiling of MIRVed missiles.

Although the specific motivations underlying the White House decision to propose a MIRV ban based on OSI is open to various interpretations, the end result was the same. By making OSI a precondition for a MIRV ban, the Nixon administration effectively defused internal political pressure without any real concern of being committed to such a proposal in the negotiations. At the same time, making MIRV limitations conditional on OSI effectively closed the issue for the duration of the SALT I negotiations. Consequently, this episode reveals that unlike national technical means, OSI is an inherently more political instrument that can serve several domestic and international roles for national decisionmakers besides its verification functions.

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[redacted] BEYOND NTM: THE NEED FOR COOPERATIVE MEASURES.

[redacted] During the mid-1970s, on-site inspection began to reappear in the American verification approach. National technical means of verification were still predominant, but the growing ambitiousness of U.S. arms control objectives required going beyond NTM to relying extensively on various cooperative measures. In addition, growing American political concern over whether the USSR violated earlier arms control agreements contributed to the need for additional measures to enhance U.S. confidence in verifying Soviet treaty compliance.

[redacted] Cooperative measures can be separated into two types: passive measures (such as verification counting rules) that simply enhance NTM capabilities in doing their job, and active measures (such as OSI) that potentially provide information unattainable by national technical means. By the late 1970s, OSI was no longer viewed as an alternative to national technical means, but rather a way to enhance verification confidence by complementing NTM.

[redacted] The 1976 Peaceful Nuclear Explosives (PNE) Treaty was the first requiring negotiation of active cooperative measures with the USSR. At the time, the Ford administration saw the PNE Treaty as a necessary extension of the Threshold Test Ban Treaty to prevent illegal nuclear tests above 150 kilotons under the guise of peaceful nuclear explosives. Because of Soviet interest in holding open options for large PNE projects, the PNE Treaty established elaborate arrangements, including foreign observers, to permit both sides the option of using a group of smaller PNE explosions to substitute for a single, large-yield PNE detonation over 150 kilotons.

CIA + DOS (b)(1), (b)(3)

[redacted]

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*[redacted] Arms Control and Disarmament Agreements, pp. 171-174.

[redacted]

[redacted]

CIA + DOS (b)(1) + (b)(3)

[redacted]

[redacted] The provisions allowing the United States to witness and to take measurements of nuclear detonations on Soviet territory are both unprecedented and important for the general accessibility to the USSR they represent. Nonetheless, their applicability to other arms control problems should not be exaggerated. In many respects, the PNE Treaty provisions are unique, and they are careful not to imply a Soviet commitment to inspection rather than observation. For instance, the term "designated observers" was employed rather than "inspectors." Furtnermore, by permitting observation only at specific sites and times set by the USSR, such arrangements lack the prerequisites necessary for effective OSI.

[redacted] It is questionable whether the USSR ever intended to undertake group PNE projects actually requiring the presence of American observers. Since the mid-1970s, the Soviet PNE program has given little indication of progressing to such large-scale projects. In fact, in the subsequent Comprehensive Test Ban (CTB) negotiations, the Soviets indicated willingness to give up PNEs entirely. Nonetheless, the PNE Treaty highlighted the prerequisites for negotiating OSI arrangements with the USSR. To obtain Soviet agreement, the United States had to make a convincing case concerning why NTM was inadequate. This put the USSR in the position of either having to give up the option for large PNE projects or accepting some form of inspection, regardless of what it is called. Furthermore, as reflected in the lengthy protocol to the PNE Treaty, it was necessary to specify in great detail the character and procedures associated with American observers on Soviet territory.*

[redacted] More specific on-site inspection provisions were featured in certain Carter administration arms control proposals in the late 1970s. Nonetheless, the centerpiece of the Carter administration's efforts, the SALT II Treaty, was based entirely on national technical means of verification. The proposed U.S.-Soviet SALT II Treaty, however, was

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* [redacted] Ibid., pp. 177-189.

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[redacted]

supported by an intricate set of passive cooperative measures. These committed both sides not to interfere with NTM and to observe specific verification counting rules. They also provided for certain observable differences on restricted strategic systems to assist NTM monitoring. Thus, the 1979 SALT II Treaty depended greatly on the use of passive cooperative measures to enhance treaty verification, but not on active measures such as OSI. Congress never finally voted on the SALT II Treaty, but the Senate Foreign Relations Committee report urged that any future U.S.-USSR arms limitation agreements include OSI provisions.*

[redacted] The United States renewed emphasis on OSI in two other on-going negotiations in the late 1970s. One was the Mutual and Balanced Force Reduction (MBFR) negotiations, and the other was the U.S.-USSR-United Kingdom negotiations on a CTB treaty.

CIA + DOS (b)(1), (b)(3)

DIA (b)(1)

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DAMO-SSP (b)(1)

- Each side to have the right to undertake annually up to 18 air and/or ground inspections of the territory of the other side in the area of reduction

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* [redacted] U.S. Congress. Senate Foreign Relations Committee, Executive Report: The SALT II Treaty, 96th Congress, 1st sess., (Washington, D.C.: GPO, 1979), pp. 48-49.

[redacted]

[redacted]

- Each side to station observers at permanent exit and entry points to monitor military movements into and out of the reduction area.

The other measures concerned information exchanges, advance notification of military movements, and noninterference with NTM.

CIA + DDS (b)(1), + (b)(3)

DIA (b)(1)

[redacted]

DAMO-ODO (b)(1)

Active cooperative measures also played a central role in the CTB negotiations conducted from 1977 to 1980 by the United States, the

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United Kingdom, and the USSR. This was the only arms control negotiation in which major progress was made on the question of on-site inspection and the use of monitoring stations located on the territory of the United States and the Soviet Union.

DIA (b)(1)

[redacted]

CIA + DOS (b)(1) (b)(3)

DAMO-SSP (b)(1)

In addition, the three countries agreed to use on-site inspection to examine ambiguous events. The specific arrangements allow for challenge inspections, whereby one side presents its case for the need to undertake OSI to resolve a suspicious situation. Although the other side has the right to refuse the OSI request, it must provide satisfactory evidence to resolve the question. If it cannot and if it continues to refuse the OSI request, the issue would go to the U.N. Security Council. Ultimately, such refusals would result in the breakdown of the treaty. The intent of this type of OSI is to reduce intrusiveness and the chances that it will be invoked for purposes other than treaty verification.

CIA + DOS (b)(1) + (b)(3)

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DAMO-ODO (b)(1)

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[redacted] The CTB negotiations eventually ran into political problems, both domestically and internationally. A major public debate began in 1978 over the desirability and relative risks of U.S. adherence to the proposed moratorium on underground nuclear testing. The issues of stockpile reliability and the impact of a CTB treaty on the U.S. nuclear weapon laboratories, rather than the verifiability of the CTB, dominated the debate. With the growing erosion in U.S.-Soviet relations and the nonratification of the SALT II Treaty, the CTB negotiations finally ended in 1980.

[redacted] CURRENT U.S. PROPOSALS.

[redacted] The change in administrations in 1980 has generally increased the importance of OSI in American policy. The Reagan administration entered office skeptical of the verifiability of earlier U.S.-USSR arms control proposals and concerned that the USSR may have violated several existing agreements. Administration officials have announced U.S. willingness to pursue necessary measures beyond NTM to achieve effective verification.*

CIA + DOS (b)(1) (b)(3)

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[redacted] Similarly, American charges of Soviet use or involvement in cases of "yellow rain" or toxins and U.S. suspicions that the Soviets have produced biological weapons at Sverdlovsk have prompted a U.S. paper on a chemical weapon ban presented at the Committee on Disarmament

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* U.S. Congress. House Foreign Affairs Committee, Hearings: Strategic Arms Control and U.S. National Security Policy, 97th Congress, 2nd sess. (Washington, D.C.: GPO, 1982), p. 19.

[redacted]

[redacted]

[redacted]

talks on 10 February 1983. The U.S. concept would require systematic OSI at declared chemical facilities and allow for ad hoc or challenge OSI in the event suspicious activities occur elsewhere.*

(S-NOFORN) The U.S. government currently is examining the utility of on-site inspection for American proposals in the Strategic Arms Reduction Talks (START) and the Intermediate-Range Nuclear Forces (INF) treaty negotiations. [redacted] DIA (U)(1)

[redacted] OSI is being considered as a part of the missile destruction process for both START and INF treaty limits. In the proposed INF treaty, OSI is under consideration for use at certain declared facilities, such as missile final assembly sites, launcher garrisons and storage sites for treaty-restricted nuclear missile systems. This is discussed in greater detail in Section 4.

[redacted] CONCLUSIONS: THE CHANGING ROLE OF OSI.

[redacted] The evolving role of on-site inspection in American arms control policy reveals that two factors often have determined its importance at any one time: the type of arms control objectives being pursued and whether better alternatives to OSI existed for verification.

[redacted] During the initial postwar years, inspection was the main instrument for assuring compliance with the various disarmament proposals offered by the West. With the advent of enhanced national technical means of verification in the early 1960s, the verification roles of OSI greatly declined in importance. Even more significant, however, was the political shift to pursuing more limited arms control objectives. The role of on-site inspection, however diminished, was not eliminated by the growing importance of NTM. Instead, the various

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*[redacted] U.S. Statement to the Committee on Disarmament, "United States Detailed Views on the Contents of a Chemical Weapons Ban," (CD/343 February 10, 1983), pp. 6-8. Also see U.S. Department of State, Bureau of Public Affairs, Yellow Rain: The Arms Control Implications, Current Policy No. 458, pp. 2-3.

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positive and negative roles of OSI beyond its verification functions returned to the forefront.

[redacted] The trend toward more ambitious arms control agreements that began in the mid-1970s and continues today has renewed U.S. interest in OSI. Effective verification may not only require supplementing NTM with passive cooperative measures but also seeking various forms of on-site inspection. Rather than posing an alternative to NTM, however, such on-site inspection schemes are being increasingly considered as an adjunct to NTM. National decisionmakers, however, are likely to attribute equal importance to the political significance of negotiating a U.S.-USSR arms reduction agreement that permits American inspection of treaty-restricted Soviet facilities.

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SECTION 3

[redacted] THE OVERALL UTILITY OF OSI FOR TREATY VERIFICATION

[redacted] On-site inspection (OSI) is one of several cooperative measures that could enhance U.S. confidence in verifying Soviet compliance with various INF treaty provisions. The main value of OSI stems from its relative proximity to the object under observation, making treaty violations more susceptible to detection. Being able to monitor a nearby object gives OSI certain advantages as a verification instrument, particularly when combined with various national technical means.

CIA, DOS (b)(1), (b)(3)

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[redacted] TYPES OF ON-SITE INSPECTION.

[redacted] Diverse OSI regimes are conceivable. Their common feature is that the treaty parties formally agree to permit foreign inspection or obervation of selected facilities and territories under their control. Beyond this basic similarity, OSI regimes can vary widely in several parameters, including the inspection means they employ and the type of obligation they impose on the treaty parties.

[redacted] OSI regimes can be based on mobile inspection teams, manned observation posts, or fixed remote sensors often referred to as "black boxes." PSR's work analyzes primarily the utility of mobile teams of human inspectors to examine declared SRBM-related sites. Human inspectors, as designated governmental representatives, should possess the technical expertise necessary to determine whether the areas being inspected comply with treaty provisions. The main shortcoming of using human teams for periodic inspections is that their findings are valid

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only for the few sites they may visit and only for the short time they are there.

[redacted] An alternative is to maintain a continuous presence at the declared site through the use of remote sensors or manned observation posts. Such technical or human checkpoints would constantly monitor activities at the sites, or at least the traffic entering and leaving the site. A continuous inspection regime increases the difficulty of cheating, although the expense and the logistical support difficulties of such a regime could be very high.

[redacted] Inspection regimes also can be distinguished by the obligation associated with the OSI request.* Fulfillment of the OSI request can be either mandatory, voluntary or in response to a challenge. A mandatory OSI regime requires the country being inspected to accede without exception to an OSI request if the request is consistent with accepted procedures. Any failure to grant a valid OSI request would seriously threaten the continuing viability of the treaty. In contrast, a voluntary OSI regime simply allows each country the option to request or to grant OSI but places no legal requirement on the treaty parties to oblige such a request.

[redacted] A challenge OSI regime compromises the two other cases. It requires the side desiring OSI first to justify a need for its OSI request. The side to be inspected then may either accede to the request or provide information obviating the need for it. It may be easier to negotiate acceptance of a challenge OSI regime because it does not require automatic inspection. This advantage could be offset, however, by a greater reluctance by political leaders to invoke a challenge OSI that might be perceived as an implicit accusation of cheating. Similarly, a challenge OSI scheme probably would be more susceptible to delays, thereby reducing the chances that the OSI team would still find evidence of a violation at the site once it finally arrives there.

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*[redacted] An OSI regime could depend on self-inspection or rely on an international team of inspectors, although this study is concerned with the reciprocal exchange of human OSI teams.

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OSI ROLES AND FUNCTIONS.

A nation may propose on-site inspection to serve a variety of purposes. Compared with national technical means of verification, OSI can support a broad range of objectives for national decisionmakers, including:

- Treaty verification
- Intelligence-related roles
- Negotiating objectives
- Political goals.

Treaty Verification.

OSI can contribute potentially to a nation's ability to verify whether the other side is complying with the treaty limitations. Depending on its effectiveness, an OSI regime can support the three basic objectives of verification: detect treaty violations; deter such violations; and resolve ambiguous situations concerning compliance with treaty limits.

With direct accessibility to the treaty-restricted object, OSI may, in some cases, uniquely enhance treaty verification by providing information unattainable by NTM. More likely, however, OSI will support NTM capabilities by providing an additional deterrence to Soviet treaty violations. On-site inspection also can perform an important positive role in resolving ambiguous situations that create unnecessary uncertainties concerning treaty compliance. Because the verification potential of OSI is the main focus of this report, this section treats it in greater detail later.

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[redacted] Intelligence-Related Roles.

[redacted] Another possible function of an OSI regime is to support a nation's intelligence aims. Concern over the inherent capability of human inspectors or remote sensors to acquire a wide range of collateral intelligence beyond that required for treaty verification has long been a major obstacle to the successful negotiation of an U.S.-Soviet on-site inspection regime.

CIA, DOS (b)(1)+(b)(3)

DIA (b)(1)

[redacted]

DAMO ODC (b)(1)

[redacted] Supporting Negotiating Objectives.

[redacted] A third potential role for OSI is to support a nation's negotiating position. By proposing various OSI regimes, a country may seek to influence an on-going negotiation in one of several ways. First, an OSI proposal may be a bargaining chip that one nation is willing sacrifice if the other party agrees to a different set of demands. Tabling an OSI proposal also could deliberately prolong the negotiations for external reasons. Finally, an OSI regime may be proposed with the knowledge that it is unacceptable to the other side. Such an nonnegotiable proposal could be intended for external propaganda or domestic political consumption.

[redacted] Political Roles.

[redacted] Historically, politics have motivated many OSI proposals. In some cases, an OSI proposal simply may be a propaganda ploy. In recent months, for example, the USSR has increasingly expressed its receptivity to various OSI arrangements. This recent interest in OSI apparently is motivated in part by a Soviet desire to avoid allowing the USSR to be

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portrayed by the West as the main obstacle to progress toward verifiable arms reductions.*

[redacted] Fundamental political considerations also have prompted the United States to propose OSI regimes in the past. The Soviet Union's relatively closed society, based on a preoccupation with secrecy, long has fundamentally contrasted the relatively open societies of the West. A major motivation behind many early U.S. proposals for OSI regimes involving Soviet territory, therefore, was to offset some of the advantages that such nationwide secrecy provides to the USSR.

[redacted] In addition, on-site inspection proposals can support more specific political objectives. Regardless of its contribution to treaty verification, on-site inspection may be demanded of a nation as a more visible commitment of its intention to abide fully with a treaty's provisions. Political leaders may see the main value of an OSI regime as increased domestic confidence in the verifiability of a proposed treaty. This political utility of an OSI regime may increasingly appeal to U.S. decisionmakers faced with nearly a decade of domestic political controversy over Soviet treaty compliance.

[redacted] In summary, the relatively intrusive and politically visible nature of an OSI regime, compared to NTM, ensures that treaty verification is only one of several issues for national decisionmakers. Various political, negotiating, and intelligence-related objectives also motivate OSI proposals. Consequently, any particular OSI proposal is likely to support a combination of different national objectives.

[redacted] THE NATURE OF AN OSI REGIME.

[redacted] For analytical purposes, an on-site inspection regime can comprise three distinct phases or processes.

[redacted] For instance, see "Soviets Offer On-Site Checks in Arms Talks," The Washington Post, 2 February 1983; and "Soviet Interest in Arms Verification Stressed," Foreign Broadcast Information Service (FBIS), Daily Report: Soviet Union, 1 September 1983, pp. AA 8-10.

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- The decisionmaking phase initiated by an OSI request
- The notification and access arrangements essential for gaining access to the site selected for inspection
- The on-site inspection procedures once the OSI team has achieved access to the site.

Critical factors during each phase can substantially affect the prospects for devising an effective OSI regime. A shortcoming in any part of the process could consequently undermine the overall utility of the OSI regime for verifying treaty compliance.

[redacted] The remainder of this section outlines some of the major questions associated with the first and second phases of the OSI process. Much of PSR's work, however, has focused on formulating the specific OSI procedures needed for a walkthrough at a designated Soviet SRINF site. That work is presented in a following section.

[redacted] OSI DECISIONMAKING ISSUES.

[redacted] In the context of the INF treaty, the United States may initiate the OSI inspection process for one of several reasons. These reasons can be divided into two categories. One category includes OSI requests triggered by site-specific developments. In this case, an OSI is initiated because suspicious Soviet activity at a particular site leads the United States to request an inspection to determine whether a treaty violation has occurred. Such site-specific OSI requests may be undertaken to:

- Resolve ambiguous situations
- Detect a possible Soviet violation
- Provide public evidence.

[redacted] There are also motivations independent of what may be occurring at the designated sites. These nonspecific motivations for OSI requests are fairly wide-ranging and may reflect a U.S. desire to:

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- Confirm the initial data base exchange
- Make the OSI process routine
- Enhance team proficiency and establish OSI credibility
- Deter Soviet consideration of noncompliance.

[redacted] Nonspecific or routine OSI requests are likely to be the norm under a mandatory OSI regime whereby each side is given an annual quota of on-site inspections that it either must use or lose. An important role for this type of OSI would be to confirm the initial data base concerning Soviet SRINF missiles and launchers limited under the INF treaty.

[redacted] Routine OSI Requests.

[redacted] It is envisioned that a U.S.-Soviet data base exchange in the final INF treaty will list the number of all restricted missiles and launchers at specifically designated sites. As an initial accounting of the entire inventory of restricted Soviet SRINF systems, the data base exchange could ease future U.S. verification problems. Nonetheless, it would be important to determine the accuracy of the initial Soviet data exchange. One method being considered is a comprehensive walkthrough of Soviet designated sites by American OSI teams. Of course, such a walkthrough would allow detection only for possible Soviet violations located at the declared sites, not to those located elsewhere.

[redacted] The United States has certain other motivations for undertaking early and frequent on-site inspections. One is simply to make OSI a routine process to prevent political and bureaucratic resistance from developing later. Unless OSI becomes relatively routine from the beginning, political leaders might hesitate to apply OSI when needed later because of the political visibility attached to an isolated request. Mandatory OSI would help to reduce the political sensitivity of on-site inspections by eliminating possible connotations of an accusation of cheating as in a challenge OSI regime. Early and routine employment of OSI also would contribute to the proficiency of the OSI team and help the United States to identify procedural and logistical problems.

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[redacted] The most important American motivation for OSI, however, is to help verify Soviet compliance with the INF treaty provisions. The U.S. right to inspect designated Soviet SRBM-related sites could help deter the USSR from violating the treaty at these sites. American OSI requests need not be directed toward specific sites to deter Soviet cheating somewhat. Even a scheme that randomly distributes American OSI visits among the USSR's designated SRINF sites will pose at least a minimal deterrent to cheating, because Soviet planners considering treaty violations at particular sites cannot rule out the possibility that the sites will be subject to inspection at some point.

[redacted] If OSI requests are not tied to specific Soviet sites, then they can be allocated according to relatively simple random sampling techniques. This eases the decisionmaker's task of deciding how to distribute a limited number of U.S. OSI requests among many Soviet sites.

[redacted] Site-Specific OSI Requests.

[redacted] Most likely, a majority of the on-site inspections would be routine, undertaken by the United States for reasons outlined earlier. The most important OSI requests, however, would be those triggered by NTM detection of ambiguous or suspicious activities at Soviet designated sites. OSI requests triggered by site-specific events can not use a preestablished random sampling plan for OSI visits. Instead, they must respond directly to American NTM discoveries at particular Soviet SRINF sites. In these cases, U.S. decisionmakers may wish to follow up rapidly the discovery by NTM of suspicious treaty-related activity at a Soviet site with an OSI request.

[redacted] In many cases, an OSI visit to the site in question might confirm accurately that the ambiguous development does not involve Soviet noncompliance with INF treaty limits. Nonetheless, not all inspections may fully resolve U.S. uncertainties and eliminate suspicions of Soviet cheating. In these instances, the United States could upgrade NTM coverage of the specific sites and possibly even rely on repeated OSI visits.

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[redacted] Finally, even if NTM alone provides evidence sufficient to convince U.S. decisionmakers that the Soviets are or are not violating the INF treaty limits, the United States may still request an OSI for domestic or international political reasons.

[redacted] OSI Decisionmaking Process.

[redacted] Because of the need to plan for two different types of OSI requests--routine and site-specific--this study recommends the adoption of a flexible decisionmaking process that plans routine OSI requests, but also allows initiating nonroutine OSI requests triggered by developments at specific sites.

[redacted] The OSI decisionmaking process could employ an annual schedule for allocating the agreed number of OSIs among designated Soviet SRINF sites. This plan could be formulated at the interagency working committee level, contingent on approval from higher levels. Its main purpose would be to establish a baseline for allocating OSI visits on a routine basis over the course of the year. [redacted]

CIA, DOS (b)(1) + (b)(3)

[redacted] The interagency group also should have the responsibility of recommending nonroutine OSI requests triggered by NTM discovery of suspicious activity at designated sites. [redacted]

CIA + DOS (b)(1) + (b)(3)

[redacted] Final authorization for nonroutine OSI should be made at a higher level, such as the Verification Panel, with recognition of the value of making a time-urgent OSI request. [redacted]

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[redacted] OSI NOTIFICATION AND ENTRY PROCEDURES.

[redacted] The second major phase in the OSI process concerns the procedural and logistical arrangements necessary for the inspection team to arrive at the designated site. To implement a viable OSI regime for SRINF systems, the United States and the USSR must agree on formal rules to govern the transit of OSI teams to the selected site. The major steps in this sequence are:

- Advanced notification
- Arrival at the entry point
- In-country transit to the site.

In addition to bilateral procedural arrangements, each step requires certain logistical support for the OSI team.

[redacted] To initiate the OSI process, the United States will give the USSR advance notice of its desire to undertake an OSI. Advance notice permits the side being inspected to prepare to receive and escort the OSI team once it crosses the national boundary. Ideally, to enhance the utility of OSI for treaty verification, one would want to minimize the time spent gaining access to the site. Real world constraints, however, include the time to make decisions, to transmit and reply to notification, and to travel to the site. More important, to avoid accidental security breaches, each side would want sufficient time to alert the site personnel and others of the pending arrival of an OSI team.

[redacted]

CIA + DOS (b)(1) + (b)(3)

DIA (b)(1)

[redacted]

[redacted]

[redacted] DIA (b)(1)

CIA DOS (b)(1) (b)(3)

[redacted] Advanced notification of an OSI visit could potentially reduce the effectiveness of OSI for detecting treaty noncompliance by giving the Soviets time to remove or conceal evidence of violations occurring at the SRINF site. Reducing the time-to-site for the American OSI team increases its chances for finding at least circumstantial evidence of a treaty violation. One possibility for reducing the time available to the USSR is to postpone declaring the exact Soviet SRINF site to be inspected as long as possible. If this announcement can be postponed until the OSI team arrives at the Soviet or Warsaw Pact entry point, Soviet knowledge of the particular site to be inspected could be reduced by several hours.

[redacted] Another means for limiting the USSR's reaction time in response to an OSI request is to oblige the treaty parties to stand down at the specified site until after the inspection. In its purest form, the stand-down concept would require the USSR to prepare for the inspection by ceasing regular activity at the declared site and by ordering any subunits out on local training exercises to return immediately to the base. A variety of stand-down arrangements are conceivable. They can vary mainly in the levels of activity they permit during the inspection and whether subunits training outside the site must return to base or simply remain in place. In addition to easing treaty verification, this plan would create a Soviet disincentive to delay the American OSI team's progress because it simply adds to the training and maintenance time lost to the Soviet SRINF unit.

[redacted] Travel of the OSI team to and within the country being inspected will be tightly controlled. If the team arrives from another country, their access is likely to be restricted to a few entry points.

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In the Soviet case, the entry point may be one of several civilian airfields.

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CIA
(b)(1) +
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DOS
(b)(1) +
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[redacted] LOGISTICAL SUPPORT ARRANGEMENTS.

[redacted] To be effective, an OSI regime also must be supported by a logistical system capable of adequately training, basing, equipping, and transporting American OSI teams. Three questions are particularly important for developing the necessary logistical support arrangements:

- Where should the OSI team be based?
- Whose transportation assets should they use?
- What equipment does the OSI team require to inspect a Soviet SRINF site?

[redacted] OSI Team Basing.

[redacted] The location of operational bases for U.S. OSI teams should minimize the time spent traveling to Soviet SRINF sites. Two main alternatives exist. One is to base OSI teams at locations in the USSR and in Warsaw Pact countries. Enjoying a status similar to a military attache's, American OSI personnel would work under the auspices of the U.S. embassy structure in each country possessing Soviet SRINF sites limited by the INF treaty. Presumably, OSI teams would be attached directly to the embassy in each country and possibly to a few consulates. This arrangement would eliminate special entry point arrangements and would reduce the overall transit time for the OSI team.

[redacted] If for political or security reasons in-country basing of OSI teams is unacceptable, then the United States should consider establishing forward bases for OSI team operations. Located in allied countries, such as the Federal Republic of Germany (FRG), Turkey, and Japan, these bases would minimize travel time to foreign entry points, compared to travel from CONUS bases. [redacted] Most likely, units supporting the OSI teams would be established at current U.S. military bases to benefit from existing logistical infrastructure and security arrangements. In traveling to East Germany entry points, OSI teams could use ground transport. They would require aircraft to reach entry points in other NSWP countries and in the Soviet Union.

CIA (b)(1) + (b)(3)

[redacted]

[redacted]

[redacted] OSI Transportation Assets.

[redacted] One of the major questions is whether the American OSI team, once it arrives at the entry point, should use U.S. or foreign transportation assets to proceed to the SRINF site. Employing U.S. air and ground transportation would eliminate the possibility of equipment failures as excuses for delaying the American OSI team's transit to the selected SRINF site. If a violation has occurred at the site, a delay could allow time to remove or cancel it. Even if no violation has occurred, such delays would harass U.S. inspectors.

[redacted] Despite natural preferences, reliance on American equipment would not guarantee OSI effectiveness and may even lessen it. Although using U.S. transportation assets would deny the USSR an obvious means for forestalling the U.S. OSI team, the Soviets have several other possibilities. For instance, officials could claim that adverse weather conditions prohibit aircraft flight to airfields near the selected SRINF site. Similarly, the OSI team's ground travel from the local airfield may be impeded by claims of a dangerous accident or a washed-out bridge.

[redacted] Equally important, the U.S. equipment itself would provide a pretext for Soviet delaying tactics. Under the OSI regime, each side is likely to have the right to examine the OSI team's equipment, including transport systems, to be assured that it is not intended for gathering collateral intelligence. Consequently, by inspecting meticulously each piece of equipment, the Soviets could delay significantly the OSI team's arrival at the SRINF site. If the Soviets are intent on delaying the OSI team, using American transport would not assure timely access to the SRINF site. Because U.S. equipment must be checked out, it could simply add time to OSI visits.

CIA + DOS (b)(1) + (b)(3)

[redacted]

[redacted] Another question concerns the possible need to provide in-country accommodations for the OSI teams during an inspection trip.

[redacted]

[redacted]

U.S. inspection of Soviet SRINF sites located in Eastern Europe probably would not require overnight accommodations in the host country. Because of the timelines associated with American OSI of SRINF sites located in the USSR, it would be necessary to negotiate arrangements for this contingency. Similarly, changing weather conditions and other unexpected problems occasionally may require the host country to provide extended accommodations to the OSI teams.

[redacted] OSI Team Equipment.

[redacted] To carry out its duties effectively once it arrives at the Soviet site to be inspected, the OSI team will require the use of various types of equipment. This equipment will support the American OSI team by assisting directly in inspecting the treaty-restricted objects or by facilitating the team's ability to record information to be reported back to high authorities. OSI equipment therefore can be functionally categorized as follows:

- Reference aids
- Viewing aids
- Recording aids
- Other support equipment.

Table 3-1 lists candidate equipment for an OSI team.

[redacted] The main restriction on the OSI team's equipment will arise from the other side's sensitivity to the possibility of collateral intelligence-gathering. Equipment that could be very useful in assisting the OSI team perform its duties may be unacceptable to the other side because of security or political considerations. Consequently, less effective substitutes must be identified and evaluated for use by the OSI team.

[redacted]

[redacted]

[redacted] Table 3-1. OSI Team equipment options.

[redacted]

Equipment Function		Equipment	Type
I.	Reference aids	Portable Global Positioning System Terminal map of local area/site compass	
II.	Viewing aids	Binoculars Day/night telescope Flashlight Spotlight	
III.	Recording aids	Notebook Clipboard or notebook with preprinted forms Still photo camera Movie camera Hand counter/calculator Measuring tape	
IV.	Other	Communications equipment Special clothing Personal toiletries Carrying cases/attache cases	

[redacted]

[redacted]

[redacted] Some reference aids may be necessary to orient the OSI team to the Soviet SRINF site. The OSI team will require a basic map or guide that lays out the site by identifying the essential facilities for launcher and missile storage and other relevant buildings. Additionally, it would be important to provide the OSI team with an independent means for determining their location to foreclose any possibility the Soviets could deceive the U.S. inspectors by taking them to the wrong site or delay the team by using a circuitous route. A civilian terminal capable of receiving the NAVSTAR navigational satellite updates would be very useful.

[redacted] To assist the OSI team in its inspection, various viewing aids should be considered. These aids would help mainly when inspectors are not permitted to observe at close quarters whether a shed or a building holds SRINF missiles or launchers. Because of the likelihood that some inspections will occur in conditions of poor visibility or at night, it is essential for the inspectors to have strong flashlights or other night vision devices. Although useful, magnifiers, such as binoculars and telescopes, may be less acceptable to the other side, particularly for SRINF sites collocated with unrestricted military units.

[redacted] Accurate recording aids are necessary for the OSI team to have any credibility in reporting its findings to higher authorities. At a minimum, inspectors should be permitted to take handwritten notes and to consult a reference notebook. The use of sophisticated cameras and recorders, however, will raise both sides' concern over the potential for collateral intelligence-gathering. Several alternatives may deal with this problem: (1) the use of unsophisticated devices; (2) an on-the-spot sharing arrangement of any recording outputs, such as duplicate photographs; and (3) increases in the number of OSI team inspectors.

[redacted] To some degree, restrictions on mechanical recording devices can be offset by relying more on detailed survey techniques and having more inspectors. By requiring three or four inspectors to certify a team judgment, it may be possible to reduce the need for sophisticated recording aids.

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[redacted]

[redacted] Finally, an important question concerns whose equipment the American OSI team would use. If the OSI team relies on its own equipment, then each article will be subjected to Soviet examination, and the United States will need to provide a duplicate set of equipment so the Soviets can choose one set for inspection. An alternative scheme would be to use equipment provided by the USSR, although concerns of deliberate and unintended equipment failure could be a problem. Another possibility would be for both countries to use equipment maintained and provided by an acceptable nontreaty party, such as Austria or Switzerland.

[redacted] THE UTILITY OF OSI FOR TREATY VERIFICATION.

[redacted] Evaluating OSI's potential contribution to verifying the U.S.-proposed INF treaty is difficult for two reasons. First, any assessment must consider the utility of the OSI regime's for detecting and deterring a wide range of possible Soviet treaty violations. Second, the effectiveness of an OSI regime depends critically on assumptions about its specific modalities, such as the OSI team's access to facilities within the designated SRINF site.

[redacted] Verification Roles for OSI.

[redacted] Along with various national technical means of verification, OSI seeks to support treaty verification by several means:

- Resolving ambiguities that otherwise could erode confidence in treaty compliance
- Deterring treaty noncompliance by increasing the risk of detection or by complicating possible evasion schemes
- Detecting treaty violations as early as possible to provide time to protect the nation's security.

In the context of U.S.-Soviet agreements, it is unrealistic to judge OSI's contribution to treaty verification in isolation. OSI instead is one of several mutually supporting instruments for verification. Not surprisingly, NTM using a wide range of photographic, electronic, and

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human intelligence sources, is considered the main means for monitoring INF treaty limits on Soviet systems. By relying on various passive cooperative measures, such as missile counting rules, the United States can enhance further the effectiveness of NTM for verification. In contrast, on-site inspection is considered an active cooperative measure because of its potential for providing information on treaty compliance beyond that available from NTM. OSI, however, does not substitute for NTM's extensive coverage, its general responsiveness, and its relative acceptability to other countries.

[redacted] An on-site inspection regime does, however, offer certain unique qualities for monitoring INF treaty provisions. The main advantage of an OSI regime is its ability to place inspectors or technical sensors close to the objects being limited. This proximity provides certain unique monitoring opportunities and complicates seriously any evasion scheme. OSI allows monitoring objects or activities located within buildings or under shelters that prevent their observation by NTM. OSI also can be employed against Soviet SRINF sites during periods of unfavorable weather conditions for NTM systems. Finally, if permanently located at Soviet facilities, both human observers and technical sensors offer the capability for continuous monitoring of treaty-restricted SRINF sites.

[redacted] The possible advantages of OSI complementing NTM capabilities for treaty verification are offset somewhat by certain inherent shortcomings. Any OSI regime between adversary nations is likely to permit only very limited access to military facilities. Such constraints arise both from an understandable political sensitivity to the presence of foreign inspectors on a nation's territory and from a concern that OSI visits might be used for collateral intelligence-gathering. A requirement for reciprocity further constrains the type of OSI regime a country is willing to propose.

[redacted] Another potential problem for any OSI regime is the possibility that the other side will attempt to spoof, or at least to harass, the OSI team during the performance of its duties. Harassment could occur in several forms, including unwarranted delays or unnecessary hardships for OSI team members. This problem can be limited

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somewhat by working out OSI procedures beforehand to minimize Soviet opportunities for harrassment. Ultimately, the main deterrent to undue harassment is the Soviet OSI team's susceptibility to similar difficulties created by the West.

[redacted] A more serious problem is the potential for Soviet spoofing aimed at getting the United States to employ one of its OSI visits needlessly. The USSR could have several different motives for engaging in such activities: to compel the United States to use up its limited number of OSIs; to inhibit American OSI use by instilling self-doubts into the verification process; or to gain intelligence about U.S. NTM monitoring capabilities. To some degree, a pattern of Soviet spoofing would provide the United States with a possible indication of a Soviet interest in treaty noncompliance or at least an unwillingness to adhere to the treaty limits in good faith. [redacted]

CIA + DOS (b)(1), (b)(3)

[redacted]

[redacted] The Range of Possible SRINF Violations.

[redacted] As noted, an OSI regime's utility must be assessed against a range of conceivable Soviet INF treaty violations. The proposed treaty would place various collateral limits on certain Soviet SRINF missile systems to minimize the possibility of shorter range nuclear missile systems circumventing reductions in the Soviet MR/IRBM force. Provisions in the draft treaty seek both to freeze the number of SS-12/22 and SS-23 missiles and launchers in existence and to prohibit certain qualitative upgrades, such as range increases or multiple warheads for these missiles.

[redacted] Distinguishing possible Soviet violations by geographical location is one way to view the many types of Soviet treaty violations that an OSI regime must be designed against. Possible SRINF violations can be categorized by the following categories.

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[redacted]

- Designated SRINF sites* identified by both sides in the treaty's memorandum of understanding
- Violations tied operationally to these designated SRINF sites with illegal deployments located in the general vicinity of the designated sites
- Violations occurring at suspect or covert sites that do not require any support from the designated SRINF sites.

[redacted] At each of these generic locations, the Soviets could violate proposed limits by deploying or stockpiling excessive numbers of SRINF missiles or launchers. In general, the Soviets would derive the greatest operational utility by deploying illegal missiles and launchers at the existing SRBM sites best equipped and manned to exploit these additional forces. At the same time, the United States would monitor these sites most closely and might have the right to undertake OSI at various designated SRINF sites, thereby posing a substantial risk of detecting any type of Soviet violation.

CIA, DOS (b)(1) (b)(3)

[redacted] The overall utility of an OSI regime for supporting treaty compliance, therefore, may differ substantially, depending on which

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[redacted] The INF treaty memorandum of understanding would identify designated sites for production, testing, deployment, and storage of treaty-limited systems.

[redacted]

[redacted]

Soviet locations are open to U.S. OSI visits. If American OSI teams are restricted to inspecting only designated SRINF sites, then OSI will not be possible for a large proportion of potential locations for Soviet violations. For these sites, the United States would depend entirely on NTM to detect and confirm any Soviet treaty violations.

[redacted] Verification Effectiveness of OSI.

[redacted] The other major consideration in evaluating the utility of OSI for treaty verification is the OSI regime itself. The verification effectiveness of using OSI to deter or to detect potential Soviet SRINF violations can vary greatly, depending on whether the envisioned OSI regime is ideal or whether it is more realistic. If maximized for verification effectiveness, an OSI regime for Soviet SRINF should possess the following characteristics:

- Direct assess to all missiles and launchers
- The right to inspect not only designated sites but also any other facilities capable of storing SRINF missiles and launchers
- Frequent inspections by American inspectors making maximum use of U.S. equipment
- Minimal delays in arriving at the site to be inspected.

With these characteristics, an OSI regime could make major contributions to verifying Soviet compliance with proposed limits on SRINF deployments. The provisions of any OSI regime negotiated between adversaries, however, is likely to be far from ideal. In practice, inevitable constraints arising from resource limitations, procedual problems, and transit times will limit its effectiveness.

[redacted] Even more important is the reluctance of U.S. decisionmakers to grant the Soviets a reciprocal degree of access to American military facilities commensurate with those needed for an ideal OSI regime. U.S. concern over exposing sensitive military technologies and operations to Soviet inspectors constrains the types of OSI arrangements the United States will propose or accept. Various domestic legal questions and

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NATO alliance sensitivities further compound inhibitions on how far the United States is willing to go for verification effectiveness. Finally, an OSI regime must be acceptable to both sides.

[redacted] Unlike NTM, an OSI regime is inherently constrained by its direct dependence on the cooperation of another treaty party to function properly. This basic condition dictates a more modest expectation about what OSI itself can do to improve INF treaty verification. Alternatively, as an adjunct to existing and projected NTM capabilities, an OSI regime might enhance U.S. confidence in performing the three main tasks associated with treaty verification:

- Resolving ambiguities
- Deterring treaty noncompliance
- Detecting treaty violations.

[redacted] Resolving Ambiguities.

[redacted] Inevitably, NTM monitoring of Soviet activities will raise questions about Soviet compliance. By helping to clarify ambiguous events identified by NTM, on-site inspections can contribute to U.S. confidence that the Soviets are complying with the INF treaty limits at the designated sites. In this role, OSI would directly support NTM by helping to resolve questions that NTM alone may not be able to settle. Of course, U.S. inspections can not resolve every question, and OSI will help only where it is permitted. Nonetheless, OSI can play an important positive role in treaty verification by minimizing unfounded U.S. doubts on the viability of the INF treaty.

[redacted] Deterring Treaty Noncompliance.

[redacted] The other two verification tasks--deterring treaty noncompliance and detecting violations--are clearly interrelated. Unless the Soviets perceive an OSI as capable of actually detecting a treaty violation, OSI will not pose a credible deterrent to Soviet noncompliance. Neither OSI nor NTM, however, can absolutely guarantee detecting and hence deterring every conceivable Soviet treaty violation. Instead, they seek to counter any Soviet consideration of treaty

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noncompliance with the highest possible risk of detection. On-site inspection would help to complicate Soviet cheating scenarios at sites where it is permitted. By being able to place inspectors or technical sensors near the limited objects, the United States adds to Soviet uncertainties about the chances for successful deception and increases the USSR's potential costs for minimizing the risk of U.S. detection.

[redacted] Detecting Treaty Violations.

[redacted] Ultimately, OSI must be assessed in light of how it contributes to detecting possible Soviet INF treaty violations. OSI's potential effectiveness in detecting violations must be carefully qualified in at least three respects. The first is the limited duration of an OSI visit. Unless the OSI regime features continuous monitoring of Soviet SRINF sites by U.S. manned control posts or unmanned sensors, the information is accurate only for the brief time the U.S. team is at the site. Therefore, OSI can give no real assurance of Soviet treaty compliance before and after the inspection.

CIA, DOS, (b)(1), (b)(3)

[redacted]

[redacted] The final factor influencing OSI effectiveness concerns the probability of success in actually detecting a treaty violation once the American OSI team arrives at the Soviet SRINF site. If the USSR is deliberately undertaking a treaty violation at a designated site, then it is highly unlikely that the Soviets would allow the U.S. team access

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to the site while the violation is still there. The cost of being caught red-handed in a treaty violation by foreign inspectors is too high a political price for almost any country to pay.

[redacted] Because of the OSI team's dependency on the cooperation of the other treaty party, the USSR would have several opportunities to impede the OSI process. Any delay need be only long enough to allow the Soviets to conceal or to remove the illegal SRINF equipment from the site to be inspected. This is not to suggest that on occasion an OSI team might not discover undeliberate or administrative violations. Such incidents would include unintended violations of the INF treaty limits arising from an administrative error, a technical misunderstanding in the treaty language, or even the result of the unsanctioned actions of subordinates.

CIA + DOS (b)(1), (b)(3)

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DAMO-ODO (b)(1)

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CIA, DOS (b)(1), + (b)(3)

DIA (b)(1)

DAMO ODO (b)(1)

[redacted]

[redacted] SUMMARY.

[redacted] Manned OSI visits can potentially enhance verification of Soviet treaty compliance. An OSI regime in itself, however, will not

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eliminate any of the major INF treaty verification problems facing the United States.

[redacted] Several inherent factors constrain the utility of OSI as a verification instrument. OSI's intrusive nature limits substantially the degree of access to foreign inspection that a country will propose or accept in a treaty. In addition, the verification utility of OSI is limited only to those sites or areas where it is allowed.

CIA DOS (b)(1), (b)(3)

[redacted]

DAMO-ODO (b)(1)

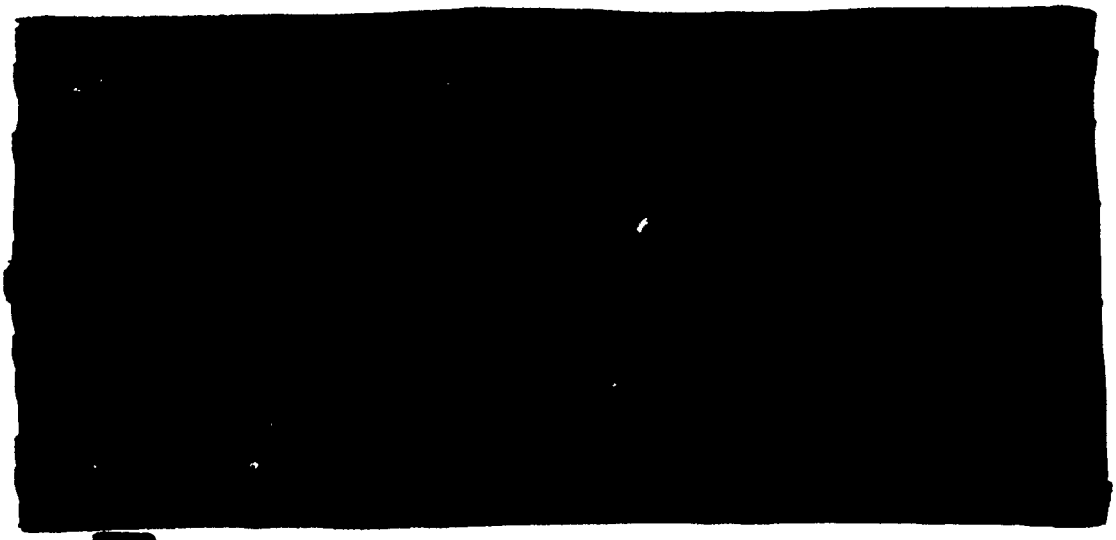
[redacted]

[redacted]

SECTION 4

[redacted] VERIFICATION ISSUES RELATED TO AN ON-SITE INSPECTION REGIME FOR SOVIET SRBM DEPLOYMENTS

DIA (b)(1)
CIA + DOS (b)(1), (b)(3)



[redacted] Successful treaty monitoring involves constructing a multilayered verification regime composed of increasingly intrusive methods of inspection. Although the current proposed treaty requires more intrusive measures than have been employed in arms agreements to date, it does not follow that an inspection method increases in utility in proportion to its intrusiveness. For example, no OSI regime based on realistic parameters for resources and sensitivities of signatory countries could replace national technical means (NTM) for providing baseline verification data for all limited systems.

[redacted] A major focus of this section is upon interaction among monitoring methods. To allow assessment of various combinations, the section explores in a modular fashion various measures, beginning with NTM and culminating in detailed OSI procedures. The subject matter is Soviet SRBMs specifically, but most of the work applies to Soviet mobile land-based missiles in general.

[redacted]

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[redacted] TREATY VERIFICATION AND MONITORING.

[redacted] In this report, we define verification and monitoring as follows:

- Verification: "The total process of determining compliance with treaty obligations in the context of safeguarding national security."*
- Monitoring: In an arms control context, monitoring is the task of collecting and analyzing information about Soviet systems limited by a given treaty. For our purposes, monitoring is the major input into the verification process.

[redacted] This definition of the process of verification implies two related but distinct sets of activities.

- Determining Compliance with Treaty Obligations: This process involves detecting and resolving questions about activity that one or both parties to an agreement think contradicts the letter or the spirit of the treaty. To assure treaty compliance, a verification regime must generate high levels of confidence for detecting any violation.
- Safeguarding National Security: This concern focuses on violations that would significantly alter the balance of power (e.g., breakout). This process involves preventing (through either early detection or deterrence) a militarily significant violation of an arms control treaty.

[redacted] Violation Typology.

(U) A verification regime must deter or detect three basic violations of the SRBM freeze.

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*[redacted] Report of the President's Commission on Strategic Forces, April 1983, p. 29.

[redacted]

[redacted]

- Violations at operational sites: An illegal increase in missiles or transporter-erector-launchers (TELs) at designated facilities where SRBM-related activity is known to occur.
- Violations tied to operational sites: An illegal SRBM force operating near a designated site and periodically cycling through the site's facilities for repair and maintenance.
- Violations at covert sites: The maintenance of an illegal force operationally separate from all components of the legal operational infrastructure.

[redacted] Monitoring Goals.

[redacted] Monitoring activities must recognize the dual nature of the verification regime. Figure 4-1 illustrates the confidence scale for monitoring and detection used by the United States for past and current arms control negotiations. These confidence levels have been adopted for this report to judge the ability to detect violations and to gauge the amount of uncertainty associated with various inspection methods.

[redacted] Given the dual purpose of verification, monitoring goals and confidence levels must conform to the following parameters:

- Treaty compliance: Assure compliance by achieving the capability to detect any violations of the SRBM freeze with high confidence (i.e., 90 percent to 100 percent chance of detection)
- Safeguarding national security: Prevent a militarily significant violation of the SRBM freeze by examining the SRBM stockpile-to-target sequence infrastructure for evidence of SRBM force expansion. Confidence levels for early detection of an attempted breakout should be in the high-moderate to high ranges (i.e., 75 to 100 percent).

CIA + DOS (b)(1) + (b)(3) DIA (1.1)

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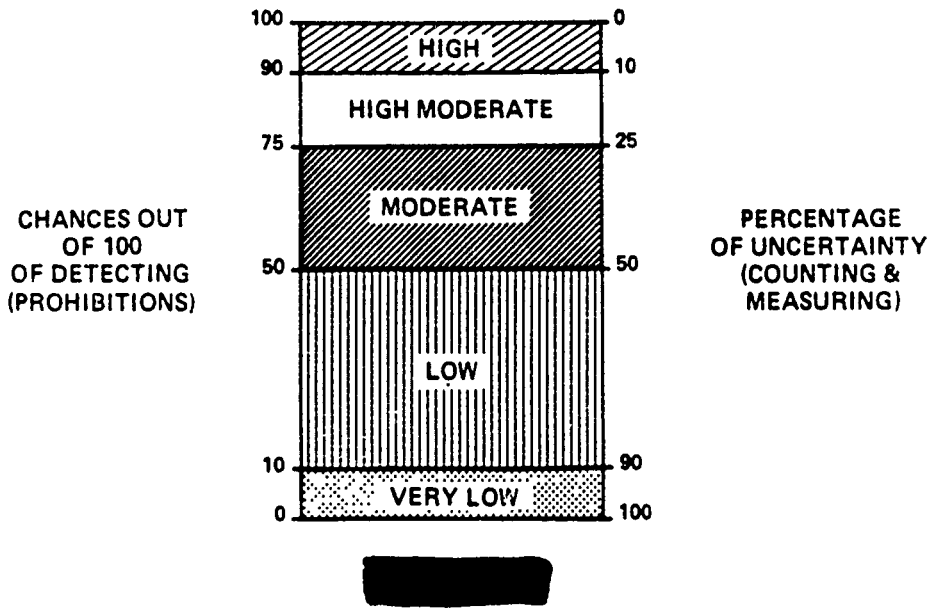

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[redacted] Figure 4-1 Scale for measuring monitoring and detection confidence

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[redacted] VERIFICATION CONCEPTS FOR SOVIET SRBM LIMITS.

[redacted]

[redacted] These facilities and their locations should be included in an agreed data base derived from U.S. NTM and data exchanges with the Soviet Union. This data base would become the basic inventory document

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for verifying the SRBM freeze, with the facilities referred to as designated sites. In addition to installations, the data base should include, at a minimum, the number of missiles and TELs deployed at each facility identified in the document. Periodic updates to the data base should reflect retirement and modernization of SRBMs and related equipment as well as changes in the number of missiles and TELs deployed at various installations.

DIA (b)(1)

CIA x DOS (b)(1) x (b)(3)

DIA (b)(1)

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Pages 69 through 76 inclusive are deleted.
DIA (b)(1); CIA (b)(1), (b)(3)
DOS (b)(1), (b)(3).

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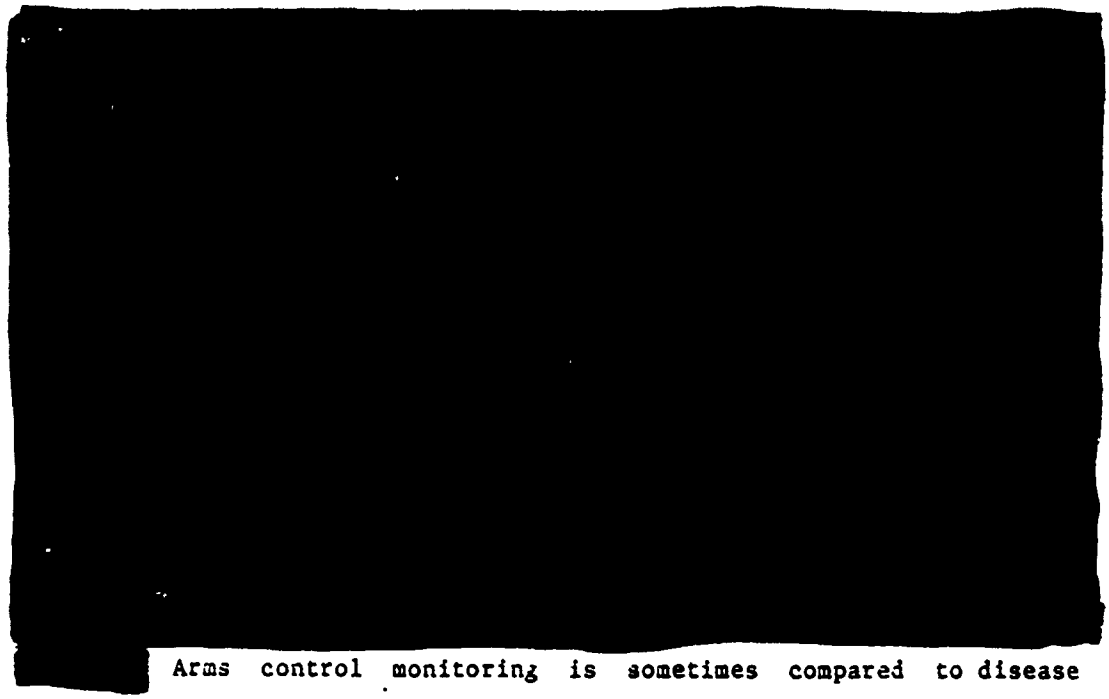
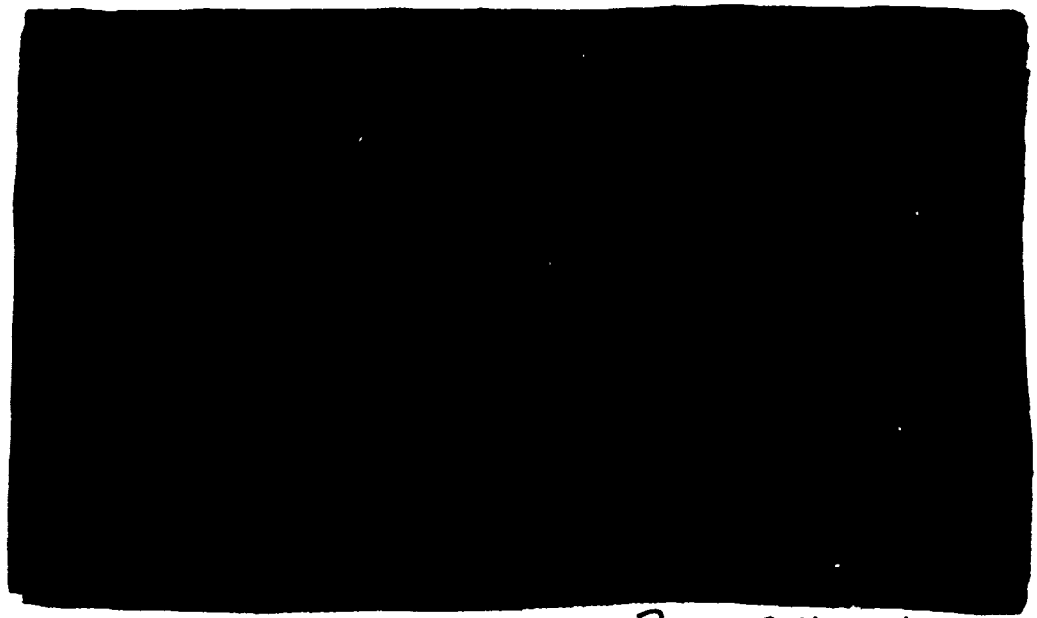
DIA (b)(1)

CIA + DOS (b)(1) + (b)(3)



Arms control monitoring is sometimes compared to disease control. The circular and exercise DDAs can be thought of as efforts to contain an infection with sanitary barriers. Isolating garrisons and technical installations decreases the chances of the infection spreading to other areas. Some additional measures applied within the DDAs, however, should minimize opportunities for violations inside DDA territory.

CIA + DOS (b)(1) + (b)(3)



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CIA, DOS, & DIA (b)(1) + (b)(3).

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SECTION 5

[redacted] RECIPROCAL IMPLICATIONS OF OSI FOR U.S. PERSHING DEPLOYMENTS

[redacted] Planning for any on-site inspection regime must consider the reciprocal impact upon U.S. forces. Otherwise, an OSI process may optimally assist verification, yet in practice impose unacceptable costs on the readiness, responsiveness, and even the survivability of U.S. nuclear systems. Similarly, the deployment characteristics of treaty-limited systems on both sides will determine many of the parameters of the OSI process. Also, to be negotiable, an OSI regime should avoid imposing unequal degrees of intrusiveness and operational disruptiveness on essentially asymmetrical forces.

[redacted] This section assesses potential problems associated with Soviet on-site inspections at U.S. Pershing missile facilities in the Federal Republic of Germany (FRG). Since this report concerns Soviet SRINF systems, it is appropriate to consider the reciprocal implications of Soviet inspections of Persning Ia (PIa) facilities and deployments. This analysis makes no assumptions about whether PIa's will remain deployed in Europe or how they would be covered by the INF treaty. Many of the findings would apply to any OSI process that would affect Persning II (PII) deployments or possible future Pershing Ib's as well.

[redacted] U.S. PERSHING DEPLOYMENTS.

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DIA (b)(1)

CIA (b)(1), (b)(3)

DOS (b)(1)

Pages 121 + 122 are deleted.
DIA (b)(1); CIA (b)(1)
DOS (b)(1); DAMD-SSP (b)(1)
DNA (b)(3).

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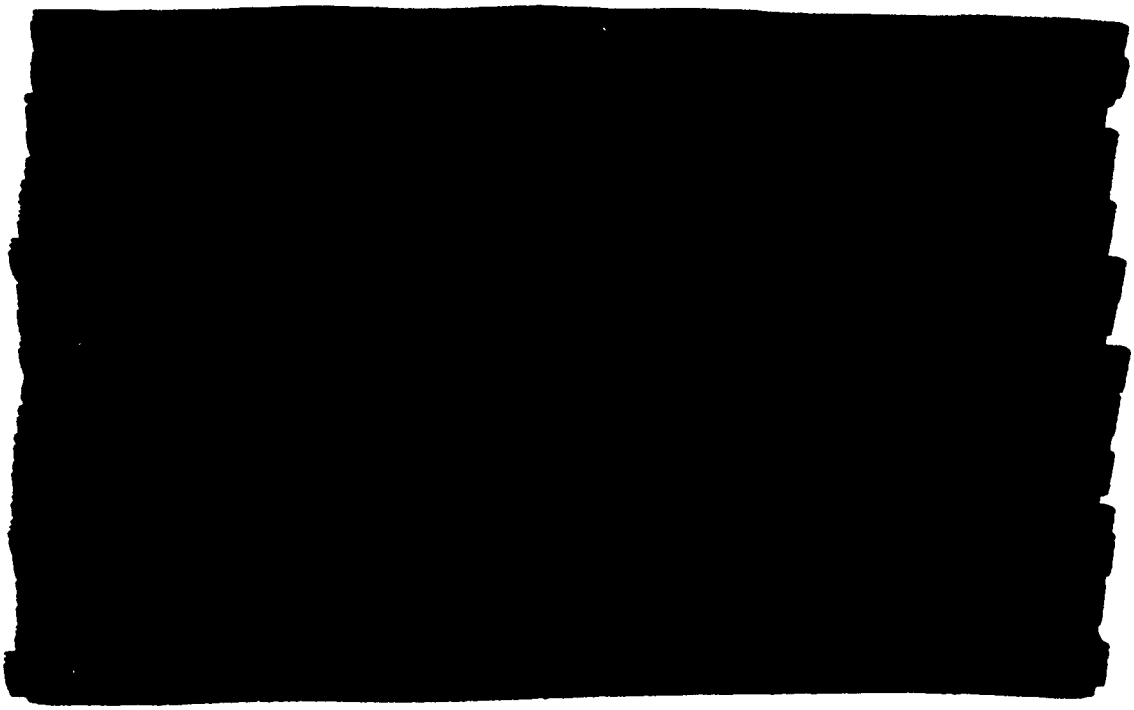
CIA + DOS (b)(1)

DAMO-SSP (b)(1)



[redacted] OPERATIONAL IMPACT OF AN OSI REGIME.

[redacted] Any OSI regime that allows Soviet inspectors into Pershing missile sites would significantly affect operations while the inspectors are present. Maintenance and repair, countdown training, movements of the maneuver battery, and the transition of batteries to a different deployment stage would halt during the inspection. Pershing personnel undoubtedly would regard this stand-down of operations as an annoying nuisance. Tailoring the parameters of these inspections, however, can minimize the impact of this process on Pershing readiness and training and, ultimately, responsiveness and survivability.

[redacted] Consider, for example, the most intrusive scenario: the Soviet government requests an OSI, or series of OSIs, to account for all the missiles in one Pershing battalion, and the treaty allows the Soviet inspection team to visit any site where erector-launchers and missiles are located. In this case, the Soviet inspectors would visit all

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[redacted]

Pershing-related sites: the unit kaserne, the missile garrison, the QRA site, and the local or tactical training areas.

[redacted] Kasernes.

At the unit kaserne, the major interest would be the maintenance facility, where any or all of the erector-launchers of the release battery may be undergoing automotive maintenance. The inspectors could inspect the rest of the kaserne to verify that there are no unaccounted missiles or erector-launchers.

[redacted] Missile Garrisons.

[redacted]

CIA + DOS (b)(1)

[redacted] QRA Sites.

[redacted]

DNA (b)(3)

[redacted]

[redacted]

[redacted] DNA (b)(3)

[redacted] if the batteries receive notice of the inspection the day before, however, they would be able to delay the transition a day or two without any significant impact on Pershing readiness.

[redacted] Major Exercises.

CIA + DOS (b)(1)

[redacted]

[redacted] COLLATERAL INTELLIGENCE CONCERNS.

[redacted] The concern that the Soviets could gain valuable collateral intelligence through on-site inspections should be balanced by two considerations. First, whatever the Soviets may gain should be weighed against the value of U.S. inspections at their facilities. Second, Pershing deployments and operations are highly visible to the local

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[redacted]

populace and thus to Soviet agents. QRA operations, in fact, can be observed from public trails running along the perimeter of the site.

[redacted] Any inspection of a missile garrison would reveal how many missiles and erector-launchers are undergoing maintenance. Anything more relating to readiness would be difficult to observe because the force would be in a stand-down condition. Nevertheless, U.S. personnel should escor inspectors, and the Pershing units should receive notice so that they can halt or postpone any sensitive operations. Sensitive technologies inside the nuclear warheads and guidance systems would not be patent to Soviet inspectors.

[redacted] EXEMPTIONS.

[redacted] In addition to major exercises, other aspects of Pershing operations as well as possible contingencies should be weighed as cause for exemptions.

CIA + DOS (b)(1)

[redacted]

[redacted] A fire or other serious accident within a facility, making an inspection inconvenient, could be grounds for exemption. This

[redacted]

[redacted]

provision, however, could open up a loophole because an accident could be fabricated to prevent an inspection.

[redacted] COUNTING REGIME PROBLEMS.

[redacted] Verification of Inventory Limits.

[redacted] Any counting regime for mobile missiles has inherent problems stemming from deployment dynamics. Exchange of units between sites and fluctuating missile-launcher populations at specific sites complicate verification of inventory limits.

[redacted]

CIA (b)(1) DOS (b)(1)

[redacted]

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CIA (b)(1)
DOS (b)(1)

[redacted]

[redacted] Empty Missile Cannisters.

CIA (b)(1)
DOS (b)(1)

[redacted]

The cannisters for each section of the missile, however, are different sizes, making it possible to designate one section as the unit of count. A statistical methodology could determine a minimum percentage to open to give a sufficient probability of detecting a violation. (PII cannisters need a crane to open, but they also have access ports, which might ease determining that they are empty.)

[redacted] Reserve Missile Storage.

CIA (b)(1)
DOS (b)(1)

[redacted]

[redacted] SUMMARY.

[redacted] The major impact of an OSI regime upon U.S. Pershing forces would be operational: a stand-down of the units under inspection could interrupt alert exercises as well as training and maintenance, delay a transition of batteries at a QRA site, and possibly cause a recall of

[redacted]

[redacted]

units in the tactical training areas back to the missile garrisons. Over the course of a year, however, the impact upon Pershing readiness would appear to be marginal.

[redacted] Concerns about collateral intelligence should be weighed against the benefits of U.S. inspections of Soviet facilities. The normal high visibility of Pershing operations and the stand-down of the units during inspection are factors that mitigate against the risk that sensitive Pershing operations and technologies may be compromised during an OSI.

[redacted] The method of accounting for missile populations must allow for fluctuating numbers at specific sites and for the use of two QRA sites by three distinct battalions. This problem can be resolved by the concept of MOB complexes and a requirement for notification of a transition of units between each complex.

[redacted] Population sampling methods could lessen the necessary scope of the inspection of empty cannisters for Pershing missile sections and the inspection of the Weilerbach storage facility.

[redacted] Major exercises outside of designated deployment areas could be exempted from inspections, provided that such exercises are limited in number and duration and require advance notice.

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CIA (b)(1)

[redacted]

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[redacted]

GLOSSARY

ABM	Antiballistic missile
ACDA	Arms Control and Disarmament Agency
AEC	Atomic Energy Commission
BCC	Battery control central
CAS	Combat Alert Status
CC&D	Camouflage, concealment, and deception
CFFP	Covert field firing position
CG	CLOUD GAP
CONUS	Continental United States
CTB	Comprehensive test ban
DDA	Designated deployment area
DNA	Defense Nuclear Agency
EL	Erector-launcher
FA	Field Artillery
FRG	Federal Republic of Germany
FROG	Free rocket over ground
FT	Field Test
GARS	Garrison Alert Readiness Status
GCD	General and complete disarmament
GSE	Ground support equipment
GSFG	Group of Soviet Forces, Germany
HQ	Headquarters
IAEA	International Atomic Energy Agency
ICBM	Intercontinental ballistic missile
INF	Intermediate-range nuclear forces
IOC	Initial operational capability
IRBM	Intermediate-range ballistic missile
LOC	Line of communication
LRINF	Long-range INF
LTBT	Limited Test Ban Treaty
MD	Military district
MBFR	Mutual and balanced force reduction

[redacted]

[redacted]

MIRV	Multiple independently targetable reentry vehicle
MLM	Military Liaison Mission
MOB	Main operating base
MRBM	Medium-range ballistic missile
NBS	National Bureau of Standards
NPT	Non-Proliferation Treaty
NSWP	Non-Soviet Warsaw Pact
NTM	National technical means
OB	Order of battle

[redacted]

OSI	On-site inspection
PCC	Platoon control central
PI	Pershing I
PII	Pershing II
PNE	Peaceful nuclear explosive
PNL	Prescribed nuclear load
POL	Petroleum, oil, and lubricant

[redacted]

PSP	Priority Strike Plan
PSR	Pacific-Sierra Research
QRA	Quick Reaction Alert
RSGF	Reference scene generation facility

[redacted]

SACEUR	Supreme Allied Commander Europe
SALT	Strategic arms limitation talks
SAM	Surface-to-air missile
SCC	Standing Consultative Commission
SDV	Strategic delivery vehicle
SIGINT	Signal intelligence
SLBM	Sea-launched ballistic missile
SNDV	Strategic nuclear delivery vehicle
SRBM	Short-range ballistic missile
SRINF	Short range INF
SSM	Surface-to-surface missile
START	Strategic arms reduction talks

[redacted]

[redacted]

TEL	Transporter-erector-launcher
TNF	Tneater nuclear force
TO&E	Table of organization and equipment
TTB	Threshold Test Ban [Treaty]

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APPENDIX A

U.S. CLOUD GAP/FIELD TEST PROGRAM

[redacted]

The U.S. government undertook various on-site inspection tests as part of the initial ACDA-DOD CLOUD GAP (CG) series or, subsequently, ACDA's Field Test (FT) program. This list was adapted from the U.S. Arms Control and Disarmament Agency, Documents Published by the Field Operations Division, Weapons Evaluation and Control Bureau, Washington, D.C.: U.S. ACDA, August 1969 [redacted]

CG-3 (1963-64) Resident Inspection of an Army Installation. This, the first test in the program, was conducted at Fort Hood, Texas between October 1963 and March 1964. It investigated the inspection and inventorying of armored (tracked) vehicles by small teams of resident inspectors.

CG-3A (1963-64) Aerial Photographic Surveillance of an Army Installation This test was conducted in conjunction with CG-3 at Fort Hood. The success of aerial photographic surveillance in detecting and identifying armored vehicles in garrison and in training areas was measured for a range of aircraft altitudes.

CG-12 (1964) Military Activity Monitoring. This test involved ground observation posts, fixed and mobile, airborne observation, and aerial photographic and other sensor reconnaissance. Measured was the success of these techniques in monitoring the large troop and equipment movements of the 1964 military maneuver DESERT STRIKE.

CG-9(A) (1964-65) Inspection of SNDV Production. This test was conducted between September 1964 and March 1965 at four facilities involved in the production of Polaris and Titan

[redacted]

[redacted]

missiles. The test developed and evaluated several inspection methods for determining by visual observation the amount of strategic missile production. This test was in support of the U.S. proposal of 1964 for a verified freeze of the number and characteristics of SNDVs.

CG-13 (1965) Inspection of Retained Levels of General Purpose Air Forces. This test was conducted at 12 Air Force tactical, Marine, and municipal airfields in the south Atlantic states during September and October 1965. Inspection methods, including resident, intermittent, aerial observation, aerial photographic, and unattended sensors, were tested and evaluated in terms of their success in inventorying military personnel, aircraft, and facilities.

FT-4 (1966) Inspection of Retained Levels of Ground Forces. This test conducted at four U.S. Army posts during May and June of 1966 evaluated intermittent on-site inspection. It measured the success of 1-day inspections by various size teams, operating on the ground and in observation aircraft, in determining the numbers of military personnel and major items of armaments present on portions of these posts. The portions represented European casernes.

CG-17 (1966) Phase I Field Survey: Inspection of Strategic Delivery Vehicle Production and Shipment. This was a survey of selected aircraft and missile production facilities, conducted during September through November 1966, as a follow on to CG-9(A). The survey determined the applicability of the CG-9(A) results to these different facilities and made recommendations regarding further field testing of inspection of strategic delivery vehicle production.

FT-1A (1967) On-Site Inspection for the Identification of Underground Nuclear Tests. This test was conducted during January

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[redacted]

through May of 1967 in Arizona and Nevada and involved three techniques--visual search, atmospheric gas sampling, and soil gas sampling--of on-site inspection for determining the cause (earthquake or underground nuclear test) of an unidentified seismic event. The test was in support of considerations for a comprehensive nuclear test ban. The effectiveness and operational factors of the inspection techniques were determined.

FT-34 (1967) Demonstrated Destruction of Nuclear Weapons. This test in support of the United States' consideration to transfer to peaceful uses fissionable material derived from the destruction of nuclear weapons as an arms control measure. The test was conducted at four U.S. Atomic Energy Commission plants during June through October 1967. The amount of classified weapon information exposed to the inspectors and the success of the inspectors in determining whether real nuclear weapons were being destroyed were measured.

DNA (b)(1)

[redacted]

FT-45 Tamper-Resistant Data Link. The purpose of FT-45 was to test and refine a tamper-resistant data link developed under an earlier ACDA contract and to evaluate its potential effectiveness as a part of a remote readout, unattended sensing system for arms control inspection. The test was conducted at the National Bureau of Standards (NBS)

[redacted]

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Laboratory in Gaithersburg, Maryland, with the assistance of NBS and the data link developer contractor. The test results indicate that the data link is, in fact, tamper resistant and tamper detecting is ready for integration into a complete system.

FT-62 (1969) Evaluation of Minor Isotope Safeguard Techniques (MIST) in Reactor Fuel Reprocessing. Special nuclear materials, plutonium and uranium enriched in the 235 isotope, must be adequately safeguarded if they are to be developed as economical power sources. Fuel reprocessing is a step in the fuel cycle that is particularly vulnerable to diversion, since the material loses identity when solid rods are dissolved. Minor isotopes of plutonium and uranium being processed may be sufficiently characteristic to provide the material's own "safeguard tag." Data collection to test the validity of this hypothesis was conducted by ACDA during the summer of 1969 at the facility at the Nuclear Fuel Services, Inc., West Valley, New York, in cooperation with AEC and IAEA.

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CIA (b)(1)

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APPENDIX B

[redacted] PERSHING FACILITIES, EQUIPMENT, AND DEPLOYMENT CYCLE

[redacted] PERSHING FACILITIES AND EQUIPMENT.

[redacted]

CIA (b)(1)

DOS (b)(1)

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CIA (b)(1)
DOS (b)(1)

[redacted]

[redacted]

[redacted] Nondeployed Missiles.

[redacted]

CIA + DOS (b)(1)

[redacted] Warhead Storage.

[redacted]

DNA (b)(3)

[redacted] Pershing Modification Facility.

[redacted] The Pershing Modification Facility is located at Fischstein, near Frankfurt. PIa erector-launchers are brought here for upgrading to make them compatible with PIIs.

[redacted] Table B-1 details the disposition of Pershing equipment at each U.S. site in the FRG.

[redacted]

[redacted]

Table B-1. Pershing equipment locations.

DNA (b)(3)

[redacted]

CONUS Facilities.

CIA (b)(1)

DOS (b)(1)

[redacted]

[redacted]

[redacted]

[redacted]

[redacted] DEPLOYMENT CYCLE.

[redacted] In peacetime, the four firing batteries in a battalion rotate through a four-stage deployment cycle consisting of a Combat Alert Status (CAS) and three stages of garrison alert readiness status (GARS). Each stage has a different mission and a different state of readiness.

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