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PRELIMINARY

A SURVEY OF LIQUID WASTE MANAGEMENT PROBLEMS AT THE LASL

1975

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Received by ER-APF
JUL 27 1992

Prepared by the Liquid Waste Management Study Group as an in-house document.

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SECTION 10 - MANAGEMENT OF WASTES OF TA-21

10.1 PROBLEMS, PRESENT AND ANTICIPATED

10.1.1 General

Both ends of TA-21, DP East and DP West are in a state of change at present. Certain programs at DP East were discontinued in 1972 (?) and the work force was reduced by a high percentage. Since that time, other programs have resulted in a gradual build-up, but the total effort at present remains well below that prior to the major reduction in force.

At DP West, the CMB-11 effort is at a high level which will probably increase. The new CMB-11 facility at TA-55 is under construction and some transfer should begin in 1977. When the transfer is complete, the DP West area will not be abandoned, however, as various other groups plan to occupy the space vacated by CMB-11. CMB-3, CMB-8 and CNC-4, which operate at DP West at this time, will not be involved in the move to TA-55.

10.1.2 DP East

Waste management facilities at this area include an industrial waste sewer system, a small pumping station and a three inch cast iron force main which extends to TA-21-257 at DP West. The waste sump of the pumping station is concrete and its integrity is unknown. It is provided with a 152 mm (6 in.) overflow line to the canyon to dispose of wastes in

the event that the pumps fail to operate. However, the sump high level is connected to the SCAM system and maintenance personnel are alerted before overflow occurs.

The area includes an abandoned absorption bed which was in use until the pumping station was provided in 1965. This bed, called materials disposal Area U, is known to contain a small amount of ^{210}Po.

In 1974, the volume of waste pumped from DP East to DP 257 averaged 246 000 liters/month. This compares to 1 637 000 liters/month in 1970. Future programs may require an increase to the former higher level, but measures can be taken to keep the volume to the minimum practicable.

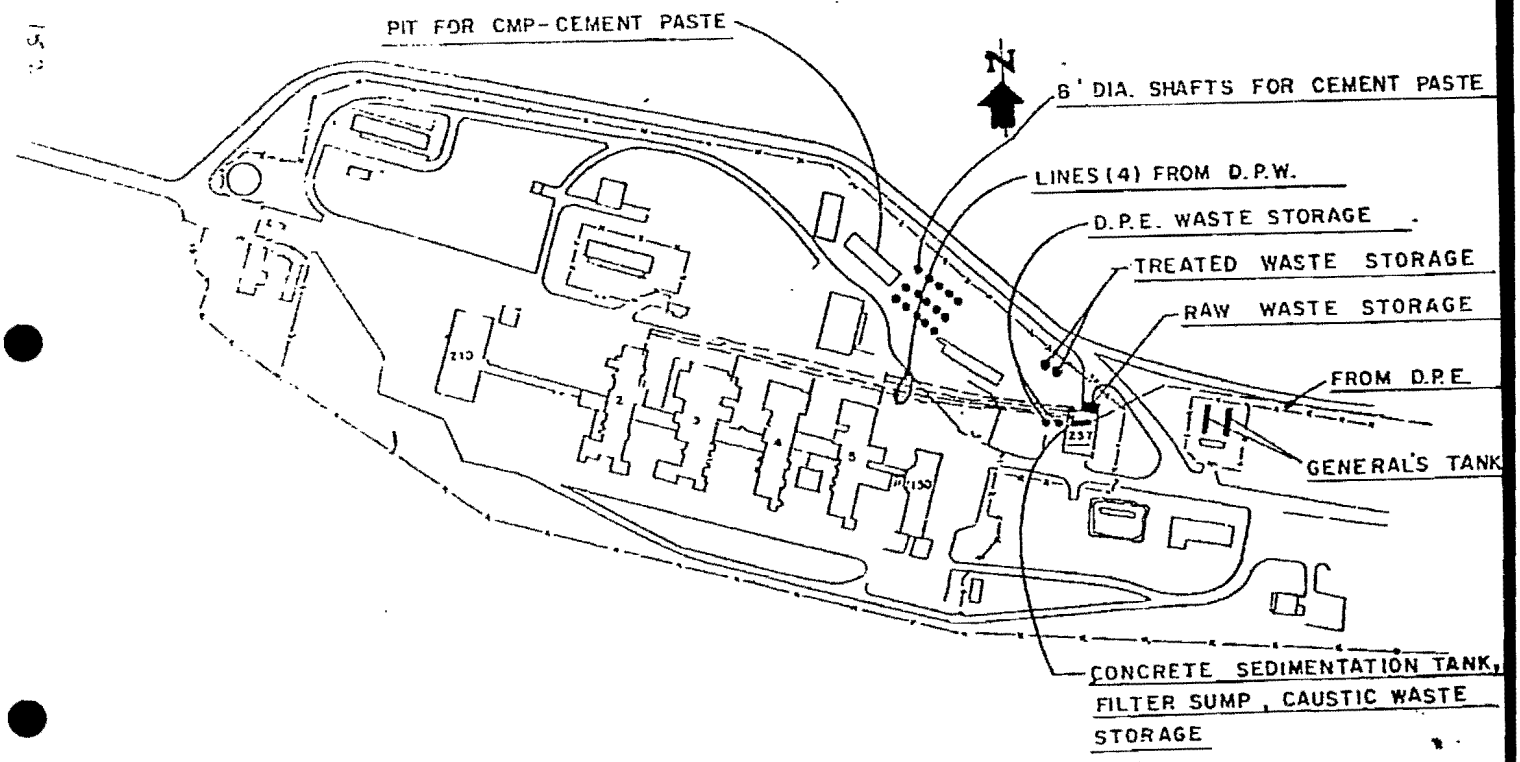
10.1.3 DP West

At DP West, a 102 mm (4 in.) cast iron line conveys industrial wastes from DP-2, DP-3 & 4 and DP-5. The three stainless steel lines are plumbed at DP-257 to permit their discharge into either a below-floor concrete storage tank, either of two below-floor stainless steel storage tanks or into the large concrete storage tanks for industrial wastes. 1974 data on the wastes received in the various systems are provided in Table XIII. As stated previously, none of the storage tanks are fully inspectable; none of the lines are designed for leak detection.

TABLE XIII

SPECIAL PROCESS WASTES
TRANSFERRED TO DP-257
FROM DP-WEST, 1974

Source	Volume (l)	Radioactivity		
		^{235}U (g)	^{239}Pu (g)	^{241}Am (g)
Bldg 2				
Pu-Am caustic	11,000	-	2.0	-
Am raffinate	92,000	-	-	0.2
KOH scrubber solutions (Bldgs 3, 4 & 5)	16,000	18	6.8	-
Distillate (Bldg 3)	84,000	496	-	-
Strip	18,000	171	-	-
TOTAL	221,000	685	8.8	0.2

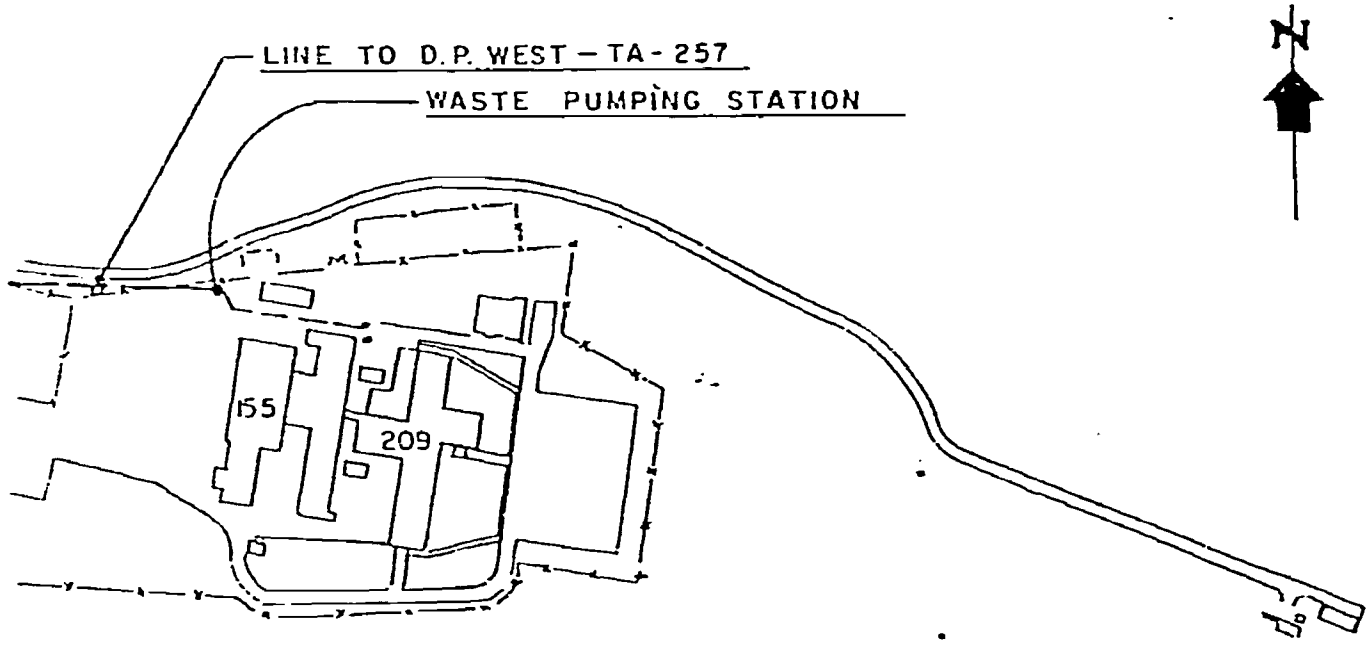


TA-21, D.P. WEST & TA-21-257

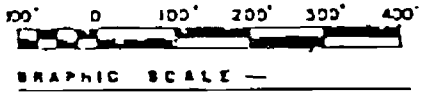
WASTE TREATMENT FACILITY

100' 0 100' 200' 300' 400'

GRAPHIC SCALE


LINE TO D.P. WEST – TA-257
WASTE PUMPING STATION
155
209
N

TA-21 D.P. EAST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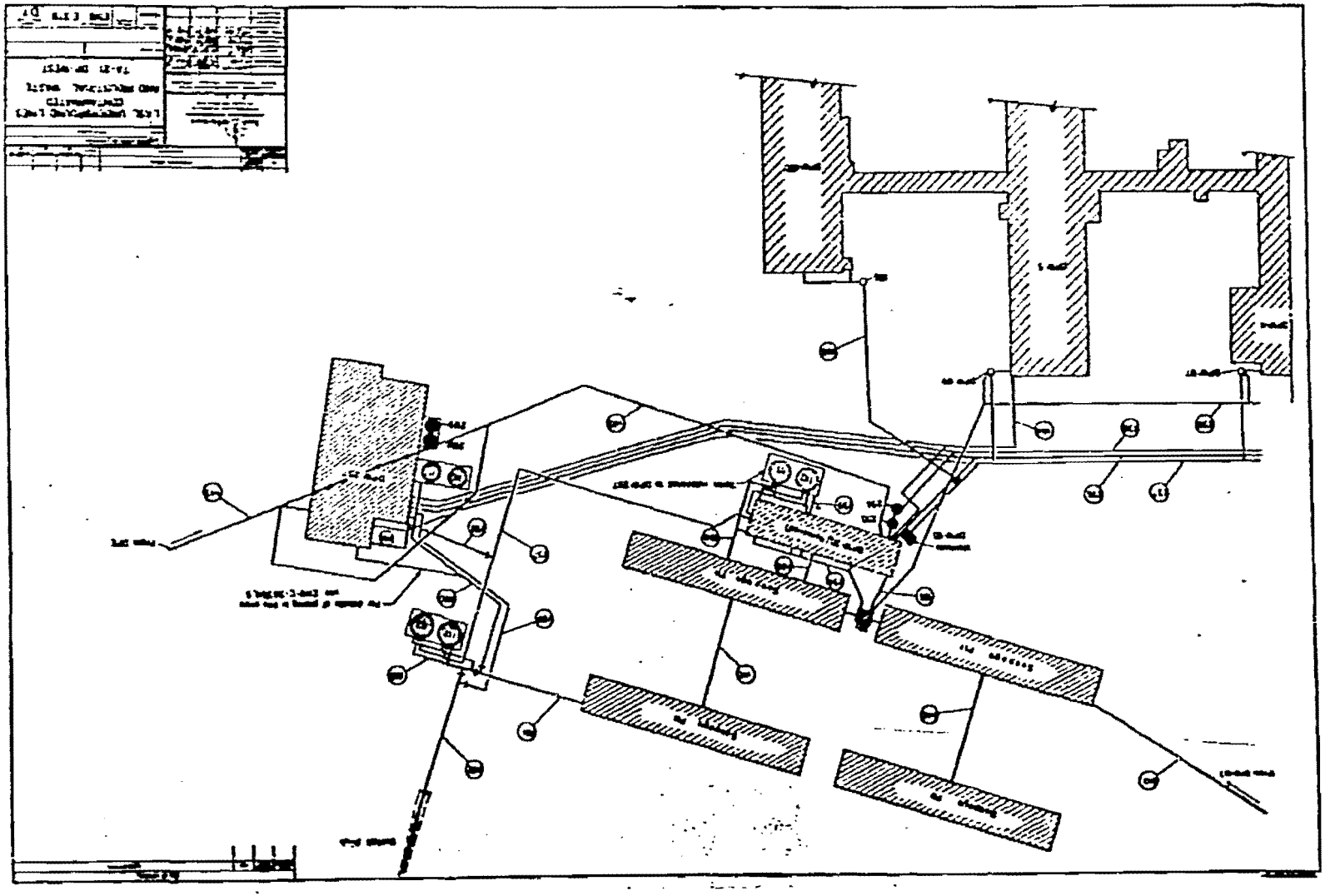


SECTION 11 - MANAGEMENT OF LIQUID (ref-Safety Rpt) WASTES OF TA-2 (ref)

11.1 PROBLEMS, PRESENT AND ANTICIPATED

Radioactive wastes at TA-2 are generated under normal or accident conditions. Normal wastes arise as a result of:

(a) Regeneration of the mixed dual ion exchange columns in TA-2-44. These wastes, produced at an average rate of _____ liters per month are the most radioactive wastes generated at the site.

(b) Washing of the pre- and post- ion exchange treatment filters and miscellaneous uses of the sink in TA-2-44.

(c) Storage of fuel rods in a tank in TA-2-1.

The normal wastes of (a), (b) and (c) above are discharged to either of three stainless steel underground storage tanks (4550 liters each) at TA-2-54,55 and 56. Pumps in TA-2-57 transfer these wastes to 3800 liter Dempster tanks for delivery to TA-50. Volumes and radioactivities of wastes transferred during 1974 and shown in Table___

TABLE ___

TA-2 WASTES HAULED TO TA-50, CY 74
(Total Volume - 220,000 liters)

Radioactivity, d/m-l	Min	Max	Average
Gross β	0	2×10^7	5×10^5
Gross γ	0	3×10^7	6×10^5

Under accident conditions, it is possible that the entire volume of primary cooling water would be discharged to waste. It is planned that these waters would drain to the three waste storage tanks, TA-2-54, 55 and 56 and it is therefore necessary that their use for storage of "normal" wastes be planned for brief time intervals.

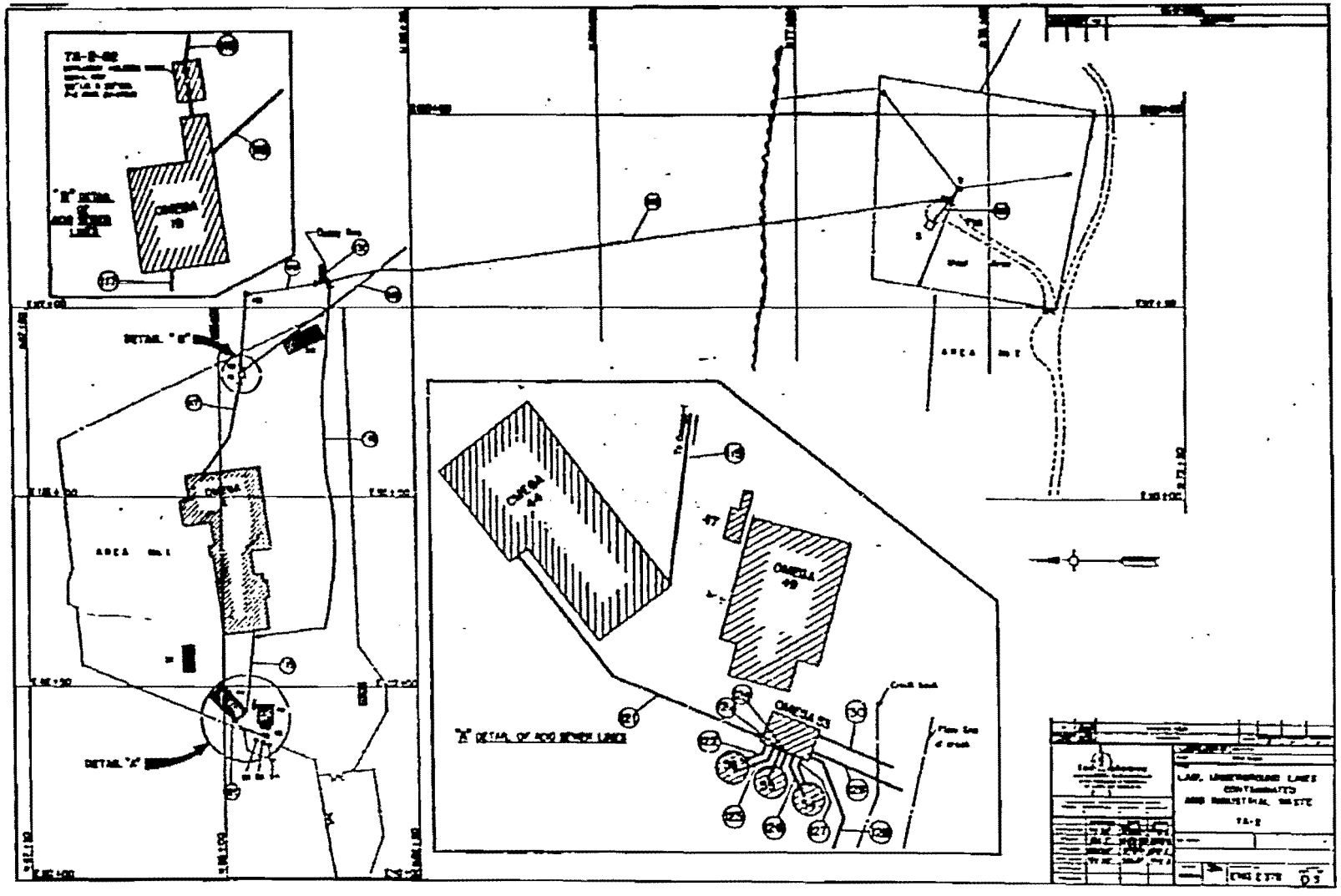
11.2 ALTERNATIVE SOLUTIONS

A number of alternate solutions are possible for the TA-2 radioactive waste liquids. The problem is relatively minor under normal conditions because activity levels are low. In much of the waste, radioactivity is due to nuclides of very short half-lives and storage at the site to permit decay to negligible levels with ultimate release to the streams in Los Alamos Canyon would be acceptable management. However, due to considerations with regard to possibilities of contamination by longer-lived radionuclides and the possibility of the presence of HTO, direct release of wastes is not considered advisable.

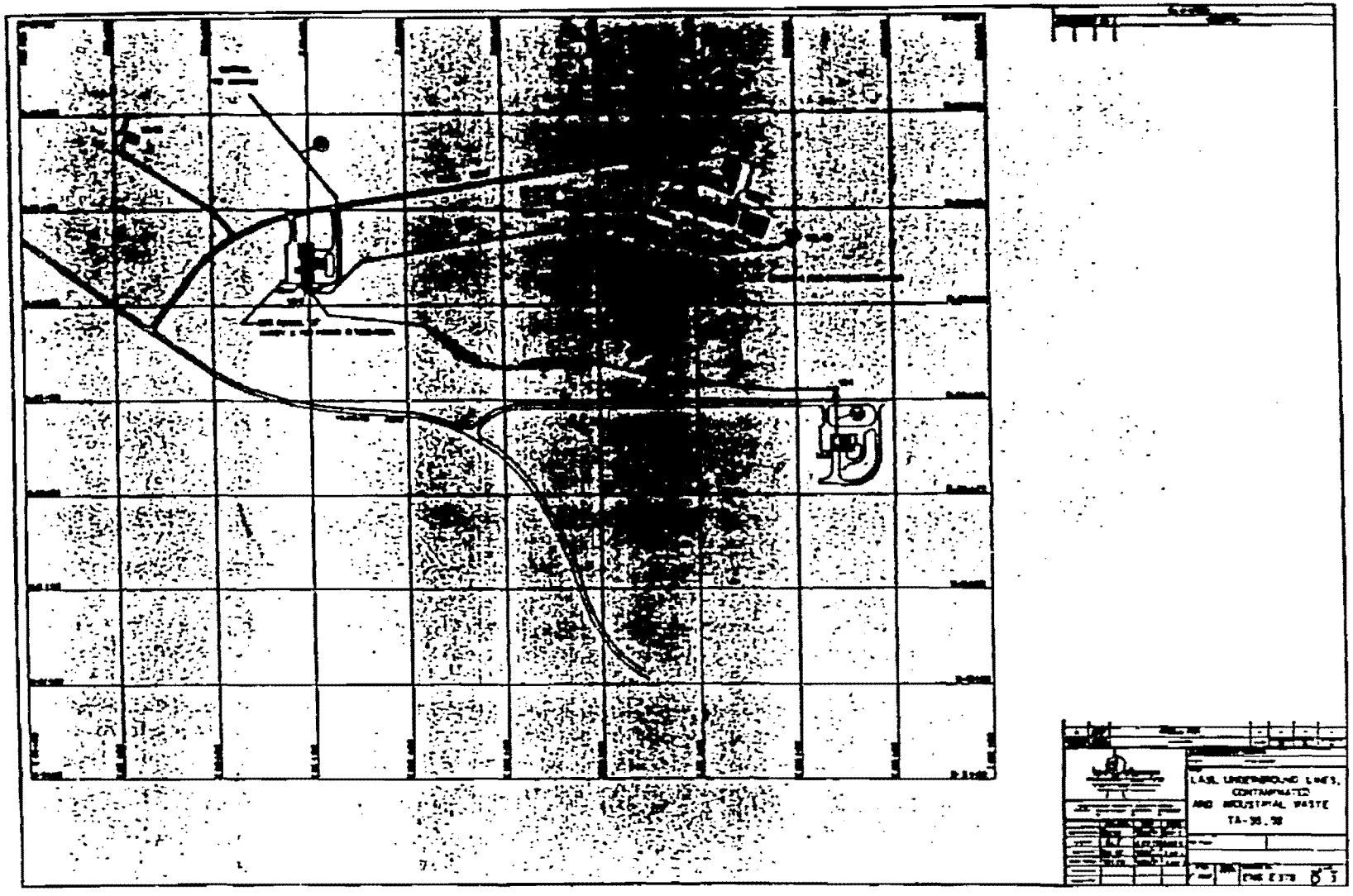
Some acceptable solutions to management of the TA-2 radioactive wastes are:

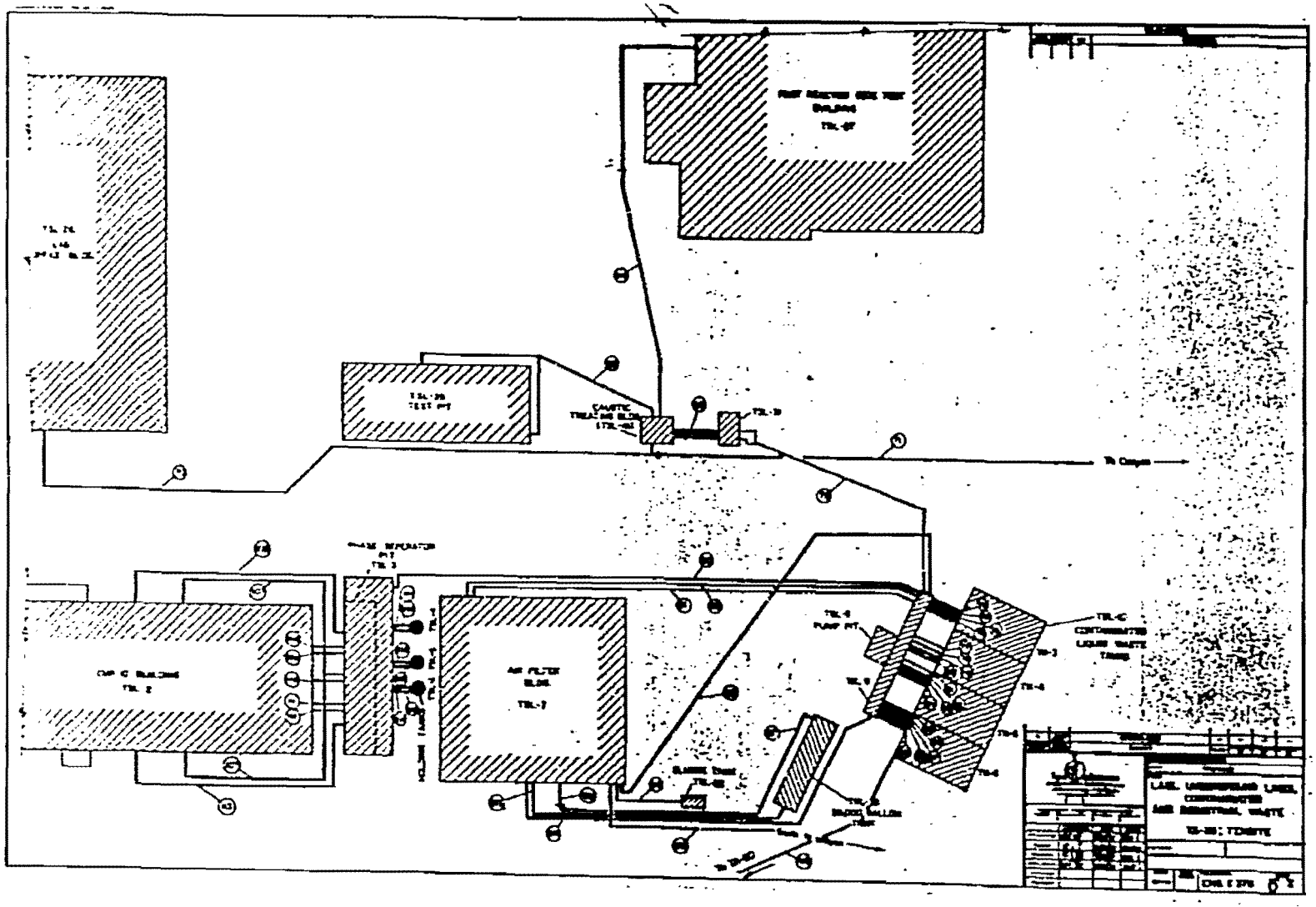
(a) Continue the present method of hauling all radioactive wastes to TA-50. For this purpose, use either improved Dempster tanks (no bottom outlets) or a larger tank truck or tank trailer rig.

(b) To minimize hazards at accidents during hauling, provide separate storage for decay at TA-2. Two



OMEGA 19
DETAIL "B"
DETAIL "A"
AREA No. 1
AREA No. 2
OMEGA 44
OMEGA 49
OMEGA 53
"A" DETAIL OF ACID SEWER LINES
LAB. UNDERGROUND LINES CONTAMINATED AND INDUSTRIAL WASTE
TA-2


LASL UNDERGROUND LINES,
CONTAMINATED
AND INDUSTRIAL WASTE
TA-35, 50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