

T

UNIVERSITY OF CALIFORNIA
LOS ALAMOS SCIENTIFIC LABORATORY
(CONTRACT W-7405-ENG-36)
P. O. Box 1663
LOS ALAMOS, NEW MEXICO 87544

IN REPLY
REFER TO: TAD-4766

December 29, 1969

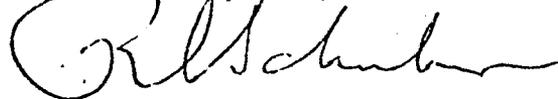
1595
TAD
Mr. H. J. Blackwell, Manager
Los Alamos Area Office
U. S. Atomic Energy Commission
Los Alamos, New Mexico 87544

Reference: Memorandum from Blackwell to Bradbury,
"Radioactive Waste Disposal Study," dated
November 28, 1969

Dear Mr. Blackwell:

This is written in response to the referenced memorandum and the attached information uses the same item identification. The information has been prepared by Groups H-1 and H-7. Requests for clarification or more detailed information should be directed to Mr. C. W. Christenson, H-7 Group Leader. An additional copy of this letter, with attachment, has been enclosed for forwarding to ALO if you so desire.

Yours very truly,



R. E. Schreiber
Technical Associate Director

RES:rb
CC: H. O. Whipple
C. W. Christenson
D. D. Meyer
M/R
File



4999

December 29, 1969

RADIOACTIVE WASTE DISPOSAL STUDY

- a. The procedures outlined in AEC Manual Chapter 7401-12 are followed. In cases involving smaller amounts of SS materials and other radioactive materials the decision to recover or to dispose by burial is based on economical recovery using a market value of \$50/g in the case of plutonium.
- b. The basic policy governing regular intentional discards of radioactive materials was established by memo, AD-1054 from Hall to MacKay dated February 9, 1961. The following materials are included:
 - A. Enriched uranium solutions not exceeding, on a monthly basis, 10 ppm concentration.
 - B. Enriched uranium solids not exceeding 1000 ppm concentration.
 - C. Plutonium solutions not exceeding, on a monthly basis, 10 ppm concentration.
 - D. Plutonium solids not exceeding 1000 ppm concentration.
 - E. Classified
 - F. Classified.
 - G. D-38 residues resulting from casting and machining operations which cannot be reused without undergoing recovery processing.
 - H. Deuterium, tritium, and special nuclear materials used (and possibly expended) in the preparation of targets, foils, and neutron sources.
 - I. Enriched uranium residues and D-38 which become contaminated with plutonium in the course of approved program experiments.
 - J. Plutonium contained in the ventilation air entering the filter buildings at DP West. This will not exceed 5×10^{-4} microcuries per cubic meter of air based on the average for a period of 6 months (equivalent to about 15 grams per year).

- K. Normal uranium, D-38, and thorium used in the preparation of and testing of various alloys supporting approved programs. These materials may also be expended when used as stand-in materials in chemical research problems.
- L. Graphitized normal uranium and D-38 used in development work supporting the Rover program.
- M. Source materials expended under HE in approved program experiments.
- c. See Table.
- d. During FY 70 through FY 72, the rehabilitation of DP West will increase the volume of solid waste. The waste will be buried in an abandoned Waste Disposal Area between DP East and DP West. The pit will contain about 250,000 ft³ of waste.
- e. Most of the solid wastes contaminated with radioactivity are put into cardboard cartons 13 by 13 by 21 inches lined with plastic bags. These are picked up by the janitors and placed in Dempster Dumpsters which are picked up by the tractor and hauled to the contaminated waste disposal area. The dewatered sludge from the liquid waste treatment plant is hauled to these pits in 55-gallon drums. Other containers are used for special situations and large pieces are, of course, handled separately. The trash is unloaded into a pit 100 by 500 by 30 ft deep. The material is covered with dirt periodically and compacted by driving a bulldozer over it. When the pit is filled to within three feet of the surface, fresh dirt is placed on top and compacted and leveled.

Solid wastes that are known to contain somewhat larger amounts of radioactivity are put into three foot diameter shafts about 30 feet deep and are covered at three foot intervals. In some cases the shaft is lined with six inches of concrete and the wastes are covered with concrete or asphalt.

SOLID RADIOACTIVE WASTES DISCARDED, FY 65-69

FY	Estimated Quantities of SS Materials Discarded, grams				Other Radioactive Materials Discarded, Ci		Volume of Radioactive Waste Discarded ft ³	Weight of Radioactive Waste Discarded (tons)	Burial ^a Location (Area)
	²³³ U	²³⁵ U	²³⁹ Pu	T ₂	FP	²⁴¹ Am			
65	0	1330	259	.01	222	319	87,300	500	C
66	1380	730	395	.35	123	221	165,000	565	C
67	0	561	338	.02	112	226	323,000	740	C
68	1	1845	200	.00	2	160	271,500	370	C, G, T
69	0	869	780 ^b	1.20	117	170	160,200	220	G, T
Total	1381	5325	1972	1.58	576	1096	1,006,500	2,395	

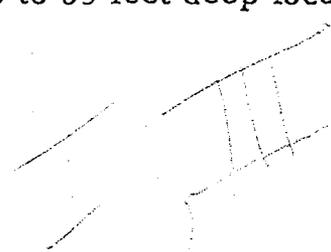
^aSee attached map.

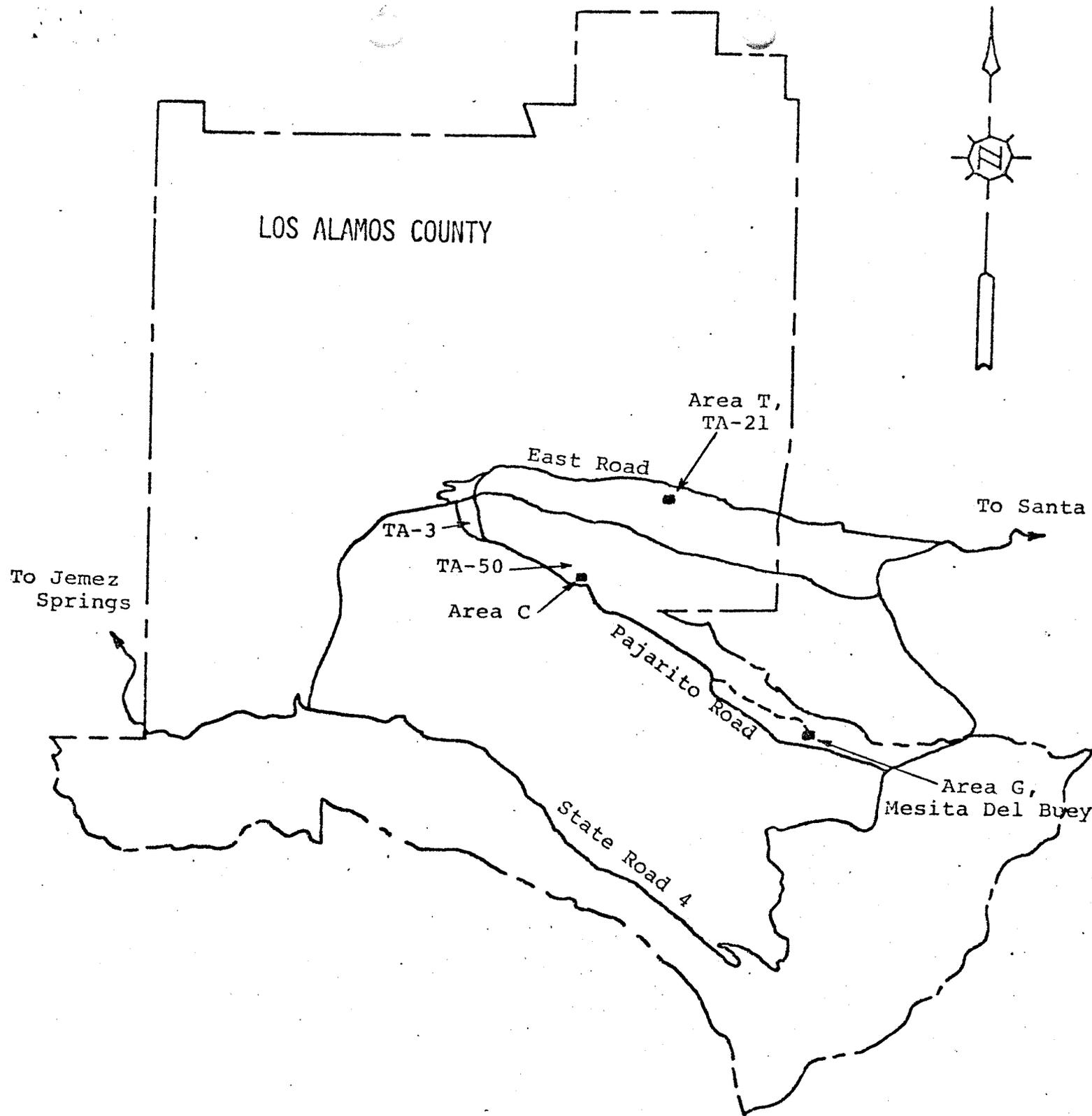
^bIncludes 548 grams ²³⁹Pu received and buried in GMX-11 bathyspheres.

December 29, 1969

Since mid-1968, the dewatered sludge from the liquid waste disposal facility in DP West (Building 257) and the americium wastes (approximately 6000 liters per month containing about 1 mg per liter ^{241}Am and 2 mg per liter ^{239}Pu) are fixed in cement in a continuous process and pumped into wells eight feet in diameter and 25 to 65 feet deep located in a nearby abandoned waste disposal area.

- f. No changes are contemplated.





LOCATION PLAN

Scale: 1" = 10,000 ft.