

September 27, 1973

8711

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.

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

*Operation
Radiol*

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.

SEE ARCHIVE
 326 U.S. ATOMIC ENERGY
 COMMISSION

RG 326
 Collection Tommy McGraw (#1320)
 Box #5
 Folder Radiological Survey

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. | <u>274</u> |
| 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:

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

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

| | | Data in computer bank, as of 9/27/73 | | | | | | |
|----------------------------|--|---|------------------------------------|------------------------------------|------------------------|-------------------------------------|-------------------------------------|----|
| <u>Samples delivered</u> | | <u>^{239}Pu</u> | <u>^{90}Sr</u> | <u>^{55}Fe</u> | <u>Fe (stable)</u> | <u>^{241}Am</u> | <u>^{113}Cd</u> | |
| | | <u>Total</u> | | | | | | |
| 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 - ^3H , 10 - ^{14}C | | | | | | |
| Vegetation | MCL | 130 | 115 | 38 | 12 | | | |
| | 8/2/73 - 24 | 20 (Priority I) | | | | | | |
| | 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 - ^3H , 11 - ^{14}C | | | | | | |

Analyses table continued.

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

| | | | Data in computer bank, as of 9/21/73 | | | | | |
|--------------------------|---|-----|---|------------------------------------|------------------------------------|------------------------|-------------------------------------|-------------------------------------|
| <u>Samples delivered</u> | | | <u>^{239}Pu</u> | <u>^{90}Sr</u> | <u>^{55}Fe</u> | <u>Fe (stable)</u> | <u>^{241}Am</u> | <u>^{113}Cd</u> |
| <u>TOTAL</u> | | | | | | | | |
| 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 - ^3H | | | | | |

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

| | <u>24 August 1973</u> | <u>7 September 1973</u> | <u>21 September 1973</u> |
|---|-----------------------|-------------------------|--------------------------|
| 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 ₂ O | 0 | 1 | 1 |
| TOTAL | <u>2,190</u> | <u>2,290</u> | <u>2,290</u> |
| 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 |
| | <u>1,780</u> | <u>1,870</u> | <u>2,090</u> |
| 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.

| | <u>24 August 1973</u> | <u>7 September 1973</u> | <u>21 September 1973</u> |
|---|-----------------------|-------------------------|--------------------------|
| 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 | <u>1,368</u> | <u>1,491</u> | <u>1,491</u> |
| 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.

| | <u>24 August 1973</u> | <u>7 September 1973</u> | <u>21 September 1973</u> |
|---|-----------------------|-------------------------|--------------------------|
| 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.



Dr. Richard W. Hoff
Deputy Division Leader
Radiochemistry Division

RWH:jw