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April 17, 1956

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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 Analyses Performed at HASL". It is a summary of our analyses of samples received from the University of Washington, Applied Fisheries Laboratory.

Sincerely yours,

Edward Hardy

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

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

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RONGELAP SURVEY, OCTOBER 1955

RESULTS OF ANALYSES PERFORMED AT HASL

Laboratory Report 56-4

by

E. P. Hardy
G. H. Hamada

March 5, 1956

2/18/85

INCOMPLETE DOCUMENT REFERENCE SHEET

The archive copy of this document is incomplete.

Pages missing 2 - 11

Enclosures missing _____

Attachments missing _____

Other _____

W. Tench
signature

9/17/87
date

3. NOTES

SOIL

1. Spec. No., Collection date, Area collected, Description, Depth, Backman readings - information supplied by A. Seymour.

2. Beckman readings in mr/hr taken 1" above ground - shield closed/shield open. Background - 0.05 mr/hr.

3. "Wet" refers to weight of soil as received at HASL.

4. "Dry" refers to soil aliquot dried at 100°C for eight hours.

5. Procedure:

   a. Soil aliquot ashed at 550°C for 8 hours, then dissolved in HNO_3. Solution aliquot plated directly on glass planchet for beta counting. Standardized against 0.2 gram K_2CO_3, mounted in similar manner.

   b. Self-absorption correction applied in each case: based on self-absorption of activity in two top soils.

6. Sr-90 - suitable aliquot taken from solution of dissolved soil.

7. Error term associated with each result is one Poisson standard deviation.

SEAWATER

1. Spec. No., Area collected, Collection date - information supplied by A. Seymour.

2. All islands in Rongelap Atoll except Mogiri, which is part of Alinginae Atoll.

3. All water collections made in lagoons except Mogiri, where collection was made from anchorage.

4. The total activity result was obtained by precipitating carbonate from a 200 ml aliquot, mounting on 2" plastic disc and

beta counting under 2" tube.

a. Standardized with K-40 (3 gms K_2CO_3 mounted in similar manner) where 3 gms $K_2CO_3 \equiv 2955$ d/m.

b. A self-absorption factor of 2 was applied to each result (See fig. 6 - Troll Report).

c. Assumptions:

1. 18 month old pile produced f.p.'s simulate these conditions.

2. Ca content of these waters and those sampled on Troll - constant.

5. Sr-90 analyses performed on 400 ml aliquot.

6. Error term associated with each result - one Poisson standard deviation.

VEGETATION

1. Spec. No., Organism, Tissue, Area collected, Remarks, - information supplied by A. Seymour.

2. "Wet" refers to wet weight given by A. Seymour, except in case of Pandanus, which was received in wet state at HASL.

3. Samples dried at 95°C by A. Seymour wherever a result is given, except for Algae, which were dried at HASL.

4. In all cases except Arrowroot, sample wet ashed at HASL.

5. Total activity results: based on direct plating of aliquot in glass planchet and beta counting. Standardized against 0.2 g K_2CO_3, mounted in similar manner.

Self-absorption correction factor applied in each case: based on self-absorption of activity in Papaya pulp and Cistern algae.

6. Aliquot taken for Sr-90: represented 10-20 gms wet material.

7. Error term associated with each result is one Poisson standard deviation.

COCONUTS

1. Spec. No., Area collected, Tissue, Remarks, - information supplied by A. Seymour.

2. "Wet" refers to weight as received at HASL. Samples were not dried but ashed at 550°C for 8 hours.

3. For total activity measurement a 0.2 gm aliquot of ash was beta counted in a plastic planchet and standardized against 0.2 gms K_2CO_3, similarly prepared.

4. No self-absorption correction applied.

5. Aliquot of dissolved ash analyzed for Sr-90.

FISH

1. Spec. No., Organism, Tissue, Area collected, Collection date, Remarks - information supplied by A. Seymour.

2. "Wet" refers to wet weight given by A. Seymour.

3. Samples were dried at 95°C by A. Seymour except in case of Plankton, which was received in formalin.

4. In all cases except bone, sample was wet ashed at HASL. Bone was ashed at 550°C then dissolved.

5. For total activity - aliquot plated on glass planchet and beta counted. Standardized against 0.2 gms K_2CO_3 mounted in similar manner. Self-absorption correction factor applied in each case: based on self-absorption of activity in tuna muscle and bonito bone.

6. Aliquot taken for Sr-90: represented 10-20 gms wet material.

The special assistance received from J. Alercio, A. Rodriguez, E. French and I. Whitney was invaluable in the preparation and analysis of these samples.