

DELETED VERSION ONLY

OPERATION HARDTACK

411017

Project No: 2.8b

Title:

Agency: NRDL & LASL

Aircraft Fallout Sampling

Shot Participation:

Project Officer:

[REDACTED] (1 over land and 1 over water)

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Objective:

To determine the relative contribution of certain isotopes to both local and world-wide fallout. To use this information, if possible, to determine the fraction of total bomb debris deposited in the local area.

Description and Experimental Procedures:

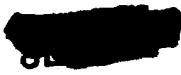
1. To date, fallout collection methods have not allowed a direct comparison between fallout samples and close-in samples, such as have been routinely obtained by sampling aircraft. This project is designed to provide correlation between high altitude sampling and low altitude sampling with comparable techniques.
2. Three B-57D at the highest altitude attainable and four to six B-57B at appropriate high altitudes will collect both particulate and gaseous samples as soon after detonation as is practicable and at several times thereafter. Final collection will be made approximately 6 hours after detonation. At least one additional aircraft will be used for control purposes, and more sampling aircraft will be used if they are available.
3. Two or three B-50 aircraft will collect several particulate samples at an altitude of approximately 1000 feet along predicted "height lines", to allow fractionation between particle size for selected isotopes to be determined. This will provide data on the relative depletion of nonrefractory isotopes in fallout. - Height lines will be chosen to allow a direct comparison between results of the high altitude and low altitude collections. In addition, one higher height line will be used; one which is limited only by B-50 range capability and smallest particle size sought.

CLASSIFICATION CANCELLED
WITH DELETIONS
BY AUTHORITY OF DOE/OC

6/4/85
6/25/85
REVIEWED DATE
APR 85 Schmidt

US DOE ARCHIVES	
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4. Photographic coverage of B-57 operations will be supplied by a hand-held motion picture camera in the control aircraft, to allow qualitative examination of the wind-shear cloud layers penetrated.

5. Gaseous samples will be analyzed on site. Particulate samples will be returned to the ZI for analysis. Each particulate sample will be analyzed for approximately 10 selected isotopes. Analysis and results of this Project will be closely correlated with those of Project 2.8a.

Special Requirements:

1. Two surface burst of  one land-based and one barge-based.
2. Support of a fallout computing group for height line prediction until H/20 hours. The lines should be recalculated as many times within the twenty hour period as is feasible.
3. Shear winds in the B-57 operating altitudes must be available to allow both high-altitude discrimination and height line separation. This is a mandatory condition for firing the land-based shot and is desirable for the barge-based shot.
4. No shot at either atoll can precede or succeed the land-based shot by less than 48 hours, to preclude sampling of mixed debris and to allow support requirements to be met.
5. Aircraft support from the Air Weather Service (B-50's) and AFSWC (B-57's) as outlined above. Availability of B-57 aircraft must be coordinated with, and is subordinate to, the diagnostic sampling program.
6. If present AEC studies demonstrate feasibility, incorporation of a suitable tracer in the land-based device, to allow correlation between the close-in measurements obtained by this Project and the several continuing world-wide fallout programs.

Construction: None

Funding: -

Total Estimated R&D Cost:	AFSWP	0
	AEC	<u>\$306,500</u>
	TOTAL	\$306,500

