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LOS ALAMOS SCIENTIFIC LABORATORY
UNIVERSITY OF CALIFORNIA
LOS ALAMOS, NEW MEXICO

Matt J. Riggis
12/12/06

OFFICE MEMORANDUM

TO : Dean D. Meyer, Group Leader, H-1
FROM : Jack W. Aeby, Ten-Site Monitor, H-1
SUBJECT: MONITORING IN CANYON MORTANDAD
SYMBOL: H-1

DATE: October 28, 1952

OU 1129
Aeby Specific
Refs

About two months ago some very hot water ran over the tops of the tanks in the tank farm. This accident occurred as the result of the failure of some solenoid-operated valves failing to function properly. It is estimated that some 2000 or 3000 gallons of hot water went down the canyon. It was not discharged at a rapid rate, probably not as fast as the water is normally discharged when these tanks are dumped. The normal rate of discharge is approximately 10 gallons per minute.

I did not learn of this accidental overflow until a request was made to dump a tank containing 50,000 gallons of water containing about 1.5 millicurie per liter. This was quite a bit over tolerance, so careful consideration was given the matter by Tom White et al. Also, the canyon was given a careful survey.

Much to my surprise we found activity in Canyon Mortandad as far as three miles east of Ten-Site. The last readable level was about .5 mr/hr, this at the three mile distance. The level continued to rise as Ten-Site was approached. The level reached about 300 mr/hr just at the Ten-Site fence. Even though this level drops rapidly, one is able to find 20 mr/hr as far as one mile from the Ten-Site fence.

In this first mile there were four or five pools of water, fairly large which read greater than 20 mr/hr. During sampling procedure here at the Site we find that if one can read even .5 mr/hr from a one-liter sample that the sample proves to be above drinking water tolerance. There is considerable evidence that deer in this area use these water holes.

About ten grams of deer droppings were picked up some distance from the first water hole. It was found from a sample prepared by Mehas from these droppings that the droppings contained about .000173 microcuries of active material per gram of droppings.

Dr. White gave the go-ahead signal on the request to dump the 50,000 gallons of hot water with the provision that we watch it. We found that all the water had disappeared into the earth within the first 175 yards. At about 140 yards the water spreads out considerably. At this point the stream is just a 20-yard wide trickle. The water read about 300 mr/hr at the fence; at 140 yards where it spread out the reading was 150 mr/hr. Where the water finally disappears into the ground, at 175 yards, the reading was 100 mr/hr.

Received by ER-RPF
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10/28/52

I believe that we can safely assume that all the Ten-Site water that has ever been dumped or spilled has never gone more than 200 yards down the canyon. Therefore, the only reason for finding activity at a distance of three miles down the canyon is that heavy rain runoff picks up the deposited activity near Ten-Site and carries it further down. It might take several rain runoffs to move the activity down as far as we found it.

Just a note - the incinerator water is dumped into this same canyon just a little further up.

Jack W. Aeby
JACK W. AEBY

JWA/eg

- cc: R. P. Hammond
- T. N. White
- J. W. Aeby
- File (thru Carl Buckland and Robert Barker)

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