FINAL SITE SURVEYS

FOR

CIBA-GEIGY CORPORATION

SUMMIT, NEW JERSEY

SEPTEMBER 1993

BUILDING Z

TELEDYNE ISOTOPES

FINAL SITE SURVEYS

FOR

CIBA-GEIGY CORPORATION

SUMMIT, NEW JERSEY

SEPTEMBER 1993

Joel Antkowiak
Robert S. Bell, Jr.

Survey Date: August 30 through September 3, 1993
Report Date: October 12, 1993

Teledyne Isotopes
50 Van Buren Avenue
Westwood, New Jersey 07675

TELEDYNE ISOTOPES

50 VAN BUREN AVENUE

PO BOX 1235

WESTWOOD NJ 07675-1235

(201) 664-7070

October 12, 1993

Mr. George Stone
Radiation Safety Officer
CIBA GEIGY CORP.
556 Morris Avenue
Summit, NJ 07901

Dear Mr. Stone:

On August 30 through September 3, 1993, Robert S. Bell, Jr. & Joel Antkowiak of Teledyne Isotopes performed a final site survey in Buildings J, V & Z at your facility located at the Summit, New Jersey. This document discusses the results of the survey of Building Z only.

The survey consisted of radiation monitoring for both direct and removable radioactive contamination. Direct radiation surveys were conducted with Eberline Instruments PAC-4G gas proportional survey meter (serial number 4399; calibrated 7/7/93) designed to reveal the presence of beta radiation. Removable radioactive contamination surveys consisted of smear samples taken by wiping approximately 200 cm^2 of surface area with an absorbant material at representative areas of the laboratories. Smears were analyzed by liquid scintillation counting with standard solutions traceable to the National Institute of Standards and Technology.

According to the U.S. Nuclear Regulatory Commission's publication "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source or Special Nuclear Material", acceptable surface contamination levels for beta-gamma emitters are as follows:

Removable contamination	1000 dpm/100cm^2
Direct contamination	5000 dpm/100cm^2 average*
	15000 dpm/100cm^2 maximum

*Averaged over not more than 1 square meter.

Following decontamination and survey, no areas were found to exceed these limits. A full report is enclosed.

If you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

TELEDYNE ISOTOPES

Robert S. Bell, Jr. Health Physics Tech.
Radiological Services Department

RSB:jk
Enc.

PROCEDURES

The goal of the decontamination and final site survey was to show that the designated building was suitable for release for unrestricted use.

An initial characterization survey sufficient to decommission the areas preceded any decontamination. Following decontamination, the affected areas were re-surveyed and if necessary decontaminated again. The room diagrams, showing both overhead and side views follow the results obtained by liquid scintillation counting (LSC). Rooms requiring any decontamination have two sets of LSC data representing the initial and post-decon wipe results. On drawings where drawers and cabinets are indicated, the odd-numbered smear is outside the item and the even-numbered smear is on the inside. A sample was obtained from all sink traps and analyzed by LSC. A Packard "Tri-Carb" Model 1900 liquid scintillation counter was used for the analysis of smears and sink trap samples.

A fixed contamination survey was performed on all horizontal surfaces, the floor, and inside all hoods. The meter used was a logarithmic ratemeter with a gas flow proportional probe. The probe has a thin mylar window and an active surface area of 50 cm^2. The floors were surveyed with a floor monitor, which is a 500 cm^2 active area probe mounted on a rolling stand which carries the probe at 1/4 inch above the floor. Cleaning of any areas requiring decontamination was performed using a commercial detergent solution containing EDTA. In the event that this solution was not sufficient to clean the affected areas below the applicable limits, the affected area was removed and treated as radioactive waste.

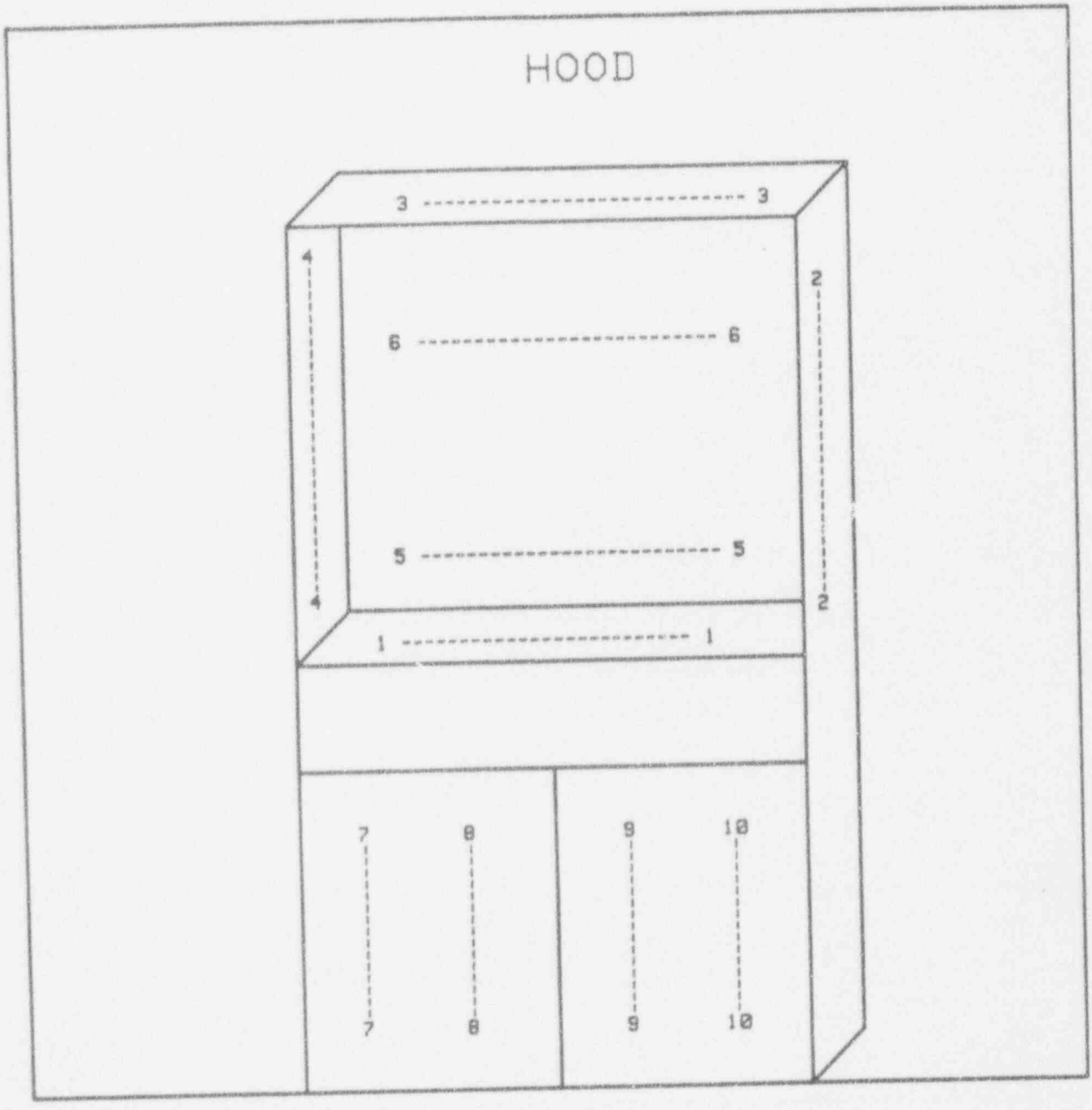
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: _____

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-2 Main View

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25

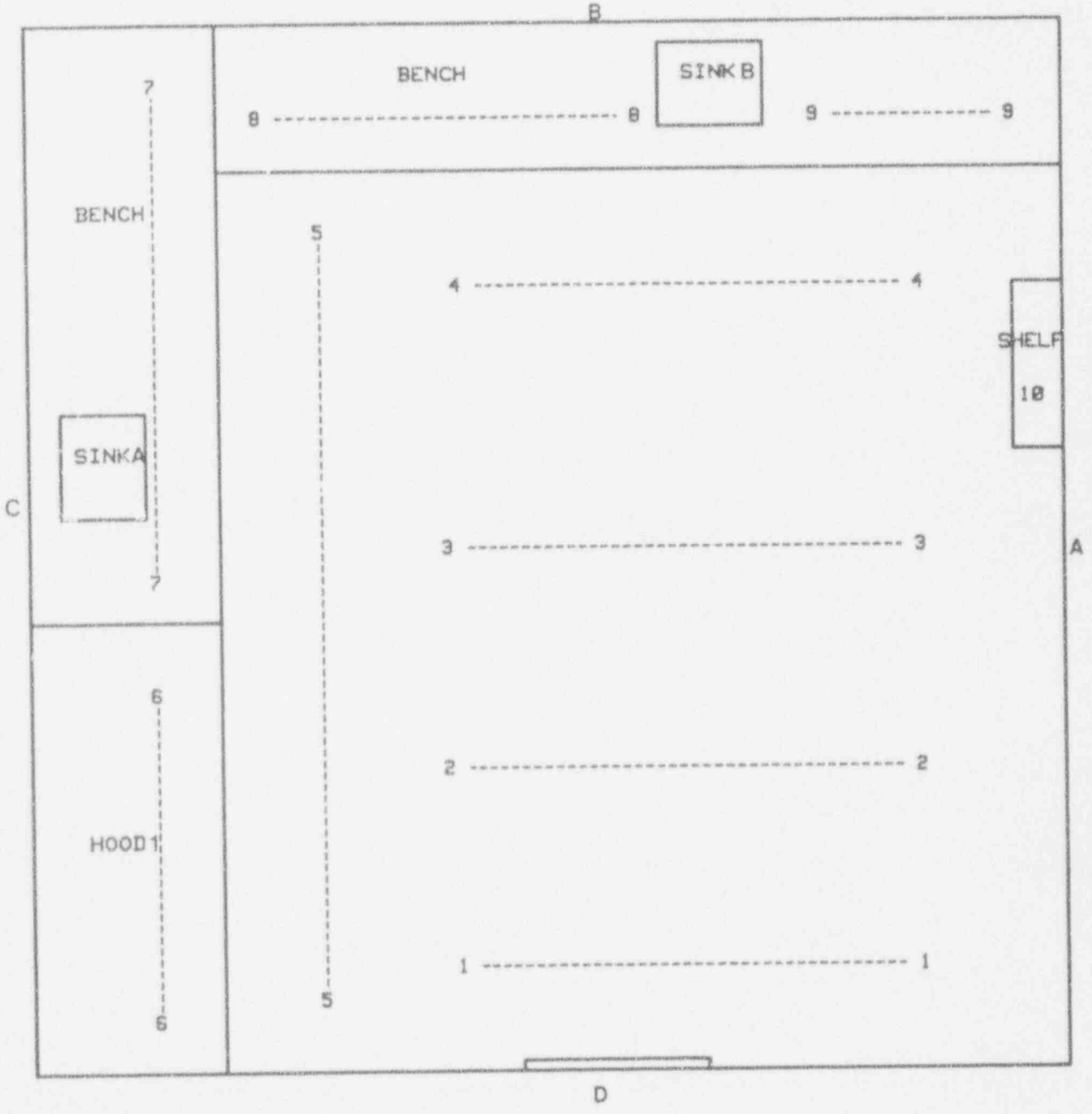
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-2 MAIN VIEW

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS
BY LIQUID SCINTILLATION
COUNTING

LOCATION: Z-2 View A

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25

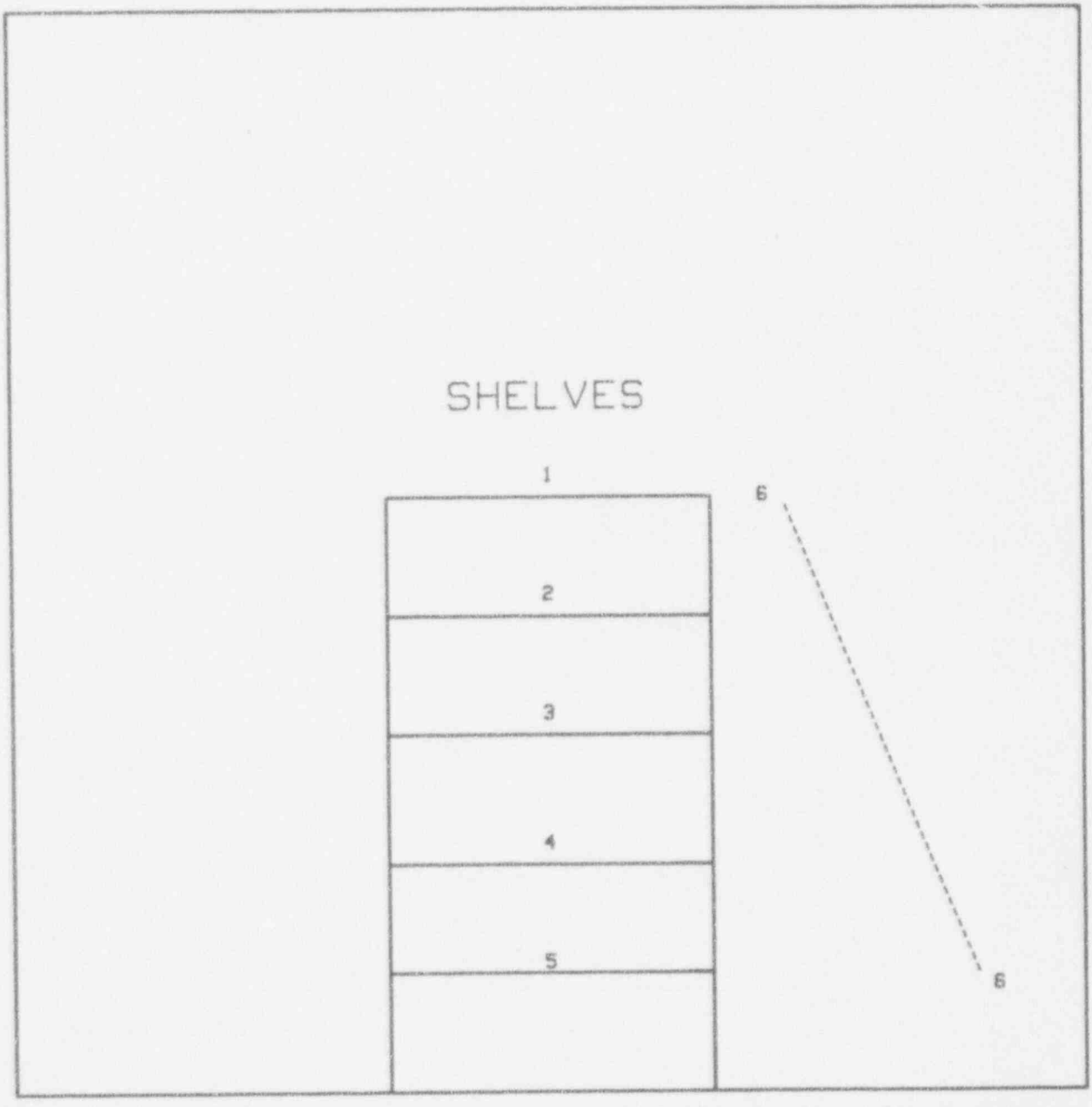
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-2 VIEW-A

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-2 View B

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25
11	<50	<25
12	<50	<25
13	<50	<25
14	<50	<25
15	<50	<25
16	<50	<25
17	<50	<25

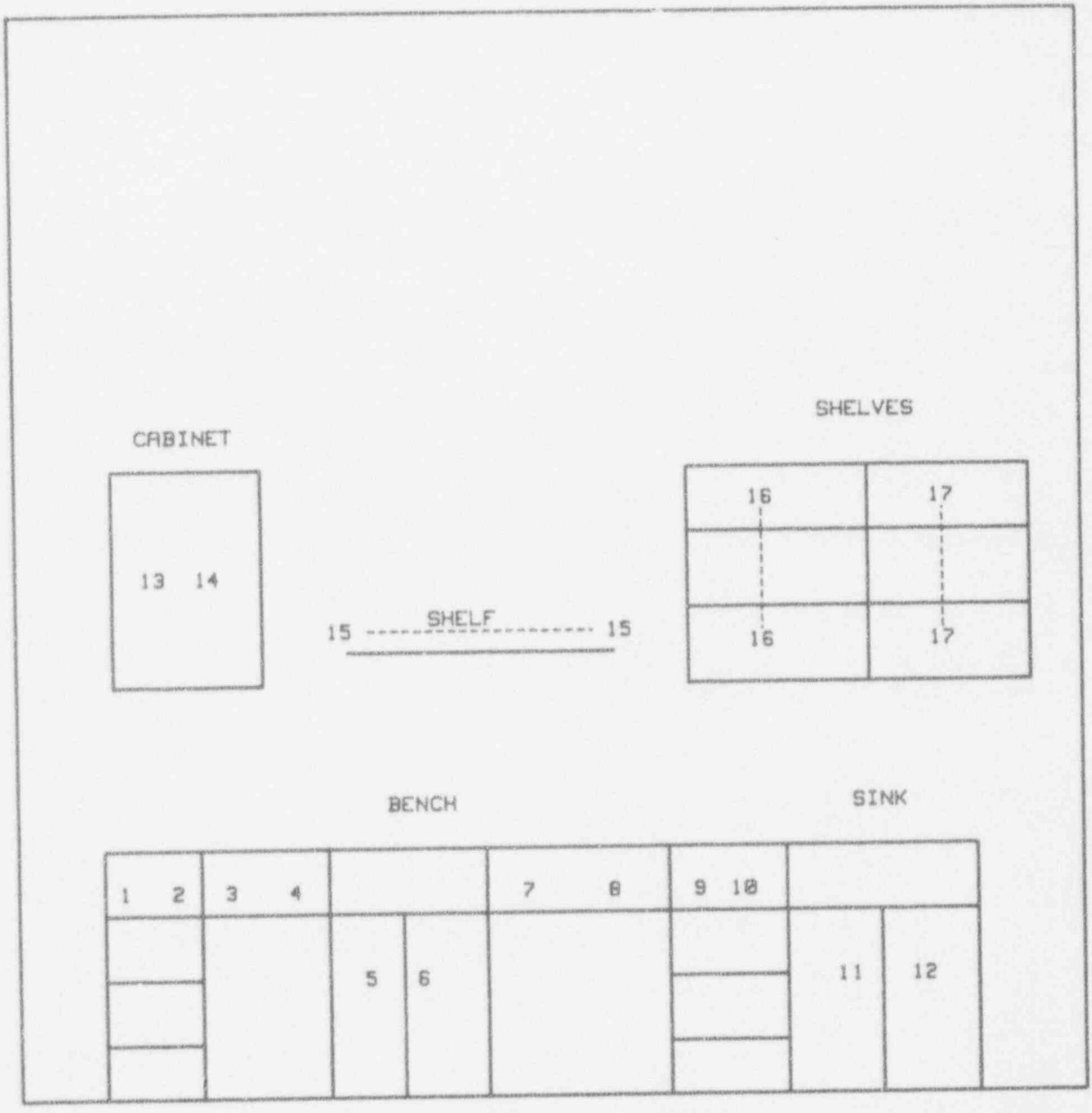
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-2 VIEW-B

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-2 View C

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25

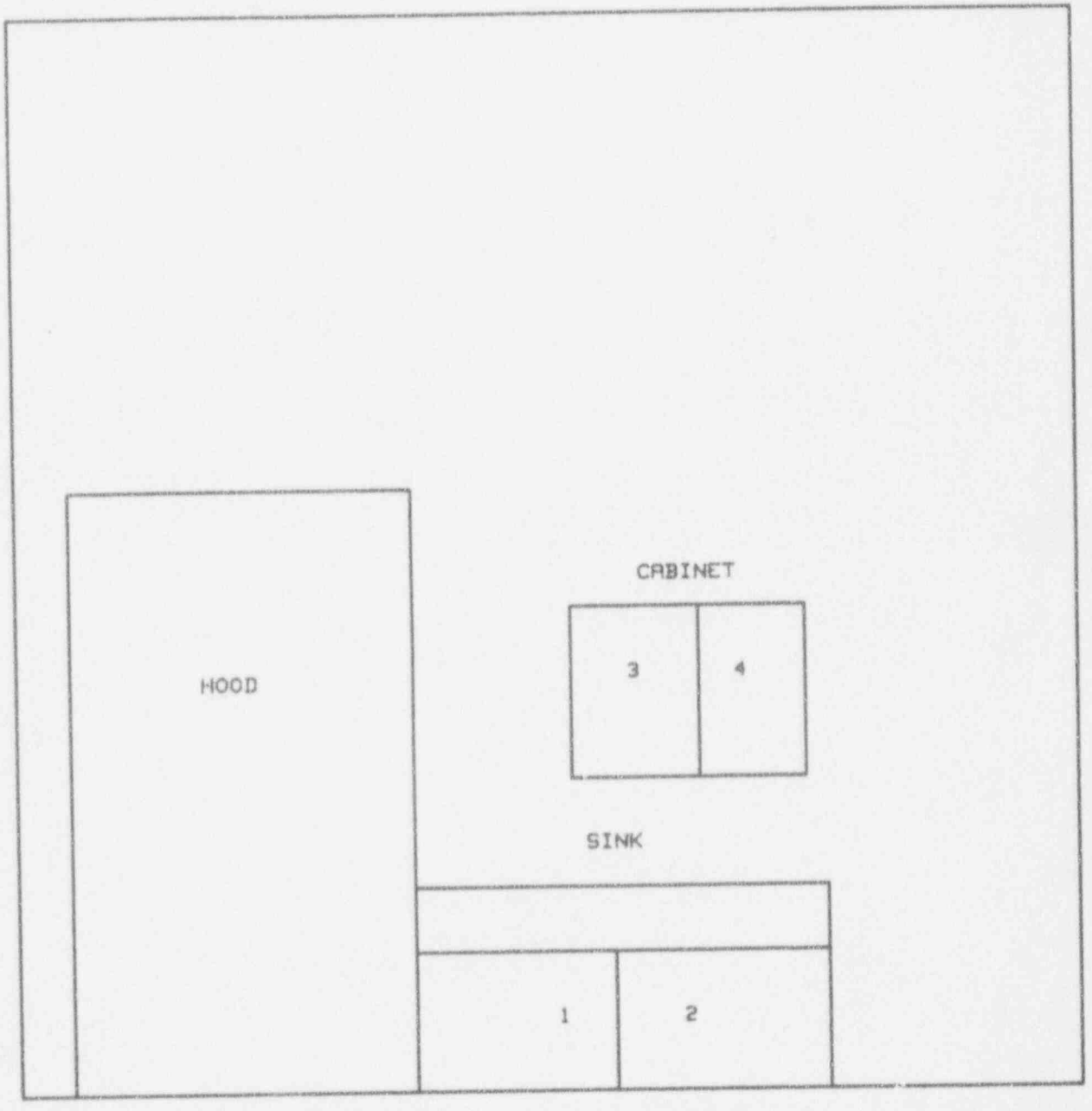
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-2 VIEW-C

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-2 Hood #1

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25

TELEDYNE ISOTOPES

SMEAR RESULTS
BY LIQUID SCINTILLATION
COUNTING

LOCATION: Z-14 Main View

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25

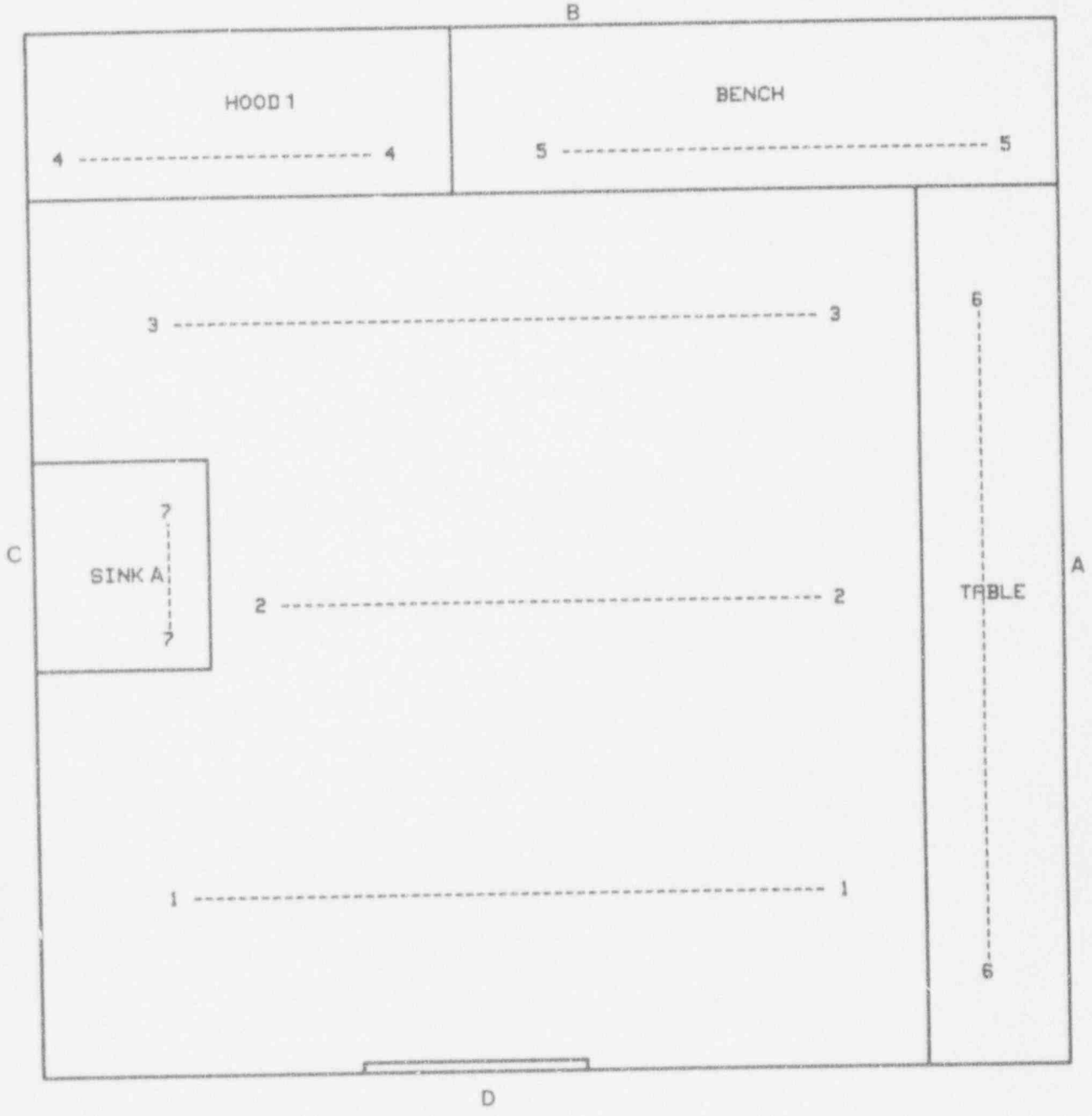
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: 7 14 MAIN VIEW

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-11 View A

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25

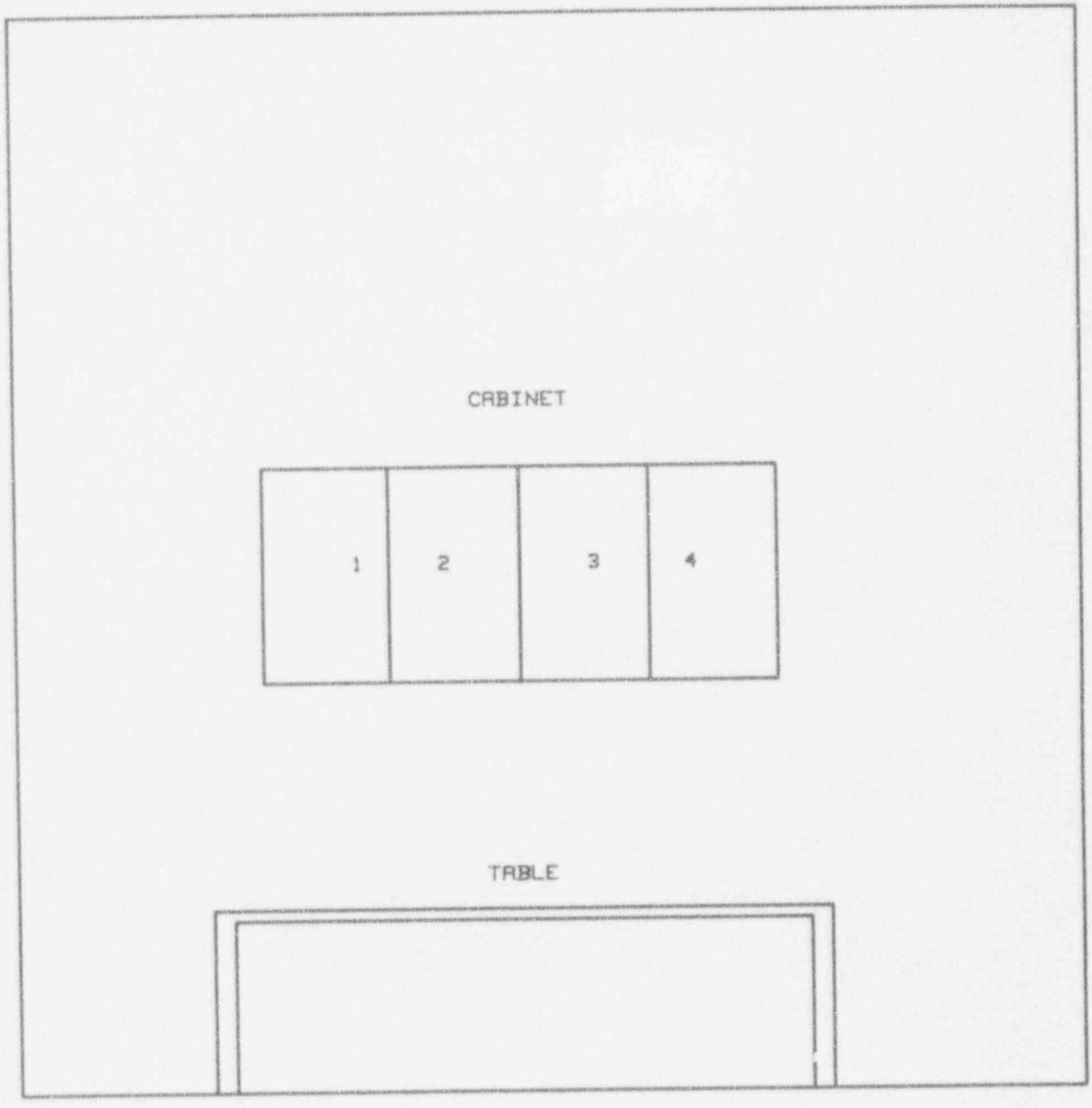
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-14 VIEW-A

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS
BY LIQUID SCINTILLATION
COUNTING

LOCATION: Z-14 View B

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25

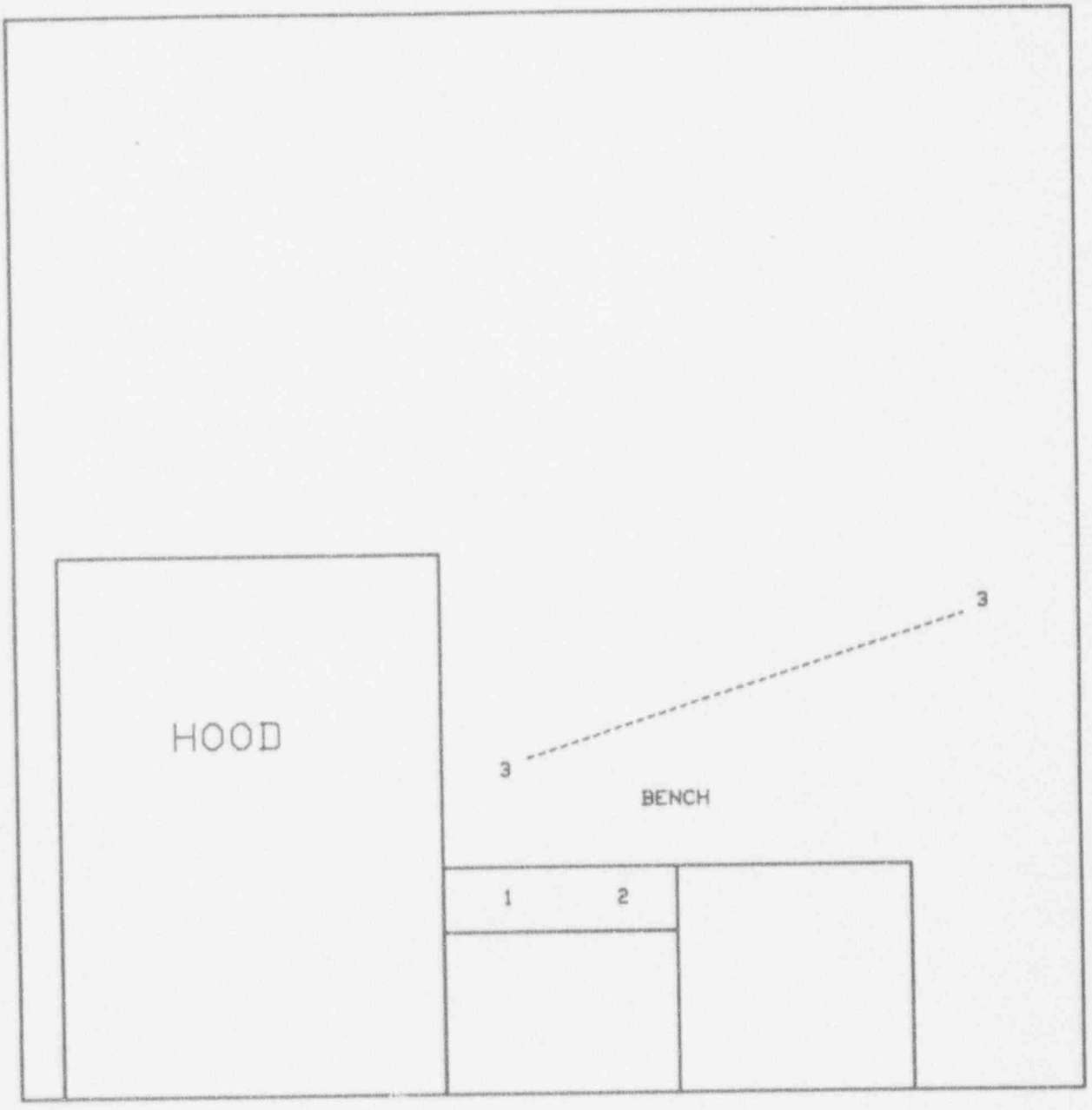
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-14 VIEW-B

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-14 View C

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25

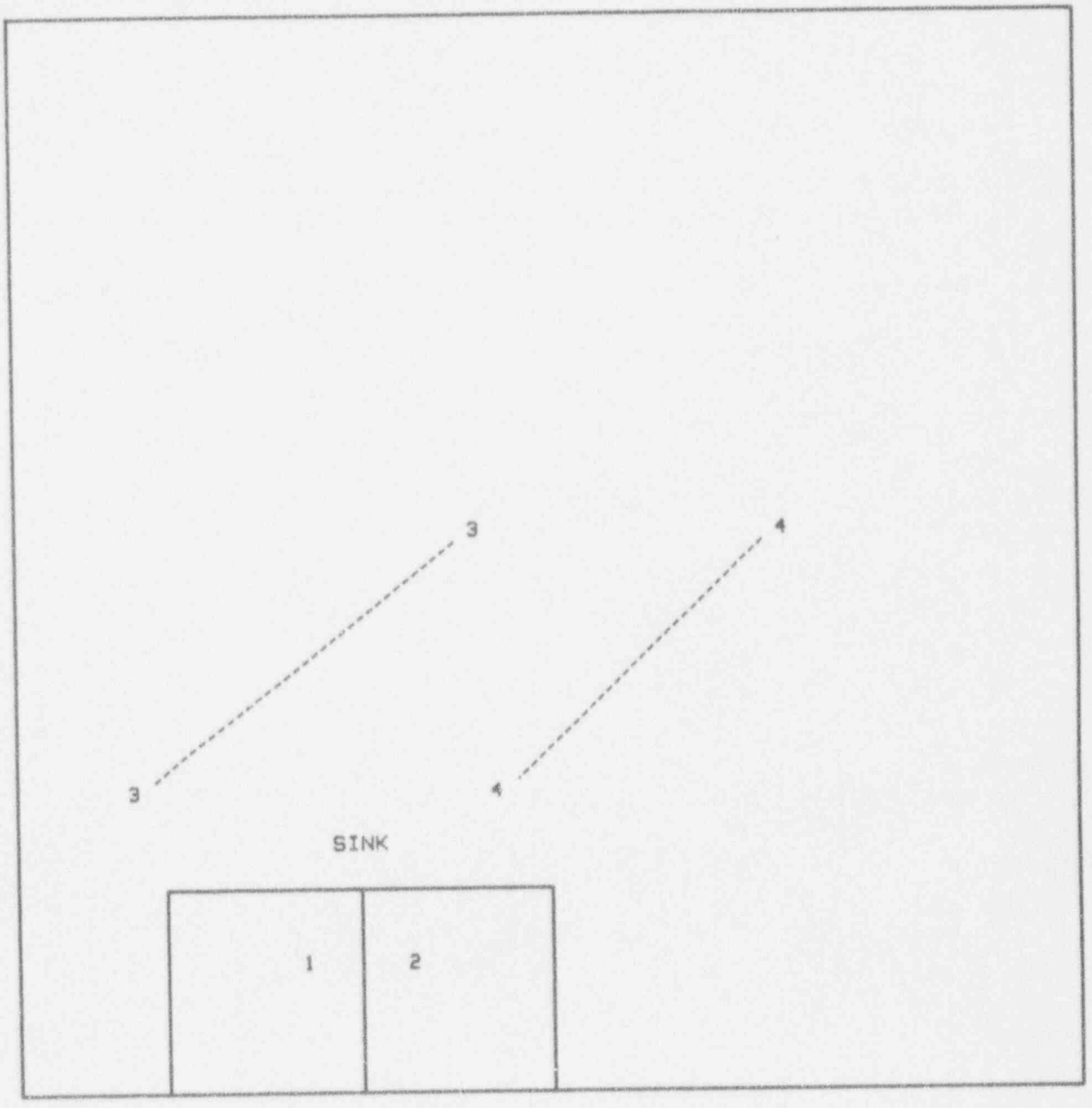
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-14 VIEW-C

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-14 Hood #1

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25

TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-17 Main View

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25
11	<50	<25
12	<50	<25
13	<50	<25
14	<50	<25
15	<50	<25
16	<50	<25
17	<50	<25
18	<50	<25
19	<50	<25
20	<50	<25
21	<50	<25
22	<50	<25

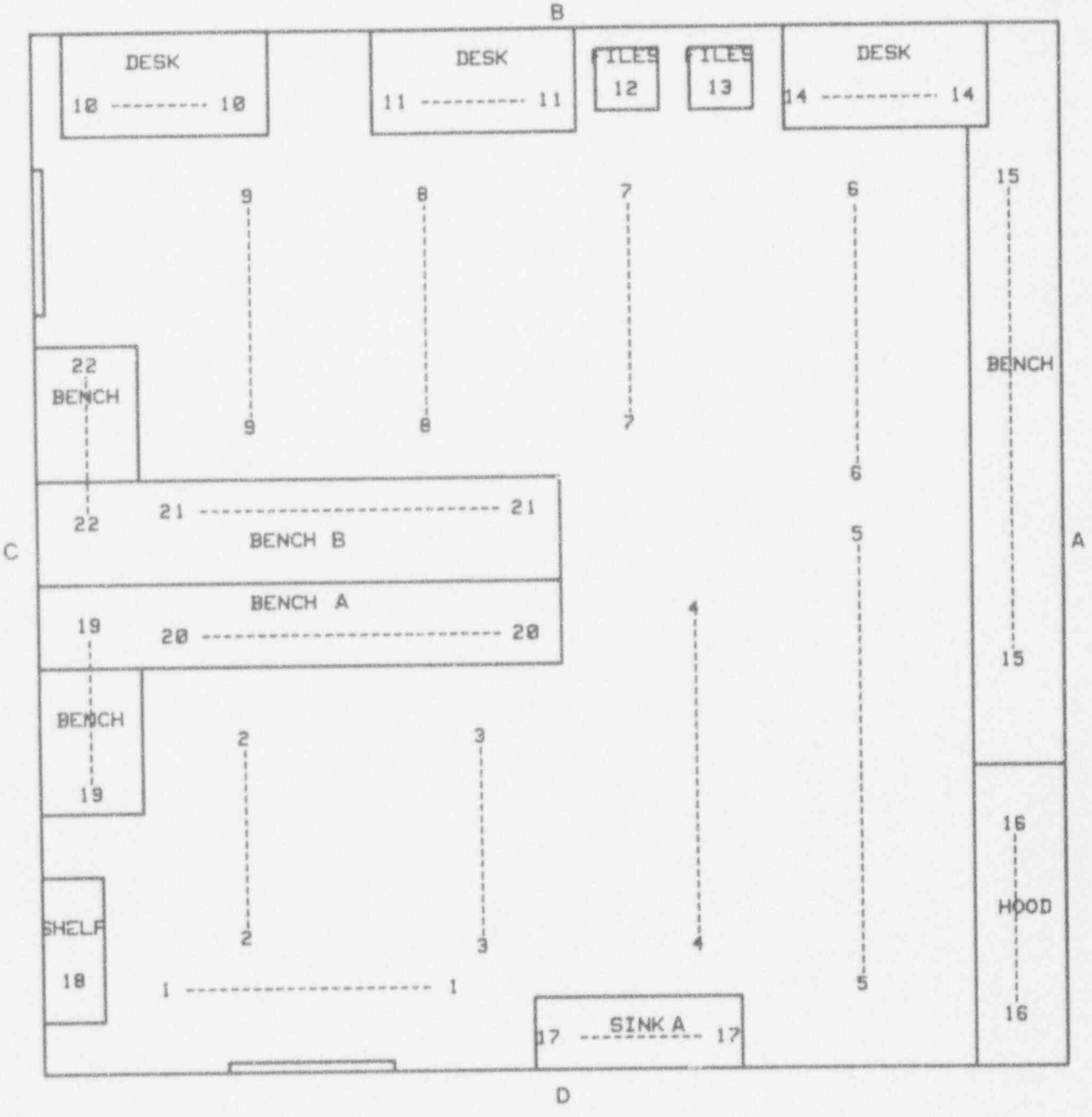
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-17 MAIN VIEW

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-17 View A

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25
11	<50	<25
12	<50	<25
13	<50	<25
14	<50	<25
15	<50	<25
16	<50	<25
17	<50	<25
18	<50	<25
19	<50	<25
20	<50	<25
21	<50	<25
22	<50	<25

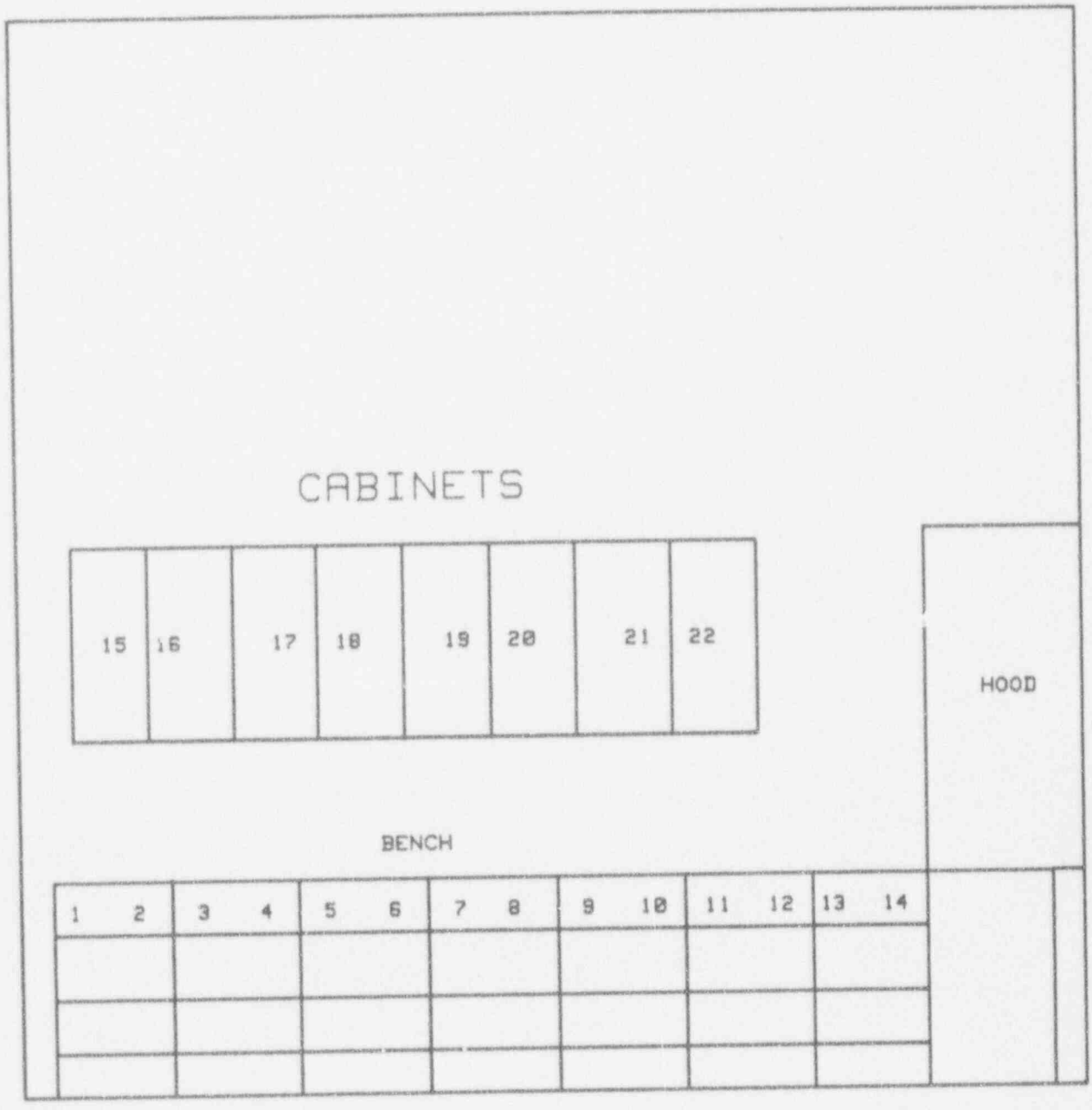
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-17 VIEW-A

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-17 View B

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25

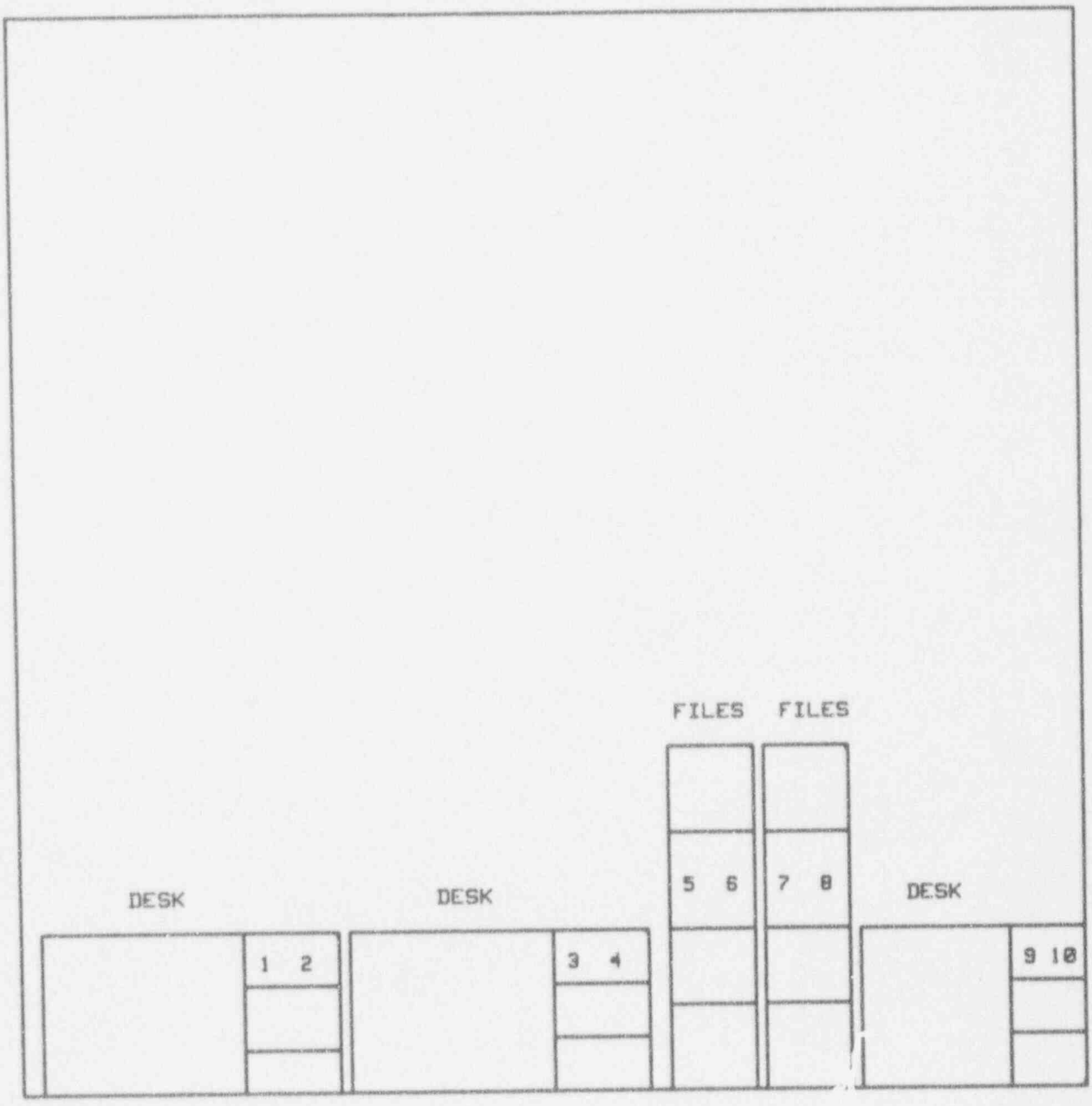
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-17 VIEW-B

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-17 View C

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25
11	<50	<25
12	<50	<25

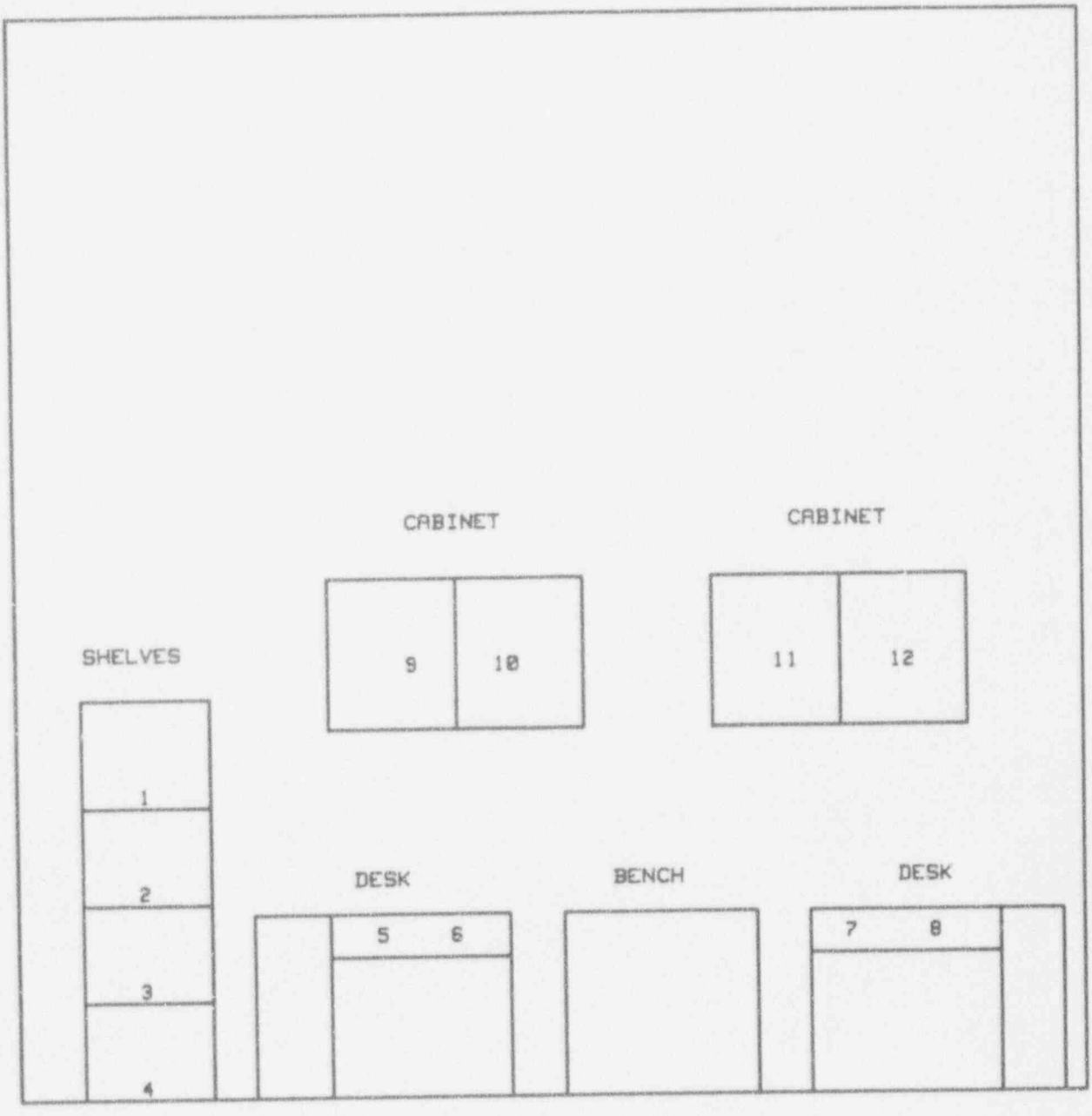
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-17 VIEW-C

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS
BY LIQUID SCINTILLATION
COUNTING

LOCATION: Z-17 View D

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25

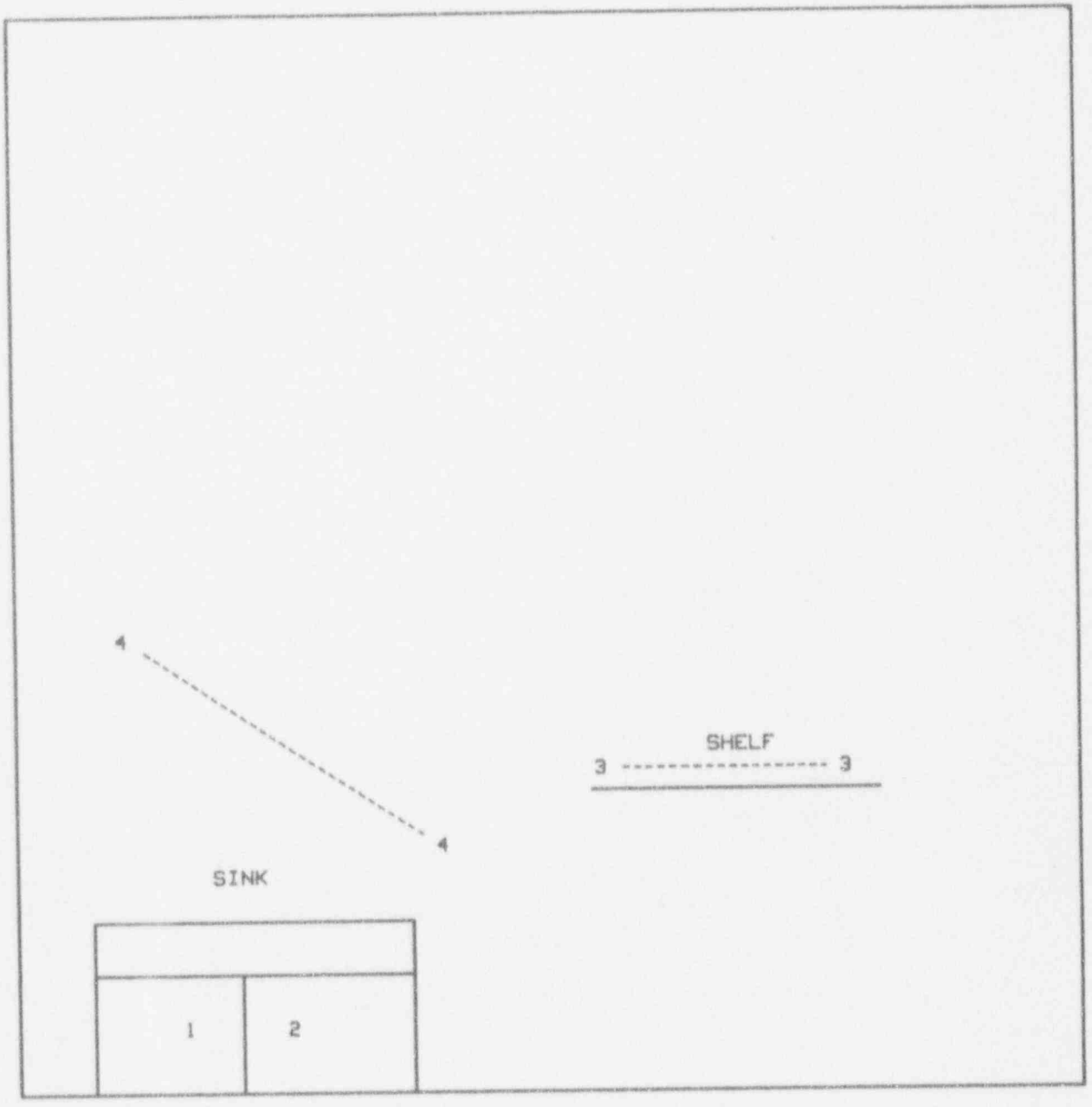
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-17 VIEW-D

PRINCIPLE OCCUPANTS:

ISOTOPE USAGE:



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-17 Island A

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25
11	<50	<25
12	<50	<25
13	<50	<25

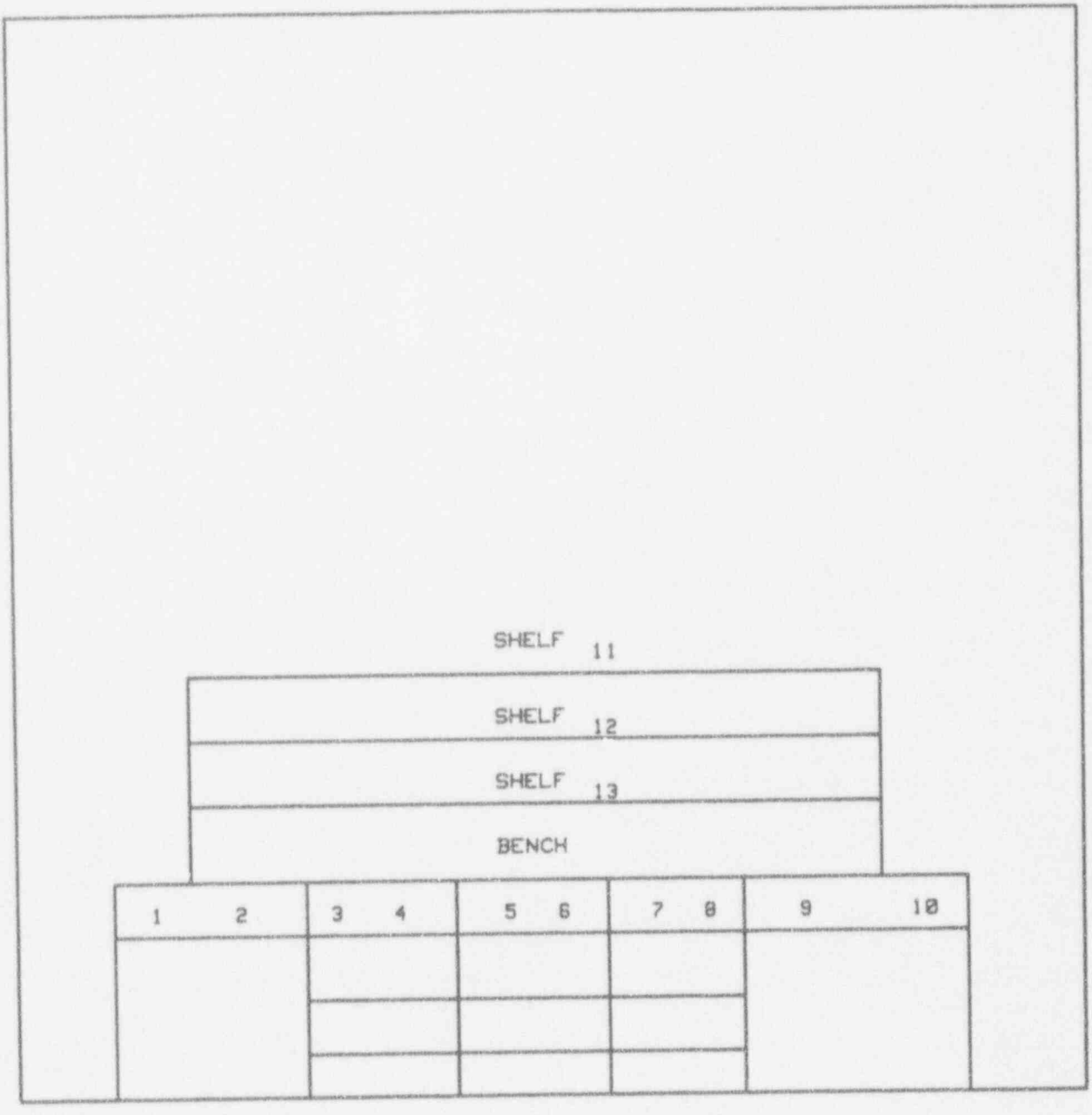
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-17 ISLAND-A

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-17 Island B

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25

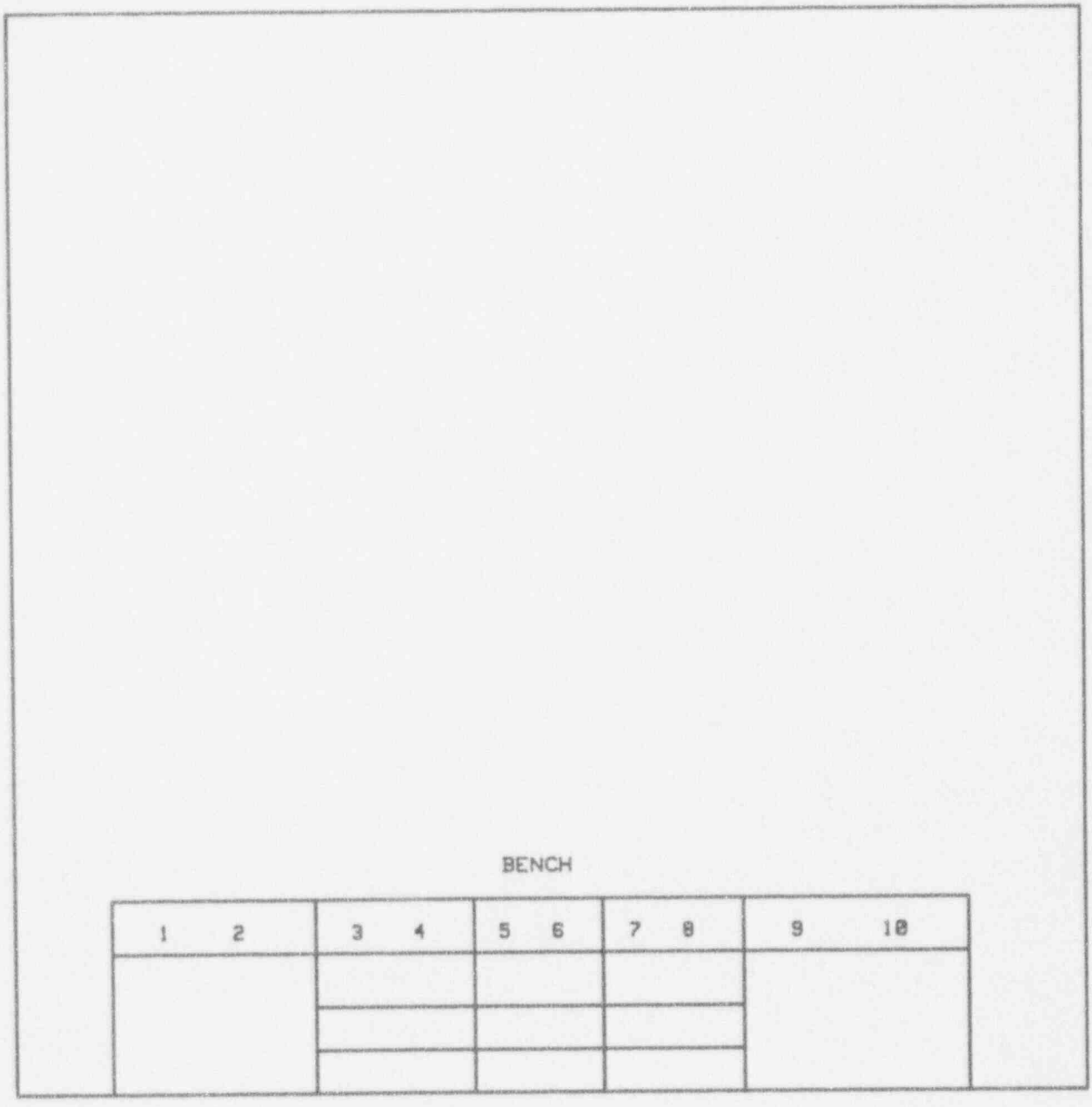
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-17 ISLAND-B

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-17 Hood #1

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25

TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-18 Main View

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25
11	<50	<25
12	<50	<25
13	<50	<25
14	<50	<25
15	<50	<25
16	<50	<25
17	<50	<25
18	<50	<25
19	<50	<25
20	<50	<25
21	<50	<25

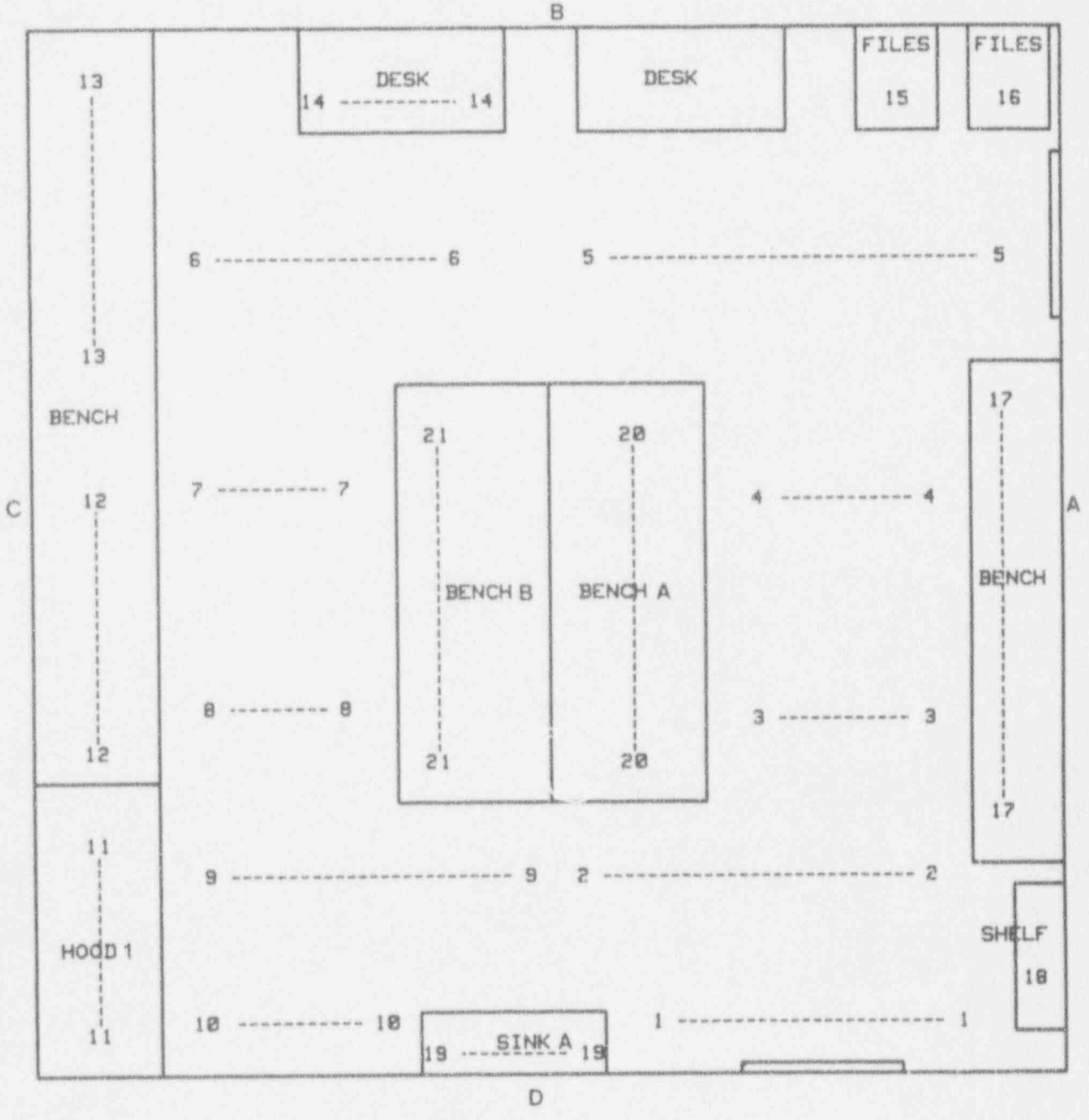
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-18 MAIN VIEW

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-18 View A

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25
11	<50	<25
12	<50	<25
13	<50	<25
14	<50	<25
15	<50	<25
16	<50	<25
17	<50	<25
18	<50	<25
19	<50	<25
20	<50	<25
21	<50	<25

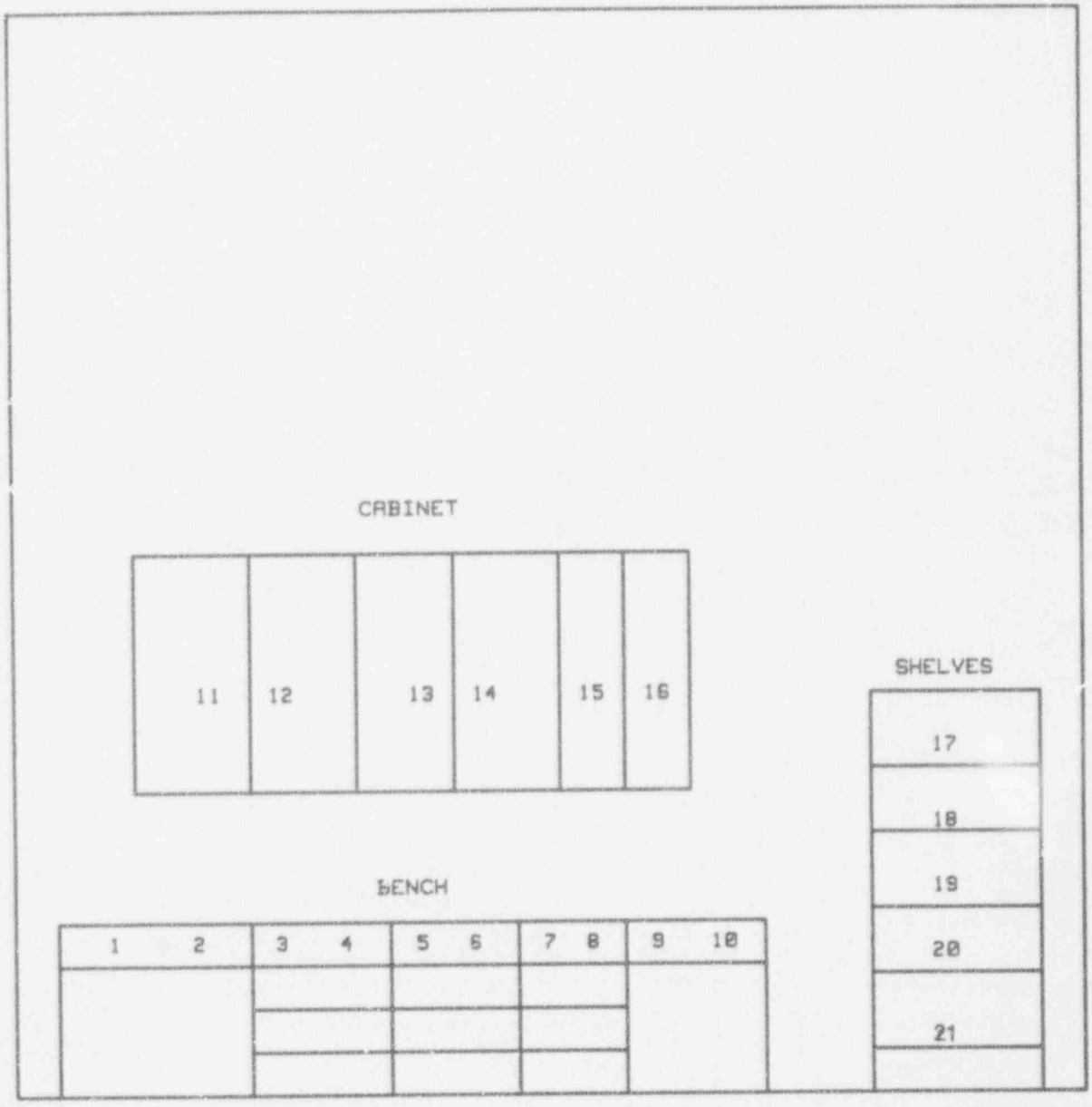
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-18 VIEW-A

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-18 View B

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25
11	<50	<25
12	<50	<25

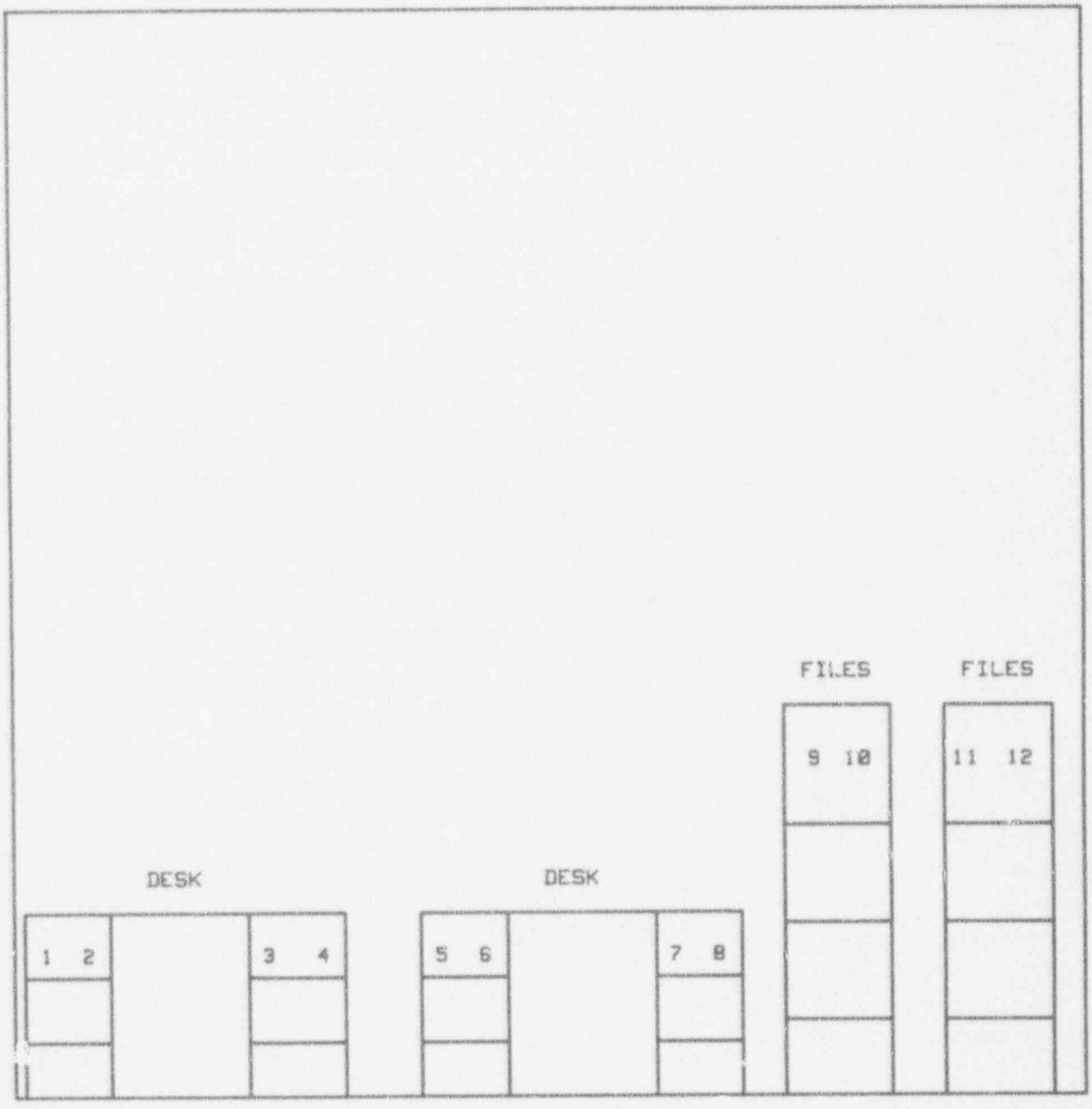
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-18 VIEW-B

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-18 View C

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25
11	<50	<25
12	<50	<25
13	<50	<25
14	<50	<25
15	<50	<25
16	<50	<25
17	<50	<25
18	<50	<25
19	<50	<25
20	<50	<25
21	<50	<25
22	<50	<25

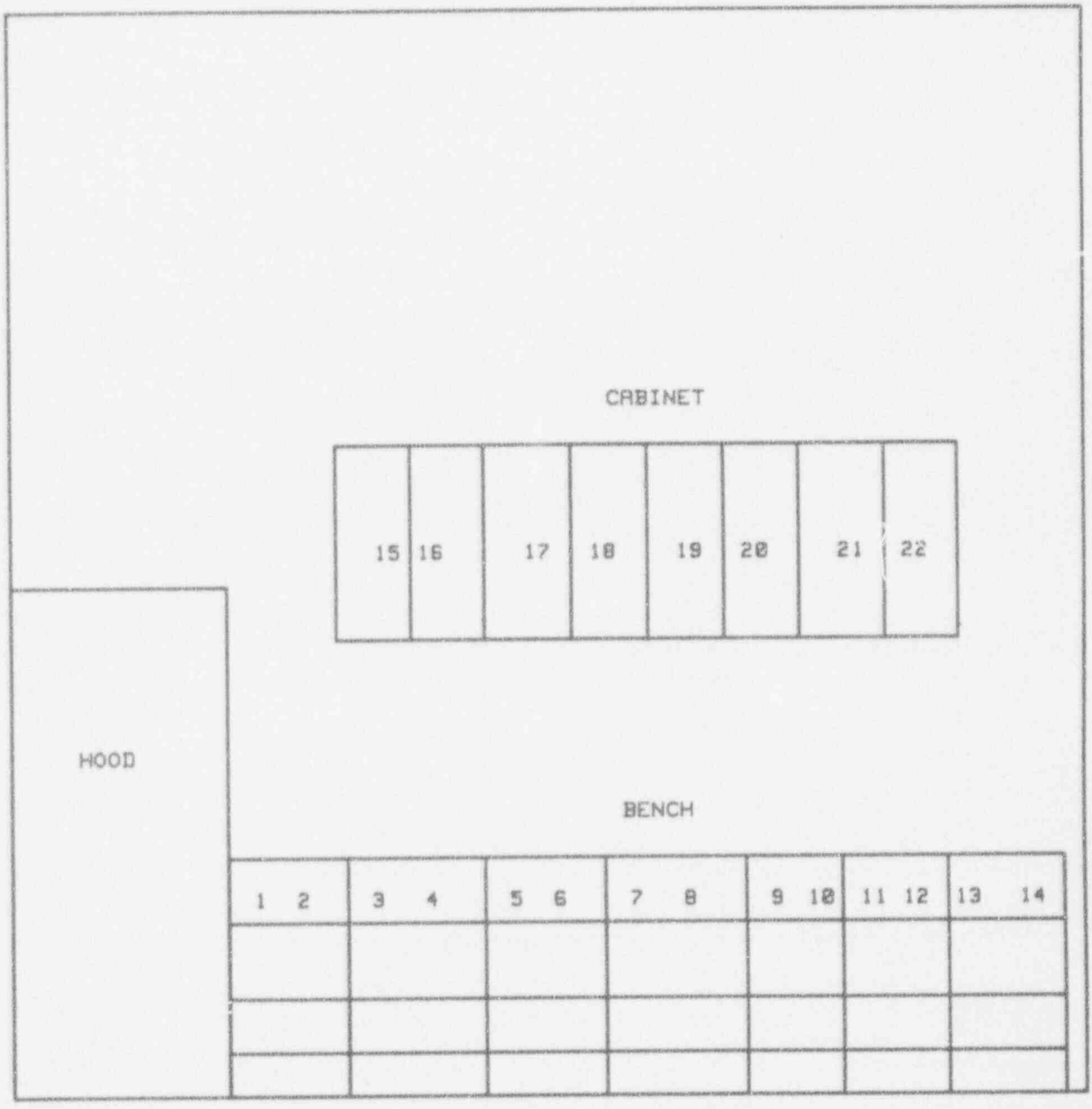
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-18 VIEW-C

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS
BY LIQUID SCINTILLATION
COUNTING

LOCATION: Z-18 Island A

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25

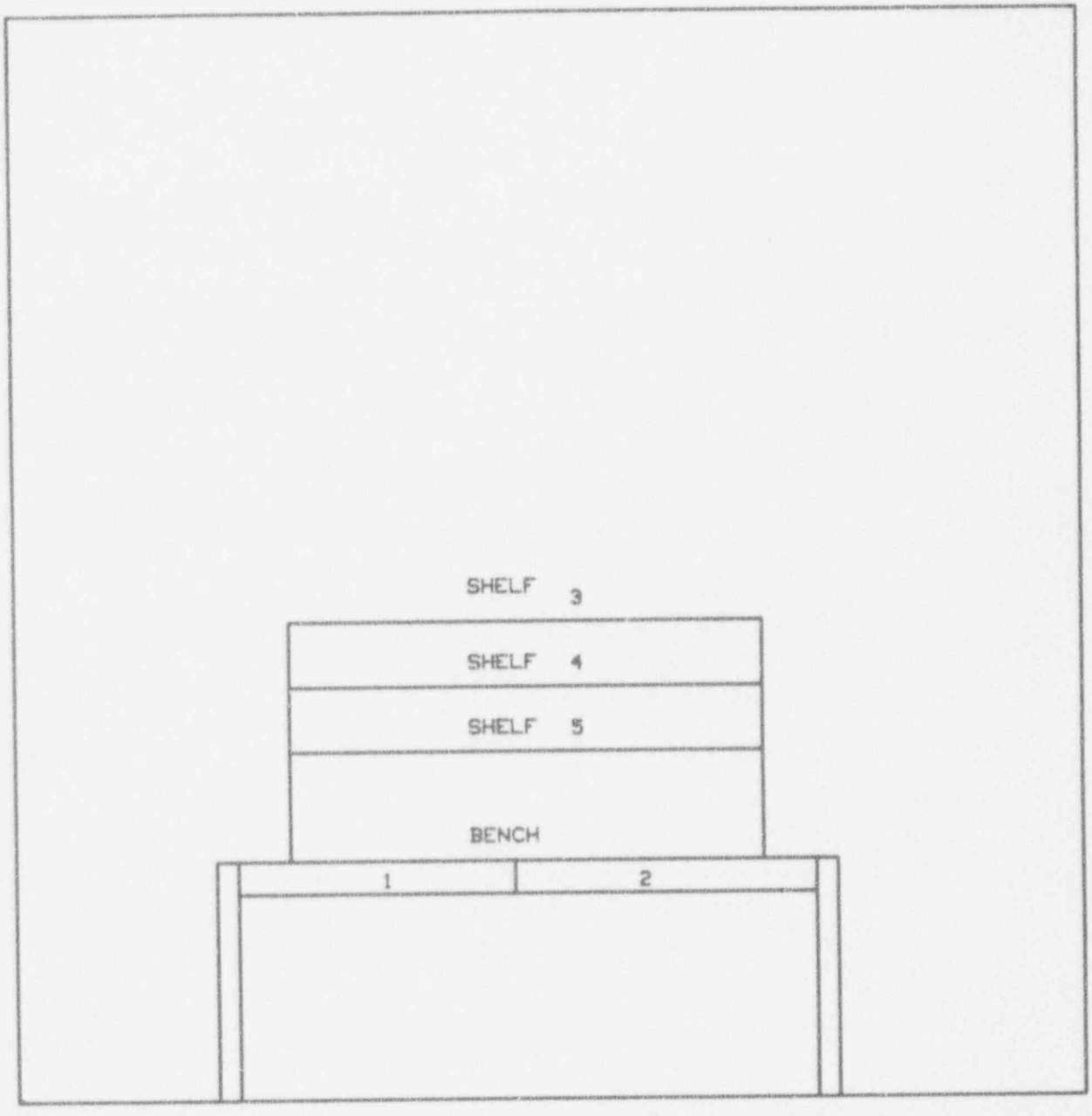
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-18 ISLAND-A

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-18 Island B

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25

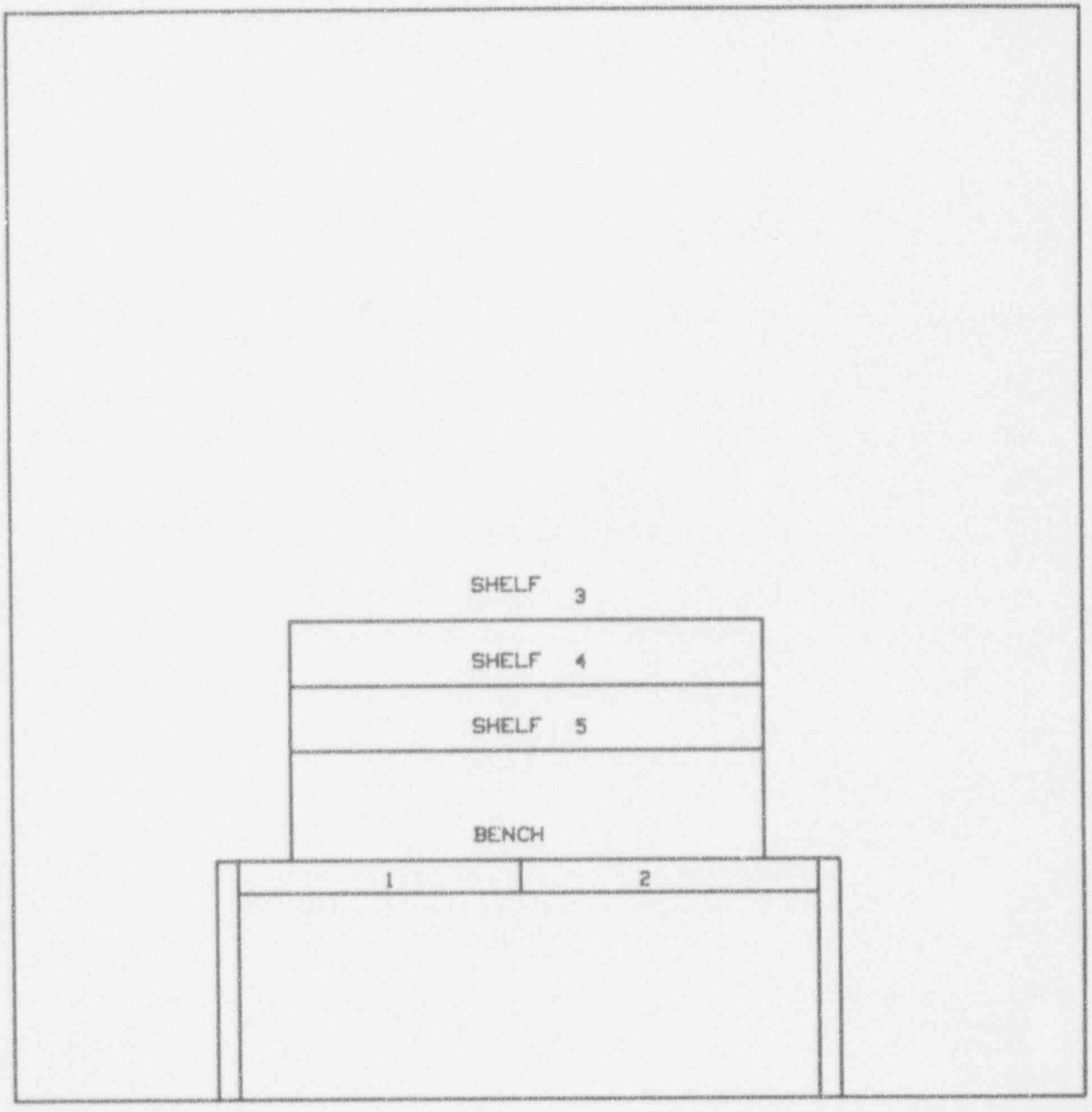
TELEDYNE ISOTOPES

DIAGRAM OF SURVEYED AREA

LOCATION: Z-18 ISLAND-B

PRINCIPLE OCCUPANTS: _____

ISOTOPE USAGE: _____



TELEDYNE ISOTOPES

SMEAR RESULTS BY LIQUID SCINTILLATION COUNTING

LOCATION: Z-18 Hood #1

SMEAR No.	Low Energy Beta Activity dpm/sample	Low Energy Beta Activity dpm/100cm^2
1	<50	<25
2	<50	<25
3	<50	<25
4	<50	<25
5	<50	<25
6	<50	<25
7	<50	<25
8	<50	<25
9	<50	<25
10	<50	<25