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WORKING PAPER ON A MONITORED BAN ON THE
PRODUCTION OF LONG-RANGE BALLISTIC MISSILES

I. PROBLEM

A. To assess the technical feasibility of developing a system to detect violations of an international agreement which prohibits or limits production of long-range ballistic missiles.

B. To assess existing intelligence information and available collection techniques which may be applicable.

C. To determine the prerequisite and continuing conditions necessary to give a high assurance of detecting any Soviet violations of such an agreement.

II. CONCLUSIONS

A. A monitored ban on the production of long-range ballistic missiles is technically feasible provided the agreement includes a vigorous inspection system which guarantees complete access for observation and elicitation within all areas of the Sino-Soviet Bloc.*

B. The production ban and inspection system can operate effectively within the context of internationally controlled space research programs.

C. An agreement to ban production of long-range ballistic

* The necessary and desirable elements of such an agreement and inspection system are included in Annex A.

missiles must include safeguards against the diversion and adaptation of shorter range ballistic and air defense missiles.

D. A production ban must include as a prior condition a precise accounting of existing missile stockpiles. Intelligence probably will not be able to determine these numbers for early 1961 or 1963 with sufficient accuracy and high levels of assurance.

E. Current and projected intelligence collection assets alone will not provide a high assurance of detecting Soviet violations of a production ban.

III. ASSUMPTIONS

A. An international agreement to ban or limit the production of long-range missiles is effected during the period 1960-1963.

B. The Soviets will examine means, and may attempt, to circumvent whatever agreement is adopted.

C. This paper assumes neither agreement nor disagreement on the control of nuclear warheads.

D. For purposes of the production agreement "long-range ballistic missiles" include any ballistic missile with a capability to deliver a nuclear payload to a nominal range over 650 nautical miles.

IV. DISCUSSION

(This section outlines the general areas which may be detailed in a later draft to support the conclusions presented in Section II. It is intended to supplement this discussion with data as indicated in the Proposed Appendices, Section V.)

A. The alternative methods by which the Soviet Union might

circumvent an agreement which prohibits or limits production of long-range ballistic missiles.

1. Production, assembly and deployment of missiles and associated equipment clandestinely after mutual disarmament has been effected.

2. Negation of the short-term effect of a ban on production by clandestine storage of missiles and equipment already in being when mutual disarmament is implemented.

3. Masking of ICBM production within the activities of a large space exploration program.

B. The nature of the agreement to ban or limit production and the extent of missile activity and space research that may reasonably be permitted.

1. Relationship of a space program to capability to produce long-range ballistic missiles.

2. Relationship of other missile development programs to the production of long-range ballistic missiles.

3. Production involved in an agreement permitting limited stockpiles and troop training.

C. Elements of a control and inspection system.

1. Accountability for certain materials.

2. Accountability for rocket engines over 75,000 pound thrust.

3. Inspection of missile facilities:

(a) includes all ballistic and air defense

missiles facilities, and

- (b) should best be concentrated on missile and rocket engine facilities.

4. Surveillance within the Sino-Soviet Bloc to detect clandestine stockpiles or production of long-range ballistic missiles:

- (a) complete freedom of access, and
- (b) air and ground surveillance.

D. Intelligence Collection as related to a production ban and related inspection system.

1. Inability of determining total Soviet capability to produce long-range ballistic missiles.
2. Inability of determining ballistic missile stockpile.
3. [REDACTED] 25X1B4b□□
4. Intelligence collection techniques applicable to detecting Soviet violation.

V. PROPOSED APPENDICES

A. Current estimates give the USSR the following capability to produce long-range ballistic missiles:

<u>Range</u>	1961		1963	
	<u>As Programmed</u>	<u>Crash</u>	<u>As Programmed</u>	<u>Crash</u>
700				
1,100				
5,500				
Totals				

B. Estimate of the number of facilities involved, personnel

and breakdown of guided missile industrial program to support the above production estimates. Statement on how these would be affected by a ban which allows a space program but a) prohibits missile production, or b) limits long-range missile production to maintenance of an agreed stockpile.

C. Estimate of the number and size of the facilities and the number of personnel involved in covert production of 1, 10, and 20 missiles per month.

D. Estimate of the average numbers of missiles produced per month in the Soviet Union in Support of R & D, testing and troop training 1954-1959.

<u>Range</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>
700						
1,100						
5,500						
Space						
Research						

E. Estimate of the average number of rocket engines produced per month in the Soviet Union in support of R & D, testing and troop training 1954-1959.

<u>Thrust</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>
75,000 (
125,000 (
250,000 (
400,000 (

EXAMPLES ONLY

F. Estimate of the numbers of Soviet long-range ballistic missiles necessary to support maximum and minimum attack forces against U.S. and NATO target systems in 1961 and 1963.

ANNEX A

NECESSARY AND DESIRABLE ELEMENTS OF INSPECTION SYSTEMS
TO PROHIBIT OR LIMIT THE PRODUCTION OF
LONG-RANGE BALLISTIC MISSILES

The primary elements of two inspection systems are presented in this Annex. The system outlined in Case 1 would prohibit production of long-range ballistic missiles and could be assigned a reliability of 75-90%.* That outlined in Case 2 would limit the production of long-range ballistic missiles to an agreed level. Since this agreement might provide more of an opportunity for Soviet circumvention, it probably can not be assigned a reliability of more than 75%.

The various elements of these proposed inspection systems have been listed under headings Necessary and Desirable. It is understood that the elimination or reduction in scope of any of the Necessary elements of either proposal would severely decrease the indicated reliability factor.

For purposes of this paper the Necessary elements are those

* This proposed agreement is a slightly modified version of that contained in a CIA paper of 3 July 1958, Problems and Feasibility of an Inspection Program for a Possible US-USSR Agreement to Ban Production and Deployment of Long-Range Ballistic Missiles.

which must be met in order to provide 75% or greater assurance of detecting a violation of this agreement. Desirable elements are those which are desirable in order to bring the level of assurance to a higher level but which are not necessarily mandatory.

I. CASE 1. Necessary and Desirable Elements of an Inspection System to Monitor an Agreement Prohibiting Long-Range Missiles Production. (Assurance 75-90%)

A. Assumptions as to the Nature of the Agreement.

1. Stringent international control of the development, fabrication, testing or use of vehicles and rocket engines for space operations. Fabrication or production of space vehicles being limited to _____ per month.

2. A ban on the production of long-range ballistic missiles and limitation of rocket engine production to a rate that will adequately support the controlled space programs.

3. The prohibition of development and testing of long-range ballistic missiles.

4. The declaration of existing stockpiles and production facilities for all types of ballistic missiles, including long-range, short-range and air defense missiles. The agreement may or may not call for destruction of long-range missiles and production tooling.

B. Elements of the Inspection System.

1. Necessary

a. On the initiative of the inspection team, the right to periodic, immediate and unrestricted access and inspection of missile facilities and equipment, both declared and undeclared, to ascertain whether a long-range missile capability is being concealed.

b. The right to unrestricted access to and inspection of any other area, activity, or facility deemed suspicious.

c. The right to unrestricted aerial surveillance to detect possible violations of the agreement.

d. The right to unrestricted surveillance of the railroad and air transport systems and right to inspect suspicious shipments by any common carrier.

e. The right to station on Sino-Soviet Bloc territory the required number of US personnel and technical equipment and US logistic support (transportation equipment, communications, etc.) and freedom of movement needed to implement the inspection agreement.

2. Desirable

a. Precise accounting of all liquid and solid propellant rocket engines rated at more than 75,000 lb thrust.

b. If the destruction of existing stockpiles or production tooling is agreed to, the right to audit such destruction and the right to acquire representative samples of production missiles and components for technical and markings analysis.

c. Strict accountability for use of selected finished and semi-finished materials procured by rocket engine production facilities.

d. The right to unrestricted access to and inspection of shipyards capable of construction or modifying vessels for launching of missiles.

II. CASE 2. Necessary and Desirable Elements of an Inspection System to Monitor an Agreement Limiting but Not Prohibiting Long-Range Missile Production. (Assurance less than 75%)

A. Assumptions as to the Nature of the Agreement.

1. Stringent international control of the development, fabrication, testing or use of vehicles and rocket engines for space operations. Fabrication or production of space vehicles being limited to _____ per month.

2. A limitation on the production of long-range ballistic missiles to a rate that will maintain an agreed missile stockpile and support relevant test and training programs. (Figure per month to be supplied.)

3. Limitation of rocket engine production to a rate that will adequately support the controlled space programs, maintain the agreed missile stockpile and support relevant test and training programs.

4. The declaration of existing stockpiles and production facilities for all types of ballistic missiles, including long-range, short-range and air defense missiles.

5. The destruction or stringent international control of all long-range ballistic missiles in excess of the agreed stockpile and modification of all long-range missile facilities not engaged in support of agreed activities to identified peace time industrial programs. Surplus missile production tooling may or may not be destroyed.

B. Elements of the Inspection System.

1. Necessary

a. On the initiative of the inspection team, the right to periodic, immediate and unrestricted access and inspection of these facilities and equipment, both declared and undeclared, to ascertain whether a long-range missile capability is being concealed.

b. The right to unrestricted access to and inspection of any other area, activity, or facility deemed suspicious.

c. The right to unrestricted aerial and ground inspection to detect possible violations of the agreement.

d. The right to station on Sino-Soviet Bloc territory the required number of US personnel and technical equipment and US logistic support (transportation equipment, communications, etc.) and freedom of movement needed to implement the inspection agreement.

e. The right to unrestricted surveillance of the railroad and air transport systems and right to inspect suspicious shipments by any common carrier.

2. Desirable

a. Precise accounting of all liquid and solid propellant rocket engines rated at more than 75,000 lb thrust.

b. Precise accounting system for all ballistic and air defense missiles produced to maintain agreed stockpiles and support relevant test and training programs.

c. If the destruction of surplus stockpile and production tooling is agreed to, the right to audit such destruction and the right to acquire representative samples of production missiles and components for technical and markings analysis.

d. Strict accountability for use of selected finished and semi-finished materials procured rocket engine and restricted missile production facilities.

e. The right to unrestricted access to and inspection of shipyards capable of construction or modifying vessels for launching of missiles.