

J-11-126

October 20, 1954

*logged 10/26/54*

*RM*

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CLASSIFICATION CANCELLED  
OR CHANGED TO **SECRET, RD**  
BY AUTHORITY OF **I. L. Cucchiara**  
BY **M.S.M.** DATE **11/25/83**

Dr. P. H. Wyckoff, Chief  
Atmospheric Physics Laboratory of the  
Geophysics Research Directorate  
Air Force Cambridge Research Center  
115 Sommers Street  
Boston, Massachusetts

RG 326 US ATOMIC ENERGY  
COMMISSION

Location \_\_\_\_\_  
Collection Records Center C-2 D-99  
Folder Weather Studies - General

Dear Dr. Wyckoff

In accordance with the request of Dr. Lester Machta, U. S. Weather Bureau, and the instructions of the Division of Military Applications, U. S. Atomic Energy Commission, I am forwarding to you samples of debris from several bombs of the Operation CASTLE Series. The debris is contained on filter papers which were flown through the bomb cloud. Pertinent data on times and altitudes of collection are given below.

In regard to the removal of particulate matter from the filter papers, members of the Argonne National Laboratory have performed this operation successfully by shaking the papers with small steel balls in acetone. Details of this procedure may be obtained from Dr. Sherman Fried of Argonne.

In regard to the particulate size distribution, studies have been made on similar papers by members of the AFOAT-1 organization. Details and results may be obtained from Dr. William Urry of AFOAT-1.

The level of radioactivity on the papers at this time is in all cases less than 5 milliroentgens per hour at near contact. Upon completion of your studies, the filter papers need not be returned to Los Alamos; however, certificates of destruction of the material should be furnished to me at your convenience. For your information, details on the nature of the debris collected on these papers carry a classification of SECRET RESTRICTED DATA, and fall into the "Weapons Data" category.

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*Core Wilson 1/31/84*  
REVIEWED BY \_\_\_\_\_ DATE \_\_\_\_\_

*José Diaz*  
9/18/85

[REDACTED]

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Dr. P. H. Wyckoff  
J-11-126

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[REDACTED]

Oct. 20, 1954

If any further information is desired on the samples, please let us know.

Very truly yours,

Original Signed by  
R. W. SPENCE

R. W. Spence

CIB:ja

Distribution: Cy. 1A, Dr. P. H. Wyckoff  
Cy. 2A, Duncan Curry  
Cy. 3A, A. C. Graves ←  
Cy. 4A, G. J. Newgarden  
Cy. 5A, Mail and Records  
Cy. 6A, Mail and Records  
Cy. 7A, R. W. Spence File

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[REDACTED]  
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Sample Number	Date	Time	Altitude*	Time**	Remarks
Castle-1	038L	2/28/54	36,500 ft	2/28/54	1630 MST
	043L	"	42,500	"	1655
	030L	"	37,000	"	1350
	1083 (L. upper)	"	51,500	"	1645
	1086	"	50,000	"	1545
Castle-2	045L	3/26/54	38,000	3/26/54	1720 MST
	B-29-L	"	25,500	"	1400
	1083 LL	"	51,200	"	1900
Castle-4	033L	4/25/54	39,000	4/25/54	1430 MST
	1086 R B-36 B-29 271 L	"	51,000	"	1540
Castle-5	202L Out	5/4/54	9,000	5/4/54	1630 and 1810 MST
	202R In	"	9,000	"	"
Castle-6	335L Out	5/13/54		5/13/54	
	335L In	"		"	

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Sample taken at approximate lateral center of cloud.  
Sample taken 50-100 nautical miles west of lateral center.

This plane, a fallout tracker, made two penetrations.  
No flight data are available on these papers. However the collecting plane was a fallout tracker and probably flew at ~9000' and sampled at ~5-10 hours after burst.

\* Collection altitude figures are pressure altitude readings. True altitude is actually higher than this by about 2000 ft in the 40,000 to 45,000 ft range and about 2500 ft in the 50,000 ft altitude. The main cloud from the above five shots based at about 35,000 ft so samples taken above this altitude represent debris in the mushroom itself and samples taken below ~35,000 ft represent either debris in the mushroom stem or fallout from the main cloud.

\*\* Actual duration of collection was about one hour. The time listed in this column represents the mean time of collection.

In some cases, papers are available which contain debris collected at ground level during longer periods of time. If any of these is desired, they will be forwarded at your request.