14, August, 1945

REPORT ON CONTAMINATION OF CREEK WATER

By Ann Gregersen 5-22-62
(Signature of person making the change and date)

INTRODUCTION:

Several samples of water from the creek below building D-2 and in Los Alamos Canyon were analyzed for Po and 49 to determine the contamination produced by the waste water of the laundry. DP-West? Area V?

SUMMARY:

Near the exit of the laundry counts ran between 100,000 and 800,000 counts per minute per liter on Polonium, and 2,000-13,000 on 49. Down in Los Alamos Canyon the counts were much smaller, running 300-20,000 on Po and 100-3,000 on 49.

EXPERIMENTAL DETAILS: procedure

Seven samples were taken from the stream (on July 15, 1945,) as indicated on the map. Samples 1, 2, and 3 were cloudy, and contained considerable solid matter. Samples 1 to 3 had 1 gram $Ca(NO_3)$ added to percipitate some of the soap. All the solutions were made 1N in HNO_3. Samples 1 to 4 were filtered. Both the filtrate and the filter paper were analyzed for 49 and Po.

To determine the amount of Po in the solution, the solutions were evaporated with HCl and then made 2N in HCl. Ag plates were placed in the solutions on to which the Po was deposited. Additional plates were left in the solution until the count was reduced to a relatively negligible amount.

To obtain the amount of 49, the solutions were evaporated with HNO_3, and then made 1N in HNO_3 and 10N in NH_4NO_3. The solutions were extracted twice with methyl-iso-butyl-ketone. The extract was washed with a solution 1N in HNO_3 and 10N in NH_4NO_3. The methyl-iso-butyl-ketone was evaporated on a glass plate and counted.

RESULTS: (Counts are given as disintegration per liter per minute.)

The counts from the filter papers were as follows:

Sample	Count 49	Count Po
1	210	4, 200
2	130	59, 000
3	7120	370, 000
4	1300	12, 000

The counts from the filtrate solutions were as follows:

Sample	Count 49	Count Po
1	2100	77, 000
2	13, 000	200, 000
3	5000	820, 000
4	3100	19, 000
5	520	280
6	200	620
7	80	1,860