



UNITED STATES  
ATOMIC ENERGY COMMISSION  
WASHINGTON, D.C. 20545

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MEMORANDUM FOR CHAIRMAN SEABORG  
COMMISSIONER RAMEY  
COMMISSIONER TAPE  
COMMISSIONER JOHNSON

THROUGH GENERAL MANAGER

SUBJECT: PROJECT CLOUD GAP AND CG-34, DEMONSTRATED DESTRUCTION OF  
NUCLEAR WEAPONS

Staff paper AEC 226/366, "Project Cloud Gap and CG-34, Demonstrated Destruction of Nuclear Weapons", April 12, 1967, provided background information concerning the decision by ACDA and DOD to field test a concept of monitoring the destruction of nuclear weapons. The field activities of CG-34 have recently been completed.

Although AEC staff felt that such a field test would be of doubtful value, and had made their views known to ACDA and DOD, our complete cooperation (and, at AEC's direction, that of our contractors) was given once the decision was made to conduct the field test. For example, the Division of Classification provided about 28 man-months of service to CG-34 to identify authoritatively all classified information exposed to the inspection teams at each of the sites during the field activities, and a number of other AEC offices and contractors were involved in the operational aspects of the field test.

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Those directing the test have been extremely complimentary of the cooperation given and the performance by personnel of the Division of Classification and the AEC's offices and contractors at Pantex, Rocky Flats, Y-12, Paducah, and by Sandia Corporation which, under an interagency agreement with ACDA, provided contractual support to Cloud Gap in the field test design, operation, and analysis of results.

~~GROUP 2  
Downgraded and 2 year  
interval  
automatically declassified~~

CLASSIFICATION CANCELLED

AUTHORITY: DOE-DPC

BY R. HAMBURGER, DATE: 11/14/89

ba Carpenter 11-14-89

[Redacted signature]

~~This material contains information affecting the national defense of the United States within the meaning of espionage laws, Title 18, U.S.C. Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.~~

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From a logistics standpoint, the field test was well-organized and conducted. We are not aware of any substantive difficulty encountered in carrying out the field test.

On the basis of our observations and preliminary evaluation of the field test activities of CG-34, the following comments appear the most relevant in terms of the AEC's interests:

1. Permitting the inspectors a degree of access to the weapons which included x-ray photography did not always result in their correctly identifying real and fake weapons. Thus, even though a great deal of weapon design information was revealed through x-ray photography, it did not provide assurance that actual weapons were being examined.
2. Access to weapons extending further than their basic external features and weight balance, gained, for example, by use of a portable geiger counter, revealed extremely sensitive weapon design information, particularly for some of the TN devices used in the test. Use of more sophisticated radiation detection instrumentation and examination of x-ray photographs revealed proportionately more design information.
3. Even relatively modest access to weapon fabrication and assembly plants routinely used in weapon retirement, especially at Pantex and Y-12, revealed sensitive weapon design information to the inspectors through access to jigs, fixtures, other tooling, handling equipment, and shipping containers.

The staff feels that it would be possible, however, to design and equip a single facility, from which these revealing characteristics could be eliminated, for specific use in connection with an agreement calling for the demonstrated destruction of nuclear weapons. (See Enclosure 1 of AEC 226/366)

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Experience gained from the field test strengthens the conviction of the staff that a carefully designed single facility completely divorced from all production or retirement activities, as well as minimized adversary inspector access to weapons, are vital for the maximum protection of classified information under a treaty situation. Detailed studies supporting these points (2 and 3, above) are available in the Division of Classification. It does not appear possible to gain positive assurance of correct identification of real weapons (point 1, above) short of firing the devices, which we do not regard as either an acceptable or sensible technique.

[REDACTED]

For purposes of the proposal (which is tied to a proposed agreed cutoff in production of fissionable material for use in weapons, followed by an agreement to transfer stated amounts of "weapons grade" enriched uranium and plutonium to peaceful uses), it was determined within the US Government that it would be immaterial whether real weapons are in fact destroyed provided that the agreed amounts of fissionable materials are transferred to peaceful uses. It was on this consideration as well as the technical judgement that the field test would yield few, if any, unanticipated results, that AEC staff based its view that a field test would be of doubtful value. Experience provided by the field test does not indicate any reason for the AEC staff to alter that view.

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The report by Cloud Gap on the CG-34 field test is in preparation. When it becomes available, we will review it and inform the Commission of its content.

*Allan M. Labowitz*

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Special Assistant for Disarmament

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