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Tab B
29 June 1979

E21c

Options for LRTNF Modernization

Description

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(3):42 USC Table 1 describes four Options for LRTNF modernization. They span the range of [redacted] additional LRTNF warheads agreed to by the High Level Group and serve to illuminate a number of points related to military effectiveness, cost/manpower, political acceptability and arms control.

One point to note is that none of the Options make provision for UK modernization of its nuclear forces -- Vulcan and Polaris -- which is treated outside the scope of this paper.

Military Effectiveness

All of the Options provide some degree of capability for selective employment options against the Soviet Union and none of them provide sufficient assets for general nuclear response in toto although each could contribute to an all out nuclear attack on the Soviet Union.

Options A, B and C, being mixed forces of Pershing II and GLCMs, would provide the desirable attributes of a mixed force -- e.g., hedging against defeat of one type of system, complicating enemy planning; providing a wider variety of options so they can be tailored to meet specific military and political purposes.

As a general rule, the larger the force size, the stronger the LRTNF will be militarily in terms of:

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LRTNF MODERNIZATION OPTIONS #/

	<u>Launchers</u>	<u>Warheads on Missiles or Launchers</u>
<u>OPTION A</u>	(b)(1)	

OPTION B #*

OPTION C

(b)(1)

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TABLE 1

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TABLE 1 (Cont'd)

	<u>Launchers</u>	<u>Warheads on Missiles or Launchers</u>
OPTION D	(b)(1)	

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- Flexibility to execute a wide range of selective employment options;
- Contribution to NATO's capability for a general nuclear response;
- Ability to release dual-capable aircraft to perform conventional missions;
- Capability to absorb an initial Soviet nuclear or conventional attack and still have adequate nuclear assets remaining.

Concepts of Operations

The concepts of operations for Pershing II and GLCM, the two systems considered, are different during peacetime, crisis and hostilities. Detailed descriptions of the concepts of operation of these two systems is at Annex A. The concept of operations will vary among the Options to the extent that the mix between Pershing II and GLCM varies.

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Costs

Annex B gives a detailed breakout of costs associated with the candidate LRTNF Options. A summary of these costs (FY 79 millions of dollars) is:

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Total Costs (\$ FY 79 M)*

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
Unsunk R&D	(b)(1)			
Military Construction	(b)(1)			
Procurement	(b)(1)			
10 Year Operating & Support	(b)(1)			
Life Cycle Cost	(b)(1)			
Warheads on Launchers	(b)(1)			
Percent Pershing	30	34	48	100
Life Cycle Cost (per warhead)	(b)(1)			

Note: Basic costs do not include sheltering Pershing II; costs in parenthesis include shelters for total Pershing II force. DOE costs not included. All costs prior to FY 80 are sunk costs.

As to be expected, the overall cost of the force decreases as the size of the force decreases.

On a cost per warhead basis, the larger force options are considerably more efficient with Option A being about two times better under this measure than Option D. This is due to the relative percent of each force by Pershing.

The table below depicts the life cycle cost to the US under varying assumptions on Allied cost sharing to give a feel for the range of costs we might incur:

*Subject to revision.

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US Costs (\$ FY 79 M)

	<u>Option A</u>	<u>Option B</u>	<u>Option C</u>	<u>Option D</u>
US Pays for Whole LRTNF	(b)(1)			
US Pays for LRTNF minus NATO Infrastructure for construction	(b)(1)			
US Pays for LRTNF minus Infrastructure for construction minus all Allies owning and operating LRTNF	(b)(1)			

(b)(1)

Note: Basic numbers reflect costs with no hardened shelters for Pershing. Numbers in parentheses include costs of shelters for all Pershings.

Manpower

A detailed set of data on manpower is at Annex B. The table below summarizes this information:

<u>Personnel Category</u>	<u>LRTNF Manpower</u>			
	<u>Option A</u>	<u>Option B</u>	<u>Option C</u>	<u>Option D</u>
Operations	(b)(1)			
Maintenance & Support	(b)(1)			
Security	(b)(1)			
Total	(b)(1)			
Manpower per Warhead	(b)(1)			
(US Custodial Force)	(b)(1)			

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As expected, manpower requirements decrease for smaller force sizes except for Option D, which is a pure force of Pershing II -- a more manpower intensive system than GLCM. This table also demonstrates that the forces in Options A, B and C are more than three times as efficient in manpower per warhead as Option D.

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Deployment Rates

The table below depicts cumulative deployments for Pershing II and GLCM warheads at nominal, reasonably efficient production rates. The table assumes that GLCMs are deployed in increments of flights and Pershing II by battery.

<u>Calendar Year</u>	<u>Quarter</u>	<u>GLCM Warheads</u>	<u>Pershing II Warheads</u>
1983	(b)(1)		
1984			
1985			
1985			
1986			
1987			

Using these nominal rates, deployments for LRTNF could be complete by the following dates:

<u>Option A</u>	<u>Option B</u>	<u>Option C</u>	<u>Option D</u>
Late 1987	Late 1986	Mid 1985	Mid 1985

In terms of phasing LRTNF deployments by country, production and deployment rates provide a wide range of options. Some possible underlying approaches to phasing by country would be:

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Political Implications in Western Europe

There are five factors which could potentially influence the political reactions associated with each of the Options:

- The total size of the LRTNF;
- The size of LRTNF in individual countries;
- The type of systems in each country;
- Which countries participate in basing LRTNF.
- Soviet reactions.

Total Size - There was a general feeling expressed in the High Level Group that the larger the force size, the stronger the public and political reaction would be. An alternative proposition, however, is that size issues are not well understood by the public and the critical factor is whether LRTNF deployments occur and not how many LRTNF are involved.

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To the extent overall size is a negative factor, Option A through C might be progressively easier to accept by the public and thus presumably political leaders.

If overall size were to become a public issue, Option A might be more difficult to handle as it could appear to be a matching-the-Soviets with connotations of a separate Euro-Strategic Balance and possible decoupling of US Strategic forces.

Option D and similarly C could pose problems on the other extreme by raising charges that we were providing only a token response and failing to meet the Soviet challenge.

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East-West Relations

The character and size of the proposed LRTNF deployments would be important factors in how the Soviets react to NATO modernization. Other things being equal, the Soviets would react more strongly to larger deployments than smaller. Deployments of Pershing II Extended Range -- which could be rationalized as a logical upgrading of an existing system -- would be less alarming to the Soviets than deployments of the qualitatively new GLCM. The vigor of Soviet reaction may also increase in proportion to the deployment of LRTNF, that is the wider the country participation the greater the concern would be. The Soviets would be especially alarmed at any increased role

(b)(1) [redacted] in LRTNF.

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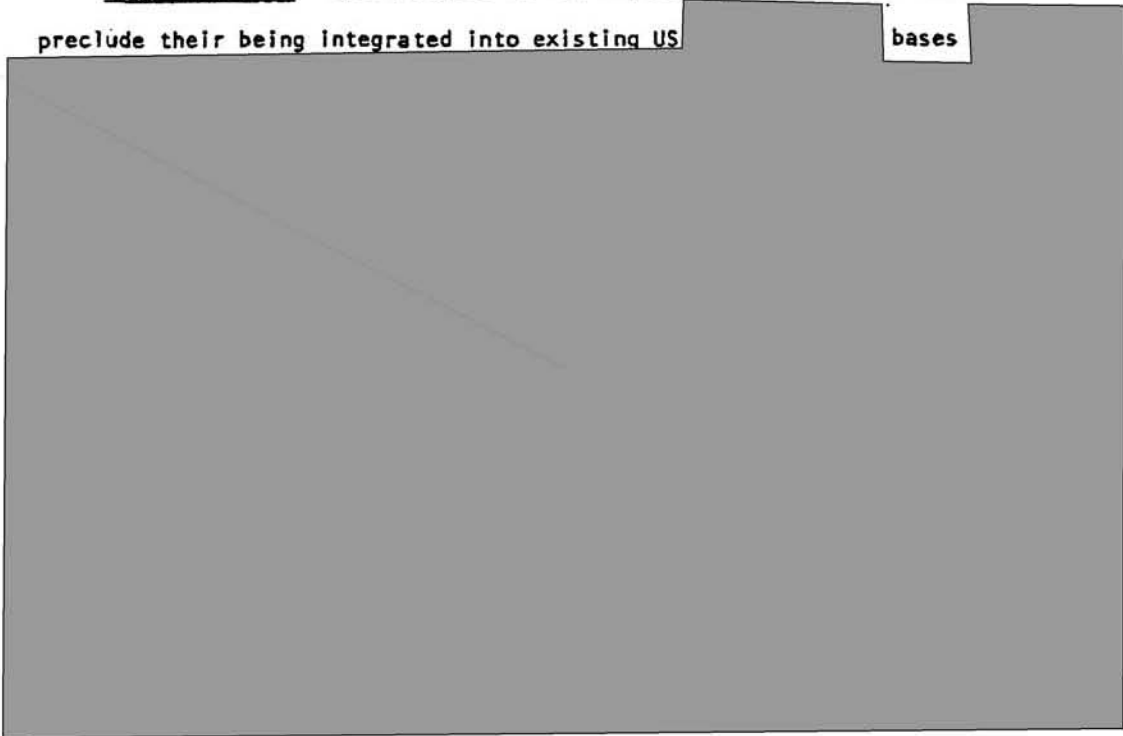
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Site Locations - GLCM flights do not require facilities which would

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preclude their being integrated into existing US

bases



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ANNEX A

PERSHING II CONCEPTS OF OPERATIONS

ORGANIZATION

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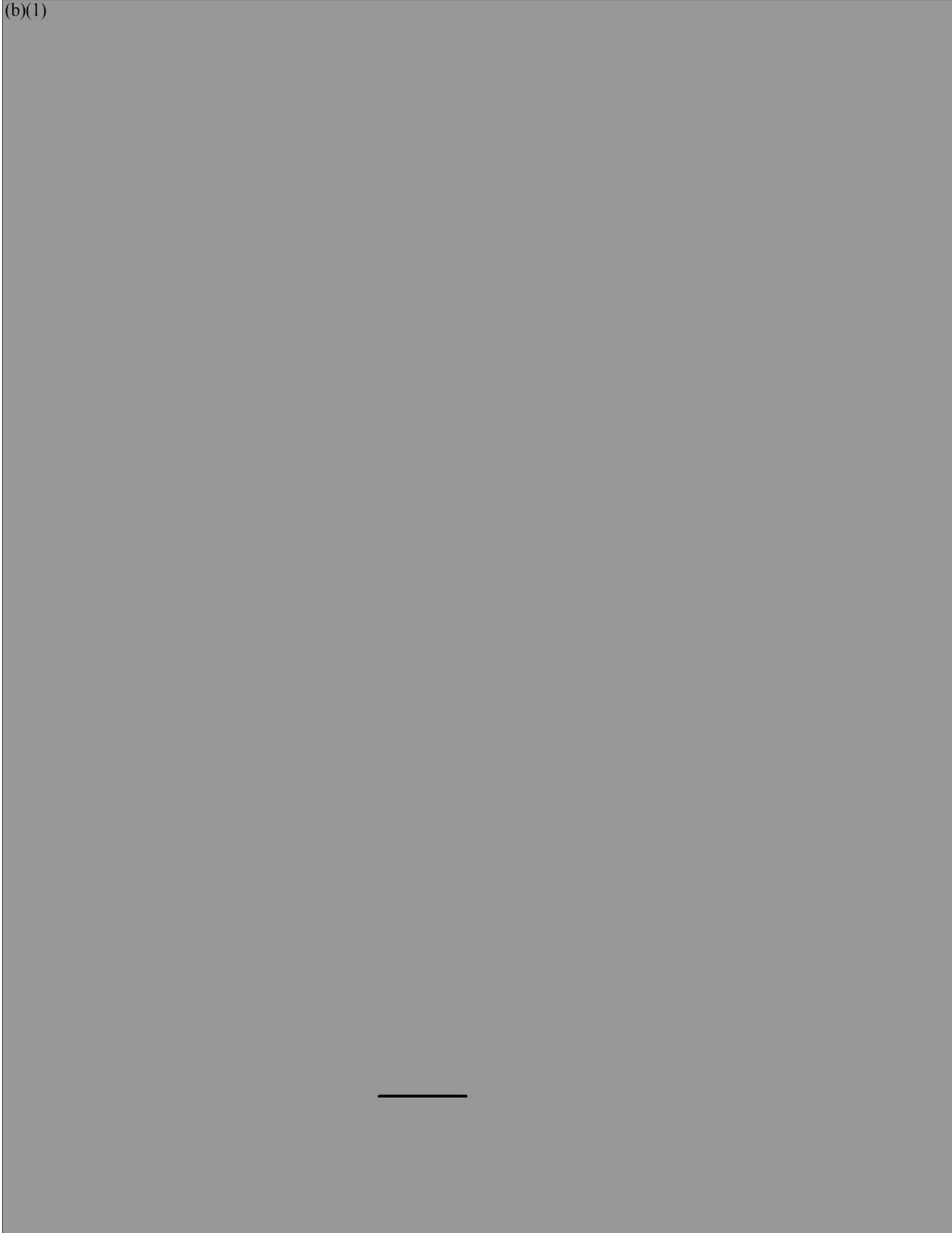
OPERATIONS

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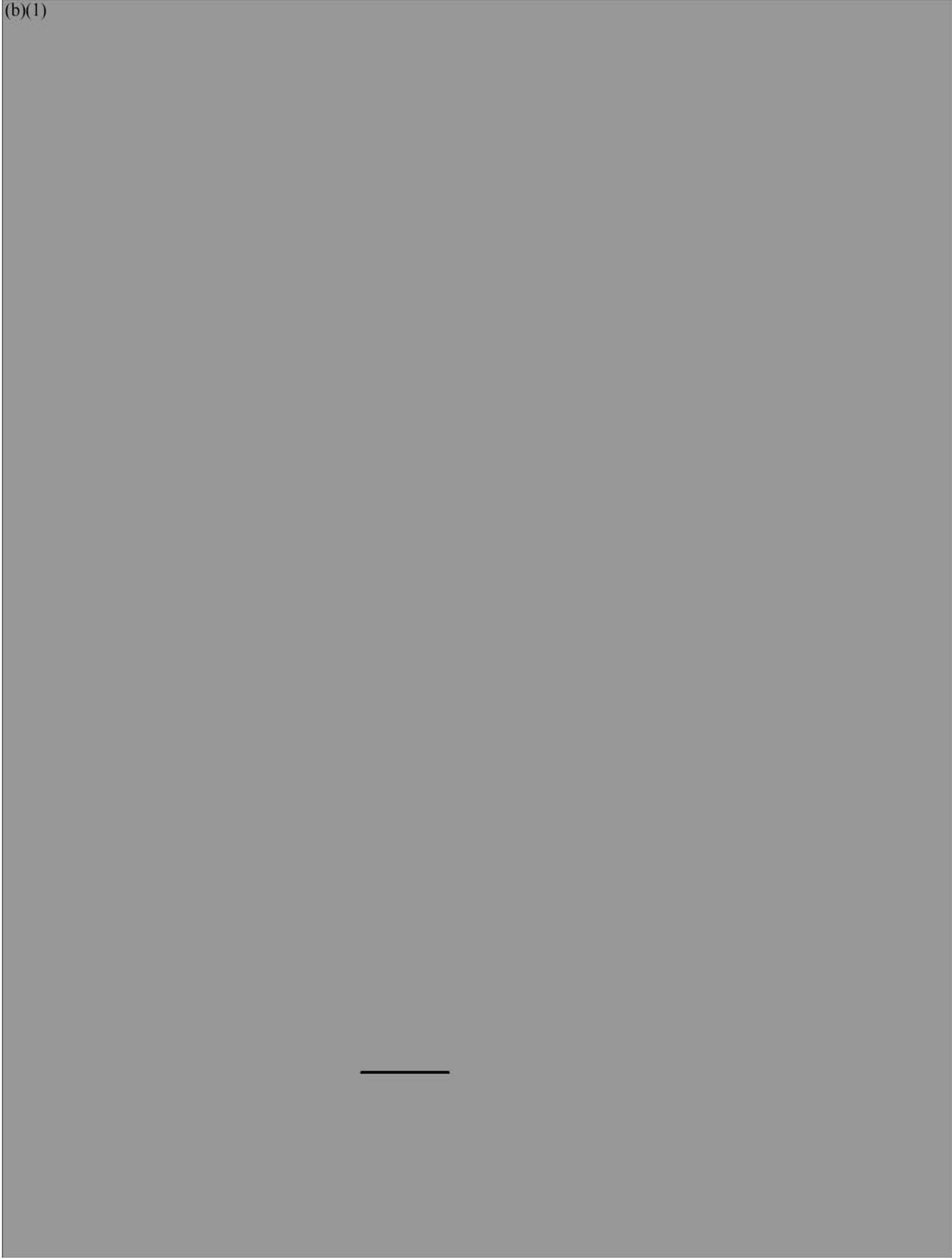


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