(1)

Rept. for Sept, '76

During September, 1976, soil and vegetation were sampled at the abandoned Waste Disposal Area C. The area was also surveyed with a phoswich detector. The purpose of the study was to determine the amount of radioactivity on or near the surface. Sample locations for the grid and the results of the phoswich survey are shown on the accompanying maps.

A vegetation sample over an area of 0.1 m^2 and a soil sample 10 cm x 10 cm x 5 cm deep was collected at each grid location. More intensive sampling was done around Waste Disposal Shafts #9, #77, #88-90, #107 and the ^{90}Sr

shaft (8 samples within a radius of 5m around each shaft). I selected these shafts because they contained large amounts of ^{3}H, U, fission products or Sr. Analysis of these samples will be started in October.

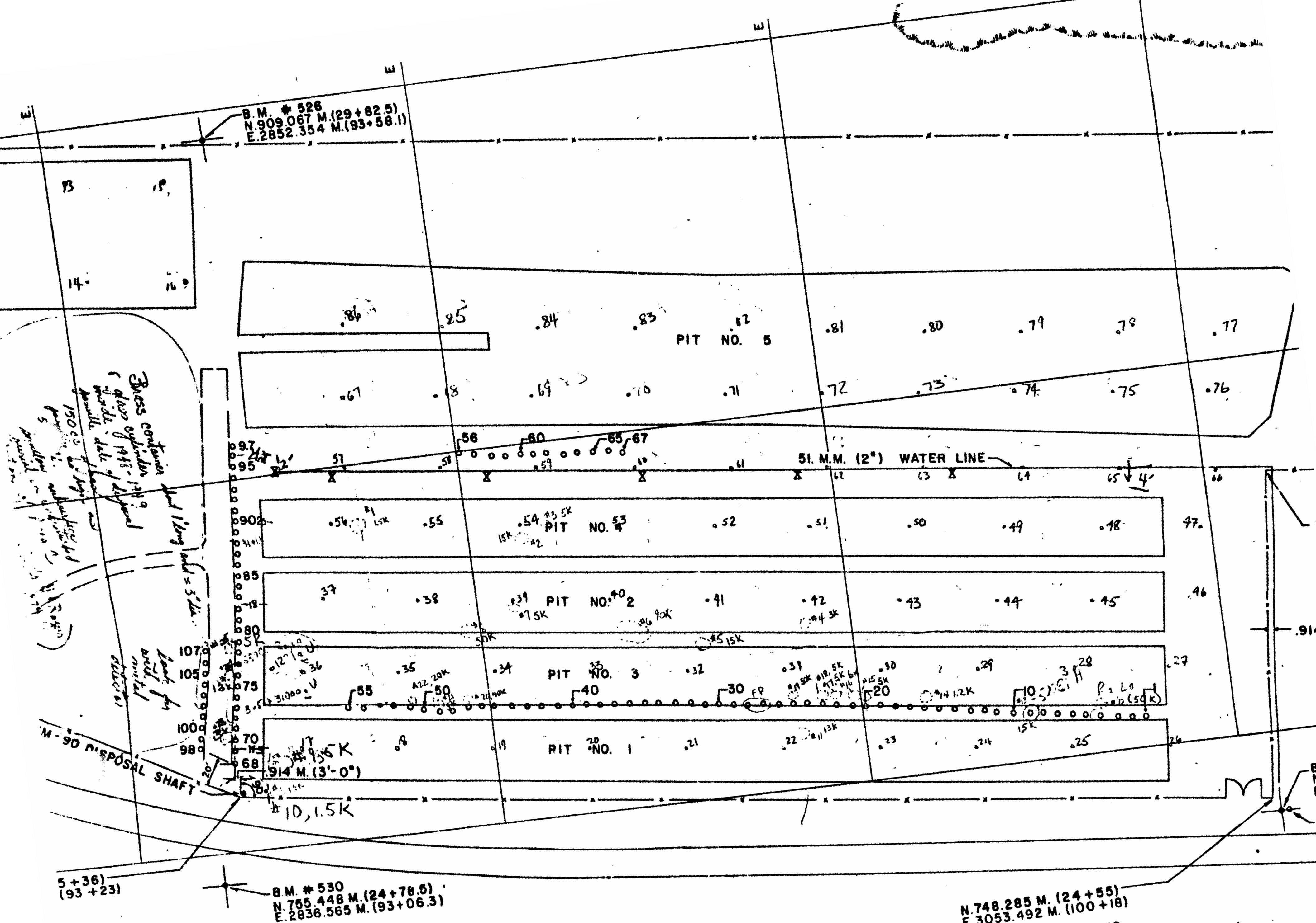
The phoswich detects gamma radiation. 26 "hot spots" were found. These are shown as circled areas with an ID number and counts per minute (cpm) reading on the accompanying map. Background on the phoswich ~~etc~~ is 1.2×10^3 ~~counts~~ cpm per or "1.2K". The activity on the "hot spots" ranged from 1.3K to 90K. These readings cannot be translated to pCi/g unless one knows the geometric distribution of the contaminant. There

is some correlation between the phoswich "hot spots" and the amounts of fission products that went into the shafts."[a] This appears in ~~as~~ the accompanying table. What went into the pits isn't known well enough to make any correlations. Samples will be collected at each "hot spot" and analyses will be begun in October.

[a] I must note that some shafts which contained ~~an tabel~~ large amounts of fission products were not detected with the phoswich. This could be a function of depth of FP from surface or type of containment etc.

I appreciate the help of Don Van Etten, John Smith and Margaret Ann Rogers

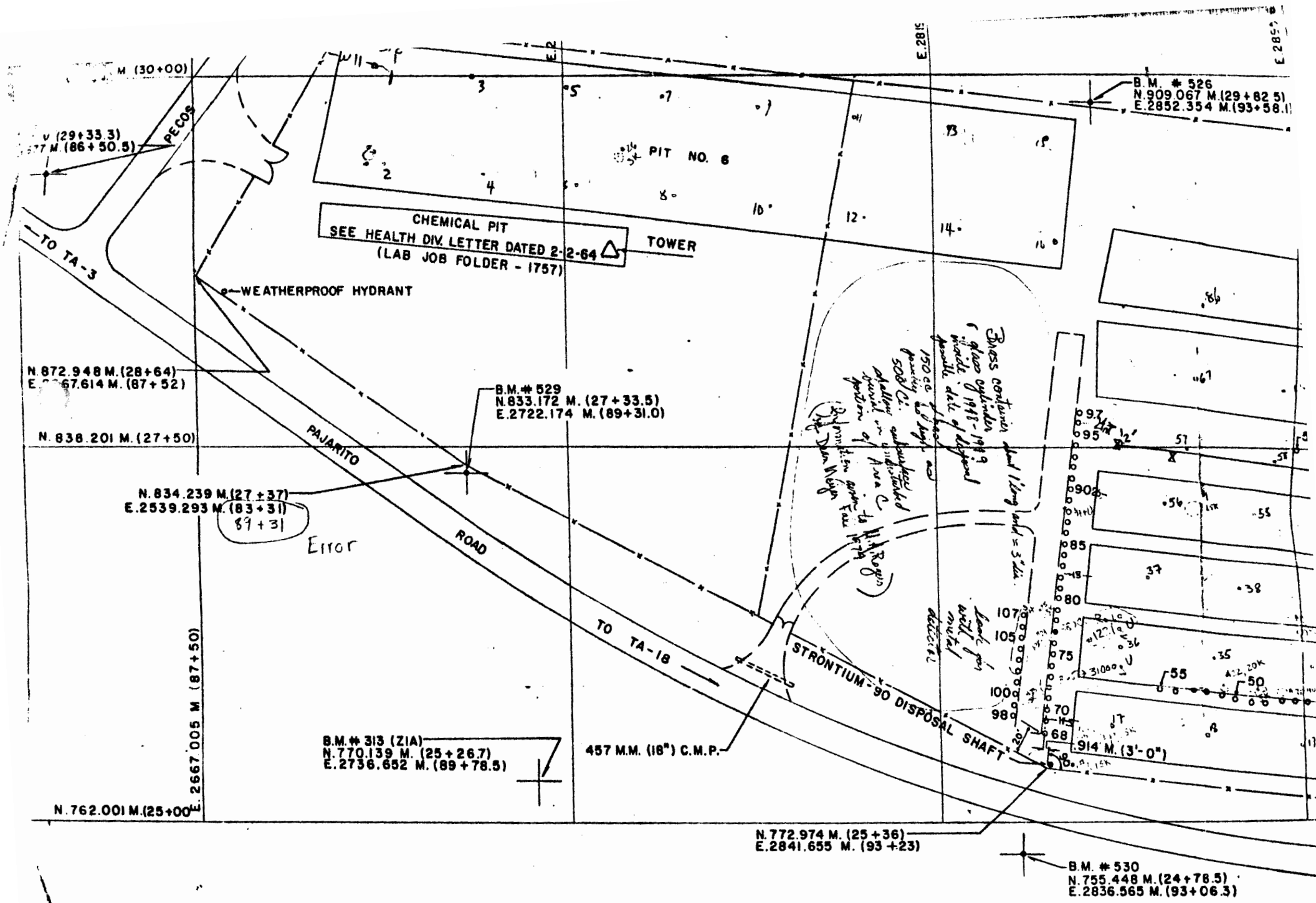
Linda Tocks



KEY

∘22 Grid location and ID #

#12, 1.5K Phoswich "hot spot" with ID number + phoswich reading in cpm


M (30+00)
PECOS
(29+33.3)
M. (86+50.5)
PIT NO. 6
CHEMICAL PIT
SEE HEALTH DIV. LETTER DATED 2-2-64
(LAB JOB FOLDER - 1757)
TOWER
TO TA-3
WEATHERPROOF HYDRANT
B.M. # 526
N.909.067 M.(29+82.5)
E.2852.354 M.(93+58.1)
N.872.948 M.(28+64)
B.M.# 529
N.833.172 M. (27+33.5)
E.2722.174 M. (89+31.0)
N. 838.201 M. (27+50)
PAJARITO
N. 834.239 M.(27+37)
E.2539.293 M. (83+31)
89+31
Error
ROAD
TO TA-18
STRONTIUM-90 DISPOSAL SHAFT
B.M.# 313 (ZIA)
N.770.139 M. (25+26.7)
E.2736.652 M. (89+78.5)
457 M.M. (18") C.M.P.
.914 M. (3'-0")
N. 762.001 M.(25+00)
E. 2667.005 M (87+50)
N. 772.974 M. (25+36)
E.2841.655 M. (93+23)
B.M. # 530
N.755.448 M.(24+78.5)
E.2836.565 M.(93+06.3)

"Hotspot #" / nearby shafts | Phoswich reading (cpm) | Cont. of contaminant that went into the nearby shaft

#12	50k	839 → 1291 Ci of Ba-La waste in shafts 2, 3, 4.
13	1.5k	500 Ci ^{3}H + 350 Ci of Ba-La in #9
14	1.2k	738.6 Ci FP from Ra-La in #16
15 → 19	5k → 90k	Nothing remarkable in the nearby shafts (Will be researched more)
20	40k	645 → 755 Ci Ra-La in #46 + 48.
21	5k	Nothing remarkable
#10	1.5k	Near ^{90}Sr shaft
23	3k	89 Ci FP + MAP + 500g U in shaft #71 + 500g U in #72
24	1.3k	880 Ci Ba-La + 1221g U in #77
25	5k	Nothing remarkable

Linda Twocha

2-11-74

The total for thirium, 1945-1951 (7 years) is 14 Ci. Using a 12.26 year half life, that amount of material would have decayed to 4.2 curies, in 1972. assuming that the 14 Ci began its decay in 1951. If the decay during the 1945-51 period is included (a more correct scheme) the total in 1972 would be. 3.8 Ci. In either case, considering the nature of the raw data, a value of 4 Ci is sufficiently accurate.

The data in table 1. came from Lud, that was my ref. → Lud Lmelity, H-7

From Merlin Wheeler, H-8