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STOCKPILE RELIABILITY AND POLITICAL IMPLICATIONS  
OF NUCLEAR EXPLOSIVE ACTIVITIES  
UNDER A TEST BAN

Office of the Secretary of Defense *SUSC 8552*  
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SCC TEST BAN WORKING GROUP PAPER  
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I. INTRODUCTION

In determining U.S. policy on nuclear weapons tests under a comprehensive test ban (CTB)\*, it is important to examine the relationships of activities which might be undertaken with regard to: (a) maintenance of the U.S. nuclear deterrent through continued high confidence in the reliability of the nuclear stockpile, and (b) the political implications of permitting nuclear tests, including non-proliferation and other arms control objectives, and alliance considerations. Important questions which will require policy-level consideration before conclusion of a test ban are:

- Precisely what test activities does the U.S. want to be able to carry out under a test ban in order to maintain high confidence in the nuclear stockpile?
- Should explicit provision be made in the context of the treaty for carrying out these activities?
- How will these activities affect U.S. security and political interests?

This paper addresses these questions by exploring the technical and political issues, options, and implications associated with three approaches to the question of continued test activities:

Option A - Self-regulation of nuclear experiments, without seeking agreement with other treaty parties on precisely what activities are permitted or precluded. US policy probably would be relatively restrictive--permitting nuclear fusion research, hydronuclear experiments and nuclear weapons safety tests normally involving yields of no more than a few pounds.

\* For purposes of clarity and brevity only, the term "comprehensive test ban" (or "CTB") is used in this paper to refer to a treaty which prohibits all nuclear weapons testing, while the term "test ban" is used to refer to a treaty which permits some form of nuclear weapons testing. This usage is adopted without prejudice to the policy decision regarding permitting nuclear test activities or whether the US would subsequently describe the treaty as a comprehensive test ban.

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Option B - No treaty provision for nuclear test activities but with an explicit provision for periodic treaty review, with the understanding that serious problems with the nuclear stockpile could prompt the US to seek to provide for some limited testing.

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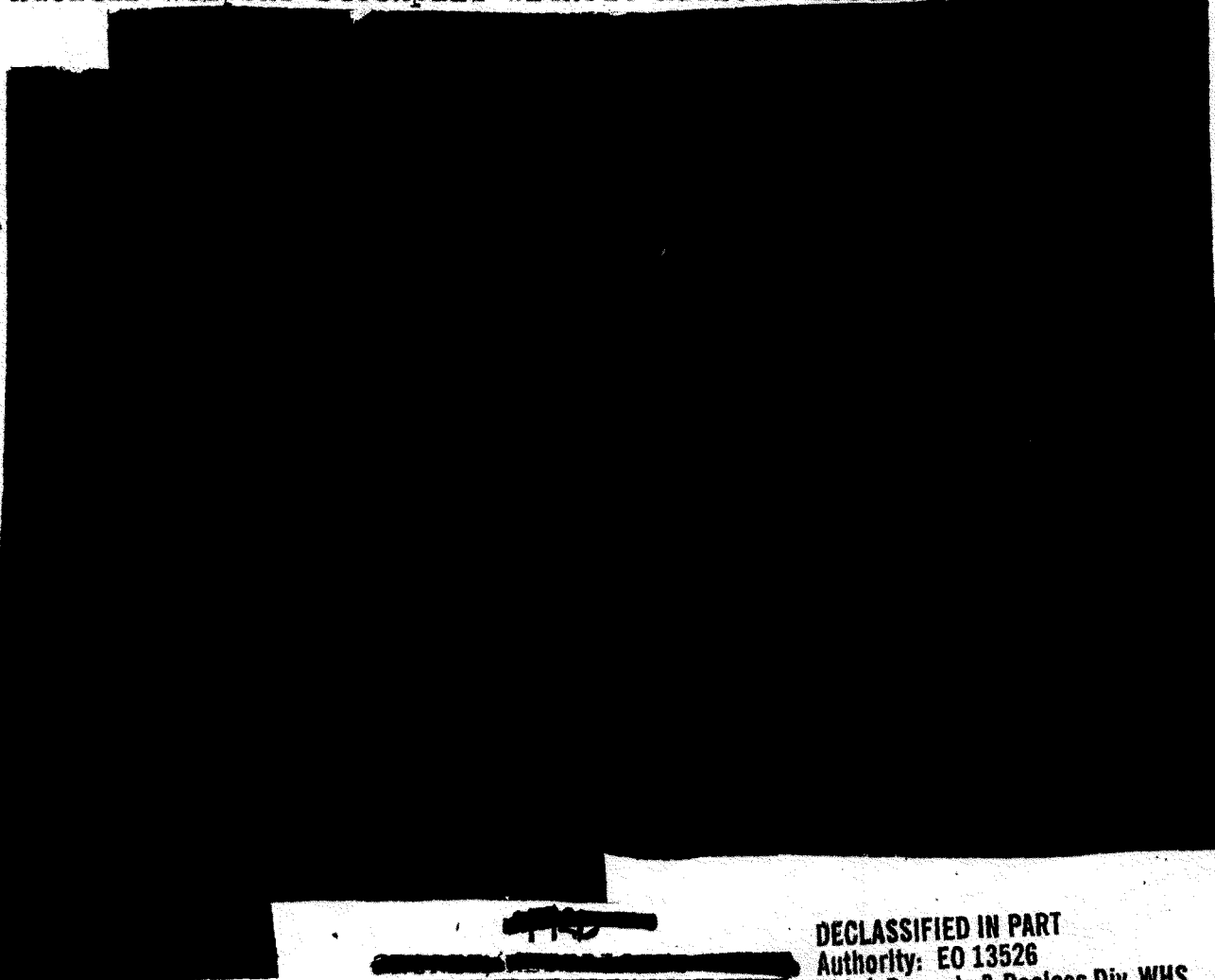
Section 6.2 (a)

Option C - Provision for continued nuclear tests, subject to agreed limitations on yield and/or numbers of tests, or a delay in entry-into-force.

DOE 6.2(a)    DOS 3.3(b)(1)    JS 3.3(b)(2), (8)

II. STOCKPILE RELIABILITY UNDER A COMPREHENSIVE BAN

It has been U.S. national policy to maintain high confidence in our nuclear deterrent forces. A central issue is the extent to which the U.S. can maintain confidence in its nuclear weapons stockpile without nuclear testing.



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JS 3.3(b)(2)(4)(8)

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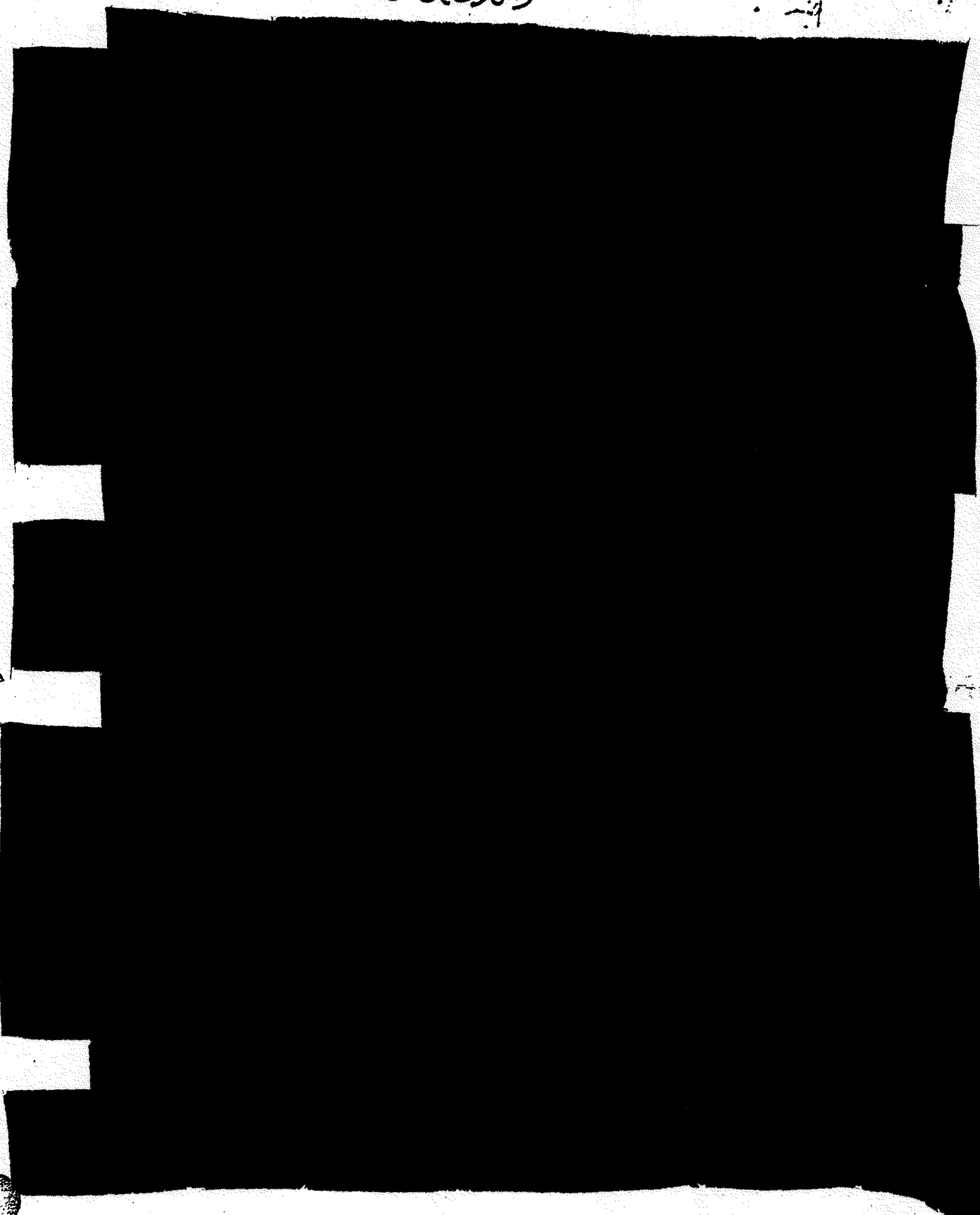
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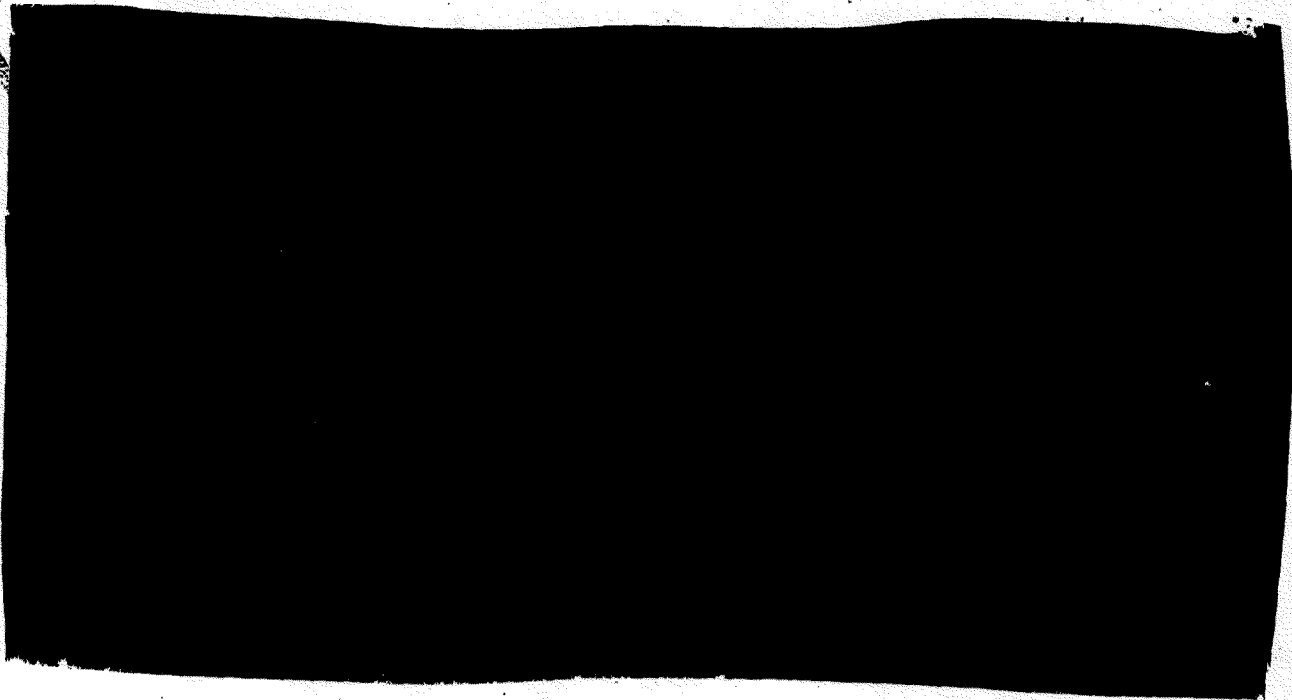
DOE 6.2(a)<sup>6</sup> DOS 3.3(b)(1)

JS 3.3(b)(2), (6), (8)



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III. POLITICAL IMPLICATIONS OF PERMITTING NUCLEAR WEAPON TESTS

The political implications of a test ban include its effects on U.S. nonproliferation and other arms control objectives, and on relations with allies, as discussed below.

A test ban could also contribute to the bilateral US-Soviet relationship through inhibiting the development of new weapon systems by the two superpowers and by complementing other arms control negotiations (especially SALT).

A. Nonproliferation Implications

Depending on its final form and extent of adherence, a test ban could support U.S. nonproliferation policy by:

- placing treaty commitments not to test nuclear weapons on key non-nuclear weapon states (NNWS), and particularly NPT holdouts (e.g., India, South Africa);
- contributing to other nonproliferation goals by satisfying one of three stated criteria for Indian acceptance of full-scope safeguards;
- showing the NNWS that the nuclear powers are working to fulfill one of their NPT Article VI obligations; and

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-- reinforcing the Treaty of Tlatelolco (nuclear-weapon-free zone).

A primary vehicle for current U.S. nonproliferation policy, the NPT, has not received the support of some key NNWS. A major criticism of the NPT by some NNWS has been that it discriminates against them by requiring them to give up the legal right to develop, test and acquire nuclear weapons or other nuclear explosive devices without requiring a comparable commitment from nuclear weapon state (NWS) parties.

Direct nonproliferation benefits will be obtained if NPT holdout countries become party to a CTB, thereby providing a constraint on the development of nuclear weapons by the countries that have become party to an international agreement that commits them not to test. It is generally accepted that, while it is possible to develop and even to weaponize relatively simple fission devices without testing, for most developing NNWS there would be significant uncertainties regarding their performance and reliability. Moreover, parties to a CTB would be prohibited from demonstrating a nuclear explosives capability through testing -- potentially a major political benefit of a nuclear explosives program.

A CTB could contribute nonproliferation benefits indirectly by leading some NNWS to adopt other constraints. By eliminating a key distinction between NWS and NNWS -- the conduct of nuclear tests -- a comprehensive ban might lead some NPT holdouts to reconsider their position toward the NPT. In India's case it would fulfill one of the three stated preconditions for adoption of IAEA safeguards on all its nuclear facilities.

Additional indirect benefits could occur if a CTB were perceived as fulfilling some obligations made under previous treaties, or as constituting substantial progress towards disarmament, pursuant to some of the obligations of Article VI of the NPT. In this way, a CTB could reduce the frequent complaints by some NNWS that the NWS are not living up to their obligations and therefore that NNWS parties are relieved of any obligation to remain NPT parties.

A treaty which permits testing by NWS but not by NNWS would be perceived by some NNWS as discriminatory, and these states may use this as a rationale for non-participation. It should also be noted, however, that the behavior of some

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NNWS may be unaffected by a CTB, whatever its form. Even with a comprehensive ban which treats NWS and NNWS alike, some NPT holdouts may still refuse to accede to the test ban treaty (as well as to the NPT). It should also be recognized that there will continue to be nuclear "haves" and "have-nots" for the foreseeable future, and that the have-nots could charge de-facto discrimination regardless of treaty formulations.

#### B. Alliance Considerations

Allies depending upon the U.S. "nuclear umbrella" would probably be more inclined than potential adversaries or neutral powers to accept the case that the U.S. required some continued nuclear weapons testing to maintain adequate confidence in the stockpile. A treaty which precluded nuclear weapons testing, on the other hand, would not necessarily alarm allies -- provided we ourselves were satisfied as to U.S. stockpile reliability. Allied perceptions of our ability to assist them in deterring attack depend on a variety of factors, including the quality and level of U.S. conventional forces assigned to their defense, the quality and levels of U.S. tactical and strategic nuclear forces compared to those of the USSR, the state of our political relations with both allies and potential adversaries, alliance doctrine and declaratory policy with respect to the use of nuclear weapons, and so on.

While our allies will take a strong interest in the security implications of a mutual suspension of U.S. and Soviet nuclear tests, including verification, their interpretation of the impact of such a suspension will be made in the context of the entire range of these elements contributing to Western deterrence. If the test ban were perceived as indicative of a general U.S. intention to withdraw over time from its military and political commitments to the allies, or if the test ban were perceived as likely to result in a substantially inferior U.S. strategic position vis-a-vis the USSR, it would likely have implications for decisions by some allies to seek their own nuclear weapons capabilities. In this regard, our own perceptions will be a critical element in our allies' perceptions: As long as the U.S. has confidence in its nuclear weapons, the allies will also. If the U.S. loses confidence in the stockpile, its allies are likely to lose confidence in the credibility of the U.S. nuclear umbrella.

There could be divergent allied views regarding a test ban that permitted low-yield tests (3-5 kilotons), while banning larger yield tests; in that such an agreement would permit development of small, battlefield-sized weapons. Improvements to low-yield weapon classes might be welcomed by certain NATO allies to the extent that these improvements

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could be cast as measures to counter Warsaw Pact conventional superiority, and thus improve regional deterrence, while other allies may perceive such developments as lowering the nuclear threshold and increasing the risk of their becoming a nuclear battlefield.

On the other hand, some allies could be expected to voice concern that a test ban which permitted continued NWS nuclear weapons testing fell short of their expectations. Japan and Canada are two important examples; they are members of the CCD and they expect a treaty in which NWS and NNWS are treated alike, and which will achieve wide multilateral acceptance. Despite these countries' close relations with the U.S., we can expect criticism from them if the treaty provides for nuclear tests.

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IV. OPTIONS

Three general approaches to dealing with nuclear testing under a test ban are considered in this paper. The implications of these options for stockpile reliability and seismic verification are examined.

A - Self-regulation of nuclear experiments, without seeking agreement with other treaty parties on precisely what activities are precluded.

OSD Section 6.2 (a) B - Periodic treaty review, with the understanding that serious problems with the nuclear stockpile could prompt the U.S. to seek amendment of the treaty to provide for some limited testing.

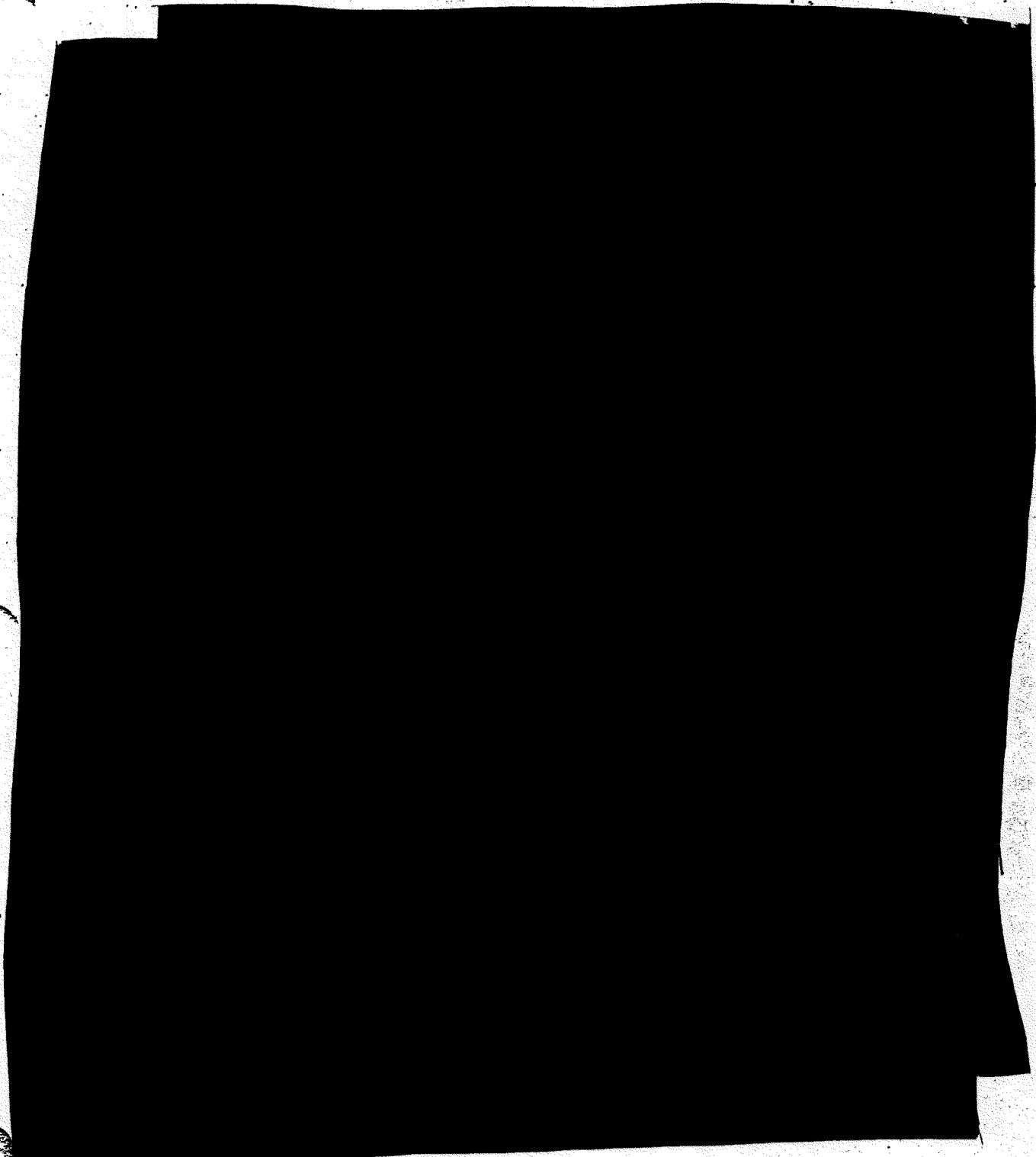
C - Provision for continued nuclear tests, subject to DOE 6.2(a) agreed limitations on yield and/or numbers of tests, or a delay in entry-into-force.

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It would be necessary to make clear in the negotiating record -- perhaps in the course of CCD consideration of the treaty -- that these specified technologies (and others which might be added to the list later) were not to be constrained.

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JS 3.3(b)(2),(6),(8)

DOE 3.3(b)(8)<sup>11</sup> DOS 3.3(b)(1)



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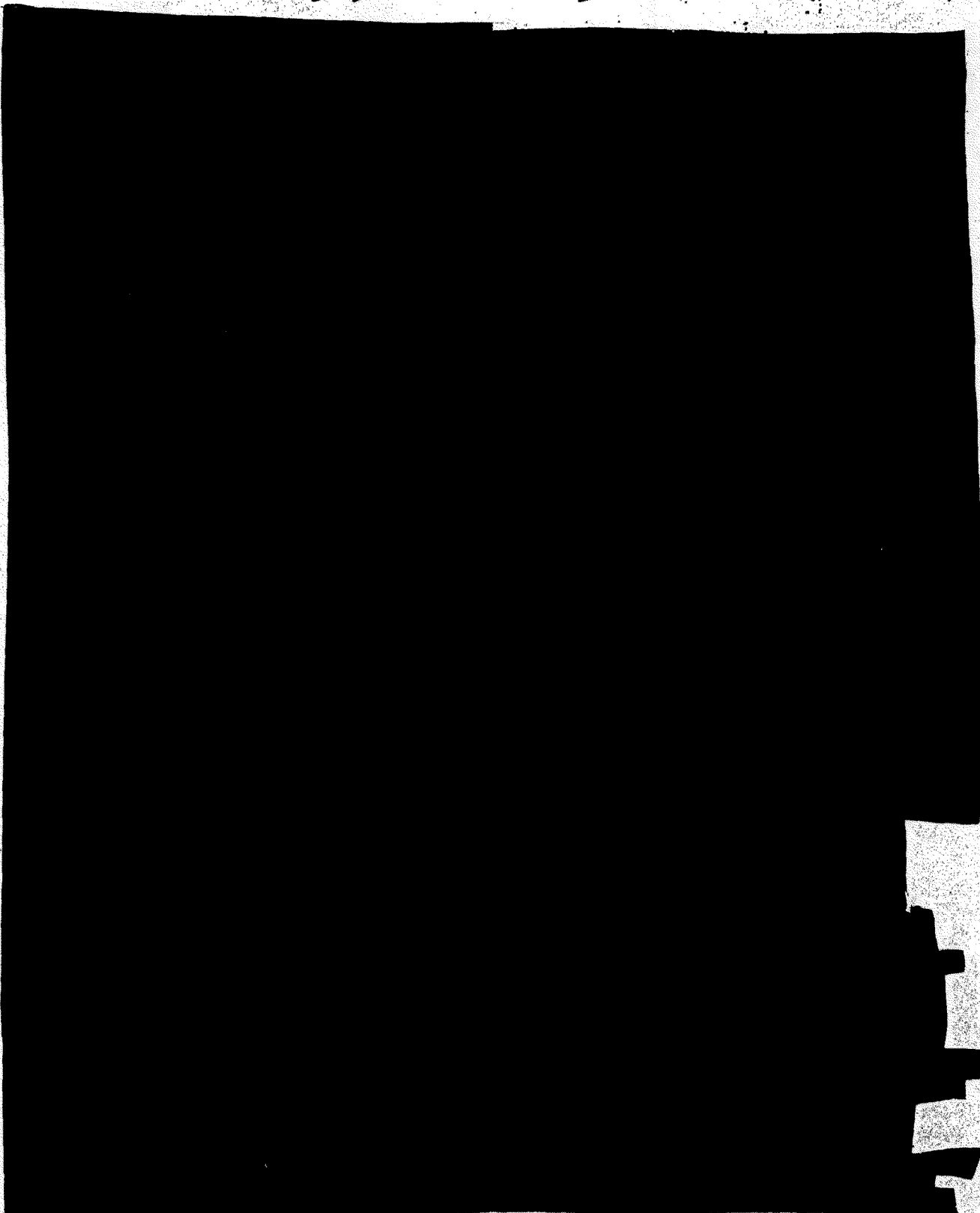
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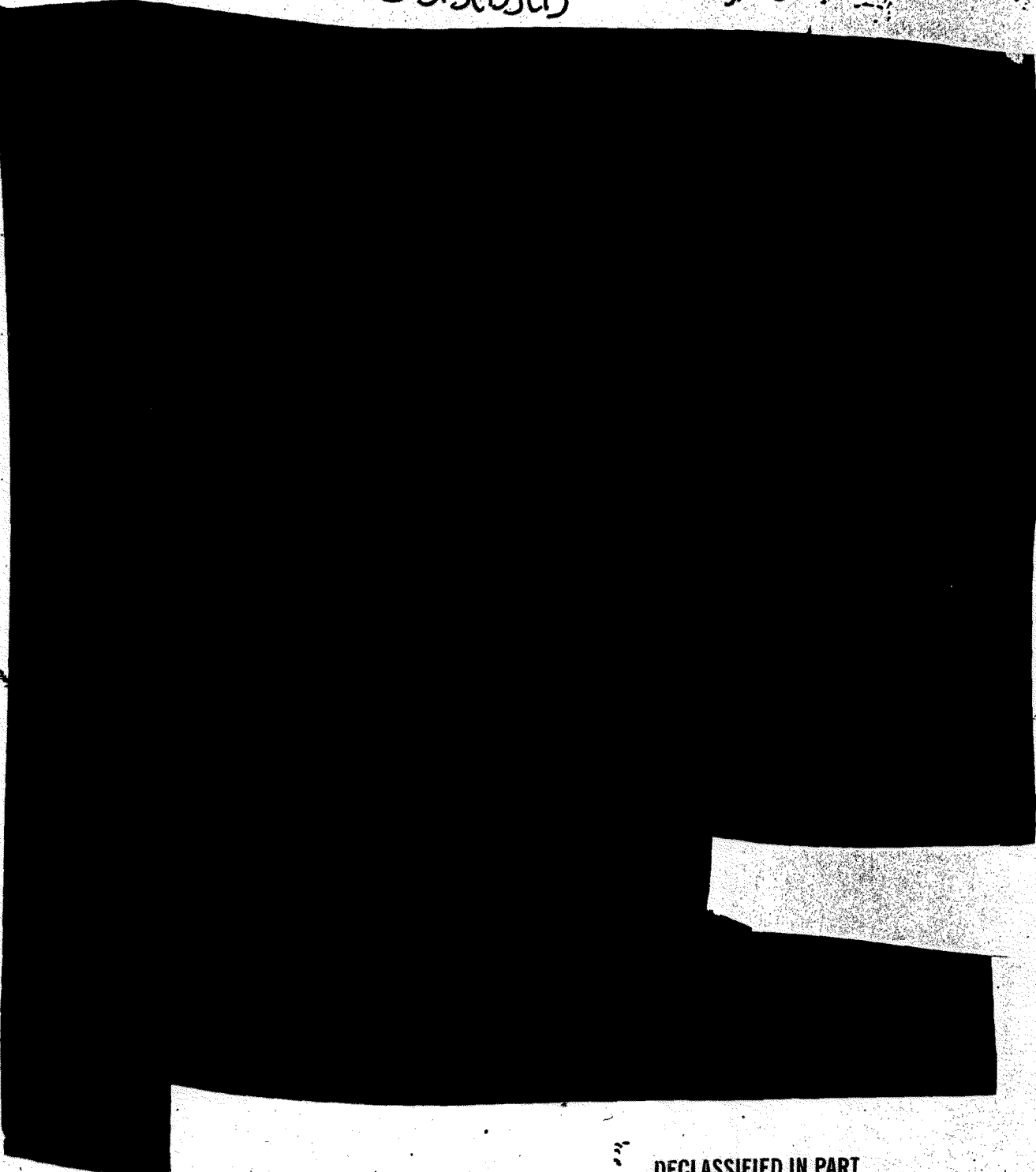
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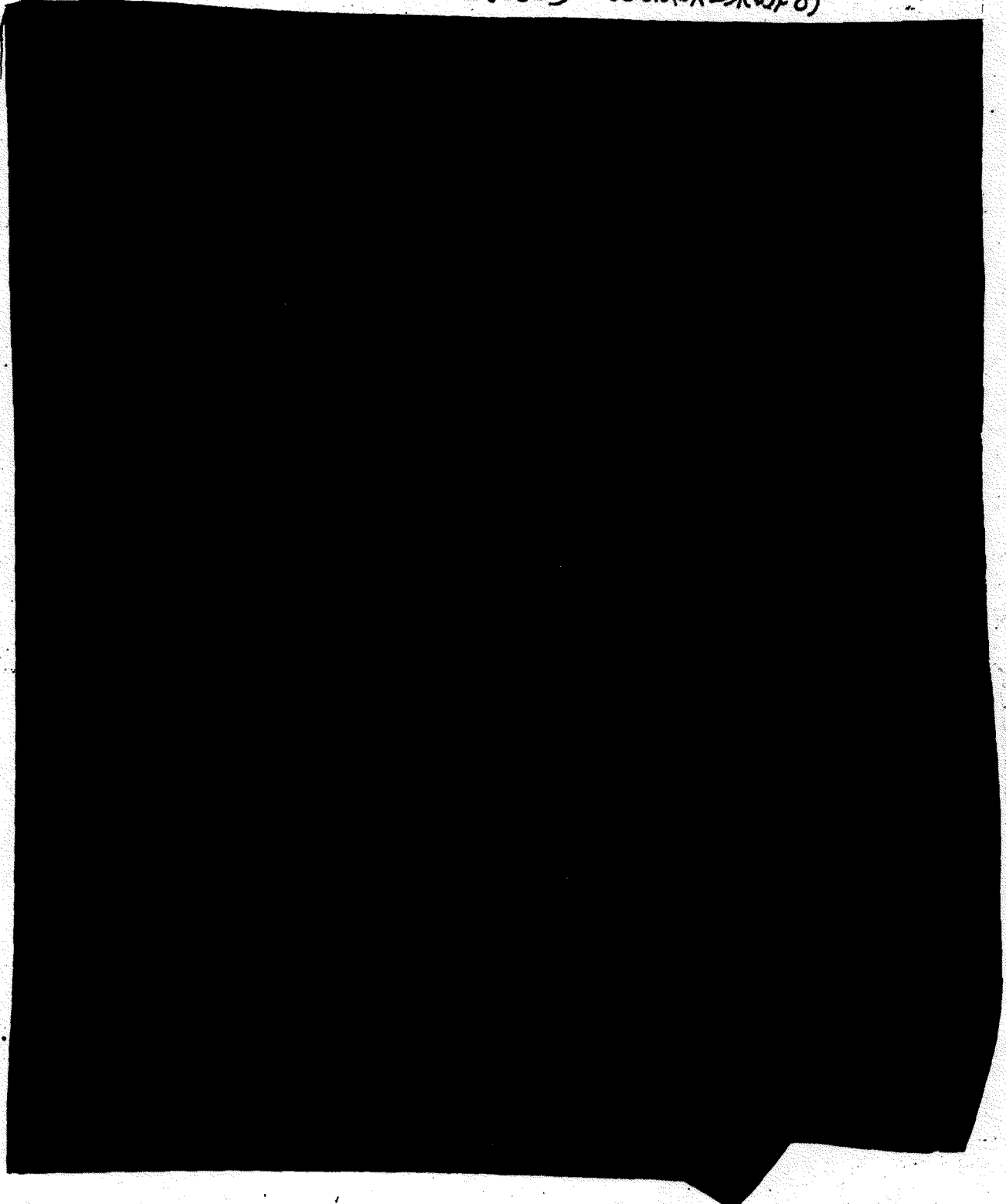
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