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September 27, 1973

Captain Gay
~~Mr. Carlson~~
CDR Wolff
Major Johnson
Major Giannotta
Mr. Cornwell

MEMORANDUM

TO: W. E. Nervik, Division Leader, Radiochemistry

FROM: R. W. Hoff, Radiochemistry Division

SUBJECT: Eniwetok sample analytical program. Progress Report No. 17. Status as of 21 September 1973.

Operation Redlegs

This progress report summarizes the laboratory analytical effort being carried on at LLL by members of the Radiochemistry Division, Biomedical Division, and Hazards Control Department, at the University of Washington (Dr. Allyn Seymour, Dr. Victor Nelson, Dr. William Schell), at McClellan Laboratory (Col. R. McBryde, Maj. W. Myers), at LFE Environmental (Mr. Leon Leventhal, Mr. William Major), and at Eberline Instrument Corporation (Mr. Eric Geiger, Mr. Ernest Sanchez).

I. Initial processing. All efforts completed prior to 29 June 1973.

Details on completion rates, numbers of samples, laboratories involved, etc. in initial processing are available in earlier issues of this report.

II. Gamma counting, precision Ge(Li) detector spectroscopy:

Gamma counting of all samples has been completed as of 27 July 1973, with the exception of a few late soil and coconut samples. There is no backlog of uncounted samples now.

The data have been checked for accuracy; correction sheets on errors are being processed by Bill Phillips.

Samples counted and data in computer bank (LLL):

Soils	3068
Sediments, cores	345
Fish	413
Algae	3
Seawater	82
Plankton	16
Coral	2
Vegetation	219
Air Filters	67
Animals, birds, eggs, etc.	274
TOTAL	4489

The numbers listed here are taken from a computer listing which summarizes sample entries. The actual count of samples which appears in our final report may differ slightly from the above. We are in the process of eliminating certain entry duplications due to mistakes in Sample ID numbers. Until these corrections have been completed, the above listing is subject to revision. Another uncertainty lies in the designation of sediment samples and core samples. Sediment sample designation refers to grab samples taken from the bottom of the lagoon while core sample designation implies sectioning as a function of depth. Since we haven't attempted to keep these two categories separate, the proportion of each is somewhat uncertain but the total number is accurate.

III. Chemical analyses, samples dissolved and elements isolated chemically:

As of 21 September 1973, the status of soil sample delivery to contract labs is the following:

Sample type	Delivered for chem. anal.	Remain to be delivered
Soils, sediments, cores	1911 (MCL)	none
	1007 (LFE)	
	486 (EIC)	
TOTAL	3404	

Status of wet chemical analyses of fish, vegetation, and animal samples

	Samples delivered	Total	Data in computer bank, as of 9/27/73 ^{239}Pu	^{90}Sr	^{55}Fe	Fe (stable)	^{241}Am	^{113}Cd
Fish	MCL (20 - 4/4/73, 101 - 6/26/73)	121	110	120	117	121	9	14
	LFE (4 - 3/16/73, 192 - 6/20/73)	196	177	179	111	0		
	UW (12 - 2/20/73, 43 - 5/24/73, 13 - 6/19/73)	114	96	113	128	19		
	^{55}Fe requested on all samples							
	Undelivered	0	LLL: 10 - ^{3}H, 10 - ^{14}C					
Vegetation	MCL	130	115	38	12			
	8/2/73 - 24 20 (PriorityI)							
	8/8/73 - 98 110 (Priority II)							
	8/14/73 - 7							
	8/21/73 - 1							
	29 - ^{55}Fe requested							
	LFE	51	29	30	0			
	5/21/73 - 40 40 (Priority I)							
	7/23/73 - 11 11 (Priority I) ^{55}Fe requested							
	Undelivered (Priority III)	18	LLL: 11 - ^{3}H, 11 - ^{14}C					

Analyses table continued.

Status of wet chemical analyses of fish, vegetation, and animal samples

	Samples delivered	TOTAL	Data in computer bank, as of 9/21/73 ^{239}Pu	^{90}Sr	^{55}Fe	Fe (stable)	^{241}Am	^{113}Cd
Animals	MCL	53	35	29	0	0	7	1
	8/8/73 - 4 (Priority II) 8/30/73 - 49 (Priority II) ^{55}Fe requested							
	LFE	163	57	67	0	0		
	8/1/73 - 105 (Priority I) 8/30/73 - 58 (Priority II) 116 - ^{55}Fe requested							
	Undelivered	0						
			LLL: 15 - ^{3}H					

McClellan Laboratory (MCL) - The analytical work at MCL was begun in December 1972.

	24 August 1973	7 September 1973	21 September 1973
Samples received			
Soil	1,597	1,647	1,647
Sediment, core	264	264	264
Fish	121	121	121
Vegetation	130	130	130
Animal	4	53	53
Air Filter	58	58	58
Plankton	16	16	16
Distilled H_2O	0	1	1
TOTAL	2,190	2,290	2,290
Pu, Sr data reported			
Soil	1,392	1,443	1,609
Sediment, core	231	244	250
Fish	104	108	110
Vegetation	0	21 (Pu)	38
Animal	0	0	29
Air Filter	53	54 (Pu)	54 (Pu)
Plankton	0	0	0
	1,780	1,870	2,090
Chemistry complete, samples counting	151	175	150
In process	216	245	50

LFE Environmental Analysis Laboratory (LFE) - The analytical work at LFE was begun on March 5, 1973.

	24 August 1973	7 September 1973	21 September 1973
Samples received			
Soils	963	963	963
Sediments	44	44	44
Fish	200	200	200
Vegetation	51	51	51
Animals	105	163	163
Algae	3	3	3
Water plant residues	2	2	2
Seawater (Sr fraction)	0	65	65
TOTAL	1,368	1,491	1,491
Pu data reported			
Soils, sediments	931	946	974
Fish	141	171	177
Vegetation	11	12	29
Animal	0	13	57
Coral	0	0	1
Sr data reported			
Soils, sediments	850	889	967
Fish	14	102	179
Vegetation	5	6	30
Animal	0	0	67
Coral	0	0	1
^{55}Fe data reported (analyses required only on fish samples)			
Fish	4	4	111
Algae	0	0	1

Eberline Instrument Company (EIC) - The analytical work at EIC was begun on April 2, 1973.

	24 August 1973	7 September 1973	21 September 1973
Samples received soils	486	486	486
Pu data reported	319	481	481
Sr data reported	323	485	485
University of Washington			
Samples received (114 marine, 28 filter media)	142	142	142
Pu data reported (marine)	(22)	64	95
Sr data reported (marine)	(7)	(7)	113
^{55}Fe data reported (marine)	(128)	128	128
Fe (stable) data reported (marine)	19	19	19

A progress report will be issued every two weeks.

Richard W. Hoff

Dr. Richard W. Hoff
Deputy Division Leader
Radiochemistry Division

RWH:jw