LOS ALAMOS SCIENTIFIC LABORATORY
UNIVERSITY OF CALIFORNIA
LOS ALAMOS, NEW MEXICO 87544

OFFICE MEMORANDUM

TO : Stewart M. Lombard, H-8 DATE: October 30, 1974

FROM : Merlin L. Wheeler, H-8

SUBJECT : SOIL SAMPLES FROM TA-21, AREA T

SYMBOL : H8-WM-314

1572 TA-21

An excavation is in progress in Area T, TA-21, in the vicinity of absorption beds used for disposal of untreated radioactive waste containing plutonium, americium and tritium. Samples of tuff, soil, and fracture fillings will be collected from the sidewalls of the present excavation to obtain data on migration of radionuclides through the tuff, and to provide health physics data on contamination in the completed excavation.

The samples will be collected in one kilogram quantities where possible, but some instances are expected where that volume of material will not be available. The samples will be double-bagged in polyethylene, the second bag being applied outside the contaminated area. They will be stockpiled until all are collected, and then submitted to the TA-50 Receiving Room as one shipment. A total of about 50 samples is anticipated.

Previous samples taken from auger holes in the area indicate maximum activity values as follows:

Gross alpha	- 21 pCi/gm
Gross beta	- 45 pCi/gm
^{239}Pu	- 90 pCi/gm (estimated value)
Tritium	- 25 000 pCi/liter

Copies of the analytical results are attached. Samples collected from the tuff directly beneath the old absorption beds evidenced gross alpha activity of 1800 to 150 cpm/gm. The report containing these data provided no information on the counter or its efficiency.

It is requested that the samples be analyzed for ^{238}Pu, ^{239}Pu, ^{241}Am, ^{3}H, and moisture content. If gross alpha and gross beta data are collected during the screening process, these data should also be reported, but no specific analyses for these parameters are requested. The samples will be ready for submission on or about November 15, 1974. Routine precision and accuracy will be acceptable. The data will be

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TO: S. M. Lombard -2- DATE: October 30, 1974

included in the semi-annual report, which is due by January 15, if the results of the analysis are available at that time. Responsibility for the sample collection rests with M. Wheeler and M. A. Rogers, and the results of the analyses should be forwarded to M. Wheeler.

MLW:jc
attachments

		% H_2O	pCi/gm α	β	Tritium pCi/liter
Hole #10					
481	0-2½'	29.6	50 2.48 ± 0.20	32.6 ± 0.6	10878
482	2½-5'	17.8	50 5.0 ± 0.3	34.5 ± 0.6	8035
483	5-7½'	22.3	50 3.7 ± 0.2	37.9 ± 0.7	7817
484	7½-10'	13.3	50 4.0 ± 0.2	31.2 ± 0.6	9612
485	10-15'	14.6	4.3 ± 0.4	35.4 ± 1.0	7188
486	15-20'	13.8	3.7 ± 0.4	36.7 ± 1.0	13160
487	20-25'	14.6	2.6 ± 0.3	39.5 ± 1.1	10056
488	25-30'	9.4	50 3.7 ± 0.2	40.7 ± 0.7	28040
489	30-35'	8.4	50 2.9 ± 0.2	40.2 ± 0.7	16448
490	35-40'	8.3	50 4.3 ± 0.3	35.0 ± 0.6	19050
Hole # 11					
491	0-2½'	16.8	1.6 ± 0.3	25.2 ± 0.9	12917
492	2½-5'	16.2	2.8 ± 0.3	25.7 ± 0.9	4445
493	5-7½'	18.6	50 2.02 ± 0.18	28.7 ± 0.6	10375
494	7½-10'	17.6	1.6 ± 0.3	37.7 ± 1.0	3514
495	10-15'	14.8	50 2.00 ± 0.18	35.7 ± 0.6	4898
496	15-20'	14.0	50 1.66 ± 0.17	39.8 ± 0.7	9838
497	20-25'	15.3	50 1.76 ± 0.17	36.6 ± 0.7	5602
498	25'	13.0	1.8 ± 0.3	34.5 ± 1.0	3506
499	25'-30'	9.2	50 1.71 ± 0.17	32.2 ± 0.6	8958
Hole # 9					
500	0-2½'	14.8	2.5 ± 0.3	27.8 ± 0.9	7515
501	2½-5'	10.6	4.5 ± 0.4	39.0 ± 1.1	7070
502	5-7½'	11.6	3.3 ± 0.4	36.5 ± 1.0	10308
503	7½-10'	8.2	3.3 ± 0.4	39.7 ± 1.1	11734
504	10-15'	8.0	4.1 ± 0.4	45.0 ± 1.1	15861
505	15-20'	9.1	3.8 ± 0.4	37.1 ± 1.0	25615
506	20-25'	9.7	3.4 ± 0.4	37.4 ± 1.0	12513

AREA 1

		% H_2O	pCi/gm α	β	Tritium pCi/l
Hole #9 cont.					
507	25-30'	9.0	2.8 ± 0.3	38.8 ± 1.1	10 55
508	30-35'	9.5	20.9 ± 0.8	41.2 ± 1.1	11 48
509	35-40'	11.4	12.7 ± 0.7	39.2 ± 1.0	15 21
Hole #8					
510	0-2½'	8.0	50 2.20 ± 0.19	36.2 ± 0.6	12 390
511	2½-5'	10.0	2.3 ± 0.3	33.2 ± 1.0	8 555
512	5-7½'	7.4	50 2.7 ± 0.2	47.6 ± 0.7	4 630
513	7½-10'	7.6	2.4 ± 0.3	38.7 ± 1.1	5 233
514	10-15'	8.0	50 2.7 ± 0.2	46.7 ± 0.7	13 495
515	15-20'	8.2	50 3.0 ± 0.2	36.7 ± 0.7	19 165
516	20-25'	7.5	2.6 ± 0.3	37.9 ± 1.0	7 506
517	25-30'	7.5	2.3 ± 0.3	35.1 ± 1.0	2 591
518	30-35'		50 2.9 ± 0.2	38.2 ± 0.7	3 296
519	35-40'	8.6	50 3.3 ± 0.2	38.1 ± 0.7	1 920
Hole # 13					
520	0-2½'	10.9	2.1 ± 0.3	29.2 ± 0.9	- 1618
521	2½-5'	11.3	2.5 ± 0.3	35.3 ± 1.0	10 618
522	5-7½'	9.6	3.1 ± 0.3	41.0 ± 1.1	11 013
523	7½-10'	7.9	3.0 ± 0.3	35.0 ± 1.0	10 585
524	10-15'	10.2	3.3 ± 0.4	43.0 ± 1.1	9 662
525	15-20'	9.3	3.8 ± 0.4	42.7 ± 1.1	8 614
526	20-25'	8.7	2.8 ± 0.3	35.3 ± 1.0	6 752
527	25-30'		1.6 ± 0.3	36.9 ± 1.0	8 152
528	30-35'	7.6	50 1.98 ± 0.18	23.8 ± 0.6	13 328
530	35-40'	14.0	2.2 ± 0.3	39.0 ± 1.1	2 994
Hole #12					
531	0-2½'	13.0	3.1 ± 0.3	32.4 ± 1.0	6 383
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

AREA 1

		% H_2O	pCi/gm α	β	
Hole #12 cont.					
533	5-7½'	9.3	2.9 ± 0.3	35.4 ± 1.0	5 41
534	7½-10'	6.4	2.8 ± 0.3	34.1 ± 1.0	7 29
535	10-15'	5.6	3.7 ± 0.4	43.3 ± 1.1	9 09
536	15-20'	5.8	3.1 ± 0.3	34.5 ± 1.0	2 12
537	20-25'	6.8	3.5 ± 0.4	45.3 ± 1.1	1 98
538	25-30'	6.7	2.7 ± 0.3	29.8 ± 0.9	- 2 71
539	30-35'	7.2	2.4 ± 0.3	41.1 ± 1.1	- 5 41 51
540	35-40'	7.3	3.1 ± 0.3	35.0 ± 1.0	1 0 0 6
Hole #7					
541	0-2½'	15.7	1.8 ± 0.3	34.6 ± 1.0	- 3 9 5 8
542	2½-5'	17.9	2.7 ± 0.3	21.0 ± 0.8	6 0 3
543	5-7½'	25.0	9.4 ± 0.6	31.0 ± 1.0	11 415
544	7½-10'	17.0	2.2 ± 0.3	33.5 ± 1.0	3 6 6 5
545	10-15'	17.8	2.7 ± 0.3	39.9 ± 1.1	- 2 8 4 3
546	15-20'	14.8	2.2 ± 0.3	34.1 ± 1.0	- 1 9 2 0
547	20-25'	12.5	1.9 ± 0.3	39.1 ± 1.0	- 9 1 7 6
548	25-30'	12.8	2.7 ± 0.3	42.5 ± 1.1	- 7 6 7 4
549	30-35'	12.5	3.9 ± 0.4	39.2 ± 1.1	- 7 1 7 1
550	35-40'	10.2	3.9 ± 0.4	39.6 ± 1.1	- 6 7 3 5
551	40-47'	4.4	2.9 ± 0.3	31.6 ± 1.0	- 3 9 4 2

LOS ALAMOS SCIENTIFIC LABORATORY
GROUP H-8
SAMPLE RECORD SHEET

SUBMITTED BY: W. Treeler

ROUTINE: ____ SPECIAL: ✓

SAMPLE NO. ____

SAMPLE LOCATION: Area "T"

DATE/TIME COLLECTED: ____

DATE RECEIVED						
ANALYSIS						
DATE COMPLETED						
ANALYZED BY						

SAMPLE DESCRIPTION	ANAL. FOR	INST. USED α-SPEC II	QUANT USED	TIME CNTD	COUNT TIME (SEC)	~~TOTAL~~ COUNT TRACER	GROSS COUNT	BKGRD COUNT	FACTOR	NET COUNT	TRACER ADDED Iwl	RESULTS pCi/g
HOT S-508 480/1	Pu^{238}	#2	10g	5/17	5000	(1052)*			0.1		LLL-4-A	
	Pu^{239}		No Resolution			TRACER SWAMPED	21833	—			Master	(89 ± 3)*
HOT S-509 156/1	Pu^{238}	#3	10g			966	28	—	0.1		Note	0.13 ± 0.02
	Pu^{239}						6014	—			Nero	28.0 ± 0.9
HOT S-543 154/1	Pu^{238}	#4	10g			1147	80	—	0.1		Tracer	0.31 ± 0.03
	Pu^{239}						5514	—			Stock	21.7 ± 0.6

* Estimated based on average recovery of the other two

APPROVED: SMK 5/17/74