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Health and Safety Laboratory

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November 27, 1956

Dr. Lauren R. Donaldson
Applied Fisheries Laboratory
University of Washington
Seattle 5, Washington

Dear Lauren:

Somehow, under the pressure of producing results for Biology & Medicine, the data on the last survey samples was not forwarded to you. This data has been worked up in Washington, as you probably know. Later results are included in the attached typed sheet.

In the tables we do not have information on the wet weight of the Cenobita samples but everything else was complete. There are certain analyses not yet complete and one or two that are being rechecked. Sr^{90} figures have been obtained at HASL and also at Nuclear Science & Engineering Corp., and at Isotopes, Inc. Another point is the Strontium Units (SU) reported for soil are shown as minimum values. This is because no one can agree on the actual available strontium in a coral soil. Apparently this is very low and the soil SU values are probably two or three orders of magnitude higher than the minimum.

I had a chance to talk to Al at a recent meeting in Washington and it looks like we will have some good communication while he is there. He will certainly have his hands full and I would not be surprised to see him trying to get back on board a survey vessel.

Sincerely,

John H. Harley

John H. Harley, Chief
Analytical Branch

Enclosures:
1. Table entitled "UWAFL - Post Redwing Marshall Island Survey Samples"
2. Table entitled "Invertebrates and Fish"

UWAFL - POST BRAVO/MARSHALL ISLAND SURVEY SAMPLES

	HASL Number	UWAFL Number	Organism	Tissue	Sampling Location Island	Collection Date	No. Spec.	Lab	Total Activity (β) C-Date	Total Activity (β) d/m/g wet	Sr^{90} d/m/g - wet	Ca gms/g - wet	S.U.
Invertebrates	4042	I- 9	Holothurai atra	gonad	Rongelap	7-23-56		I,Inc.	10-10-56	46	2.7 ± 0.14	0.00566	210 ± 11
	4043	I-10	Holothurai atra	gut & content	Rongelap	7-23-56		I,Inc.	10-10-56	31	incomplete	0.155	incomplete
	4044	I-11	Holothurai atra	integument	Rongelap	7-23-56		I,Inc.	10-10-56	10	incomplete	<0.00101	incomplete
	4045	I-12	Tridacna gigas	mantle	Kabelle	7-24-56		I,Inc.	10-10-56	2.6	0.030 ± 0.016	<0.00239	≥6
	4046	I-13	Tridacna gigas	muscle	Kabelle	7-24-56		I,Inc.	10-10-56	1.5	incomplete	0.00400	incomplete
	4047	I-49a	Cenobita	muscle	Kabelle	7-24-56		NSE			No - Wet - Weight - Data		4600 ± 300
	4048	I-49b	Cenobita	skeleton	Kabelle	7-24-56		NSE			" " " "		3940 ± 170
	4049	I-49c	Cenobita	liver	Kabelle	7-24-56		NSE			" " " "		4600 ± 300
	4050	I-50a	Cenobita	skeleton	Kabelle	7-24-56		NSE			" " " "		2190 ± 80
	4051	I-50b	Cenobita	liver	Kabelle	7-24-56		NSE			" " " "		2620 ± 130
	4052	I-50c	Cenobita	muscle	Kabelle	7-24-56		NSE			" " " "		2660 ± 170
	4053	I-52	Cenobita	skeleton	Rongelap	7-23-56		NSE			" " " "		2200 ± 120
	4054	I-51	Cenobita	skeleton	Kabelle	7-24-56		NSE			" " " "		3600 ± 150
Fish	4035	F-266a	Reef fish	muscle	Rongelap	7-23-56	19	NSE		12	0.036 ± 0.003	0.000808	20 ± 1.9
	4036	F-266b	Reef fish	bone	Rongelap	7-23-56	19	NSE		31	1.9 ± 0.082	0.0711	12 ± 0.5
	4037	F-266c	Reef fish	liver	Rongelap	7-23-56	19	NSE		230	recheck	0.000990	recheck
	4038	F-314a	Reef fish	muscle	Kabelle	7-24-56	15	I,Inc.	10-10-56	2.9	0.027 ± 0.004	0.00125	9.8 ± 1.6
	4039	F-314b	Reef fish	muscle	Kabelle	7-24-56	15	I,Inc.	10-10-56	0.39	0.401 ± 0.007	0.00104	175 ± 3
	4040	F-314c	Reef fish	bone	Kabelle	7-24-56	15	I,Inc.	10-10-56	0.66	0.106 ± 0.014	0.0744	0.65± 0.09
	4041	F-314d	Reef fish	liver	Kabelle	7-24-56	15	I,Inc.	10-10-56	7.2	0.061 ± 0.041	<0.00485	≥6
Land Plants	4024	RO- 1	Breadfruit	meat	Rongelap	7-23-56		NSE		31	0.26 ± 0.008	0.000447	260 ± 10
	4025	RO- 2	Papaya	seeds	Rongelap	7-23-56		I,Inc.	10-11-56	0.86	0.38 ± 0.01	<0.00208	≥ 66
	4026	RO- 2	Papaya	seeds	Rongelap	7-23-56		NSE		28	0.38 ± 0.002	0.00237	74 ± 4
	4027	RO- 6	Coconut	meat	Rongelap	7-23-56		I,Inc.	10-10-56	0.36	0.033 ± 0.003	<0.000376	≥ 41
	4028	RO- 7	Coconut	milk	Rongelap	7-23-56		NSE		66(d/m/ml)	0.034 ± 0.004(d/m/ml)	0.000277(gms/ml)	58 ± 7
	4034	RO- 8	Morinda	pulp & seeds	Rongelap	7-23-56		NSE		46	1.4 ± 0.048	0.000659	1000 ± 50
	4029	RO-12	Arrowroot	corm	Rongelap	7-23-56		I,Inc.	10-10-56	0.16	0.27 ± 0.004	0.000642	190 ± 3
	4030	RO-16	Pandanus	fruit	Rongelap	7-23-56		NSE		63	1.2 ± 0.041	0.00106	530 ± 20
	4031	RO-20	Coconut	meat	Kabelle	7-24-56		I,Inc.	10-10-56	0.56	0.15 ± 0.003	<0.000250	≥ 272
	4032	RO-21	Coconut	milk	Kabelle	7-24-56		NSE		245	1.9 ± 0.076	0.000474	1720 ± 110
	4033	RO-22	Papaya	fruit	Rongelap	7-23-56		I,Inc.	10-10-56	0.40	0.37 ± 0.006	0.000636	265 ± 4

	HASL Number	UWAFL Number	Type	Island Location	S-Date	Area	Lab	Total Activity (β) C-Date	Total Activity (β) d/m/l	Sr^{90} d/m/l
Water	3814		Cistern	Rongelap	7-27-56	Village	I,Inc.	8-7-56	31,000 (after filtering twice)	
	3815		Well	Rongelap	7-23-56	Village	I,Inc.	8-7-56	22,000 (after filtering twice)	7700 ± 300

	HASL Number	UWAFL Number	Sampling Location	Collection Date	Depth	Area	Lab	Total Activity (β) C-Date	Total Activity (β) d/m/gm-wet	Sr^{90} d/m/gm-wet	Sr^{90} d/m/ft^2	Sr^{89}/Sr^{90}	Total Ca gms/gm-wet	Minimum S.U.
Soil	3802		Kabelle	7-24-56	0-2"	(first set)	HASL	8- 4-56	1980 ± 80	150 ± 3.7		0.07	0.29	
							I,Inc.	8-29-56	1820	155 ± 4.1			0.31	220 ± 6
	3803		Kabelle	7-24-56	2-4"	(first set)	HASL	8- 4-56	406 ± 45					
							I,Inc.	8-29-56	471	40 ± 0.41			0.32	55 ± 0.6
	3804		Kabelle	7-24-56	4-6"	(first set)	HASL	8- 4-56	≤40					
							I,Inc.	8-29-56	106	1.5 ± 0.07			0.35	8.0 ± 0.9
	3807		Kabelle	7-24-56	0-2"	(second set)	HASL	8- 4-56	6210 ± 110	250 ± 4.9		0.16	0.37	
							I,Inc.	8-30-56	5940	265 ± 1.2			0.36	330 ± 2
	3806		Kabelle	7-24-56	2-4"	(second set)	HASL	8- 4-56	3300 ± 102	58 ± 2.9		0.07	0.35	
							I,Inc.	8-30-56	1935	96 ± 1.7			0.35	125 ± 2
	3805		Kabelle	7-24-56	4-6"	(second set)	HASL	8- 4-56	1160 ± 62	54 ± 2.8		0.08	0.56	
							I,Inc.	8-30-56	651	30 ± 0.57			0.34	40 ± 1.3
	3808		Rongelap	7-23-56	0-2"	100' fr. lagoon village area	HASL	8- 4-56	266 ± 52					
							I,Inc.	8-30-56	152	10 ± 0.40			0.36	13 ± 1.4
	3809		Rongelap	7-23-56	2-4"	100' fr.lagoon village area	HASL	8- 4-56	≤39					
							I,Inc.	8-30-56	79.2	4.5 ± 0.1			0.35	5.8 ± 0.4
	3810		Rongelap	7-23-56	4-6"	100' fr.lagoon village area	HASL	8- 4-56	≤45					
							I,Inc.	8-30-56	54.9	0.98 ± 0.03			0.32	1.4 ± 0.04
	3813		Rongelap	7-23-56	0-2"	mid island	HASL	8- 4-56	1220 ± 58	68 ± 2.8		0.06	0.20	
							I,Inc.	8-30-56	663	31 ± 0.21			0.32	44 ± 0.5
	3812		Rongelap	7-23-56	2-4"	mid island	HASL	8- 4-56	134 ± 51					
							I,Inc.	8-30-56	206	4.0 ± 0.2			0.35	5.2 ± 0.3
	3811		Rongelap	7-23-56	4-6"	mid island	HASL	8- 4-56	≤37					
							I,Inc.	8-30-56	54.9	0.98 ± 0.03			0.32	1.4 ± 0.1
	3818		Parry	7-25-56	surface	shore	HASL	8- 4-56	17900 ± 203	7.6 ± 2.0		8.7	0.30	
	3819		Parry	7-25-56	sub-surface	shore	HASL	8- 4-56	103 ± 39					

* As of 9-20-56

Invertebrates and Fish

HASL #	Sr^{90} d/m/g - wet	S. U.
4043	1.15 ± 0.029	3.39 ± 0.08
4044	0.27 ± 0.007L	150
4046	0.046	----
4037	0.058 ± 0.029	27 ± 13

Water

HASL #	Sr^{90} d/m/Liter
3814	147 ± 4.32
3815	77 ± 2.84

Soil

HASL #	Sr^{90} d/m/g - wet	S. U.
3810	1.39 ± 0.06	1.30 ± 0.08