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THE WHITE HOUSE
WASHINGTON

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February 19, 1962

MEMORANDUM FOR THE PRESIDENT

SUBJECT: NOTES ON ATMOSPHERIC TESTING FOR USE
WITH GAITSKELL

The military justification for atmospheric testing is as follows:

1. The Soviet tests of 1961 showed significant advances, especially in effects testing and anti-missile technology.
2. While there is no immediate danger, it would not be safe to accept a further series of Soviet tests if we make no progress in the meantime.
3. Only some form of inspection and control can give us proper assurances against a repetition of the events of last fall.
4. Thus, until such agreement is reached, we have no choice but to maintain a lively development program of our own.
5. The particular object of this program is to ensure the continued effectiveness of the strategic deterrent.
6. For this purpose, three kinds of tests are important:
 - a. Confidence tests which will allow us to be ~~really~~ sure that our designed warheads and weapons systems really work. The Russians did many of these, but they are the least important part of our own series and do not in and of themselves justify a resumption of testing.
 - b. Development tests -- these are important because they allow us to deliver the same effective yield with a lighter warhead and thus permit adding to our missiles decoys and other penetration aids which will guarantee effectiveness even in the face of an anti-missile system.

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c. **Effects tests.** These are the most important of all, because they will tell us things we do not know about the effects of nuclear explosions high in the air. This knowledge is essential if we are to have real confidence that something we don't know may not be used against us in anti-missile systems.

In summary, no individual test in and of itself can be said to justify the resumption of testing, but a posture of non-testing is simply untenable, in straight military terms, as long as the Russians retain an uninspected freedom to repeat the operations of last year. In addition, Gaitskell, like Stevenson, will be impressed by your account of the careful and repeated consideration which all aspects of this matter have had -- the intelligence, the military balance -- the exploration of possible alternatives like ~~an~~ atmospheric test ban agreement.

McG. B.

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TAB ASECRETThe President's Review of the Atmospheric Testing Problem

1. The President has not had a more difficult decision -- or one to which more careful study has been given. The following are indications of this:

a. the results of Soviet tests have been reviewed by a first-rate panel under Hans Bethe, and the President has had repeated briefings with the help of critical comment by such men as Wiesner and the careful English expert, Sir William Penny. It is plain that the Soviets have made substantial progress, and it is agreed that if we do not test and they go on to a further series, they may make very significant advances relating to anti-missile weapons systems.

b. the tests proposed for this series have been reviewed repeatedly, in the same critical fashion, and the President will restrict them to those which are genuinely relevant to maintaining the effectiveness and credibility of our nuclear deterrent. While no one test in this series is decisive, each of them will be authorized only if the President is convinced that it is militarily and technically a serious contribution to deterrence. The tests proposed are described at Tab B.

c. the President himself has repeatedly sought for a reasonable alternative to test resumption, and it is with deep disappointment that he is facing the conclusion that he has no alternative -- unless and until there is a big change in the Soviet position. Some of the questions that have been studied at the President's direction are listed below together with the conclusions that have been reached so far:

(1) Why can't we say that we will prepare for testing, but not actually test unless the Soviets take to the air again?

This is at first sight an attractive option, because many -- though not all -- of the experts contend that a technological stand-still agreement today -- even after the Soviet tests -- would be safe enough. Unfortunately, an unpoliced moratorium is not safe for us -- even if we keep our laboratories as ready as possible. As Sir William Penny told the President and Mr. Macmillan at Bermuda, first-rate scientists in an open society simply will not keep their minds on problems that can only be attacked if and when

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someone else breaks an agreement -- nor can a large technical establishment be kept fully alert and active on any such contingency basis. Thus it will always be open to the Soviets, using French or Chinese or Israeli activities (or even our own underground testing) as an excuse, to prepare another series of tests and set them off when they feel ready. A second surprise of this sort would not only be dangerous technologically; it would shake the confidence of our own people -- and our Allies -- in our good sense. It would thus be open to the Soviets, by a simple resumption of testing, to strengthen the Goldwaters and the Walkers quite a lot.

In other words, there is no half-way house between an inspected and controlled arrangement which would let us stop our weapons research and a reluctant decision to go ahead with necessary research and experiments, including atmospheric tests.

2. Can we not put off the decision in the hope that real progress will be made at Geneva in March?

The trouble with this proposal is partly technical and partly political. Technically it is very hard to hold a large task force of thousands of scientific men, with a supporting military team, on a basis of indefinite readiness. It's like arranging to invade North Africa with no D-day.

The political objection is even stronger. If our decisions on testing are governed merely by changes in the negotiating "atmosphere," we put it in Khrushchev's power to control our behavior by unreal but tempting hopes and promises. We have had three years of this, climaxed by the tests of last fall. Short of effective and binding agreements, we must now follow the courses necessary for our safety.

Obviously, March and April are not very good months for test resumption -- but really any time is bad, from now on. From the public relations point of view an earlier date might have been better (though not perhaps at the UN). But the series has been set so as to be genuinely useful, and not simply to make a big bang at a convenient time.

We continue to be deeply concerned about disarmament, but we cannot accept a one-sided unpoliced moratorium -- we believe, indeed, that such a course would weaken the chance of reviving Russian interest in effective disarmament agreement.

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3. What about fall-out?

The series has been prepared under guidelines which require that fall-out be minimized and the currently proposed list would have about 1/3 the fall-out of the Soviet series of 1961. We are preparing careful and thorough statements of just what this means, as far as scientists can say. There can be little doubt that fall-out has some dangers -- but it is equally clear that exaggerated fears have been generated. Our proposed new tests will add perhaps 1/2 of 1% to the natural level of radiation in the Northern Hemisphere (very little goes south). This is about 1/50 of the change you would experience if you moved from Washington to Denver.

Except for the moral problem of inflicting damage on the environment of other nations, the magnitude of the fall-out problem is smaller than that of building roads on which, statistically, many thousands of people will die. If nuclear energy had only peaceful uses, it is doubtful that this kind of fall-out would be such an issue, or would stand in the way of harbor-building, canal-making, and other construction activities. It is not fall-out, but the horror of atomic war which it suggests, that makes the difficulty important. But on this larger scale the fall-out problem has to be measured against the danger of giving the Soviets hope of achieving a decisive advantage.

Still, fall-out is bad, and there will be no attempt to avoid this unhappy fact.

4. Will testing make it harder to reach understanding with the Soviets on disarmament and other cold-war issues?

Probably the deepest objection to testing -- in the Administration as well as in the country -- is that so many hopes have been invested in the test-ban as a means to progress in arms control and in mutual understanding. Many Americans who recognize the new problems created by the Soviet tests and Soviet intransigence on effective test controls, still hope that we will not "double-bar the door" by tests of our own.

But the strong consensus of our experts on Soviet behavior is that a decision not to test now would not improve the chances of real progress. The judgment is that the Soviets would not attribute such a decision to genuine good will, but rather to weakness in the face of "peace-loving opinion." The strongly dominant view is that

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the Soviets will move toward a disarmament agreement only when they are persuaded that they cannot have it both ways -- and then only when they see that disarmament is less dangerous than the arms race. Thus the probability is that in terms of the Soviet state of mind, a decision to test is now desirable. The decision will not be made on this ground -- but it does seem clear that testing will not cost us a great chance to make real progress by an act of trust and confidence.

5. Does this mean that the test-ban treaty is pretty much of a dead duck?

On our side there is still a real desire to stop atmospheric testing -- but it is hard right now to be very hopeful. We ourselves have some questions about the existing treaty draft, although we are reluctant to abandon it. On our side, what seems needed is some safeguard against a repetition of the surprise of last September; the President has ordered studies of this problem. It may turn out that the problem is not technically very difficult -- conceivably surveillance of a few testing grounds and limited rights of reciprocal access to a few developmental laboratories would give substantial assurances, and conceivably the existing treaty could be softened in the area of inspection for underground tests, which no longer seem either as important or as hard to detect as they once did.

But the Soviet Union seems still to resist any form of effective inspection and control. Moreover, its interest in the specific problem of the test-ban may have been much reduced by its difficulties with Peking, which has probably made very clear its unwillingness to accept any limitation on its own development of nuclear weapons. We have our own problem, of course, with the French, but this did not bother the Soviets until they began to object on other grounds as well.

In sum, then, while a workable treaty is not hard to design, the prospect of its acceptance seems lower than at any time since 1958, and it is hard to avoid the judgment of Hans Bethe that a test-ban is no longer the most promising first step to disarmament.

6. Are we then embarked on an unlimited round of test and counter-test?

No one can give a definite answer to that question. Our own testing will be governed by our need for a secure deterrent.

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We shall not test this time as much as the Russians did, and our plans for future tests will be governed essentially by the development of our judgment of the relation of tests to the balance of strength.

We cannot tell for certain today which of two opinions is right. One group holds that the technological future of nuclear research is essentially limitless, and it expects that as long as the arms race continues it will be urgently important for the United States to maintain a very large development and testing effort. The other group takes the position that there is a practical as well as a theoretical limit to what nuclear weapons can do, and that at least at the upper levels of yield a stand-off can be maintained with relatively little effort, as long as there is vigilance against any possible breakthrough.

Currently the President inclines to the second view, and if it should prove accurate, the need for further atmospheric tests -- whatever the Russians do -- should be limited. Smaller tactical weapons can, in the main, be tested underground, and the probability is that effects tests in the next few years will confirm our present belief that a secure deterrent is relatively easy to sustain. In any event there will be no testing race merely for its own sake.

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Brief description of the proposed tests

The proposed tests fall into three categories:

1. Confidence Tests

These are tests of warheads, and probably of two major weapons systems as a whole, designed to make sure that we have what we think we have in our basic new missile systems -- especially Polaris and Minuteman. The case for these is the weakest of the three, and probably we would not approve a resumption of testing for this category alone. Many of our technical men believe that such tests are not necessary and that the necessary confidence can be obtained as well or better in other ways.

But it is a fact that the Soviets engaged in very extensive tests of this sort, and it is also a fact that the President's military advisers (McNamara-Gilpatric, the JCS, and General Taylor, independently) believe strongly that our military planning and our basic self-confidence require that we do some of this now that the Russians have done a lot. And no less an authority than Hans Bethe has strongly supported tests of the warheads (as distinct from the weapons system as a whole.)

One important subordinate argument in favor of such tests is that as long as the military do not have full confidence in these missiles they are likely to want twice as much of everything (this is General LeMay's explicit argument for the B-70 and other things the President has turned down).

2. Development Tests

These tests are aimed, essentially, at improving the weight-to-yield ratio of our weapons. This is important not because we need bigger yields or lighter warheads for their own sake, but because the ability to deliver a given yield at a reduced weight is a highly significant element in assuring our ability to penetrate enemy anti-missile defenses. When we can reduce the weight of the warhead, we can add decoys and other devices to increase the probability that the weapon will get through. Thus weight-to-yield improvement is a part of our reply to the hazard of Russian anti-missile development.

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TAB B

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3. Effects Tests

The most important tests, four in number, relate to effects of atomic weapons. One of these relates to anti-submarine warfare and is of tactical significance for the Navy. The other three relate to the environment of missiles. One is to take place on land, for the purpose of measuring nuclear effects on hardened missile sites. The remaining two, the most important in the series, are high altitude tests designed to enlarge our knowledge of the effects of nuclear explosions in this environment. The Atomic Energy Commission rates one of these experiments as "vital to the technical evaluation of possible U. S. AICBM systems and of penetration of enemy defenses by our ICBM's." The other test is equally significant in its relation to "black out," the effect which atomic explosions may have on the radar equipment of AICBM systems.

These effects tests will not end our areas of ignorance in this very difficult field, but they should allow us to proceed, perhaps with another series or two, to a full confidence that the Soviet Union will not confront us at some future date with an anti-missile capability that might change the whole balance of power.

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