

HSA:EPH

April 17, 1956

*File
Rongelap*

Dr. Willis R. Boss, Assistant Chief
Biology Branch
Division of Biology and Medicine
U. S. Atomic Energy Commission
1901 Constitution Avenue, N. W.
Washington 25, D. C.

Dear Dr. Boss:

We are sending for your information,
a copy of our Laboratory Report 56-4 entitled
"Rongelap Survey, October 1955 - Results of Analy-
ses Performed at HASL". It is a summary of our
analyses of samples received from the University
of Washington, Applied Fisheries Laboratory.

Sincerely yours,

Edward P. Hardy, Jr., Chemist
Analytical Branch
Health and Safety Laboratory

CC: Dr. G. M. Dunning ✓
Dr. L. R. Donaldson

NMB-3

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During November 1955, HASL received 12 soil, 12 seawater, 8 vegetation, 1 plankton, 2 algae, 6 fish, and 15 coconut samples collected by A. Seymour of the Applied Fisheries Laboratory, University of Washington. This particular set of samples was collected during October 21-23, 1955 on Rongelap, Kabelle, and Labaredj Islands of Rongelap Atoll and Mogiri Island of Alinginae Atoll.

Each sample was analyzed at HASL for total activity and Sr-90. Selected samples were analyzed for normal calcium by the oxalate-permanganate titration method, for reporting values in Sunshine Units. Values are reported as of February 27, 1956 and are presented in three sections:

1. A summary of HASL results including a comparison with data obtained from University of Washington Report No. UWFL-43.
2. A complete tabulation of HASL data with pertinent information given for each sample.
3. Notes covering sources of information, analytical procedures, and standardization and counting techniques used at HASL in processing these samples.

1. SUMMARY OF HASL DATA AND COMPARISON WITH AFL

SOIL

<u>Area Collected</u>	<u>Depth</u>	<u>Total Activity</u> d/m/g - wet		<u>Sr-90</u> d/m/g - wet	
		<u>HASL</u>	<u>AFL</u>	<u>HASL</u>	<u>AFL</u>
Kabelle	0-3"	6600-15000	16000-23000	200-510	N. R.
	3-6"	300- 620	420- 760	5- 23	N. R.
Labaredj	0-3"	5500- 7500	9600-25000	190-260	N. R.
	3-6"	360- 620	230- 550	5- 7	N. R.
Rongelap	0-3"	3000- 5700	3700-45000	190-210	N. R.
	3-6"	410- 1000	800- 1500	12- 32	N. R.

Total Activity

top 0-3", 6-25 times higher than 3-6" layer (HASL)

Sr-90

top 0-3", 7-50 times higher than 3-6" layer (HASL)

Average % Sr-90 in top soil - 3.9 (HASL)

Average % Sr-90 in bottom soil - 2.3 (HASL)

% Total Activity in top 3"

	<u>HASL</u>	<u>AFL</u>
Kabelle	96	97
Labaredj	96	97
Rongelap	88	89

NOTE:

Average Sr-90 found in continental United States soil top 0-2", 0.2 d/m/g (HASL)

SEAWATER

<u>Area Collected</u>	Total Activity d/m/liter		Sr-90 d/m/liter	
	<u>HASL</u>	<u>AFL</u>	<u>HASL</u>	<u>AFL</u>
Kabelle	650	300-500	undet.	N. R.
Labaredj	300	300-500	undet.	N. R.
Rongelap	undet.	undet.	undet.	N. R.
Mogiri	undet.	undet.	undet.	N. R.

ALGAE

Rongelap Island

<u>Location</u>	Total Activity d/m/g - wet		Sr-90 d/m/g - wet	
	<u>HASL</u>	<u>AFL</u>	<u>HASL</u>	<u>AFL</u>
Cistern	9410	8860-23600	undet.	N. R.
Well	680	570- 1880	~5	N. R.

PLANKTON

Kabelle-Rongelap

	Total Activity d/m/g - wet		Sr-90 d/m/g - wet	
	<u>HASL</u>	<u>AFL</u>	<u>HASL</u>	<u>AFL</u>
	44	99-418	undet.	N. R.

VEGETATION

Rongelap

		Total Activity d/m/g - wet		Sr-90 d/m/g - wet	
		<u>HASL</u>	<u>AFL</u>	<u>HASL</u>	<u>AFL</u>
<u>Papaya</u>					
	pulp	58	17-137	0.4	N. R.
	pulp and skin	100		1.0	N. R.
	skin	>20		0.8	N. R.
	seeds	64	37-503	>0.3	N. R.
<u>Morinda</u>					
	entire	34	14- 73	1.0	N. R.
<u>Arrowroot</u>					
	corm	102	78-193	3.0	N. R.
<u>Squash</u>					
	flowers and leaves	25	20-120	5.0	N. R.
<u>Pandanus</u>					
	entire	84	76-189	2.0	N. R.
<u>Coconut</u>					
	outer husk	80	N. R.	1.0	N. R.
	inner shell	20	N. R.	0.2	N. R.
	meat	} 40	23- 83	} 0.2	N. R.
	milk		20-115		N. R.
<u>% Sr-90</u>					
	HASL	} $\frac{1}{2}$ - 4% of total activity			} except coconuts
	AFL	} 2 - 5% of total activity			

COCONUTS - (HASL)

<u>Island</u>	Total Activity d/m/g - wet			Sr-90 d/m/g - wet		
	<u>Outer husk</u>	<u>Inner shell</u>	<u>Meat and milk</u>	<u>Outer husk</u>	<u>Inner shell</u>	<u>Meat and milk</u>
Kabelle	80	20	50	0.4	0.1	0.1
Rongelap	80	20	40	1.0	0.2	0.2
Labaredj	200	30	80	2.0	0.4	0.4
<u>% Sr-90</u>	Outer husk		~1%			
	Inner shell		~1%			
	Meat and milk		~0.1%			
<u>AFL</u>	- reports 0.1% in meat and milk					

COMMERCIAL COCONUTS

<u>Total Activity</u>		
	Inner shell	2
	Meat and milk	5

FISH

		Total Activity d/m/g - wet		Sr-90 d/m/g - wet		
		<u>HASL</u>	<u>AFL</u>	<u>HASL</u>	<u>AFL</u>	
Kabelle	Tuna	bone	31	N. R.	~0.2	N. R.
		muscle	24	40	undet.	N. R.
		liver	186	1070	undet.	N. R.
Labaredj	Bonito	muscle	56	102	undet.	N. R.
		bone	227	N. R.	undet.	N. R.
Rongelap	Goatfish	muscle	21	18-37	undet.	N. R.

AFL - Sr-90 undetectable in marine organisms