

Dr. J. H. Harley and Mr. I. B. Whitney

DATE: March 27, 1956

FROM: E. P. Hardy

SUBJECT: NRDL PACIFIC SURVEY - 1956 URINE SAMPLES

On March 22, 1956 HASL received 24 urine samples sent by Dr. S. H. Cohn of NRDL\*. Volumes ranged from 135 ml to 1 liter so it was assumed that these samples did not all represent twenty-four hour collections as previously supposed.

The total urine sample received was wet ashed using 70% HNO<sub>3</sub> and H<sub>2</sub>O<sub>2</sub> added finally to hasten removal of organic material. The remaining salts were dissolved and diluted to a specific volume from which a known aliquot (equivalent to 25 ml of urine) was taken and evaporated to dryness in a one inch glass planchet. This residue was beta counted for 60 minutes and standardized against 200 mg of K<sub>2</sub>CO<sub>3</sub> prepared and mounted in a similar manner.

All data obtained to date are shown in Table 1 and summarized by island in Table 2. The highest value obtained from a pooled control sample collected at HASL was used for comparison.

The following conclusions are tentatively drawn on the basis of these total activity results:

1. Total activity of these urine samples varies from ~0.5 to 2 times a presumed normal control.
2. The average and pooled data of samples collected at both Uterik and Likiep are higher than the control. In addition, the average total activity of urine samples collected at Likiep is higher than Uterik.
3. The individual data and average results of urines collected on Majuro are significantly lower than results from Uterik or Likiep and below control and expected values as well.

Moreover, it may be noted that per 25 ml of urine the residue weights averaged 370 mg with a spread of 135 mg. There is no correlation whatsoever among age, activity, and residue weight.

\* Letter of March 16, 1956

*EML / NMFB. BOX 1*

TABLE 2

<u>Island</u>	Total Activity - - - - - d/m/liter			<u>% Above Control</u>	
	<u>Range</u>	<u>Average</u>	<u>Spread</u>		
Utirik	2200-8400	4830	2230	7600	40
Likiep	2760-9800	6000	2820	9200	55
Rongelap	1160-3040	2030	773	none	0
Pooled Control	4000-4400	4250	200		
Individual Control	3120				
Expected	2600-3500*				

\* Lange - Handbook of Chemistry  
Assuming that all the natural radioactivity in urine is derived from K-40, one would expect 2600-3500 d/m/24 hour sample.

MARSHALL ISLANDS URINES

PRIVACY ACT MATERIAL REMOVED

Received 4/7/54

NAME	SAMPLE NO.	d/m/1 4/9/54
	325- 1	620
	- 7	2200
	- 9	2100
	-10	1700
	-11	1900
	-12	840
	-13	1600
	-14	1400
	-16	880
	-18	4000
	-20	3800
	-22	2500
	-26	1700
	-27	4400
	-28	600
	-29	600
	-30	5600
	-31	920
	-32	4000
	-33	2500
	-34	1300
	-35	2100
	-36	2200
	-37	2600
	-40	2600
	-41	560
	-43	640
	-44	320
	-45	1800
	-46	720
	-47	3100
	-49	600
	-50	600
	-51	600
	-52	2000
	-53	720
	-55	3900
	-56	5400
	-57	3000
	-58	2200
	-59	430

Access #  
326-78  
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PRIVACY ACT MATERIAL REMOVED

It will now be necessary to decide whether values above the control represent fission product body uptake or variation in natural activity due to dietary and metabolic differences. Consequently analyses for Sr-90 are being held up until an agreement is reached.

Table 1

Uterik 2-11-56

<u>HASL #</u>	<u>NRDL #</u>	<u>Name</u>	<u>Age</u>	<u>Total Activity d/m/Liter</u>
3399	6		4	4800 ± 240
3400	1		2	3600 ± 280
3401	4		12	3360 ± 320
3402	9		27	3320 ± 300
3403	10		22	7600 ± 240
3404	7		5	4400 ± 280
3405	2		16	8200 ± 360
3406	3		6	2200 ± 320
3407	8		16	3480 ± 240
3408	11	pooled		7600 ± 320

Likiep 2-11-56

3409	4			4400 ± 320
3410	1		3	4400 ± 320
3411	8		8	4800 ± 320
3412	9		1	4000 ± 240
3413	5		26	4800 ± 320
3414	3		13	9800 ± 360
3415	2		35	2920 ± 280
3416	7		45	8800 ± 320
3417	10	pooled		9200 ± 360

Majuro 2-29-56

3418	9		24	2600 ± 240
3419	40		31	2400 ± 240
3420	36		8	1160 ± 200
3421	26		13	2200 ± 240
3422	76		11	1360 ± 280

PRIVACY ACT MATERIAL REMOVED