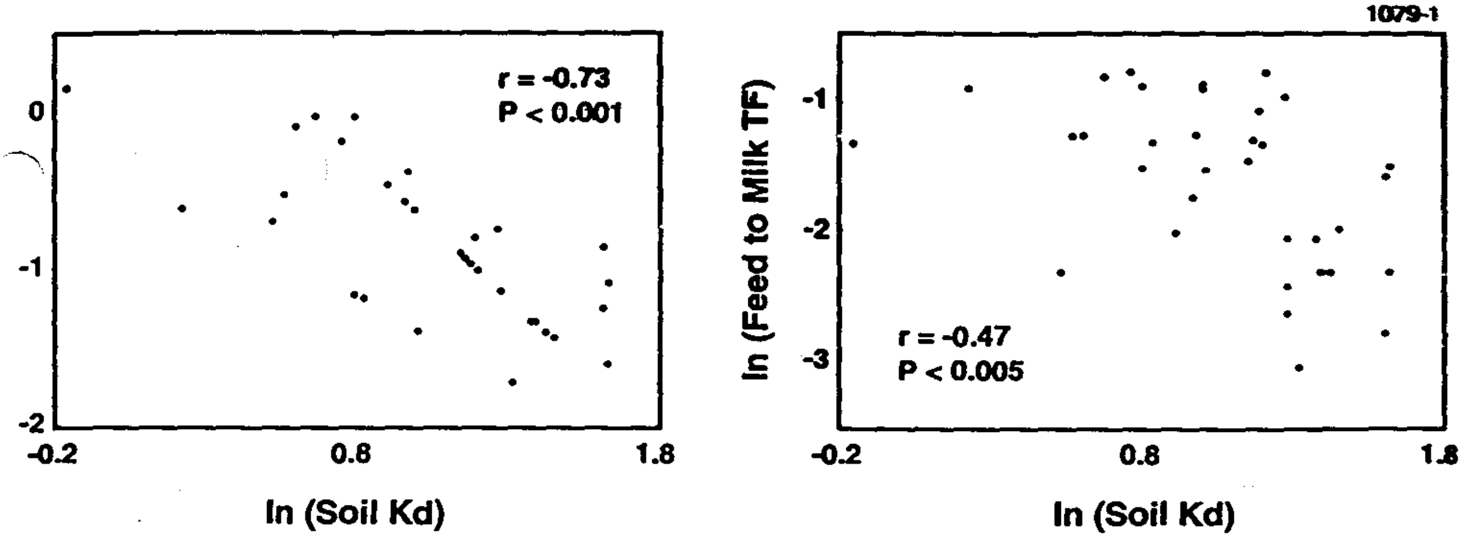
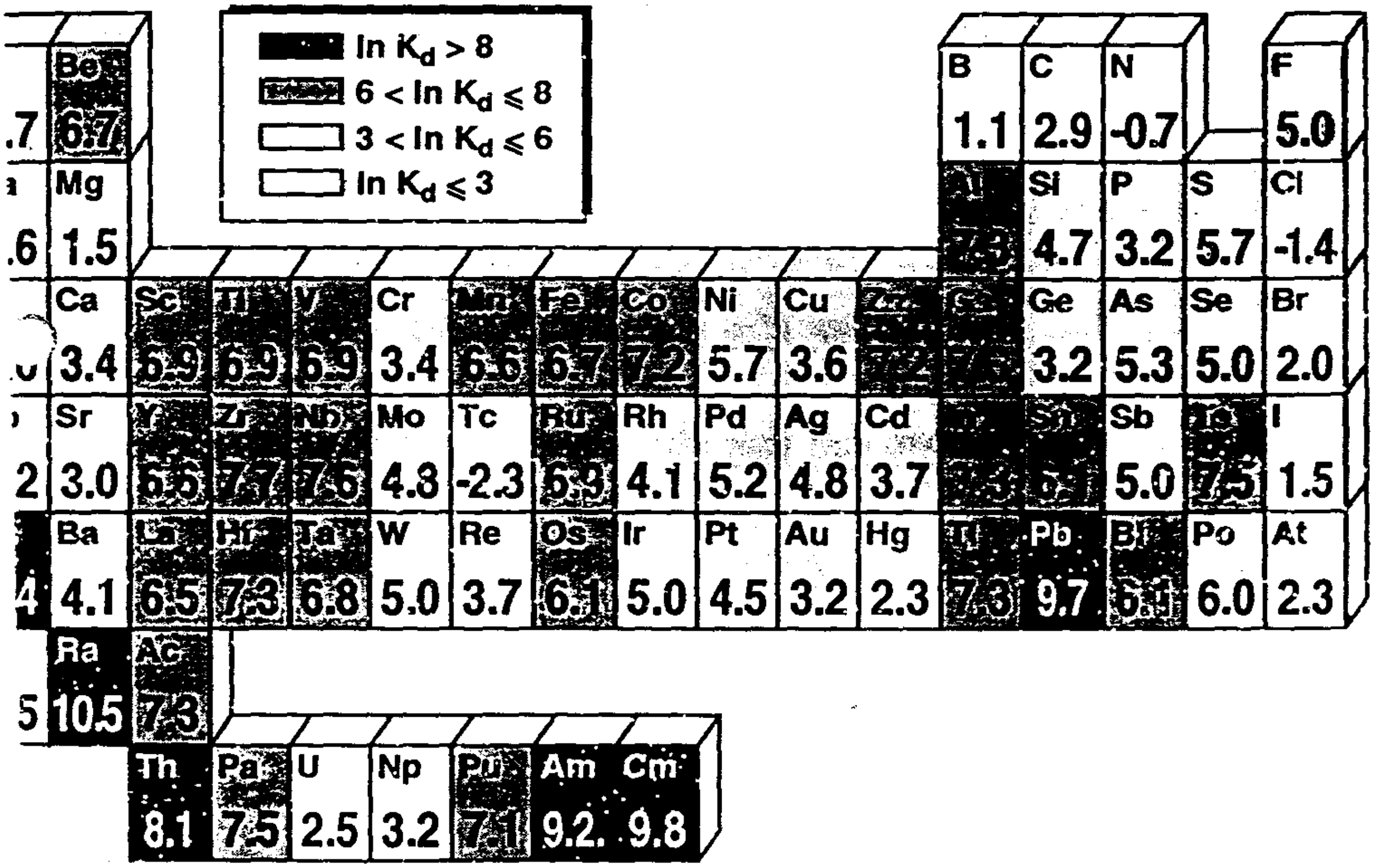
Lakes and Rivers

- Flushing rate
- Sedimentation
- Degassing
- Bioaccumulation

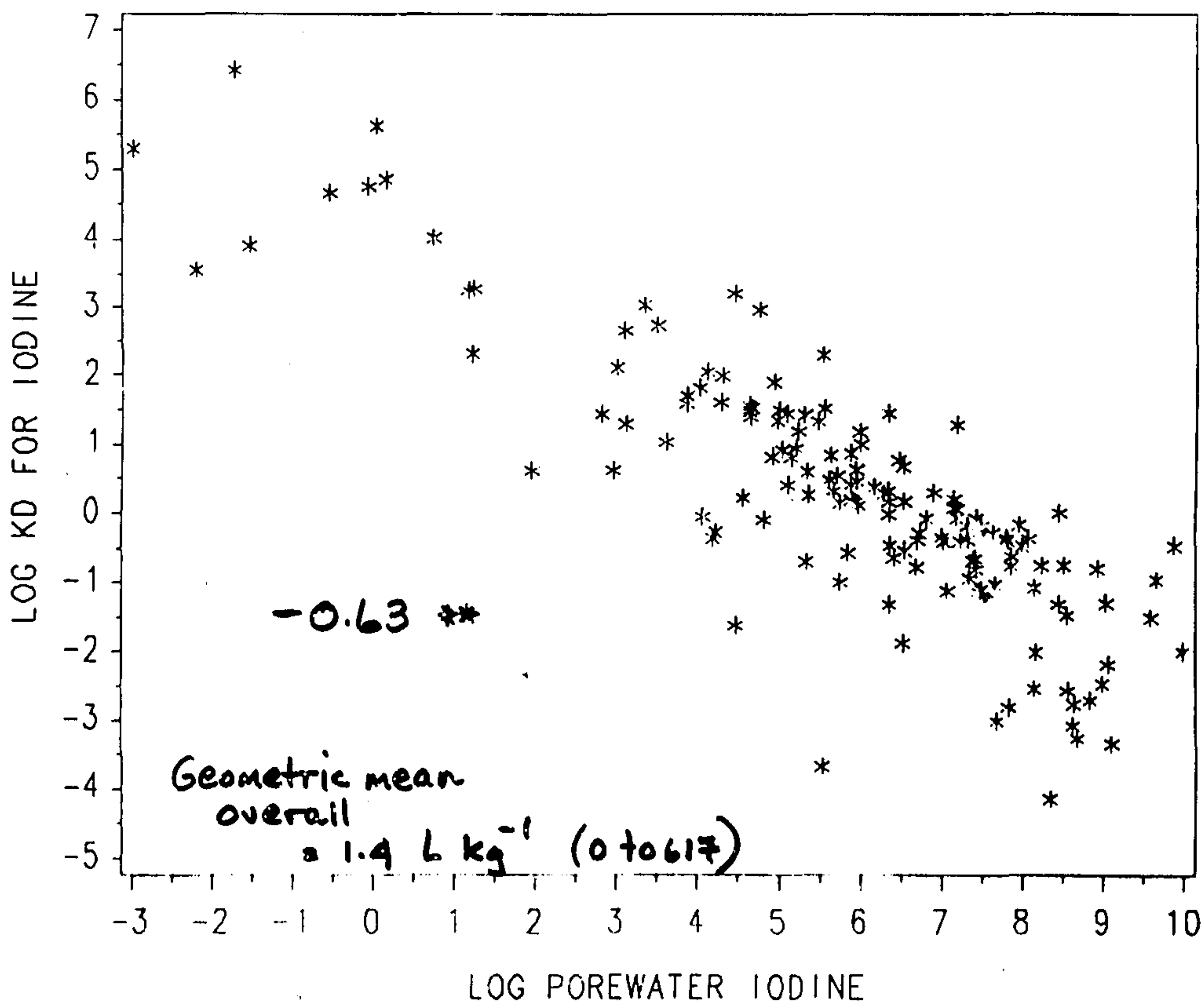


1079-1
r = -0.73
P < 0.001
0
-1
-2
-0.2
0.8
1.8
ln (Soil Kd)
ln (Feed to Milk TF)
-1
-2
-3
r = -0.47
P < 0.005
-0.2
0.8
1.8
ln (Soil Kd)

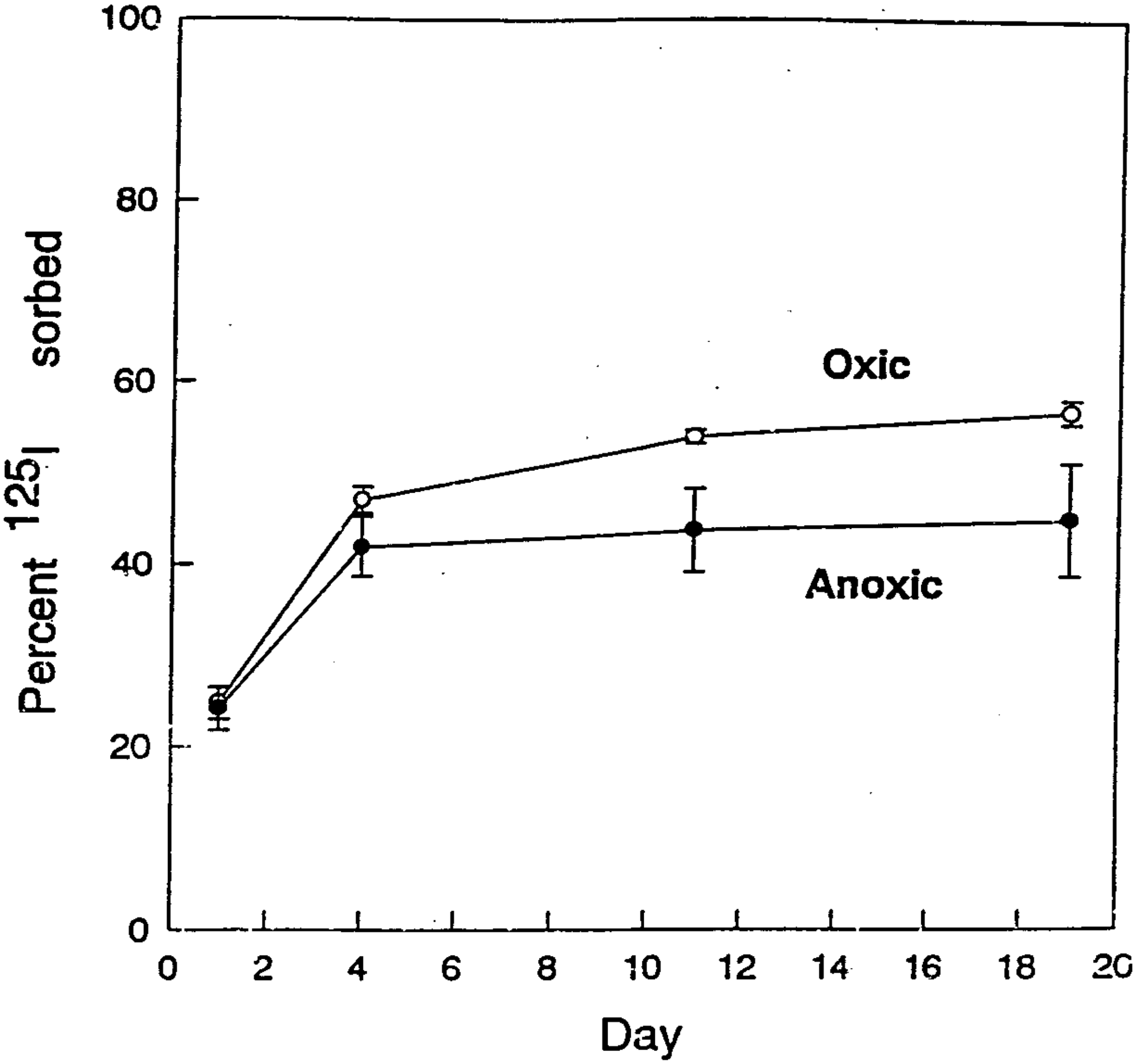


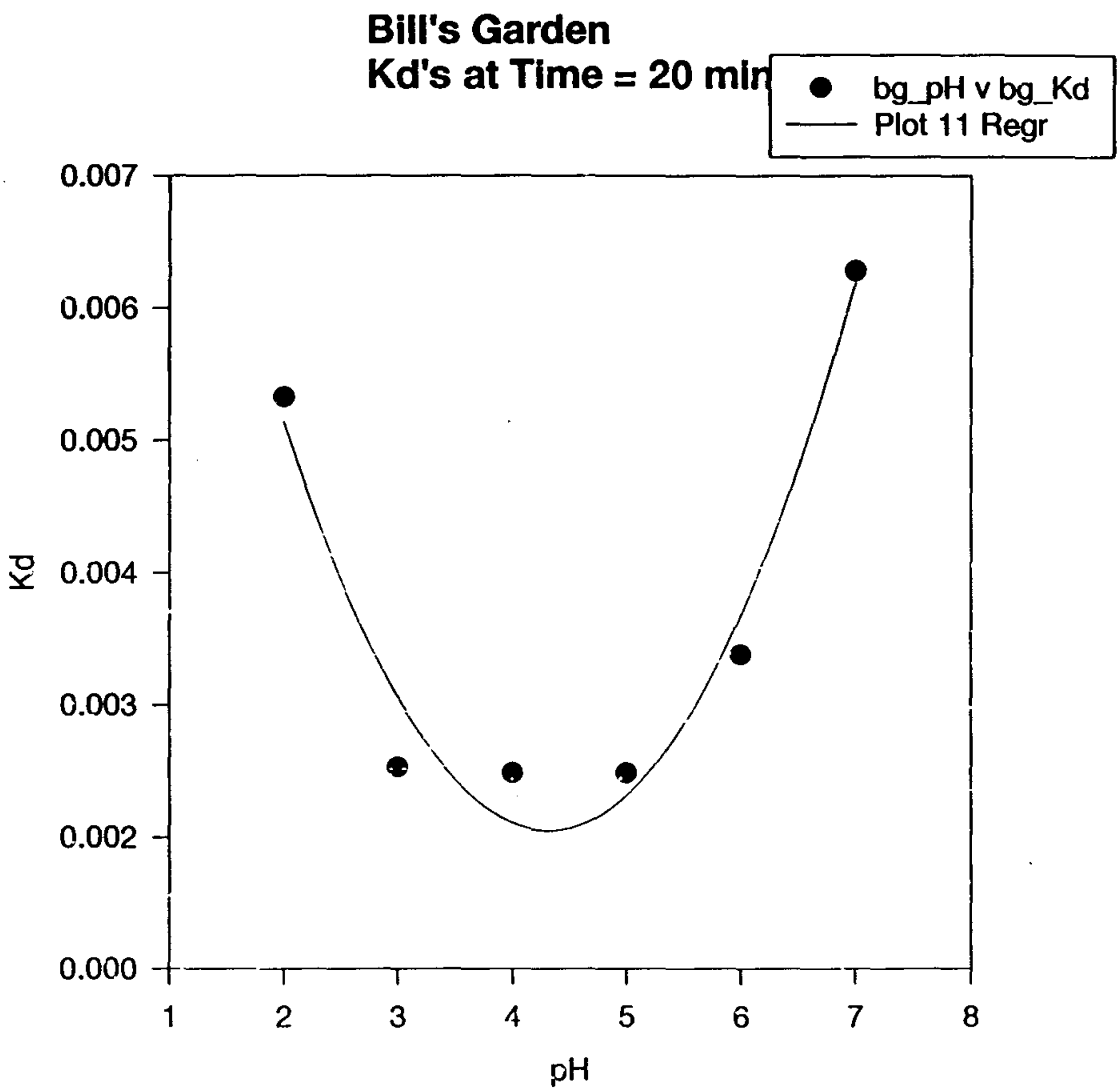
ln K_d > 8
6 < ln K_d ≤ 8
3 < ln K_d ≤ 6
ln K_d ≤ 3
Be 6.7
Mg 1.5
Ca 3.4
Sr 3.0
Ba 4.1
Ra 10.5
Sc 6.9
Ti 6.9
V 6.9
Cr 3.4
Mn 6.6
Fe 6.7
Co 7.2
Ni 5.7
Cu 3.6
Zn 7.2
Y 6.5
Zr 7.7
Nb 7.6
Mo 4.8
Tc -2.3
Ru 6.9
Rh 4.1
Pd 5.2
Ag 4.8
Cd 3.7
La 6.5
Hf 7.3
Ta 6.8
W 5.0
Re 3.7
Os 6.1
Ir 5.0
Pt 4.5
Au 3.2
Hg 2.3
Ac 7.3
B 1.1
C 2.9
N -0.7
F 5.0
Al 7.3
Si 4.7
P 3.2
S 5.7
Cl -1.4
Ga 7.5
Ge 3.2
As 5.3
Se 5.0
Br 2.0
Sn 6.1
Sb 5.0
Te 7.5
I 1.5
Tl 7.3
Pb 9.7
Bi 6.1
Po 6.0
At 2.3
Th 8.1
Pa 7.5
U 2.5
Np 3.2
Pu 7.1
Am 9.2
Cm 9.8

LOG KD VERSUS LOG POREWATER–ALL DPTHS/DIST



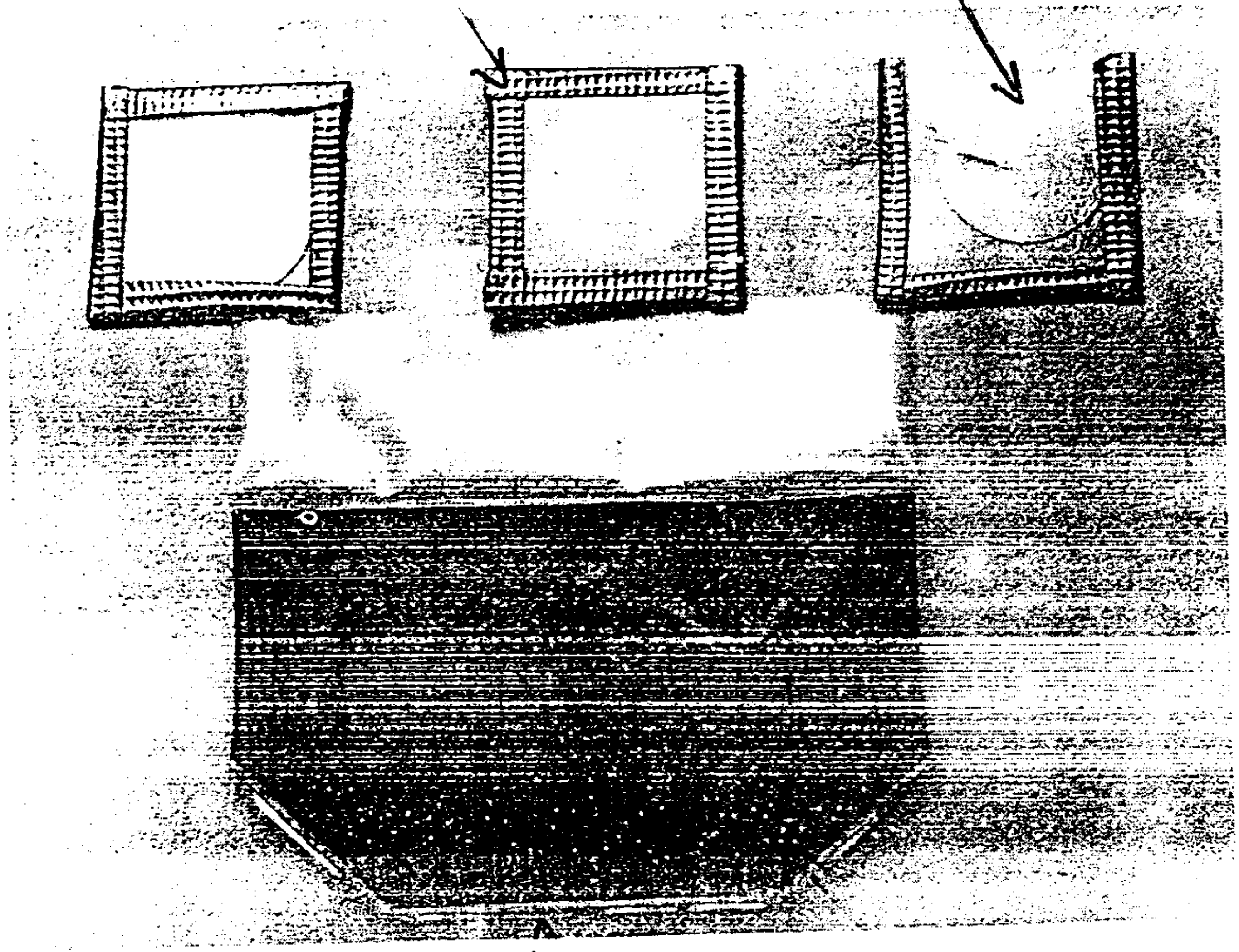
6

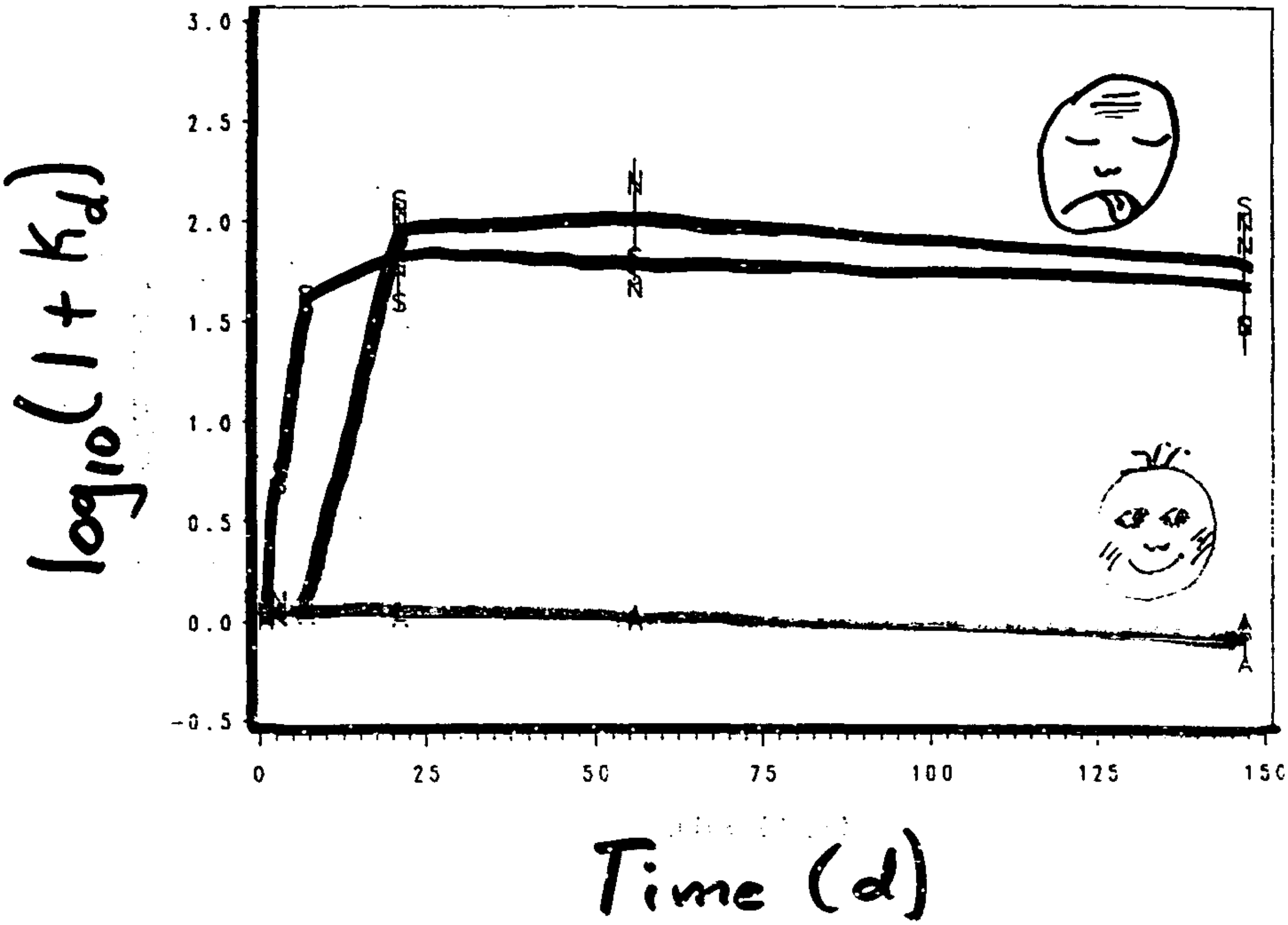

Percent 125I sorbed
100
80
60
40
20
0
Oxic
Anoxic
0
2
4
6
8
10
12
14
16
18
20
Day


Bill's Garden
Kd's at Time = 20 min
bg_pH v bg_Kd
Plot 11 Regr
0.007
0.006
0.005
0.004
0.003
0.002
0.000
Kd
1
2
3
4
5
6
7
8
pH

filter-sided cassette

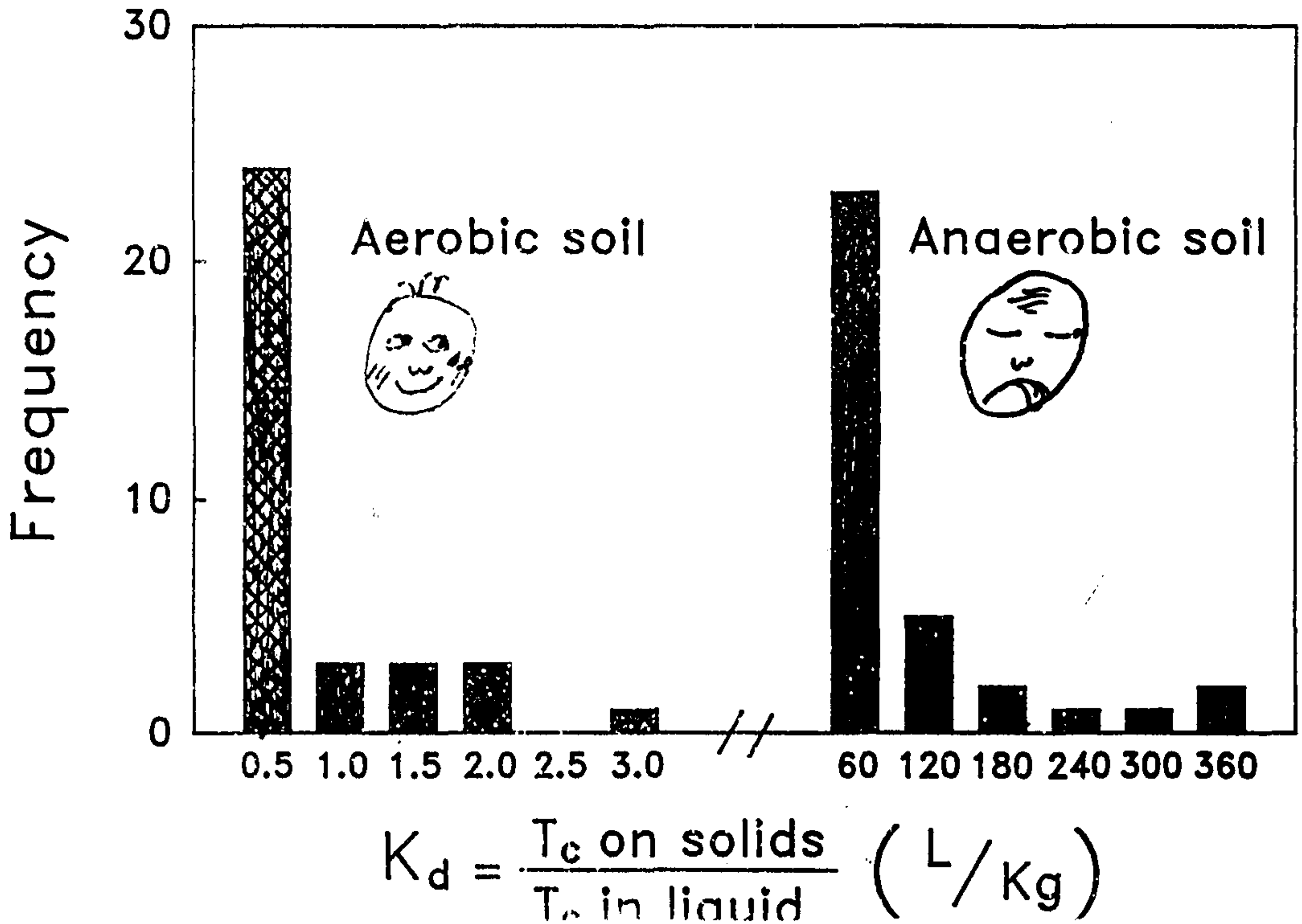
glass fibre filter





3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
0
25
50
75
100
125
150
$\log_{10}(1 + K_d)$
Time (d)

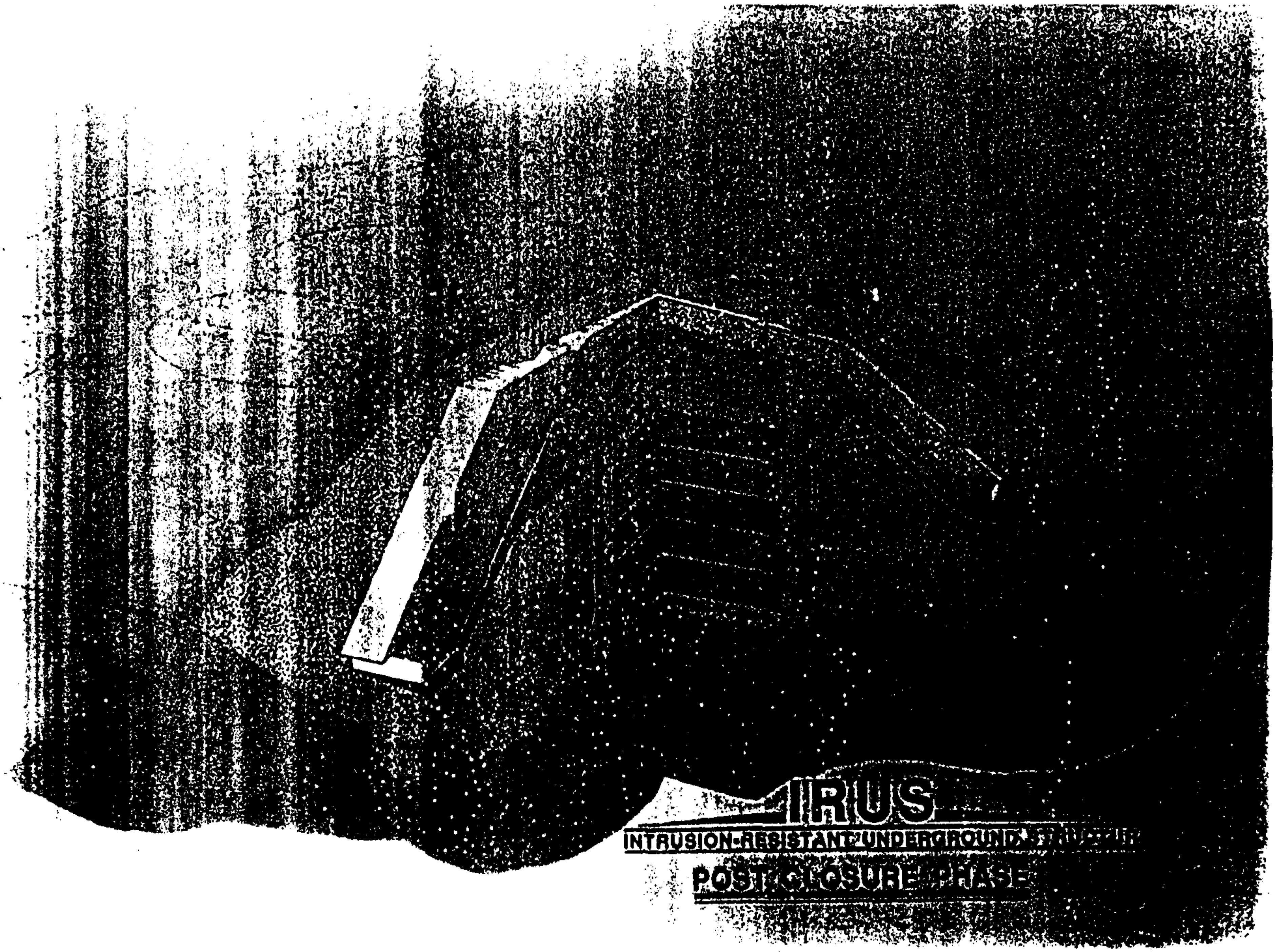
Frequency Distribution of K_d for Technetium (T_c) among 34 soils, aerobic and anaerobic



erage K_d for Tc Among the Soils Used in Experiment B, Results for Each Soil Based on Triplicate Measurements

Soil type	*Aerobic, aK_d*		*Anaerobic, nK_d*	
	GM	*Mean ± SD of $\log_{10}(1 + K_d)$*	*GM*	*Mean ± SD of $\log_{10}(1 + K_d)$*
Mineral soils	−0·14 NS	−0·068 ± 0·064	18**	1·26 ± 0·67
Organic soils	0·50**	0·18 ± 0·24	68***	1·84 ± 0·53

obability levels: NS > 0·05, ** < 0·01, *** < 0·001.


IRUS
INTRUSION-RESISTANT UNDERGROUND
POST CLOSURE PHASE

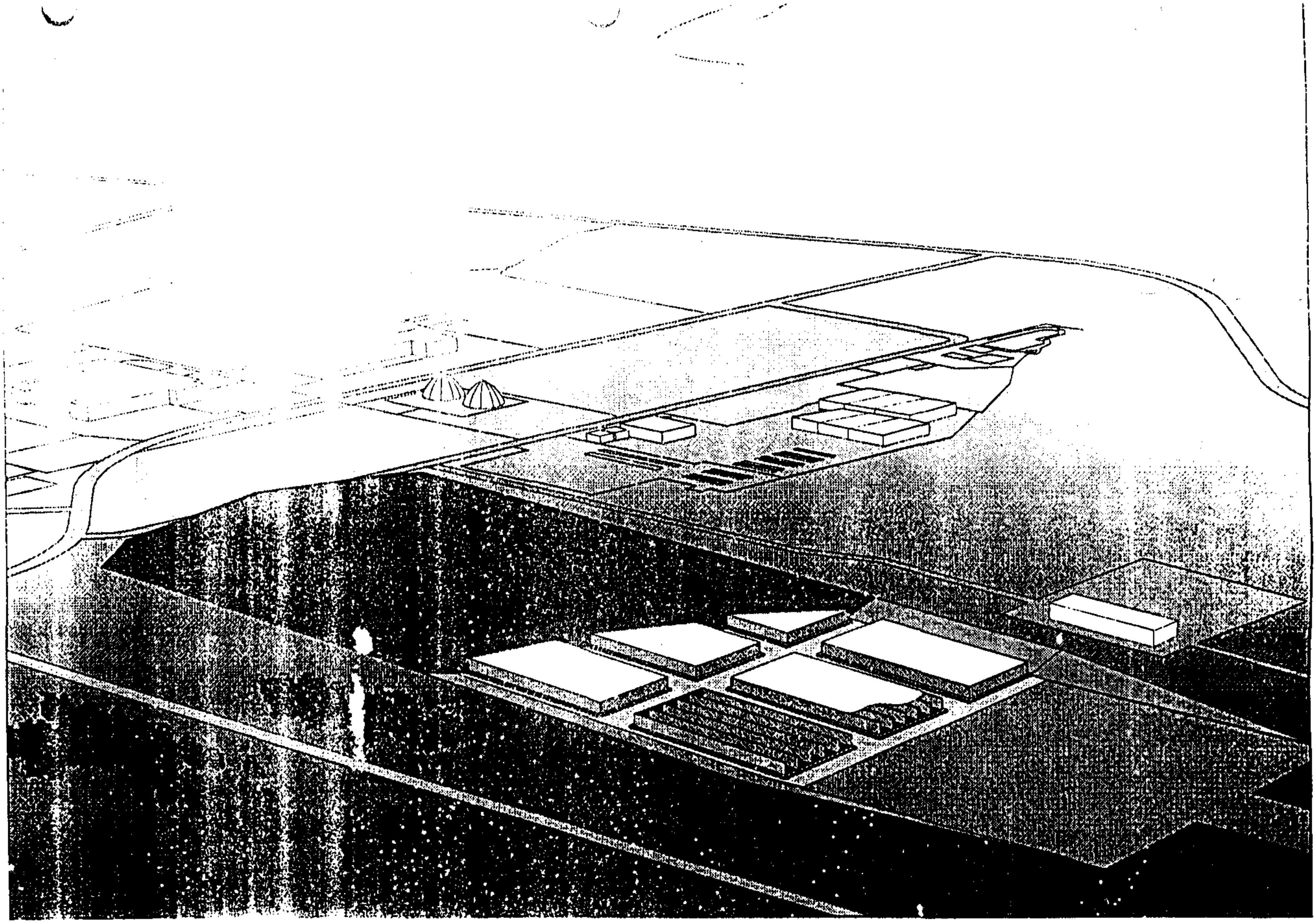


FIGURE 10
Near Surface Trench Disposal Concept

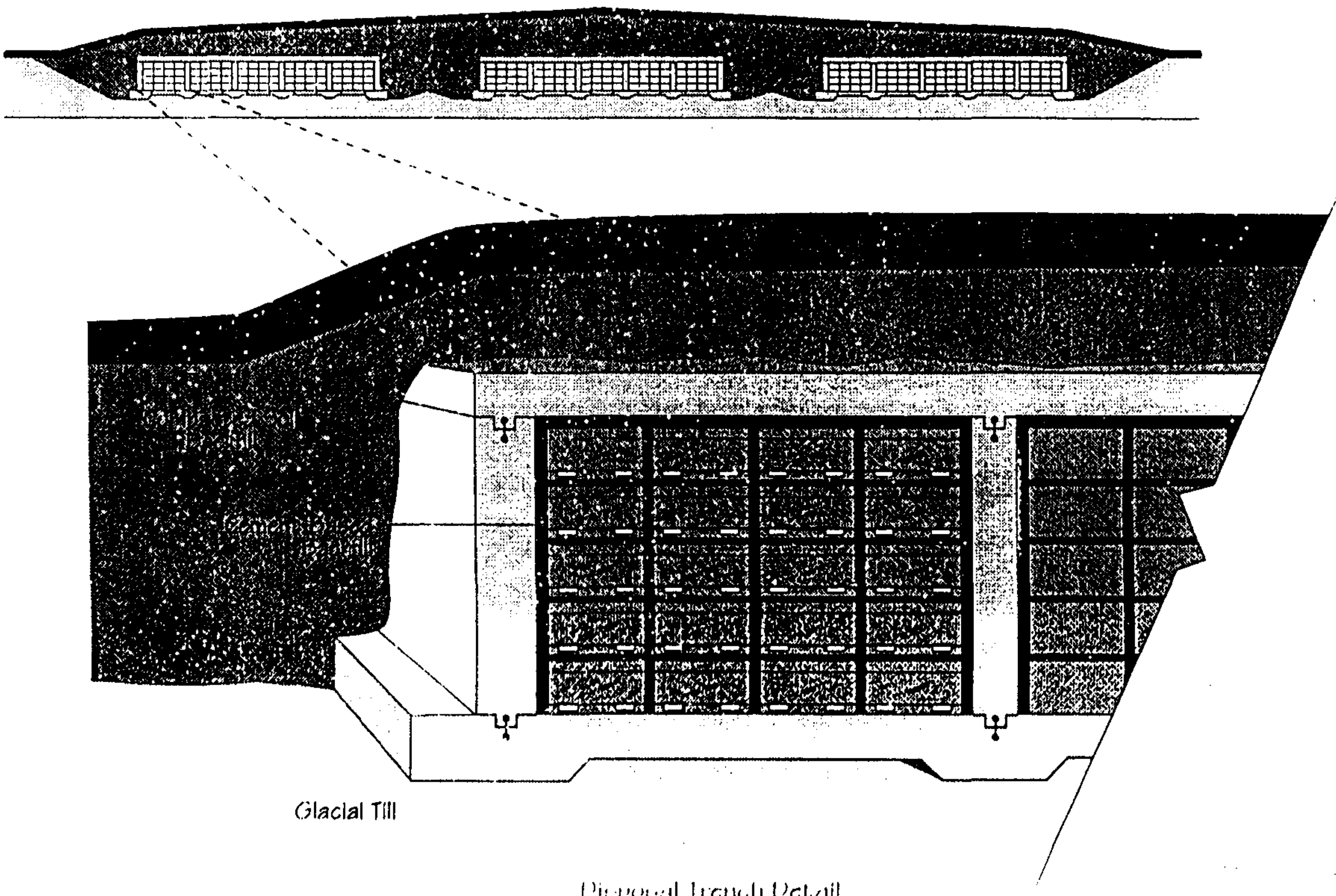


FIGURE 15
Cross Sectional View of Concrete Trench Disposal Facility

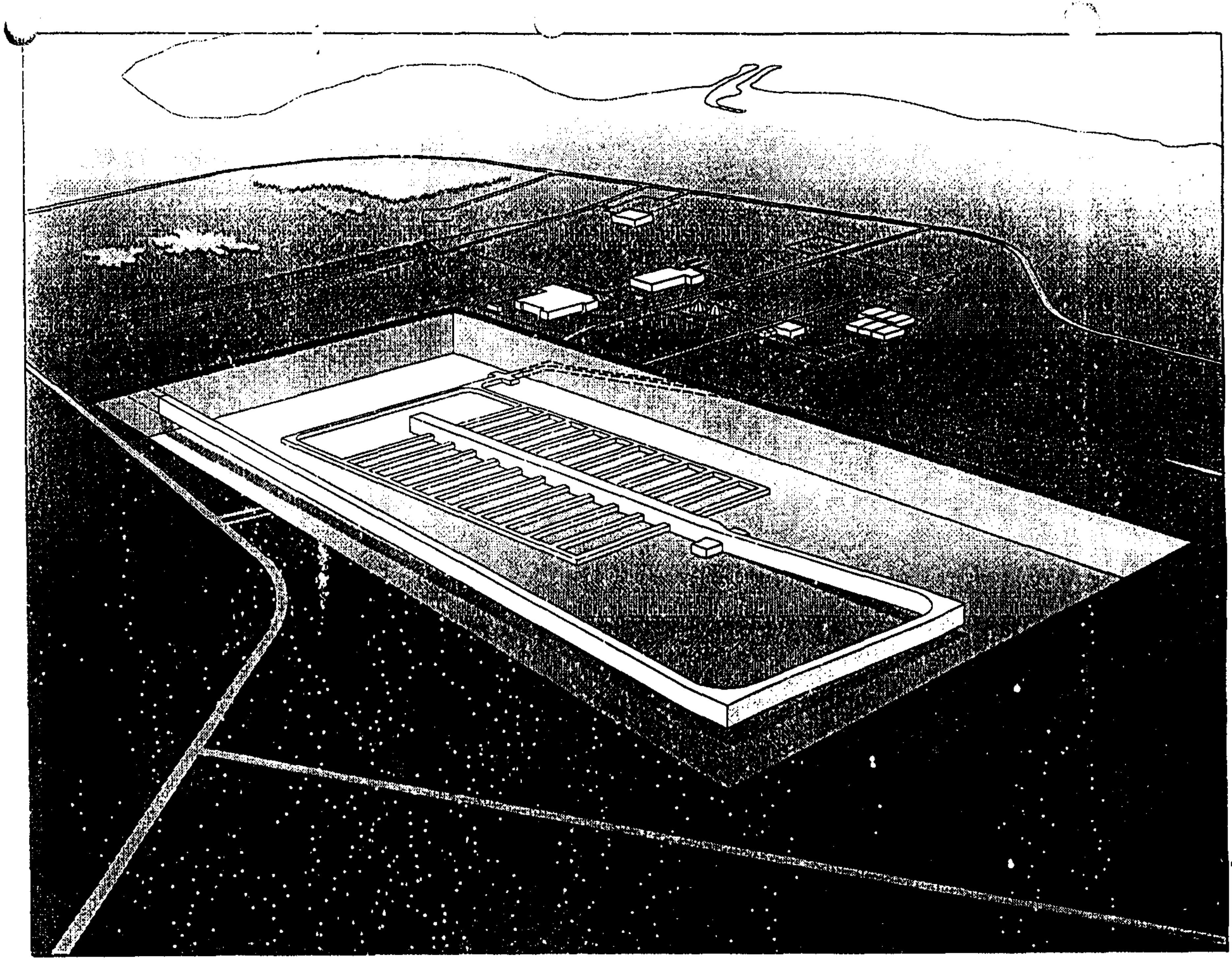


FIGURE 11

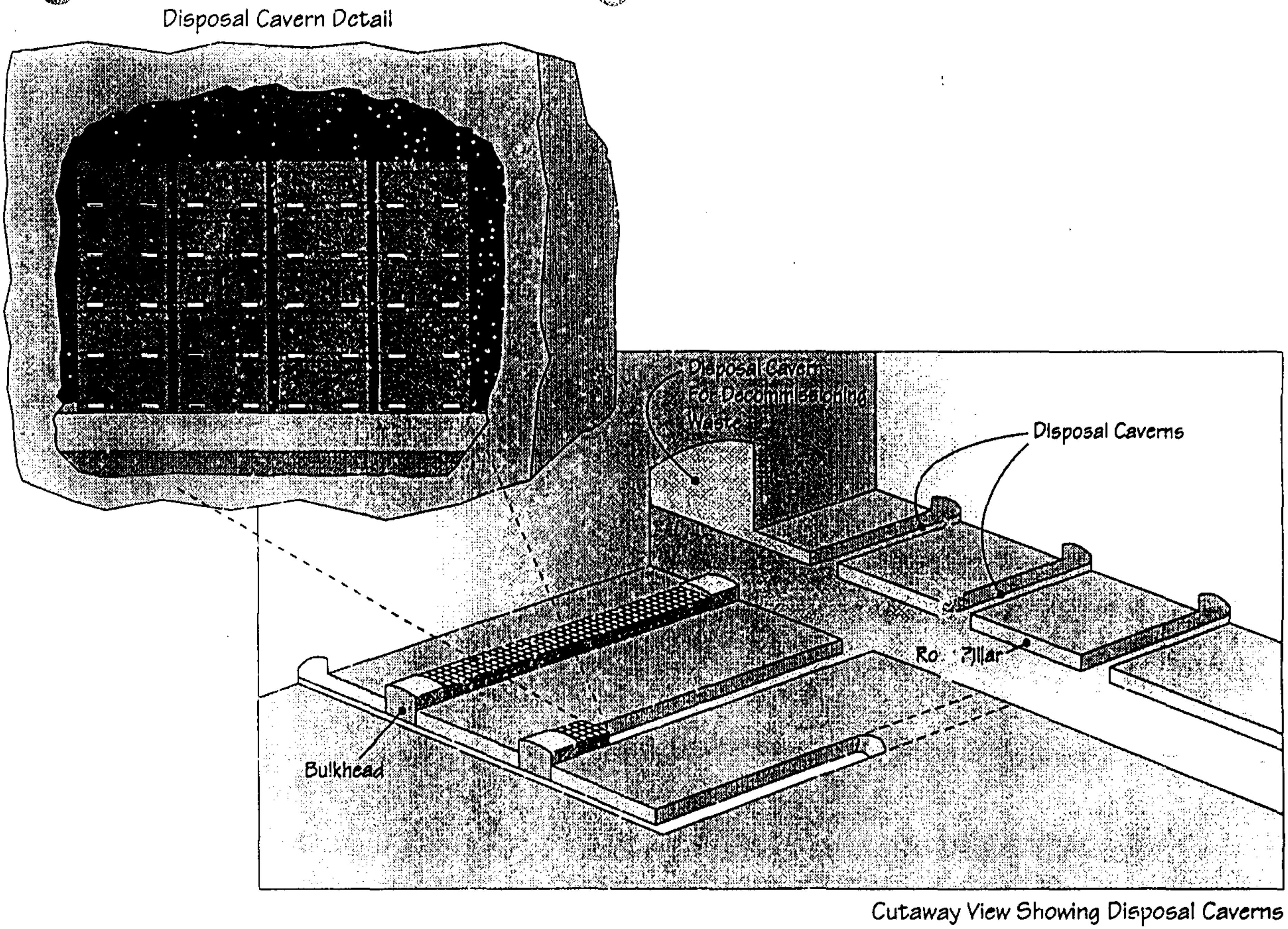


FIGURE 16
Cutaway View of Shallow Rock Cavern Disposal Facility

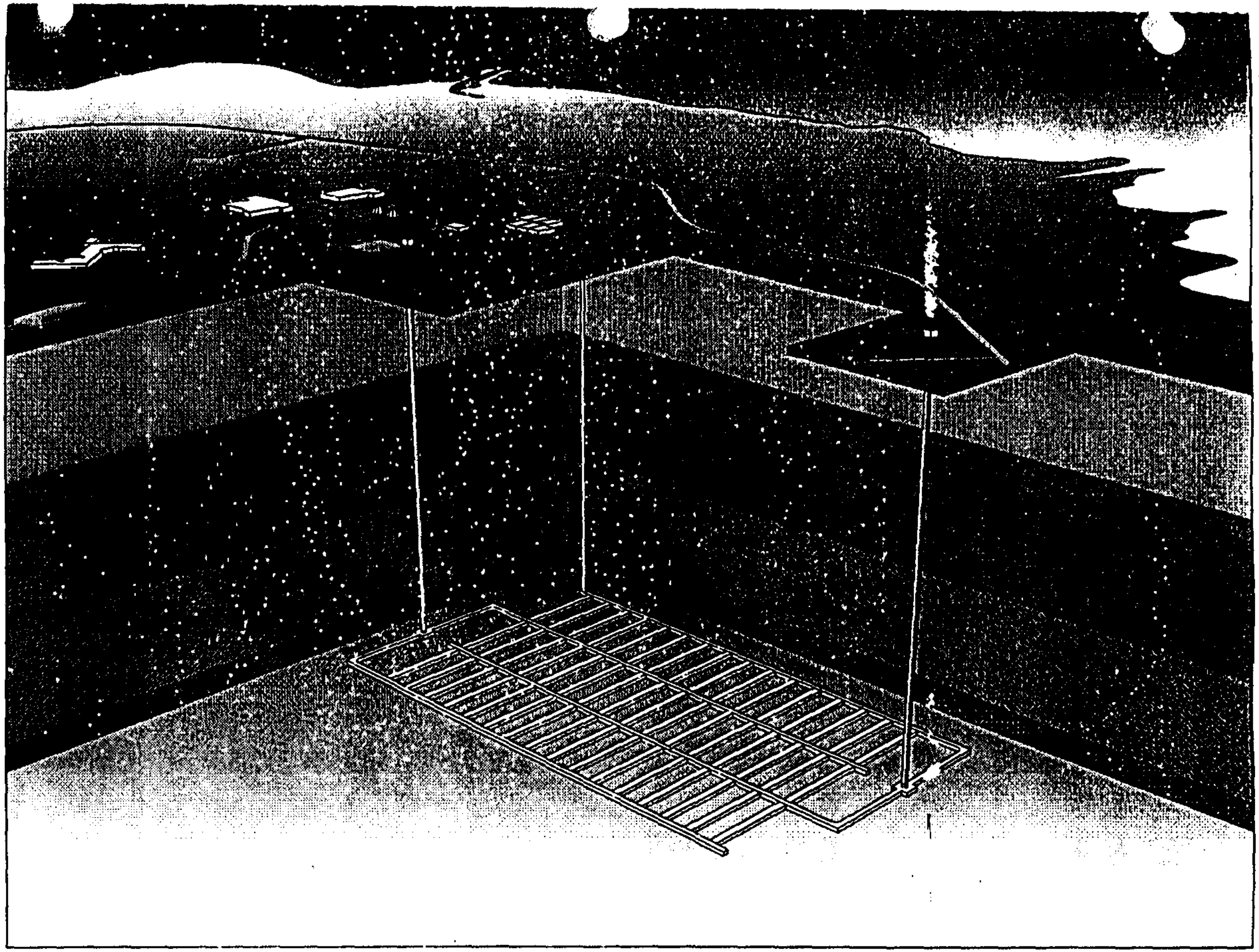
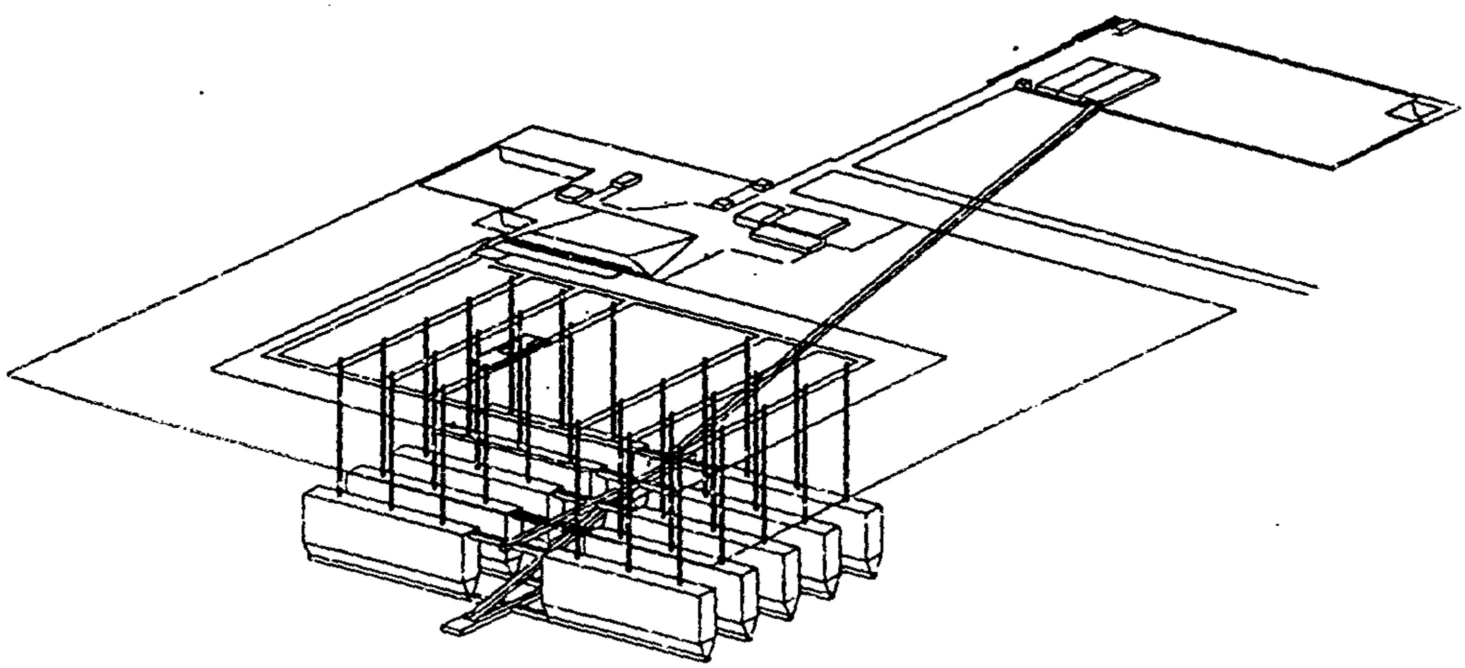
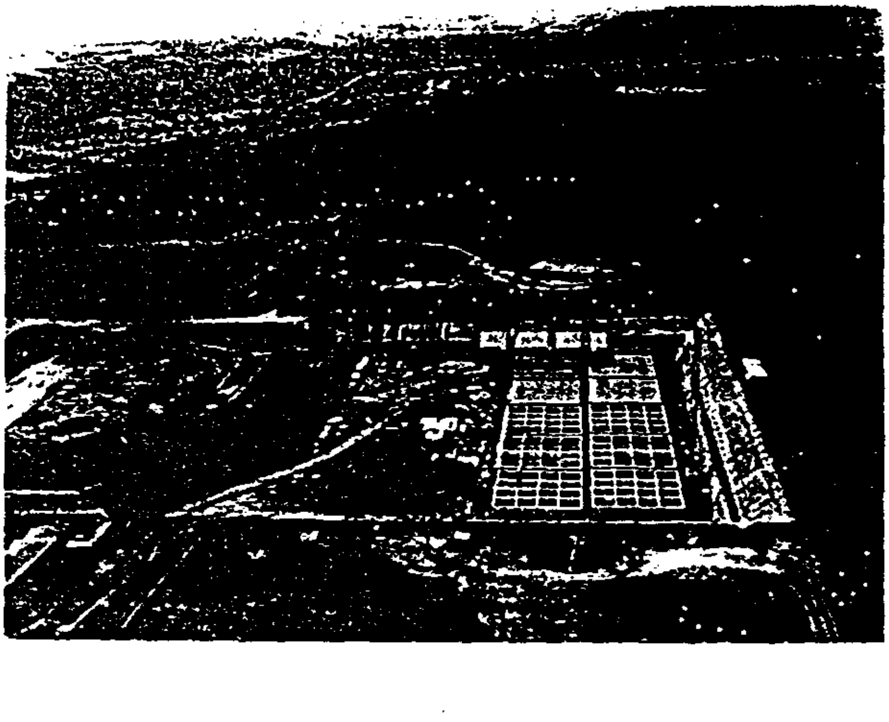
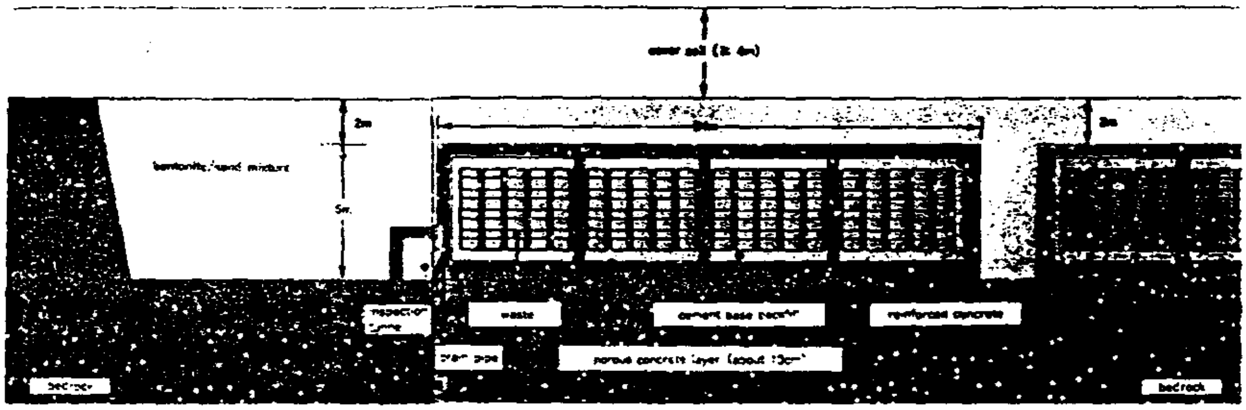


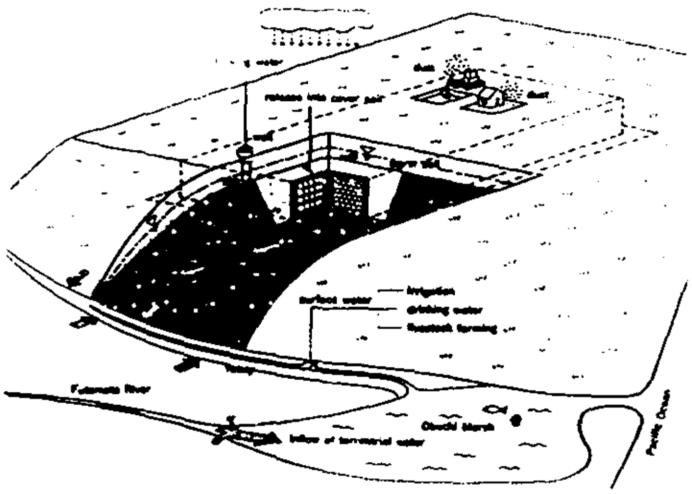
FIGURE 12
Deep Rock Cavern Disposal Concept

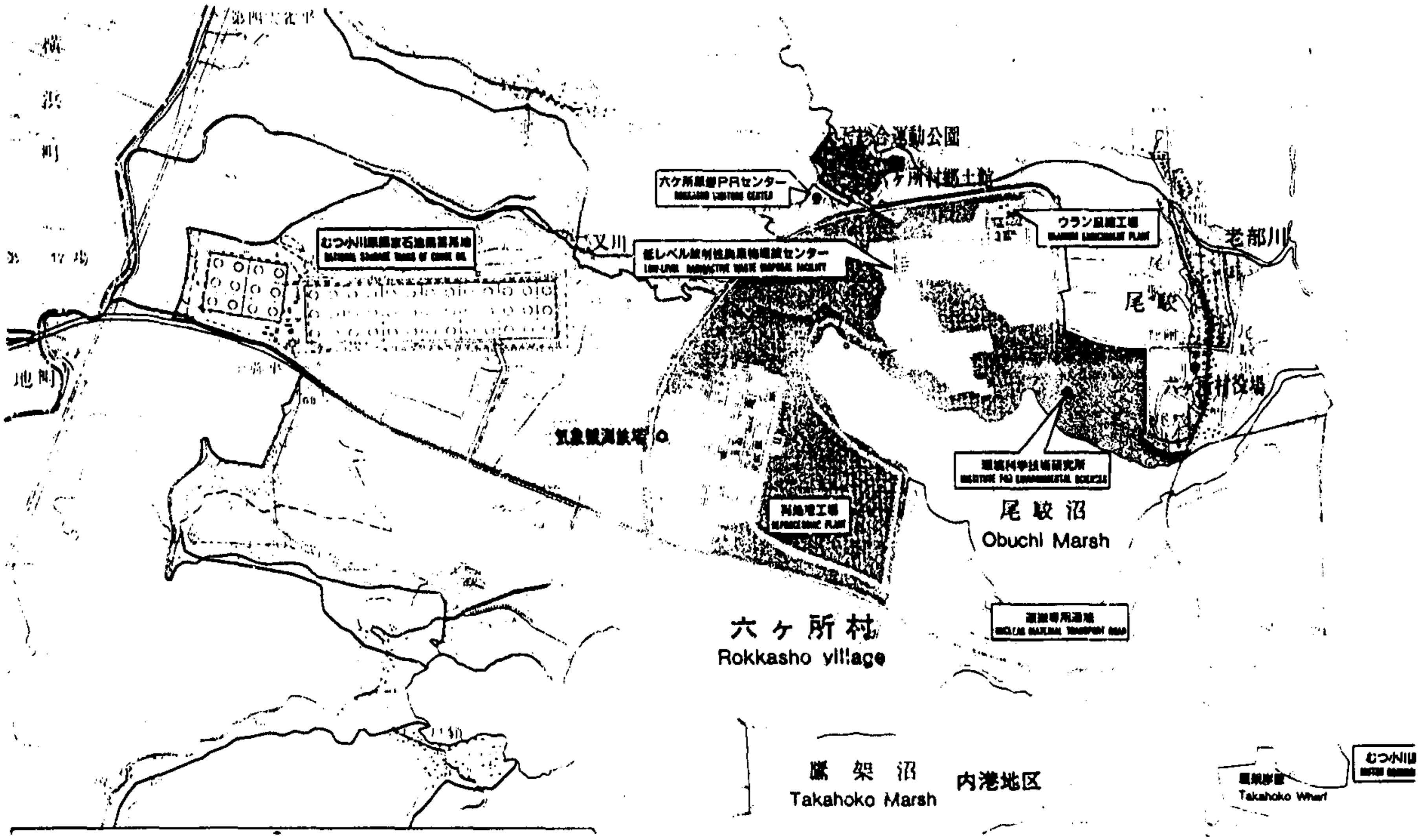




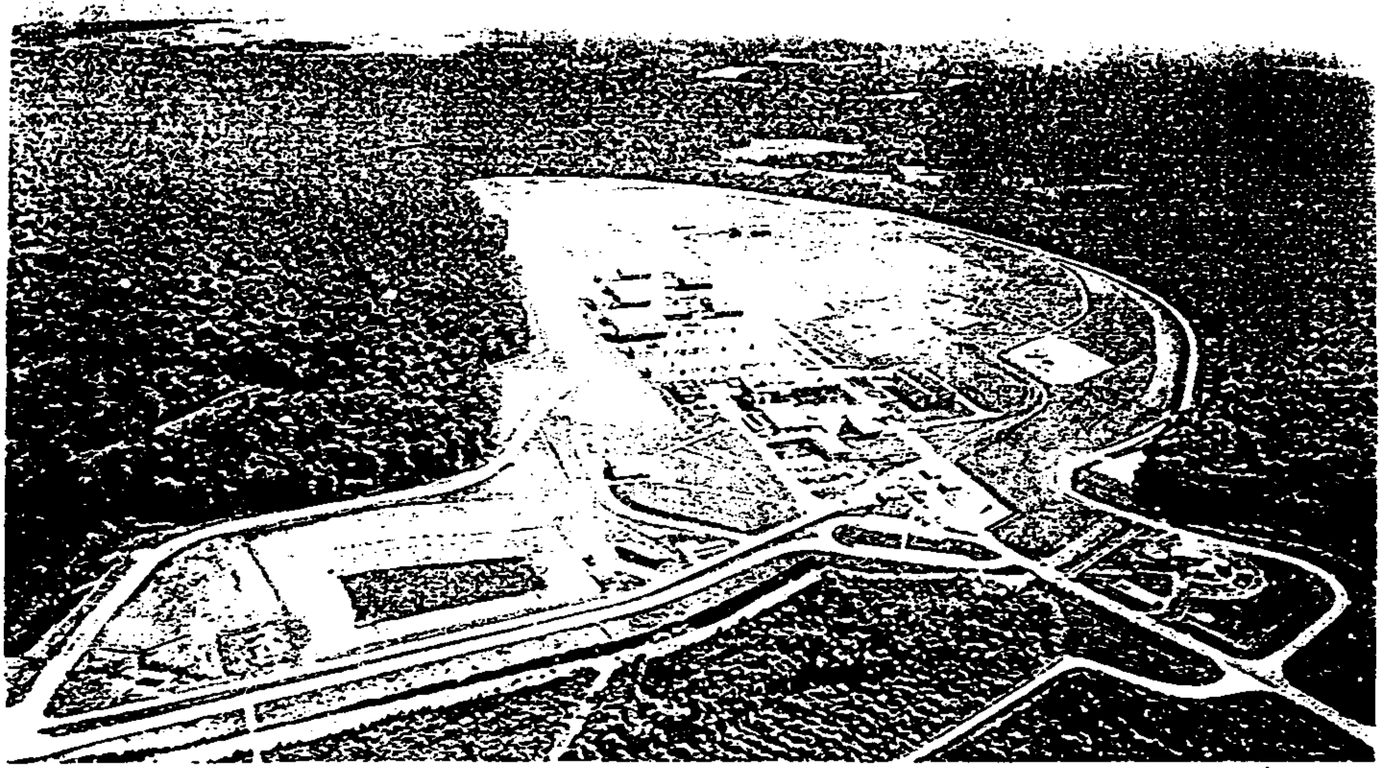
A-A Cross Section View of Disposal Facility

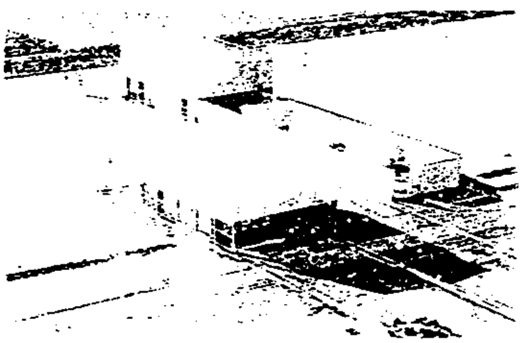


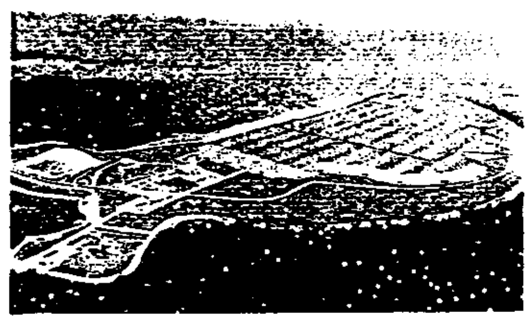


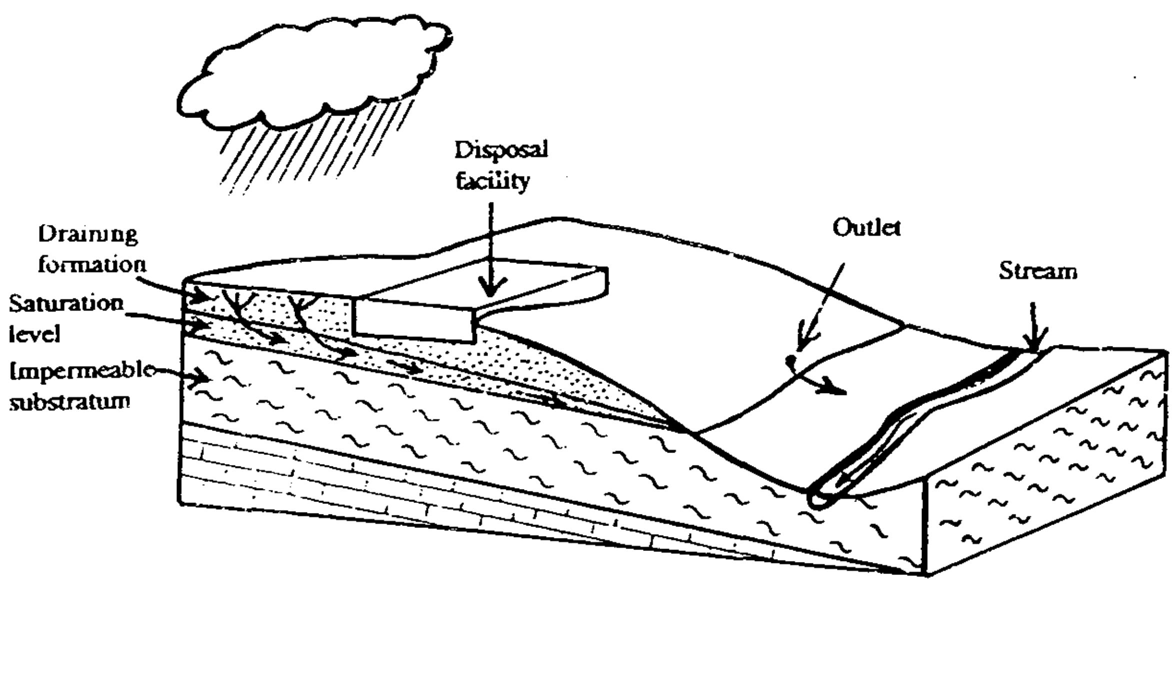


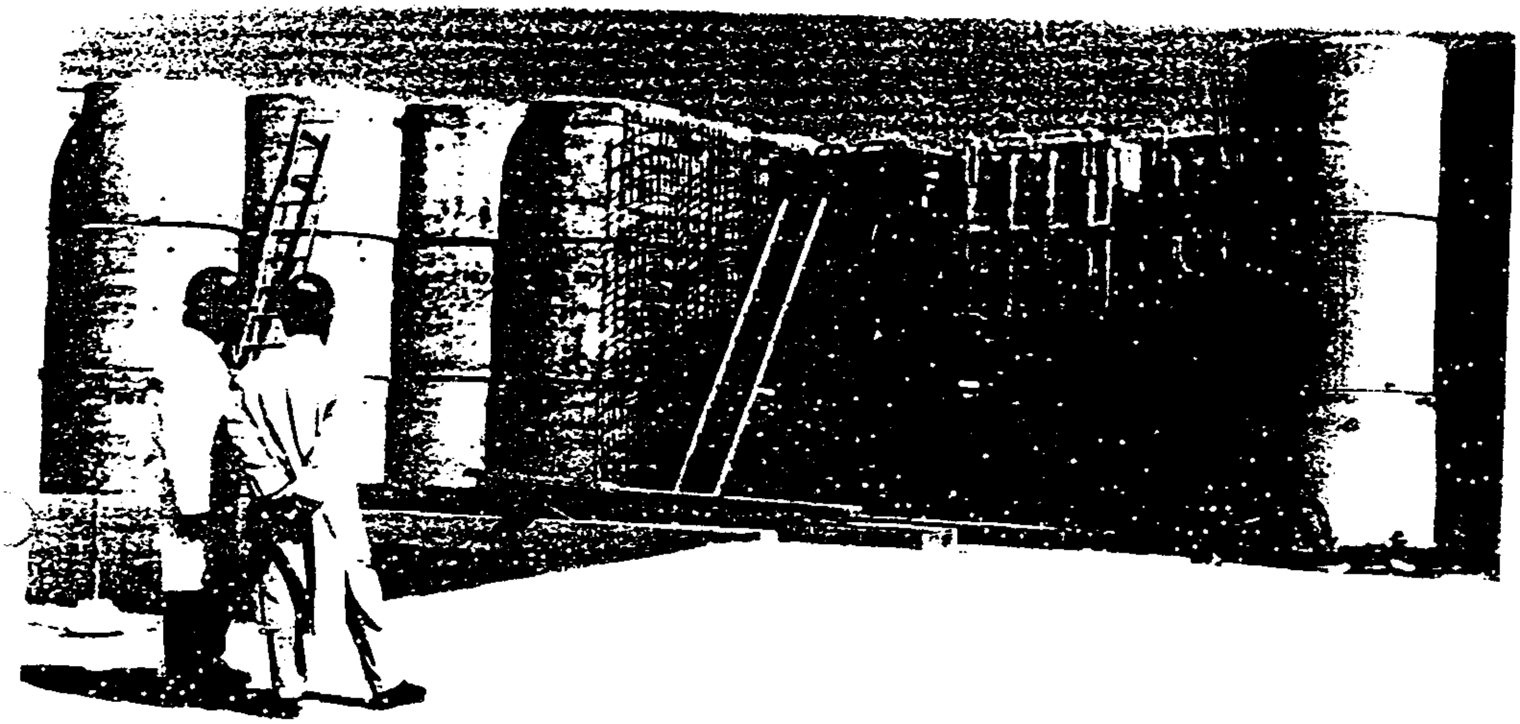
六ヶ所原燃PRセンター
ウラン濃縮工場
低レベル放射性廃棄物埋設センター
尾駮
尾駮沼
Obuchi Marsh
六ヶ所村
Rokkasho village
鷹架沼
Takahoko Marsh
内港地区
Takahoko Wharf

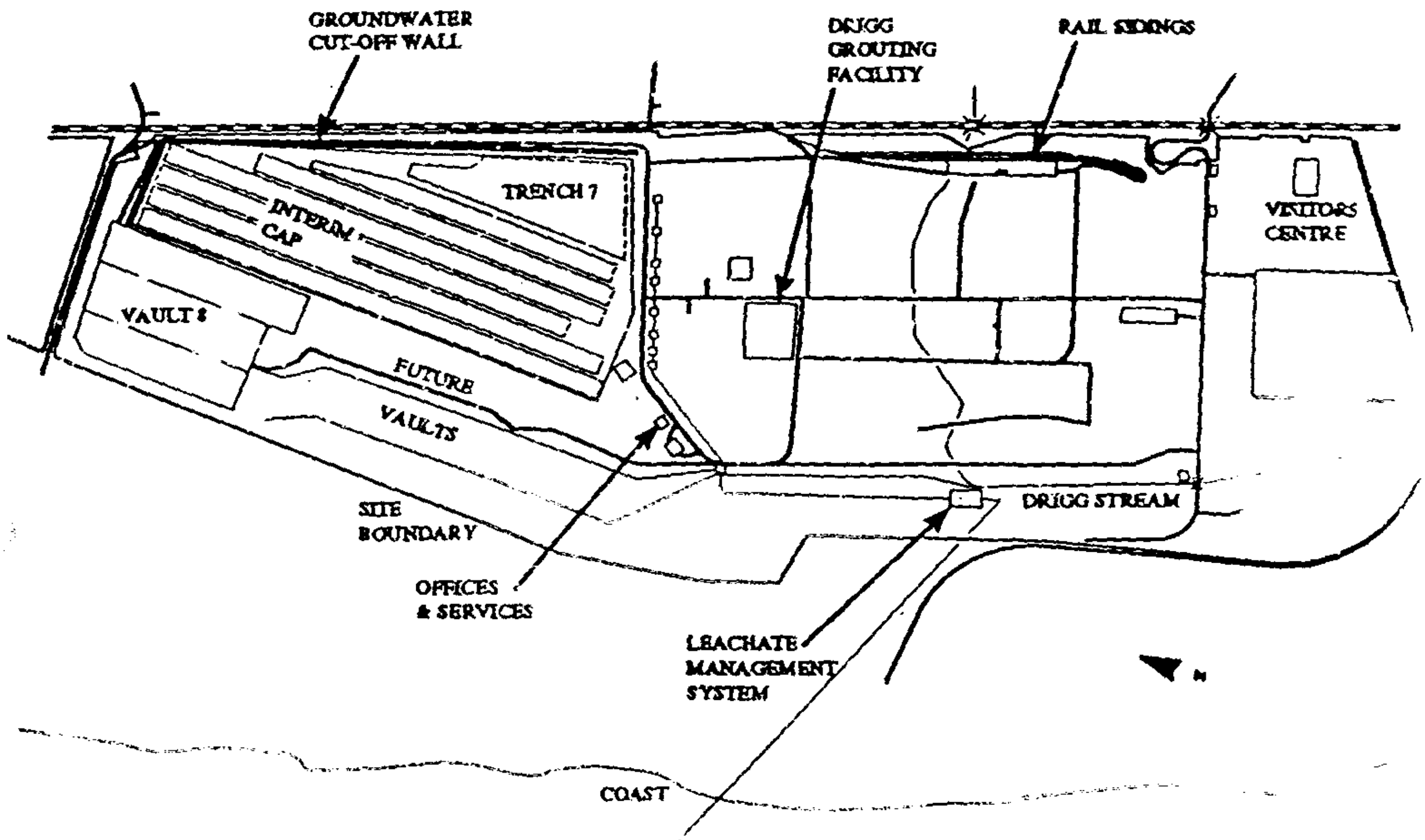







Disposal facility
Draining formation
Saturation level
Impermeable substratum
Outlet
Stream




GROUNDWATER
CUT-OFF WALL
DRIGG
GROUTING
FACILITY
RAIL SIDINGS
TRENCH 7
INTERIM
CAP
VISITORS
CENTRE
VAULT 8
FUTURE
VAULTS
SITE
BOUNDARY
DRIGG STREAM
OFFICES
& SERVICES
LEACHATE
MANAGEMENT
SYSTEM
COAST

1. The disposal site shall be capable of being characterized, modeled, analyzed and monitored.

2. Within the region or state where the facility is to be located, a disposal site should be selected so that projected population growth and future developments are not likely to affect the ability of the disposal facility to meet the performance objectives....

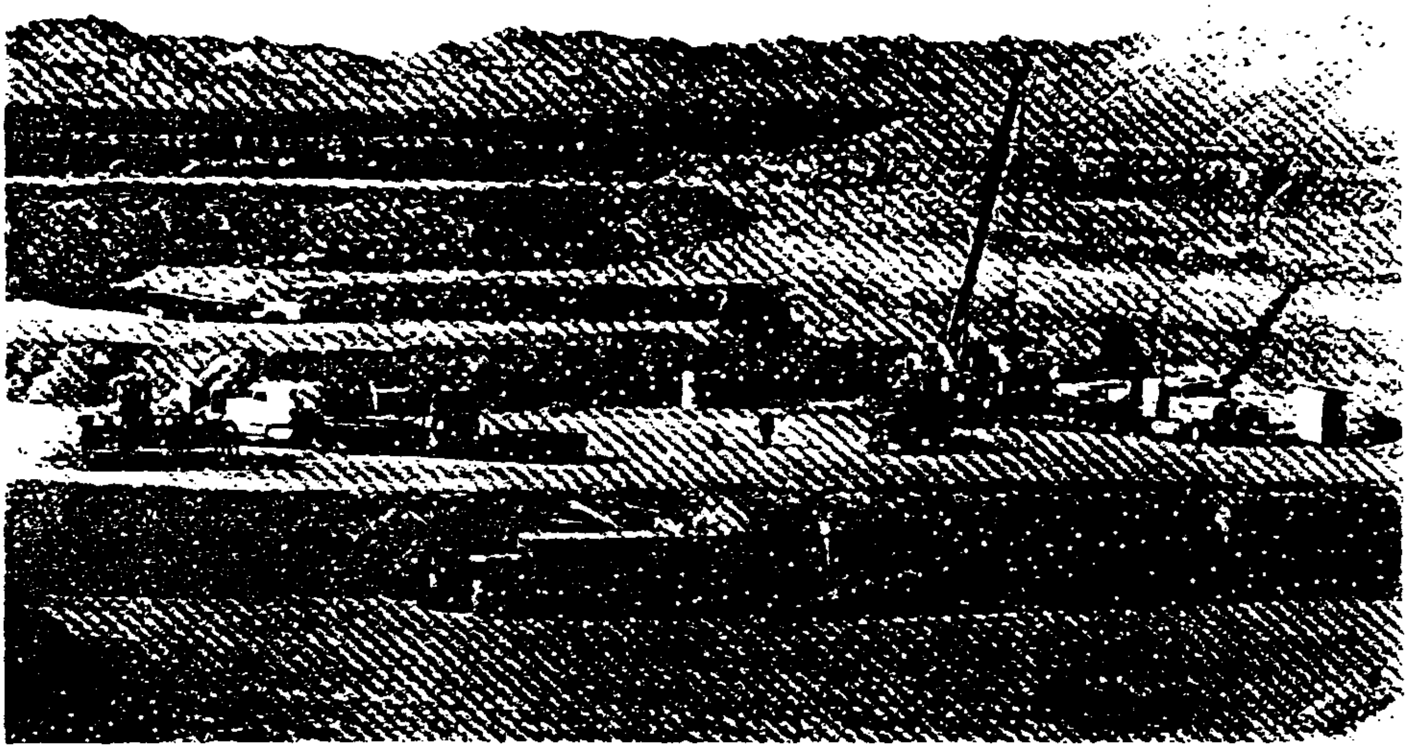
3. Areas must be avoided having known natural resources which, if exploited, would result in failure to meet the performance objectives...

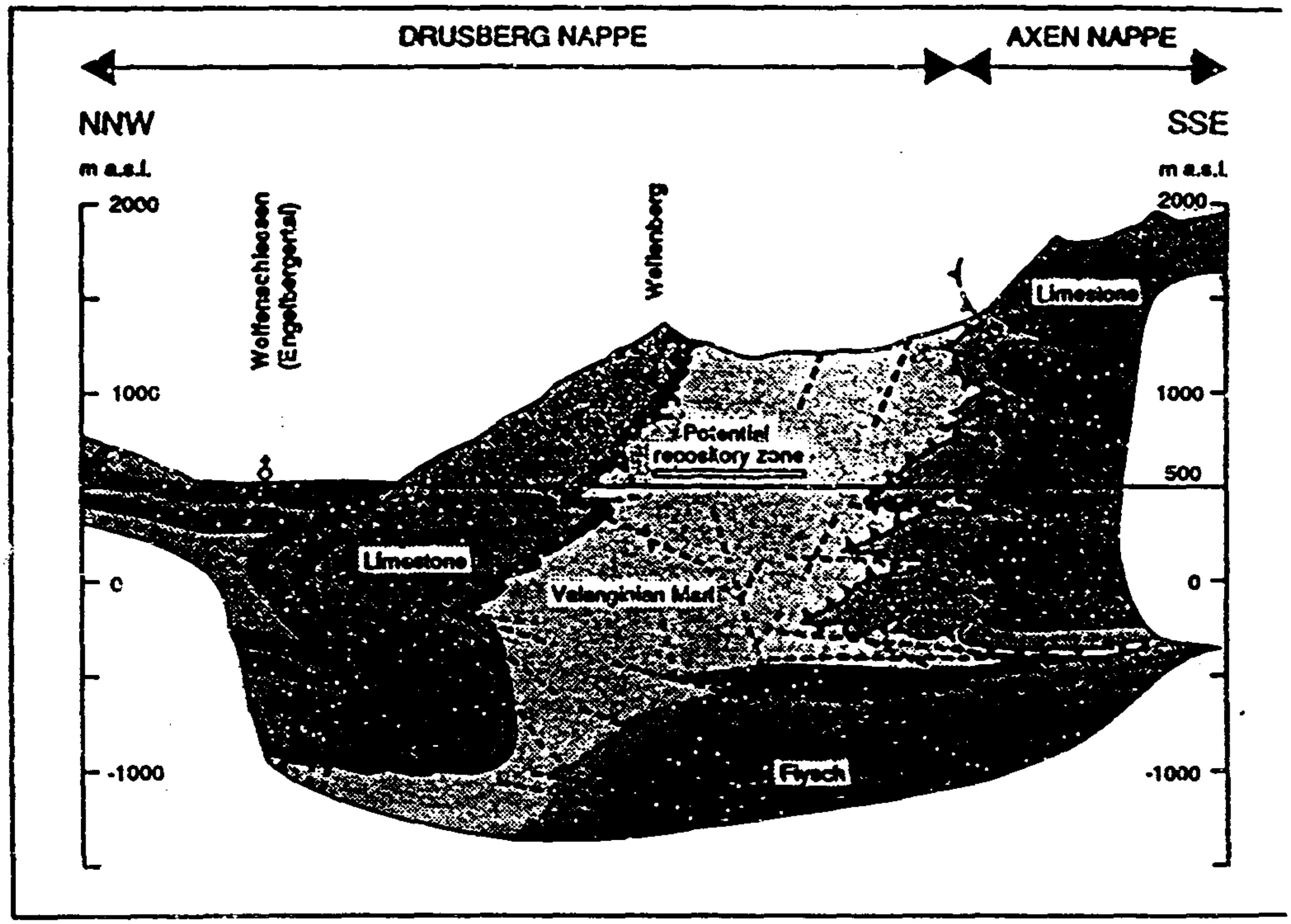
4. The disposal site must be generally well-drained and free of areas of flooding or frequent ponding. Waste disposal shall not take place in a 100-year floodplain, coastal high-hazard area or wetland....

5. Upstream drainage must be minimized to decrease the amount of runoff which could erode or inundate waste disposal units.

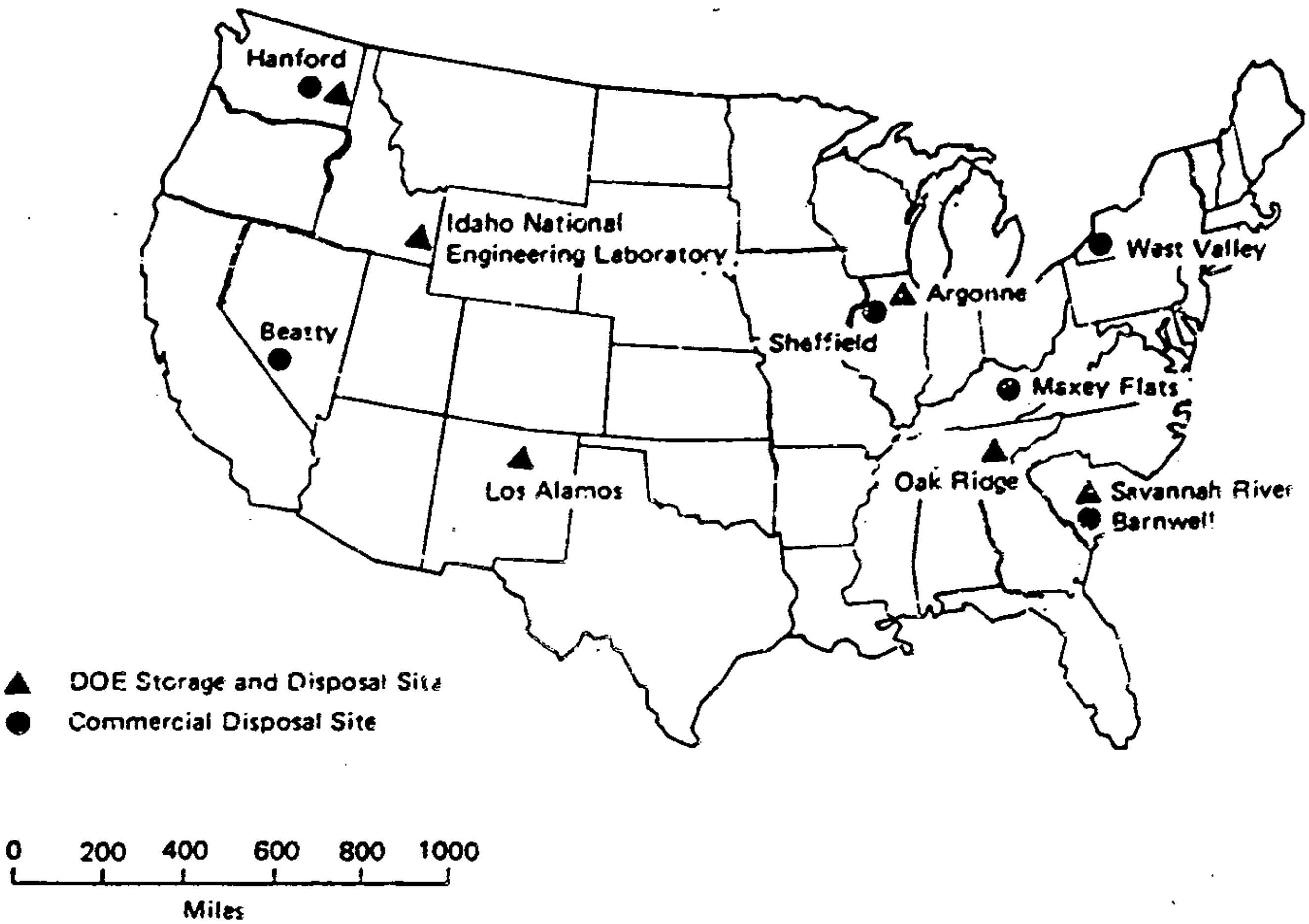
6. The disposal site must provide sufficient depth to the water table that ground-water intrusion, perennial or otherwise, into the waste will not occur. The Commission will consider an

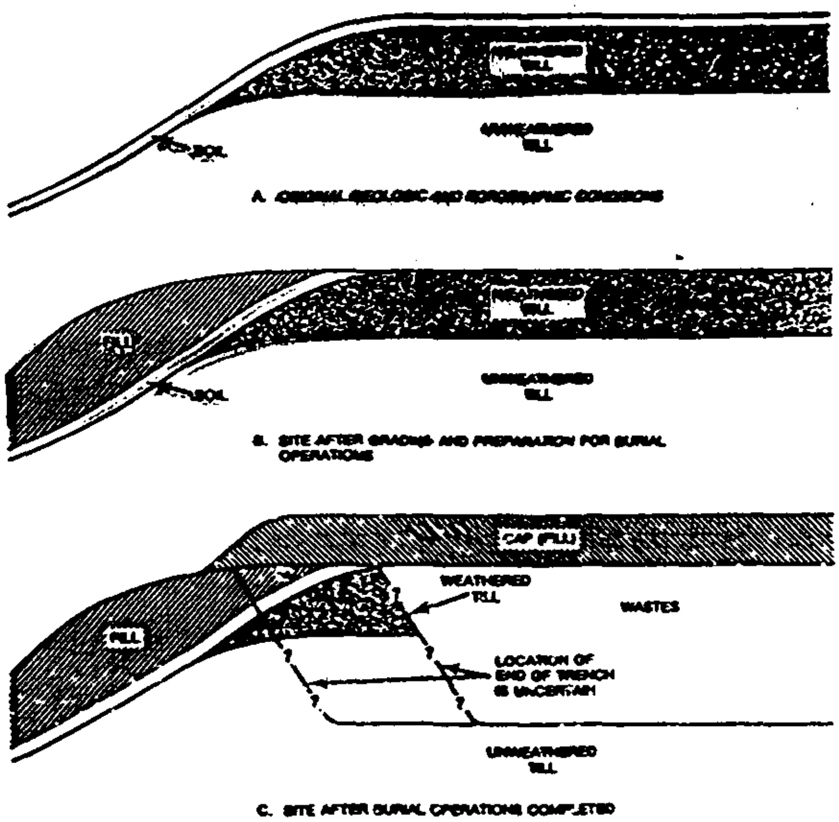
Figure 14. Aerial photograph of part of northern Amargosa Desert showing Bare Mountain, alluvial fans and dry channel of Amargosa River, and waste burial site near Beatty, Nev. Photograph taken June 6, 1976.

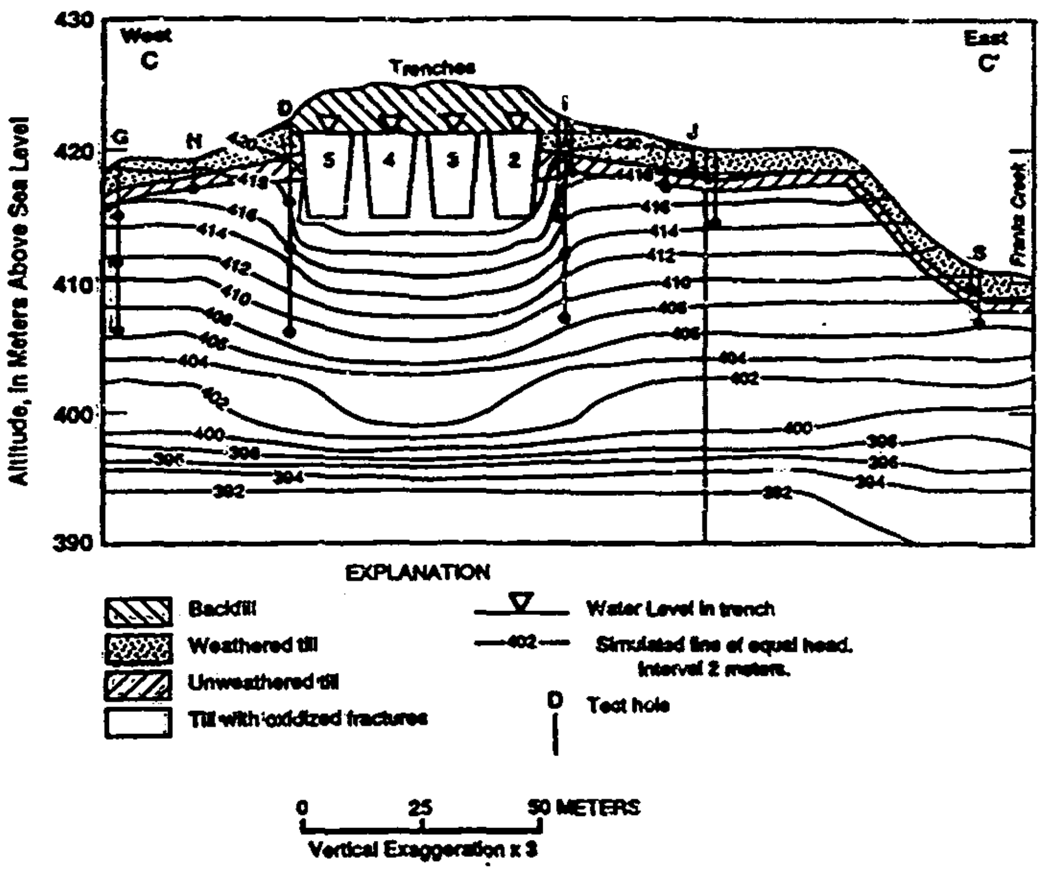


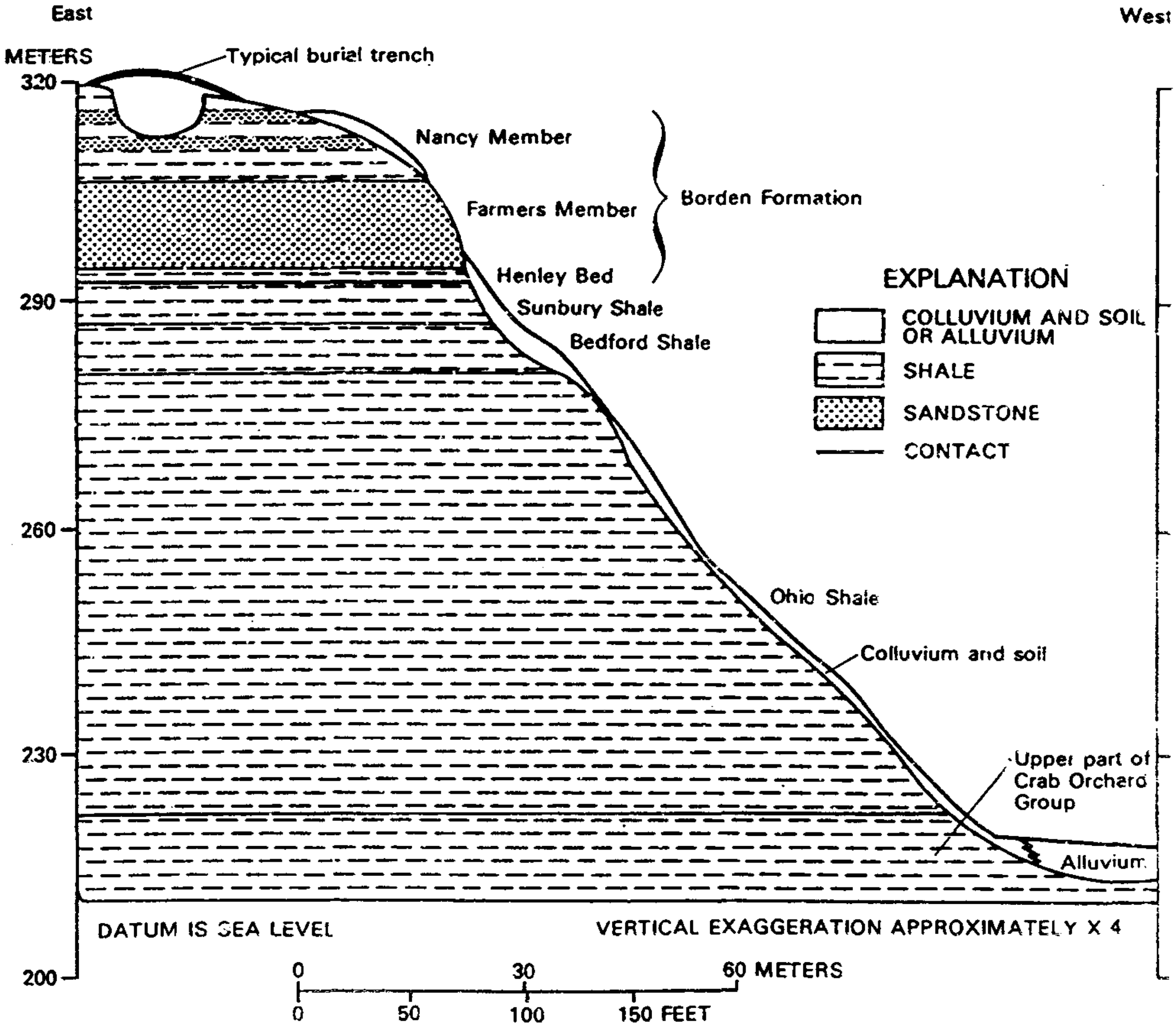


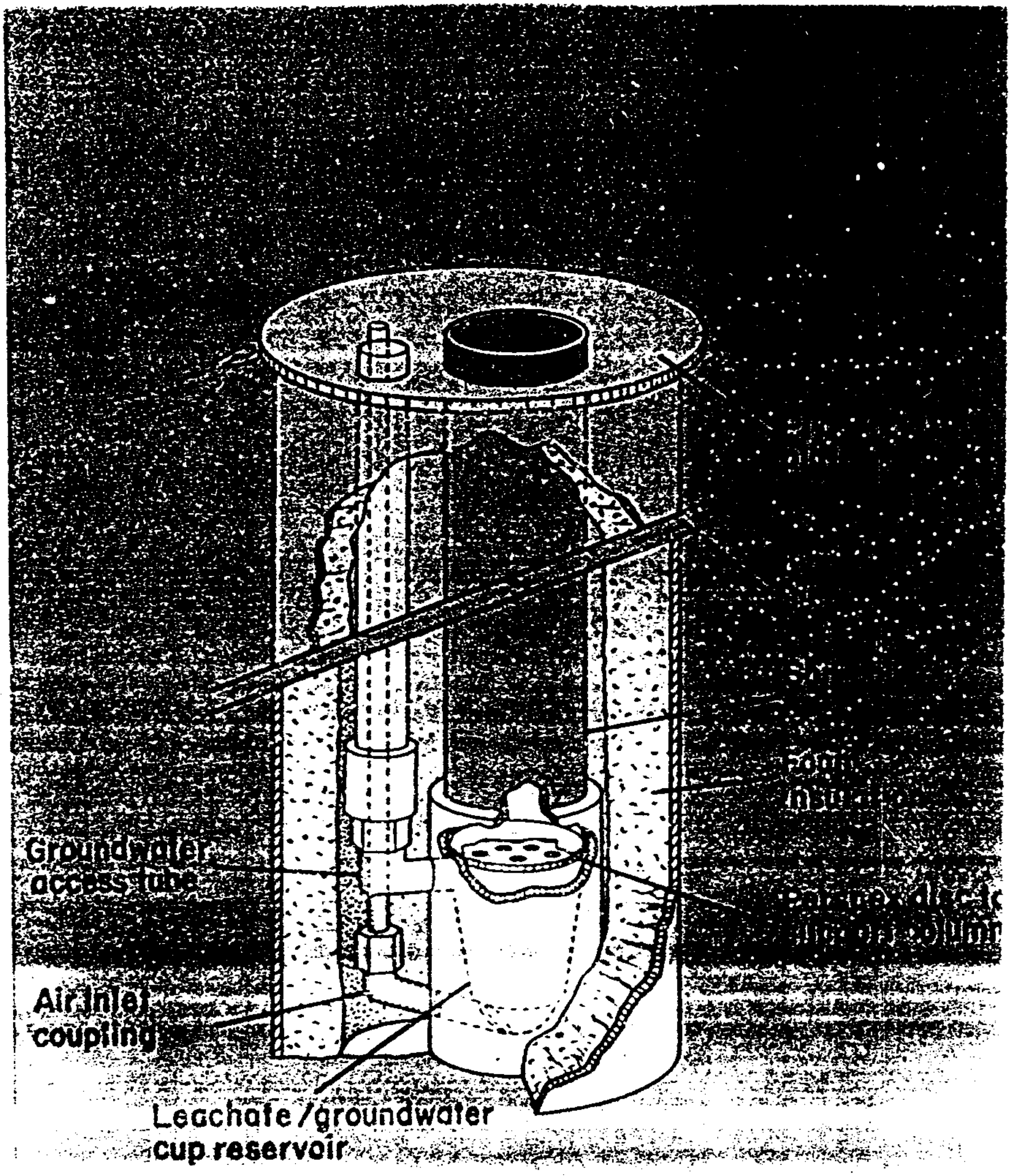
DRUSBERG NAPPE
AXEN NAPPE
NNW
SSE
m a.s.l.
m a.s.l.
2000
1000
500
0
-1000
Wolfenschiessen (Engelbergertal)
Wellenberg
Potential repository zone
Limestone
Limestone
Valanginian Marl
Flysch


Hanford
Idaho National Engineering Laboratory
Beatty
Los Alamos
Sheffield
Argonne
West Valley
Maxey Flats
Oak Ridge
Savannah River
Barnwell
DOE Storage and Disposal Site
Commercial Disposal Site
0
200
400
600
800
1000
Miles

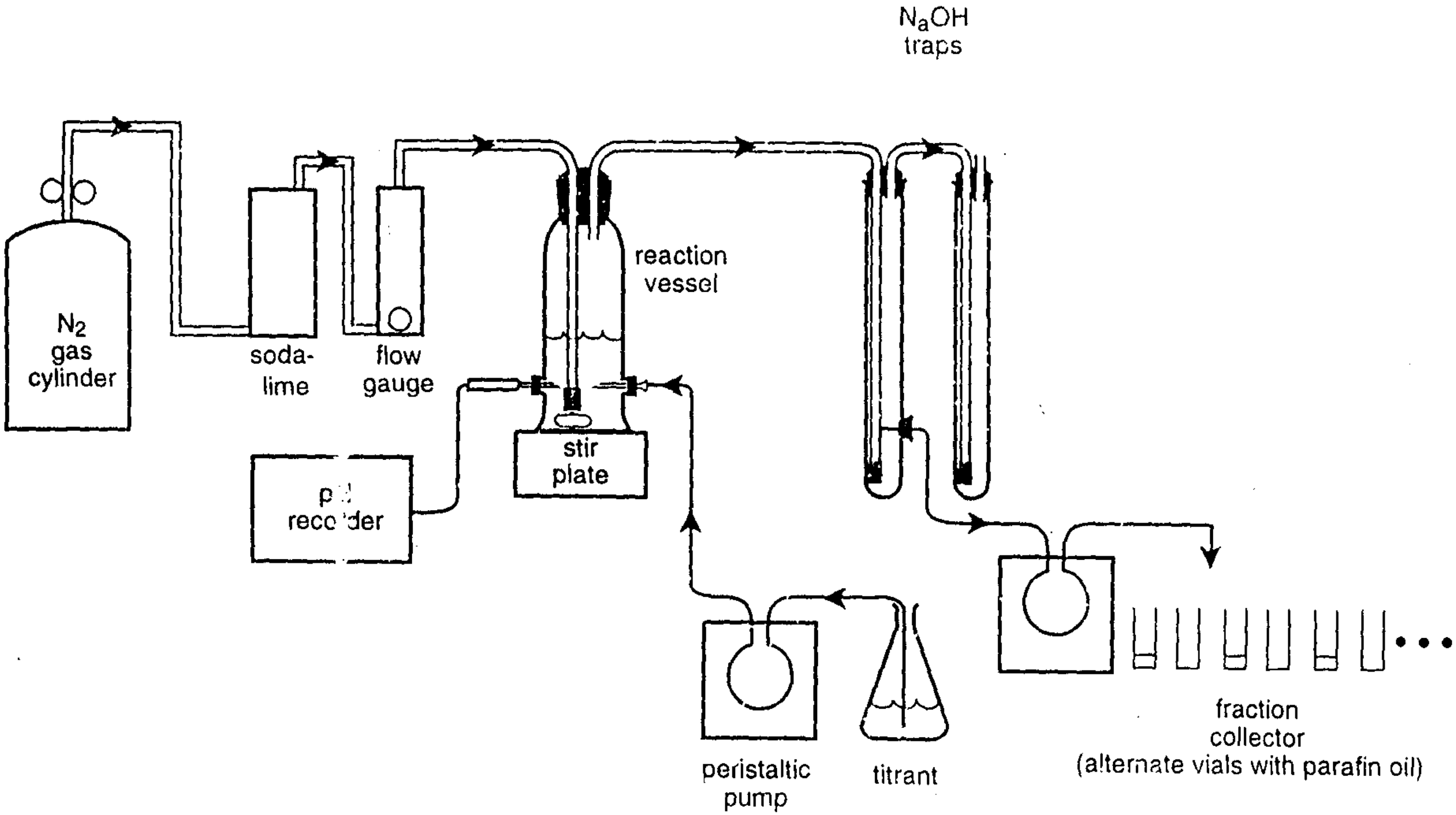

WEATHERED TILL
UNWEATHERED TILL
SOIL
FILL
B. SITE AFTER GRADING AND PREPARATION FOR BURIAL OPERATIONS
CAP (FILL)
WEATHERED TILL
WASTES
LOCATION OF END OF TRENCH IS UNCERTAIN
UNWEATHERED TILL
C. SITE AFTER BURIAL OPERATIONS COMPLETED


West
C
East
C'
Trenches
5
4
3
2
G
H
D
I
J
S
Frantz Creek
Altitude, In Meters Above Sea Level
430
420
410
400
390
EXPLANATION
Backfill
Weathered till
Unweathered till
Till with oxidized fractures
Water Level in trench
402
Simulated line of equal head. Interval 2 meters.
D
Test hole
0
25
50 METERS
Vertical Exaggeration x 3

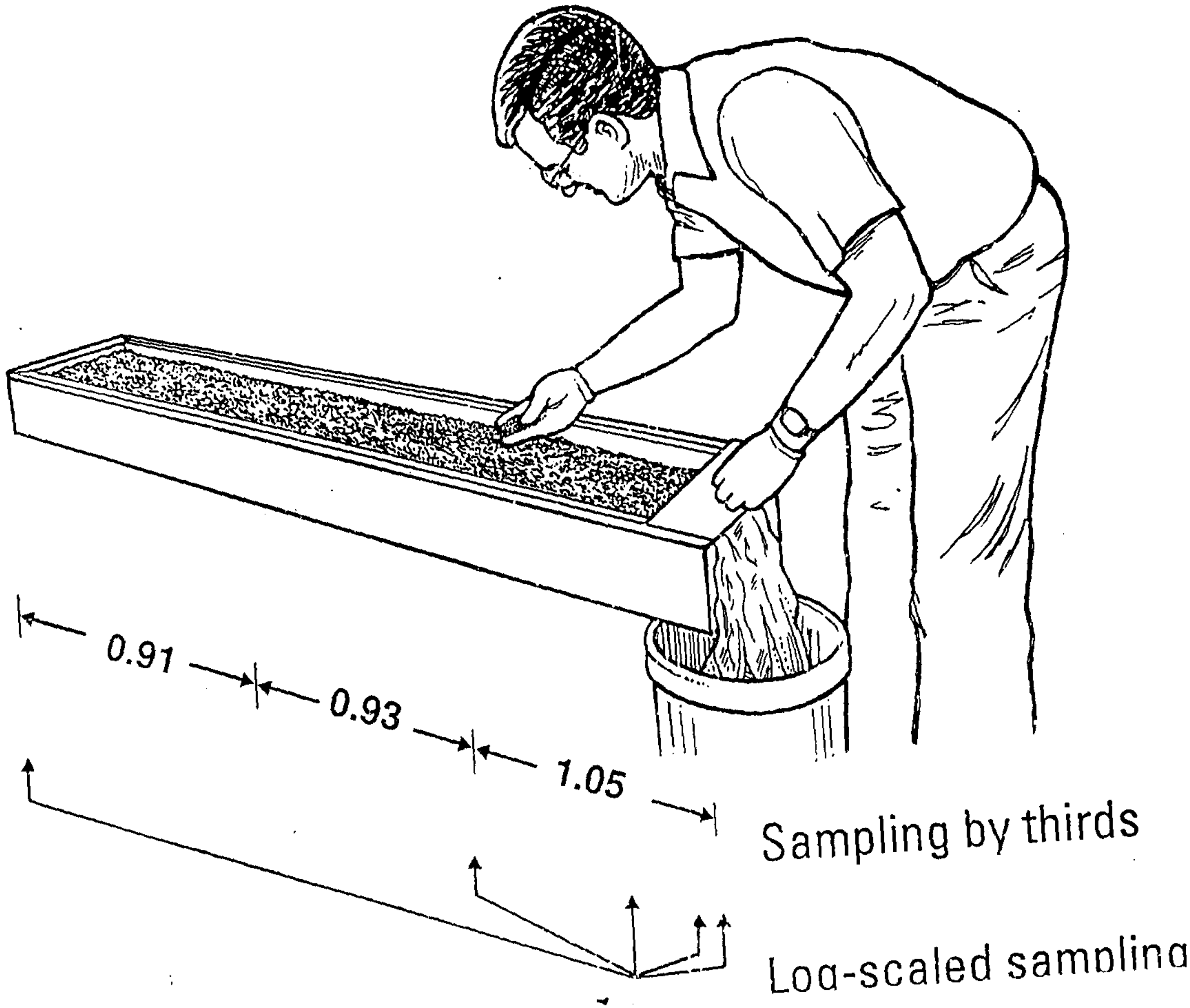

East
West
METERS
Typical burial trench
320
290
260
230
200
Nancy Member
Farmers Member
Henley Bed
Borden Formation
Sunbury Shale
Bedford Shale
EXPLANATION
COLLUVIUM AND SOIL OR ALLUVIUM
SHALE
SANDSTONE
CONTACT
Ohio Shale
Colluvium and soil
Upper part of Crab Orchard Group
Alluvium
DATUM IS SEA LEVEL
VERTICAL EXAGGERATION APPROXIMATELY X 4
0 30 60 METERS
0 50 100 150 FEET



Cut-away diagram of the soil core and leachate cup assembly



NaOH traps
N_2 gas cylinder
soda-lime
flow gauge
reaction vessel
stir plate
peristaltic pump
titrant
fraction collector
(alternate vials with parafin oil)


0.91
0.93
1.05
Sampling by thirds
Log-scaled sampling

Environmental Geochemistry and Health (1997). 19, 19–22

Geophagy in the tropics: an appraisal of three geophagical materials

Peter W. Abrahams* and Julia A. Parsons

Institute of Earth Studies, University of Wales, Aberystwyth SY23 3DB, Dyfed Wales, UK

Thailand

The practice of geophagy was found amongst the Akha tribe in the north of the country. The female Akha are the dominant geophagists, eating soil especially during pregnancy, menstruation and after child bearing (lactation). A soil sample was obtained from a village close to the Thai–Burmese border. The villagers collected the soil material from a pit located an hour's walk from the village. Upon questioning, the women commented on the 'good taste' of the soil, and indicated a daily consumption of some 30 g.

Fate of uranium in peat subjected to simulated industrial processes

CONC. IN PEAT (mg/kg)	ASH		HUMIC ACID		ACID HYDOLYSAT	
	PCR	% rec	PCR	% rec	PCR	% rec
70	7.0	120	2	19	0.012	97
780	6.7	114	1.3	13	0.011	101
530	4.4	76	0.61	5.3	0.013	105

Losses from soil

- Leaching
- erosion, export of soil
- cropping losses
- degassing