

Meeting at DBM, AEC 10 July 1958

Robert Conard, Brookhaven , Chairman  
Charles Dunham, DBM  
Stanton Cohn, Brookhaven  
John Wolfe, DBM  
Gordon Dunning, DBM  
George Anton, "  
David Bruner, "  
A. H. Seymour, "  
Ed Held, U of W.

Dr. Conard set forth the evaluation of hazard to the natives as the primary immediate result needed from the Rongelap surveys.

In the original decision to return the Rongelapese to Rongelap Atoll there had been no intimation that part of the population would reside at Eniaetok.

Conard and Held indicated that collections had been made at Eniaetok and Rongelap to provide data for the assessment of the hazard and that such studies would be continued.

The best methods of evaluating levels of various radioisotopes in food were discussed in light of the large amount of variance between individual samples. Held suggested that "ghost rations" - daily rations for one individual - be obtained. Conard said he had one such sample. Dunham recommended that Seymour contact Hollister and arrange for samples to be analyzed. Recognizing the difficulties in obtaining the natives' cooperation, exploration of the idea of collecting more such meals seemed desirable.

Conard suggested use of whole body counter in the field to determine levels in food. Held concurred and suggested the use of large samples (100 lbs where available - coconuts) for this purpose with aliquots of the same material being taken for laboratory analyses. Dunning indicated that there is need for data on average values and that such pooled samples might serve this purpose.

Conard introduced the concept that the relationships of the people to their environment could be best evaluated by studies of specific isotopes. To assure comparable data Conard suggested that a central laboratory be designated for radiochemical analyses. Held pointed out the desirability of having the same group responsible for the collection

of the samples; also be responsible for the analyses of the samples to assure full interpretation of the data. Dunham and Seymour concurred in this opinion. It was generally agreed that duplicate samples should be exchanged between laboratories in order to evaluate the variability of results of analyses made by different labs.

Dunham suggested University of Washington group run urine samples for Conards group in the future. Held indicated that low level beta-counter would not be available for about six months. This time was accepted as satisfactory.

Conard expressed the desirability of collaborative effort between the medical and ecological survey groups for the spring surveys. Conard suggested starting date between 1 - 15 March. Because of teaching commitments of some U W personnel Conard agreed to try to set starting date between 15 February and 1 March. Total time of survey to be about two weeks at Rongelap and 3 or 4 days at Uterick.

Dunning indicated possible usefulness of Uterick data to ecological surveys in gaining some information on fractionation of fallout.

Dunham stated that efforts should first be made to secure a suitable vessel from the Dept. of the Navy. Anton said that under new regulations of "industrial funding" may require that AEC pay for vessels operation. Dunham said that decision as to selection of vessel should be deferred until Conard had received definite word from the Navy.

For the U. W. summer survey at Rongelap use of the "Aloto" assigned to Holmes and Narver seemed most feasible. Use of this vessel will cost \$1250.00/day, or about \$20,000.00 for the summer survey. Dunham said this seemed to be a reasonable expense.

The desirability and difficulties of obtaining human bone samples was discussed. Conard has two such samples; one male, died 1956, 0.3 S.U. in bone. Conard has also been collecting deciduous teeth.

Bruner explained the necessity for using all parts of teeth for comparative purposes. The cemented portions contain more Sr<sup>90</sup> than other portions.

Cohn presented data concerning radioisotopic levels in Rongelapese:

Background of whole body counter for May 1958 shows definite La<sup>140</sup> peak indicating fallout from Hardtack.

Dunning said that dose from Hardtack 193 mr to date at Rongelap.

Urine collected 24 days after Bravo, analysed 2 years later-  
 $Sr^{90}$  12 d/m/l,  $Cs^{137}$  174 d/m/l

Urine samples			
	Feb. '56 (Pre Redwing)	1957 (at Majuro)	1958
$Sr^{90}$	2.4 d/m/l	0.34 - 1.43, Avg 0.48 d/m/l	25x'57 level
$Cs^{137}$	33 "	137 - 370 d/m/l	100x " level

'58  $Cs^{137}$  body burden - 0.5 - 1.5  $\mu$ c Avg. 0.8  $\mu$ c  
 Estimate about 1 yr. to reach equilibrium with environment.

'57  $Zn^{65}$  body burden of Rongelapese determined by whole body counting -  
 0.03 0.07  $\mu$ c.

'57  $Zn^{65}$  body burden of Utirik people - 0.48, 0.23  $\mu$ c.

'58 (May)  $Zn^{65}$  body burden Rongelapese, whole body counting, 1-3  $\mu$ c  
 Some people have distinct  $La^{140}$  peak some have none.

Dunning outlined general requirements for data for evaluation of hazard and documentation, and preferred units:

I. External  $\gamma$

- A. 3 feet mr/hr
- B. Film badges at 3 feet and lower for  
 6 months to 1 year mr

II. Food Chain

- A. Food supply (pooled samples, representative meals).
  1. Amount and kinds (variability with income, availability).
  2. Isotopes
    - a.  $Sr^{90}$   $\mu$ c/gm "wet"
    - b. Ca mg/gm "
    - c.  $Sr^{90}/Ca$   $\mu$ uc Sr/gm Ca
    - d.  $Cs^{137}$   $\mu$ c/gm wet
    - e.  $Cs^{137}/K$ ,  $\mu$ uc  $Cs^{137}/gmK$

III. Human and Animal (mammals) data

- A. Body Burdens -  $Sr^{90}$  (S.U.),  $Cs^{137}$   $\mu$ c,  $Zn^{65}$   $\mu$ c.
  1. Urinalysis
  2. Whole Body Counter
  3. Bone

IV. Soils

- A. mc/mi<sup>2</sup> - total activity
- B. uuc Sr<sup>90</sup>/gm Ca (exchangeable)
- C. mc/mi<sup>2</sup> Sr<sup>90</sup>

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Held gave copies of preliminary data on gross beta activity in soils, Sr<sup>90</sup> in crab muscle, and Sr<sup>90</sup> in Scaevola leaves to Dunning, Conard, and Seymour.