

OFFICE MEMORANDUM

TO : Dave Curtis, H-8, MS-490

DATE: February 17, 1976

FROM : Merlin Wheeler, H-8, MS-737 *ml*

SUBJECT : AREA T ABSORPTION BEDS, SAMPLING PROGRAM

SYMBOL : H8-WM-567

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Area T, TA-21, is the fenced area adjacent to the liquid treatment plant, Bldg. 257. Four covered absorption beds are located in the area, and were used for disposal of untreated liquid waste from DP-West during 1945-1952. The waste contained alpha contamination from ^{239}Pu and ^{241}Am at a level of about 30 pCi/ml. After 1952 effluent from liquid waste treatment was discharged to the beds, containing lesser quantities of both radionuclides. The waste liquid contained hydrofluoric acid, and for a brief period, ammonium citrate. Relatively complete chemical analyses of the waste are available for a limited time period in 1953 and 1954.

It is proposed to auger holes through the absorption beds, and collected samples of the underlying tuff. This tuff, and associated fracture fillings is known to contain plutonium and americium to levels of 30,000 pCi/gm, as determined by previous sampling programs. The tuff will be collected with a 1 1/2-inch I.D. split-spoon sampler and divided into 15 cm segments. Samples will be placed into individual polyethylene screw-top bottles, and labeled as to hole and depth.

This sampling program is being conducted in cooperation with Argonne National Laboratory. Workers there are performing laboratory experiments on migration of plutonium in tuff, and desire field validations of their results. Our program is interested in the depth distribution of plutonium as it relates to the absorptive properties of the tuff.

We are at present planning two samples holes, collecting samples to about 30 feet. This will produce a total of about 120 samples. At least half of these will be analyzed by Argonne, the remainder being our responsibility. For each sample I would like to obtain measurements of total plutonium and total americium. On selected samples an isotopic breakdown on plutonium is desirable. (It should be nearly all ^{239}Pu and ^{241}Pu). For each sample, we will also desire a total water content by weight. A stable element analyses will also be desirable, for selected samples, including fluoride, calcium and sodium.

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The samples will be collected during February, 1976. However, analyses can be scheduled at any future date, preferably before July. I'll be glad to discuss this further at your convenience.

MLW:kr