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May 18, 1955

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DECLASSIFIED
E.O. 12958, Sec. 3.6

NW 972006A
By DM LTR Date 7/27/05

ATOMIC ENERGY COMMISSION

CLEAN WEAPONS

Note by the Secretary

The Acting Director of Military Application has submitted the attached letter from Drs. Bradbury and York for the information of the Commission.

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W. B. McCool
Secretary

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1ST REVIEW DATE: <u>06/15/02</u>	DETERMINATION (CIRCLE NUMBER(S))	SINGLE REVIEW AUTHORIZED BY: <u>DOE ORDER 5650-28</u>	1. CLASSIFICATION RETAINED
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WITH ATTACHMENTS/ENCL

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ENCLOSURE I

UNIVERSITY OF CALIFORNIA
LOS ALAMOS SCIENTIFIC LABORATORY
(Contract W-7405-ENG-36)
P. O. BOX 1663
LOS ALAMOS, NEW MEXICO

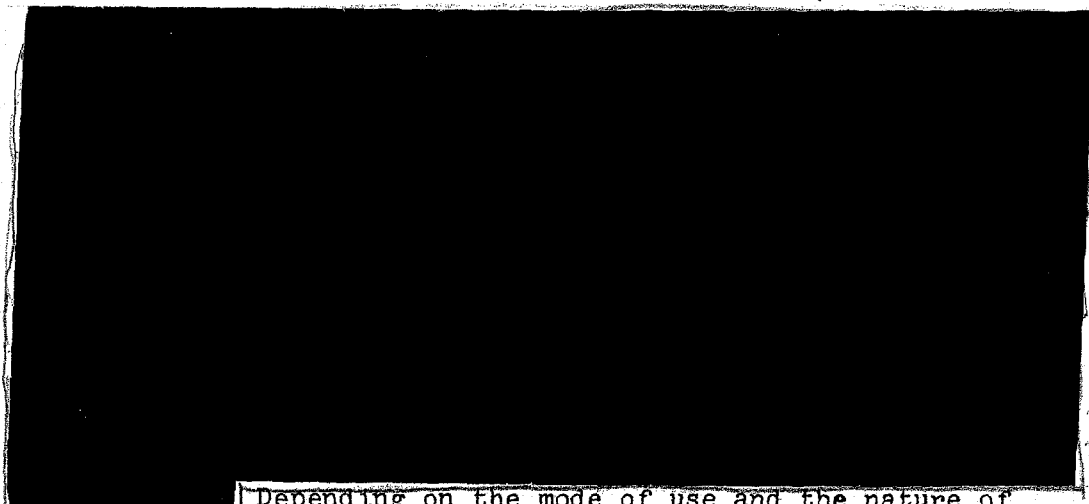
April 15, 1955

In Reply
Refer To: Dir-1037

Brig. General K. E. Fields
Director of Military Application
U. S. Atomic Energy Commission
Washington 25, D. C.

Dear General Fields:

Your letter of April 8, 1955 inquires as to the status of our present understanding and prospects with respect to so-called "clean" weapons.



DOE
6.1 (a)

DOE
6.1 (a)

DOE
6.1 (a)

DOE
6.1 (a)

Depending on the mode of use and the nature of environment, the fission debris would, of course, be accompanied by other material made radioactive by neutron capture, but unless the materials surrounding the bomb were rather carefully chosen for the purpose, the fission debris would still constitute the major source of residual radioactivity.

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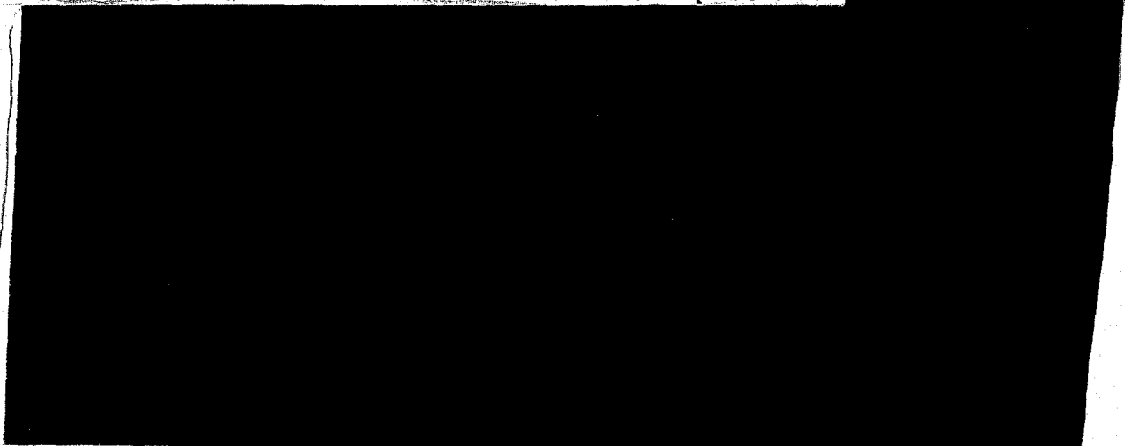
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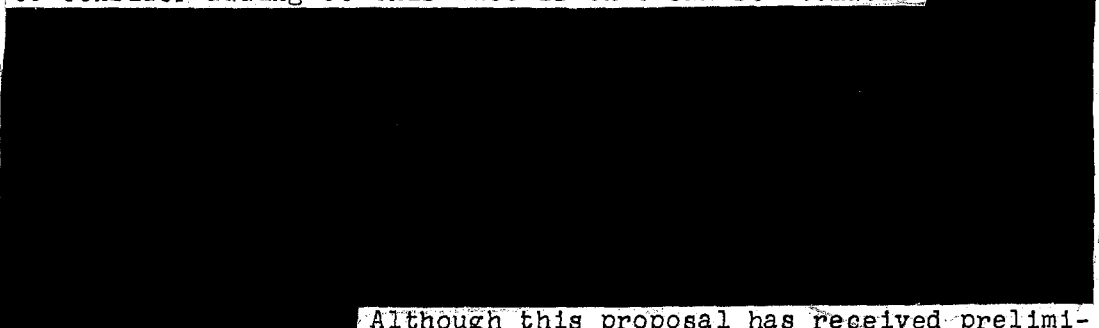
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The calculations we have made with respect to such models are, in general, very similar to those which, when applied to the models tested at Operation Castle, give results in agreement with the observed results to within about ten percent.



DOE
(b)(1)(a)

With respect to the matter of a possible test in Redwing of such a device, we feel, as you know, that the list already available of objects which will require to be tested merely to meet demands specifically related to rather immediate military requirements is impressively long. We are consequently reluctant to consider adding to this list if that can be avoided.



DOE
(b)(1)(a)

Although this proposal has received preliminary consideration, we are not yet in a position to lay down a design of such a device and it will require a rather favorable rate of progress to be able to prepare this test in time for Redwing. At the moment, however, we are rather optimistic about being able to do so.

Very truly yours,

/s/

N. E. Bradbury
Director



ENCLOSURE II

25 April 1955
CITE: BY 8308

THRU: Dr. H. A. Fidler
San Francisco Operations Ofc, AEC

Col. Vincent G. Huston, Acting Chief
Research Branch
Division of Military Application
U. S. Atomic Energy Commission
1901 Constitution Avenue
Washington 25, D. C.

RE: CLEAN WEAPON DEVELOPMENT

Dear Colonel Huston:

I - REQUIREMENT AND MEANING

A clean weapon is one in which the radioactive after-effects are reduced to a minimum. The need for such a weapon has been outlined and discussed in a number of places; for instance, in a letter of General Fields to Dr. York (2/9/55); a letter of Secretary Wilson to Admiral Strauss; and in discussion between the writer and Commissioners Libby, Murray and Von Neumann.

[REDACTED]

DOE
6.1(e)

We have calculated that for the case of "average" dirt the local fallout intensities would be reduced by a factor of twenty as compared with the fallout produced in a bomb getting 60% of its yield from fission as is roughly the case for the present thermonuclears.

[REDACTED]

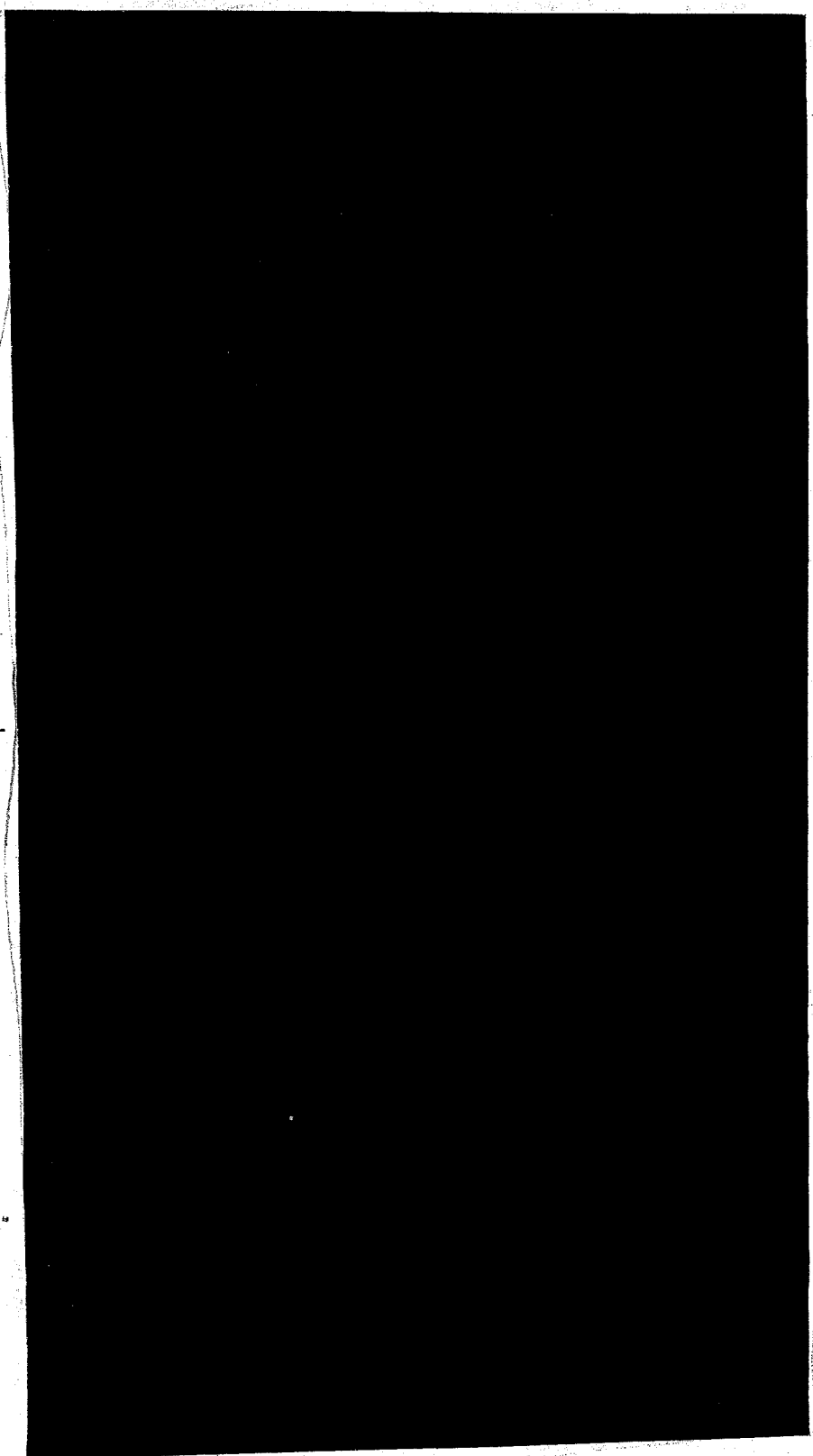
DOE
6.1(e)

II - METHODS FOR PRODUCING CLEAN EXPLOSIONS

We know of two general methods for achieving such results.

[REDACTED]

A -



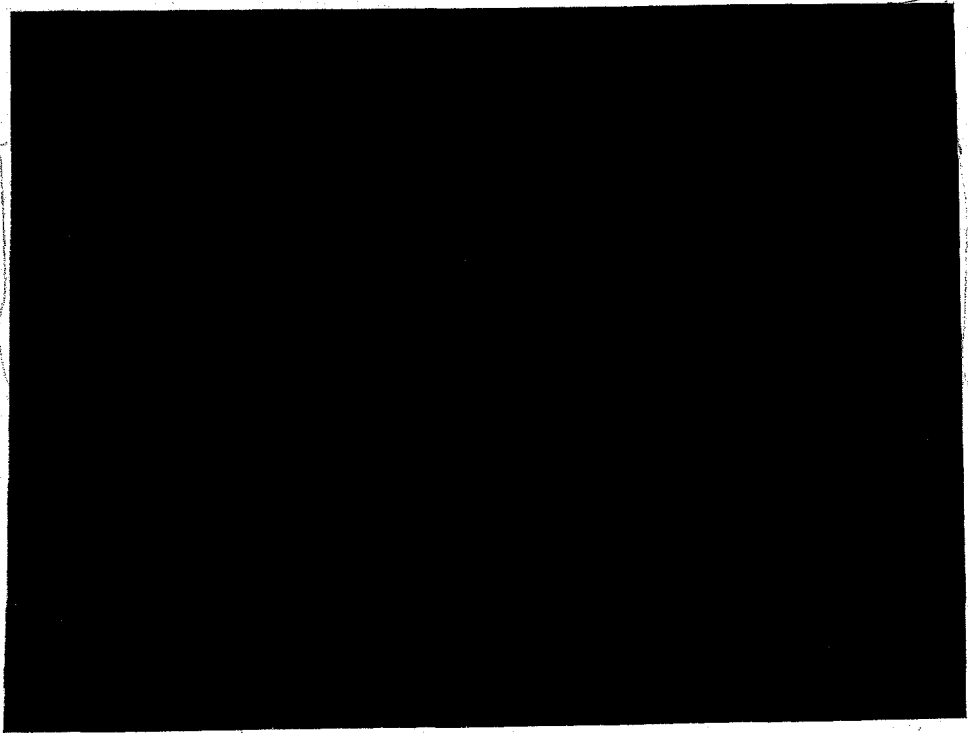
DOE
6.1(e)

B -



~~SECRET~~

III - UCRL - PROPOSED PROGRAM



DOE
(6.1(a))

Sincerely,

HERBERT F. YORK, Director
UCRL - Livermore

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NW: 97 2006A
By DA LR Date 7/27/05

- 5 -

Enclosure II

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