DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

National Institutes of Health
Bethesda, Maryland 20892

www.nih.gov

February 5, 2009

Ms. Penny Lanzisera, Senior Health Physicist
Materials License and Inspection Branch
Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

P-6

RE: License No. 19-00296-10 03001786

2009 FEB -6 AM 10:34
RECEIVED
REGION 1

Dear Ms. Lanzisera:

In accordance with your letter dated November 24, 2008, please accept the enclosed MARSSIM Final Status Survey Reports for 12420 Parklawn Drive (a.k.a. the Park or Park-5 Building) and 12501 Washington Avenue (a.k.a. the Flow Building) in Rockville, Maryland 20852.

There were never any sealed sources deployed within these buildings, therefore there are no sealed source transfer records.

If your review of these decommissioning FSS reports is satisfactory, please document to me that these facilities are decommissioned and removed from License 19-00296-10, in accordance with USNRC regulations.

Please contact me if you or your staff have more questions or need additional information. I may be reached at 301-496-2254 or by email at zoonr@mail.nih.gov.

Sincerely

R. A. Z

Robert A. Zoon, M.E., M.S.
Radiation Safety Officer, NIH

cc: Dr. Levin, Chair, RSC, NIH (letter)

Enclosures

143310

NMSS/RGN1 MATERIALS-002

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

November 24, 2008

Docket No. 03001786
Control No. 142887

License No. 19-00296-10

Robert A. Zoon
Radiation Safety Officer
Dept. of Health & Human Services
National Institutes of Health
21 Wilson Drive, MSC 6780
Bethesda, MD 20892-6780

COPY

SUBJECT: DEPT. OF HEALTH & HUMAN SERVICES, ACCEPTANCE OF NOTIFICATION OF CESSATION OF ACTIVITIES AND PLANNED FINAL STATUS SURVEY AT THE FLOW BUILDING (DANAC-4) IN ROCKVILLE, MARYLAND, CONTROL NO. 142887

Dear Mr. Zoon:

This concerns the letter dated October 6, 2008, to request release for unrestricted use facilities previously used by the National Institutes of Health (NIH) at 12501 Washington Avenue, Rockville, Maryland. The building used at this address was referred to as the Flow or Danac-4 Building. We understand from your letter that you discontinued activities within the Flow Building in 2004. We also understand from your document submitted November 17, 2008, titled "Initial Sampling Plan for Danac 4 Scoping Surveys," that you plan to implement the MARSSIM Process as described in NUREG-1575 to conduct the Final Status Survey of the facilities. Please submit the final status survey results and sealed source transfer records as an amendment to your license to support removal of the Flow Building from your license. In addition, as discussed during a telephone conversation on October 30, 2008, we understand that you plan to submit the final status survey results to support release of an additional building located at 12420 Parklawn in Rockville, Maryland. You may submit these two amendment requests together. Thank you for your cooperation.

Sincerely,

Penny Lanzisera
Senior Health Physicist
Medical Branch
Division of Nuclear Materials Safety

PARKLAWN 5

FINAL STATUS SURVEY REPORT

at the

National Institutes of Health
Bethesda, Maryland

For the

Division of Radiation Safety

January 2005

Prepared by:

481 North Frederick Avenue, Suite 302
Gaithersburg, MD 20877

TABLE OF CONTENTS

I. INTRODUCTION

On December 11 through 15, 2004, the Radiation Safety Academy performed final status survey (FSS) activities in the fourth floor of the National Institutes of Health (NIH) Parklawn 5 facility in Rockville, Maryland. The FSS was based on the December 2004 *Work Plan – Final Status Survey Of The Fourth Floor At Parklawn 5 Facility at the National Institutes of Health.* The FSS was performed for the NIH Division of Radiation Safety (DRS).

NIH occupied only the fourth floor of the Parklawn 5 facility. It consists of several laboratories, as well as smaller numbers of elevators, bathrooms, and corridors. As described in the Work Plan, each room was divided into two survey units (floor and lower walls) and was initially designated as either Class 2 or Class 3. The DRS data base was used to identify laboratories which had been posted for radioactive materials. Those laboratories posted as recently as 2004 were designated Class 2. All other laboratories, offices, bathrooms, and corridors were designated Class 3. A list of the Class 2 laboratories generated from the data base is provided in Appendix A.

The basic FSS activities involved comprehensive scanning of floors and lower walls with gas proportional detectors, exposure rate measurements in areas exhibiting elevated surface activity, collection of nine static measurements of surface beta activity in each survey unit for nonparametric statistical testing, collection of nine wipe samples in each survey unit for analysis of removable contamination, and collection of wipe samples from hoods, sinks, and other appropriate surfaces.

Data quality objectives (DQOs) were specified in the Work Plan. They included quantification of minimum detectable count rates for static measurements and scanning, a determination that nine measurements per survey unit would provide the necessary statistical power for nonparametric testing, and the establishment of an appropriate derived concentration guideline limit ($DCGL_w$). For C-14, the likely radionuclide of concern in Parklawn 5 laboratories, the $DCGL_w$ was established at 1.5 E +05 dpm/100 cm^2. The Work Plan established that all instruments used in the surveys had the desired sensitivity necessary to quantify levels of activity which were much less than the $DCGL_w$. In units of count rate, the scanning minimum detectable count rate (Scan MDC) was 926 cpm (equivalent to 37,405 dpm/100 cm^2) and 1,851 cpm (equivalent to 12,806 dpm/100 cm^2) for the gas proportional detector and floor monitor,

respectively. The count time for static measurements using the gas proportional detector was 0.5 minutes; for that count interval, the Static measurement MDC was 107 cpm (equivalent to 3,100 dpm/100 cm^2.)

II. DEVIATIONS FROM THE WORK PLAN

The field team experienced some periodic problems with the hand-held gas proportional detectors available for performing wall scanning. Therefore, the floor monitor was disconnected from the cart and used to scan wall surfaces in 13 of the 34 wall surface survey units.

One wipe sample collected during the investigation did not make its way to the analytical laboratory for counting. Sample #39, collected in room 415W was accidentally dropped behind a lab bench. The field team forgot to resample that location before sending the samples to the laboratory.

III. SURVEY RESULTS

Table 1 summarizes the number of survey units investigated. [Recall that each room or laboratory is comprised of two survey units (floors and walls).] All laboratories with a recent history of isotope use were classified as Class 2 survey units. The remaining laboratories, corridors, elevators, and bathrooms, were classified as Class 3 survey units. Reference background measurements were not collected in Parklawn 5. As discussed below, reference background data were not needed to perform nonparametric statistical tests of survey units **due to the absence of contamination at levels exceeding the $DCGL_W$.**

TABLE 1 – Number of Rooms/Survey Units Investigated

FLOOR	CLASS 2 (Rooms/Survey Units)	CLASS 3 (Rooms/Survey Units)
Laboratories	6/12	20/40
Corridors	0/0	4/8
Bathrooms	0/0	3/6
Elevators	0/0	1/2
Total	**6/12**	**28/56**

In general, there was very little residual contamination measured in Parklawn 5. Table 2 lists the two rooms where count rates exceeding the upper range of background were observed with a gas proportional detector while scanning total surface activity on floors and walls. While greater than background, none of these readings indicated the presence of residual contamination in excess of the $DCGL_W$.

Appendix B contains the individual survey unit Decommission Forms from each survey unit in Parklawn 5. The total surface activity data collected in Class 2 survey are provided on the Decommission Forms, as are measurement locations, elevated readings found during surface scans, and sample numbers for sink and hood samples.

TABLE 2 –Rooms With Elevated Count Rates

ROOM	SURVEY UNIT CLASS	Result (cpm)	DESCRIPTION
428	2	5,788 3,180	Spot on floor Spot on floor
415	3	1,275	Spot on floor

It should be noted that at each of the spots identified in Table 2, gross gamma count rates collected with a NaI detector did not differ from background. Furthermore, shielding the affected spots with a single sheet of paper reduced the count rate to background, providing evidence that **C-14 was most likely the contaminant present.**

Floor Scan

Comprehensive floor scans were conducted with a large area floor monitor. All accessible floors were scanned in Class 2 survey units and not less than 50 percent of accessible floors were scanned in Class 3 survey units. No scanning in any survey unit revealed widespread contamination.

Lower Wall Scan

The lower walls, consisting of the walls from the floor to a height of two meters (approximately six feet) were scanned with hand-held gas proportional detectors in 21 survey units and the floor monitor (detached from the cart) in 13 survey units. Consistent with floor coverage, 100 percent and not less than 50 percent of the lower wall surfaces were scanned in Class 2 and Class 3 survey units, respectively. No scanning in any survey unit revealed widespread contamination.

Exposure Rate Measurements

Follow-up external exposure rate measurements were taken in areas exhibiting elevated surface activity levels. These were taken with a NaI gamma scintillation detector. In the three locations found in rooms 428 and 415, despite the elevation in gross beta count rates, similar increase in exposure rate was not observed.

Total Surface Activity Measurements

Nine static total surface activity measurements were collected with 100 cm^2 surface area gas flow proportional detector in each Class 2 survey unit. The measurement duration was 0.5 minute. Measurement locations were determined following the triangular grid methodology described in MARSSIM. When the methodology resulted in an inaccessible location, it was replaced by selecting the nearest accessible location to the desired coordinates.

Removable Surface Activity – Wipe Sample Surveys

Nine wipe samples were collected in each survey unit. These random sample locations were selected based on the methodology found in MARSSIM following a triangular grid pattern. Professional judgment resulted in collection of a small number of additional samples, usually from bench top surfaces. Biased samples were collected from all sinks/drains and hood baffles/duct work as described in the Work Plan. Samples were analyzed in bulk via gamma counting and individually via liquid scintillation counting. Sample locations are identified on the

Decommission Forms (Appendix B). The analytical results for wipe samples collected from the walls and floors are provided in Appendix C.

Hood Surveys

In addition to the wipe samples collected in hoods, interior hood surfaces were scanned with gas proportional detectors. The wipe samples are identified on the Decommission Forms as H-# (Appendix B) and the analytical data are provided in Appendix D.

Sink and Sink Drain Surveys

Sink surfaces were scanned with gas proportional detectors. Wipe samples were collected in each sink; the sample medium was wiped across the sink surface as well as over the sink drain opening. Samples collected in sinks are identified on the Decommission Forms (Appendix B) as S-# and the analytical data are provided in Appendix D.

IV. QUALITY CONTROL

All instruments used in the survey of Parklawn 5 were subject to strict quality control measurements on a daily basis. These included evaluation of background response, battery response and source check response. Quality control measurement data were recorded and logged by the field team on a daily basis during the investigation. Only instruments operating within acceptable control limits were utilized. Due to failing quality control checks during the investigation, the hand-held gas proportional detector required changing. The calibration certificates for the analytical instruments used to scan surfaces and count samples collected during this project are provided in Appendix E.

V. DISCUSSION

The MARSSIM approach to FSS data evaluation calls for using a nonparametric statistical test to evaluate conditions in each survey unit with respect to the allowable limit, or $DCGL_W$. However, if measurement data do not exceed the $DCGL_W$ as was the case for all Parklawn 5 survey units, statistical testing is not necessary to determine compliance with the $DCGL_W$. In

this investigation, static measurements collected in 12 Class 2 survey units indicate that the Null Hypothesis stating that residual radioactivity in the survey unit exceeds the release limit may be rejected for all survey units.

As noted above, three total surface activity measurements collected in two laboratories exceeded background. In all cases, total activity in these locations was less than the $DCGL_w$ established for the surveys. Appendix F provides a memorandum from NIH health physicist Thomas Mercer concerning follow-up decommissioning of the two spots in laboratory 428 indicating removal of the measured activity. The absence of elevated exposure rates in these areas are evidence that the assumption of long-lived contamination being due to C-14 was accurate. Given its long half-life and mode of decay (weak energy beta emitter), elevated exposure rates would not be expected in the presence of several thousand dpm per 100 cm^2 of surface C-14 activity.

Samples collected in hoods, sinks, and drains were free from contamination. Therefore, consideration of decontamination technologies for these items is not warranted.

Based on the results of the FSS investigation, radiological conditions on the fourth floor of Parklawn 5 are such that the building is suitable for unrestricted use.

Appendix A – Parklawn 5 Class 2 Laboratories

411

424

425

428

429

435

Appendix B – Decommission Forms

cm
X = 1317.5
Y = 7.55
105 m²

L1 3.67
L2 = 3.18

National Institutes of Health Final Status Survey Form
Floor Unit

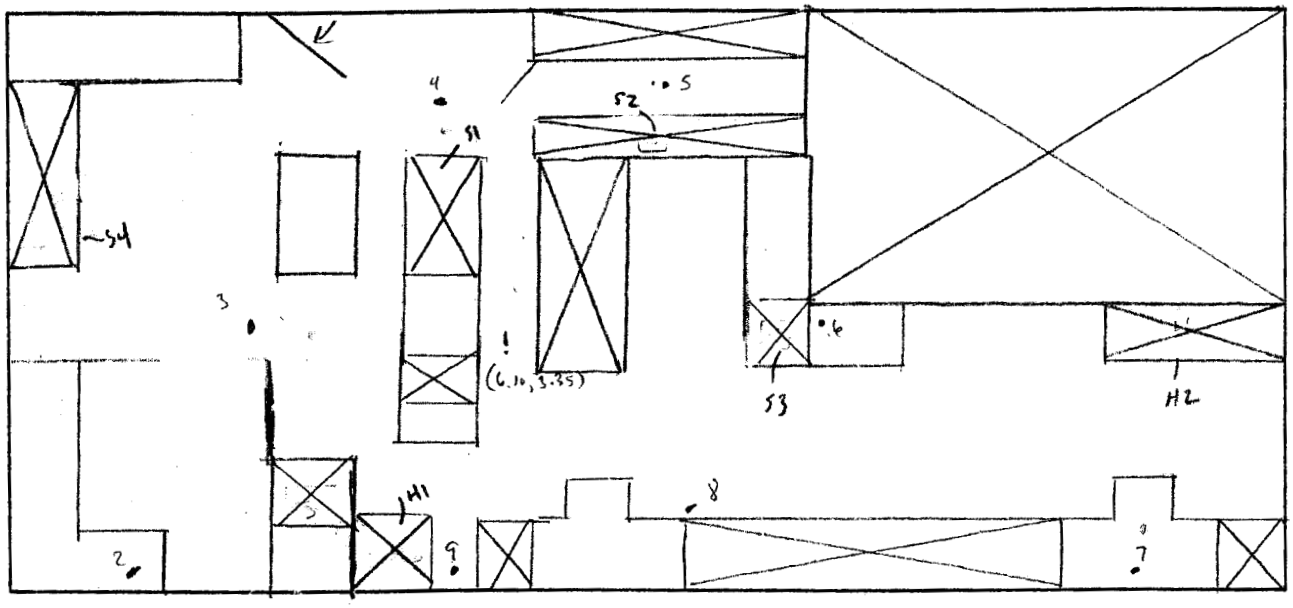
Class: 1 (2) 3 Area (m2): 105

Survey Unit # 1 Floor: 4 Room #: 411

Surveyor: LM / MJ Date: 12-11-04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04 (X,Y) = (6.10, 3.35)

UNIT SKETCH



0,0

Background CPM: 1000

Integrated Counts

Location 1: 195 Location 4: 162 Location 7: 178

Location 2: 216 Location 5: 163 Location 8: 168

Location 3: 170 Location 6: 184 Location 9: 214

Comments: map not to scale.

H=2 S=4

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

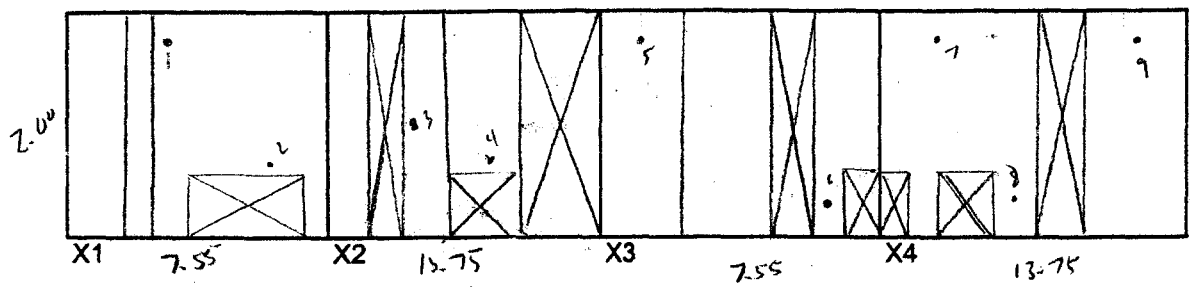
Class: 1 (2) 3 Area (m2): 85

Survey Unit # 2 Floor: 4 Room #: 411

Surveyor: MJ/LM Date: 12/11/04

Meter Type: 43-68 Serial #: 079572 Cal Date: 12/7/04

Unit Sketch



Background CPM: 300

Integrated Counts

Location 1: 196 Location 4: 148 Location 7: 204

Location 2: 171 Location 5: 109 Location 8: 177

Location 3: 145 Location 6: 183 Location 9: 194

Comments: NDTS

Approved: [signature] Date: 1/3/05

X= 8.90

National Institutes of Health Final Status Survey Form
Floor Unit

Y= 2.80

Class: 1 (2) 3 Area (m2): 25

L1 = 1.79

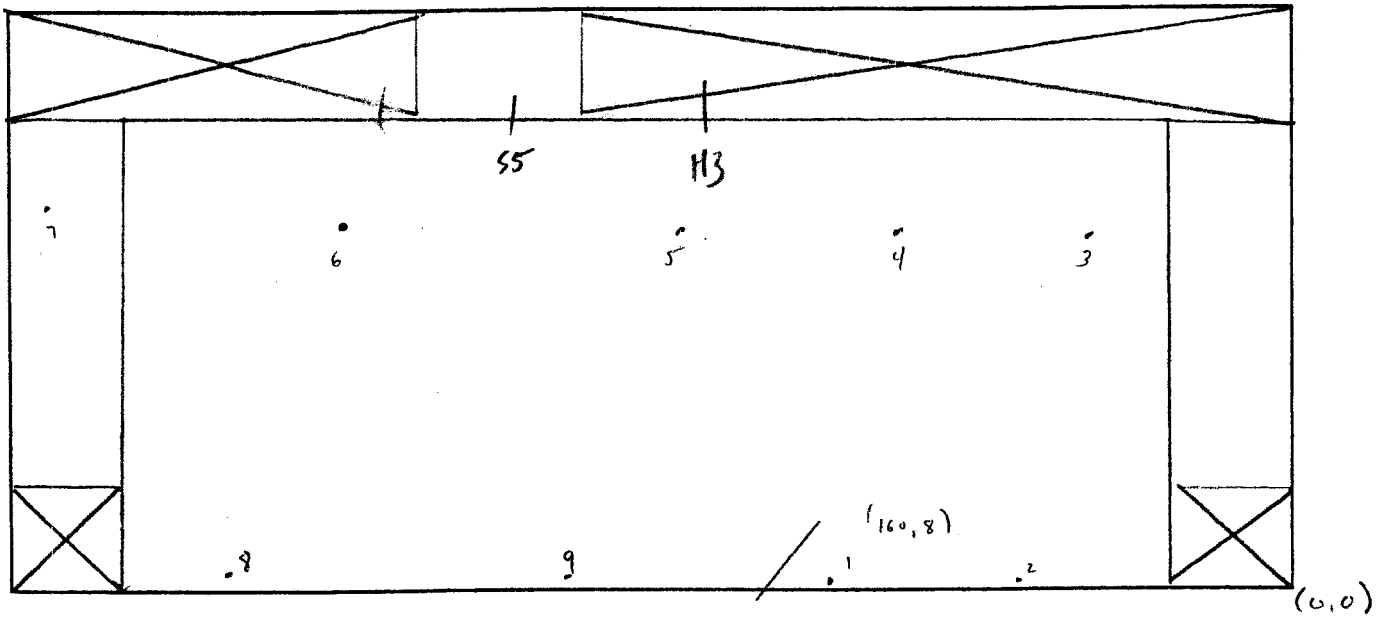
Survey Unit # 3 Floor: 4 Room #: 424 L2 = 1.55

Surveyor: LM / MS Date: 12-12-04

X=4(

Meter Type: 43-37 Serial #: 124943 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: 142 Location 4: 172 Location 7: 173

Location 2: 163 Location 5: 172 Location 8: 185

Location 3: 171 Location 6: 169 Location 9: 175

Comments: NDTS

S=1 H=1

Approved: QF Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Wall Unit

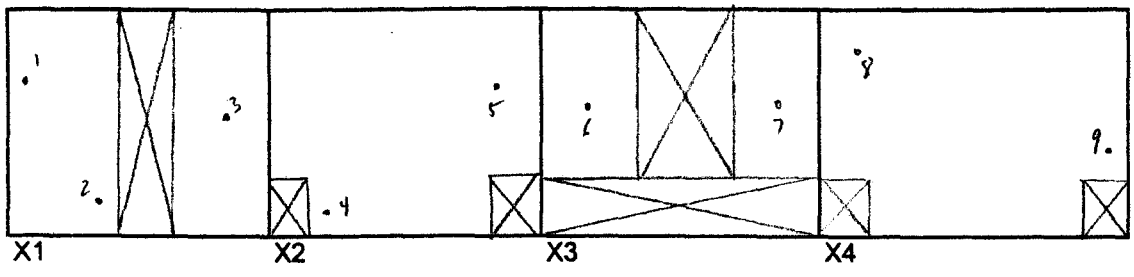
Class: 1 (2) 3 Area (m2): 47

Survey Unit # 4 Floor: 4 Room #: 424

Surveyor: MJ/CM Date: 12/12/04

Meter Type: 43-68 Serial #: 079572 Cal Date: 12/9/04

Unit Sketch



Background CPM: 300

Integrated Counts

Location 1: 140 Location 4: 151 Location 7: 141

Location 2: 159 Location 5: 145 Location 8: 137

Location 3: 154 Location 6: 144 Location 9: 139

Comments: NDTS

Approved: AT Date: 1/3/05

y = 9.95
x = 16.20

L_1 = 4.46
L_2 = 3.86

National Institutes of Health Final Status Survey Form
Floor Unit

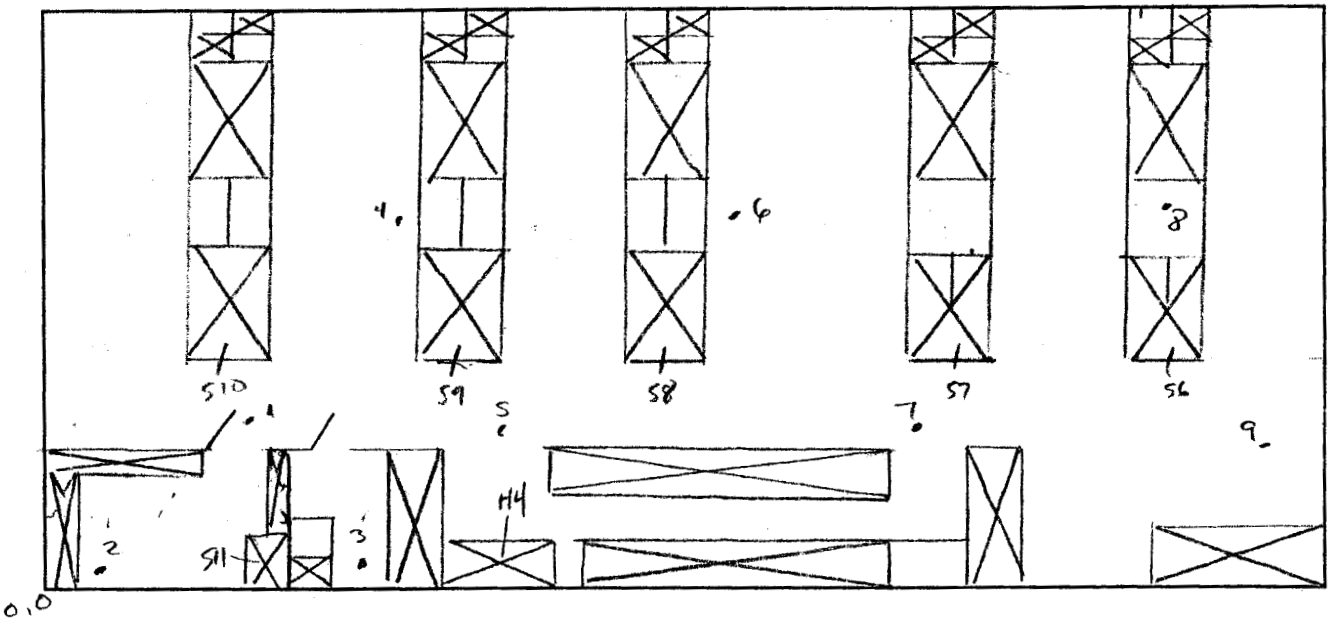
Class: 1 (2) 3 Area (m2): 155 (x, y) 270 x 450

Survey Unit # 5 Floor: 4 Room #: 425

Surveyor: LM / MJ Date: 12-12-04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: 204 Location 4: 235 Location 7: 229

Location 2: 230 Location 5: 215 Location 8: 209

Location 3: 172 Location 6: 239 Location 9: 217

Comments: NAD83

S = 6 H = 1

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

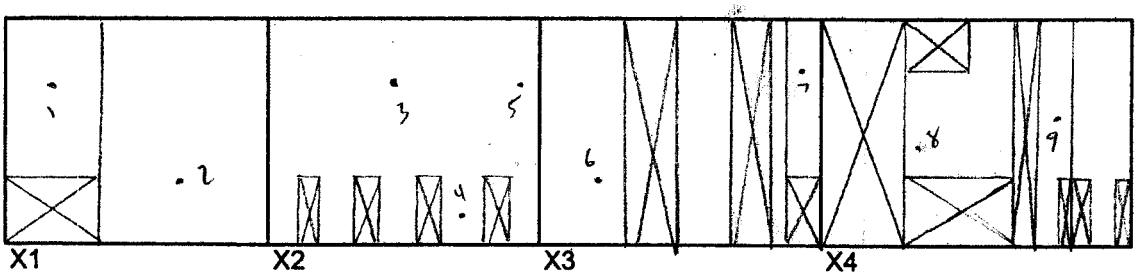
Class: 1 (2) 3 Area (m2): 103

Survey Unit # 6 Floor: 4 Room #: 425

Surveyor: MJ / LM Date: 12-12-04

Meter Type: 43-68 Serial #: 079572 Cal Date: 12/9/04

Unit Sketch



Background CPM: 300

Integrated Counts

Location 1: 167 Location 4: 176 Location 7: 139

Location 2: 176 Location 5: 171 Location 8: 135

Location 3: 202 Location 6: 163 Location 9: 152

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

732
870
L1 - 2.87
L2 - 2.48
(x, y) = (1.39, 3.81)

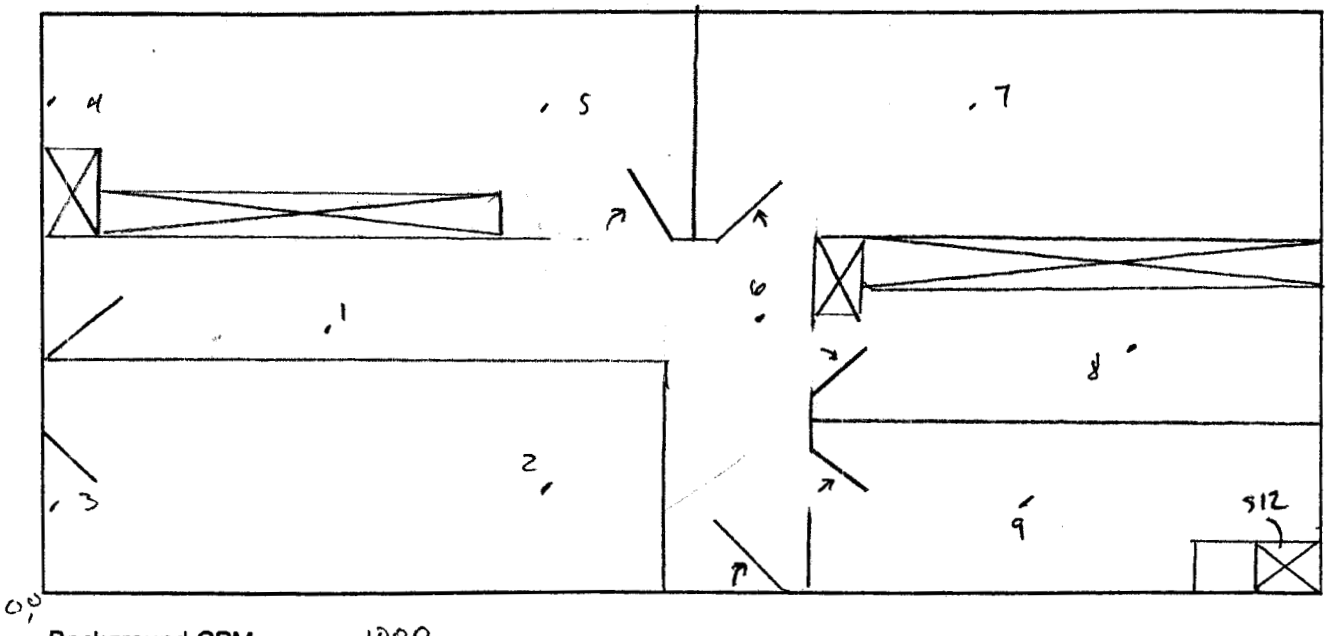
Class: 1 (2) 3 Area (m2): 64

Survey Unit # 7 Floor: 4 Room #: 429

Surveyor: LM / MS Date: 12-12-04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: 164 Location 4: 184 Location 7: 197

Location 2: 158 Location 5: 176 Location 8: 197

Location 3: 174 Location 6: 193 Location 9: 200

Comments: NDTS

S=1 H=0

Approved: AT Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

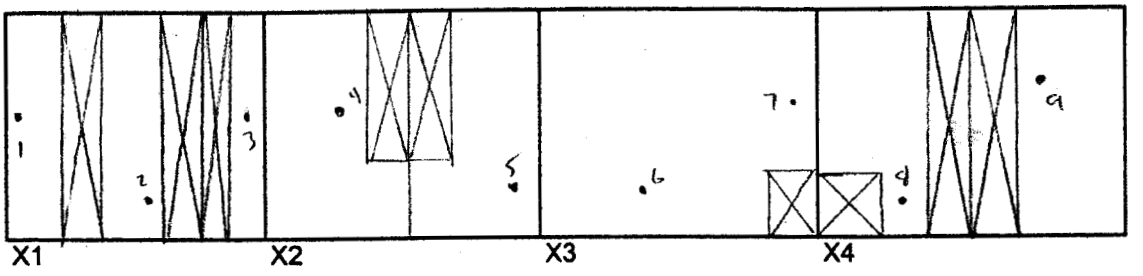
Class: 1 (2) 3 Area (m2): 64

Survey Unit # 8 Floor: 4 Room #: 429

Surveyor: MS/LM Date: 12/12/04

Meter Type: 43-68 Serial #: 079572 Cal Date: 12/9/04

Unit Sketch



Background CPM: 300

Integrated Counts

Location 1: 137 Location 4: 177 Location 7: 143

Location 2: 138 Location 5: 213 Location 8: 135

Location 3: 173 Location 6: 154 Location 9: 152

Comments: NDTS

Approved: AT Date: 1/3/05

Radiation Safety Academy, Inc.

17.20 x 8.85

National Institutes of Health Final Status Survey Form
Floor Unit

L_1 4.42
L_2 3.83
KM (1336, 257)

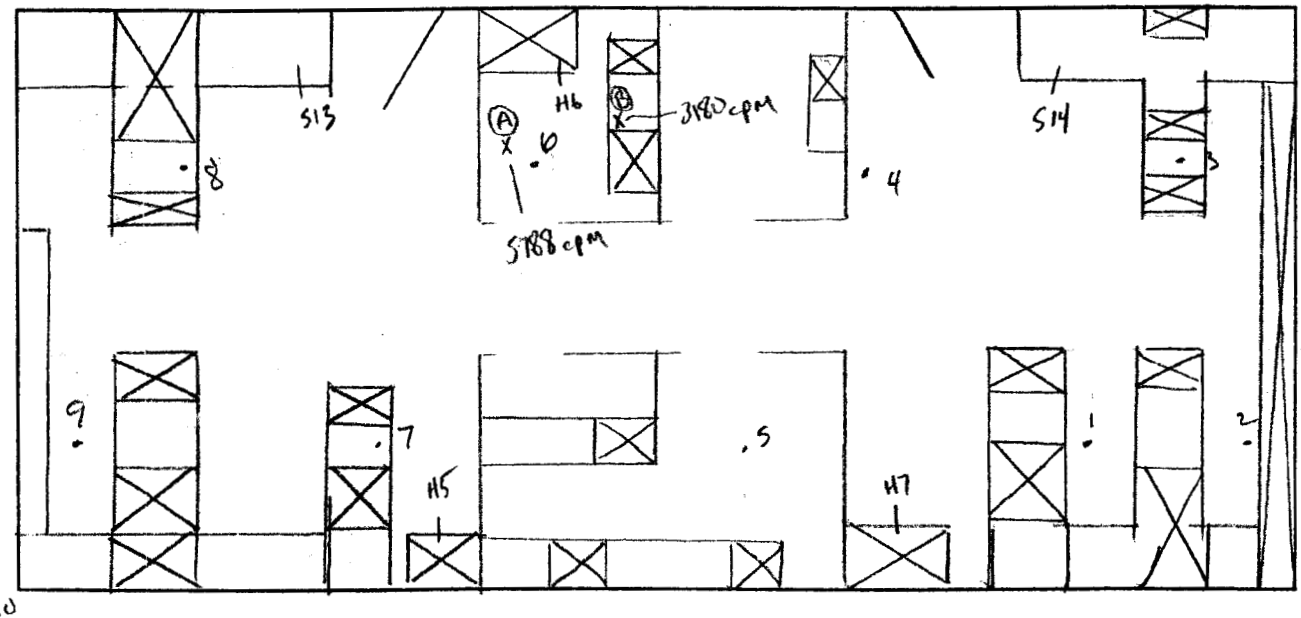
Class: 1 (2) 3 Area (m2): 152

Survey Unit # 9 Floor: 4 Room #: 428

Surveyor: LM/MJ Date: 12-12-04

Meter Type: 43-37 Serial #: 124 945 Cal Date: 12/9/04

UNIT SKETCH



0.0

Background CPM: 1000

Integrated Counts

Location 1: 180 Location 4: 166 Location 7: 155

Location 2: 171 Location 5: 158 Location 8: 198

Location 3: 168 Location 6: 255 Location 9: 180

Comments: Not Drawn to Scale

S=2 H=3

A= 5788 cpm at contact w/ Gas Flow Proportional (Pos. w/ PANBM) (Neg w/ NaI) (C-14) – most likely ← at contact CAN be shielded w/ paper

B= 3180 cpm at contact w/ GFP (Pos w/ PANBM) (Neg w/ NaI) (C-14) – most likely ↔ at contact can be shielded w/ paper

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

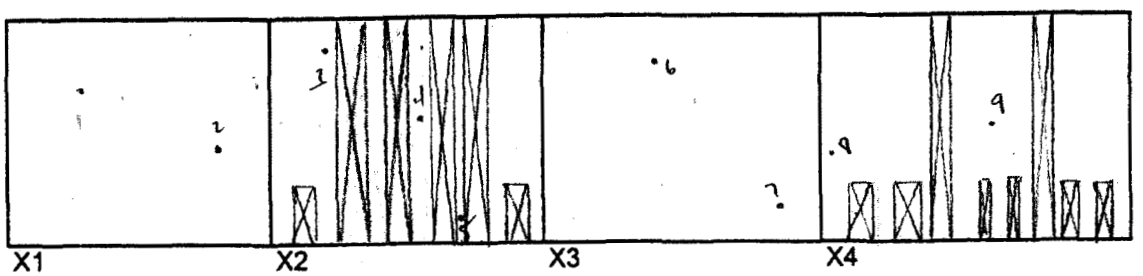
Class: 1 (2) 3 Area (m2): 104

Survey Unit # 10 Floor: 4 Room #: 427

Surveyor: MJ/CM Date: 12-12-04

Meter Type: 43-68 Serial #: 079572 Cal Date: 12/9/04

Unit Sketch



Background CPM: 300

Integrated Counts

Location 1: 156 Location 4: 149 Location 7: 140

Location 2: 137 Location 5: 148 Location 8: 134

Location 3: 135 Location 6: 140 Location 9: 118

Comments: NDTS

Approved: QF Date: 1/5/05

National Institutes of Health Final Status Survey Form
Floor Unit

r (730, 504
$L_1 = 2.18$
$L_2 = 1.89$
$(x_4)(108, 277)$

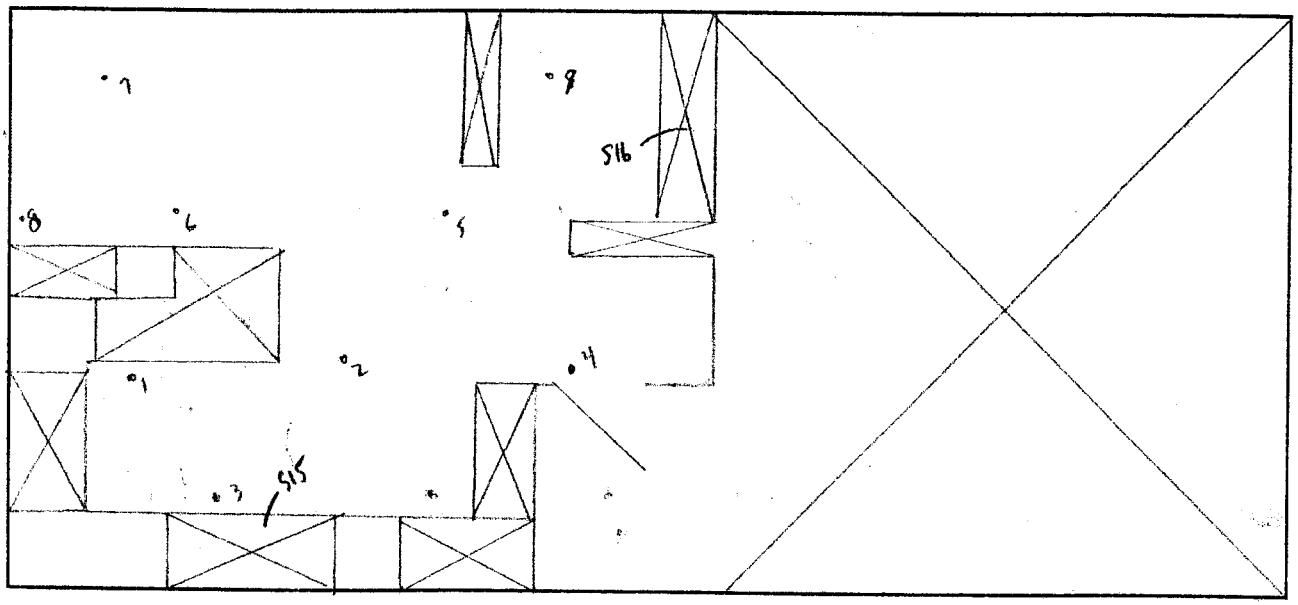
Class: 1 (2) 3 Area (m2): 37

Survey Unit # 11 Floor: 4 Room #: 435

Surveyor: MJ / LM Date: 12/12/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: 163 Location 4: 184 Location 7: 224

Location 2: 198 Location 5: 183 Location 8: 183

Location 3: 180 Location 6: 161 Location 9: 204

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

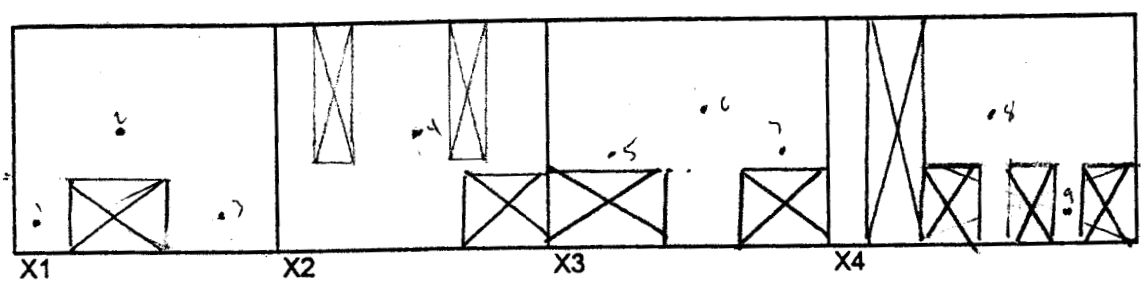
Class: 1 (2) 3 Area (m2): 50

Survey Unit # 12 Floor: 4 Room #: 435

Surveyor: LM / MJ Date: 12/12/04

Meter Type: 43-68 Serial #: 079572 Cal Date: 12/9/04

Unit Sketch



Background CPM: 300

Integrated Counts

Location 1: 120 Location 4: 167 Location 7: 149

Location 2: 140 Location 5: 145 Location 8: 126

Location 3: 161 Location 6: 147 Location 9: 150

Comments: NDTS

Approved: AT Date: 1/3/05

710 x 705

National Institutes of Health Final Status Survey Form
Floor Unit

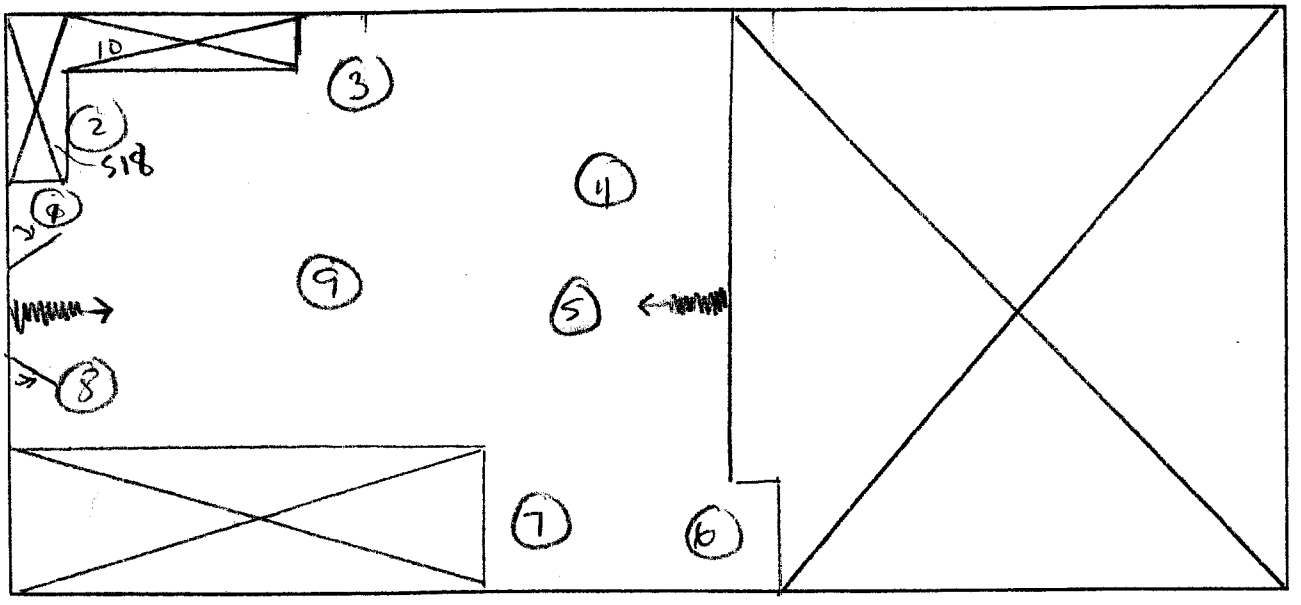
Class: 1 2 (3) Area (m2): 53

Survey Unit # 13 Floor: 4 Room #: 401/403

Surveyor: LM/MS Date: 12/13/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



0,0

Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

S=1

Approved: AT Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Wall Unit

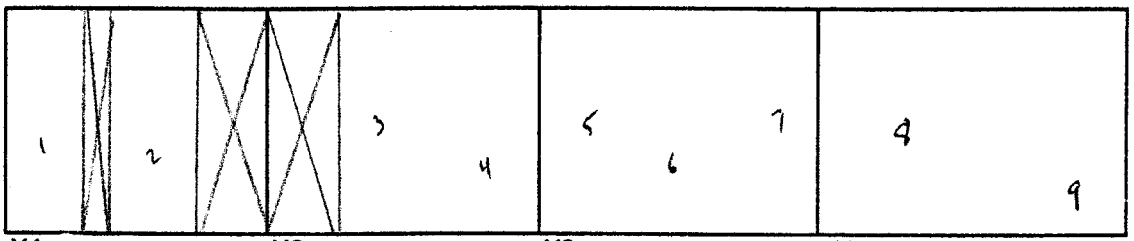
Class: 1 2 (3) Area (m2): 57

Survey Unit # 14 Floor: 4 Room #: 401

Surveyor: MJ / LM Date: 12/13/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: QA Date: 1/3/05

1270, 730

National Institutes of Health Final Status Survey Form
Floor Unit

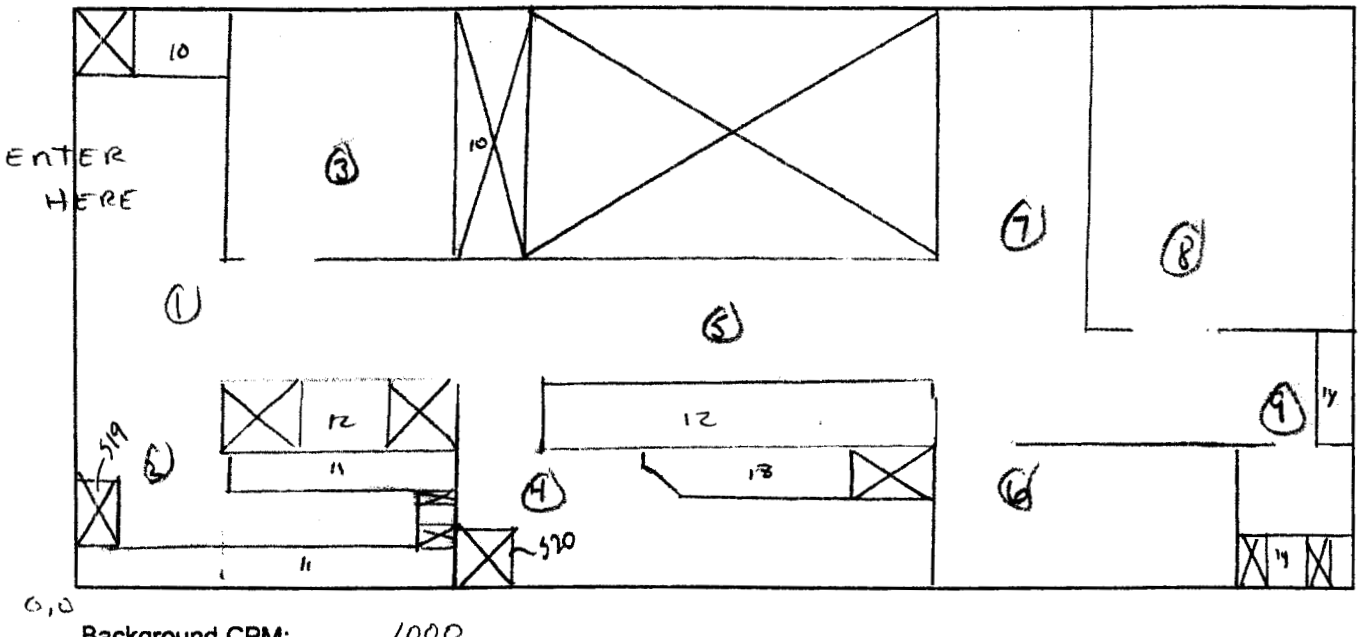
Class: 1 2 (3) Area (m2): 93

Survey Unit # 15 Floor: 4 Room #: 405

Surveyor: MJ/LM Date: 12/13/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NOT Drawn to Scale.

S=2 H=0

Approved: DT Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

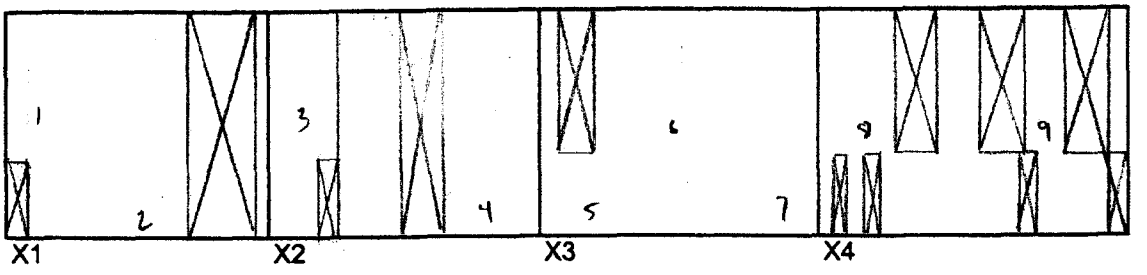
Class: 1 2 (3) Area (m2): 80

Survey Unit # 16 Floor: 4 Room #: 405

Surveyor: MS | LM Date: 12/13/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments:

Not Drawn to scale

Approved: AT Date: 1/3/05

1400, 730

National Institutes of Health Final Status Survey Form
Floor Unit

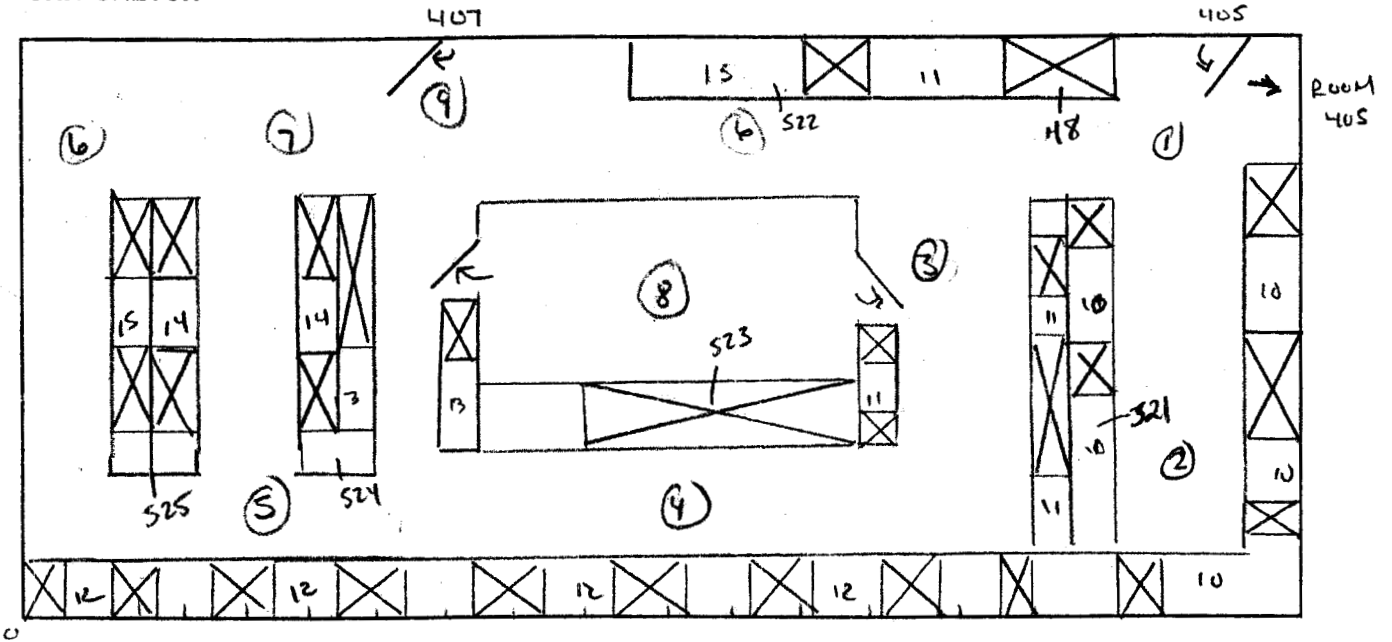
Class: 1 2 (3) Area (m2): 102

Survey Unit # 17 Floor: 4 Room #: 407

Surveyor: LM/MJ Date: 12/13/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



610

Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

S = 5 H = 1

Approved: AT Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

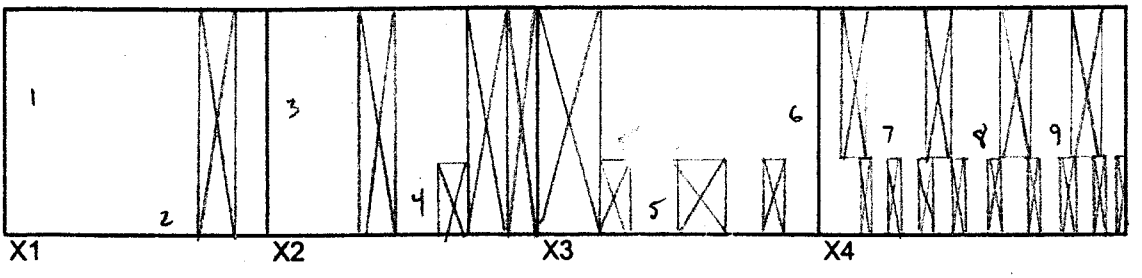
Class: 1 2 (3) Area (m2): 77

Survey Unit # 19 Floor: 4 Room #: 407

Surveyor: MJ/LM Date: 12/13/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: AT Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

390, 410

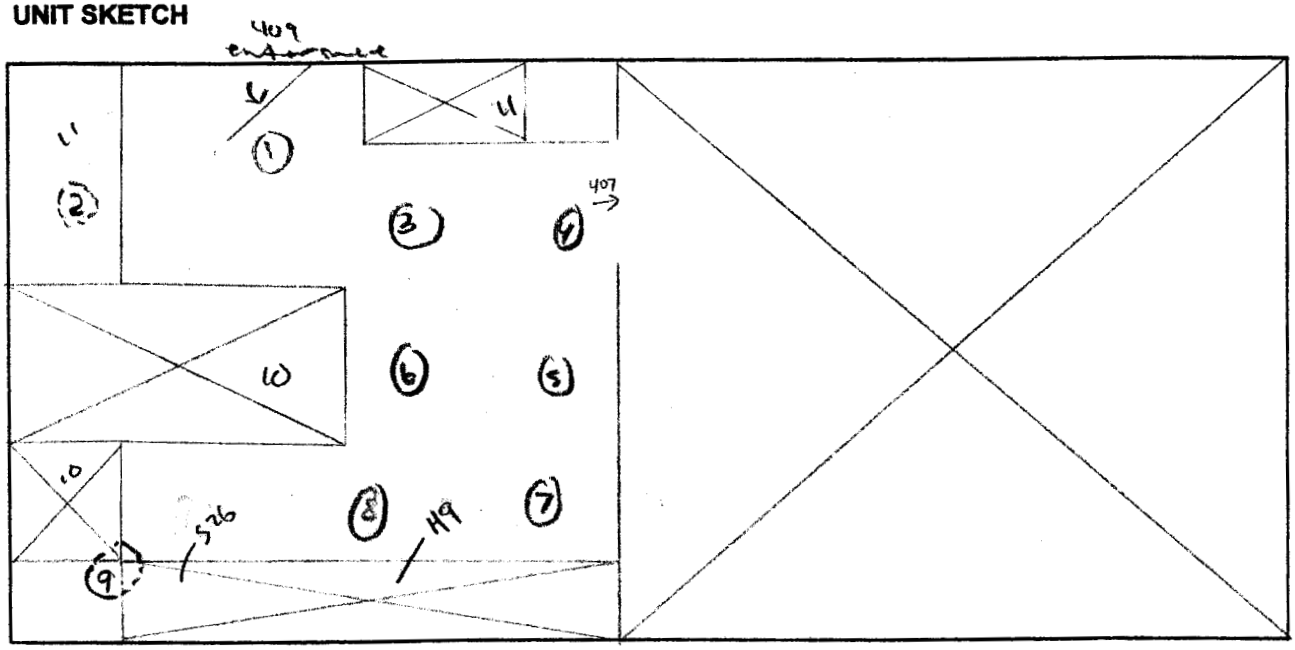
Class: 1 2 (3) Area (m2): 16

Survey Unit # 19 Floor: 4 Room #: 409

Surveyor: MJ/CM Date: 12/13/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: Not to scale

S=1 H=1

Approved: AT Date: 1/5/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Wall Unit

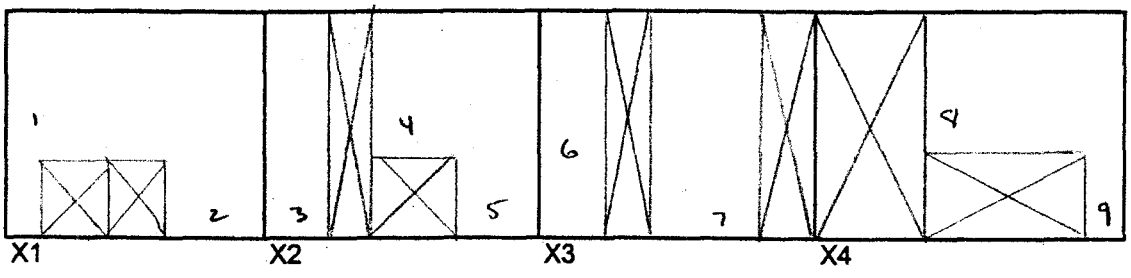
Class: 1 2 (3) Area (m2): 32

Survey Unit # 20 Floor: 4 Room #: 409

Surveyor: MJ/CM Date: 12/13/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

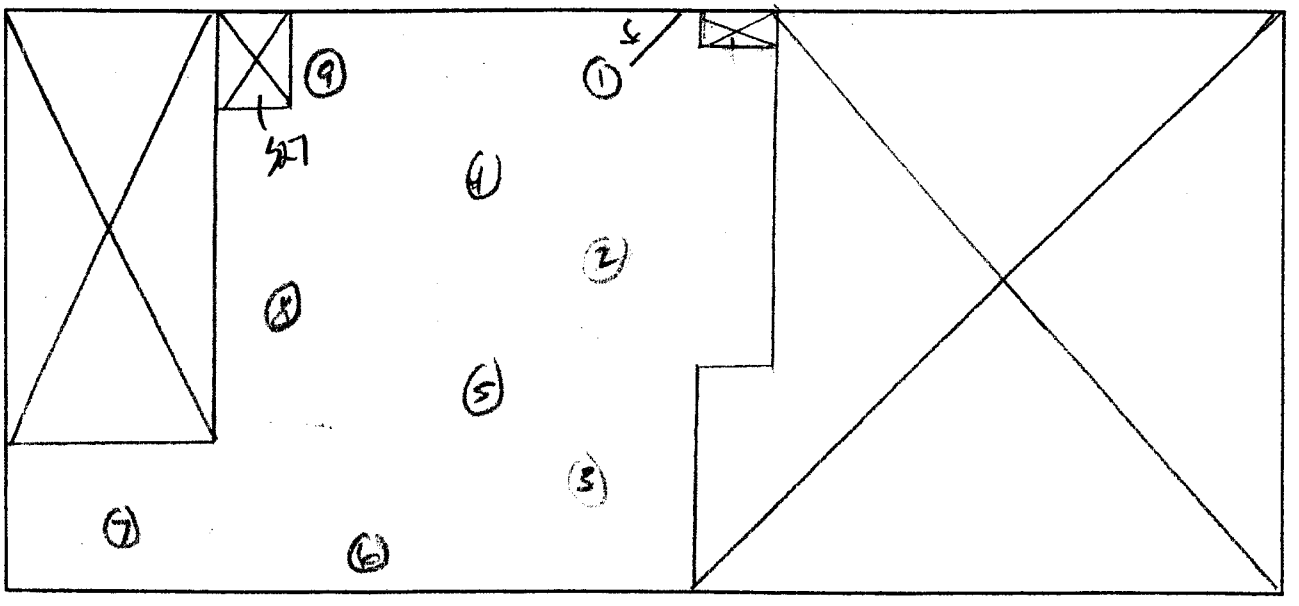
Class: 1 2 (3) Area (m2): 38

Survey Unit # 21 Floor: 4 Room #: 413

Surveyor: LA / MJ Date: 12/13/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



CP

Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Sc 1

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

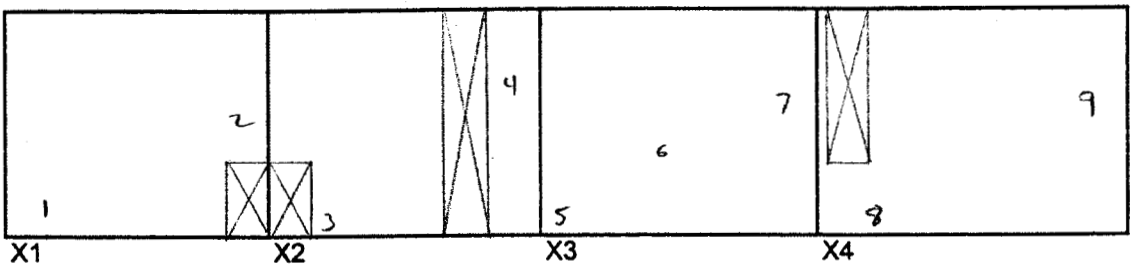
Class: 1 2 (3) Area (m2): 50

Survey Unit # 22 Floor: 4 Room #: 413

Surveyor: MJ | LM Date: 12/13/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NBTS

Approved: AT Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

1255, 1765

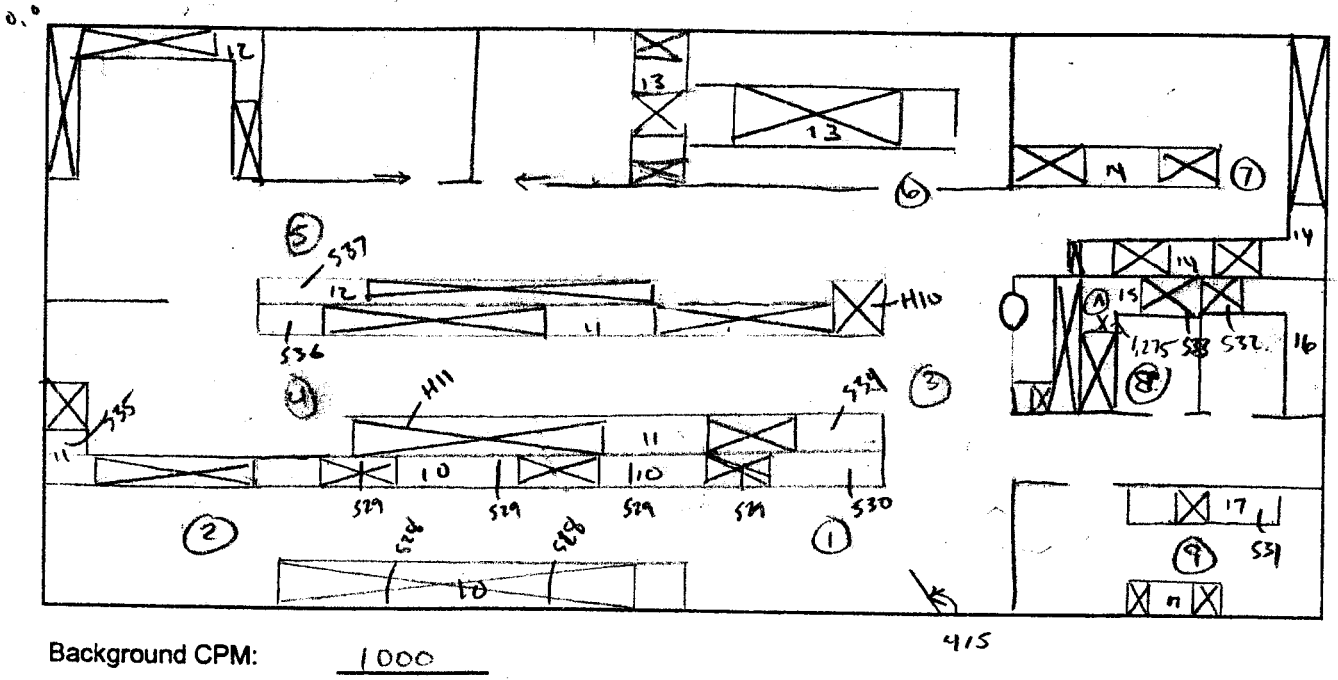
Class: 1 2 (3) Area (m2): 222

Survey Unit # 23 Floor: 4 Room #: 415

Surveyor: MJ | LM Date: 12/13/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

S= 9 H=2

A) 1,275 cpm w/ GFP (as w/ PANGM at contact neg at 10 cm backshot able to shield with paper) (neg NAI) (C-14) - most likely

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

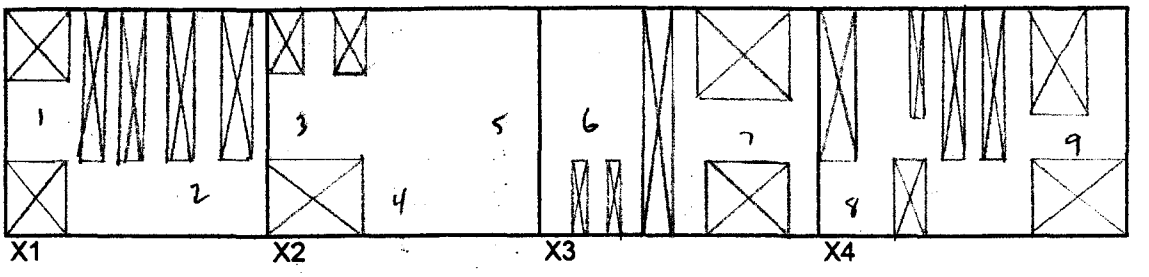
Class: 1 2 (3) Area (m2): 121

Survey Unit # 24 Floor: 4 Room #: 415

Surveyor: MJ | LM Date: 12/13/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: QT Date: 1/3/05

1066, 674

National Institutes of Health Final Status Survey Form
Floor Unit

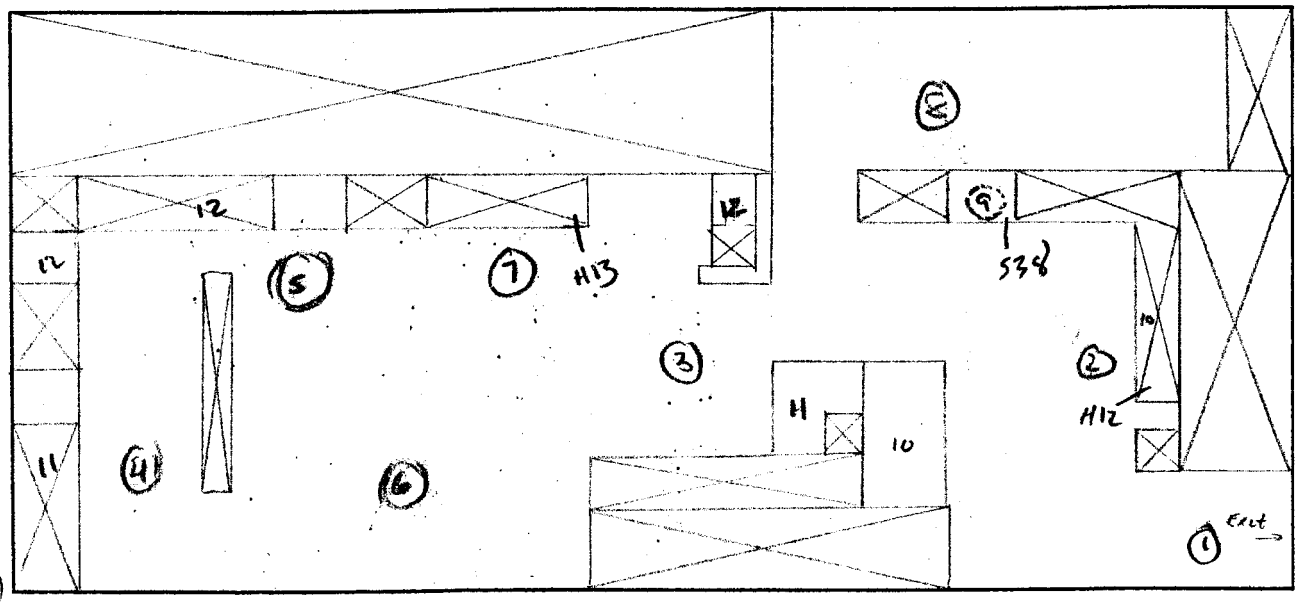
Class: 1 2 (3) Area (m2): 72

Survey Unit # 25 Floor: 4 Room #: 417

Surveyor: MJ | LM Date: 12/12/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

S=1 H=2

Approved: QT Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Wall Unit

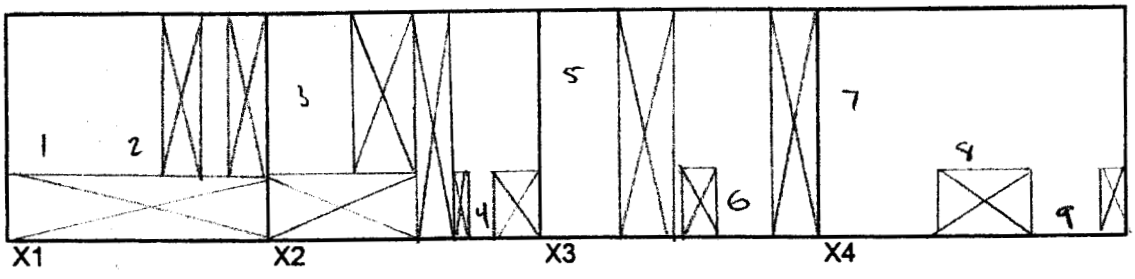
Class: 1 2 (3) Area (m2): 70

Survey Unit # 26 Floor: 4 Room #: 417

Surveyor: MT/CM Date: 12/12/04

Meter Type: 43-68 Serial #: 079572 Cal Date: 12/9/04

Unit Sketch



Background CPM: 300

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

927, 730

National Institutes of Health Final Status Survey Form
Floor Unit

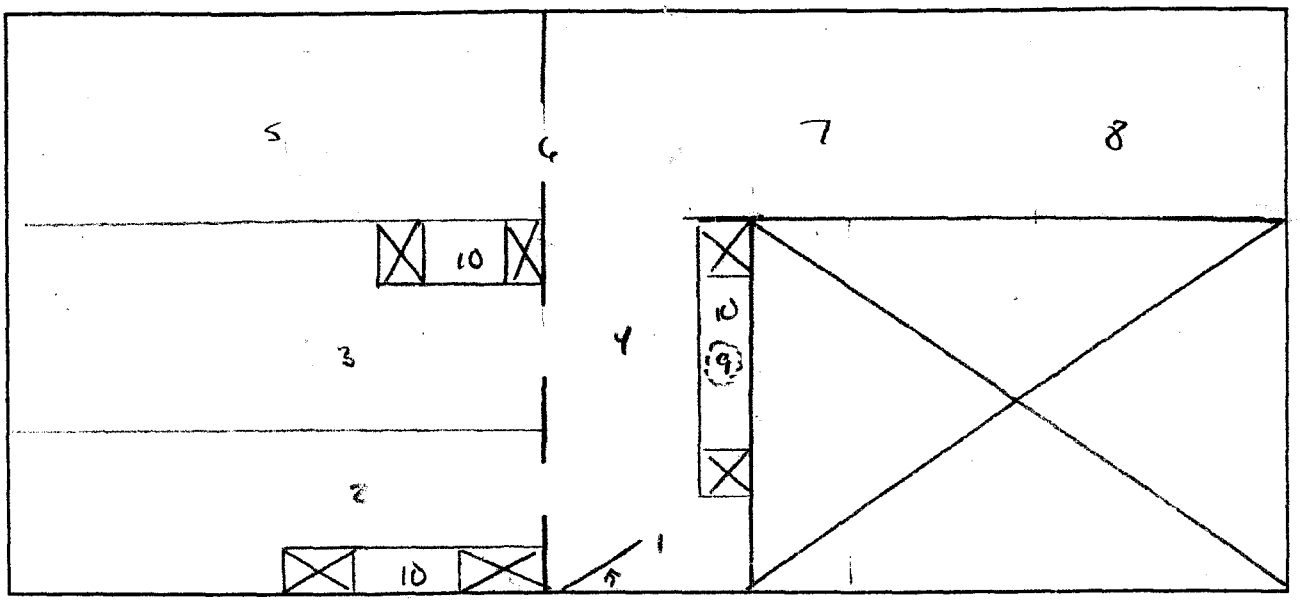
Class: 1 2 (3) Area (m2): 60

Survey Unit # 27 Floor: 4 Room #: 481

Surveyor: MJ | LM Date: 12/13/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/5/04

UNIT SKETCH



6p Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: QT Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

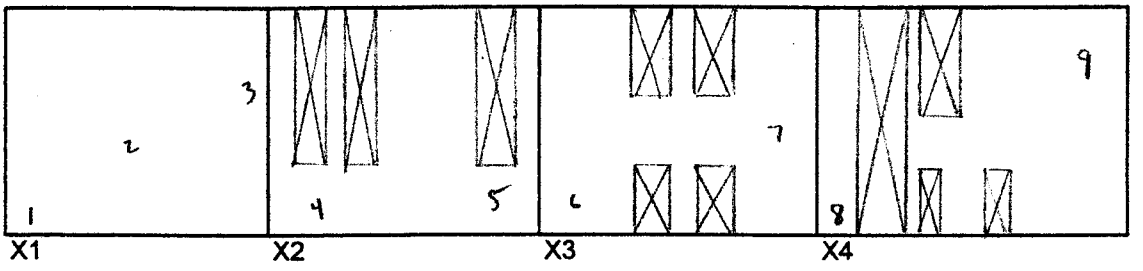
Class: 1 2 (3) Area (m2): 65

Survey Unit # 28 Floor: 4 Room #: 431

Surveyor: MJ/LM Date: 12/13/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: AT Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Floor Unit

X,Y 305/480

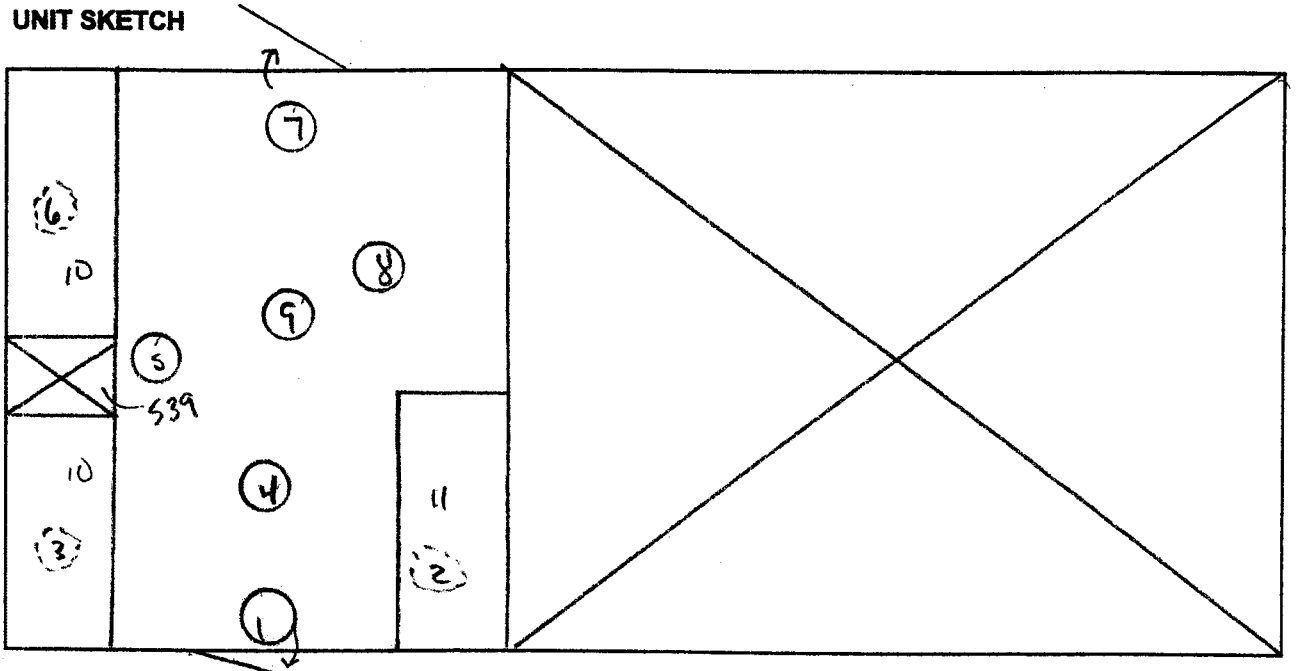
Class: 1 2 (3) Area (m2): 15

Survey Unit # 29 Floor: 4 Room #: 433

Surveyor: LM/MJ Date: 12/13/04

Meter Type: 43-37 Serial #: 12445 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

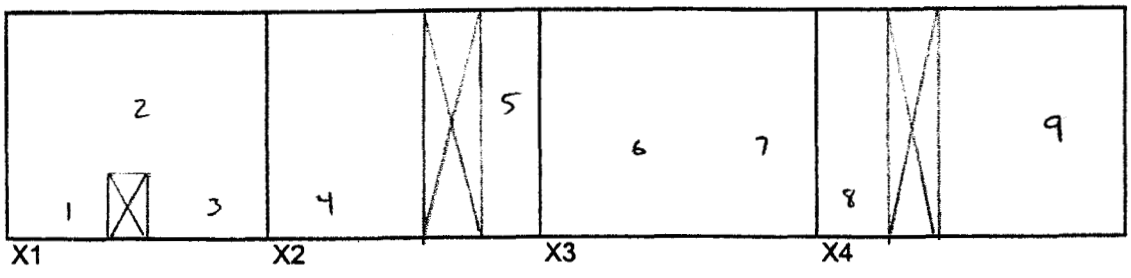
Class: 1 2 (3) Area (m2): 32

Survey Unit # 30 Floor: 4 Room #: 433

Surveyor: MJ/LM Date: 12/13/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

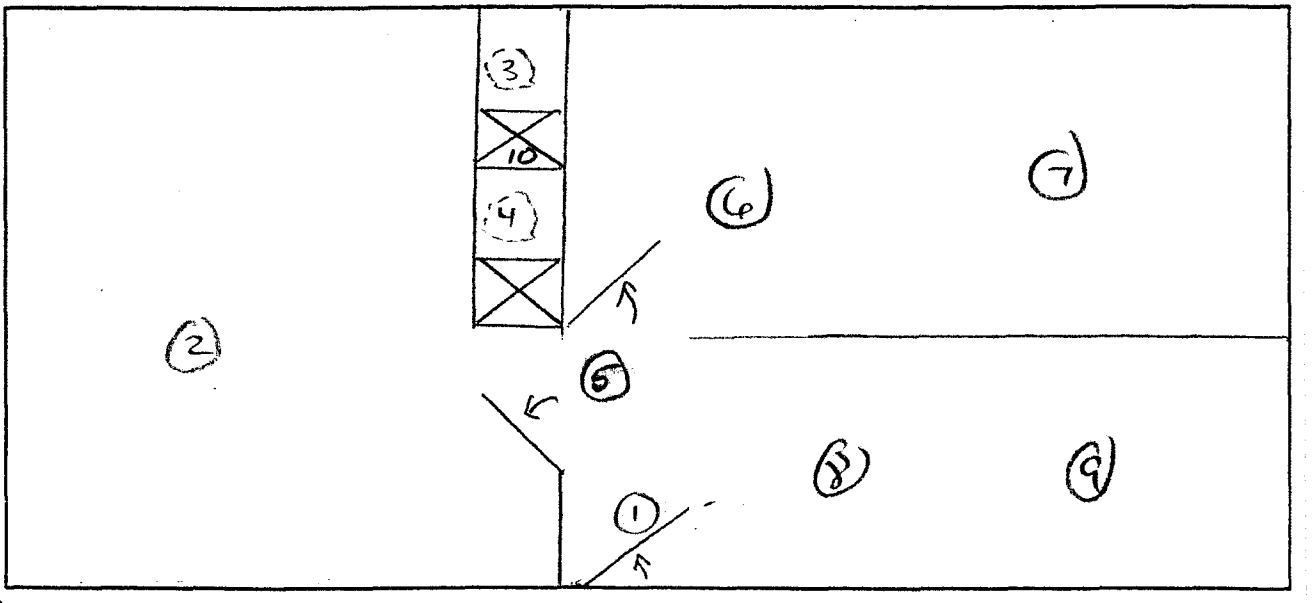
Class: 1 2 (3) Area (m2): 38

Survey Unit # 31 Floor: 4 Room #: 439

Surveyor: LM / MJ Date: 12/12/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



60

Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: _____ Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

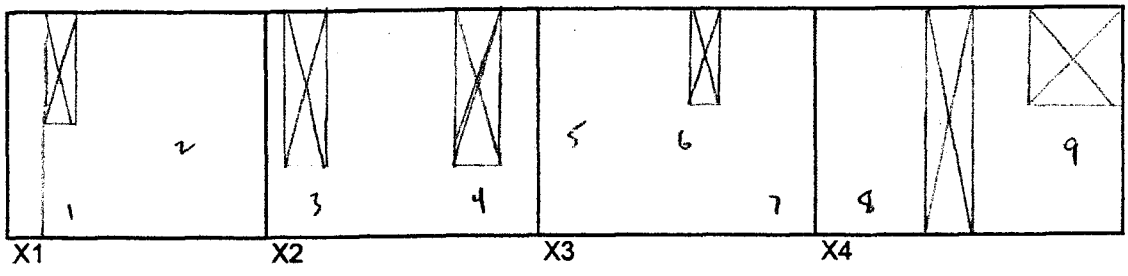
Class: 1 2 (3) Area (m2): 50

Survey Unit # 32 Floor: 4 Room #: 439

Surveyor: MJ/LM Date: 12/12/04

Meter Type: 43-68 Serial #: 079572 Cal Date: 12/9/04

Unit Sketch



Background CPM: 300

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

1292, 794

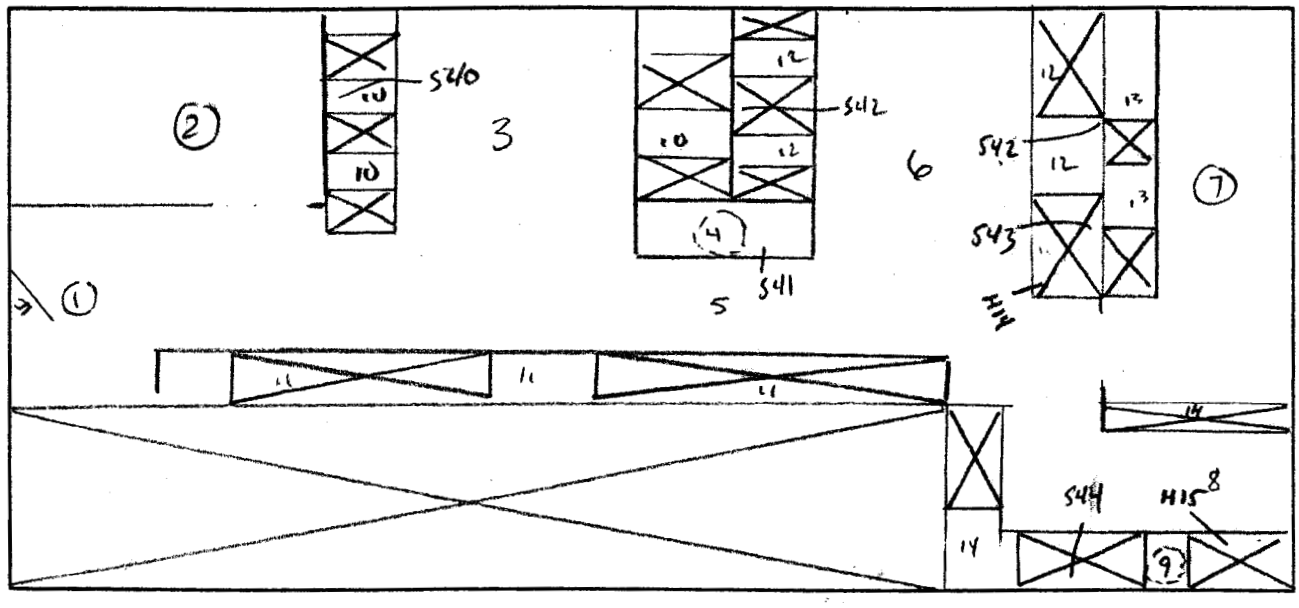
Class: 1 2 (3) Area (m2): 118

Survey Unit # 33 Floor: 4 Room #: 445

Surveyor: MJ/LM Date: 12/12/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

S-5 H=2

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

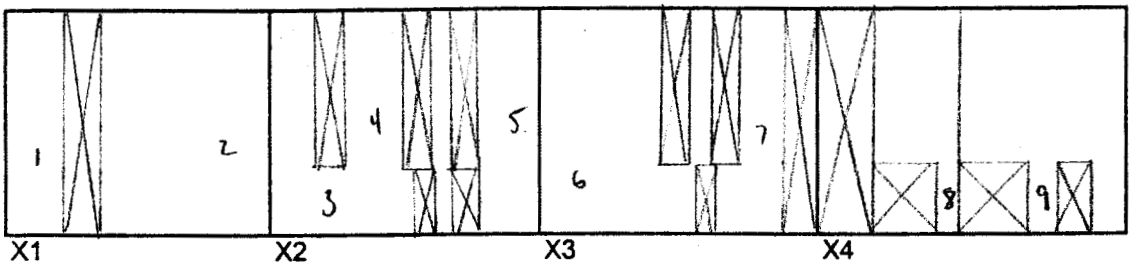
Class: 1 2 (3) Area (m2): 115

Survey Unit # 34 Floor: 4 Room #: 445

Surveyor: MJ/LM Date: 12/12/04

Meter Type: 43-68 Serial #: 079572 Cal Date: 12/9/04

Unit Sketch



Background CPM: 300

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: AT Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

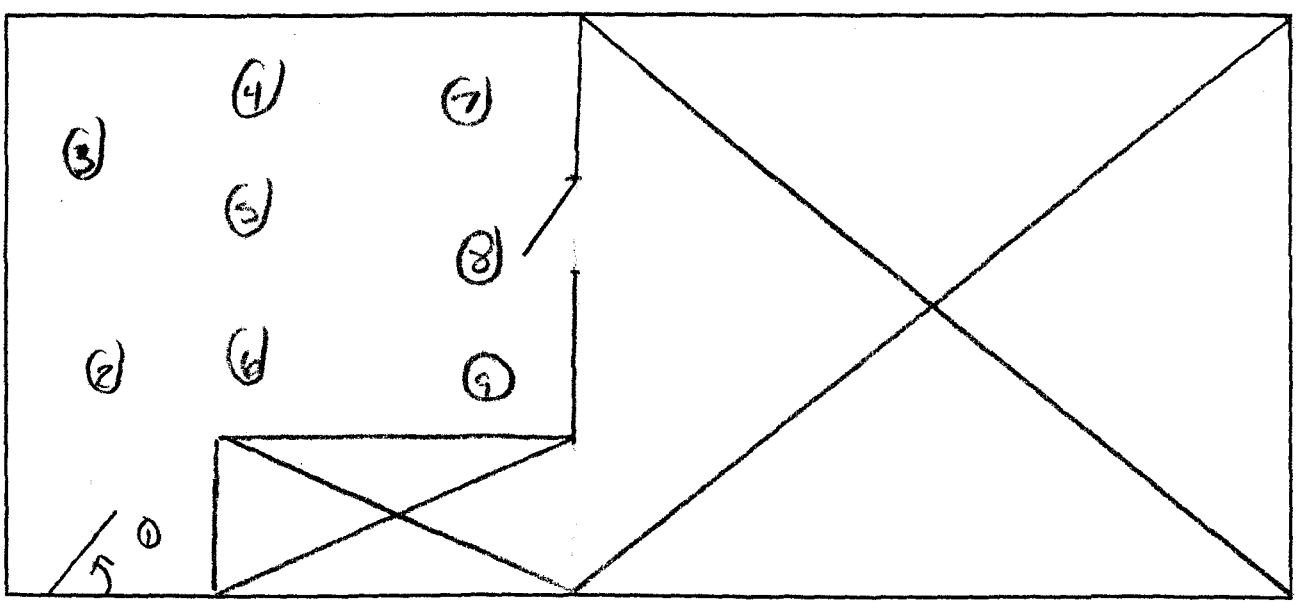
Class: 1 2 (3) Area (m2): 19

Survey Unit # 35 Floor: 4 Room #: 447

Surveyor: LM/MJ Date: 12/12/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: AT Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Wall Unit

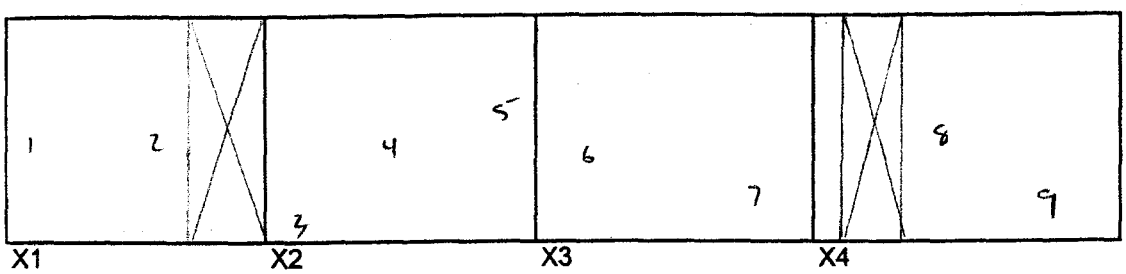
Class: 1 2 (3) Area (m2): 37

Survey Unit # 36 Floor: 4 Room #: 447

Surveyor: MJ/LM Date: 12/12/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: AT Date: 1/3/05

713.1876

National Institutes of Health Final Status Survey Form
Floor Unit

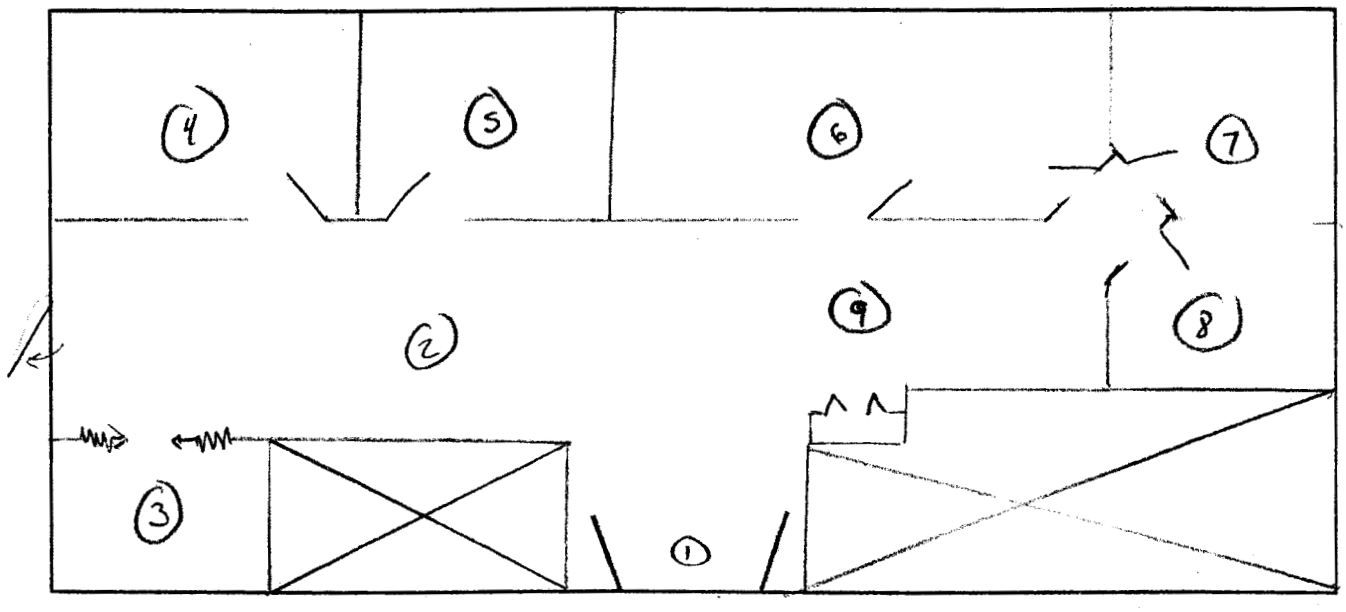
Class: 1 2 (3) Area (m2): 134

Survey Unit # 37 Floor: 4 Room #: 451

Surveyor: LM | MJ Date: 12/12/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

0,0

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: _____ Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Wall Unit

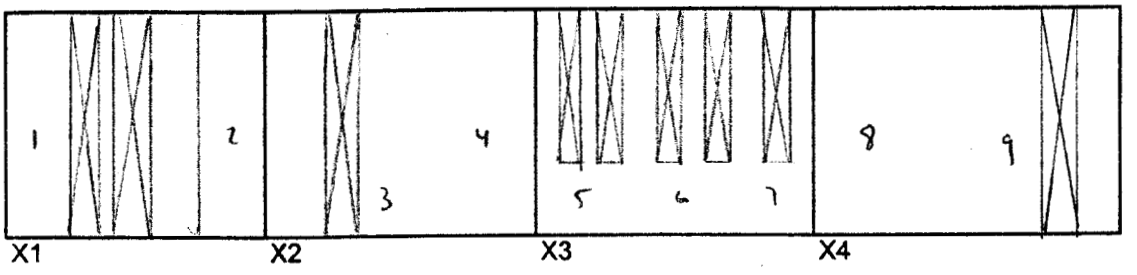
Class: 1 2 (3) Area (m2): 104

Survey Unit # 38 Floor: 4 Room #: 451

Surveyor: MJ/LM Date: 12/12/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

363, 261

National Institutes of Health Final Status Survey Form
Floor Unit

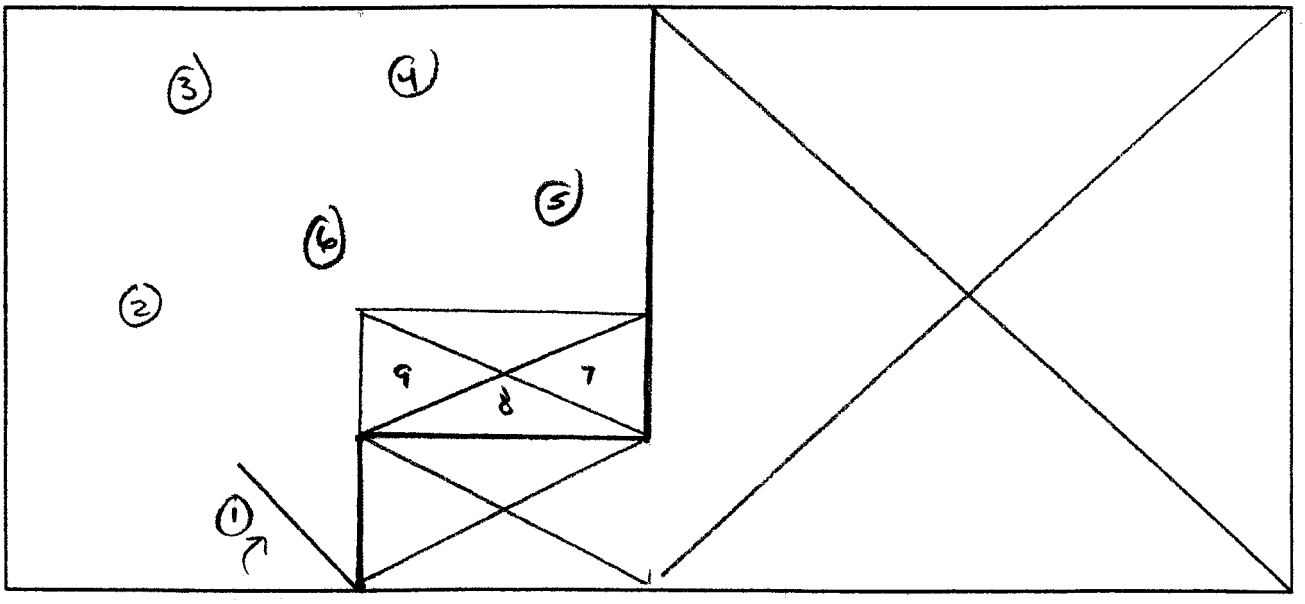
Class: 1 2 (3) Area (m2): 9

Survey Unit # 39 Floor: 4 Room #: 404

Surveyor: MJ/LM Date: 12/13/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



0.0 Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Wall Unit

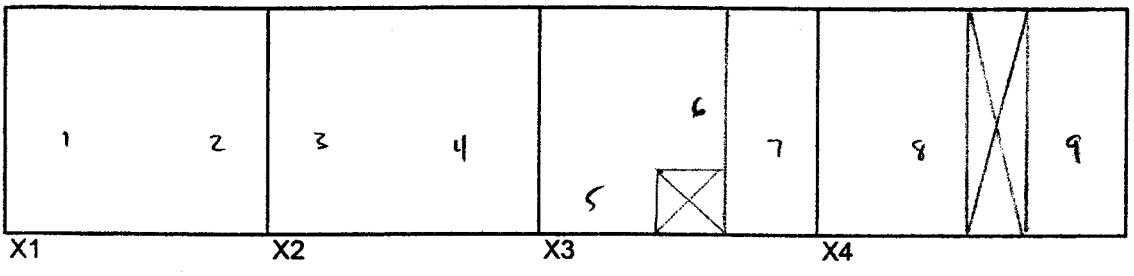
Class: 1 2 (3) Area (m2): 25

Survey Unit # 40 Floor: 4 Room #: 404

Surveyor: MJ | LM Date: 12/13/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: _____ Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

846, 918

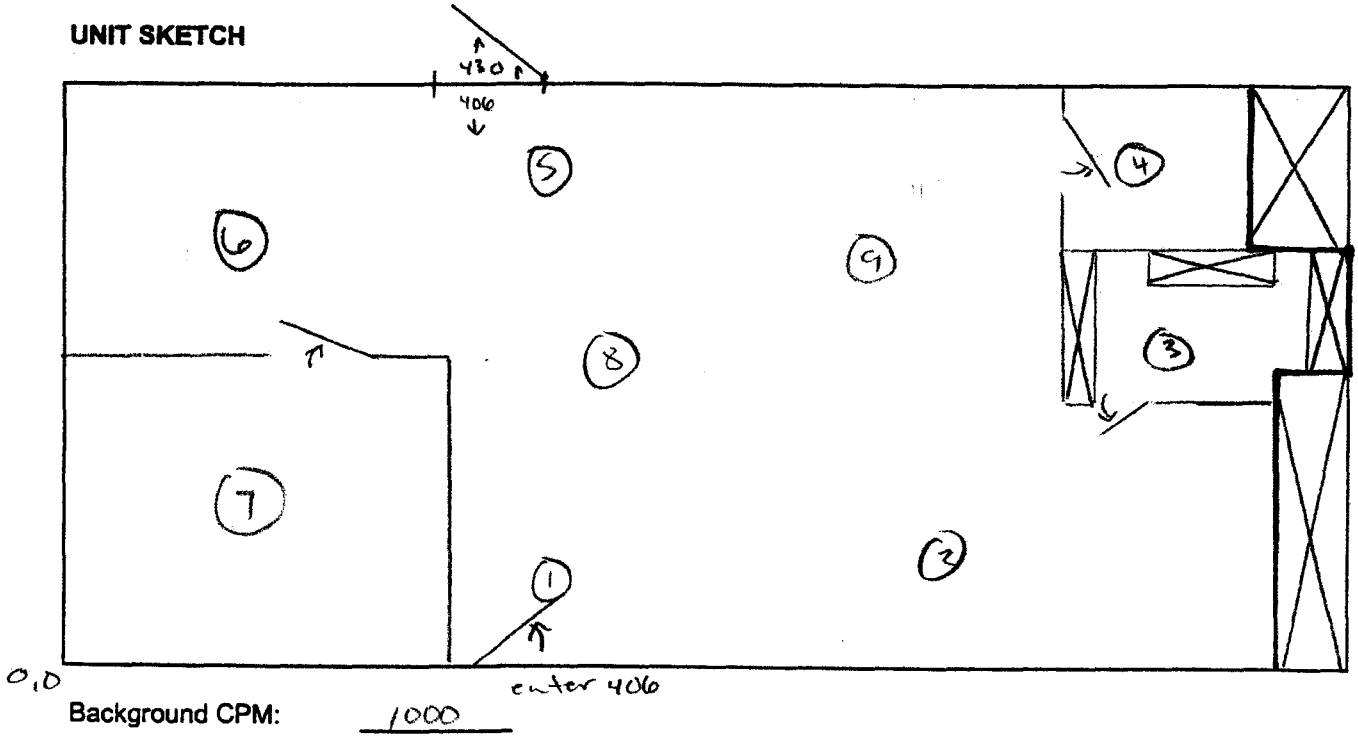
Class: 1 2 (3) Area (m2): 78

Survey Unit # 41 Floor: 4 Room #: 406

Surveyor: MJ | LM Date: 12/11/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



0,0

Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDIS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

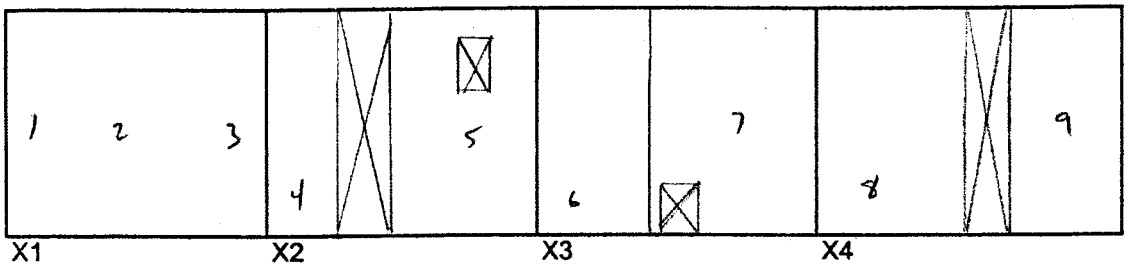
Class: 1 2 (3) Area (m2): 71

Survey Unit # 42 Floor: 4 Room #: 406

Surveyor: MJ/LM Date: 12/11/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: AT Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Floor Unit

746, 843

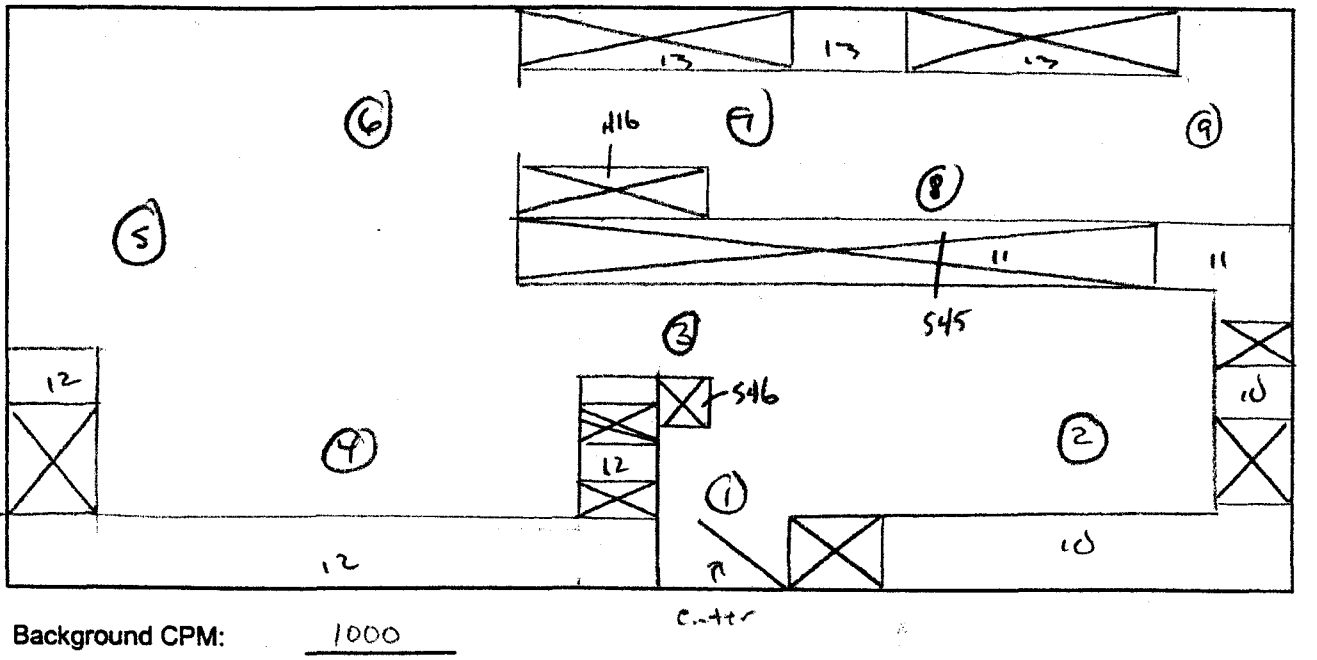
Class: 1 2 (3) Area (m2): 63

Survey Unit # 43 Floor: 4 Room #: 408

Surveyor: LM / MJ Date: 12/11/04

Meter Type: 43-37 Serial #: 121945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

S=2 H=1

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

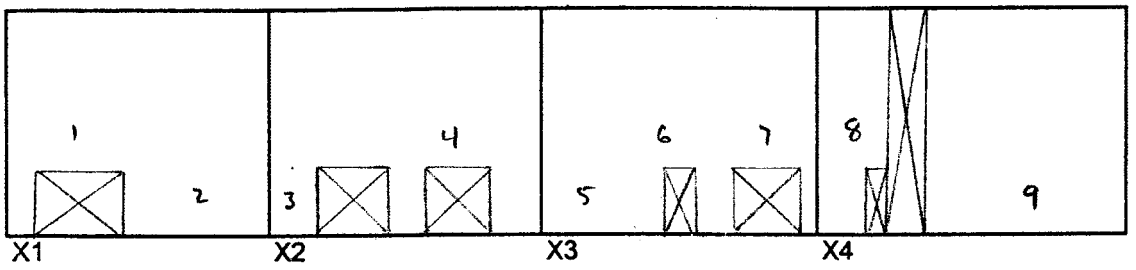
Class: 1 2 (3) Area (m2): 65

Survey Unit # 44 Floor: 4 Room #: 408

Surveyor: MJ/LM Date: 12/11/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDIS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form

x 730, y 870

Floor Unit

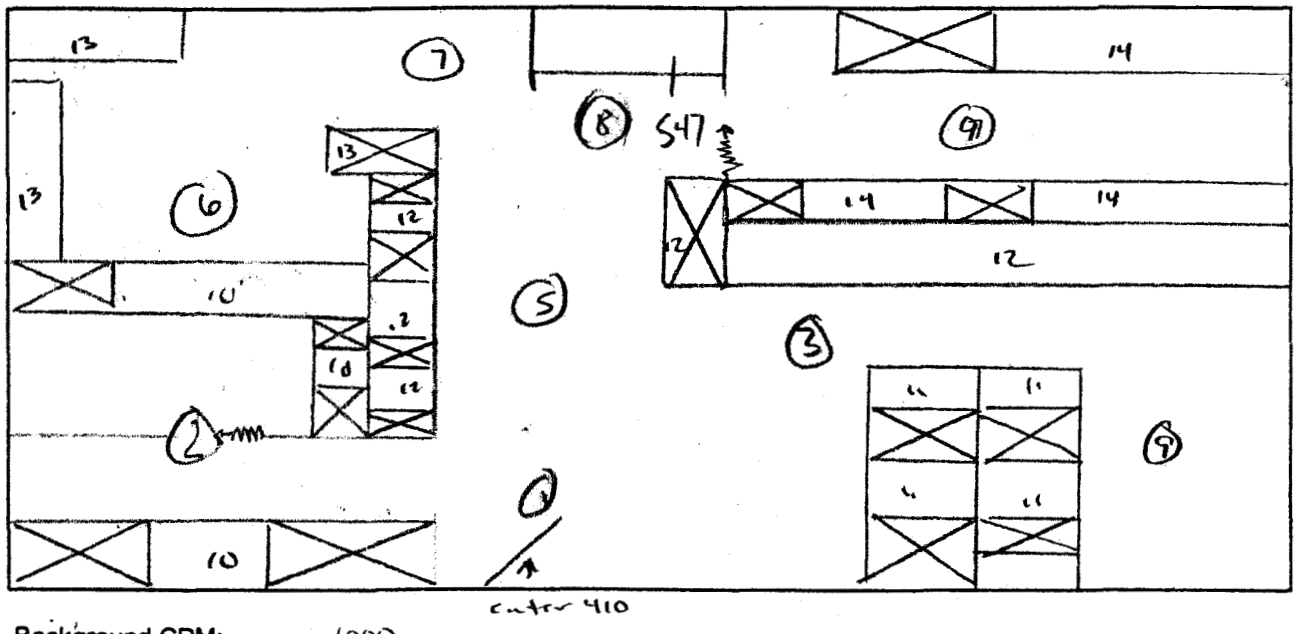
Class: 1 2 (3) Area (m2): 64

Survey Unit # 45 Floor: 4 Room #: 410

Surveyor: MJ/LM Date: 12/11/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

S=1 H=0

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

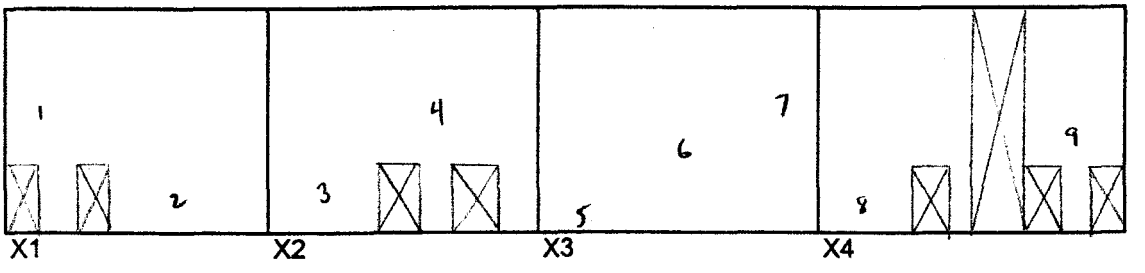
Class: 1 2 (3) Area (m2): 64

Survey Unit # 46 Floor: 4 Room #: 410

Surveyor: MJ/LM Date: 12/11/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDIS

Approved: AH Date: 1/3/05

(498, 868)

National Institutes of Health Final Status Survey Form
Floor Unit

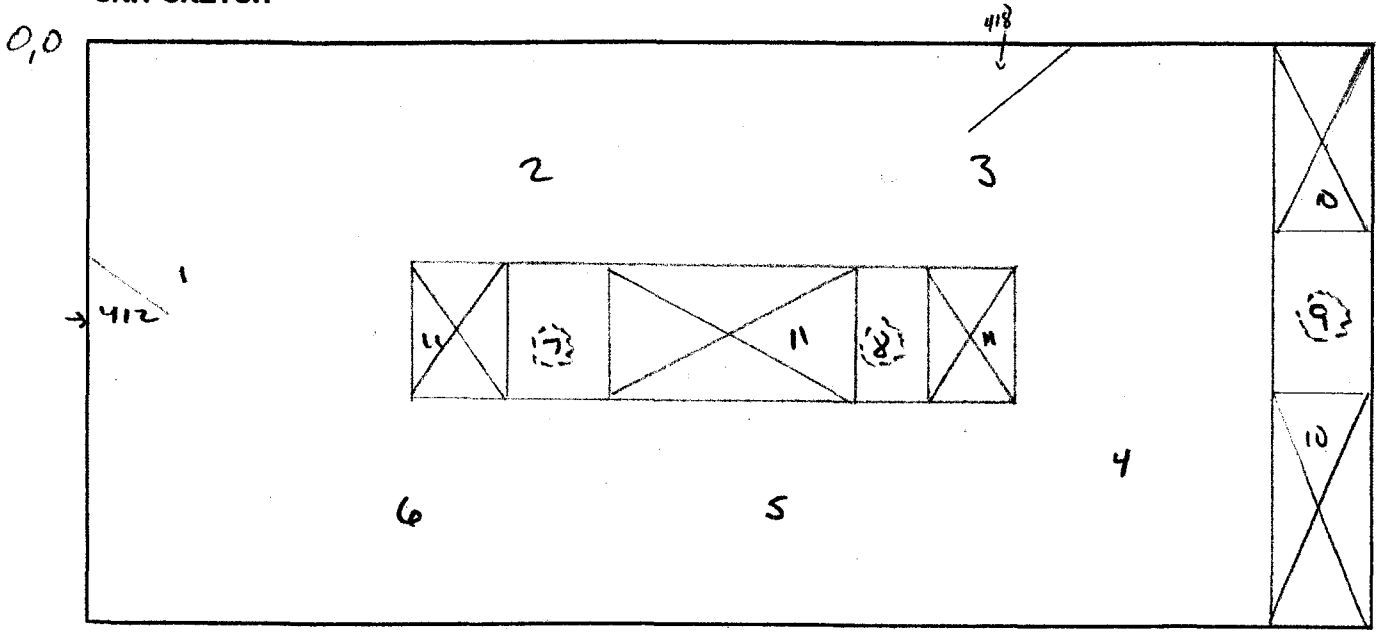
Class: 1 2 (3) Area (m2): 43

Survey Unit # 47 Floor: 4 Room #: 412

Surveyor: MJ/LM Date: 12/11/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: AT Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Wall Unit

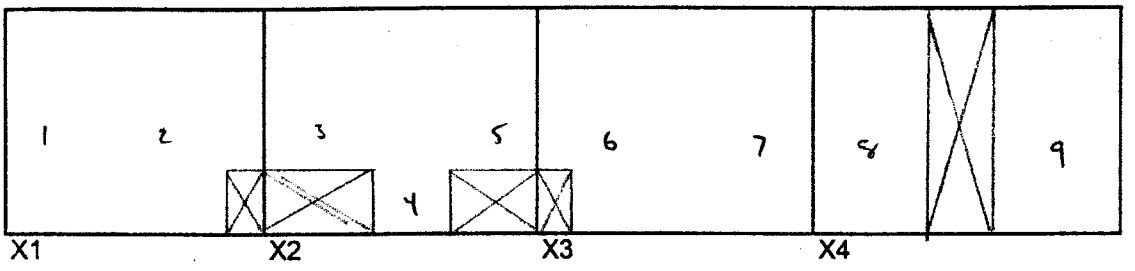
Class: 1 2 (3) Area (m2): 55

Survey Unit # 48 Floor: 4 Room #: 412

Surveyor: MJ | LM Date: 12/11/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: AT Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

489,845

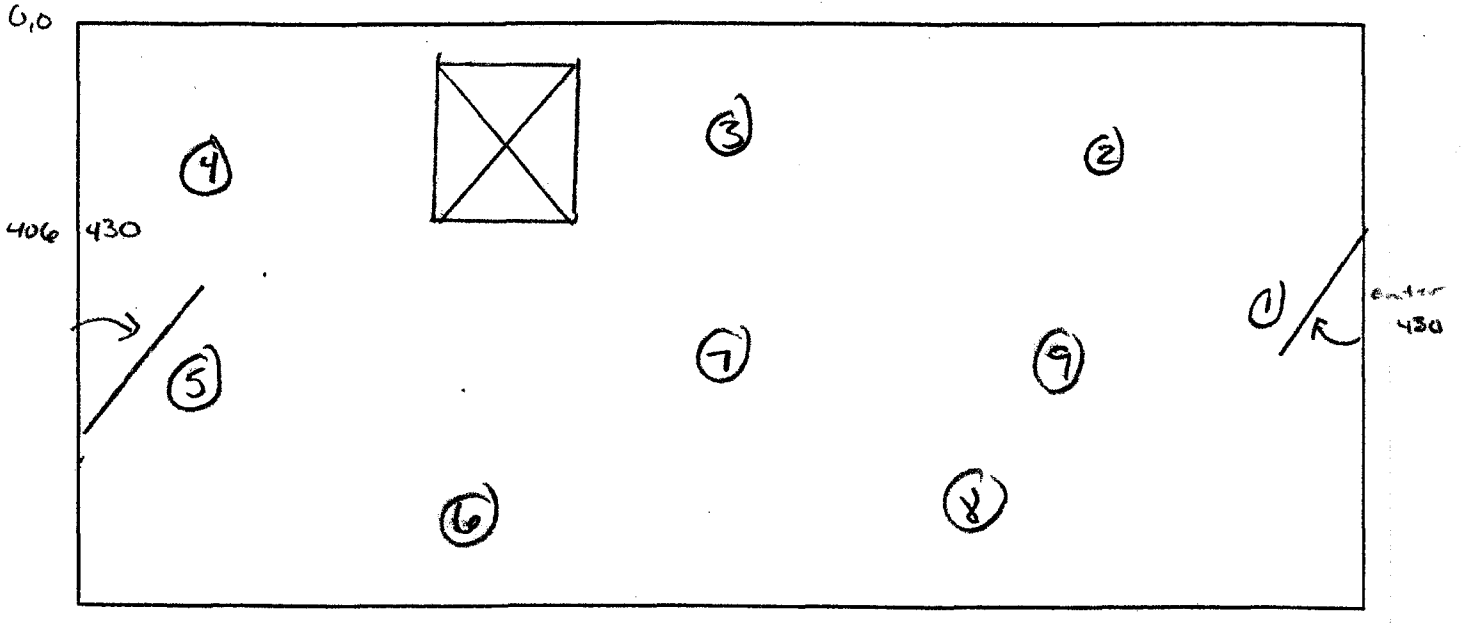
Class: 1 2 (3) Area (m2): 41

Survey Unit # 49 Floor: 4 Room #: 430

Surveyor: LM/MJ Date: 12/14/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/1/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

S-Ø H-Ø

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

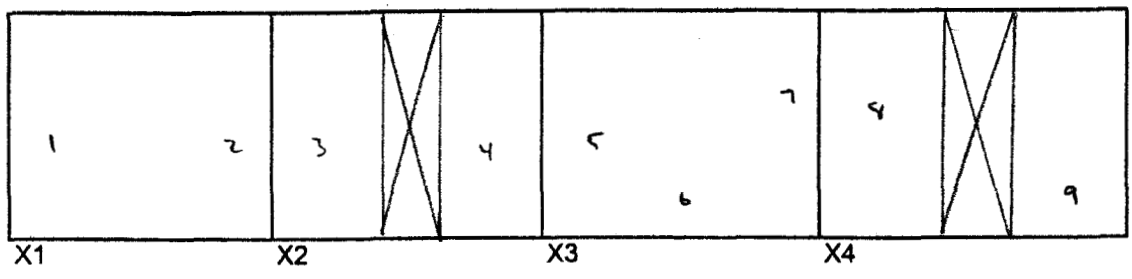
Class: 1 2 (3) Area (m2): 53

Survey Unit # 50 Floor: 4 Room #: 430

Surveyor: MJ / CM Date: 12/14/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/1/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDIS

Approved: AT Date: 1/3/05

228/256

National Institutes of Health Final Status Survey Form
Floor Unit

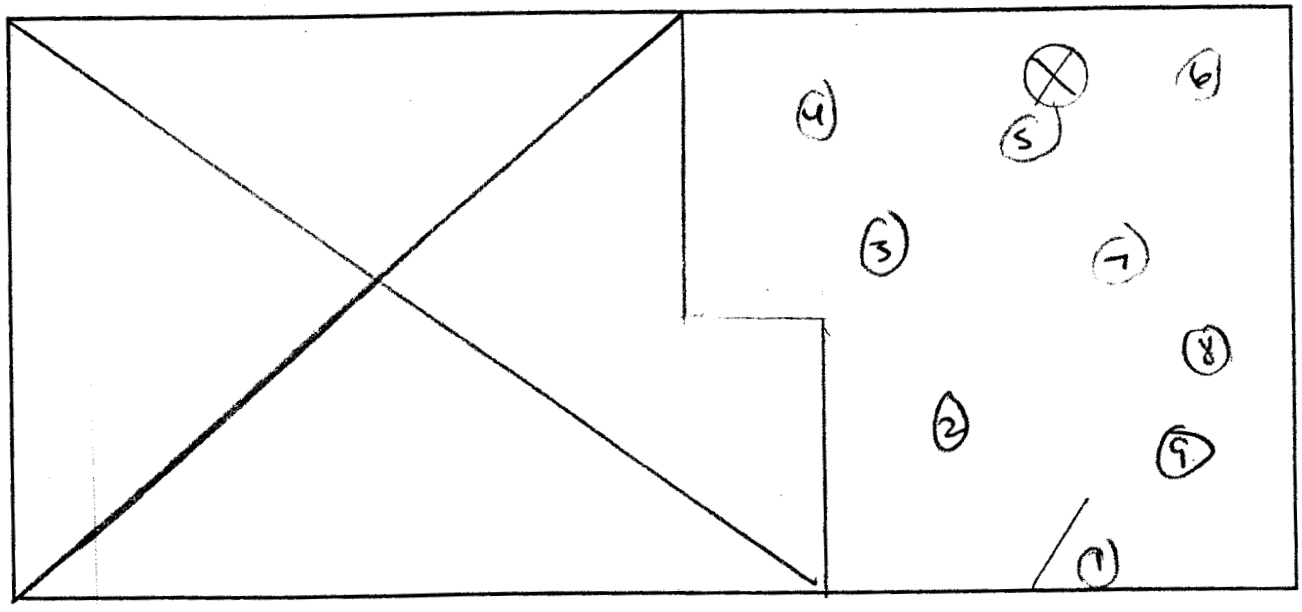
Class: 1 2 (3) Area (m2): 6

Survey Unit # 51 Floor: 4 Room #: 432

Surveyor: MJ/LM Date: 12/14/04

Meter Type: 43-37 Serial #: 124145 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

S=0 H=0

Approved: AT Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

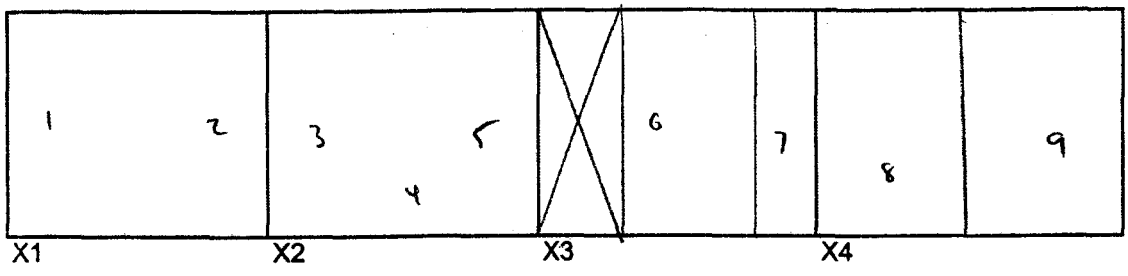
Class: 1 2 (3) Area (m2): 19

Survey Unit # 52 Floor: 4 Room #: 432

Surveyor: MJ/LM Date: 12/14/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

510/602

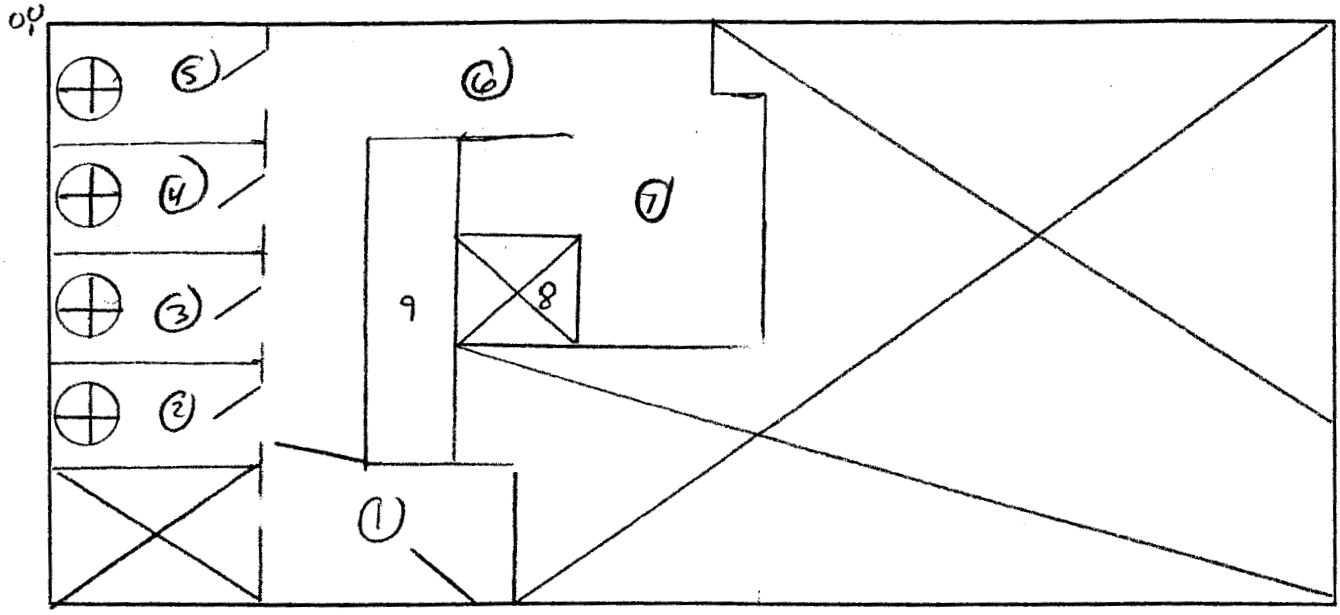
Class: 1 2 (3) Area (m2): 31

Survey Unit # 53 Floor: 4 Room #: Women's Bathroom

Surveyor: LM/MJ Date: 12/14/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

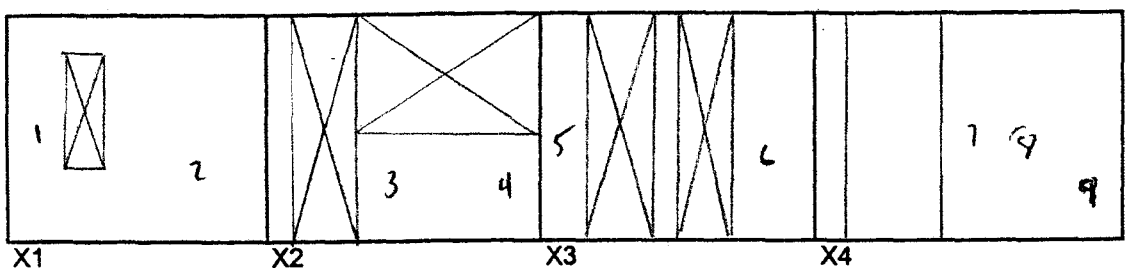
Class: 1 2 (3) Area (m2): 22

Survey Unit # 54 Floor: 4 Room #: Womens BR

Surveyor: MJ/LM Date: 12/14/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: AT Date: 1/3/05

National Institutes of Health Final Status Survey Form

507/604

Floor Unit

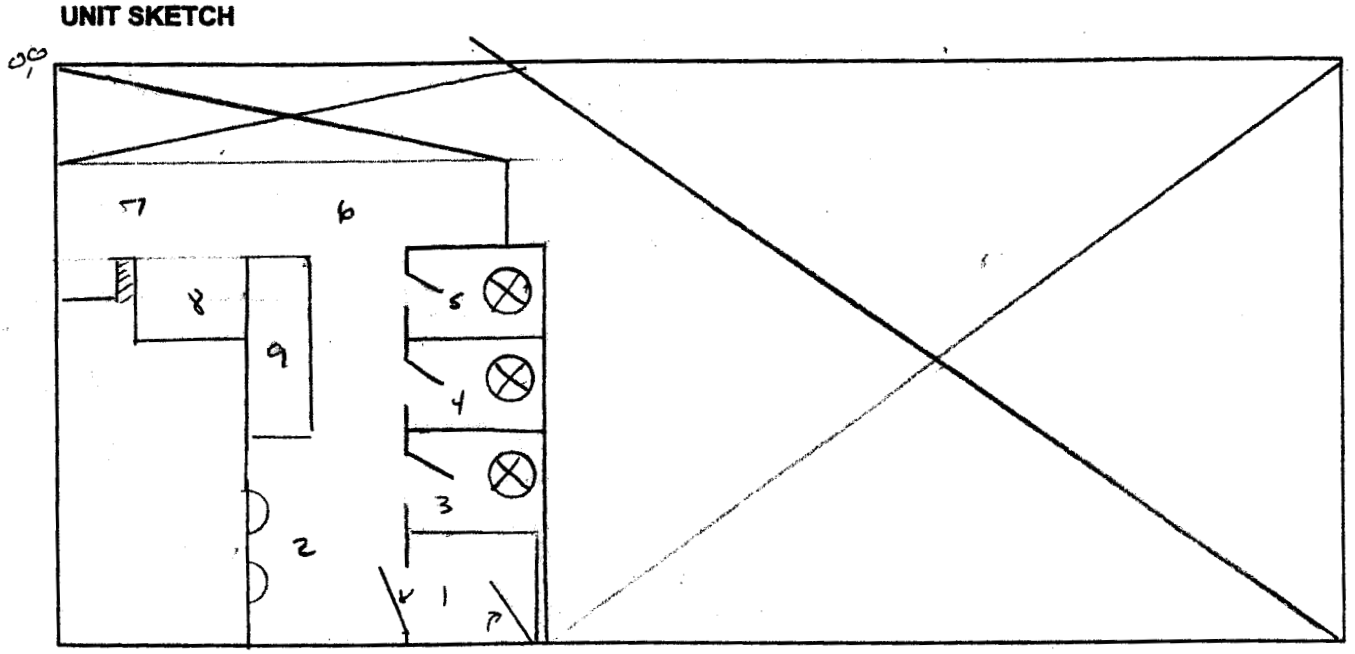
Class: 1 2 (3) Area (m2): 31

Survey Unit # 55 Floor: 4 Room #: Mens Room

Surveyor: LM/MS Date: 12/14/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

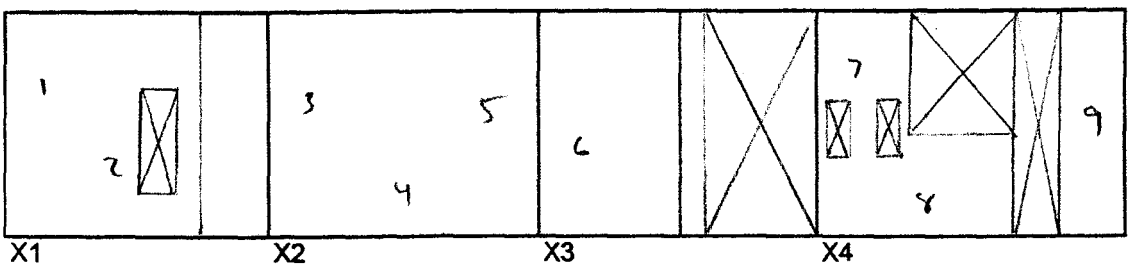
Class: 1 2 (3) Area (m2): 40

Survey Unit # 56 Floor: 4 Room #: Mens RR

Surveyor: MJ/LM Date: 12/14/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

348,232

National Institutes of Health Final Status Survey Form
Floor Unit

Class: 1 2 (3) Area (m2): 8

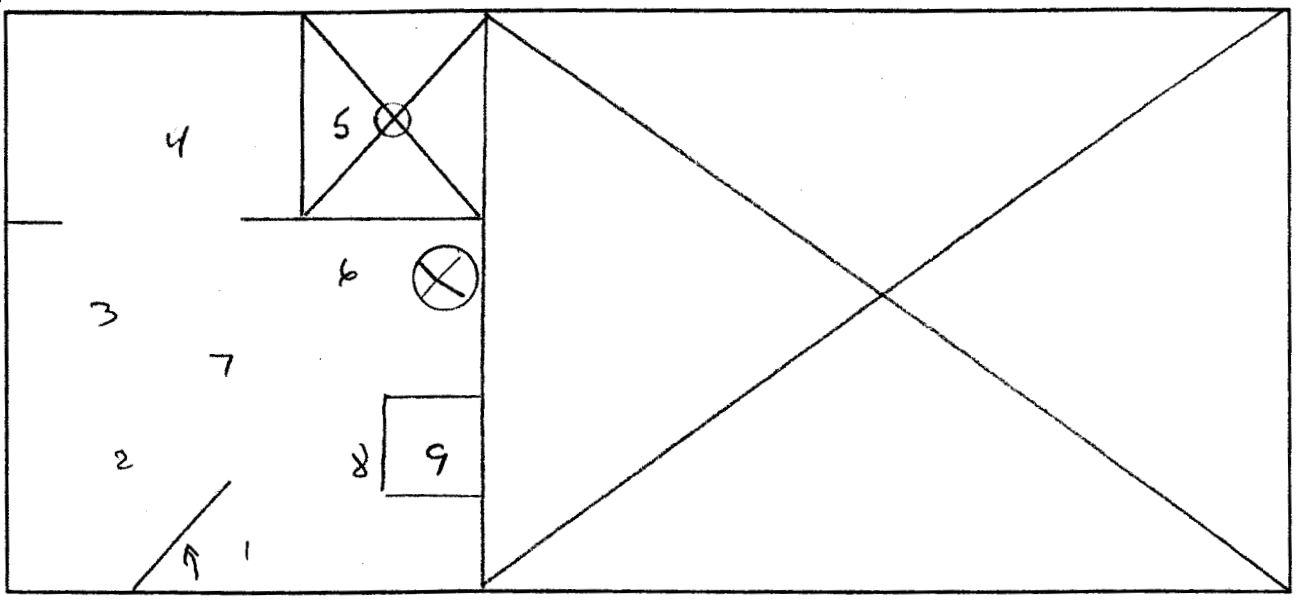
Survey Unit # 57 Floor: 4 Room #: handicapped bathroom

Surveyor: LM / MS Date: 12/14/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/1/04

UNIT SKETCH

00



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

S=1

Approved: [signature] Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Wall Unit

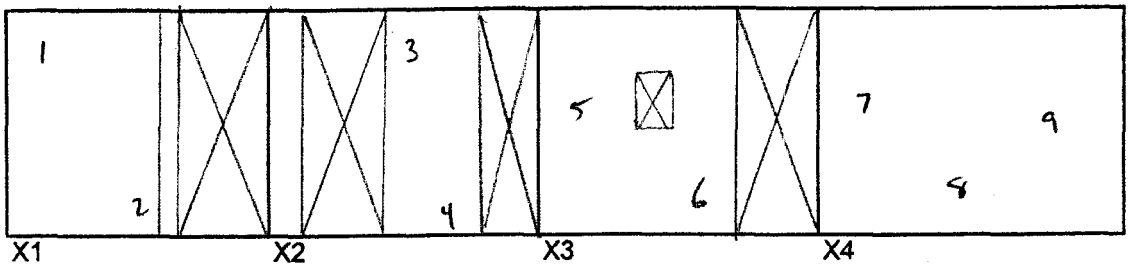
Class: 1 2 (3) Area (m2): 23

Survey Unit # 58 Floor: 4 Room #: Addl. RR

Surveyor: MJ/CM Date: 12/14/04

Meter Type: 43-20 Serial #: 113631 Cal Date: 12/13/04

Unit Sketch



Background CPM: 360

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: AT Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

(SB3, LLC)

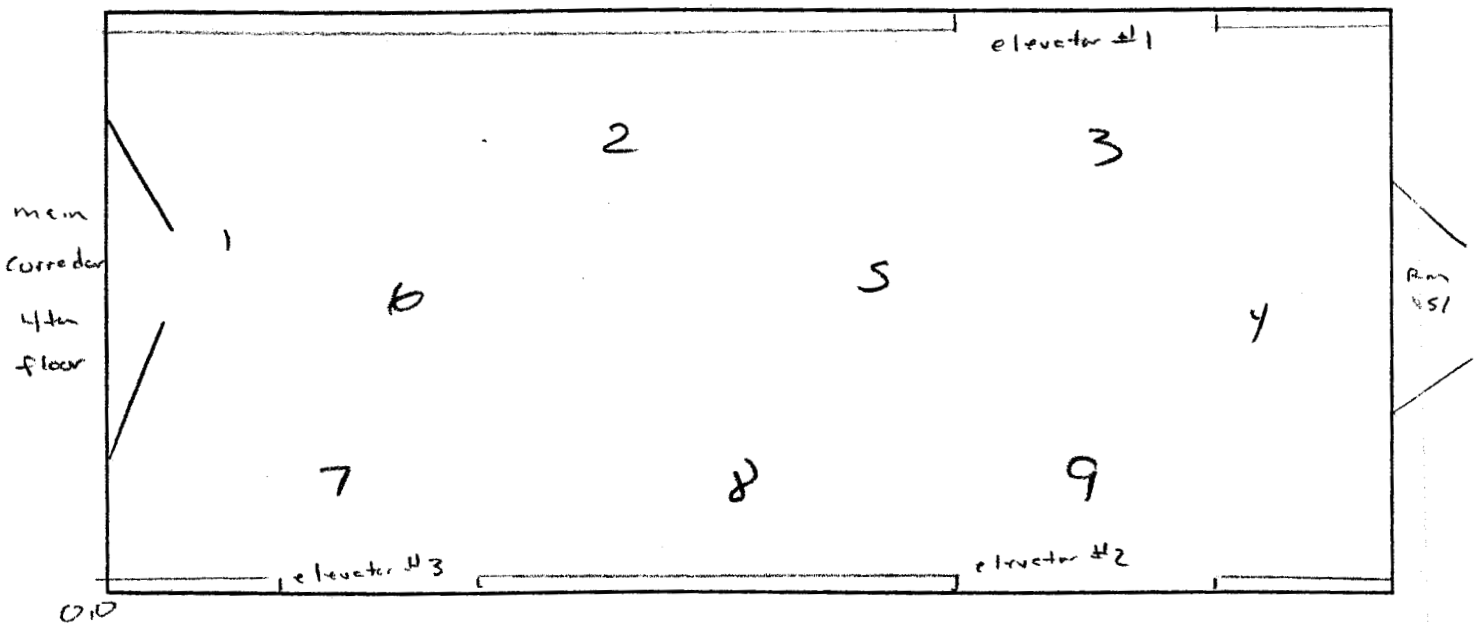
Class: 1 2 (3) Area (m2): 16

Survey Unit # 59 Floor: 4 Room #: elevators

Surveyor: LM / MJ Date: 12/14/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

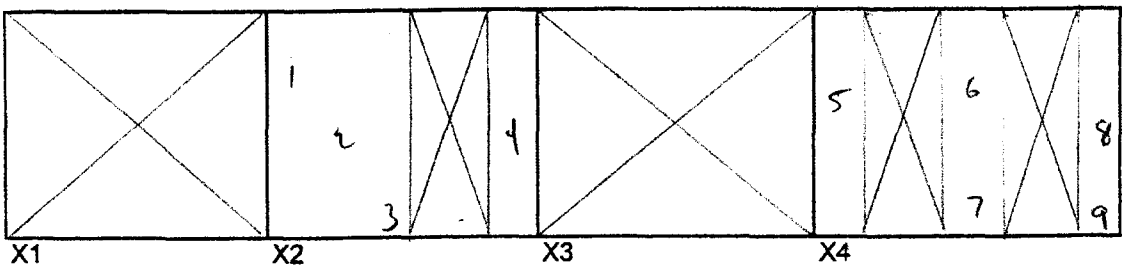
Class: 1 2 (3) Area (m2): 34

Survey Unit # 60 Floor: 4 Room #: elevator wall

Surveyor: MJ/CM Date: 12/14/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: _____ Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Floor Unit

2203, 184

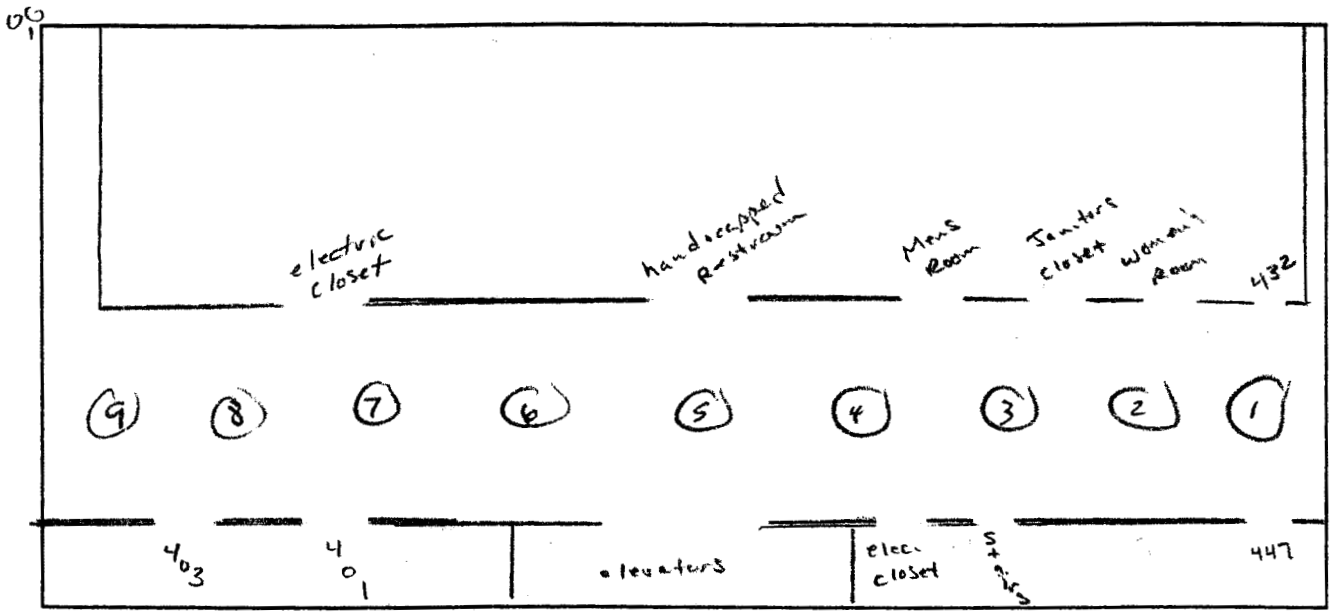
Class: 1 2 (3) Area (m2): 41

Survey Unit # 61 Floor: _____ Room #: Hallway A. Rm 103 - 147

Surveyor: MJ | LM Date: 12/14/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

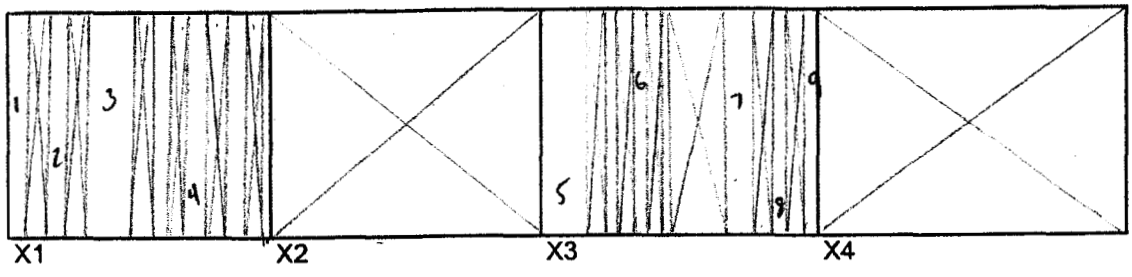
Class: 1 2 (3) Area (m2): 95

Survey Unit # 62 Floor: 4 Room #: Cor A 403-447

Surveyor: LM/MJ Date: 12/14/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: _____ Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

3442, 180

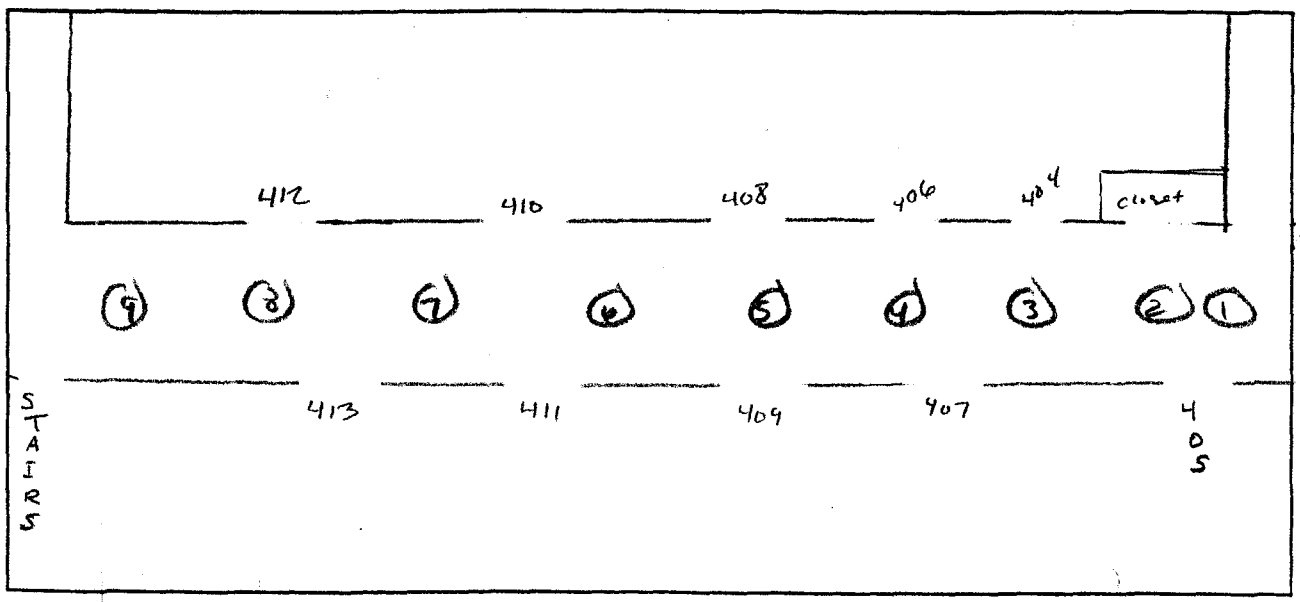
Class: 1 2 (3) Area (m2): 55

Survey Unit # 63 Floor: 4 Room #: Cwindow B (405, 413)

Surveyor: MJ | LM Date: 12/15/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



OP

Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: rms - 405 - 413 NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

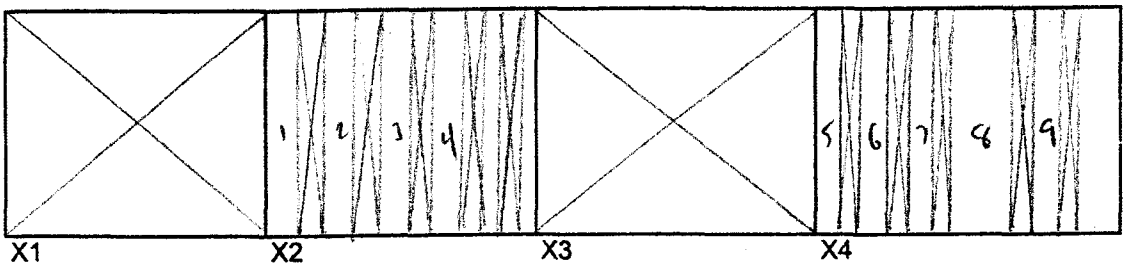
Class: 1 2 (3) Area (m2): 145

Survey Unit # 64 Floor: 4 Room #: Co. B 405 - 413

Surveyor: MJ | LM Date: 12/15/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/1/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

1950, 180

National Institutes of Health Final Status Survey Form
Floor Unit

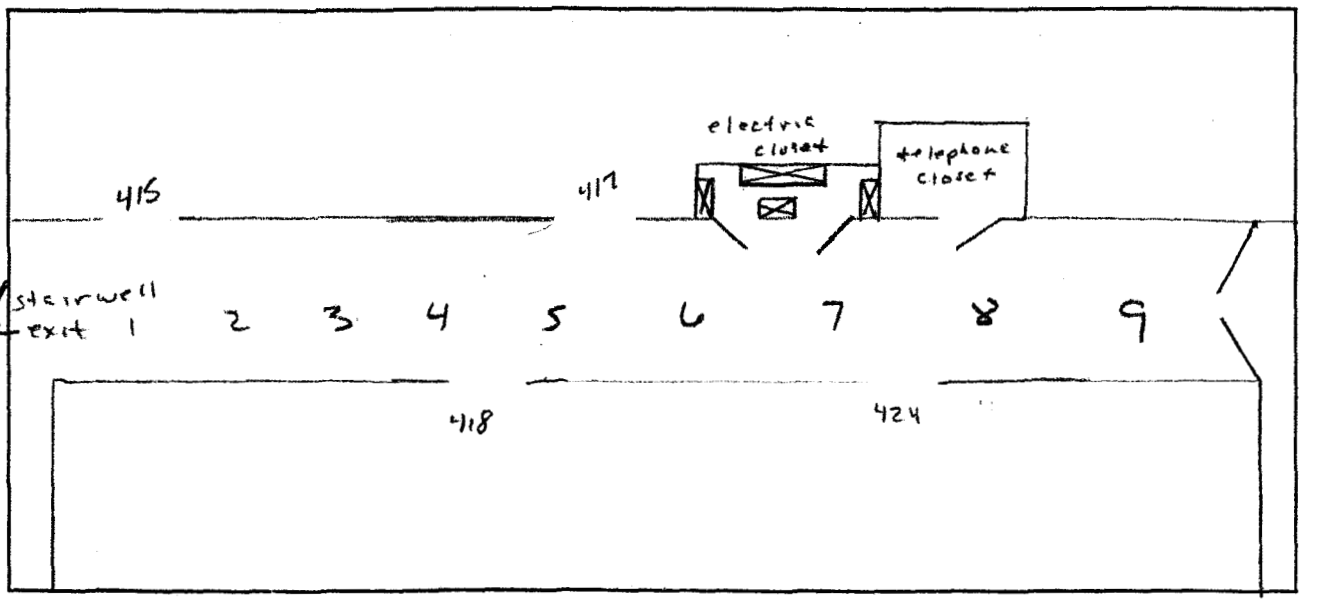
Class: 1 2 (3) Area (m2): 35

Survey Unit # 65 Floor: _____ Room #: Corredor C e~s 415-424

Surveyor: LM / MS Date: 12/15/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Wall Unit

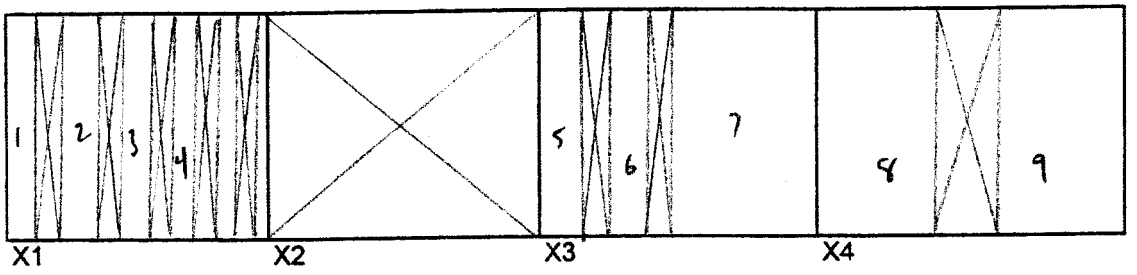
Class: 1 2 (3) Area (m2): 85

Survey Unit # 66 Floor: 4 Room #: Cor. C 415-424

Surveyor: MS/LM Date: 12/15/04

Meter Type: 43-37 Serial #: 121945 Cal Date: 12/9/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

National Institutes of Health Final Status Survey Form
Floor Unit

36030, 180

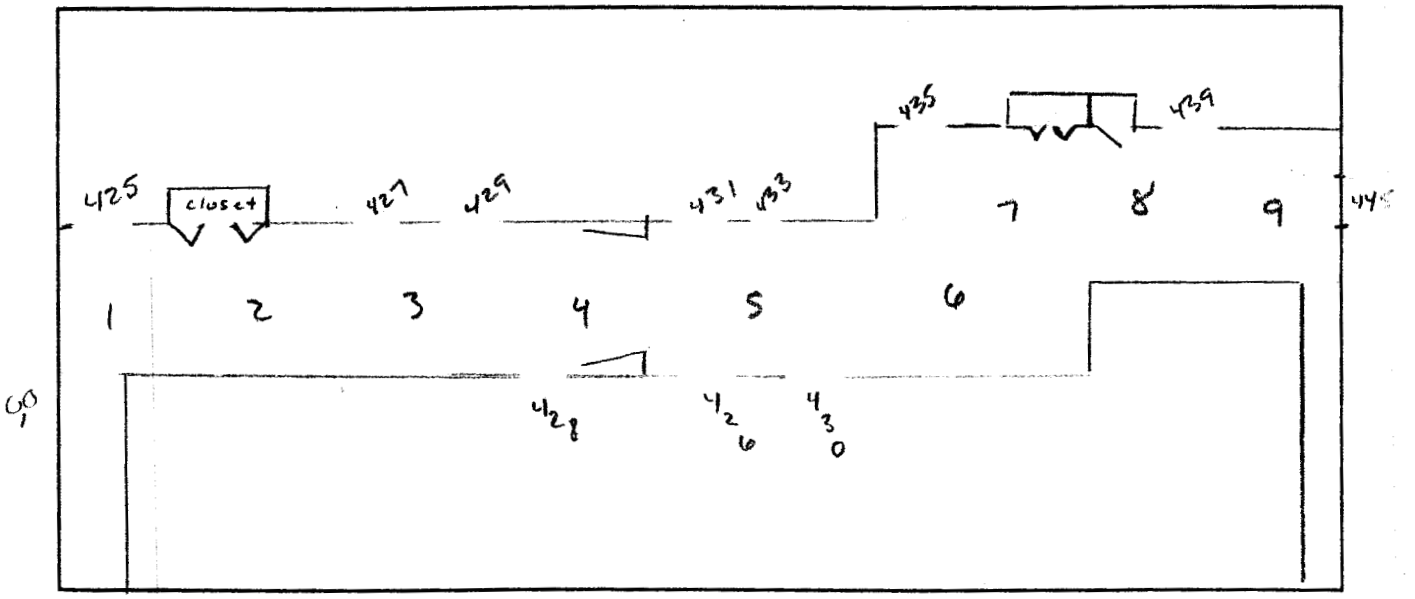
Class: 1 2 (3) Area (m2): 65

Survey Unit # 67 Floor: 4 Room #: Corridor D. Rooms 425–445

Surveyor: LM | MJ Date: 12/15/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

UNIT SKETCH



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: Q7 Date: 1/3/05

Radiation Safety Academy, Inc.

National Institutes of Health Final Status Survey Form
Wall Unit

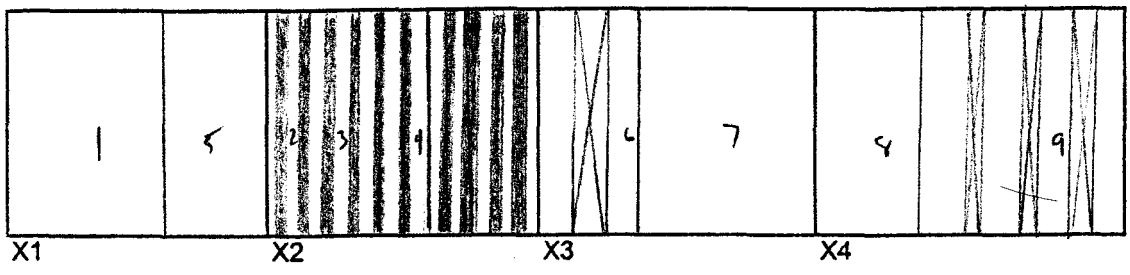
Class: 1 2 (3) Area (m2): 152

Survey Unit # 69 Floor: 4 Room #: Col D 425-445

Surveyor: MT/LM Date: 12/15/04

Meter Type: 43-37 Serial #: 124945 Cal Date: 12/9/04

Unit Sketch



Background CPM: 1000

Integrated Counts

Location 1: _____ Location 4: _____ Location 7: _____

Location 2: _____ Location 5: _____ Location 8: _____

Location 3: _____ Location 6: _____ Location 9: _____

Comments: NDTS

Approved: [signature] Date: 1/3/05

Appendix C – Survey Unit Wipe Sample Results

All of wipes samples were sent to the RSO, Inc. analytical laboratory for analysis. The lab package of sample results consists of:

- Results Summary Sheet
- Daily Swipe Transmittal Sheets
- Bulk Gamma Scan Results
- LSC Output

Radiation Safety Academy

@NIH
Fax# 301-480-2627 Phone# 301-435-7954

Results for NIH Swipes (PARK 5)

2004-1230

Survey date: 12/15/04 # of Swipes 718 *

✓ All Swipes <220 DPM

_____ Some Swipes >220 DPM But all others < 220 DPM

✓ All Swipes <22 DPM ALPHA

_____ Some Swipes >22 DPM But all others < 22 DPM ALPHA

Survey Date	Location	Surveyor	Survey #	Swipe #	Isotope	Results
* SWIPE # 39 MISSING		PARK 5		415W		(MJ)

RSO Inc. Representative : R Ramos Date: 12/17/04

swipes delivered on time: yes: ✓ no: _____

FAXED

Comments

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NIH Daily Swipe Transmittal

Survey Date: 12/15/04 **Health Physicist:** SA AF TJ LM (MJ) DP

Survey # 1	Swipe #'s 1-19 (1-9) M	Bldg/Rm # Park 5 / 411F	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 2	Swipe #'s 10-17 (Duplicate 12)	Bldg/Rm # Park 5 / 411 W	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 3	Swipe #'s 18-25 (Duplicate 18)	Bldg/Rm # Park 5 / 424 F	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 4	Swipe #'s 27-35	Bldg/Rm # Park 5 / 424 W	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 5	Swipe #'s 36-43 (Duplicate 38)	Bldg/Rm # Park 5 / 425F	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 6	Swipe #'s 45-53	Bldg/Rm # Park 5 / 425 W	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 7	Swipe #'s 54-62	Bldg/Rm # Park 5 / 429F	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 8	Swipe #'s 63-71	Bldg/Rm # Park 5 / 429 W	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 9	Swipe #'s 73-80 (Duplicate 8)	Bldg/Rm # Park 5 / 428 F	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 10	Swipe #'s 82-90	Bldg/Rm # Park 5 / 428 W	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 11	Swipe #'s 91-99	Bldg/Rm # Park 5 / 435F	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 12	Swipe #'s 100-8	Bldg/Rm # Park 5 / 435 W	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 13	Swipe #'s 32-40	Bldg/Rm # Park 5 / 401-403F	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 14	Swipe #'s 41-49	Bldg/Rm # Park 5 / 401-403 W	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		
Survey # 15	Swipe #'s 50-58	Bldg/Rm # Park 5 / 405F	9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other		

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NIH Daily Swipe Transmittal

Survey Date: 12/15/04 **Health Physicist: SA AF TJ LM RT** (MJ)

Survey # 16 Swipe #'s 59-67 Bldg/Rm # Park 5 / 405W
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 17 Swipe #'s 68-76 Bldg/Rm # Park 5 / 407F
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 18 Swipe #'s 77-85 Bldg/Rm # Park 5 / 407W
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 19 Swipe #'s 86-94 Bldg/Rm # Park 5 / 409F
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 20 Swipe #'s 95-3 Bldg/Rm # Park 5 / 409W
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 21 Swipe #'s 4-12 Bldg/Rm # Park 5 / 413F
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 22 Swipe #'s 13-21 Bldg/Rm # Park 5 / 413W
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 23 Swipe #'s 22-30 Bldg/Rm # Park 5 / 415F
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 24 Swipe #'s 31-39 Bldg/Rm # Park 5 / 415W 8 *
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____
* #39 Missing (Bag empty)

Survey # 25 Swipe #'s 40-48 Bldg/Rm # Park 5 / 417F
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 26 Swipe #'s 49-57 Bldg/Rm # Park 5 / 417W
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 27 Swipe #'s 58-66 Bldg/Rm # Park 5 / 431F
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 28 Swipe #'s 67-75 Bldg/Rm # Park 5 / 431W
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 29 Swipe #'s 76-84 Bldg/Rm # Park 5 / 433F
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

Survey # 30 Swipe #'s 85-93 Bldg/Rm # Park 5 / 433W
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____ 9

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NIH Daily Swipe Transmittal

Survey Date: 12/15/04 **Health Physicist:** SA AF TJ LM (MJ) DP ___

Survey # 31	Swipe #'s 94-2	Bldg/Rm # Park 5 / 439F		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 32	Swipe #'s 3-11	Bldg/Rm # Park 5 / 439W		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 33	Swipe #'s 12-20	Bldg/Rm # Park 5 / 445F		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 34	Swipe #'s 21-29	Bldg/Rm # Park 5 / 445W		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 35	Swipe #'s 30-38	Bldg/Rm # Park 5 / 447F		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 36	Swipe #'s 39-47	Bldg/Rm # Park 5 / 447W		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 37	Swipe #'s 48-56	Bldg/Rm # Park 5 / 451F		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 38	Swipe #'s 57-65	Bldg/Rm # Park 5 / 451W		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 39	Swipe #'s 66-74	Bldg/Rm # Park 5 / 404F		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 40	Swipe #'s 75-83	Bldg/Rm # Park 5 / 404W		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 41	Swipe #'s 84-92	Bldg/Rm # Park 5 / 406F		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 42	Swipe #'s 93-1	Bldg/Rm # Park 5 / 406W		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 43	Swipe #'s 2-10	Bldg/Rm # Park 5 / 408F		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 44	Swipe #'s 11-19	Bldg/Rm # Park 5 / 408W		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		
Survey # 45	Swipe #'s 20-28	Bldg/Rm # Park 5 / 410F		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other ___	9		

NIH Daily Swipe Transmittal

Survey Date: 12/15/04 **Health Physicist: SA AF TJ LM RT** (MJ)

Survey #46 Swipe #'s 29-37 Bldg/Rm # Park 5 / 410W 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #47 Swipe #'s 38-46 Bldg/Rm # Park 5 / 412E 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #48 Swipe #'s 47-55 Bldg/Rm # Park 5 / 412W 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #49 Swipe #'s 56-64 Bldg/Rm # Park 5 / 430E 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #50 Swipe #'s 65-73 Bldg/Rm # Park 5 / 430W 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #51 Swipe #'s 74-82 Bldg/Rm # Park 5 / 432E 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #52 Swipe #'s 83-91 Bldg/Rm # Park 5 / 432W 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #53 Swipe #'s 92-100 Bldg/Rm # Park 5 / W.R.R. F 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #54 Swipe #'s 1-9 Bldg/Rm # Park 5 / W.R.R.W 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #55 Swipe #'s 10-18 Bldg/Rm # Park 5 / M.R.R. F 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #56 Swipe #'s 19-27 Bldg/Rm # Park 5 / M.R.R.W 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #57 Swipe #'s 28-36 Bldg/Rm # Park 5 / H.R.R. F 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #58 Swipe #'s 37-45 Bldg/Rm # Park 5 / H.R.R.W 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #59 Swipe #'s 46-54 Bldg/Rm # Park 5 / Elev. E 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Survey #60 Swipe #'s 55-63 Bldg/Rm # Park 5 / Elev. W 9
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other _____

Move To 3100 @ 7:44

Void M

Moved To 3100

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NIH Daily Swipe Transmittal

Survey Date: 12/15/04 **Health Physicist:** SA AF TJ LM (MJ) DP

Survey #	Swipe #'s	Bldg/Rm #	Nuclides	Other
61	64-72	Cor A. F 9	^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	
62	73-81	Cor A. W 9	^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	
63	82-90	Cor B. F 9	^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	
64	91-99	Cor B. W 9	^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	
65	100-8	Cor C. F 9	^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	
66	9-17	Cor C. W 9	^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	
67	18-26	Cor D. F 9	^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	
68	27-35	Cor D. W 9	^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	
9			^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I ~~(β γ)~~	
10			^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I ~~(β γ)~~	
11			^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I ~~(β γ)~~	
12			^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I ~~(β γ)~~	
13			^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I ~~(β γ)~~	
14			^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I ~~(β γ)~~	
15			^3H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I ~~(β γ)~~	

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NIH Daily Swipe Transmittal

Survey Date: 12/15/04 **Health Physicist:** SA AF TJ (LM) MJ DP ____

Survey # **1** Swipe #'s 9 Bldg/Rm # Parks / 401-403
13 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **2** Swipe #'s 10-14 Bldg/Rm # Park 5 / 405
15 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **3** Swipe #'s 15-20 Bldg/Rm # Park 5 / 407
17 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **4** Swipe #'s 21-22 Bldg/Rm # Park 5 / 409
19 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **5** Swipe #'s 23-30 Bldg/Rm # Park 5 / 415
23 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **6** Swipe #'s 31-33 Bldg/Rm # Park 5 / 417
25 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **7** Swipe #'s 34 Bldg/Rm # Park 5 / 431
27 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **8** Swipe #'s 35-36 Bldg/Rm # Park 5 / 433
29 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **9** Swipe #'s 37 Bldg/Rm # Park 5 / 439
31 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **10** Swipe #'s 38-42 Bldg/Rm # Park 5 / 445
33 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **11** Swipe #'s 43-46 Bldg/Rm # Park 5 / 408
43 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **12** Swipe #'s 47-51 Bldg/Rm # Park 5 / 410
45 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **13** Swipe #'s 52-53 Bldg/Rm # Park 5 / 412
47 Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other ____

Survey # **14** Swipe #'s ____ Bldg/Rm # ____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other ____

Survey # **15** Swipe #'s ____ Bldg/Rm # ____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other ____

NIH
Count Time(minutes): 1.00
Assay Type: CPM
Background Subtract : IPA Bkg
Outlier: 5.0 FLAG
%Spillup: 0.00
%Spilldown: 0.00
Screening: OFF

9 Swips per Vial

	Window A		Window B		Window C	
Nuclide:	I-125	15 - 75 keV	Cr-51	240 - 400 keV	MAN	15 - 2000 keV
Bkg:	23.6		33.4		217	
Sigma:	0.00		0.00		2.00	
LCR:	0		0		0	
Half Life(hours):	0.00		0.00			
Multiplier:	1.0000					
%CV Flag Limit:	0.00		0.00			

S#	A:CPM	A:%SIG	B:CPM	B:%SIG	C:CPM	C:%SIG
1	0.0		0.0		0.0	
2	0.0		0.0		0.0	
3	7.4	36.9	3.6	52.4	0.4	162
4	2.4	65.1	0.0		4.4	47.8
5	7.4	36.9	0.0		24.4	20.3
6	1.4	85.7	3.6	52.4	4.4	47.8
7	0.0		0.0		0.0	
8	0.0		0.0		0.0	
9	3.4	54.6	0.0		0.0	
10	0.0		0.6	125	0.0	
11	0.0		6.6	38.8	5.4	43.1
12	0.0		3.6	52.4	0.0	
13	5.4	43.2	0.0		0.0	
14	0.0		1.6	78.1	4.4	47.8
15	0.0		10.6	30.7	0.0	
16	6.4	39.7	3.6	52.4	0.0	
17	0.0		0.0		0.0	
18	0.0		2.6	61.5	14.4	26.4
19	0.0		0.0		0.0	
20	0.0		0.0		0.0	
21	0.0		0.0		0.0	
22	0.4	167	10.6	30.7	0.0	
23	0.0		1.6	78.1	0.0	
24	8.4	34.6	0.0		0.0	
25	3.4	54.6	3.6	52.4	0.0	
26	0.0		2.6	61.5	0.0	
27	5.4	43.2	0.0		9.4	32.7
28	6.4	39.7	6.6	38.8	14.4	26.4
29	0.0		9.6	32.2	2.4	64.8
30	7.4	36.9	0.0		0.0	
31	2.4	65.1	0.0		3.4	54.4
32	0.0		3.6	52.4	0.0	
33	0.0		7.6	36.2	6.4	39.6

58	0.4	167	1.6	78.1	0.0	
59	0.0		4.6	46.4	5.4	43.1
60	7.4	36.9	0.0		0.0	
61	8.4	34.6	10.6	30.7	13.4	27.3
62	0.0		0.0		0.0	
63	0.0		3.6	52.4	1.4	85.1
64	0.0		2.6	61.5	0.0	
65	5.4	43.2	0.6	125	33.4	17.3
66	5.4	43.2	2.6	61.5	4.4	47.8
67	0.0		0.0		6.4	39.6
68	3.4	54.6	9.6	32.2	22.4	21.1

EDITDATA.D02 Archived to C:\ARCH\ARCH02D.033
---------- existing Archive File replaced!
C:\DATA\P2DATA Copied to C:\DATA\ARCH02A.033
---------- existing File replaced!

16 Dec 04 07:53:26 Packard Model 5003 COBRA SN: 424559

PROTOCOL # 2
NIH 10-Pk Gamma Scrn
NIH
COUNT TIME 1.00 Minutes

Window A		Window B		Window C	
LLD:	15 keV	LLD:	240 keV	LLD:	15 keV
ULD:	75 keV	ULD:	400 keV	ULD:	2000 keV
EFF:	79 %	EFF:	6 %	EFF:	70 %

Sample #	A:CPM	A:DPM	B:CPM	B:DPM	C:CPM	C:DPM
42	9	12	0	0	8	12
43	1	2	0	0	0	0
44	0	1	0	0	0	0
45	0	0	10	160	0	0
46	0	1	2	27	0	0
47	4	6	0	0	20	29
48	0	0	1	10	0	0
49	0	0	8	127	28	41
50	0	0	0	0	0	0
51	0	0	1	10	0	0
52	0	0	0	0	0	0
53	0	0	15	243	24	35
54	1	2	5	77	0	0
55	3	4	1	10	16	23
56	0	1	0	0	0	0
57	0	0	12	193	0	0
58	0	1	2	27	0	0
59	0	0	5	77	5	8
60	7	9	0	0	0	0
61	8	11	11	177	13	19
62	0	0	0	0	0	0
63	0	0	4	60	1	2
64	0	0	3	43	0	0
65	5	7	1	10	33	48
66	5	7	3	43	4	6
67	0	0	0	0	6	9
68	3	4	10	160	22	32

Protocol #: 2 NIH 10-Pk Gamma Scrn User : Lab Technician

S#	A:CPM	A:%SIG	B:CPM	B:%SIG	C:CPM	C:%SIG
34	0.0		3.6	52.4	10.4	31.0
35	0.0		0.0		0.0	
36	5.4	43.2	0.0		0.0	
37	0.0		8.6	34.0	0.0	
38	2.4	65.1	0.0		0.0	
39	7.4	36.9	4.6	46.4	6.4	39.6
40	3.4	54.6	2.6	61.5	0.0	
41	0.0		2.6	61.5	0.0	
42	9.4	32.7	0.0		8.4	34.5
43	1.4	85.7	0.0		0.0	
44	0.4	167	0.0		0.0	
45	0.0		9.6	32.2	0.0	
46	0.4	167	1.6	78.1	0.0	
47	4.4	47.9	0.0		20.4	22.2
48	0.0		0.6	125	0.0	
49	0.0		7.6	36.2	28.4	18.8
50	0.0		0.0		0.0	
51	0.0		0.6	125	0.0	
52	0.0		0.0		0.0	
53	0.0		14.6	26.1	24.4	20.3
54	1.4	85.7	4.6	46.4	0.0	
55	3.4	54.6	0.6	125	16.4	24.7
56	0.4	167	0.0		0.0	
57	0.0		11.6	29.3	0.0	
58	0.4	167	1.6	78.1	0.0	
59	0.0		4.6	46.4	5.4	43.1
60	7.4	36.9	0.0		0.0	
61	8.4	34.6	10.6	30.7	13.4	27.3
62	0.0		0.0		0.0	
63	0.0		3.6	52.4	1.4	85.1
64	0.0		2.6	61.5	0.0	
65	5.4	43.2	0.6	125	33.4	17.3
66	5.4	43.2	2.6	61.5	4.4	47.8
67	0.0		0.0		6.4	39.6
68	3.4	54.6	9.6	32.2	22.4	21.1

EDITDATA.DO2 Archived to C:\ARCH\ARCH02D.033
---------- existing Archive File replaced!
C:\DATA\P2DATA Copied to C:\DATA\ARCH02A.033
---------- existing File replaced!

16 Dec 04 07:53:26 Packard Model 5003 COBRA SN: 424559

PROTOCOL # 2
NIH 10-Pk Gamma Scrn
NIH
COUNT TIME 1.00 Minutes

Window A		Window B		Window C	
LLD:	15 keV	LLD:	240 keV	LLD:	15 keV
ULD:	75 keV	ULD:	400 keV	ULD:	2000 keV
EFF:	79 %	EFF:	6 %	EFF:	70 %

Sample

16 Dec 04 07:53:26 Packard Model 5003 COBRA SN: 424559

PROTOCOL # 2
NIH 10-Pk Gamma Scrn
NIH
COUNT TIME 1.00 Minutes

Window A		Window B		Window C	
LLD:	15 keV	LLD:	240 keV	LLD:	15 keV
ULD:	75 keV	ULD:	400 keV	ULD:	2000 keV
EFF:	79 %	EFF:	6 %	EFF:	70 %

Sample #	A:CPM	A:DPM	B:CPM	B:DPM	C:CPM	C:DPM
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	7	9	4	60	0	1
4	2	3	0	0	4	6
5	7	9	0	0	24	35
6	1	2	4	60	4	6
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	3	4	0	0	0	0
10	0	0	1	10	0	0
11	0	0	7	110	5	8
12	0	0	4	60	0	0
13	5	7	0	0	0	0
14	0	0	2	27	4	6
15	0	0	11	177	0	0
16	6	8	4	60	0	0
17	0	0	0	0	0	0
18	0	0	3	43	14	21
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	1	11	177	0	0
23	0	0	2	27	0	0
24	8	11	0	0	0	0
25	3	4	4	60	0	0
26	0	0	3	43	0	0
27	5	7	0	0	9	13
28	6	8	7	110	14	21
29	0	0	10	160	2	3
30	7	9	0	0	0	0
31	2	3	0	0	3	5
32	0	0	4	60	0	0
33	0	0	8	127	6	9
34	0	0	4	60	10	15
35	0	0	0	0	0	0
36	5	7	0	0	0	0
37	0	0	9	143	0	0
38	2	3	0	0	0	0
39	7	9	5	77	6	9
40	3	4	3	43	0	0
41	0	0	3	43	0	0

NIH
Count Time(minutes): 1.00
Assay Type: CPM
Background Subtract : IPA Bkg
Outlier: 5.0 FLAG
%Spillup: 3.00
%Spilldown: 0.00
Screening: OFF

	Window A		Window B		Window C	
Nuclide:	I-125	15 - 75 keV	Cr-51	240 - 400 keV	MAN	15 - 2000 keV
Bkg:	21.6		33.4		217	
Sigma:	0.00		0.00		2.00	
LCR:	0		0		0	
Half Life(hours):	0.00		0.00			
Multiplier:	1.0000					
%CV Flag Limit:	0.00		0.00			

SN	A:CPM	A:%SIG	B:CPM	B:%SIG	C:CPM	C:%SIG
1	0.0		0.0		0.0	
2	0.0		0.0		0.0	
3	0.0		6.6	34.0	8.4	34.5
4	0.0		0.0		0.0	
5	0.0		0.0		0.0	

EDITDATA.D02 Archived to C:\ARCH\ARCH02D.035
existing Archive File replaced!
C:\DATA\P2DATA Copied to C:\DATA\ARCH02A.035
existing File replaced!

16 Dec 04 10:04:30 Packard Model 5003 COBRA SN: 424559

PROTOCOL # 2
NIH 10-Pk Gamma Scrn
NIH
COUNT TIME 1.00 Minutes

Window A		Window B		Window C	
LLD:	15 keV	LLD:	240 keV	LLD:	15 keV
ULD:	75 keV	ULD:	400 keV	ULD:	2000 keV
EFF:	7? %	EFF:	? %	EFF:	?? %

Samples

#	A:CPM	A:DPM	B:CPM	B:DPM	C:CPM	C:DPM
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	7	133	8	12
4	0	0	0	0	0	0
5	0	0	0	0	0	0

Assay Definition-

Assay Description:
NIH Triple label dpm using quench correction for low and mid energy channels. A constant 76% effieciency used in high energy channel.

Assay Type: DPM (Dual)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\NIH\NIH Triple Label DPM
Raw Results Path: C:\Packard\Tricarb\Results\NIH\NIH Triple Label DPM\20041216_1531.results
RTF File Name: C:\Packard\Tricarb\Results\NIH\NIH Triple Label DPM\NIHReport.rtf
Comma-Delimited File Name: C:\Packard\Tricarb\Results\NIH\NIH Triple Label DPM\NIHReport.txt
Assay File Name: C:\Packard\TriCarb\Assays\NIH Triple Label DPM.lsa

Count Conditions-

Nuclide: Triple Label
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Sets:
Low Energy: 3H-UG-08-31-04
Mid Energy: 14C-UG-08-31-04
Count Time (min): 1.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	Bkg Subtract	2Sigma % Terminator
A	0.0	12.0	1st Vial	0.00
B	12.0	156.0	1st Vial	0.00
C	156.0	2000.0	1st Vial	0.00

Count Corrections-

Static Controller: On Luminescence Correction: On
Colored Samples: On Heterogeneity Monitor: n/a
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				
B				
C				

Cycle 1 Results

S#	Time	CPMA	CPMB	CPMC	DPM1	DPM2	DPM3	tSIE	SIS	LUM
1	10.00	4	9	6	0	0	8	673.61	72.33	1
2	1.00	1	-2	1	3	-2	1	580.48	0.00	0
3	1.00	0	-1	-0	0	-1	-0	611.30	0.00	0
4	1.00	-0	-5	-2	1	-6	-3	623.74	0.00	0

5	1.00	-2	-5	-2	-3	-6	-3	653.44	0.00	0
6	1.00	-3	-1	-2	-7	-1	-3	615.62	0.00	0
7	1.00	7	-1	-4	15	-2	-6	676.07	62.96	0
8	1.00	2	-4	4	6	-5	5	638.23	0.00	0
9	1.00	1	-2	-5	3	-2	-7	632.06	0.00	0
10	1.00	1	-1	3	2	-1	4	654.13	0.00	0
11	1.00	-0	3	1	-1	4	1	623.61	146.71	0
12	1.00	2	-1	-1	5	-1	-2	540.81	61.30	0
13	1.00	0	4	8	-1	5	10	567.42	78.81	0
14	1.00	5	7	-2	8	8	-3	675.37	113.28	0
15	1.00	3	2	-2	5	2	-3	612.53	0.80	0
16	1.00	1	-7	2	4	-8	2	612.02	0.00	0
17	1.00	2	-3	2	4	-4	2	706.07	0.00	0
18	1.00	-4	-1	1	-9	-0	1	554.14	0.00	0
19	1.00	-3	-2	4	-6	-2	5	629.62	0.00	0
20	1.00	-1	-1	-1	-2	-1	-2	597.17	0.00	0
21	1.00	-3	2	-4	-7	3	-6	619.07	0.00	0
22	1.00	1	1	3	2	1	4	646.44	213.64	0
23	1.00	2	-4	1	6	-5	1	637.76	0.00	0
24	1.00	0	-2	2	1	-2	2	715.97	0.00	0
25	1.00	0	-5	3	2	-6	4	681.32	0.00	0
26	1.00	-3	4	-0	-7	5	-0	644.81	493.41	0
27	1.00	-1	-1	-1	-2	-1	-2	681.01	0.00	0
28	1.00	0	-3	-1	1	-3	-2	675.03	0.00	0
29	1.00	-1	-2	-3	-1	-2	-4	628.53	0.00	0
30	1.00	4	2	1	8	2	1	637.67	62.45	0
31	1.00	-3	-2	-2	-5	-2	-2	662.59	0.00	0
32	1.00	2	-1	1	5	-1	1	622.12	147.72	0
33	1.00	-3	-5	2	-5	-6	2	630.83	0.00	0
34	1.00	2	-1	6	5	-1	8	612.54	0.00	0
35	1.00	2	1	1	4	1	1	639.87	138.44	0
36	1.00	-1	-1	-0	-2	-1	-0	692.22	0.00	0
37	1.00	0	2	1	0	2	1	560.20	0.00	0
38	1.00	-2	-0	-0	-5	-0	-0	660.63	0.00	0
39	1.00	3	0	-0	7	-0	-0	641.67	38.25	0
40	1.00	-3	4	-5	-8	6	-7	648.49	798.36	0
41	1.00	-0	-1	-2	-1	-1	-3	608.28	0.00	0
42	1.00	2	1	3	4	1	4	612.52	85.92	0
43	1.00	5	-0	-2	10	-1	-3	653.82	82.17	0
44	1.00	0	-4	3	1	-5	4	616.97	0.00	0
45	1.00	1	0	-1	2	0	-2	611.97	250.19	0
46	1.00	4	1	1	8	1	1	631.34	98.92	0
47	1.00	-1	-2	-1	-1	-2	-2	643.30	0.00	0
48	1.00	-1	-3	5	-1	-3	6	641.82	0.00	0
49	1.00	1	2	-2	1	3	-3	670.88	190.48	0
50	1.00	0	-4	1	1	-5	1	657.26	0.00	0
51	1.00	4	2	2	8	2	2	642.51	79.52	0
52	1.00	0	-5	1	2	-6	1	617.64	0.00	0
53	1.00	0	-4	1	1	-5	1	709.93	0.00	0
54	1.00	-2	-0	-3	-5	-0	-4	619.22	0.00	0
55	1.00	3	-5	-3	8	-6	-4	623.57	0.00	0
56	1.00	2	8	-2	2	10	-3	642.50	127.18	0
57	1.00	2	-4	1	5	-5	1	680.95	0.00	0
58	1.00	-1	-2	-0	-1	-2	-0	658.03	0.00	0
59	1.00	-1	3	4	-3	4	5	622.34	199.68	0
60	1.00	2	-1	3	4	-2	4	618.74	0.00	0
61	1.00	0	-1	-3	0	-1	-4	654.99	0.00	0
62	1.00	2	2	3	4	3	3	636.83	139.80	0
63	1.00	3	-2	-4	7	-3	-6	682.98	126.73	0
64	1.00	0	2	-2	-1	3	-3	602.90	0.00	0
65	1.00	2	-0	3	5	-0	4	641.31	31.51	0
66	1.00	-0	-2	1	0	-2	1	668.35	0.00	0

67	1.00	-1	-2	-1	-1	-2	-2	668.54	0.00	0
68	1.00	0	2	-2	-1	3	-3	677.70	134.79	0
69	1.00	-1	-6	-4	-0	-7	-6	630.70	0.00	0
70	1.00	0	-1	1	0	-1	1	638.06	0.00	0
71	1.00	-2	4	-1	-6	5	-2	606.47	155.72	0
72	1.00	1	4	-5	1	5	-7	632.85	117.69	0
73	1.00	3	4	-0	5	5	-0	630.69	85.01	0
74	1.00	-2	0	2	-4	1	2	627.40	0.00	0
75	1.00	0	-1	-1	0	-1	-2	658.80	0.00	0
76	1.00	0	0	1	0	0	1	641.30	1450.65	0
77	1.00	0	0	-4	0	0	-6	671.55	444.85	0
78	1.00	-1	-1	-1	-2	-1	-2	723.16	0.00	0
79	1.00	-1	-2	-3	-1	-2	-4	661.43	0.00	0
80	1.00	3	1	-5	5	2	-7	667.81	66.87	0
81	1.00	-1	3	-2	-2	4	-3	640.95	48.95	0
82	1.00	-2	0	-4	-4	1	-6	631.85	0.00	0
83	1.00	2	-5	-1	6	-6	-2	587.13	0.00	0
84	1.00	-1	1	1	-2	1	1	599.73	953.10	0
85	1.00	2	-3	3	5	-3	4	576.96	0.00	0
86	1.00	2	-2	2	5	-2	2	623.01	658.85	0
87	1.00	3	-3	-0	8	-4	-0	548.66	0.00	0
88	1.00	1	-0	2	3	-0	2	646.71	0.00	0
89	1.00	0	2	2	-0	2	2	643.82	72.68	0
90	1.00	6	-2	-0	12	-3	-0	656.24	0.00	0
91	1.00	0	3	-2	-1	4	-3	548.91	65.98	0
92	1.00	-2	-2	-2	-3	-2	-3	597.44	0.00	0
93	1.00	1	-1	-0	3	-1	-0	683.95	6.15	0
94	1.00	-1	-2	-2	-2	-2	-3	614.53	0.00	0
95	1.00	4	-4	-3	10	-5	-4	646.87	0.00	0
96	1.00	1	-3	4	3	-3	5	669.29	0.00	0
97	1.00	-1	0	-2	-2	0	-3	629.61	0.00	0
98	1.00	0	-6	-2	2	-7	-3	590.33	0.00	0
99	1.00	1	-3	1	3	-3	1	603.44	0.00	0
100	1.00	1	-4	-1	3	-5	-2	666.48	0.00	0
101	1.00	1	-4	-5	3	-5	-7	656.60	0.00	0
102	1.00	0	-4	1	1	-5	1	686.07	0.00	0
103	1.00	-1	0	1	-2	0	1	612.66	0.00	0
104	1.00	2	2	2	4	3	2	669.78	88.52	0
105	1.00	2	3	-0	3	4	-0	660.00	98.31	0
106	1.00	1	-7	-2	5	-8	-3	605.97	0.00	0
107	1.00	0	0	-1	0	0	-2	664.87	273.65	0
108	1.00	1	-1	-2	2	-1	-3	642.20	0.00	0
109	1.00	-2	-4	3	-4	-5	4	657.41	0.00	0
110	1.00	-3	2	-0	-7	3	-0	575.94	0.00	0
111	1.00	-2	-1	-0	-4	-0	-0	625.18	0.00	0
112	1.00	2	-1	-0	4	-1	-0	623.27	47.72	0
113	1.00	4	3	-0	8	4	-0	643.77	49.61	0
114	1.00	-1	-1	3	-1	-1	4	649.62	0.00	0
115	1.00	-3	-5	2	-5	-6	2	642.08	0.00	0
116	1.00	-1	2	-0	-3	3	-0	650.57	160.07	0
117	1.00	-2	7	2	-7	9	2	625.73	59.85	0
118	1.00	1	-4	-1	3	-5	-2	656.67	0.00	0
119	1.00	0	0	-1	0	0	-2	646.74	471.60	0
120	1.00	1	-3	-0	3	-3	-0	660.92	0.00	0
121	1.00	2	2	-1	4	3	-2	672.32	120.62	0
122	1.00	-2	0	-2	-4	1	-3	608.34	0.00	0
123	1.00	2	-1	-0	4	-1	-0	665.07	93.40	0
124	1.00	-2	-6	1	-2	-7	1	658.75	0.00	0
125	1.00	1	-1	6	3	-1	8	647.03	530.45	0
126	1.00	1	1	-1	2	1	-2	683.86	92.22	0
127	1.00	-2	-0	1	-3	-0	1	607.55	0.00	0
128	1.00	-1	1	-1	-3	2	-2	625.75	48.95	0

129	1.00	3	1	3	6	1	4	633.60	154.96	0
130	1.00	3	1	1	7	1	1	594.14	100.09	0
131	1.00	-2	-2	-4	-3	-2	-6	600.74	0.00	0
132	1.00	2	1	-2	4	1	-3	630.03	79.11	0
133	1.00	0	2	2	-0	3	2	591.60	45.46	0
134	1.00	4	-3	-2	9	-4	-3	696.34	74.88	0
135	1.00	1	1	-0	2	1	-0	660.60	0.00	0
136	1.00	3	6	1	5	7	1	596.94	22.55	0
137	1.00	-1	-3	-0	-1	-4	-0	644.25	0.00	0
138	1.00	2	-6	-1	6	-7	-2	683.17	0.00	0
139	1.00	-2	3	7	-5	4	9	659.22	0.00	0
140	1.00	0	1	2	-0	2	2	636.44	505.76	0
141	1.00	1	-2	-4	3	-2	-6	616.22	0.00	0
142	1.00	0	-1	-1	0	-1	-2	635.19	0.00	0
143	1.00	1	6	-0	-0	7	-0	707.24	141.69	0
144	1.00	3	-2	-4	7	-2	-6	610.01	0.00	0
145	1.00	3	7	1	4	9	1	616.75	92.74	0
146	1.00	0	-2	1	1	-2	1	611.39	0.00	0
147	1.00	-4	-2	2	-8	-2	2	606.40	0.00	0
148	1.00	5	-1	-3	11	-1	-4	594.81	0.00	0
149	1.00	-4	-2	6	-7	-2	8	606.36	0.00	0
150	1.00	2	1	-2	4	1	-3	588.16	17.83	0
151	1.00	0	2	-2	-1	3	-3	616.83	293.19	0
152	1.00	1	-4	-4	3	-5	-6	612.64	0.00	0
153	1.00	1	1	2	2	1	2	672.26	148.74	0
154	1.00	-1	0	2	-2	0	2	540.67	0.00	0
155	1.00	2	-1	1	5	-1	1	615.74	66.24	0
156	1.00	2	0	-3	4	0	-4	655.80	0.00	0
157	1.00	-1	1	-1	-2	2	-2	640.00	1386.45	0
158	1.00	0	1	-2	-0	2	-3	628.77	253.90	0
159	1.00	5	-3	1	12	-4	1	649.18	57.33	0
160	1.00	0	0	-0	0	0	-0	667.55	0.00	0
161	1.00	4	-3	-4	10	-4	-6	611.12	68.71	0
162	1.00	-2	-1	-3	-4	-1	-4	664.53	0.00	0
163	1.00	2	-2	-1	5	-2	-2	675.35	696.30	0
164	1.00	-1	-6	-1	1	-8	-2	607.10	0.00	0
165	1.00	1	1	-0	2	1	-0	539.43	0.00	0
166	1.00	1	1	-2	1	1	-3	607.98	113.15	0
167	1.00	-1	2	-1	-3	3	-2	589.33	269.95	0
168	1.00	-2	2	1	-5	3	1	588.82	0.00	0
169	1.00	-0	4	2	-2	5	2	671.91	86.65	0
170	1.00	2	5	-1	3	6	-2	569.28	69.18	0
171	1.00	3	-3	-2	7	-3	-3	623.75	0.00	0
172	1.00	1	6	-2	-1	7	-3	563.01	20.42	0
173	1.00	3	-2	-0	7	-2	-0	611.68	5.74	0
174	1.00	6	4	-4	10	4	-6	656.04	132.14	0
175	1.00	1	2	-0	2	2	-0	650.32	60.14	0
176	1.00	6	2	-0	13	2	-0	607.42	7.62	0
177	1.00	-4	-2	-0	-8	-2	-0	659.87	0.00	0
178	1.00	-2	-2	1	-4	-2	1	650.64	0.00	0
179	1.00	3	0	-3	7	-0	-4	608.75	0.00	0
180	1.00	1	-3	-0	3	-3	-0	618.39	0.00	0
181	1.00	4	-5	2	11	-7	2	650.84	0.00	0
182	1.00	2	-3	2	5	-4	2	595.47	0.00	0
183	1.00	-2	1	2	-5	2	2	640.57	0.00	0
184	1.00	2	1	2	4	1	2	691.73	62.08	0
185	1.00	0	1	2	-0	2	2	621.46	31.67	0
186	1.00	3	-1	1	7	-1	1	649.61	0.00	0
187	1.00	6	-3	2	14	-4	2	639.85	23.18	0
188	1.00	-2	-3	-0	-3	-3	-0	643.02	0.00	0
189	1.00	-1	1	-2	-3	2	-3	599.80	1135.00	0
190	1.00	1	3	-5	1	4	-7	667.23	112.03	0

191	1.00	2	3	3	3	3	4	611.92	76.57	0
192	1.00	0	-2	2	1	-2	2	624.45	0.00	0
193	1.00	1	5	-2	1	6	-3	628.04	122.32	0
194	1.00	0	-4	-0	1	-5	-0	634.77	0.00	0
195	1.00	2	3	-2	2	3	-3	657.09	110.91	0
196	1.00	0	-2	-3	1	-3	-4	599.35	0.00	0
197	1.00	3	1	-0	6	1	-0	592.15	3.04	0
198	1.00	0	-4	-0	1	-5	-0	613.91	0.00	0
199	1.00	-0	0	2	-0	0	2	584.16	498.35	0
200	1.00	-1	-2	2	-2	-2	2	584.57	0.00	0
201	1.00	-2	-4	-0	-3	-4	-0	576.18	0.00	0
202	1.00	1	3	1	1	4	1	533.13	7.89	0
203	1.00	-2	0	2	-5	1	2	566.72	0.00	0
204	1.00	2	-0	3	5	-0	4	693.61	0.00	0
205	1.00	1	1	1	2	1	1	603.03	68.49	0
206	1.00	2	-4	-3	5	-5	-4	621.57	0.00	0
207	1.00	0	-4	-5	1	-5	-7	646.15	0.00	0
208	1.00	-2	3	-2	-6	4	-3	458.87	123.03	0
209	1.00	-1	-0	-1	-1	-0	-2	653.54	0.00	0
210	1.00	3	-3	-0	8	-4	-0	584.12	0.00	0
211	1.00	4	1	-2	9	1	-3	587.57	0.00	0
212	1.00	3	6	2	4	7	2	602.11	88.01	0
213	1.00	3	-6	1	9	-7	1	565.85	0.00	0
214	1.00	4	-2	4	9	-3	5	618.82	40.58	0
215	1.00	1	-1	3	2	-1	4	701.23	1557.65	0
216	1.00	-0	5	-0	-3	6	-0	519.06	0.00	0
Missing vial 217.										
218	1.00	-2	-3	-2	-4	-3	-3	575.35	0.00	0
219	1.00	-3	2	1	-7	3	1	638.53	0.00	0
220	1.00	1	1	1	2	1	1	638.65	0.00	0
221	1.00	-1	3	2	-3	4	2	563.61	157.12	0
222	1.00	-3	-2	5	-6	-2	6	630.49	0.00	0
223	1.00	2	-5	2	6	-6	2	600.98	0.00	0
224	1.00	0	-1	1	0	-1	1	555.11	0.00	0
225	1.00	-1	1	1	-3	2	1	599.05	0.00	0
226	1.00	1	0	-0	2	0	-0	641.67	0.00	0
227	1.00	3	-2	3	7	-2	4	655.12	537.86	0
228	1.00	0	-4	2	1	-5	2	627.41	0.00	0
229	1.00	0	3	4	-1	4	5	626.92	99.05	0
230	1.00	4	-1	-1	9	-1	-2	641.90	122.39	0
231	1.00	1	-1	-2	2	-1	-3	624.40	0.00	0
232	1.00	-1	-2	-4	-1	-2	-6	665.00	0.00	0
233	1.00	-4	1	-0	-9	2	-0	625.74	0.00	0
234	1.00	-2	-1	-4	-5	-1	-6	608.34	0.00	0
235	1.00	2	0	1	5	0	1	572.71	59.42	0
236	1.00	-1	-2	-3	-2	-2	-4	544.72	0.00	0
237	1.00	0	-1	-2	0	-1	-3	563.58	0.00	0
238	1.00	1	1	-1	2	1	-2	629.45	55.93	0
239	1.00	0	1	1	-0	2	1	548.80	0.00	0
240	1.00	5	-1	-0	11	-1	-0	606.45	0.00	0
241	1.00	0	5	4	-2	6	5	590.21	72.88	0
242	1.00	2	0	-1	4	0	-2	589.23	328.08	0
243	1.00	-1	-6	-1	-0	-7	-2	592.24	0.00	0
244	1.00	1	3	-4	1	4	-6	557.60	108.67	0
245	1.00	2	-3	-1	6	-4	-2	577.24	0.00	0
246	1.00	-1	-2	1	-0	-3	1	606.63	0.00	0
247	1.00	-3	1	-2	-7	2	-3	615.80	0.00	0
248	1.00	1	-2	-4	3	-2	-6	589.97	0.00	0
249	1.00	-1	1	-2	-3	2	-3	598.69	279.00	0
250	1.00	2	3	-4	3	4	-6	602.94	171.90	0
251	1.00	-1	1	-1	-3	2	-2	591.60	921.00	0
252	1.00	1	2	-2	1	3	-3	678.83	238.15	0

253	1.00	2	1	-1	4	1	-2	601.38	45.06	0
254	1.00	-2	-2	-0	-4	-2	-0	593.51	0.00	0
255	1.00	5	1	-2	11	1	-3	618.62	78.00	0
256	1.00	-3	1	-3	-7	2	-4	616.11	0.00	0
257	1.00	-1	-2	3	-2	-2	4	613.77	0.00	0
258	1.00	1	-3	-0	3	-3	-0	578.37	0.00	0
259	1.00	0	-3	2	1	-3	2	620.47	0.00	0
260	1.00	3	1	-1	6	1	-2	611.09	0.00	0
261	1.00	0	11	-2	-4	14	-3	624.11	65.14	0
262	1.00	2	5	-1	2	7	-2	576.59	24.11	0
263	1.00	1	2	-3	1	2	-4	644.66	98.50	0
264	1.00	1	0	1	2	0	1	613.97	15.62	0
265	1.00	1	-1	-1	2	-1	-2	625.82	0.00	0
266	1.00	-0	4	2	-1	5	2	630.23	78.81	0
267	1.00	-1	4	1	-3	5	1	628.99	109.75	0
268	1.00	6	1	-0	13	1	-0	638.29	0.00	0
269	1.00	-2	-1	-3	-4	-1	-4	679.57	0.00	0
270	1.00	0	-4	-1	1	-5	-2	616.87	0.00	0
271	1.00	-1	-3	-1	-1	-3	-2	642.48	0.00	0
272	1.00	-1	-4	3	-1	-5	4	606.91	0.00	0
273	1.00	2	-1	-1	5	-1	-2	591.78	103.28	0
274	1.00	4	-3	1	10	-4	1	587.92	0.00	0
275	1.00	0	-2	-3	1	-2	-4	573.49	0.00	0
276	1.00	-2	1	2	-5	2	2	623.83	0.00	0
277	1.00	1	0	-3	2	0	-4	629.53	125.50	0
278	1.00	0	-4	5	1	-5	6	548.70	0.00	0
279	1.00	0	-1	-1	0	-1	-2	629.25	0.00	0
280	1.00	0	-3	1	1	-3	1	583.44	0.00	0
281	1.00	-1	-1	-4	-2	-1	-6	638.22	0.00	0
282	1.00	-2	3	-1	-5	4	-2	632.82	237.85	0
283	1.00	1	0	-1	2	0	-2	618.15	0.00	0
284	1.00	1	-2	-1	3	-2	-2	629.28	0.00	0
285	1.00	-2	-2	-0	-4	-2	-0	615.24	0.00	0
286	1.00	-3	-3	-2	-6	-4	-3	667.18	0.00	0
287	1.00	0	3	-3	-1	4	-4	584.70	0.00	0
288	1.00	-2	0	3	-4	1	4	615.35	0.00	0
289	1.00	3	-2	-1	7	-2	-2	632.08	0.00	0
290	1.00	1	2	-2	2	3	-3	611.10	103.43	0
291	1.00	0	-2	-2	1	-3	-3	647.69	0.00	0
292	1.00	-2	2	-0	-5	3	-0	596.40	0.00	0
293	1.00	0	-0	-2	1	-0	-3	653.40	1274.10	0
294	1.00	-2	0	-0	-4	1	-0	601.01	0.00	0
295	1.00	1	-4	1	4	-5	1	583.53	0.00	0
296	1.00	2	1	-1	4	1	-2	563.21	94.67	0
297	1.00	5	-4	-1	13	-5	-2	583.88	0.00	0
298	1.00	-1	7	1	-4	9	1	617.15	128.69	0
299	1.00	1	3	1	1	4	1	668.31	143.76	0
300	1.00	1	-3	-1	3	-3	-2	656.05	0.00	0
301	1.00	3	-0	-0	7	-1	-0	641.68	0.00	0
302	1.00	-2	3	3	-4	4	4	607.06	327.98	0
303	1.00	-1	3	1	-3	4	1	598.76	216.43	0
304	1.00	4	-3	1	10	-4	1	579.65	0.00	0
305	1.00	1	-1	2	2	-2	2	609.80	0.00	0
306	1.00	0	2	1	-1	3	1	548.04	330.18	0
307	1.00	0	0	-2	0	0	-3	635.10	0.00	0
308	1.00	4	2	-0	9	2	-0	639.09	0.00	0
309	1.00	0	0	2	0	0	2	592.49	0.00	0
310	1.00	1	-3	3	3	-3	4	677.51	0.00	0
311	1.00	2	-4	-1	5	-5	-2	656.78	0.00	0
312	1.00	2	-2	-3	5	-2	-4	654.17	0.00	0
313	1.00	-3	-4	-3	-5	-4	-4	616.66	0.00	0
314	1.00	-1	-3	-3	-1	-3	-4	637.09	0.00	0

315	1.00	0	-4	-1	1	-5	-2	648.61	0.00	0
316	1.00	2	2	-1	3	3	-2	704.00	56.42	0
317	1.00	-3	1	-2	-7	2	-3	658.80	0.00	0
318	1.00	2	0	-0	4	0	-0	618.45	0.00	0
319	1.00	0	1	-3	-0	2	-4	611.97	0.00	0
320	1.00	0	-1	3	0	-1	4	609.35	0.00	0
321	1.00	2	4	2	2	4	2	608.68	86.20	0
322	1.00	0	1	-3	-0	2	-4	634.13	352.67	0
323	1.00	2	4	-2	3	5	-3	670.91	78.50	0
324	1.00	1	-1	-1	3	-1	-2	615.54	450.20	0
325	1.00	-2	-0	-0	-4	0	-0	599.70	0.00	0
326	1.00	2	3	-1	4	3	-2	553.42	102.55	0
327	1.00	5	-3	3	12	-4	4	592.93	0.00	0
328	1.00	-1	-1	2	-2	-1	2	634.43	0.00	0
329	1.00	-1	2	6	-3	3	8	597.94	140.31	0
330	1.00	3	-2	-3	8	-3	-4	606.83	0.00	0
331	1.00	1	1	-2	1	1	-3	699.59	67.47	0
332	1.00	1	-1	-0	2	-1	-0	626.68	0.00	0
333	1.00	-3	-3	-1	-5	-3	-2	674.58	0.00	0
334	1.00	1	-1	1	2	-1	1	671.52	0.00	0
335	1.00	-1	5	1	-4	7	1	649.97	132.94	0
336	1.00	0	-4	-3	1	-5	-4	593.08	0.00	0
337	1.00	-2	-1	4	-4	-1	5	590.53	0.00	0
338	1.00	4	-2	1	9	-2	1	627.56	0.00	0
339	1.00	-0	0	-2	-1	1	-3	621.67	450.20	0
340	1.00	-3	-1	-2	-6	-1	-3	661.95	0.00	0
341	1.00	-1	-1	-1	-2	-1	-2	646.96	0.00	0
342	1.00	3	-2	-2	7	-2	-3	630.03	120.56	0
343	1.00	-2	1	-6	-4	2	-8	663.36	0.00	0
344	1.00	1	-4	4	4	-5	5	555.71	0.00	0
345	1.00	-1	0	-0	-3	1	-0	622.32	0.00	0
346	1.00	2	-4	-2	6	-5	-3	644.43	0.00	0
347	1.00	-1	-2	-4	-2	-2	-6	618.55	0.00	0
348	1.00	2	-1	2	5	-1	2	589.94	0.00	0
349	1.00	-2	1	-0	-5	2	-0	562.75	0.00	0
350	1.00	-1	2	-5	-3	3	-7	663.84	79.82	0
351	1.00	1	0	-0	2	0	-0	602.20	90.93	0
352	1.00	3	-5	-2	8	-6	-3	684.58	0.00	0
353	1.00	3	-1	-3	7	-1	-4	630.99	130.60	0
354	1.00	1	-2	-0	3	-2	-0	613.64	0.00	0
355	1.00	3	3	-0	5	4	-0	663.51	79.78	0
356	1.00	0	-3	-4	1	-3	-6	624.09	0.00	0
357	1.00	0	4	5	-1	5	6	630.27	49.70	0
358	1.00	1	-1	-0	2	-1	-0	628.59	0.00	0
359	1.00	1	-3	-1	3	-3	-2	578.23	0.00	0
360	1.00	4	4	-0	7	5	-0	724.51	110.06	0
361	1.00	-2	-3	-0	-3	-3	-0	603.96	0.00	0
362	1.00	-2	1	1	-5	2	1	584.66	0.00	0
363	1.00	-2	5	-4	-6	7	-6	577.55	233.28	0
364	1.00	-3	-2	-1	-7	-2	-2	495.88	0.00	0
365	1.00	0	0	-3	1	0	-4	596.29	0.00	0
366	1.00	-1	-4	2	-1	-4	2	540.98	0.00	0
367	1.00	0	-2	1	1	-2	1	559.83	0.00	0
368	1.00	5	-1	-1	11	-1	-2	640.09	89.64	0
369	1.00	-1	2	-1	-4	2	-2	564.36	985.20	0
370	1.00	-3	-2	1	-6	-2	1	588.80	0.00	0
371	1.00	1	2	-0	2	3	-0	636.68	159.91	0
372	1.00	2	-1	-2	5	-1	-3	592.41	0.00	0
373	1.00	-2	-1	-1	-4	-1	-2	552.33	0.00	0
374	1.00	4	-3	-3	10	-4	-4	583.23	0.00	0
375	1.00	2	-5	-0	5	-7	-0	664.99	0.00	0
376	1.00	-1	-1	1	-2	-1	1	591.50	0.00	0

377	1.00	0	4	3	-0	5	4	648.31	104.57	0
378	1.00	-1	-2	-3	-2	-2	-4	621.79	0.00	0
379	1.00	1	0	-3	2	0	-4	642.45	36.61	0
380	1.00	5	0	-0	11	-0	-0	606.64	35.63	0
381	1.00	-2	7	-1	-6	9	-2	639.83	0.00	0
382	1.00	1	-5	4	4	-6	5	564.31	0.00	0
383	1.00	-3	1	2	-7	2	2	594.81	0.00	0
384	1.00	5	0	-1	11	-0	-2	606.84	0.00	0
385	1.00	1	3	-0	1	4	-0	536.93	55.28	0
386	1.00	1	0	-0	2	0	-0	605.69	13.15	0
387	1.00	2	3	-2	3	4	-3	601.92	85.59	0
388	1.00	-2	-1	-2	-4	-1	-3	643.40	0.00	0
389	1.00	-1	-3	-3	-1	-3	-4	619.06	0.00	0
390	1.00	3	1	-1	5	1	-2	611.90	7.13	0
391	1.00	1	-3	-3	3	-3	-4	645.00	0.00	0
392	1.00	3	2	-0	5	2	-0	700.71	74.69	0
393	1.00	0	-7	4	2	-8	5	626.87	0.00	0
394	1.00	-1	-2	1	-2	-3	1	654.84	0.00	0
395	1.00	8	3	-0	17	3	-0	589.56	17.99	0
396	1.00	0	-5	1	2	-6	1	633.91	0.00	0
397	1.00	2	-5	-4	6	-6	-6	596.11	0.00	0
398	1.00	0	-2	3	1	-2	4	565.37	0.00	0
399	1.00	-2	1	1	-6	1	1	526.12	0.00	0
400	1.00	-2	-3	-1	-4	-3	-2	540.54	0.00	0
401	1.00	-1	-2	1	-2	-2	1	534.68	0.00	0
402	1.00	0	-1	-3	2	-2	-4	561.48	0.00	0
403	1.00	-2	5	-0	-7	6	-0	575.20	353.90	0
404	1.00	-1	-6	5	-0	-7	6	547.87	0.00	0
405	1.00	-1	-4	-3	-1	-5	-4	600.85	0.00	0
406	1.00	-2	5	-1	-6	7	-2	583.91	13.45	0
407	1.00	0	-5	3	2	-6	4	646.61	0.00	0
408	1.00	2	2	3	4	3	4	625.27	103.82	0
409	1.00	1	3	2	1	4	2	614.96	56.79	0
410	1.00	1	-2	3	3	-2	4	600.90	0.00	0
411	1.00	-1	0	2	-2	0	2	618.55	0.00	0
412	1.00	-3	2	1	-7	3	1	703.22	0.00	0
413	1.00	1	3	2	1	4	2	638.43	178.10	0
414	1.00	4	-5	2	10	-7	2	666.40	0.00	0
415	1.00	1	4	-3	1	5	-4	648.26	144.65	0
416	1.00	-2	-4	1	-3	-4	1	630.81	0.00	0
417	1.00	4	-5	-3	11	-6	-4	558.95	0.00	0
418	1.00	0	-2	4	1	-2	5	643.64	0.00	0
419	1.00	0	4	2	-1	5	2	513.56	97.48	0
420	1.00	0	-4	-2	1	-5	-3	566.30	0.00	0
421	1.00	1	3	-2	1	4	-3	622.10	73.21	0
422	1.00	2	-3	-3	5	-4	-4	679.71	0.00	0
423	1.00	0	0	-3	0	0	-4	683.23	0.00	0
424	1.00	2	-4	1	6	-5	1	641.17	0.00	0
425	1.00	1	-2	-0	2	-3	-0	657.52	0.00	0
426	1.00	0	0	-2	0	0	-3	596.65	2001.70	0
427	1.00	-2	-1	2	-4	-1	2	662.55	0.00	0
428	1.00	-3	2	-1	-7	3	-2	609.85	0.00	0
429	1.00	-3	1	-0	-7	2	-0	650.69	0.00	0
430	1.00	3	-2	-2	7	-2	-3	614.27	589.30	0
431	1.00	-1	0	-1	-2	0	-2	674.63	0.00	0
432	1.00	-2	-7	-0	-2	-8	-0	673.81	0.00	0
433	1.00	0	-2	1	1	-2	1	689.60	0.00	0
434	1.00	-0	5	-1	-2	7	-2	584.00	155.85	0
435	1.00	1	0	-1	2	0	-2	561.29	300.81	0
436	1.00	0	1	4	-0	2	5	622.30	0.00	0
437	1.00	3	-4	2	8	-5	2	628.42	0.00	0
438	1.00	0	-4	-0	1	-5	-0	531.12	0.00	0

439	1.00	4	2	-3	9	2	-4	541.97	33.16	0
440	1.00	-3	4	-0	-7	5	-0	597.95	0.00	0
441	1.00	-1	-2	-1	-2	-2	-2	577.07	0.00	0
442	1.00	-2	2	-0	-5	3	-0	592.72	198.75	0
443	1.00	0	3	4	-1	4	5	629.33	121.91	0
444	1.00	1	-1	-1	3	-1	-2	555.68	0.00	0
445	1.00	-3	-7	-3	-4	-8	-4	591.11	0.00	0
446	1.00	1	-5	-4	4	-6	-6	622.49	0.00	0
447	1.00	2	4	1	3	5	1	641.57	140.41	0
448	1.00	4	0	1	9	0	1	578.18	51.19	0
449	1.00	-2	-6	-0	-2	-7	-0	599.43	0.00	0
450	1.00	0	-9	-1	3	-11	-2	612.60	0.00	0
451	1.00	-2	0	-4	-5	1	-6	544.03	0.00	0
452	1.00	0	-1	4	0	-1	5	645.84	0.00	0
453	1.00	-1	-3	-1	-1	-3	-2	625.30	0.00	0
454	1.00	-2	3	-1	-5	4	-2	608.22	155.13	0
455	1.00	1	-1	1	2	-1	1	644.82	0.00	0
456	1.00	4	-4	-3	10	-5	-4	671.54	0.00	0
457	1.00	-1	1	-4	-3	2	-6	605.45	0.00	0
458	1.00	-2	1	3	-5	2	4	582.49	0.00	0
459	1.00	-2	-1	1	-4	-1	1	648.32	0.00	0
460	1.00	4	-5	-3	10	-6	-4	640.28	0.00	0
461	1.00	-1	1	-1	-3	2	-2	599.72	391.35	0
462	1.00	-2	1	-3	-5	2	-4	602.10	0.00	0
463	1.00	2	-5	-1	6	-7	-1	623.35	0.00	0
464	1.00	2	4	-1	3	5	-2	695.55	96.59	0
465	1.00	1	-1	-0	2	-1	-0	660.60	1054.75	0
466	1.00	-1	-2	1	-2	-2	1	606.37	0.00	0
467	1.00	1	2	2	2	3	2	617.05	89.32	0
468	1.00	3	3	-2	5	3	-3	610.68	47.44	0
469	1.00	-2	-2	-1	-3	-2	-2	726.16	0.00	0
470	1.00	-2	-2	1	-4	-2	1	624.76	0.00	0
471	1.00	6	3	-2	13	3	-3	650.36	43.95	0
472	1.00	2	0	-2	4	0	-3	653.90	173.17	0
473	1.00	-2	5	-3	-6	7	-4	625.04	285.33	0
474	1.00	2	-2	2	5	-2	2	656.47	0.00	0
475	1.00	-3	0	-2	-6	1	-3	712.34	0.00	0
476	1.00	2	-0	-2	3	-1	-3	703.85	102.04	0
477	1.00	-1	-4	-1	-0	-5	-2	685.08	0.00	0
478	1.00	3	-1	-1	6	-1	-2	682.38	32.20	0
479	1.00	0	-1	-0	0	-1	-0	666.41	0.00	0
480	1.00	4	0	-3	8	-0	-4	655.81	87.02	0
481	1.00	-0	-3	-5	0	-4	-7	663.47	0.00	0
482	1.00	0	1	-4	-0	2	-6	648.08	172.41	0
483	1.00	4	2	1	8	2	1	648.22	33.41	0
484	1.00	0	1	3	-0	2	4	675.59	282.29	0
485	1.00	2	2	-4	3	3	-6	698.47	57.91	0
486	1.00	1	-1	-4	2	-1	-6	688.22	0.00	0
487	1.00	-3	-4	1	-5	-5	2	598.88	0.00	0
488	1.00	1	2	-0	1	3	-0	677.52	91.27	0
489	1.00	2	0	1	4	0	1	665.55	104.08	0
490	1.00	1	1	3	2	1	4	650.01	125.02	0
491	1.00	-1	7	4	-4	9	5	651.51	60.42	0
492	1.00	-2	2	-4	-5	3	-6	625.61	0.00	0
493	1.00	-1	-2	1	-1	-3	1	649.49	0.00	0
494	1.00	2	4	1	3	5	1	641.06	168.44	0
495	1.00	-1	4	-3	-4	6	-4	670.31	88.35	0
496	1.00	-2	-5	2	-3	-6	2	682.22	0.00	0
497	1.00	1	0	-2	2	0	-3	647.63	0.00	0
498	1.00	0	2	-0	-1	3	-0	636.29	252.72	0
499	1.00	-3	-6	-1	-5	-7	-2	599.60	0.00	0
500	1.00	-1	-2	-1	-2	-2	-2	595.02	0.00	0

501	1.00	1	-4	-3	3	-5	-4	694.45	0.00	0
502	1.00	-2	0	3	-4	1	4	710.17	0.00	0
503	1.00	-0	-2	-1	-0	-3	-2	646.41	0.00	0
504	1.00	0	3	-2	-1	4	-3	584.87	132.61	0
505	1.00	-1	3	-2	-3	4	-3	625.20	185.03	0
506	1.00	1	-4	3	3	-5	4	611.30	0.00	0
507	1.00	0	0	-1	0	0	-2	667.54	1873.30	0
508	1.00	2	3	-0	3	4	-0	612.29	82.57	0
509	1.00	-3	-3	1	-6	-3	1	606.02	0.00	0
510	1.00	-1	-6	-3	-0	-7	-4	622.42	0.00	0
511	1.00	-1	-2	-2	-2	-2	-3	581.21	0.00	0
512	1.00	-2	1	5	-5	2	6	599.59	0.00	0
513	1.00	0	-3	-5	1	-3	-7	683.15	0.00	0
514	1.00	-1	-1	-3	-1	-1	-4	648.46	0.00	0

NIH

Assay Definition-

Assay Description:
NIH Triple label dpm using quench correction for low and mid energy channels. A constant 76% effieciency used in high energy channel.

Assay Type: DPM (Dual)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\NIH\Triple Lable DPM
Raw Results Path: C:\Packard\Tricarb\Results\NIH\Triple Lable DPM\20041217_0735.results
Assay File Name: C:\Packard\TriCarb\Assays\Triple Lable DPM.lsa

Count Conditions-

Nuclide: Triple Label
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Sets:
Low Energy: 3H-UG-09-02-04
Mid Energy: 14C-UG-09-02-04
Count Time (min): 1.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	Bkg Subtract	2Sigma % Terminator
A	0.0	12.0	1st Vial	0.00
B	12.0	156.0	1st Vial	0.00
C	156.0	2000.0	1st Vial	0.00

Count Corrections-

Static Controller: On Luminescence Correction: On
Colored Samples: On Heterogeneity Monitor: n/a
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				
B				
C				

*Starts @ Samp #58 swps 37-45 thru #68 swps 27-35

Cycle 1 Results

	S#	Time	CPMA	CPMB	CPMC	DPM1	DPM2	DPM3	SIS	tSIE	LUM
	1	10.00	4	9	5	0	0	6	88.87	645.69	1
*	2	1.00	1	-1	-1	3	-2	-1	0.00	593.46	0
	3	1.00	-1	-1	-1	-2	-1	-1	0.00	618.01	0
	4	1.00	1	1	1	3	1	1	0.00	590.42	0
	5	1.00	-0	0	2	-1	1	3	0.00	599.28	0
	6	1.00	2	3	3	4	3	4	16.11	628.63	0
	7	1.00	0	-1	-1	1	-2	-1	0.00	595.58	0
	8	1.00	4	-3	5	10	-5	7	0.00	589.09	0

9	1.00	1	-1	-3	2	-1	-4	0.00	572.26	0
10	1.00	-1	1	-2	-2	1	-3	0.00	612.28	0
11	1.00	-3	-2	-3	-5	-2	-4	0.00	543.84	0
12	1.00	3	-0	-1	7	-1	-1	0.00	542.31	0
13	1.00	-1	1	1	-2	1	1	0.00	514.64	0
14	1.00	0	4	-2	-0	5	-3	0.00	557.26	0
15	1.00	-2	-0	1	-4	0	1	0.00	517.32	0
16	1.00	-2	-2	1	-3	-2	1	0.00	549.75	0
17	1.00	-1	-6	0	0	-7	0	0.00	525.25	0
18	1.00	2	2	0	4	2	0	0.00	562.49	0
19	1.00	1	1	-2	3	1	-3	0.00	553.04	0
20	1.00	1	4	4	2	4	5	82.88	579.23	0
21	1.00	2	-3	4	5	-4	5	0.00	647.34	0
22	1.00	5	10	2	9	11	3	61.33	581.19	0
23	1.00	4	3	1	7	3	1	0.00	561.86	0
24	1.00	1	3	2	1	4	3	27.97	571.70	0
25	1.00	1	-2	3	3	-3	4	0.00	586.65	0
26	1.00	-3	-4	-3	-4	-5	-4	0.00	593.95	0
27	1.00	-1	-0	3	-2	-0	4	0.00	609.80	0
28	1.00	0	-5	2	2	-6	3	0.00	572.19	0
29	1.00	-2	-2	-3	-3	-2	-4	0.00	506.21	0
30	1.00	1	-0	0	3	-1	0	0.00	534.09	0
31	1.00	1	-2	1	3	-3	1	0.00	544.92	0
32	1.00	-2	-2	1	-3	-2	1	0.00	521.99	0
33	1.00	5	4	-1	11	4	-1	44.98	506.87	0
34	1.00	-2	3	7	-5	4	9	0.00	529.30	0
35	1.00	0	2	1	0	2	1	14.20	493.28	0
36	1.00	0	-2	0	1	-3	0	0.00	510.18	0
37	1.00	-2	1	1	-4	1	1	0.00	492.04	0
38	1.00	3	0	-0	7	-0	-0	85.35	545.46	0
39	1.00	5	-3	-1	13	-5	-1	0.00	542.06	0
40	1.00	0	-0	-2	1	-0	-3	0.00	565.79	0
41	1.00	1	2	2	1	3	3	102.29	604.58	0
42	1.00	1	3	0	2	3	0	3.09	554.07	0
43	1.00	1	-2	-1	3	-3	-1	0.00	547.31	0
44	1.00	-4	-2	0	-8	-2	0	0.00	549.78	0
45	1.00	2	4	1	4	4	2	57.16	575.55	0
46	1.00	-3	2	2	-7	3	3	0.00	547.37	0
47	1.00	-0	1	-2	-0	1	-3	0.00	618.22	0
48	1.00	-1	-4	1	-1	-5	1	0.00	503.49	0
49	1.00	1	-0	-3	3	-1	-4	0.00	517.32	0
50	1.00	2	-3	2	7	-5	3	0.00	501.95	0
51	1.00	-2	-1	-2	-4	-1	-3	0.00	521.38	0
52	1.00	-1	1	0	-2	1	0	0.00	516.80	0
53	1.00	2	-3	2	5	-4	3	0.00	525.40	0
54	1.00	0	-7	-1	2	-9	-1	0.00	572.89	0
55	1.00	-2	4	4	-5	5	5	0.00	519.02	0
56	1.00	0	-1	2	1	-2	3	0.00	570.98	0
57	1.00	0	-2	-1	1	-3	-1	0.00	599.96	0
58	1.00	0	-1	-1	0	-1	-1	0.00	577.66	0
59	1.00	-2	1	0	-4	1	0	0.00	564.22	0
60	1.00	-3	-4	1	-5	-5	1	0.00	569.14	0
61	1.00	1	4	4	2	4	5	133.28	548.19	0
62	1.00	-1	-0	-2	-2	-0	-3	0.00	574.88	0
63	1.00	0	-2	2	1	-3	3	0.00	564.14	0
64	1.00	-4	-2	-4	-7	-2	-5	0.00	547.63	0
65	1.00	2	-3	0	6	-4	0	0.00	500.77	0
66	1.00	-1	-1	6	-1	-1	8	0.00	526.86	0
67	1.00	-1	-2	0	-1	-3	0	0.00	514.09	0
68	1.00	-2	-2	4	-3	-2	5	0.00	583.50	0
69	1.00	0	2	-1	0	2	-1	0.00	510.68	0
70	1.00	-0	-2	-1	0	-2	-1	0.00	521.70	0

71	1.00	-2	-1	1	-4	-1	1	0.00	520.80	0
72	1.00	1	-1	-1	3	-2	-1	0.00	561.40	0
73	1.00	-1	5	2	-3	6	3	83.74	534.18	0
74	1.00	2	-2	-2	5	-3	-3	0.00	587.04	0
75	1.00	-2	-1	-2	-3	-1	-3	0.00	604.11	0
76	1.00	-1	-4	-1	-0	-5	-1	0.00	565.75	0
77	1.00	-1	3	-4	-2	3	-5	0.00	579.80	0
78	1.00	-2	2	-2	-4	2	-3	0.00	552.93	0
79	1.00	2	-4	5	6	-5	6	0.00	591.91	0
80	1.00	0	-2	-2	1	-3	-3	0.00	551.92	0
81	1.00	-2	3	3	-5	4	4	0.00	552.99	0
82	1.00	-0	-2	-2	-1	-2	-3	0.00	555.12	0
83	1.00	0	2	-1	0	2	-1	696.89	537.71	0
84	1.00	-1	0	2	-2	0	3	0.00	524.88	0
85	1.00	0	-4	-2	2	-5	-3	0.00	542.41	0
86	1.00	-2	-2	0	-3	-2	0	0.00	560.61	0
87	1.00	3	2	-1	6	2	-1	0.00	520.27	0
88	1.00	-1	1	0	-2	1	0	0.00	496.89	0
89	1.00	4	-8	1	12	-11	1	0.00	525.24	0
90	1.00	1	1	-2	3	1	-3	0.00	499.45	0
91	1.00	-2	-1	-3	-3	-2	-4	0.00	504.29	0
92	1.00	-2	-2	0	-3	-2	0	0.00	551.61	0
93	1.00	2	-0	1	5	-1	1	0.00	591.23	0
94	1.00	0	1	-2	0	1	-3	61.31	584.85	0
95	1.00	1	-3	0	2	-3	0	0.00	565.08	0
96	1.00	-2	-2	2	-3	-2	3	0.00	598.72	0
97	1.00	-1	1	-4	-2	1	-5	0.00	581.09	0
98	1.00	1	-1	-3	3	-2	-4	0.00	575.10	0
99	1.00	3	-5	-2	8	-7	-3	0.00	568.90	0
100	1.00	3	-2	5	8	-3	7	0.00	569.05	0

Assay Definition-

Assay Description:
NIH Triple
label dpm using quench correction for low and mid energy channels. A constant 76%
effieciency used in high energy channel.

Assay Type: DPM (Dual)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\Default\Triple Lable DPM
Raw Results Path: C:\Packard\Tricarb\Results\Default\Triple Lable
DPM\20041216_1421.results
Assay File Name: C:\Packard\TriCarb\Assays\Triple Lable DPM.lsa

Count Conditions-

Nuclide: Triple Label
  Quench Indicator: tSIE/AEC
  External Std Terminator (sec): 0.5 2s%
  Pre-Count Delay (min): 0.00
Quench Sets:
  Low Energy: 3H-UG-09-02-04
  Mid Energy: 14C-UG-09-02-04
Count Time (min): 1.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	Bkg Subtract	2Sigma % Terminator
A	0.0	12.0	1st Vial	0.00
B	12.0	156.0	1st Vial	0.00
C	156.0	2000.0	1st Vial	0.00

Count Corrections-

Static Controller: On Luminescence Correction: On
Colored Samples: On Heterogeneity Monitor: n/a
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				
B				
C				

Cycle 1 Results

S#	Time	CPMA	CPMB	CPMC	DPM1	DPM2	DPM3	SIS	tSIE	LUM
1	10.00	4	9	4	0	0	6	66.17	541.07	1
2	1.00	-1	-3	6	-1	-3	7	0.00	597.89	0
3	1.00	-2	-2	-0	-5	-2	-0	0.00	514.24	0
4	1.00	1	-2	5	3	-2	6	0.00	590.80	0
5	1.00	0	0	-0	0	0	-0	477.49	537.45	0
6	1.00	4	-1	3	9	-1	4	64.91	593.19	0
7	1.00	3	-4	2	8	-5	2	0.00	546.28	0

8	1.00	1	-4	-0	3	-5	-0	0.00	540.18	0
9	1.00	3	-1	5	8	-2	6	0.00	551.57	0
10	1.00	2	-2	4	5	-2	5	0.00	551.58	0
11	1.00	3	-7	3	8	-8	4	0.00	560.20	0
12	1.00	3	3	1	5	3	1	48.51	522.62	0
13	1.00	-2	1	-0	-4	2	-0	0.00	552.43	0
14	1.00	3	-5	1	8	-6	1	0.00	562.47	0
15	1.00	1	2	2	2	3	2	81.90	475.21	0
16	1.00	-2	-2	-3	-4	-2	-4	0.00	566.08	0
17	1.00	2	1	-1	3	1	-2	0.00	564.07	0
18	1.00	2	2	5	4	2	6	159.04	553.23	0
19	1.00	-3	0	7	-6	1	9	0.00	553.56	0
20	1.00	-1	-4	1	-1	-4	1	0.00	550.39	0
21	1.00	-1	6	1	-4	8	1	125.28	517.39	0
22	1.00	-2	4	2	-6	6	2	203.97	504.94	0
23	1.00	-1	-1	1	-3	-1	1	0.00	523.07	0
24	1.00	1	1	4	2	1	5	0.00	519.42	0
25	1.00	2	1	4	4	1	5	0.00	526.84	0
26	1.00	-2	2	4	-5	3	5	437.36	501.80	0
27	1.00	3	-5	1	9	-6	1	0.00	494.13	0
28	1.00	2	-3	-0	5	-4	-0	0.00	569.76	0
29	1.00	-1	-1	3	-2	-1	4	0.00	539.07	0
30	1.00	-1	4	2	-3	5	2	68.21	546.63	0
31	1.00	2	1	3	4	1	4	56.41	547.18	0
32	1.00	-2	1	2	-5	2	2	0.00	548.50	0
33	1.00	0	0	-2	0	0	-3	991.09	533.17	0
34	1.00	0	-2	-0	1	-2	-0	0.00	545.10	0
35	1.00	2	-4	-0	6	-5	-0	0.00	540.22	0
36	1.00	-2	3	2	-5	4	2	23.50	525.82	0
37	1.00	2	-4	-1	6	-5	-2	0.00	539.20	0
38	1.00	2	0	4	5	0	5	0.00	513.73	0
39	1.00	1	2	2	2	3	2	57.36	563.11	0
40	1.00	-1	-4	6	-1	-4	7	0.00	533.79	0
41	1.00	1	0	-1	2	0	-2	87.70	537.29	0
42	1.00	1	1	3	2	1	4	220.02	526.52	0
43	1.00	-1	-1	2	-2	-1	2	0.00	569.04	0
44	1.00	-0	-3	3	0	-4	4	0.00	571.76	0
45	1.00	1	-3	-1	3	-3	-2	0.00	527.44	0
46	1.00	-2	-5	1	-3	-5	1	0.00	511.65	0

Appendix D – Hood And Sink Wipe Sample Results

All of wipes samples were sent to the RSO, Inc. analytical laboratory for analysis. The lab package of sample results consists of:

- Results Summary Sheet
- Daily Swipe Transmittal Sheets
- Bulk Gamma Scan Results
- LSC Output

Radiation Safety Academy

@NIH
Fax# 301-480-2627 Phone# 301-435-7954

Results for NIH Swipes (PARK 5) 2004-1230

Survey date: 12/15/04 # of Swipes 718 *

✓ All Swipes <220 DPM

_____ Some Swipes >220 DPM But all others < 220 DPM

✓ All Swipes <22 DPM ALPHA

_____ Some Swipes >22 DPM But all others < 22 DPM ALPHA

Survey Date	Location	Surveyor	Survey #	Swipe #	Isotope	Results
				* Swipe # 39 Missing	PARK 5	415W (MJ)

RSO Inc. Representative: R Emmons Date: 12/17/04

swipes delivered on time: yes: ✓ no: _____

FAXED

Comments

Radiation Safety Academy

Serving Those Who Want the Best Understanding and Assurance of Radiation Safety

NIH Bldg 21 Rm 141, 21 Wilson Dr, Bethesda MD 20892 + 301-435-7953 + fax: 301-480-2627

csisuper@ors.od.nih.gov

NIH Daily Swipe Transmittal

Survey Date: 12/15/04 **Health Physicist: SA AF TJ LM (MJ) DP** ____

Survey # 1	Swipe #'s H1 - H2	Bldg/Rm # 411	5-6	2
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other			
Survey # 2	Swipe #'s H3	Bldg/Rm # 424	8	1
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other			
Survey # 3	Swipe #'s H4	Bldg/Rm # 425	15	1
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other			
Survey # 4	Swipe #'s H5 - H7	Bldg/Rm # 428	19,20,21	3
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other			
Survey # 5	Swipe #'s H8	Bldg/Rm # 407	32	
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other			
Survey # 6	Swipe #'s H9	Bldg/Rm # 409	34	1
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other			
Survey # 7	Swipe #'s H10 - H11	Bldg/Rm # 415	46,47	2
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other			
Survey # 8	Swipe #'s H12 - H13	Bldg/Rm # 417	48,49	2
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other			
Survey # 9	Swipe #'s H14 - H15	Bldg/Rm # 445	57 58	2
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other			
Survey # 10	Swipe #'s H16	Bldg/Rm # 408	60	1
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ)	Other			
Survey # 11	Swipe #'s	Bldg/Rm #		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ	Other			
Survey # 12	Swipe #'s	Bldg/Rm #		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ	Other			
Survey # 13	Swipe #'s	Bldg/Rm #		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ	Other			
Survey # 14	Swipe #'s	Bldg/Rm #		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ	Other			
Survey # 15	Swipe #'s	Bldg/Rm #		
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ	Other			

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NIH Bldg 21 Rm 141, 21 Wilson Dr, Bethesda MD 20892 ✦ 301-435-7953 ✦ fax: 301-480-2627
csisuper@ors.od.nih.gov

NIH Daily Swipe Transmittal

Survey Date: 12/15/04 **Health Physicist:** SA AF TJ LM (MJ) DP

Nuclides (each survey): ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I (β γ) Other

Survey #	Swipe #'s	Bldg/Rm #			Nuclides
1	S1 - S4	411	1-4	4	(β γ)
2	S5	424	7	1	(β γ)
3	S6 - S11	425	9-14	6	(β γ)
4	S12	429	16	1	(β γ)
5	S13 - S14	428	17-18	2	(β γ)
6	S15 - S16	435	22-23	2	(β γ)
7	S18	401	24	1	(β γ)
8	S19 - S20	405	25-26	2	(β γ)
9	S21 - S25	407	27-31	5	(β γ)
10	S26	409	33	1	(β γ)
11	S27	413	35	1	(β γ)
12	S28 - S37	415	36-45	10	(β γ)
13	S38	417	50	1	(β γ)
14	S39	433	51	1	(β γ)
15	S40 - S44	445	52-56	5	(β γ)

NIH Daily Swipe Transmittal

Survey Date: 12/15/04 **Health Physicist: SA AF TJ LM RT** (MJ)

Survey # 16 Swipe #'s 545-546 Bldg/Rm # 408 59+61
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 17 Swipe #'s 547 Bldg/Rm # 410 62
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 18 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 19 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 20 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 21 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 22 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 23 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 24 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 25 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 26 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 27 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 28 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 29 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

Survey # 30 Swipe #'s _____ Bldg/Rm # _____
Nuclides: ^{3}H ^{14}C ^{35}S ^{32}P ^{33}P ^{51}Cr ^{125}I ^{131}I β γ Other _____

NIH
Count Time(minutes): 1.00
Assay Type: CPM
Background Subtract : IFA Bkg
Outlier: 5.0 FLAG
%Spillup: 0.00
%Spilldown: 0.00
Screening OFF

	Window A		Window B		Window C	
Nuclide:	I-125	15 - 75 keV	Cr-51	240 - 400 keV	MAN	15 - 2000 keV
Bkg:	20.6		33.4		217	
Sigma:	0.00		0.00		2.00	
LCR:	0		0		0	
Half Life(hours):	0.00		0.00			
Multiplier:	1.0000					
%CV Flag Limit:	0.00		0.00			

S#	A:CPM	A:%SIG	B:CPM	B:%SIG	C:CPM	C:%SIG
1	2.4	65.1	11.6	29.3	38.4	16.1
2	0.0		1.6	78.1	0.0	
3	0.0		0.0		0.0	
4	1.4	85.7	0.0		0.0	
5	2.4	65.1	3.6	52.4	21.4	21.6
6	5.4	43.2	0.0		0.0	
7	3.4	54.6	0.0		9.4	32.7

EDITDATA.002 Archived to C:\ARCH\ARCH02D.034
---------- existing Archive File replaced!
C:\DATA\P2DATA Copied to C:\DATA\ARCH02A.034
---------- existing File replaced!

16 Dec 04 09:45:04 Packard Model 5003 COBRA SN: 424559

PROTOCOL # 2
NIH 10-Pk Gamma Scrn
NIH
COUNT TIME 1.00 Minutes

Window A		Window B		Window C	
LLD:	15 keV	LLD:	240 keV	LLD:	15 keV
ULD:	75 keV	ULD:	400 keV	ULD:	2000 keV
EFF:	79 %	EFF:	6 %	EFF:	70 %

Sample #	A:CPM	A:DPM	B:CPM	B:DPM	C:CPM	C:DPM
1	4	5	12	198	68	95
2	0	0	2	27	0	0
3	0	0	0	0	0	0
4	1	2	0	0	0	0
5	2	3	4	60	21	31
6	5	7	0	0	0	0

NIH

Assay Definition-

Assay Description:
NIH Triple label dpm using quench correction for low and mid energy channels. A constant 76% effieciency used in high energy channel.

Assay Type: DPM (Dual)
Report Name: Report1
Output Data Path: C:\Packard\Tricarb\Results\NIH\Triple Lable DPM
Raw Results Path: C:\Packard\Tricarb\Results\NIH\Triple Lable DPM\20041216_1156.results
Assay File Name: C:\Packard\TriCarb\Assays\Triple Lable DPM.lsa

Count Conditions-

Nuclide: Triple Label
Quench Indicator: tSIE/AEC
External Std Terminator (sec): 0.5 2s%
Pre-Count Delay (min): 0.00
Quench Sets:
Low Energy: 3H-UG-09-02-04
Mid Energy: 14C-UG-09-02-04
Count Time (min): 1.00
Count Mode: Normal
Assay Count Cycles: 1 Repeat Sample Count: 1
#Vials/Sample: 1 Calculate % Reference: Off

Background Subtract: On - 1st Vial
Low CPM Threshold: Off
2 Sigma % Terminator: On - Any Region

Regions	LL	UL	Bkg Subtract	2Sigma % Terminator
A	0.0	12.0	1st Vial	0.00
B	12.0	156.0	1st Vial	0.00
C	156.0	2000.0	1st Vial	0.00

Count Corrections-

Static Controller: On Luminescence Correction: On
Colored Samples: On Heterogeneity Monitor: n/a
Coincidence Time (nsec): 18 Delay Before Burst (nsec): 75

Half Life-

Half Life Correction: Off

Regions	Half Life	Units	Reference Date	Reference Time
A				
B				
C				

Cycle 1 Results

S#	Time	CPMA	CPMB	CPMC	DPM1	DPM2	DPM3	SIS	tSIE	LUM
1	10.00	4	8	4	0	0	5	79.25	644.49	1
2	1.00	-2	2	0	-5	3	0	90.36	551.83	0
3	1.00	-2	3	6	-5	4	8	0.00	582.33	0
4	1.00	5	4	0	10	3	0	42.32	530.03	0
5	1.00	0	1	0	-0	2	0	82.02	554.59	0
6	1.00	-2	3	1	-5	4	2	0.00	529.42	0
7	1.00	0	-2	2	1	-2	3	0.00	545.03	0
8	1.00	-2	-5	-2	-3	-5	-2	0.00	559.78	0

9	1.00	-1	-1	2	-2	-1	3	0.00	537.72	0
10	1.00	0	2	6	-1	3	8	52.10	517.56	0
11	1.00	-2	-2	4	-5	-2	6	0.00	376.81	0
12	1.00	-1	6	-1	-5	7	-1	169.11	517.54	0
13	1.00	-2	2	0	-4	3	0	71.10	511.39	0
14	1.00	-1	2	4	-3	3	6	0.00	530.86	0
15	1.00	0	2	3	-1	3	4	0.00	517.81	0
16	1.00	-2	-1	1	-4	-1	2	0.00	558.13	0
17	1.00	2	2	1	4	2	2	0.00	505.15	0
18	1.00	2	0	-1	4	0	-1	0.00	621.68	0
19	1.00	4	-1	2	9	-2	3	0.00	548.96	0
20	1.00	1	14	1	-1	17	2	130.43	597.99	0
21	1.00	2	-0	1	4	-1	2	0.00	576.14	0
22	1.00	0	-3	0	2	-4	0	0.00	556.88	0
23	1.00	-0	5	3	-2	5	4	11.11	575.76	0
24	1.00	2	0	-1	4	0	-1	92.54	589.94	0
25	1.00	2	-1	-1	5	-1	-1	46.71	547.82	0
26	1.00	0	5	2	-1	6	3	0.00	487.22	0
27	1.00	-2	0	1	-6	1	2	0.00	344.56	0
28	1.00	1	1	-1	2	1	-1	0.00	572.68	0
29	1.00	-0	-1	5	-0	-1	7	0.00	531.25	0
30	1.00	2	5	4	3	6	6	35.24	580.62	0
31	1.00	-1	-2	4	-2	-2	6	0.00	548.80	0
32	1.00	0	-4	3	1	-5	4	0.00	514.50	0
33	1.00	0	1	4	-0	2	6	0.00	498.36	0
34	1.00	2	3	1	4	4	2	0.00	510.35	0
35	1.00	3	2	2	6	2	3	44.55	565.54	0
36	1.00	-1	-1	5	-2	-1	7	0.00	539.54	0
37	1.00	1	-3	4	3	-3	6	0.00	513.07	0
38	1.00	0	2	2	-1	3	3	13.58	591.04	0
39	1.00	1	-1	5	2	-1	7	0.00	573.70	0
40	1.00	-1	1	2	-2	1	3	0.00	554.18	0
41	1.00	1	4	1	1	5	2	71.98	649.00	0
42	1.00	0	-4	4	1	-5	6	0.00	551.89	0
43	1.00	1	-1	1	2	-1	2	0.00	543.46	0
44	1.00	1	0	-3	2	0	-4	170.83	573.07	0
45	1.00	0	-4	1	1	-5	2	0.00	580.69	0
46	1.00	5	5	2	10	6	3	19.44	544.12	0
47	1.00	-2	1	1	-5	2	2	0.00	527.59	0
48	1.00	3	-3	-2	8	-4	-2	0.00	535.05	0
49	1.00	-4	0	3	-8	1	4	0.00	549.84	0
50	1.00	2	1	6	4	1	8	57.62	550.73	0
51	1.00	-2	1	-1	-4	1	-1	0.00	464.58	0
52	1.00	3	5	-1	5	6	-1	63.66	520.57	0
53	1.00	-1	8	0	-5	10	0	45.08	495.44	0
54	1.00	-2	-2	3	-4	-2	4	0.00	452.03	0
55	1.00	1	-5	4	3	-6	6	0.00	571.97	0
56	1.00	3	-2	3	8	-3	4	0.00	474.30	0
57	1.00	1	-2	2	3	-2	3	0.00	549.53	0
58	1.00	1	0	3	2	0	4	201.86	543.15	0
59	1.00	1	3	0	1	4	0	89.93	568.51	0
60	1.00	2	-0	2	5	-1	3	0.00	561.89	0
61	1.00	1	0	2	2	0	3	0.00	538.23	0
62	1.00	-1	0	2	-3	1	3	0.00	421.74	0
63	1.00	-3	-2	-2	-7	-1	-2	0.00	443.46	0

Appendix E – Instrument Calibration Certificates

RSO, Inc.
PO Box 1450
Laurel, MD 20725-1450
(301)953-2482

Certificate of Calibration

MAKE: Packard

MODEL: Tri-Carb 2900TR

Serial Number: 424560

Quench #	Set SN	Isotope	Original Activity		Reference Date	Decay CF	Current Activity	
6007603	8	H-3	266300 dpm	+/-1.6%	10/4/2001	0.8488	226036	dpm
6007604	3	C-14	137300 dpm	+/-1.3%	10/4/2001	0.9996	137252	dpm

Quench Curve ID
Low Energy: 3H-UG-11-13-03
Mid Energy: 14C-UG-11-13-03

Calibration Date: 8/31/2004
Calibration Due Date: 3/3/2005

Sample ID	tSIE	Expected (dpm)	Measured (dpm)	Difference (dpm)	% Difference
H-3 UG1	782	226036	230146	4110	1.82%
H-3 UG2	684	226036	231058	5022	2.22%
H-3 UG3	575	226036	229786	3750	1.66%
H-3 UG4	484	226036	229002	2966	1.31%
H-3 UG5	374	226036	230850	4814	2.13%
H-3 UG6	283	226036	229444	3408	1.51%
H-3 UG7	205	226036	232919	6883	3.05%
H-3 UG8	133	226036	229288	3252	1.44%
H-3 UG9	91	226036	227839	1803	0.80%
H-3 UG10	53	226036	240603	14567	6.44%
C-14 UG1	777	137252	136908	-392	-0.29%
C-14 UG2	680	137252	136886	-414	-0.30%
C-14 UG3	582	137252	136825	-475	-0.35%
C-14 UG4	492	137252	137230	-70	-0.05%
C-14 UG5	378	137252	137544	244	0.18%
C-14 UG6	286	137252	137706	406	0.30%
C-14 UG7	207	137252	137840	540	0.39%
C-14 UG8	134	137252	137194	-106	-0.08%
C-14 UG9	92	137252	137444	144	0.10%
C-14 UG10	53	137252	138280	980	0.71%

Prepared By: _____ 8/31/04
David Bisson — Date
Manager, Safety Services

Reviewed By: _____ 8/31/04
Gregory D. Smith, CHP — Date

RSO, Inc.
P.O. Box 1450
Laurel, MD 20725
(301) 953-2482

RSO Job No. **R5444**

Certificate of Calibration

ISSUED TO: **RSO, Inc.**
5206 Minnick Road
Laurel, MD 20707

CONTACT: Greg Smith
PHONE: (410) 792-7444

PO NO:

INSTRUMENT: LUDLUM
MODEL: 2221
TYPE: SCALER/RATE MET
SN: 161591

RSO, Inc. certifies that on 12/09/2004 the above described instrument was calibrated using a radioactive source to determine the efficiency for a specific radionuclide(s) and using electronically generated pulse for the linearity. Pulsed using Ludlum 500-2, S/N 159110.

The results are tabulated below. Calibration is traceable to NIST.

Calibration Data

	RANGE	EXPECTED	OBSERVED		C.F.
X	1	100	102	cpm	0.98
		400	400	cpm	1.00
X	10	1000	995	cpm	1.01
		4000	3991	cpm	1.00
X	100	10000	9939	cpm	1.01
		40000	39901	cpm	1.00
X	1000	100000	99363	cpm	1.01
		400000	398989	cpm	1.00
				C.F. AVERAGE	1.00

Probe type(s) **Probe1:** PROPORTIONAL **Probe2:** **Probe3:**

MODEL	SER#	WINDOW	GEOMETRY	VOLT	ISOTOPE 1	EFF.(%)	ISOTOPE 2	EFF.(%)	ISOTOPE 3	EFF.(%)	ISOTOPE 4	EFF.(%
43-68	PR079572	FIXED	CONTACT	1800	C14	20	Tc99	21	Sr90	28		

Note: High Voltage = 1800 Dial; Threshold = 79 Dial; Window = "OUT".

INSTRUMENT CHECKS

1 mR/hr CHECK: N/A
BATTERY CHECK: NORMAL
CHECK SOURCE 1: ~~N/A~~ Tc-99 READING: 3476 cpm
CHECK SOURCE 2: N/A READING:

ENVIRONMENTAL

TEMP: 22°C
PRESS: 762 mmHg
HUMID: 34 %

THE SUGGESTED RECALIBRATION DATE FOR THIS INSTRUMENT IS 06/09/2005

Calibrated By: Dorsey Austin Reviewed By: DB Cal Date: 12/09/2004

Maryland License MD-33-021-01

11337

RSO, Inc.
P.O. Box 1450
Laurel, MD 20725
(301) 953-2482

Certificate of Calibration

RSO Job No. **R5444**

ISSUED TO: **RSO, Inc.**
5206 Minnick Road
Laurel, MD 20707

CONTACT: Greg Smith
PHONE: (410) 792-7444

PO NO:

INSTRUMENT: LUDLUM
MODEL: 2221
TYPE: SCALER/RATE MET
SN: 174947

RSO, Inc. certifies that on 12/09/2004 the above described instrument was calibrated using a radioactive source to determine the efficiency for a specific radionuclide(s) and using electronically generated pulse for the linearity. Pulsed using Ludlum 500-2, S/N 159110.

The results are tabulated below. Calibration is traceable to NIST.

Calibration Data

	RANGE	EXPECTED	OBSERVED		C.F.
X	1	100	102	cpm	0.98
		400	400	cpm	1.00
X	10	1000	995	cpm	1.01
		4000	3986	cpm	1.00
X	100	10000	9943	cpm	1.01
		40000	39884	cpm	1.00
X	1000	100000	99411	cpm	1.01
		400000	399879	cpm	1.00
				C.F. AVERAGE	1.00

Note: High Voltage = 1800 Dial; Threshold = 60 Dial; Window = "OUT".

Probe type(s) **Probe1:** PROPORTIONAL **Probe2:** **Probe3:**

MODEL	SER#	WINDOW	GEOMETRY	VOLT	ISOTOPE 1	EFF.(%)	ISOTOPE 2	EFF.(%)	ISOTOPE 3	EFF.(%)	ISOTOPE 4	EFF.(%)
43-37	PR124945	FIXED	CONTACT	1800	C14	19	Tc99	19	Sr90	24		

INSTRUMENT CHECKS

1 mR/hr CHECK: N/A
BATTERY CHECK: NORMAL
CHECK SOURCE 1: ~~N/A~~ Tc-99 READING: 4330 cpm
CHECK SOURCE 2: ~~N/A~~ READING:

ENVIRONMENTAL

TEMP: 22°C
PRESS: 762 mmHg
HUMID: 34 %

THE SUGGESTED RECALIBRATION DATE FOR THIS INSTRUMENT IS **06/09/2005**

Calibrated By: For: Dorsey Austin Reviewed By: GDS Cal Date: 12/09/2004

Maryland License MD-33-021-01

11338

RSO, Inc.
P.O. Box 1450
Laurel, MD 20725
(301) 953-2482

Certificate of Calibration

RSO Job No. **R5455**

ISSUED TO: **RSO, Inc.**
5206 Minnick Road
Laurel, MD 20707

CONTACT: Greg Smith
PHONE: (410) 792-7444

PO NO:

INSTRUMENT: LUDLUM
MODEL: 2221
TYPE: SCALER/RATE MET
SN: 108857

RSO, Inc. certifies that on 12/13/2004 the above described instrument was calibrated using a radioactive source to determine the efficiency for a specific radionuclide(s) and using electronically generated pulse for the linearity. Pulsed using Ludlum 500-2, S/N 159110.

The results are tabulated below. Calibration is traceable to NIST.

Calibration Data

	RANGE	EXPECTED	OBSERVED		C.F.
X	1	100	99	cpm	1.01
		400	399	cpm	1.00
X	10	1000	999	cpm	1.00
		4000	3986	cpm	1.00
X	100	10000	9970	cpm	1.00
		40000	39850	cpm	1.00
X	1000	100000	99220	cpm	1.01
		400000	398504	cpm	1.00
				C.F. AVERAGE	1.00

Probe type(s) **Probe1:** PROPORTIONAL **Probe2:** **Probe3:**

MODEL	SER#	WINDOW	GEOMETRY	VOLT	ISOTOPE 1	EFF.(%)	ISOTOPE 2	EFF.(%)	ISOTOPE 3	EFF.(%)	ISOTOPE 4	EFF.(%)
43-20	PR113631	FIXED	CONTACT	1782	C14	19	Tc99	19	Sr90	21		

Notes: High voltage = 1782 Dial; Threshold = 75 Dial; Window = "OUT".

INSTRUMENT CHECKS

1 mR/hr CHECK: N/A
BATTERY CHECK: NORMAL
CHECK SOURCE 1: ~~N/A~~ READING: 4430 cpm
CHECK SOURCE 2: ~~N/A~~ READING:

ENVIRONMENTAL

TEMP: 21°C
PRESS: 754 mmHg
HUMID: 36 %

THE SUGGESTED RECALIBRATION DATE FOR THIS INSTRUMENT IS **06/13/2005**

Calibrated By: Dorsey Austin Reviewed By: DA Cal Date: 12/13/2004

Maryland License MD-33-021-01

11354

Appendix F – Memorandum From Thomas Mercer To Alan Fellman

Date: December 20, 2004

From: Thomas L. Mercer, Health Physicist

To: Dr. Alan Fellman, CHP

Subject: Decontamination of Room 428A at Parklawn 5

During the Final Status Survey of the fourth floor of the Parklawn 5 building Radiation Safety Academy identified two small areas of contamination on the floor in Room 428A, believed to be C-14.

Both areas were decontaminated using a commercial cleaner which removed the wax from the floor tiles. The areas were then resurveyed with a pancake GM meter and cellulose smears counted on a Liquid Scintillation Counter.

The background count rate of the Pancake GM meter was approximately 100 CPM. The direct scan of the floor areas resulted in no detectable counts above background. The smears taken of the area were all <220 dpm/100cm^2 (see attached LSC printout).

Thomas L. Mercer

SAMPLE ANALYSIS REQUEST FORM

Date Submitted: 12-16-04	**Time Submitted:** 13:40	**Analysis No.:** 04-1670	
Customer Name: Tom Mercer		**Organization:** DRS	
Sample/Survey Location (Bldg/Rm): PK5/428A			
Survey Area Type (Circle One):	Restricted	Unrestricted	Both / N/A
Applicable Limits:	2200 dpm/100cm^2	220 dpm/100cm^2	22 dpm/100cm^2 / 1000 dpm/100cm^2
	2000 dpm/100cm^2	200 dpm/100cm^2	< 0.005 µCi / Other:
No. of Samples: 4	**No. of Blanks:** 1	**Retain Samples?** Yes (No)	**Retain Smear Packet?** (Yes) No N/A

Sample Description: (Check All That Apply)

Smear	Swab	Liquid	Carboy	Tank	Mixed	X-check	Sealed Source
✓							
Air	Urine					Other: Please list in the comment box below.	

Comments: Resurvey of two hot spots on floor

Evaluate For Indicated Radionuclides: (Check All That Apply)

^{3}H	^{14}C	^{22}Na	^{35}S	^{32}P	^{33}P	^{45}Ca	^{51}Cr	^{55}Fe	^{57}Co	^{60}Co	^{63}Ni
^{75}Se	^{86}Rb	^{99m}Tc	^{111}In	^{123}I	^{125}I	^{131}I	^{133}Ba	^{137}Cs	^{177}Lu	^{195}Au	^{211}At
^{212}Bi	^{238}U	^{241}Am	α	β	γ	PET	Cyclotron		Activation		
				✓							
							Other: Please list all possibilities in the comment box below.				

Comments:

EXPEDITED COUNT REQUEST

(Please Notify TSB Immediately When Requesting Expedited Processing)

Justification:

Date/Time Needed (Be specific):

THIS SECTION FOR TSB USE ONLY

Instrument Data:	Counter:	LS6000	LS6500	LS6500	G8000	Wallac	GDR-1	GDR-2	Other
	Serial #:	218115	205946	242355	214655	4800082	DIM 298	DIM 318	
(Check All That Apply)		✓							

Analysis Data:	**Started**		**Completed**	
	Date: 12-17-04	Time: 0850	Date: 12-17-04	Time: 09:03

Customer Notification:	**Mode**	**Date**	**Time**	**Analyst Initials**
	Verbal			
	E-mail			
	Hard Copy			

Comments:

ID: SWIPES 17 DEC 2004 08:50

USER: 15 COMMENT: BECKMAN LS-6000TA

PRESET TIME : 2.00

DATA CALC : TL DPM H# :YES SAMPLE REPEATS: 1 PRINTER :EDIT

COUNT BLANK : NO IC# : NO REPLICATES : 1 RS232 : OFF

TWO PHASE : NO AQC :YES CYCLE REPEATS : 1

SCINTILLATOR: LIQUID LUMEX: NO LOW SAMPLE REJ: 0

LOW LEVEL : NO HALF LIFE CORRECTION DATE: none

ISOTOPE 1: 3H %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 10

ISOTOPE 2: 14C %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 8

ISOTOPE 3: 32P %ERROR: 0.00 FACTOR: 1.000000 BKG. SUB: 6

BACKGROUND QUENCH CURVE: Off COLOR QUENCH CORRECTION: Off

Quench Limits Low: 15.000 High: 325.11

SAM NO	POS	TIME MIN	H#	ISO	CORRECTED CPM	%ERROR	DPM	EFF-1	EFF-2	EFF-3	RATIO	LUMEX %	ELAPSED TIME
1	**-1	2.00	4.8	3H	*3.00	169.97	5.11	58.85	0.70	0.00	-110.9	0.02	2.56
				14C	0.00	1.E+06	-0.05	17.27	77.52	0.61			
				32P	0.00	1.E+06	0.00	5.21	10.92	74.45			
WARNING: QUENCH VALUE IS OUTSIDE QUENCH LIMIT													
2	**-2	2.00	5.5	3H	0.00	1.E+06	0.00	58.70	0.70	0.00	0.000	0.03	5.19
				14C	0.00	1.E+06	0.00	17.28	77.50	0.61			
				32P	0.00	1.E+06	0.00	5.20	10.92	74.45			
WARNING: QUENCH VALUE IS OUTSIDE QUENCH LIMIT													
3	**-3	2.00	5.0	3H	*2.00	244.95	3.41	58.81	0.70	0.00	-110.9	0.02	7.83
				14C	0.00	1.E+06	-0.03	17.27	77.51	0.61			
				32P	0.00	1.E+06	0.00	5.20	10.92	74.45			
WARNING: QUENCH VALUE IS OUTSIDE QUENCH LIMIT													
4	**-4	2.00	5.3	3H	*1.00	469.04	1.71	58.75	0.70	0.00	-110.9	0.04	10.46
				14C	0.00	1.E+06	-0.02	17.27	77.51	0.61			
				32P	0.00	1.E+06	0.00	5.20	10.92	74.45			
WARNING: QUENCH VALUE IS OUTSIDE QUENCH LIMIT													
MISSING SAMPLE													
6	**-6	2.00	5.0	3H	7.50	78.88	12.69	58.81	0.70	0.00	-31.84	0.05	13.11
BKG				14C	0.00	1.E+06	-0.40	17.27	77.51	0.61			
				32P	1.50	258.20	2.02	5.20	10.92	74.45			
WARNING: QUENCH VALUE IS OUTSIDE QUENCH LIMIT													

(LCD)
4.66σ
13
12
11

Follow-up Survey
PKS/4-428A
04-1670
β⁻ only

* < LCD

All < 220 dpm/100 cm²

12-17-04

V...

[illegible] 12-17-04

FINAL RADIOLOGICAL STATUS SURVEY REPORT

NATIONAL INSTITUTES OF HEALTH
12501 Washington Avenue
Rockville, MD

FINAL

January 2009

ATTACHMENTS

Attachment 1	Danac 4 Building Floor Plan
Attachment 2	DandD Occupancy Scenario Reports
Attachment 3	Reference Matrices and Associated Measurements
Attachment 4	Contaminants Present in Background – Relative Shift and Number of Data Points
Attachment 5	Contaminants Not Present in Background – Relative Shift and Number of Data Points
Attachment 6	Reference Maps of Sample Point Locations
Attachment 7	Results of Static Measurements
Attachment 8	Results of Swipe Samples
Attachment 9	Daily Operational Checks of Portable Survey Instruments

Abbreviations

ALARA	As Low As Reasonably Achievable
CPM	Counts per minute
DN4	Danac 4
DCGL	Derived Concentration Guideline Level
DPM	Disintegrations per minute
FSS	Final Status Survey
GCPM	Gross counts per minute
LBGR	Lower bound of the gray region
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDC	Minimum detectable concentration
MDCR	Minimum Detectable Count Rate
NCPM	Net counts per minute
NIAAA	National Institute of Alcohol Abuse and Alcoholism
NIH	National Institutes of Health
NRC	Nuclear Regulatory Commission
QA	Quality Assurance

References

1. NUREG-1507, "Minimum Detectable Concentrations With Typical Radiation Survey Instruments for Various Contaminants and Field Conditions", NRC-Washington, DC, June 1998

2. NUREG-1575, "Multi-Agency Radiological Survey and Site Investigation Manual, Revision 1", August 2000

3. NUREG-1757, Vol. 1, "Consolidated NMSS Decommissioning Guidance, Decommissioning Process for Materials Licenses", Final Report, NRC-Washington, DC, September 2002

4. NUREG-1757, Vol. 2, "Consolidated NMSS Decommissioning Guidance, Decommissioning Process for Materials Licenses", Final Report, NRC-Washington, DC, September 2003

5. NUREG-CR-5512, Vol. 2, SAND2001-0822P, "Residual Radioactive Contamination From Decommissioning, Users Manual DandD, Version 2.1", NRC-Washington, DC, April 2001

6. DandD, Version 2.1 software

7. Title 10, Code of Federal Regulations

8. ANSI/HPS N13.12-1999, " American National Standard – Surface and Volume Radioactivity Standards for Clearance", Approved August 31, 1999

1. Background

The National Institutes of Health is part of the Executive Branch of the United States Government within the Department of Health and Human Services. The National Institutes of Health (NIH) is a Nuclear Regulatory Commission (NRC) radioactive materials licensee. The NIH leased office and laboratory space, occupying one hundred percent of a building located in Rockville, MD. This facility was known to NIH support services entities initially as the "Flow Building" and more recently as Danac 4 (DN4). This facility has provided laboratory and office space for NIH research personnel for over twenty years. The NIH occupant has been the National Institute of Alcohol Abuse and Alcoholism (NIAAA).

The DN4 facility is located 12501 Washington Avenue, Rockville, MD 20852. The NIH leased the entire building consisting of 26,700 square feet; laboratory space 23,128 square feet and 3,572 of office and facility management space. There is an animal facility located on the east side of the facility. A floor plan for DN4 has been provided as Attachment 1.

The facility was found to be under major reconstruction. A majority of laboratory casework had been removed from the premises. Additionally, interior walls and ceilings had been removed as part of the reconstruction process.

There were research protocols that involved the use of radioactive materials in unsealed form from the mid-1980's to 2004. Unsealed form usage involved the benchtop manipulation of radioactive materials in life science research. These materials were procured and used at DN4 under the NIH's broad scope radioactive materials license, (number 19-00296-10 docket number: 030-01789, expiration date: 30 September 2012) issuing agency; the Nuclear Regulatory Commission (NRC).

The NIH, as an NRC licensee, is required to demonstrate that the previously occupied laboratory space is acceptable for release in accordance with the requirements and conditions specified by the NRC. The NIH has retained the services of Clym Environmental Services, LLC (Clym) to conduct a Final Status Survey. All decommissioning related activities were conducted under the authority of the current NIH radioactive materials license.

2. Radiological Surveys

There was non-fixed laboratory equipment (e.g. sections of dismantled casework, laboratory shelving, benchtops), in many laboratories/areas designated for evaluation. It was determined these items needed to be evaluated and as necessary removed from the facility in order to prepare the space for evaluation. Individual items were marshaled in centralized locations and inventoried. The evaluation

process was designed and conducted in accordance with the NIH radioactive materials license. Guidance was obtained from the "Surface and Volume Radioactivity Standards for Clearance", approved by the American National Standards Institutes, Inc. (ANSI/HPS N13.12-1999). The results of this evaluation are on file at Clym and available upon request. The floors throughout the facility were covered in a layer of dust and grit from reconstruction operations. It was necessary to remove this layer prior to the evaluation for total surface activity.

The Historical Site Assessment identified radionuclides used in open form that could remain at the site as possible contaminants; Tritium, 14-Carbon, 36-Chlorine and 238-Uranium. The ratio of possible contaminants was not determined as a discrepancy was identified between inventory and disposal records. It was necessary that each radionuclide be evaluated separately.

It should be noted that sealed sources were found to have been used at DN4. They included 63-Nickel, 137-Cesium, 152-Europium and 226-Radium. Records of leak tests were not available for review at the time the Historical Site Assessment was conducted. A review of archived sealed source records by Authorized User was conducted after the Historical Site Assessment report was completed. This review focused on Authorized Users leak test and sealed source inventory records during the period DN4 was in operation. No record of any leaking source was found as a result of this review.

The Final Status Survey would designate each survey unit for surface scans and swipe samples. All laboratory areas, cold boxes and hallways were designated as impacted. Additionally, the animal facility and autoclave room were also designated as impacted.

The lower wall area in impacted areas was defined as the surface area from the floor to a height of eight feet. Surface scans were designated to cover 50% of accessible floor and 50% of accessible lower wall areas. Surface scans of upper walls and ceilings were designated to cover 10% of the total surface area. All sinks and neutralization traps were designated for evaluation.

Scoping surveys were designed to evaluate levels of 1) total surface activity using surface scans as well as static measurements, and 2) removable surface contamination using swipe samples. Swipe sample locations were determined using the surveyor's professional judgment. Any area found to have residual surface contamination was designated for further evaluation as outlined below;

Surface Scans –any surface area found to be greater than twice the established background for the matrices being evaluated in the beta mode or 2 cpm above the established background for the matrices being evaluated in alpha mode.

Swipe Samples – any activity detected above the minimum detectable.

Any area found to be at the investigative level for surface scans would be designated for further evaluation. This evaluation would be made using static measurements and swipe samples to quantify the level of the contamination and better define the area.

Screening values for surface contamination were obtained using the values provided in NUREG-1757, Volume 1; Table B.1 in Appendix B. DandD Version 2.1 was used to obtain screening values for radionuclides not provided in Table B.1. A copy of the DandD Building Occupancy Scenario report has been provided as Attachment 2. A listing of the adopted screening values for building/surface contamination has been provided in Table 1.

Survey instruments were selected based on the detection sensitivities to the radiations of concern. The detection sensitivity of large area gas proportional detectors was evaluated to ensure detection levels are within acceptable parameters (10%-50% of the DCGL). The DCGL for ^{238}U is low compared to the DCGL's for other potential contaminants. In order to meet the acceptable detection parameter of 10% to 50% of the DCGL, 238-Uranium must be evaluated independently. The strategy for evaluating residual tritium surface contamination was developed using swipe samples.

Table 1

Radionuclide	Symbol	Acceptable Screening Levels (dpm/100cm^2)
3-Hydrogen	^{3}H	1.2E+08
14-Carbon	^{14}C	3.7E+06
36-Chlorine	^{36}Cl	5.0E+05
238Uranium+C	^{238}U	250

2.1 Field Measurements, Methods and Instrumentation

Surface scans and static measurements for beta emitting radionuclides were made using scaler/rate meters equipped with large area gas proportional detectors (Ludlum model 43-37 and model 43-68). Copies of calibration certificates are on file at Clym Environmental Services, LLC and are available upon request.

Surface scans and static measurements for an alpha emitting radionuclide were conducted using a 43-37 and 43-68 large area gas proportional detectors. The DCGL for ^{14}C was converted to counts per minute using a total efficiency for 14C of 0.22. This was determined using an instrument efficiency 0.15, surface efficiency of 0.25 and probe surface area of 582cm^2. Ten percent of the DCGL for ^{14}C is 3.7E+05dpm/100cm^2 or

8.1E+04cpm/100cm^2. Ten percent of the DCGL for ^{36}Cl was found to be 5E+04dpm/100cm^2 or 3.5E+04cpm/100cm^2. This was determined using an instrument efficiency 0.24, surface efficiency of 0.5 and probe surface area of 582cm^2. The minimum detectable count rate (MDCR) for the average surveyor was found to be 1,650 for a concrete floor matrix that measured reference background count rate of 1,238cpm. The MDCR was determined using 1.51 as the value for d' and a total efficiency of 0.22 for 14-Carbon. This calculated MDCR is significantly less than 10% of the DCGL for either ^{14}C or ^{36}Cl.

The averaged ambient background of 8cpm for a 43-37 detector in the alpha mode was selected. One half of the ^{238}U DCGL (250 dpm/100cm^2) is 125 dpm/100cm^2 or 31 cpm/100 cm^2 using instrument efficiency of 0.17, surface efficiency of 0.25 and 582cm^2 probe surface area. The probability of detecting two or more counts when passing over 125 dpm/100cm^2 was determined to be 21% (NUREG-1575, 6.7.2.2 (6-14)) using a probe dimension of 15 cm and a scan rate of 4cm/s. The time interval a surveyor should hold over a suspect area was determined to be 4 seconds (NUREG 1575, 6.7.2.2 (6-13)).

The conference and boiler rooms were designated as reference areas. A listing of the reference matrices and associated measurements for each portable survey instrument used has been provided as Attachment 3.

The detectors were employed on the scanned surface at no greater than the prescribed speed as indicated below;

43-68, alpha/beta mode ½ a probe width per second (2inches/sec)

43-68, alpha mode ¼ a probe width per second (1inch/sec)

43-37, alpha/beta mode ½ a probe width per second (3inches/sec)

43-37, alpha mode ¼ a probe width per second (1.5inches/sec)

The minimum observational interval or hold time over a suspect area is as specified for the first stage scan; Beta - 2 seconds, Alpha - 4 seconds. The detector was employed on the scanned surface at no greater than one quarter probe width per second. Surface scans were systematically conducted on accessible surfaces in each survey area as to ensure adequate coverage. Special attention was made to joints, cracks, seams, etc. in any accessible survey area.

2.2 Laboratory Analysis of Smear Samples

The evaluation of removable surface activity was conducted using a dry paper wipe, covering an area of 100cm^2 while applying moderate pressure. The coverage area was increased to 500cm^2 for facility surfaces and equipment swipe samples. Swipe sample were analyzed using liquid

scintillation counting techniques. The amount of removable surface contamination for Tritium is assumed to be 10% of the DCGL; therefore a ten percent swipe efficiency was applied. A total of four hundred and seventy-two swipe samples were collected and analyzed.

Smear samples were analyzed by Clym Environmental Services, LLC (license nr. MD-21-035-01) for gross beta. A region of interest was established 0 to 1000 MeV. The typical minimum detectable activity for gross beta using a two minute count time was less than 50 dpm. This was calculated using a background of 28 cpm and efficiency for tritium of 50%. Any sample found to have detectable activity in excess of the minimum detectable was designated for quantitative analysis.

2.3 Activity Detected At or Above Investigative Levels

A total of 75 swipe samples were collected on floor and lower wall surfaces throughout the facility prior to the commencement of on-site operations. The coverage area for each swipe sample was 500cm^2. No swipe sample was found to have detectable activity in excess of the minimum detectable, with the exception of one. A swipe sample collected from the floor area of laboratory 47, identified 117dpm/100cm^2 – Tritium. This reported activity was determined using a swipe efficiency of ten percent. The floor area was designated for reevaluation. A total of thirty swipe samples were collected in the floor area. Additionally, ten swipe samples were collected from the floor and lower wall area in the adjacent hallway. No removable surface contamination was identified in excess of the minimum detectable. Since the level of contamination originally identified was far less than DCGL no further action was required.

A laboratory sink basin located in laboratory 39B, identified 2,140dpm/100cm^2 – Tritium. This reported activity was determined by applying a swipe efficiency of ten percent. The area surrounding the sink as well as the sink basin was designated for reevaluation. A total of ten swipe samples were collected from the sink basin and surrounding area. Analysis found no removable surface contamination in excess of the instrument minimum detectable. The drain line from the sink was attached to a neutralization trap. The neutralization trap water was sampled and analyzed using liquid scintillation counting techniques. No activity was detected above the instruments minimum detectable, 1.3E-05μCi/ml. Swipe samples were also collected from sinks in the adjacent laboratory, number 39. No activity was detected above the instrument minimum detectable. Since the level of contamination originally identified was far less than DCGL no further action was required.

The evaluation of total surface contamination identified one area of surface contamination in excess of the investigative level. A lower wall area located in laboratory 47 was found to have an averaged surface

activity of 13,965dpm/100cm^2. The total surface area was determined to be 600cm^2. The maximum total surface activity was found to be 25,820dpm/100cm^2, and lowest was 3,042dpm.100cm^2. Swipe samples were collected from the affected area. Analysis found no removable surface contamination in excess of the instrument minimum detectable. Paint was removed from the affected area and chemically digested. Analysis of the digested paint sample identified 14-Carbon as the radio-nuclide.

2.4 Decontamination

In keeping with ALARA principles and goals, the contaminated section drywall found in laboratory 47 was removed and disposed of as radioactive waste.

3. Final Status Survey Plan

The Derived Concentration Guideline Levels and Final Status Survey method to demonstrate compliance with the provisions specified in 10 CFR Part 20 for releasing the facility for unrestricted use was determined. The screening values for surface contamination were obtained using the values provided in NUREG-1757, Volume 1; Table B.1 in Appendix B. DandD Version 2.1 was used to obtain the screening value for ^{238}U as it was not provided in Table B.1. A copy of the DandD Building Occupancy Scenario report is provided as Attachment 2. A listing of the adopted screening values for building/surface contamination has been provided in Table 1.

Survey units in impacted areas were designated, defined and classified. Survey Unit number "47" was designated as a Class 1 survey unit. The total floor area of this survey unit was determined to be 26m^2. The hallway area directly adjacent to survey unit 47 was identified as Survey Unit "47 Adjacent Hallway or "47 Adj. Hallway", and designated as a Class 2 survey unit. The total floor area of this survey unit was determined to be 13m^2.

All remaining laboratory areas, animal facility and hallways were identified as Survey Unit "DN4" and designated as a Class 3 survey unit. Each area within this survey unit was uniquely identified. A map of this building has been provided as Attachment 1. The total floor area of this survey unit was determined to be 1,942m^2.

The Final Status Survey designated each survey unit for surface scans and a one minute integrated or static measurements. Surface scans were completed in each survey unit during scoping surveys to the required specifications as detailed in Section 2 with the exception of survey unit 47. Survey unit 47 was designated for 100% surface scans on the floor and lower wall area.

3.1 Determining the Number of Data Points for Statistical Tests

This section details the determination process in the selection and implementation of statistical tests.

3.1.1 Contaminants Not Present in Background

The Sign Test was selected to compare beta emitting nuclides or those contaminants not present in background, ^{3}H, ^{14}C and ^{36}Cl. Since the ratio of contaminants was unknown, each would be independently evaluated. The level of ^{3}H contamination would be evaluated using swipe samples. The level of ^{14}C and ^{36}Cl would be evaluated using static measurements. The objective of the Final Status Surveys is to demonstrate that the residual radioactivity levels meet the release criterion. Scenario A has been selected to demonstrate this objective for residual contamination on building/structure surfaces. In demonstrating that this objective is met the null hypothesis tested, H_o; is the median concentration of residual radioactivity in the survey unit greater than the DCGL; the alternative hypothesis H_a; is the median concentration of residual radioactivity in the survey unit less than the DCGL.

H_o: The median concentration of residual radioactivity in the survey unit is greater than the DCGL.

The Type I error (α) was specified as 0.05 and a Type II decision error (β) was set at 0.05.

3.1.1.1 Calculate the Relative Shift

The DCGL, lower bound of the gray region and the standard deviation of the contaminants in the survey unit were used to calculate the relative shift. If the relative shift was determined to be >3 the lower bound of the gray region was adjusted. The relative shift for each survey unit has been provided in Attachment 4.

3.1.1.2 Determination of Sign p

The value of the relative shift calculated in section 3.1.1.1 was used to obtain the corresponding value of Sign p using Table 5.4 as found in NUREG-1575 (December 1997).

3.1.1.3 Determination of Decision Error Percentiles

The determination of percentiles, $Z_{1-\alpha}$ and $Z_{1-\beta}$ was conducted by selecting the designated values using Table 5.2 as found in NUREG-1575 (December 1997).

3.1.1.4 Determine the Number of Data points for the Sign Test

The number of data points for each survey unit was determined by selecting the designated values using Table 5.5 as found in

NUREG-1575 (December 1997). The number of data points for each survey unit has been provided in Attachment 4.

3.1.2 Contaminants Present in Background

3.1.2.1 Scenario A

The Wilcoxon Rank Sum (WRS) Test was selected to compare alpha emitting nuclides or those contaminants present in background, ^{238}U. In demonstrating the objective of the Final Status Survey is met, the null hypothesis H_o tested is the median concentration of residual radioactivity in the survey unit exceeds that in the reference area by more than the DCGL; the alternative hypothesis, H_a is the median concentration of residual radioactivity in the survey unit exceeds that in the reference area by less than the DCGL.

H_o: The median concentration of residual radioactivity in the survey unit exceeds that in the reference area by more than the DCGL.

The Type I error (α) was specified as 0.05 and a Type II decision error (β) was set at 0.05.

3.1.2.1.1 Calculate the Relative Shift

The DCGL, lower bound of the gray region and the standard deviation of the contaminants in the survey unit and reference area were used to calculate the relative shift. MARSSIM recommends using the larger value of standard deviation when the standard deviation in the survey unit and reference area is different. If the relative shift was determined to be >4 the lower bound of the gray region was adjusted. The relative shift for each survey unit has been provided in Attachment 5.

3.1.2.1.2 Determination of P_r

The value of the relative shift calculated in section 3.1.2.1.1 was used to obtain the corresponding value of P_r using Table 5.1 as found in NUREG-1575 (December 1997).

3.1.2.1.3 Determination of Decision Error Percentiles

The determination of percentiles, $Z_{1-\alpha}$ and $Z_{1-\beta}$ was conducted by selecting the designated values using Table 5.2 as found in NUREG-1575 (December 1997).

3.1.2.1.4 Determine the Number of Data points for the WRS Test

The number of data points for each survey unit was determined by selecting the designated values using Table 5.3 as found in NUREG-1575 (December 1997). The number of data points for each survey unit has been provided in Attachment 5.

4. Final Status Survey

A total of three survey units; one Class 1, one Class 2 and one Class 3, were designated for evaluation using Final Status Survey techniques. A one meter square grid system was constructed in each survey unit, to include the floors and lower wall areas.

The designation for each surface in a survey unit was identified using an alpha-numeric system. From the entrance to the area of interest, the left wall was designated as the "A" wall, the rear wall was designated as the "B" wall, the right hand wall was designated as the "C" wall and the wall in which the entrance resides is the "D" wall. The individual grids were sequentially numbered from top left to top right while facing each individual surface.

The surveyor used the following methodology to acquire the appropriate sample location in the grid system. Floor Area- locate the designated sample grid coordinate in the floor area with your back to the entrance way. Acquire the lower right hand corner in the floor grid coordinate. Wall Area - Facing the wall surface, locate the designated sample grid, and then acquire the lower right hand corner in the grid coordinate.

A diagram of each sample point within the surface area evaluated has been provided as Attachment 6.

The reference areas for establishing background for the different matrices were initially identified. Sample measurements were then made at various locations within each of the reference areas on each type of matrices.

Random sample points were identified for each survey unit. Sample points were designated using a random number generator after having assigned each grid coordinate a numerical value.

The results of static measurements made in each survey unit have been provided as Attachment 7. The results of swipe samples collected from each survey unit have been provided as Attachment 8.

4.1 Summary of Statistical Tests

The measurements made at designated locations as a result of FSS were evaluated.

4.1.1 Contaminants Not Present in Background

The Sign Test was selected to compare those contaminants not present in background, ^{3}H. The objective of the Final Status Surveys is to demonstrate that the residual radioactivity levels meet the release criterion.

H_o: The median concentration of residual radioactivity in the survey unit is greater than the DCGL.

All measurements were found to be less than the DCGL. The average of the measurements made in each survey unit was determined. The measurement average in each survey unit was found to be less than the DCGL. The Sign test did not need to be performed as each survey unit met the release criterion.

4.1.2 Contaminants Present in Background

The Wilcoxon Rank Sum (WRS) Test was selected to compare alpha emitting nuclides or those contaminants present in background, ^{238}U. In demonstrating the objective of the Final Status Survey is met the null hypothesis, H_o tested is the median concentration of residual radioactivity in the survey unit exceeds that in the reference area by more than the DCGL; the alternative hypothesis, H_a is the median concentration of residual radioactivity in the survey unit exceeds that in the reference area by less than the DCGL.

H_o: The median concentration of residual radioactivity in the survey unit exceeds that in the reference area by more than the DCGL.

The difference between the largest survey unit measurement and the smallest reference area measurement was determined. The difference was found to be less than the DCGL. The WRS test did not need to be performed as each survey unit met the release criterion.

5. Quality Assurance

The performance of decommissioning activities has been managed within a framework of policies and procedures, which assure the validity and quality of data. Procedures were established for activities requiring the application of standard and approved methods to ensure regulatory requirements were met. These procedures document the technical competence of the survey approach thus

ensuring the use of effective processes. Procedures utilized by Clym are documented using program-specific applications.

5.1 Daily Operational Checks for Portable Survey Instruments

The purpose of these procedures was to ensure portable scaler/rate meters equipped with gas proportional detectors were in proper working condition prior to placement into service.

When an instrument failed an operational check, both the instrument and detector were removed from service until the discrepancy could be resolved.

Both source and background measurements must fall within the acceptable range established for the site and were performed as follows:

Prior to beginning the performance of data measurements and/or scanning for the day,

After the lunch or noon break,

Any time the detector is suspected of being contaminated and

Any time instrument's operation is in question.

Daily checks included 1) a determination of operational readiness, 2) ambient background determination and verification that each reading is within the designated average for alpha and beta modes and 3) check source reproducibility determination.

The check source reproducibility determination involved obtaining the data necessary to calculate the average source count and verify that each section of the detector face was reading within ±10% in alpha mode. Additionally, the 2σ and 3σ values for the background and check source counts were calculated. The acceptable value for 3σ was established at ±10% of the mean. A copy of these daily checks has been provided as Attachment 9.

5.2 Internal Quality Assurance Checks

Quality assurance evaluations were conducted for each surveyor. These evaluations involved verification measurements to confirm Final Status Survey measurements for total surface contamination. Measurements were made at randomly selected Final Status Survey sample points from each survey unit. The procedures and techniques utilized to make these measurements were identical to those used in the FSS. Additionally, surface scans were conducted on what were deemed "high risk" surfaces

in each survey unit. "High risk" surfaces included laboratory benchtops, chemical fume hoods, fixtures, including door knobs and light switches.

The results of these evaluations are provided in the following Tables. This evaluation was conducted assessing the measured values for each survey point both verification and FSS, to determine if overlap occurred, at the 95% confidence level.

Table 2 - Direct Measurement – Gross Alpha

Sample ID	Final Status Survey Range		Acceptable Range (verification measurement)		Does overlap occur at the 95% CL?
47 Adj. Hallway-B8	-37	29	-29	29	Yes
47-B14	-34	34	-19	34	Yes
DN4-84-B15	-43	19	-11	48	Yes

Table 3 - Direct Measurement – 14 Carbon

Sample ID	Final Status Survey Range		Acceptable Range (verification measurement)		Does overlap occur at the 95% CL?
47 Adj. Hallway-B8	-706	129	-963	-109	Yes
47-B14	-570	167	-343	371	Yes
DN4-74F-D14	-923	-204	-325	390	Yes

Table 4 - Direct Measurement – 36 Chlorine

Sample ID	Final Status Survey Range		Acceptable Range (verification measurement)		Does overlap occur at the 95% CL?
47 Adj. Hallway-B8	-214	39	-314	-36	Yes
47-B14	-173	51	-112	121	Yes
DN4-74F-D14	-280	-62	-106	127	Yes

Table 5 – Swipe Samples - Tritium

Sample ID	Final Status Survey Range		Acceptable Range (verification measurement)		Does overlap occur at the 95% CL?
47 Adj. Hallway-B8	-10	20	-37	37	Yes
47-B14	-3	26	-5	25	Yes
DN4-74F-D14	-14	141	-3	25	Yes

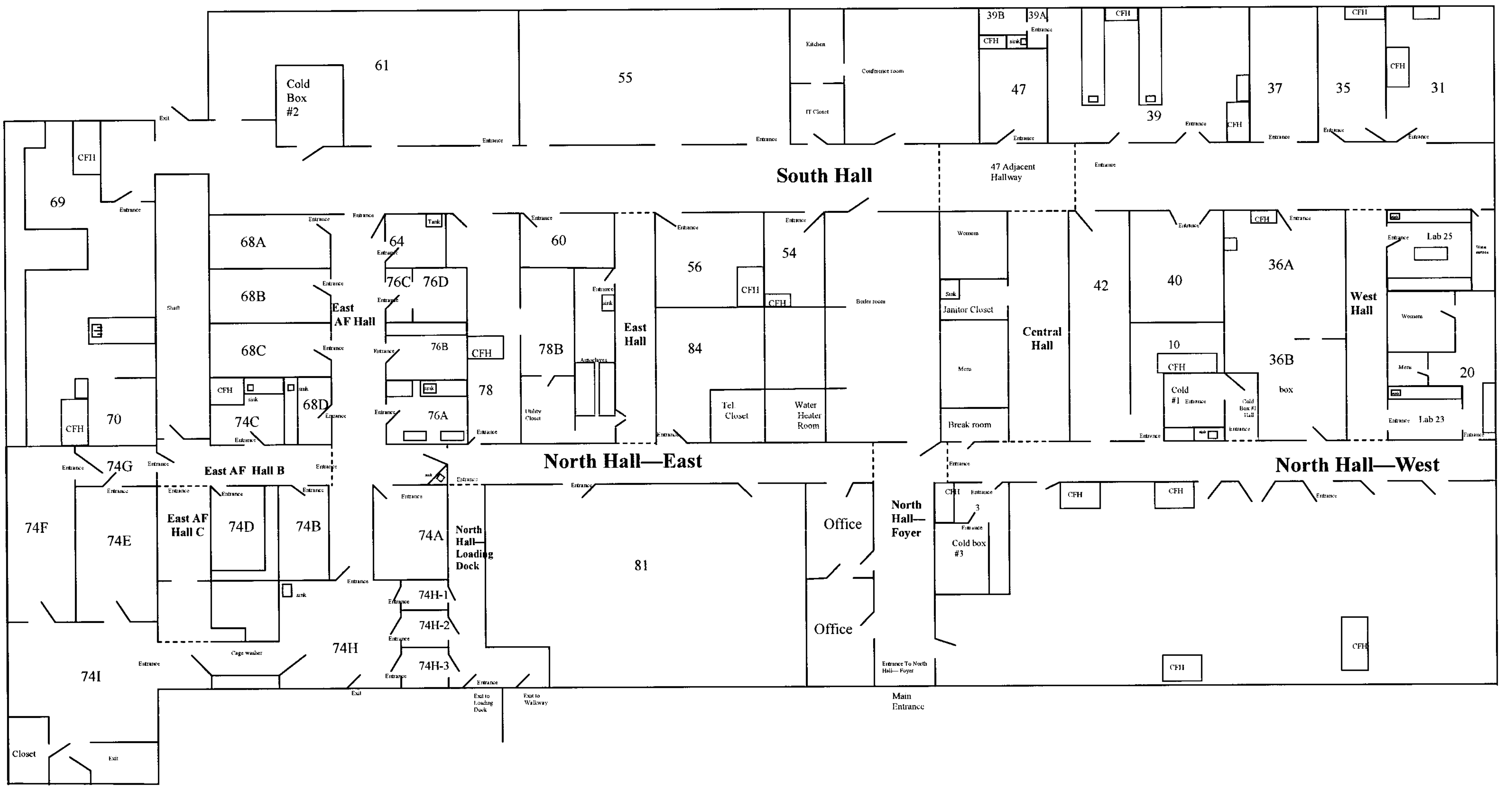
6. Disposition of Materials and Waste

All licensed radioactive material and waste has been removed from the site. The waste material has been designated for disposal at a licensed disposal site.

7. Conclusion

The Final Status Surveys conducted by the NIH demonstrates compliance with the provisions specified in Title 10 CFR Part 20 for releasing the building located at 12501 Washington Avenue in Rockville, MD for unrestricted use.

ATTACHMENT 1



South Hall
North Hall—East
North Hall—West
East AF Hall
East AF Hall B
East AF Hall C
East Hall
Central Hall
West Hall
North Hall—Loading Dock
North Hall—Foyer
47 Adjacent Hallway
61
55
Cold Box #2
Kitchen
Conference room
IT Closet
39B
39A
47
39
37
35
31
69
68A
68B
68C
68D
64
76C
76D
76B
76A
78
78B
60
56
54
84
Boiler room
Tel. Closet
Water Heater Room
Womens
Janitor Closet
Mens
Break room
42
40
10
36A
36B
Cold #1
box
Lab 25
Lab 23
20
70
74C
74G
74F
74E
74D
74B
74A
74H-1
74H-2
74H-3
74H
74I
81
Office
Office
Cold box #3
Closet
Shaft
Cage washer
Utility Closet
Autoclaves
Main Entrance
Entrance To North Hall— Foyer
Exit to Loading Dock
Exit to Walkway

ATTACHMENT 2

DandD Building Occupancy Scenario

DandD Version: 2.1.0
Run Date/Time: 12/4/2008 10:11:01 AM
Site Name: 12501 Washington Ave
Description: Determination of DCGL
FileName:C:\Documents and Settings\Finley Watts\My Documents\12720\12501 DCGL.mcd

Options:

Implicit progeny doses NOT included with explicit parent doses
Nuclide concentrations are distributed among all progeny
Number of simulations: 800
Seed for Random Generation: 8718721
Averages used for behavioral type parameters

External Pathway is ON
Inhalation Pathway is ON
Secondary Ingestion Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m^2)	Distribution
238U+C	UNLIMITED	CONSTANT(dpm/100 cm**2)
Justification for concentration: DCGL Determination		Value 2.50E+02

Site Specific Parameters:

General Parameters:

None

Correlation Coefficients:

None

Summary Results:

90.00% **of the** 800 **calculated TEDE values are <** 2.32E+01 **mrem/year .**
The 95 % Confidence Interval for the 0.9 **quantile value of TEDE is** 2.23E+01 **to** 2.43E+01 **mrem/year**

ATTACHMENT 3

Ludlum model 2221 SN: 168577 43-37B SN: O92791

Matrices	Counts per minute
drywall	895 ± 26
drywall over cinderblock	1216 ± 40
vinyl tile	1072 ± 36
metal, vertical	900 ± 22
concrete floor	1229 ± 37
cinderblock, not painted	1040 ± 36
cinderblock, painted	1056 ± 32
wood, vertical	957 ± 30
metal, horizontal	1147 ± 29
ceiling tile	1981 ± 57

Ludlum model 2221 SN: 211785 43-37B SN: 120106

Matrices	Counts per minute
drywall	863 ± 26
drywall over cinderblock	1113 ± 27
vinyl tile	1010 ± 21
metal, vertical	820 ± 18
concrete floor	1238 ± 24
cinderblock, not painted	1019 ± 24
cinderblock, painted	1032 ± 45
wood, vertical	886 ± 24
metal, horizontal	1106 ± 35
transite, horizontal	1119 ± 44
ceiling tile	1906 ± 37

Ludlum model 2221 SN: 211785 43-37A SN: 120106

Matrices	Counts per minute
drywall	6 ± 2
drywall over cinderblock	8 ± 2
vinyl tile	6 ± 2
metal, vertical	7 ± 2
concrete floor	13 ± 2
cinderblock, not painted	16 ± 3
cinderblock, painted	14 ± 3
wood, vertical	8 ± 2
metal, horizontal	7 ± 1
ceiling tile	16 ± 3

Ludlum model 2221 SN: 211785 43-68A SN: 127616

Matrices	Counts per minute
wood, vertical	2 ± 1
wood, horizontal	2 ± 1
laminate, vertical	3 ± 2
laminate, horizontal	1 ± 1
metal, vertical	1 ± 1
metal, horizontal	1 ± 1
transite panel, vertical	2 ± 2
transite panel, horizontal	2 ± 1
drywall	1 ± 1
drywall over cinderblock	1 ± 1
ceiling tile	3 ± 1

Ludlum model 2221 SN: 211785 43-68B SN: 127616

Matrices	Counts per minute
wood, horizontal	359 ± 20
wood, vertical	337 ± 18
laminate, horizontal	362 ± 15
laminate, vertical	314 ± 11
metal, horizontal	372 ± 22
metal, vertical	322 ± 17
transite panel, horizontal	397 ± 22
transite panel, vertical	350 ± 21
drywall	381 ± 14
drywall over cinderblock	448 ± 54
ceiling tile	619 ± 27

Ludlum model 2221 SN: 86286 43-37B SN: O94515

Matrices	Counts per minute
drywall	789 ± 21
drywall over cinderblock	961 ± 37
concrete floor	1188 ± 32
cinderblock, not painted	988 ± 46
cinderblock, painted	991 ± 28
metal, vertical	765 ± 30
metal, horizontal	963 ± 34
vinyl tile	945 ± 23
ceiling tile	1741 ± 25
wood, vertical	841 ± 37

Ludlum model 2221 SN: 86286 43-37A SN: O94515

Matrices	Counts per minute
drywall	9 ± 3
drywall over cinderblock	11 ± 4
laminate, horizontal	19 ± 3
laminate, vertical	10 ± 4
wood, horizontal	12 ± 3
wood, vertical	8 ± 3
transite panel, horizontal	8 ± 2
transite panel, vertical	10 ± 2
vinyl tile	10 ± 3
cinderblock, painted	12 ± 2
cinderblock, not painted	13 ± 2
metal, vertical	14 ± 3
metal, horizontal	8 ± 3
ceiling tile	9 ± 2
	12 ± 3

Ludlum model 2221 SN: 176948 43-37A SN: O93966

Matrices	Counts per minute
drywall	7 ± 1
drywall over cinderblock	6 ± 1
cinderblock, not painted	13 ± 4
cinderblock, painted	15 ± 3
metal, horizontal	14 ± 3
metal, vertical	6 ± 1
wood, vertical	7 ± 2
vinyl tile	3 ± 1
ceiling tile	7 ± 1
	5 ± 2

Ludlum model 2221 SN: 176948 43-37B SN: O93966

Matrices	Counts per minute
drywall	822 ± 24
drywall over cinderblock	1080 ± 20
concrete floor	1183 ± 24
laminate, horizontal	994 ± 32
cinderblock, painted	1012 ± 21
cinderblock, not painted	1113 ± 29
transite panel, horizontal	1112 ± 16
transite panel, vertical	903 ± 18
metal, horizontal	999 ± 29
metal, vertical	822 ± 41
laminate, vertical	779 ± 31
wood, horizontal	950 ± 26
wood, vertical	863 ± 21
vinyl tile	968 ± 38

Ludlum model 2221 SN: 176940 43-68B SN: 122020

Matrices	Counts per minute
metal, vertical	241 ± 20
drywall	258 ± 17
drywall over cinderblock	278 ± 20
ceiling tile	487 ± 29
metal, horizontal	310 ± 16

Ludlum model 2221 SN: 176940 43-68A SN: 122020

Matrices	Counts per minute
transite panel, horizontal	6 ± 1
transite panel, vertical	5 ± 1
metal, horizontal	4 ± 2
metal, vertical	3 ± 2
laminate, horizontal	2 ± 2
laminate, vertical	2 ± 1
wood, horizontal	2 ± 1
wood, vertical	2 ± 1
drywall	3 ± 1
drywall over cinderblock	4 ± 2
ceiling tile	5 ± 1

ATTACHMENT 4

Contaminants Present in Background - Relative Shift and Number of Data Points

Survey Unit	Classification	Reference Areas	Averaged NCPM in Alpha Mode		Nr. of Points	σ	LBGR	β	Δ/σ
			Survey Unit	Reference Area					
DN4	3	Conference room, Boiler room	0.9 ± 2.7	-0.3 ± 2.4	10	4	49	0.05	3.63
47	1	Conference room, Boiler room	-0.7 ± 1.4	-2.2 ± 1.7	10	2	54	0.05	3.86
47 Adj Hallway	2	Conference room, Boiler room	-0.5 ± 1.1	-0.6 ± 1.5	10	2	56	0.05	3.49

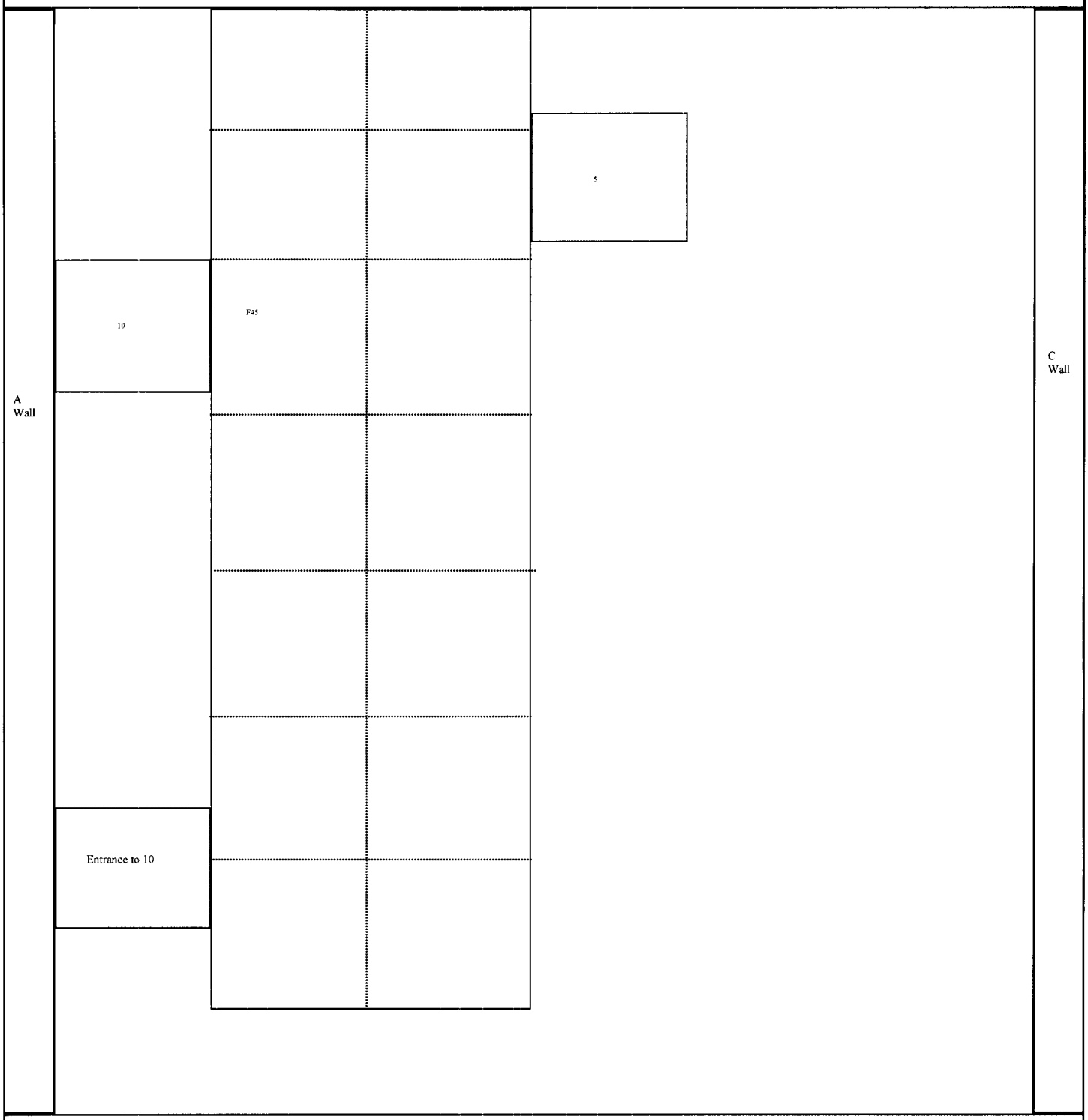
Contaminants Not Present in Background - Relative Shift and Number of Data Points

Survey Unit	Classification	Nuclide	Averaged NCPM	Nr. of Points	σ	LBGR	β	Δ/σ
DN4	3	36Cl	-19 ± 67	34	67	349140	0.05	0.9
DN4	3	14C	-19 ± 67	26	67	807450	0.05	1.1
DN4	3	3H	4 ± 3	15	3.3	552351	0.05	2.7
47	1	36Cl	-18 ± 28	15	28	349140	0.05	2.2
47	1	14C	-18 ± 28	15	28	807450	0.05	2.7
47	1	3H	4 ± 4	15	2.6	552353	0.05	2.7
47 Adj Hallway	2	36Cl	-33 ± 29	15	29	349140	0.05	2.1
47 Adj Hallway	2	14C	-33 ± 29	15	29	807450	0.05	2.6
47 Adj Hallway	2	3H	8 ± 5	15	4.5	552351	0.05	2.0

ATTACHMENT 5

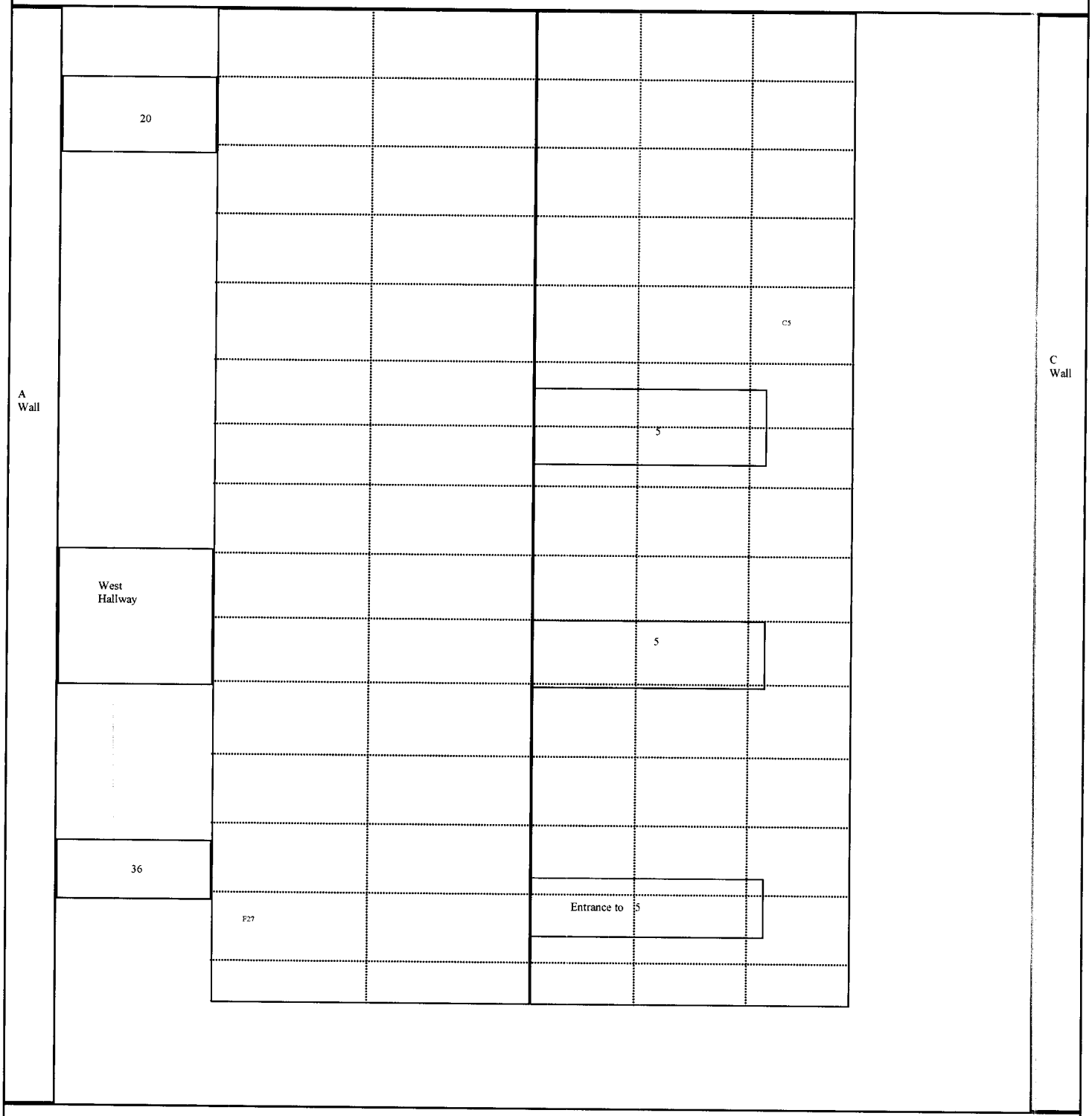
ATTACHMENT 6

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: NORTH WEST HALLWAY —F45	TIME: VARIED



Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: NORTH HALLWAY-WEST C5, F27	TIME: VARIED



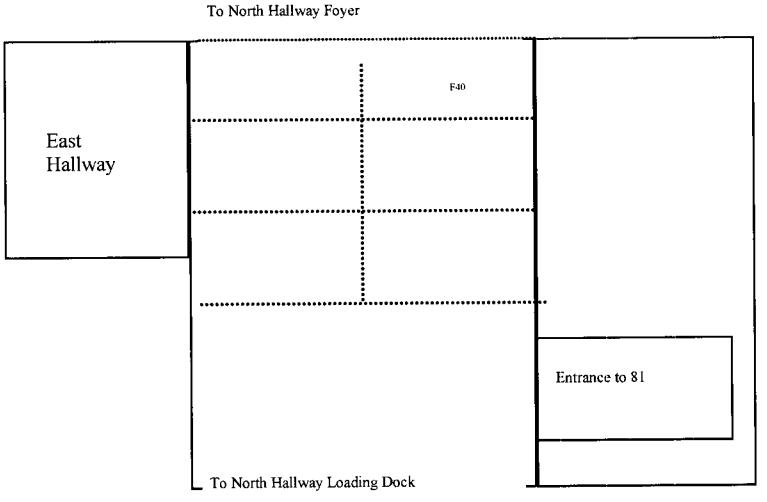
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: NORTH EAST HALLWAY—F40	TIME:

B Wall

A Wall

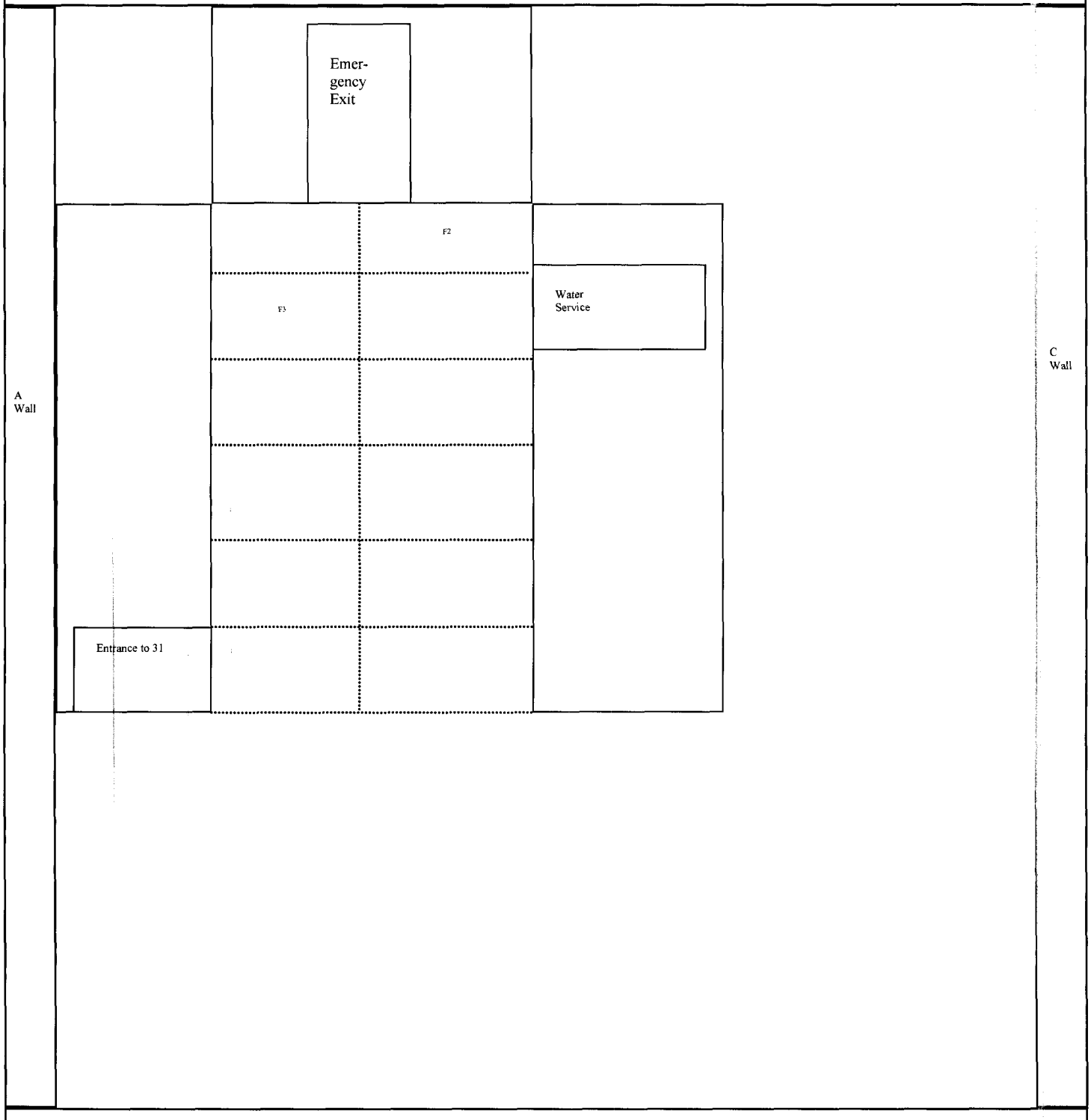
C Wall



D Wall

Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: SOUTH HALLWAY—F2, F3	TIME: VARIED

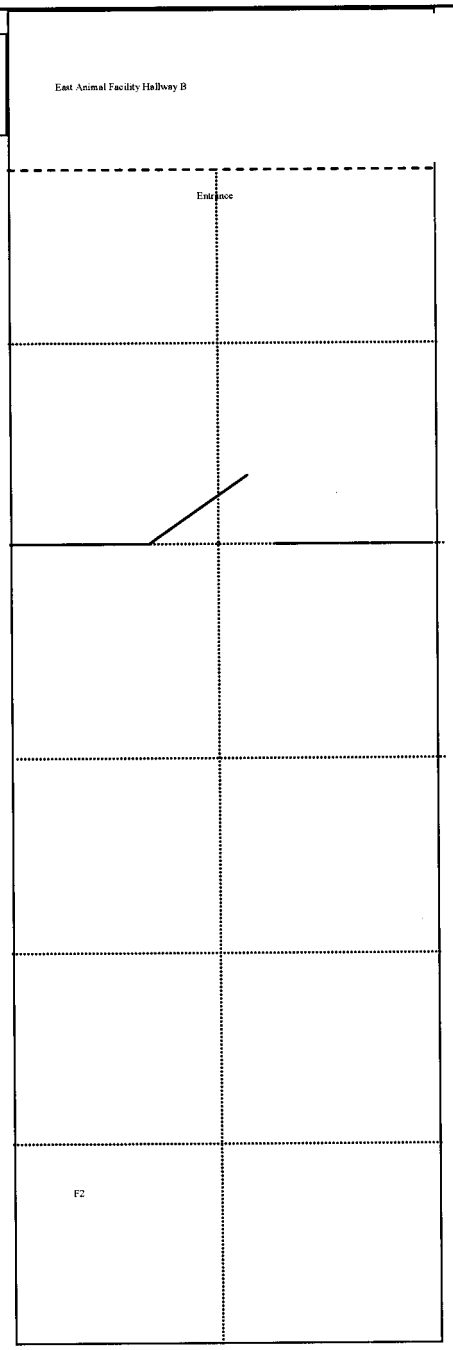


Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: EAF HALLWAY C—F2	TIME: VARIED

B Wall

A Wall



C Wall

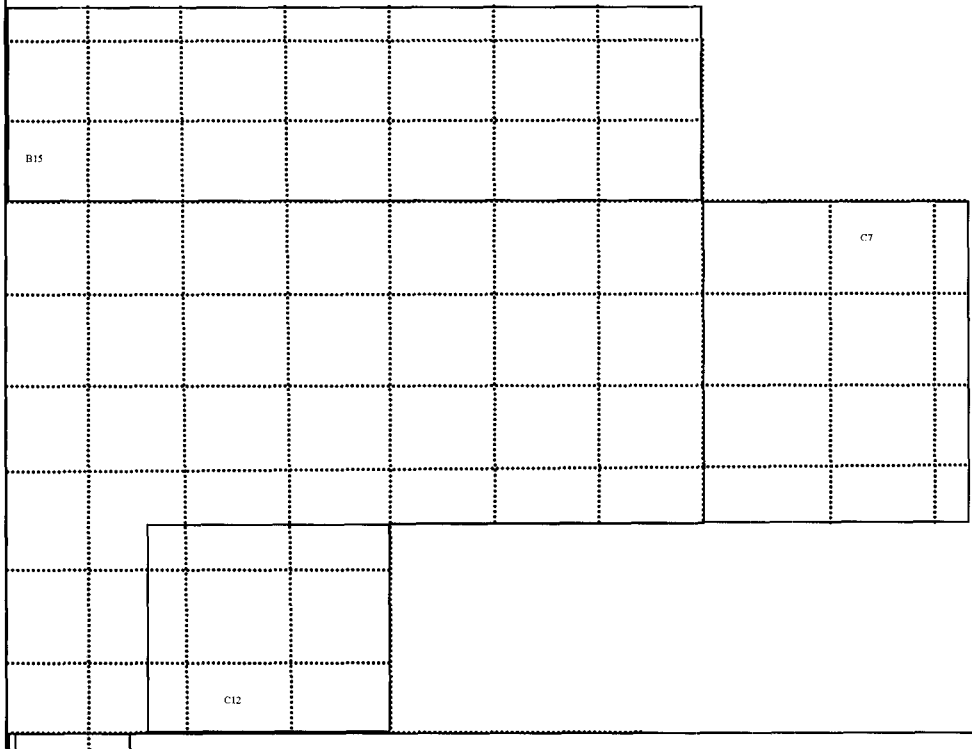
D Wall

Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 84-B15, C7, 12 AND D20	TIME:

B Wall

A Wall

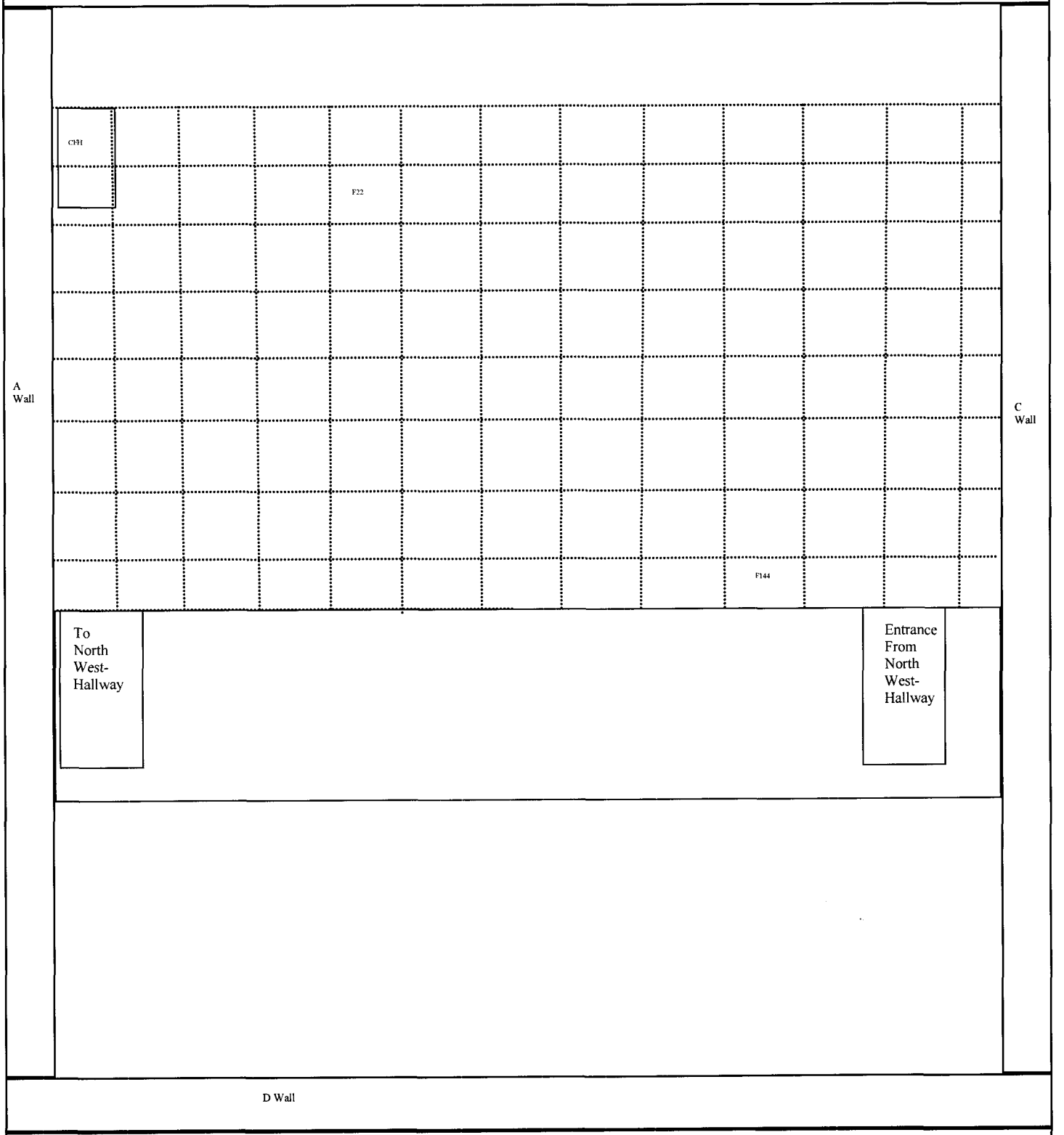


C Wall

D Wall

Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 81-F22 AND F144	TIME:

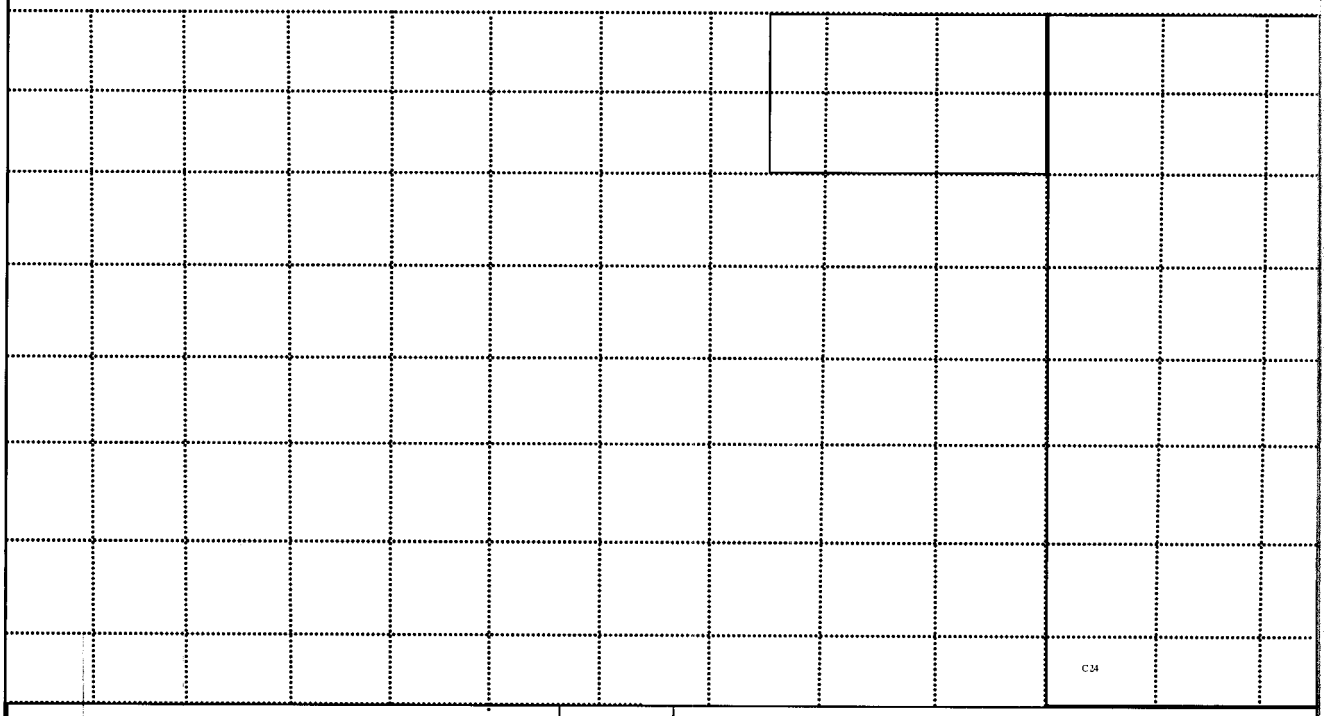


Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 81-C24	TIME:

B Wall

A Wall

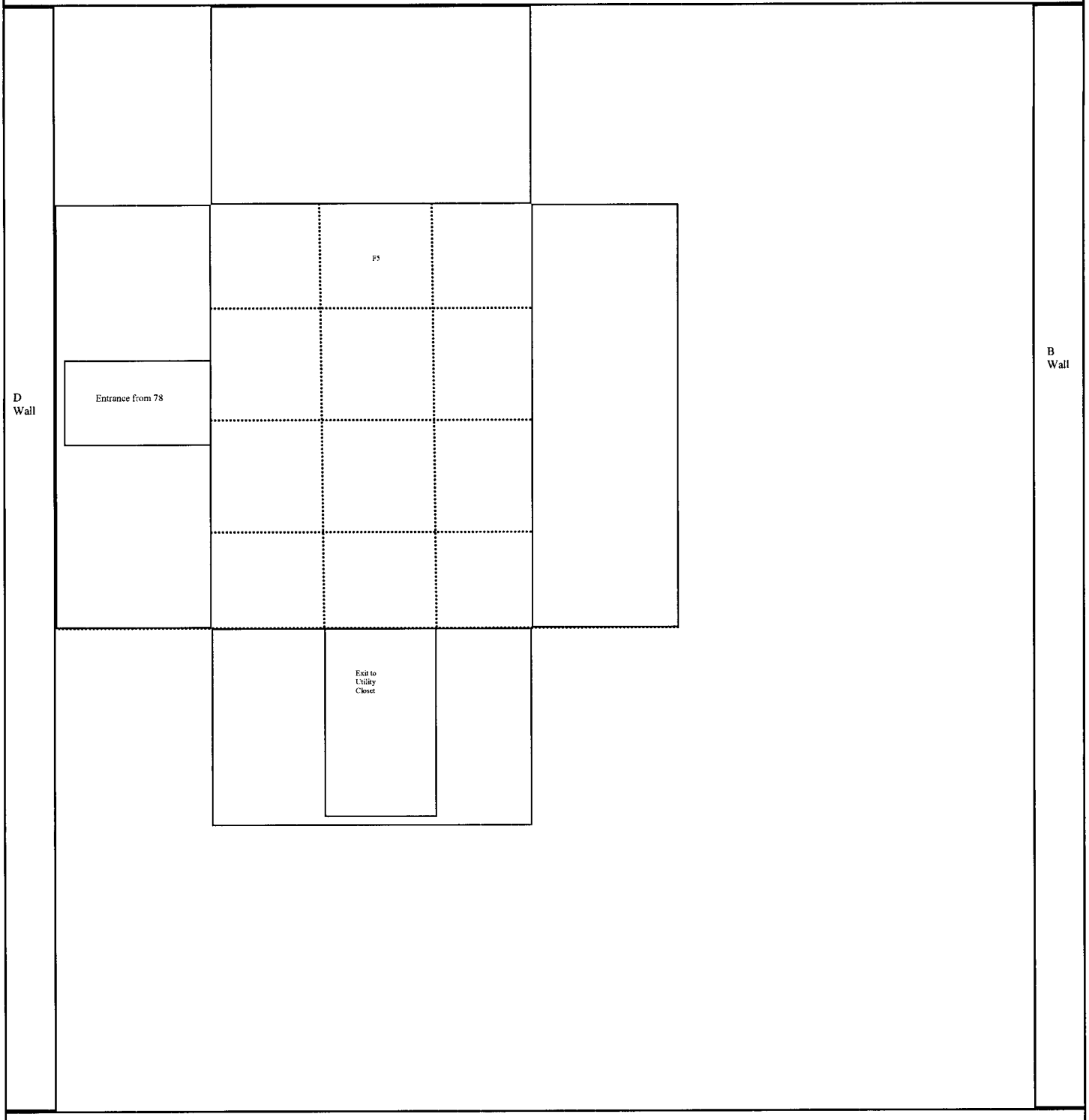


C Wall

D Wall

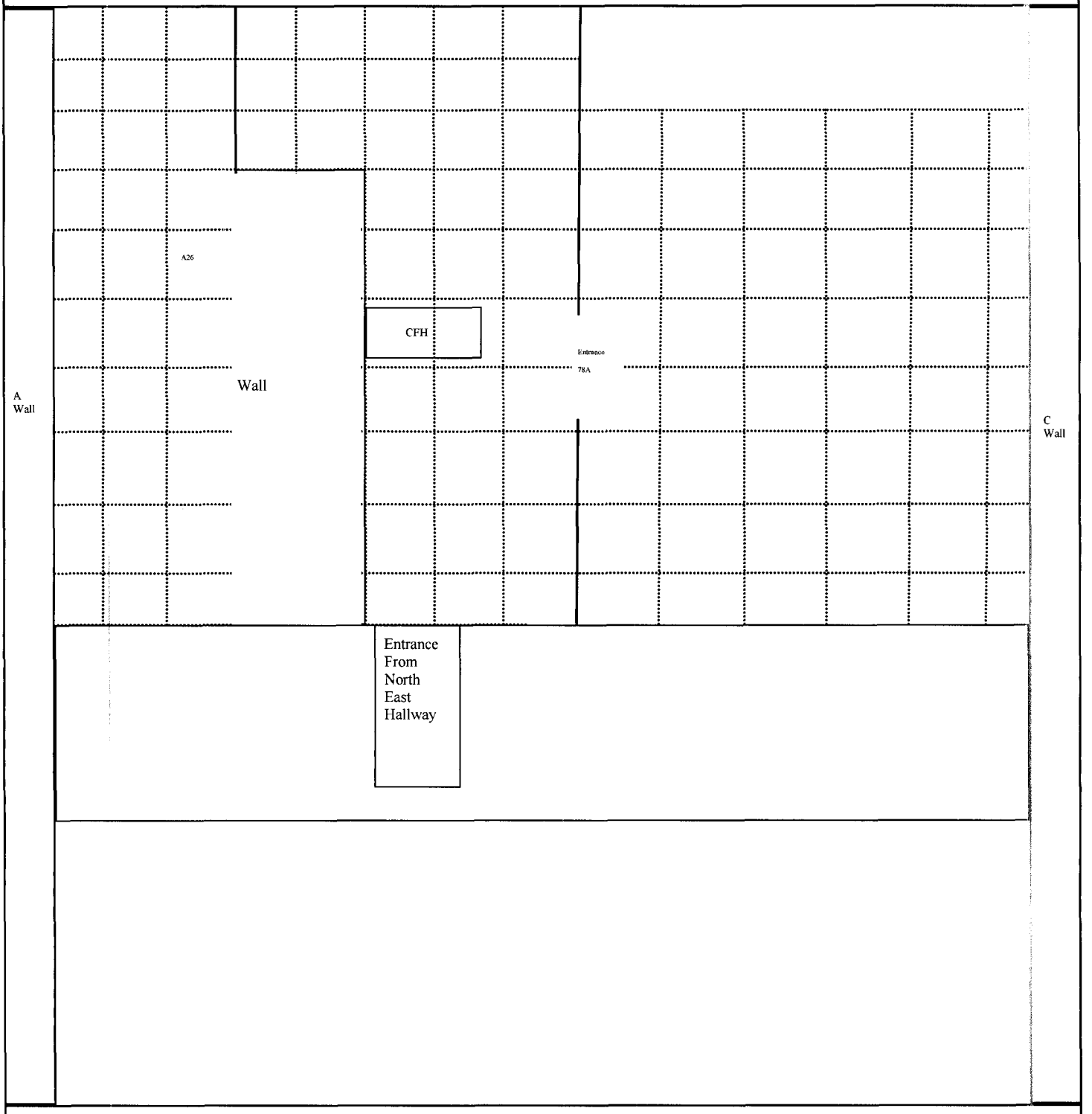
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 78A-F5	TIME: VARIED



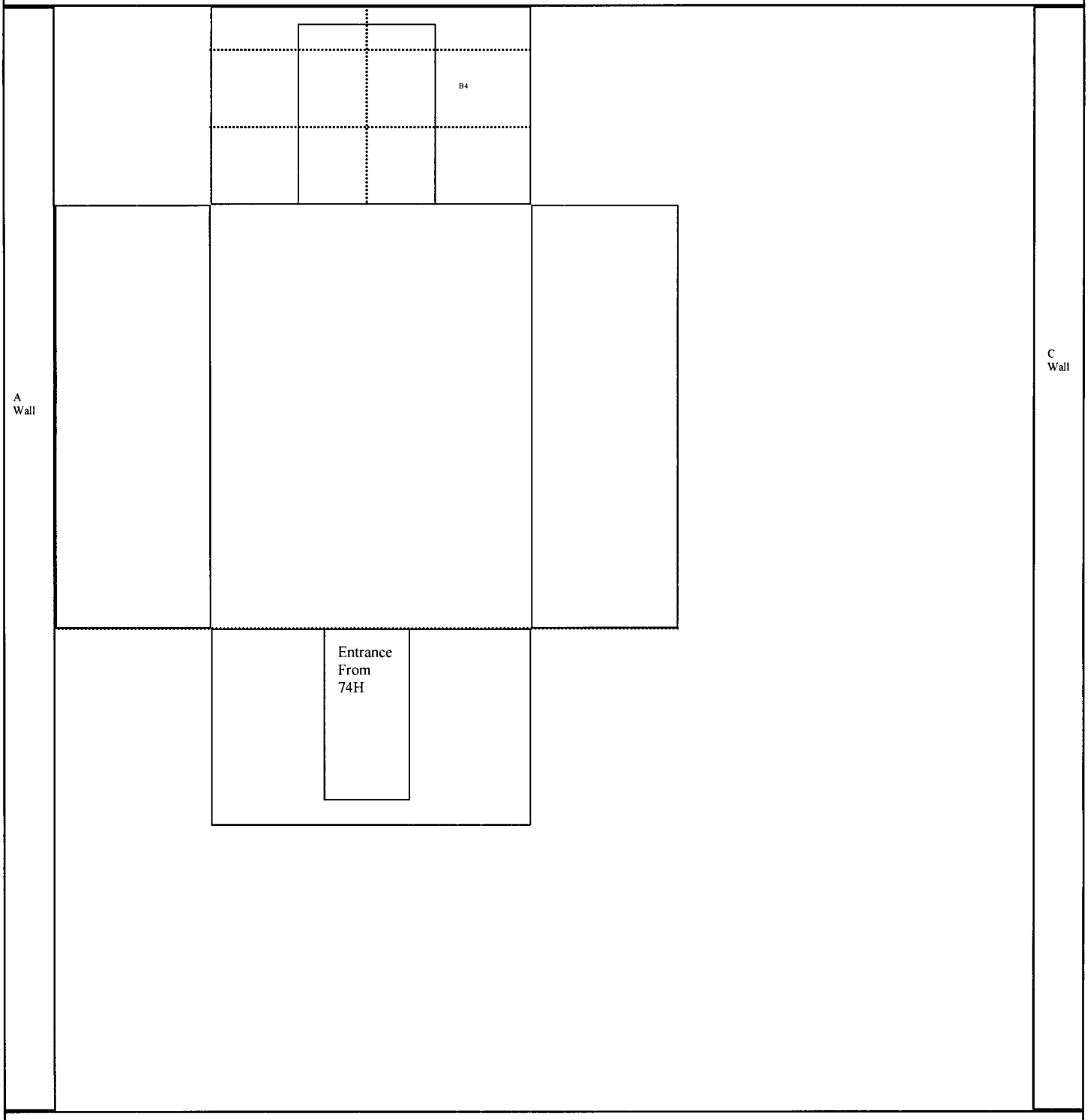
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 78-A26	TIME:



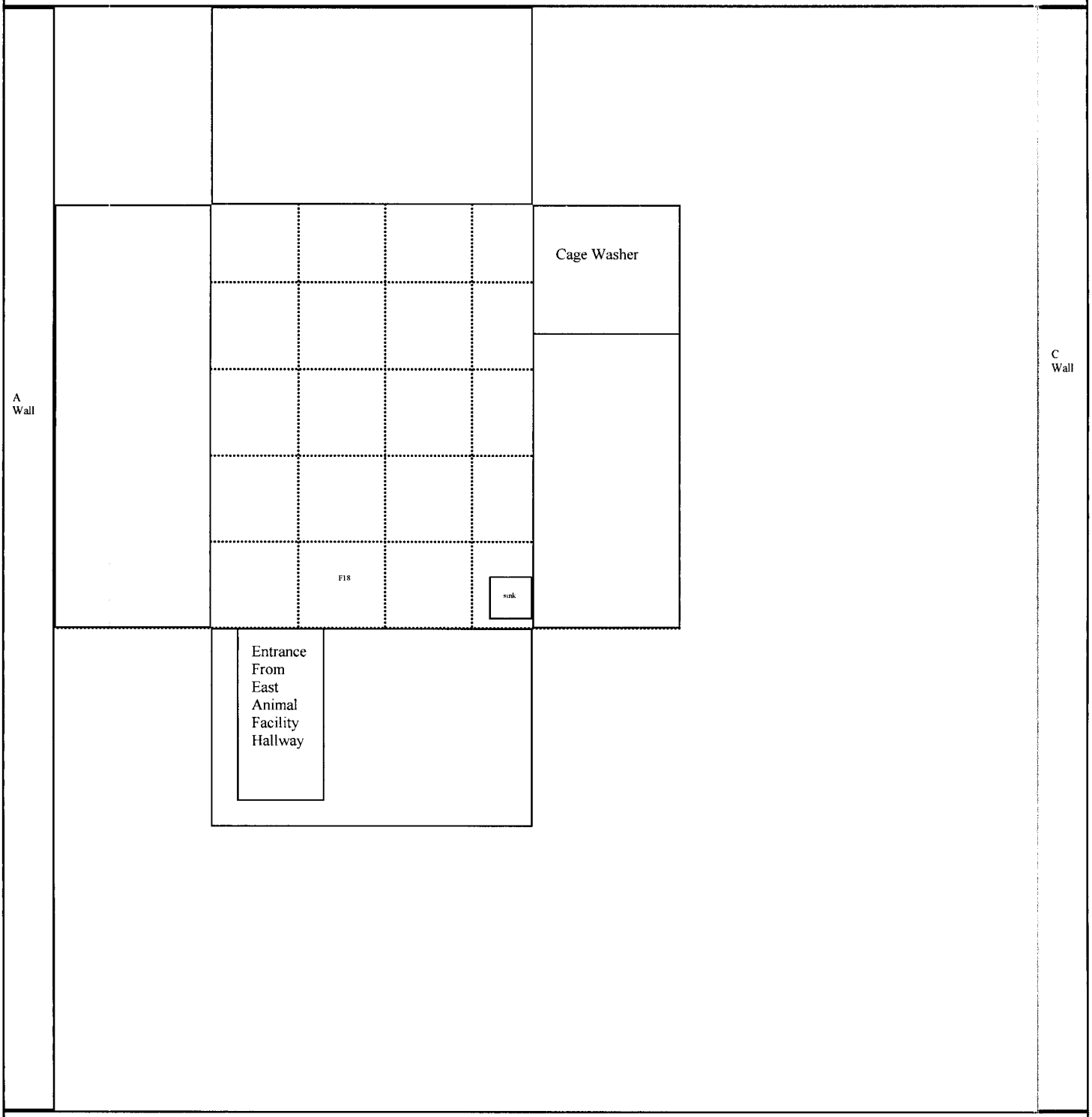
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 74H2-B4	TIME: VARIED



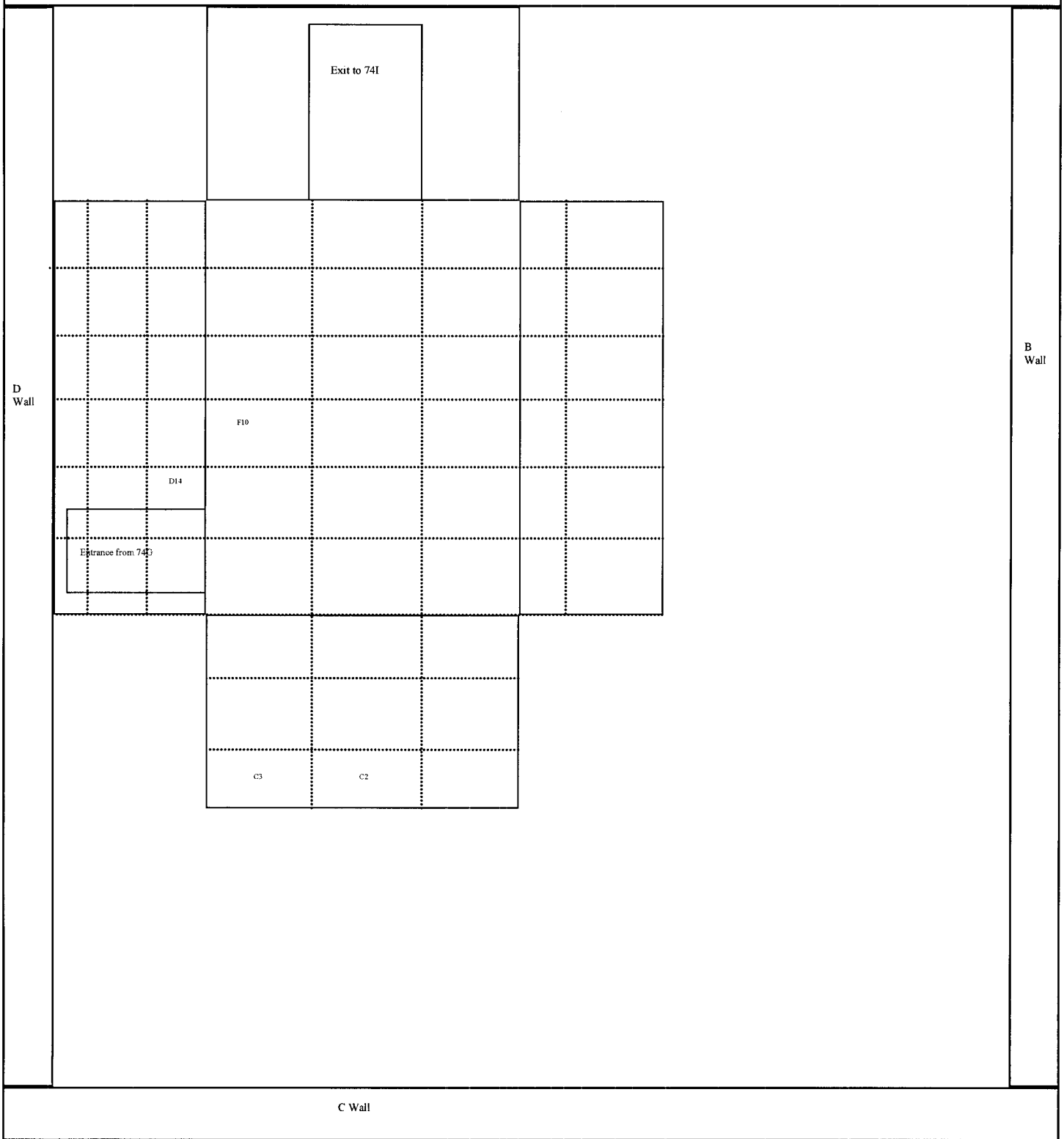
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 74H –F18	TIME: VARIED



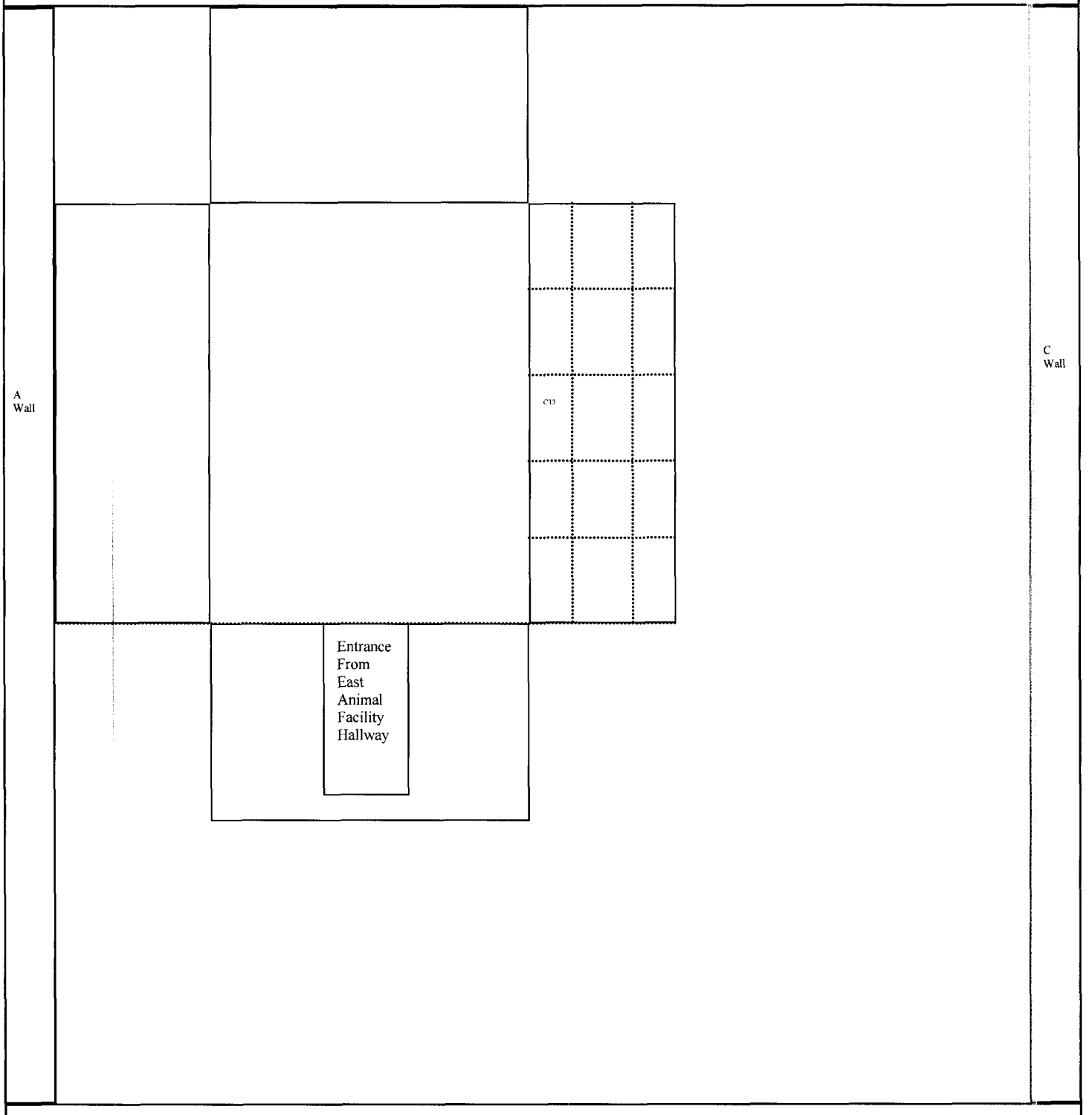
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 74F—C2,3, F10 AND D14	TIME: VARIED



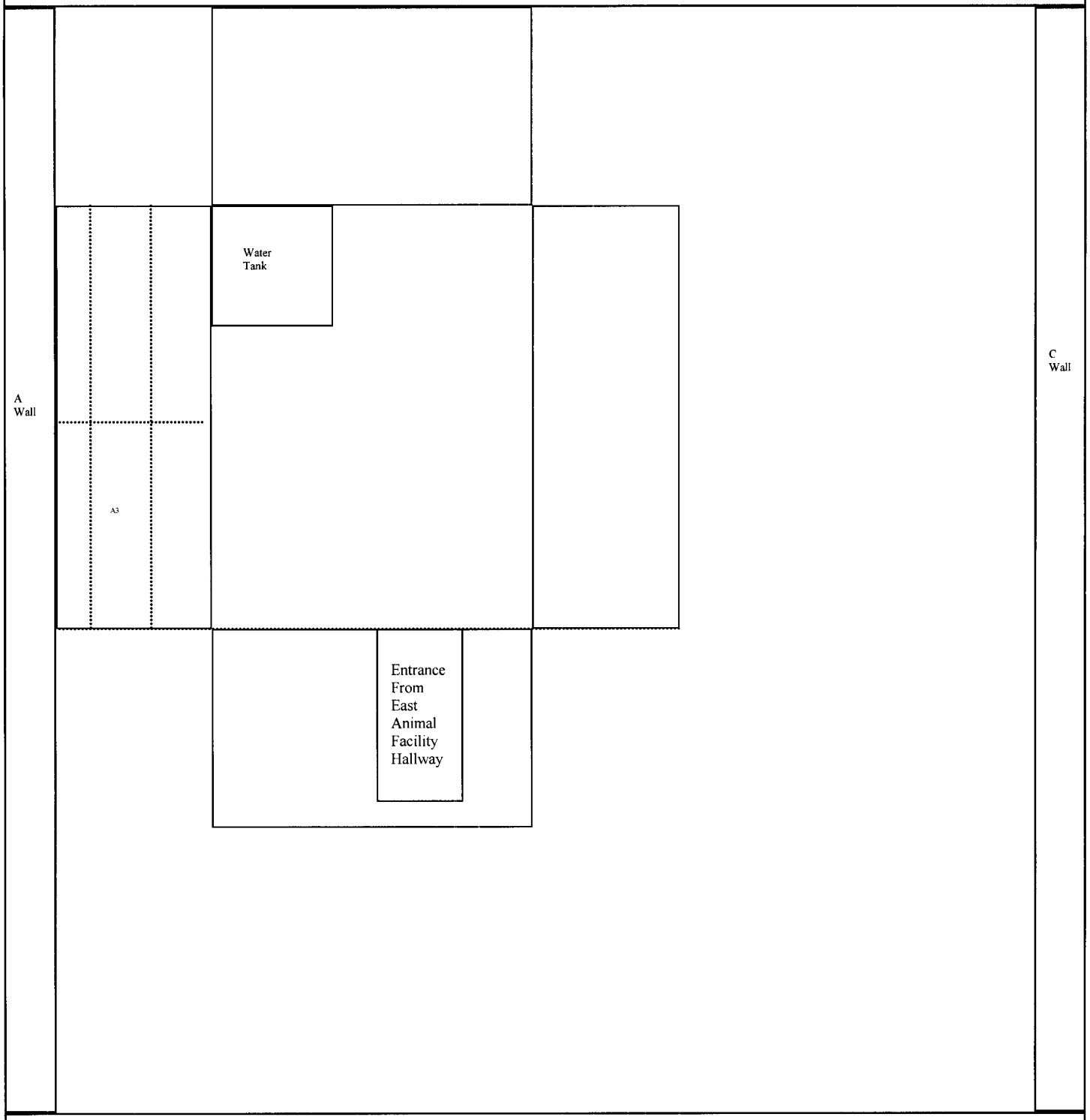
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 68A-C13	TIME: VARIED



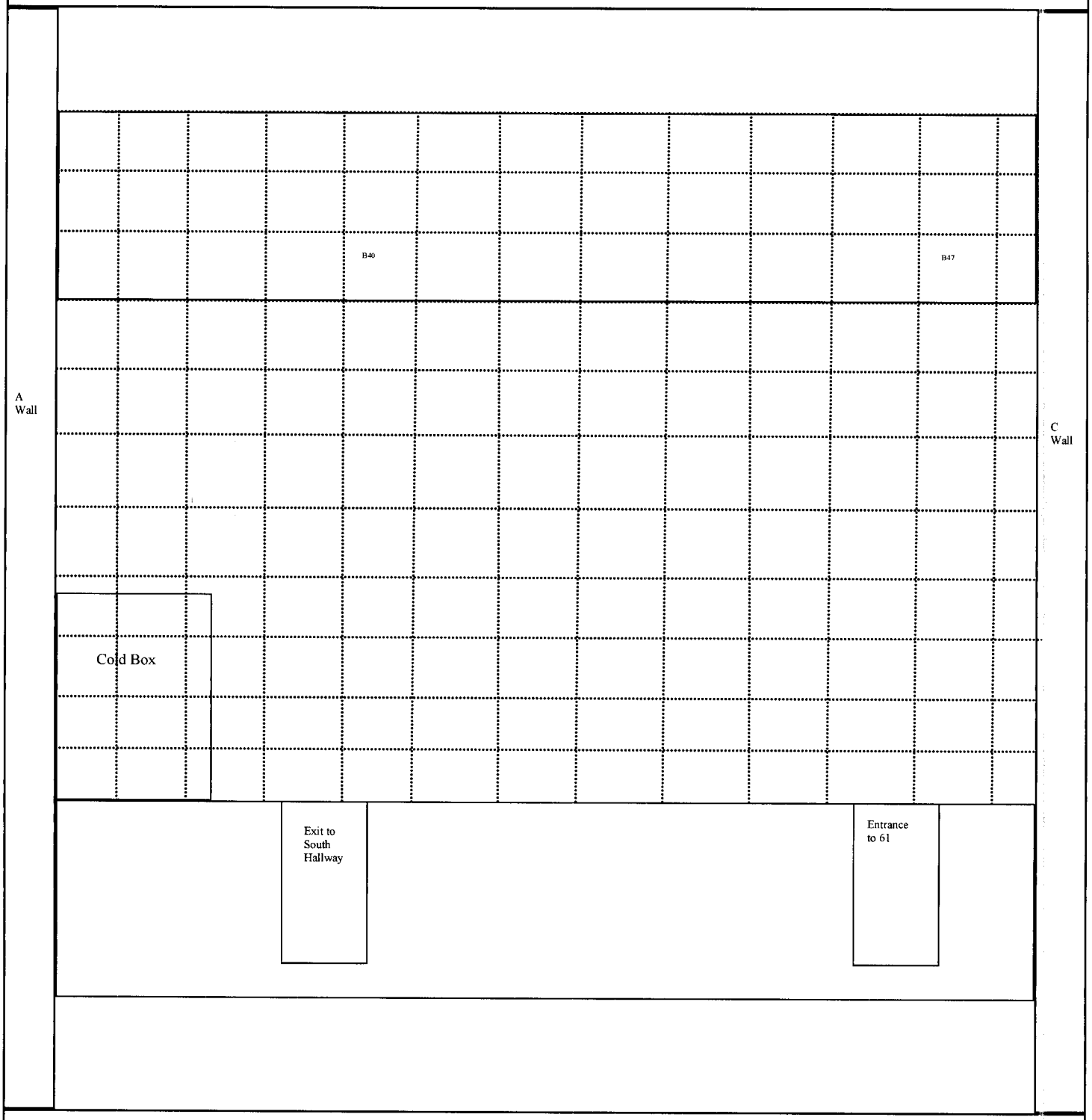
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 64—A3	TIME: VARIED



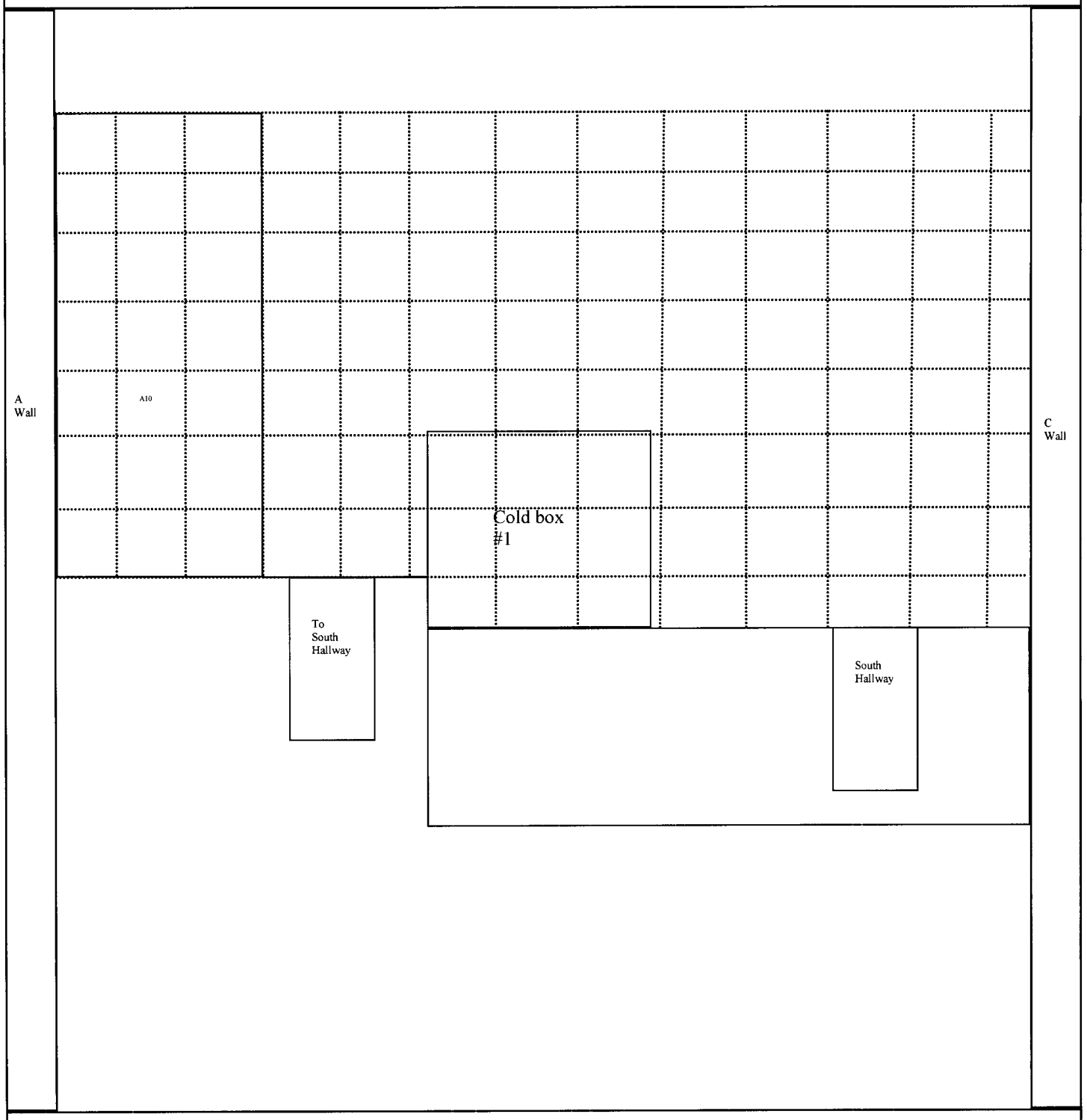
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 61—B40, 47	TIME:



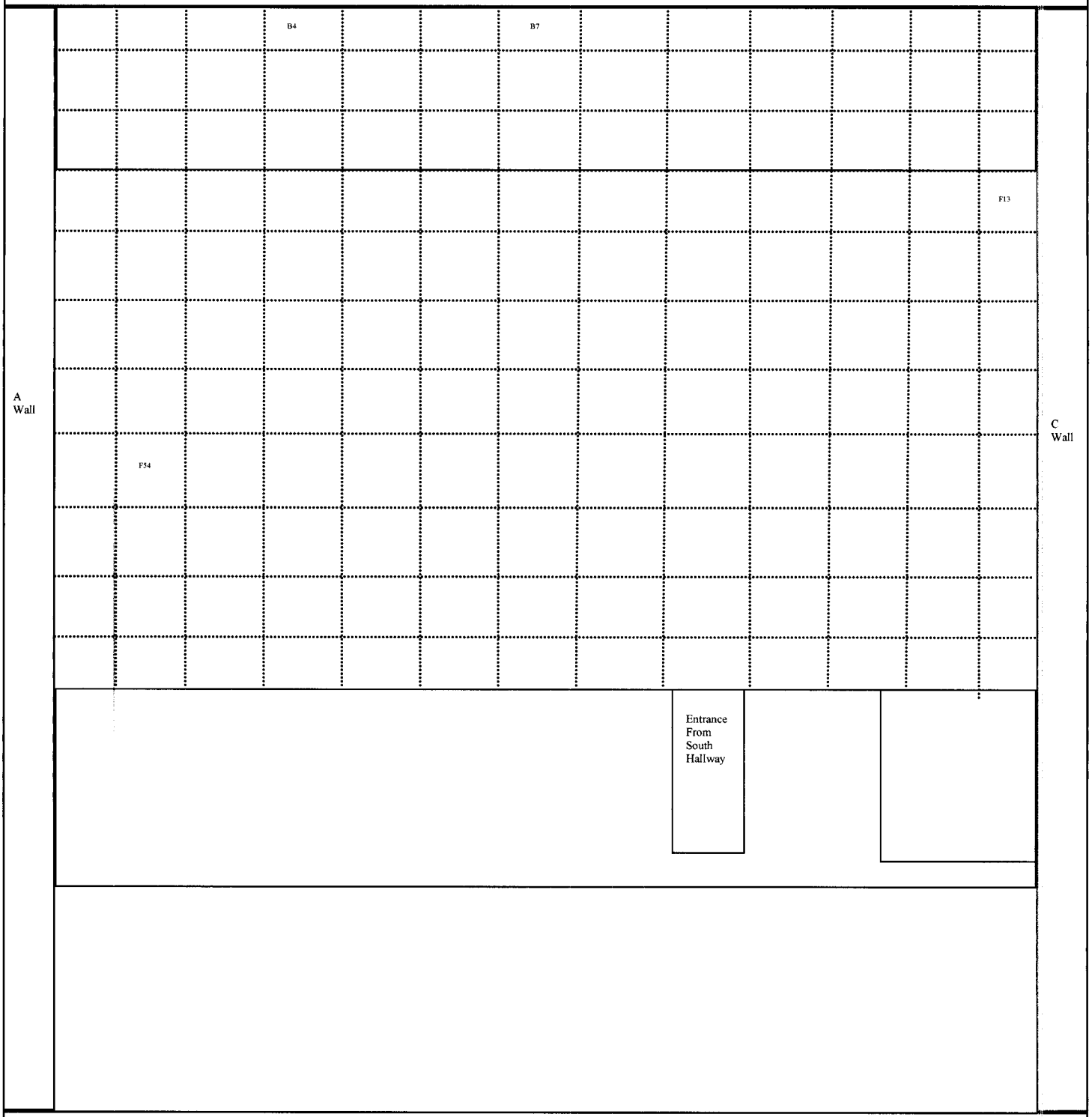
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 61—A10	TIME:



Comments:

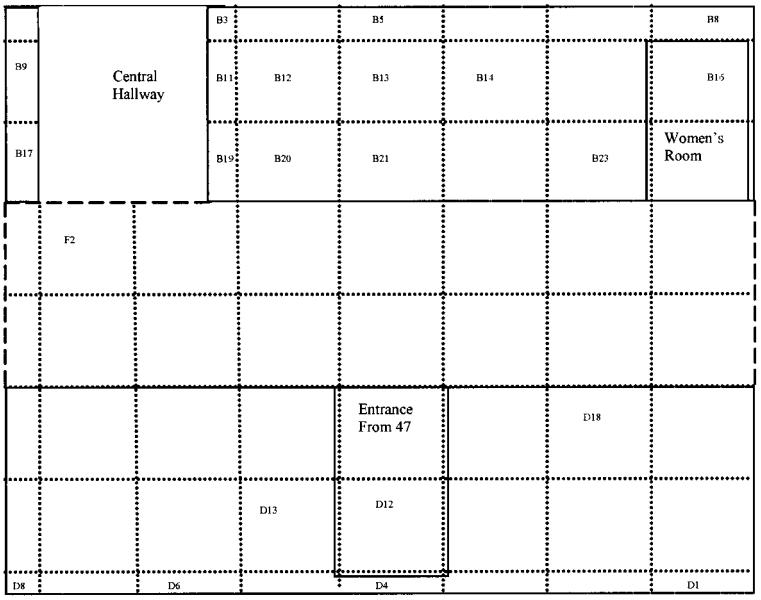
RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 55—B4, 7 AND F13, F54	TIME:



Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 47 ADJACENT HALLWAY	TIME:

B Wall



Entrance
From
North
East
Hallway

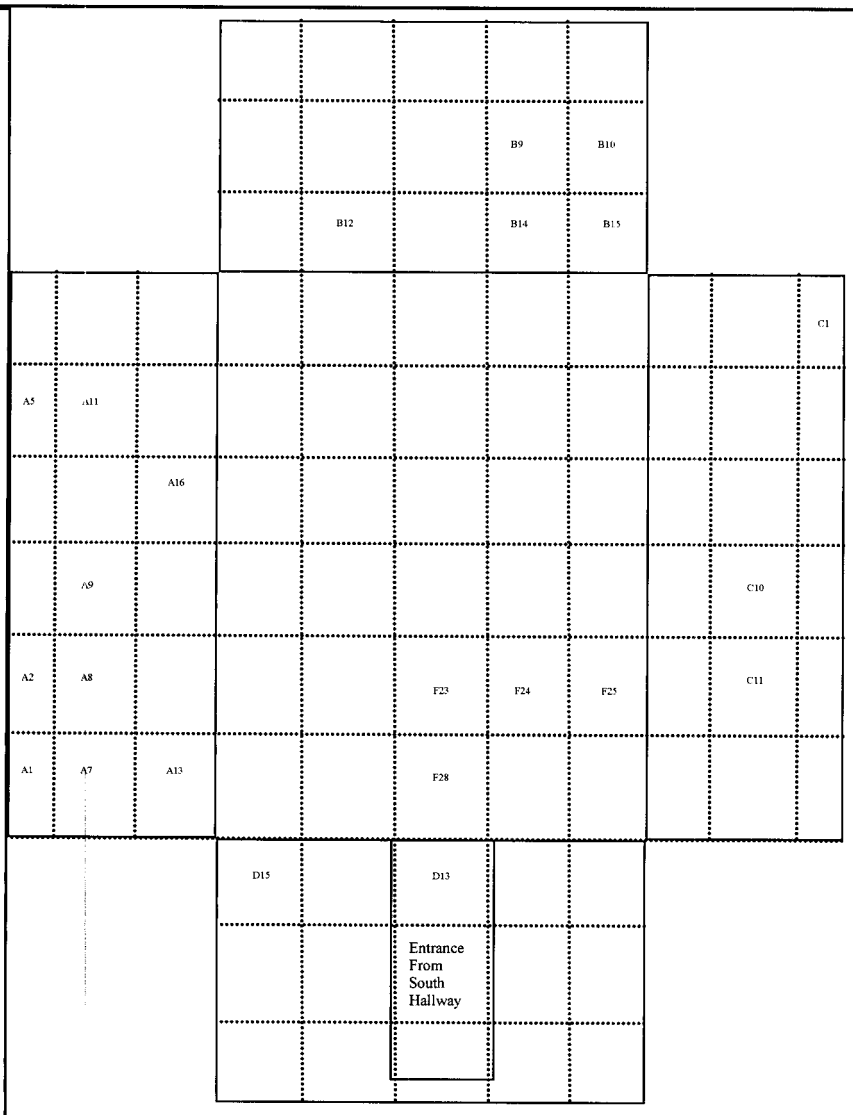
D Wall

Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 47	TIME: VARIED

B Wall

A Wall



C Wall

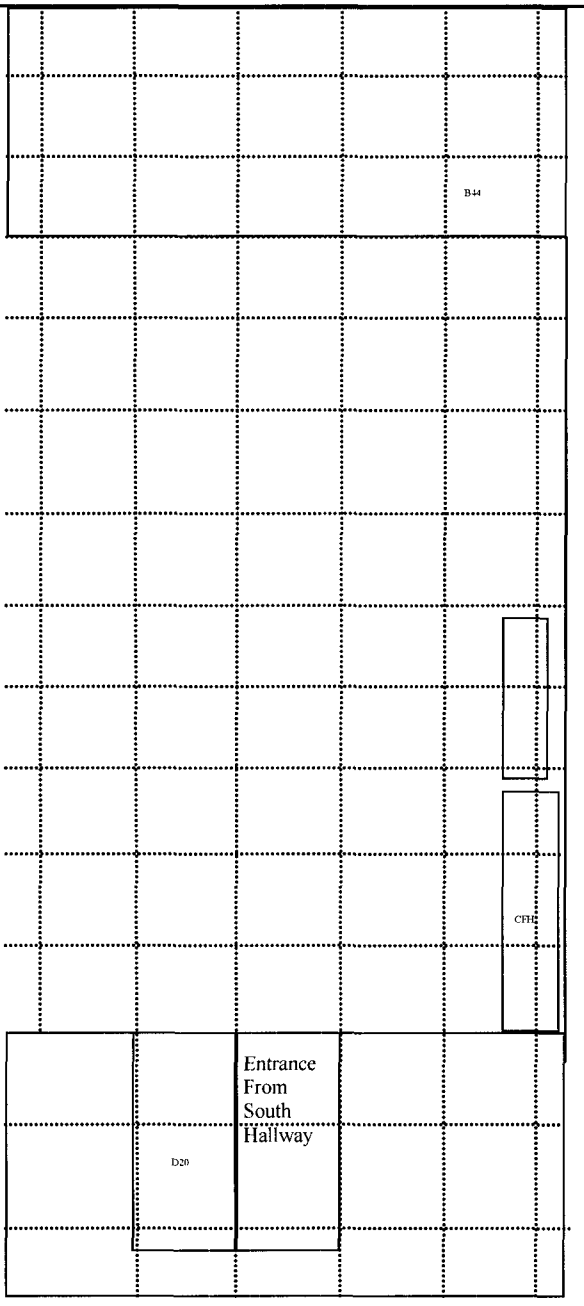
D Wall

Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 39—B44 AND D20	TIME:

B Wall

A Wall

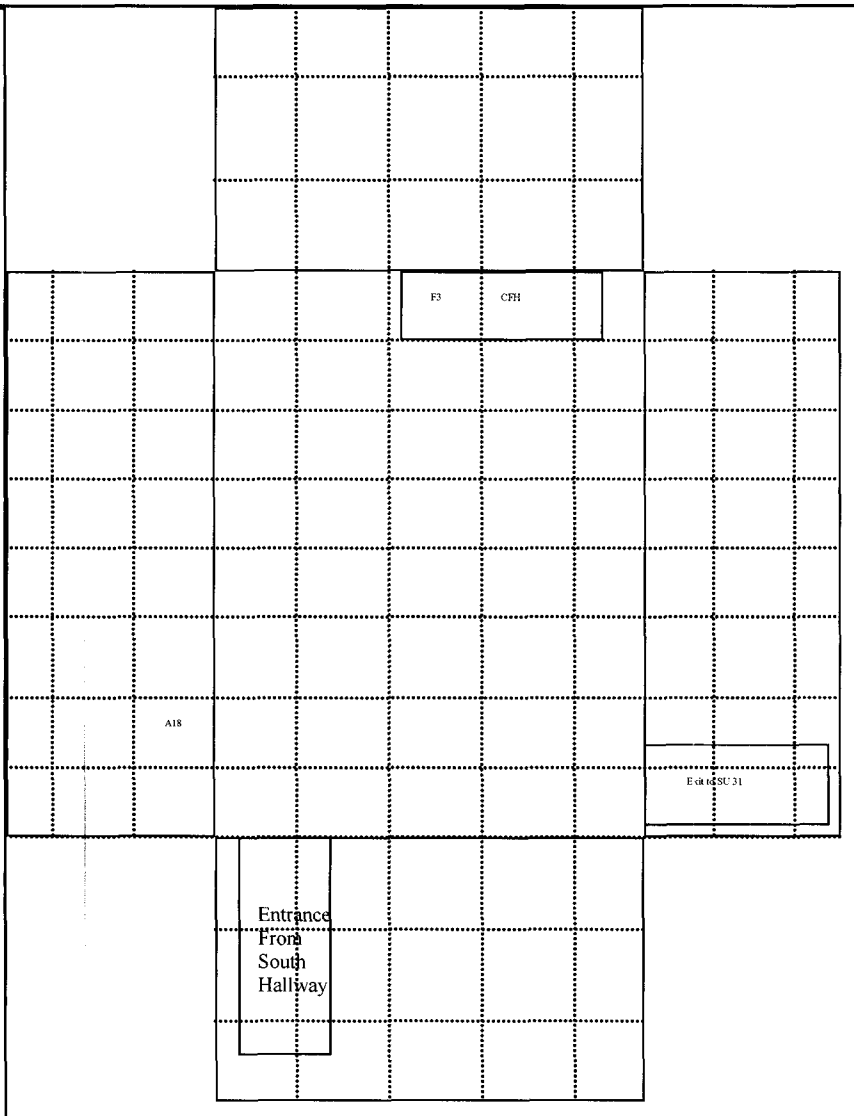


C Wall

D Wall

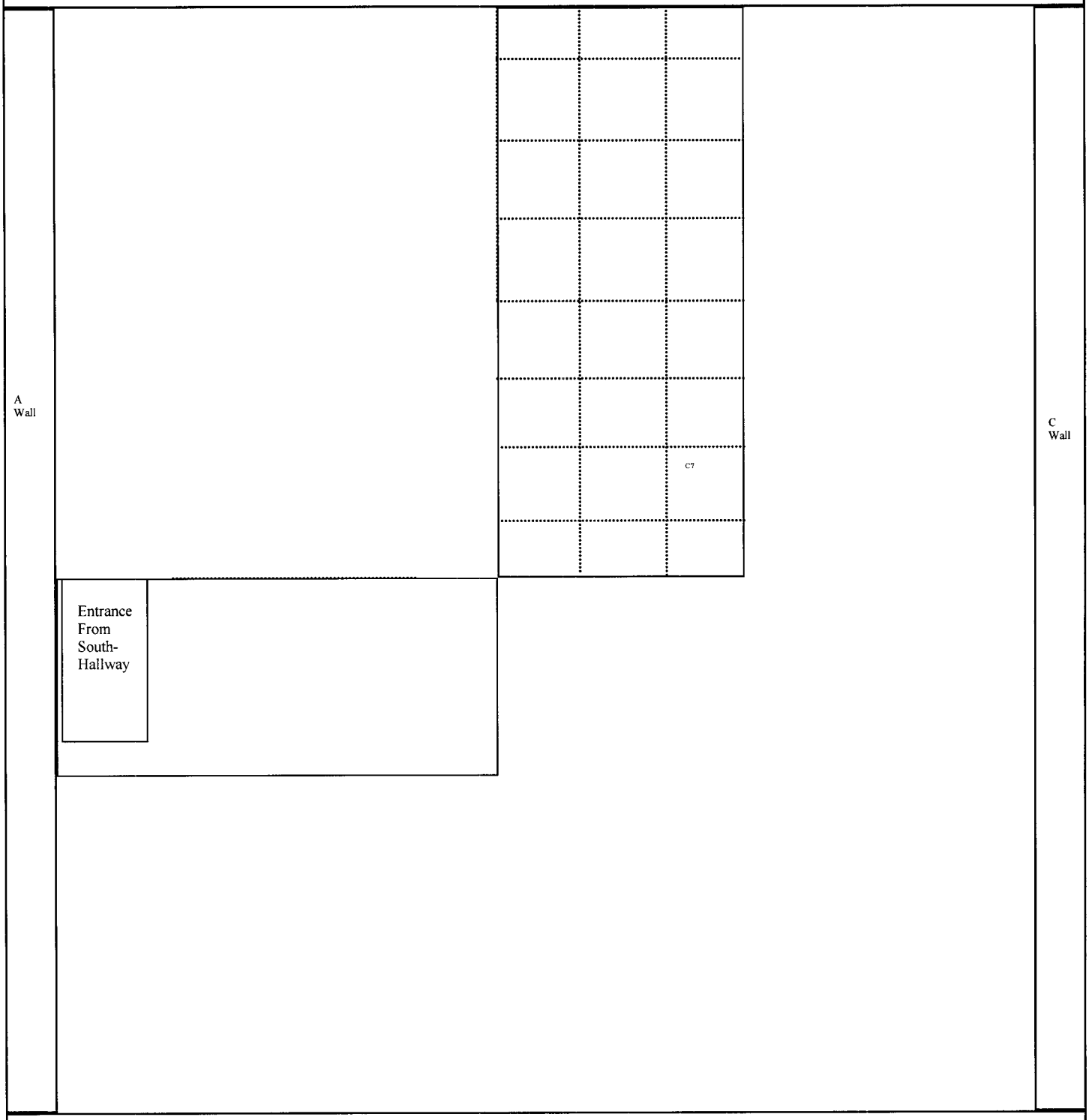
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 35—A18 AND F3	TIME: VARIED



Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 31—C7	TIME:



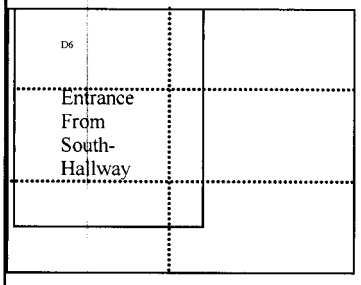
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 20—D6	TIME:

B Wall

A Wall

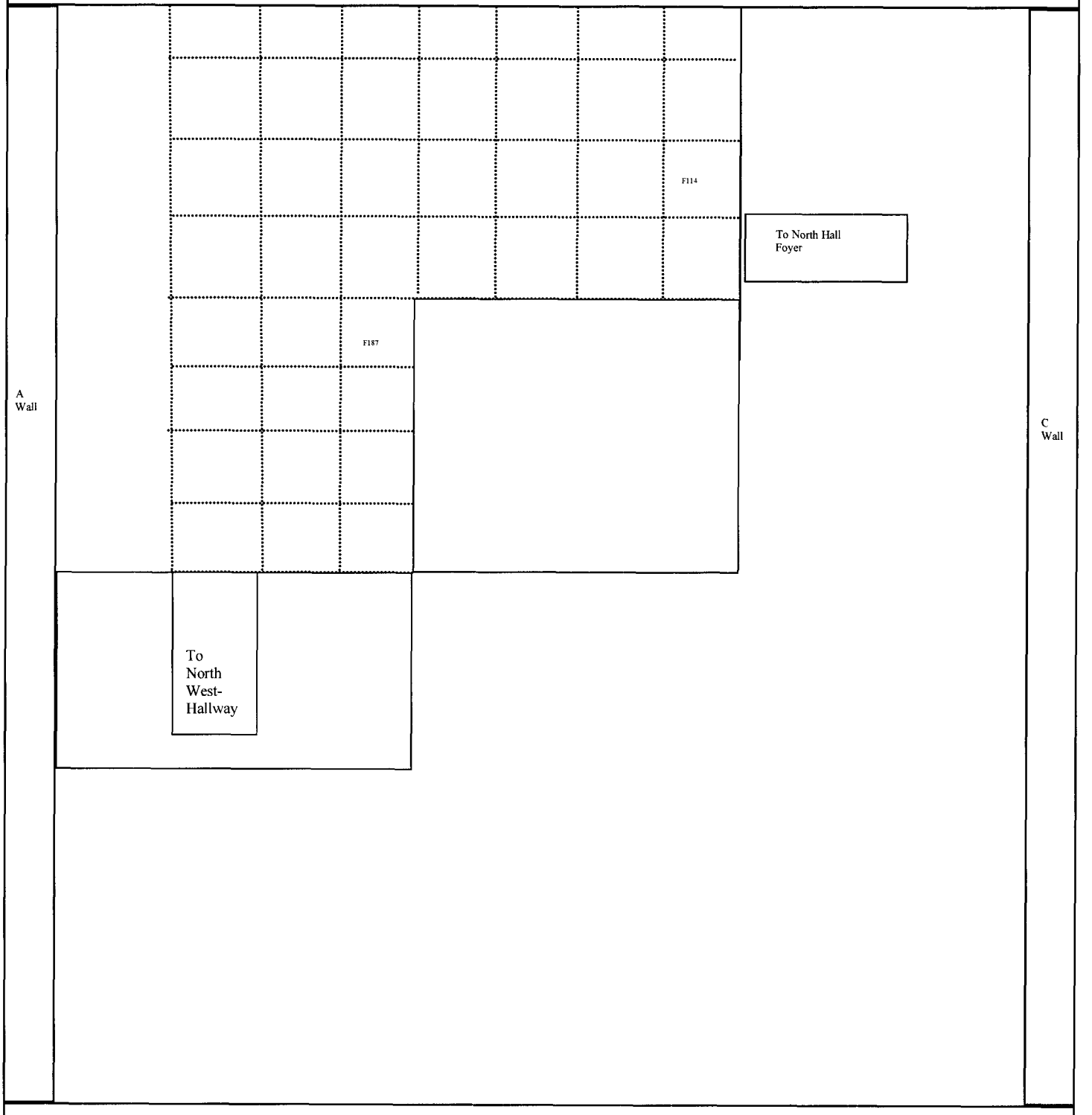
C Wall



D Wall

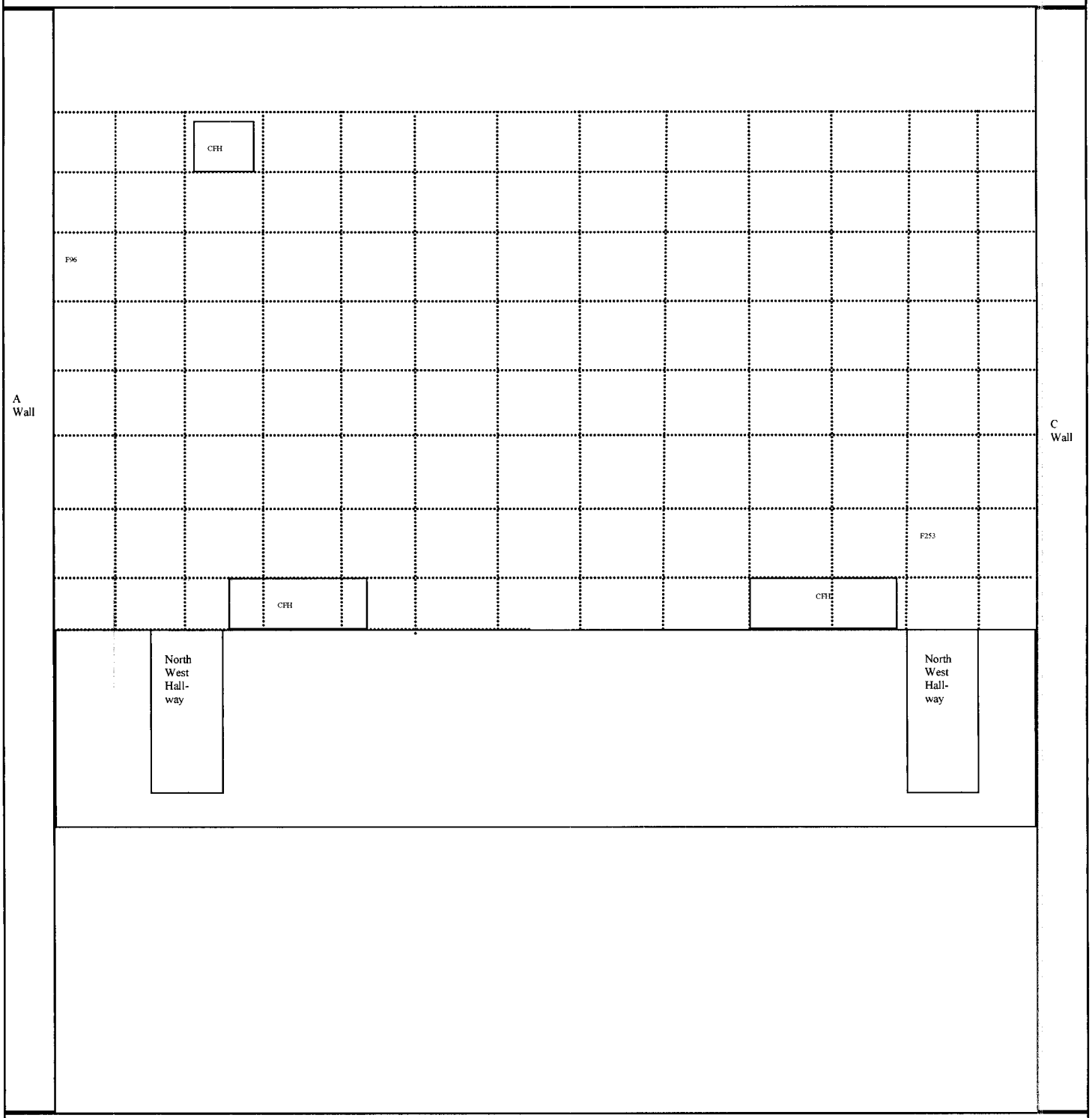
Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 5-F114 AND F187	TIME:



Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 5-F96 AND F253	TIME:

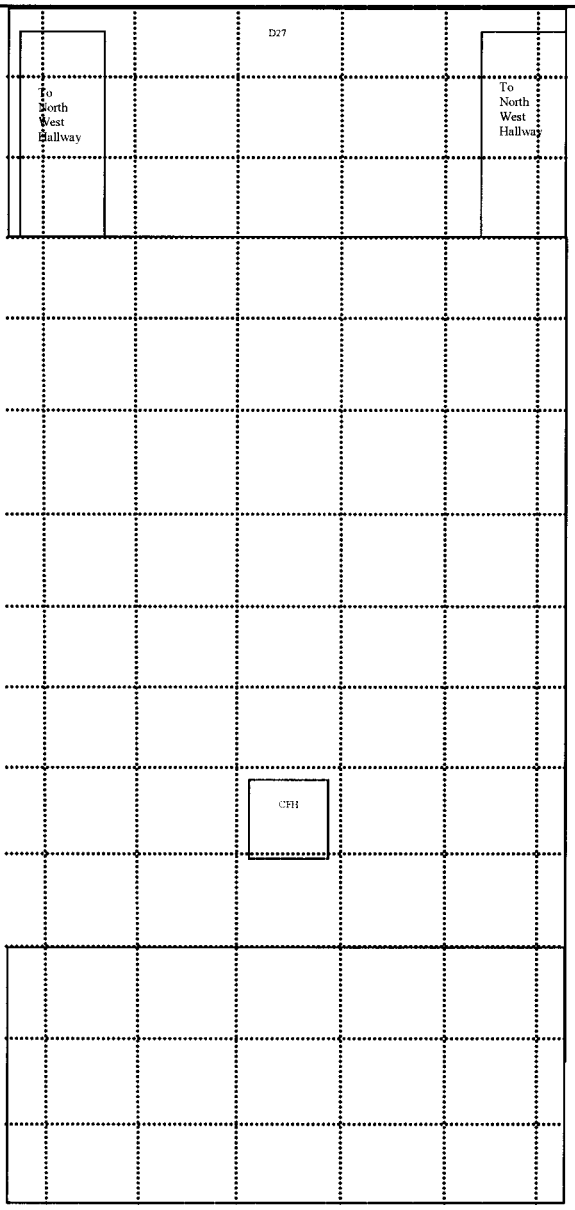


Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 5 - D27	TIME:

D Wall

C Wall



A Wall

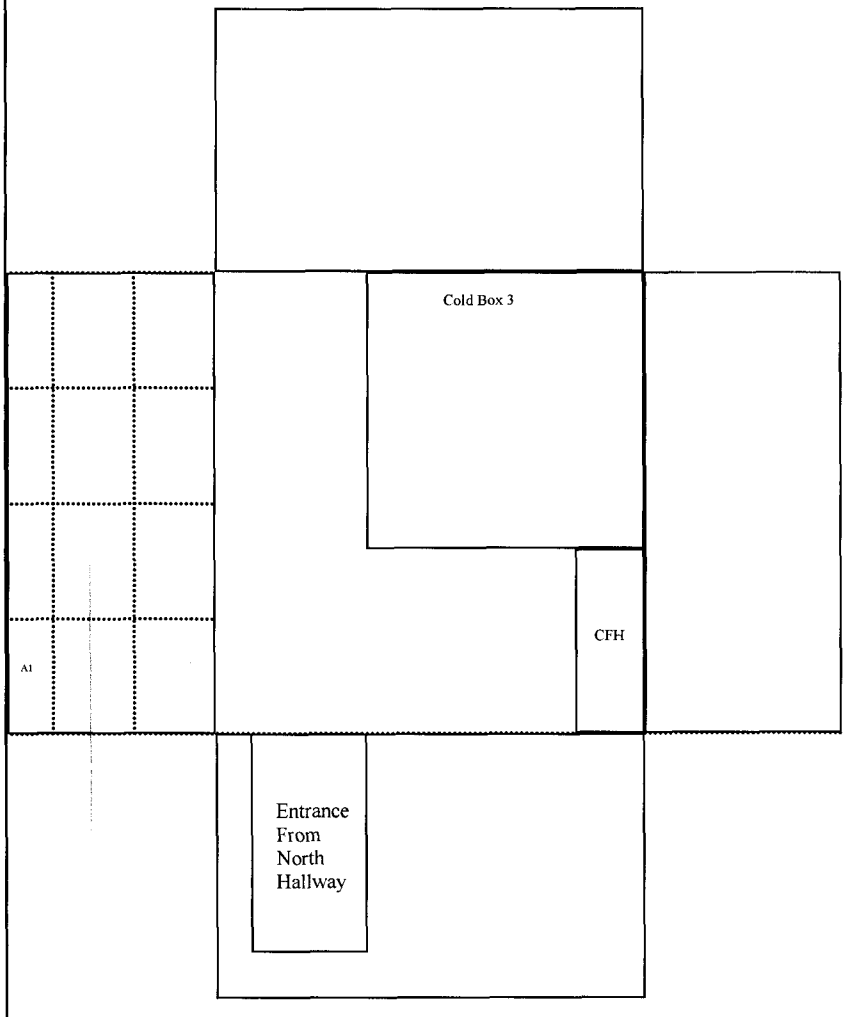
B Wall

Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: 3--A1	TIME:

B Wall

A Wall

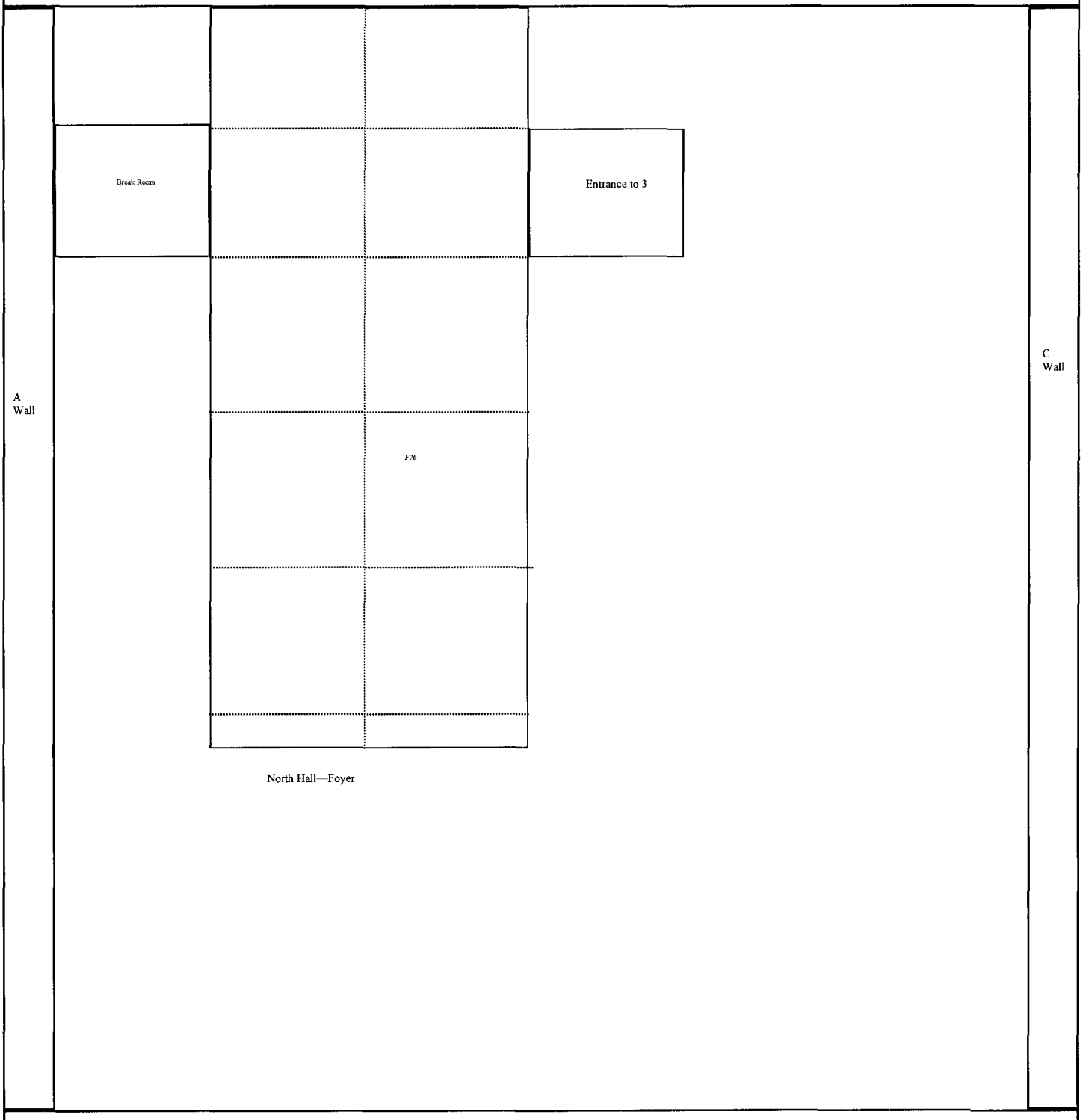


C Wall

D Wall

Comments:

RADIOLOGICAL SURVEY	SURVEYOR NAME:	DATE:
	SURVEY UNIT: NORTH WEST HALLWAY —F76	TIME: VARIED



Comments:

ATTACHMENT 7

Final Status Survey Results for
Unit - DN4

Sample Point	Bkg (counts)	Gross (counts)	Count time (in min)	Total Surface Activity[1] in DPM/100cm2		
				Gross Beta	Uncertainty[2]	MDA
55 - B7	1238	1105	1	-185	132	230
39 - B44	886	894	1	11	115	195
39 - D20	886	688	1	-275	108	195
35 - A18	863	789	1	-103	111	193
35 - F3	1119	1179	1	83	131	219
31 - C7	863	865	1	3	113	193
East Animal Facility Hallway C - F2	1010	1026	1	22	123	208
78A - F5	1010	971	1	-54	121	208
74H - F18	1010	920	1	-125	120	208
74F - D14	863	740	1	-171	109	193
20 - D6	863	832	1	-43	112	193
5 - F114	1010	999	1	-15	122	208
81 - F144	1010	941	1	-96	120	208
North Hallway East - F40	1010	916	1	-131	120	208
North Hallway West - F27	1010	957	1	-74	121	208
3 - A1	863	869	1	8	113	193
5 - F96	1238	1315	1	107	138	230
5 - F253	1010	1022	1	17	123	208
61 - B40	1019	1202	1	255	129	209
68A - C13	863	724	1	-193	109	193
74H-2-B4	863	758	1	-146	110	193
74F - C2	863	802	1	-85	111	193
74F - C3	863	870	1	10	114	193
74F - F10	1010	967	1	-60	121	208
78 - A26	863	856	1	-10	113	193
81 - C24	863	732	1	-182	109	193
81 - F22	1010	996	1	-19	122	208
84 - C7	863	753	1	-153	110	193
84 - C12	863	783	1	-111	111	193
North Hallway West - C5	863	864	1	1	113	193
North Hallway West - F45	1010	970	1	-56	121	208
North Hallway West - F76	1010	1049	1	54	124	208
South Hallway - F2	1010	976	1	-47	122	208
South Hallway - F3	1010	979	1	-43	122	208

[1] - E 0.1235 , probe active area 582cm2

[2] - at the 95% confidence level

CPM/100cm2

-6.6 Average of the measurements

359,385 36Cl DCGL

Final Status Survey Results for
Unit - DN4

Sample Point	Bkg (counts)	Gross (counts)	Count time (in min)	Total Surface Activity[1] in DPM/100cm2		
				Gross Beta	Uncertainty[2]	MDA
55 - B7	1238	1105	1	-609	435	752
39 - B44	886	894	1	37	379	637
39 - D20	886	688	1	-907	356	637
35 - A18	863	789	1	-339	365	629
35 - F3	1119	1179	1	275	431	715
31 - C7	863	865	1	9	373	629
East Animal Facility Hallway C - F2	1010	1026	1	73	405	680
78A - F5	1010	971	1	-179	400	680
74H - F18	1010	920	1	-412	395	680
74F - D14	863	740	1	-564	360	629
20 - D6	863	832	1	-142	370	629
5 - F114	1010	999	1	-50	403	680
81 - F144	1010	941	1	-316	397	680
North Hallway East - F40	1010	916	1	-431	394	680
North Hallway West - F27	1010	957	1	-243	398	680
3 - A1	863	869	1	27	374	629
5 - F96	1238	1315	1	353	454	752
5 - F253	1010	1022	1	55	405	680
61 - B40	1019	1202	1	838	423	683
68A - C13	863	724	1	-637	358	629
74H-2-B4	863	758	1	-481	362	629
74F - C2	863	802	1	-279	366	629
74F - C3	863	870	1	32	374	629
74F - F10	1010	967	1	-197	399	680
78 - A26	863	856	1	-32	372	629
81 - C24	863	732	1	-600	359	629
81 - F22	1010	996	1	-64	402	680
84 - C7	863	753	1	-504	361	629
84 - C12	863	783	1	-367	364	629
North Hallway West - C5	863	864	1	5	373	629
North Hallway West - F45	1010	970	1	-183	400	680
North Hallway West - F76	1010	1049	1	179	408	680
South Hallway - F2	1010	976	1	-156	400	680
South Hallway - F3	1010	979	1	-142	401	680

[1] - E 0.0375, probe active area 582cm2

[2] - at the 95% confidence level

CPM/100cm2

-6.6 Average of the measurements

1,329,725 14C DCGL

Final Status Survey Results for
Unit - 47 Adj. Hallway

Sample Point	Bkg (counts)	Gross (counts)	Count time (in min)	Total Surface Activity[1] in DPM/100cm2		
				Gross Beta	Uncertainty[2]	MDA
47 Adj. Hallway - B3	1113	1052	1	-85	127	219
47 Adj. Hallway - B8	1113	1050	1	-88	127	219
47 Adj. Hallway - B9	863	823	1	-56	112	193
47 Adj. Hallway - B17	863	835	1	-39	112	193
47 Adj. Hallway - B19	1113	1078	1	-49	128	219
47 Adj. Hallway - B20	1113	1056	1	-79	127	219
47 Adj. Hallway - B21	1113	1077	1	-50	128	219
47 Adj. Hallway - B23	1113	1073	1	-56	127	219
47 Adj. Hallway - D1	863	896	1	46	114	193
47 Adj. Hallway - D4	863	867	1	6	113	193
47 Adj. Hallway - D6	863	816	1	-65	112	193
47 Adj. Hallway - D12	886	823	1	-88	113	195
47 Adj. Hallway - D13	863	875	1	17	114	193
47 Adj. Hallway - D18	863	810	1	-74	112	193
47 Adj. Hallway - F2	1010	994	1	-22	122	208

[1] - E 0.06175, probe active area 582cm2

[2] - at the 95% confidence level

CPM/100cm2

-5.6 Average of the measurements

359,385 36Cl DCGL

Final Status Survey Results for
Unit - 47 Adj Hallway

Sample Point	Bkg (counts)	Gross (counts)	Count time (in min)	Total Surface Activity[1] in DPM/100cm2		
				Gross Alpha	Uncertainty[2]	MDA
47 Adjacent Hallway - B5	9	10	1	4	35	59
47 Adjacent Hallway - B8	9	8	1	-4	33	59
47 Adjacent Hallway - B11	9	9	1	0	34	59
47 Adjacent Hallway - B12	9	7	1	-8	32	59
47 Adjacent Hallway - B13	9	7	1	-8	32	59
47 Adjacent Hallway - B14	9	7	1	-8	32	59
47 Adjacent Hallway - B16	8	6	1	-8	30	56
47 Adjacent Hallway - B17	9	10	1	4	35	59
47 Adjacent Hallway - B19	9	8	1	-4	33	59
47 Adjacent Hallway - D8	9	10	1	4	35	59

[1] - E 0.0425, probe active area 582cm2

[2] - at the 95% confidence level

CPM/100cm2

-0.1 Average of the Survey Unit measurements
-0.2 Average of the Reference Area measurements
0.0 Difference
62 DCGL for 238U

1 Largest of Survey Unit measurements
-3 Smallest of the Reference Area measurements
4 Difference
62 DCGL for 238U

Final Status Survey Results for
Unit - 47 Adj. Hallway

Sample Point	Bkg (counts)	Gross (counts)	Count time (in min)	Total Surface Activity[1] in DPM/100cm2		
				Gross Beta	Uncertainty[2]	MDA
47 Adj. Hallway - B3	1113	1052	1	-279	418	714
47 Adj. Hallway - B8	1113	1050	1	-289	418	714
47 Adj. Hallway - B9	863	823	1	-183	369	629
47 Adj. Hallway - B17	863	835	1	-128	370	629
47 Adj. Hallway - B19	1113	1078	1	-160	420	714
47 Adj. Hallway - B20	1113	1056	1	-261	418	714
47 Adj. Hallway - B21	1113	1077	1	-165	420	714
47 Adj. Hallway - B23	1113	1073	1	-183	420	714
47 Adj. Hallway - D1	863	896	1	151	377	629
47 Adj. Hallway - D4	863	867	1	18	374	629
47 Adj. Hallway - D6	863	816	1	-215	368	629
47 Adj. Hallway - D12	886	823	1	-289	371	637
47 Adj. Hallway - D13	863	875	1	55	374	629
47 Adj. Hallway - D18	863	810	1	-243	367	629
47 Adj. Hallway - F2	1010	994	1	-73	402	680

[1] - E 0.0375, probe active area 582cm2

[2] - at the 95% confidence level

CPM/100cm2

-5.6 Average of the measurements

1,329,725 14C DCGL

Final Status Survey Results for
Unit - 47

Sample Point	Bkg (counts)	Gross (counts)	Count time (in min)	Total Surface Activity[1] in DPM/100cm2		
				Gross Alpha	Uncertainty[2]	MDA
47 - A5	9	8	1	-4	33	59
47 - A11	9	8	1	-4	33	59
47 - B10	9	9	1	0	34	59
47 - B14	9	9	1	0	34	59
47 - B15	9	9	1	0	34	59
47 - C11	9	11	1	8	35	59
47 - D15	9	7	1	-8	32	59
47 - F24	12	10	1	-8	37	68
47 - F25	12	12	1	0	39	68
47 - F28	12	9	1	-12	36	68

[1] - E 0.0425, probe active area 582cm2

[2] - at the 95% confidence level

CPM/100cm2

-0.1 Average of the Survey Unit measurements
-0.5 Average of the Reference Area measurements
0.4 Difference
62 DCGL for 238U

2 Largest of Survey Unit measurements
-5 Smallest of the Reference Area measurements
7 Difference
62 DCGL for 238U

Final Status Survey Results for
Unit - 47

Sample Point	Bkg (counts)	Gross (counts)	Count time (in min)	Total Surface Activity[1] in DPM/100cm2		
				Gross Beta	Uncertainty[2]	MDA
47 - A1	863	886	1	32	114	193
47 - A2	863	886	1	32	114	193
47 - A5	863	862	1	-1	113	193
47 - A7	863	827	1	-50	112	193
47 - A8	863	851	1	-17	113	193
47 - A9	863	865	1	3	113	193
47 - A13	863	811	1	-72	112	193
47 - A16	863	825	1	-53	112	193
47 - B9	863	849	1	-19	113	193
47 - B12	863	802	1	-85	111	193
47 - B14	863	819	1	-61	112	193
47 - C1	863	886	1	32	114	193
47 - C10	863	833	1	-42	112	193
47 - D13	886	859	1	-38	114	195
47 - F23	1010	979	1	-43	122	208

[1] - E 0.06175, probe active area 582cm2

[2] - at the 95% confidence level

CPM/100cm2

-3.2 Average of the measurements

359,385 36Cl DCGL

Final Status Survey Results for
Unit - 47

Sample Point	Bkg (counts)	Gross (counts)	Count time (in min)	Total Surface Activity[1] in DPM/100cm2		
				Gross Beta	Uncertainty[2]	MDA
47 - A1	863	886	1	105	376	629
47 - A2	863	886	1	105	376	629
47 - A5	863	862	1	-5	373	629
47 - A7	863	827	1	-165	369	629
47 - A8	863	851	1	-55	372	629
47 - A9	863	865	1	9	373	629
47 - A13	863	811	1	-238	367	629
47 - A16	863	825	1	-174	369	629
47 - B9	863	849	1	-64	372	629
47 - B12	863	802	1	-279	366	629
47 - B14	863	819	1	-202	368	629
47 - C1	863	886	1	105	376	629
47 - C10	863	833	1	-137	370	629
47 - D13	886	859	1	-124	375	637
47 - F23	1010	979	1	-142	401	680

[1] - E 0.0375, probe active area 582cm2

[2] - at the 95% confidence level

CPM/100cm2

-3.2 Average of the measurements

1,329,725 14C DCGL

Final Status Survey Results for
Unit - DN4

Sample Point	Bkg (counts)	Gross (counts)	Count time (in min)	Total Surface Activity[1] in DPM/100cm2		
				Gross Alpha	Uncertainty[2]	MDA
61 - A10	14	19	1	20	46	73
61 - B47	14	19	1	20	46	73
55 - B4	14	17	1	12	44	73
55 - F13	12	12	1	0	39	68
55 - F54	12	11	1	-4	38	68
64 - A3	9	7	1	-8	32	59
5 - D27	9	10	1	4	35	59
5 - F187	12	13	1	4	40	68
84 - B15	9	6	1	-12	31	59
84 - D20	8	8	1	0	32	56

[1] - E 0.0425, probe active area 582cm2

[2] - at the 95% confidence level

CPM/100cm2

0.2 Average of the Survey Unit measurements
-0.3 Average of the Reference Area measurements
0.4 Difference
62 DCGL for 238U

5 Largest of Survey Unit measurements
-5 Smallest of the Reference Area measurements
10 Difference
62 DCGL for 238U

ATTACHMENT 8

Final Status Survey Results for
Unit - 47 Adj. Hallway

Swipe Sample Location	Removable Surface Activity in DPM/100cm2		
	3H	Uncertainty (95%CL)	MDA
47 Adjacent Hallway - B3	21	16	38
47 Adjacent Hallway - B8	5	15	38
47 Adjacent Hallway - B9	17	15	37
47 Adjacent Hallway - B17	15	15	37
47 Adjacent Hallway - B19	23	16	37
47 Adjacent Hallway - B20	13	15	37
47 Adjacent Hallway - B21	23	16	38
47 Adjacent Hallway - B23	0	14	36
47 Adjacent Hallway - D13	16	15	37
47 Adjacent Hallway - D4	6	15	37
47 Adjacent Hallway - D6	36	16	37
47 Adjacent Hallway - D12	13	15	37
47 Adjacent Hallway - D13	16	15	36
47 Adjacent Hallway - D18	9	15	36
47 Adjacent Hallway - F2	23	17	40

DPM/100cm2	
15.6	Average of the measurements
12,000,000	3H 10% of the DCGL

Final Status Survey Results for
Unit - 47

Swipe Sample Location	Removable Surface Activity in DPM/100cm2		
	3H	Uncertainty (95%CL)	MDA
47 - A1	17	15	37
47 - A2	0	14	35
47 - A5	14	15	36
47 - A7	8	15	37
47 - A8	9	15	37
47 - A9	5	15	37
47 - A13	15	15	37
47 - A16	2	14	35
47 - B9	5	14	36
47 - B12	14	15	38
47 - B14	11	15	36
47 - C1	5	15	38
47 - C10	6	14	35
47 - D13	12	15	37
47 - F23	8	16	39

DPM/100cm2	
8.6	Average of the measurements
12,000,000	3H 10% of the DCGL

Final Status Survey Results for
Unit - DN4

Swipe Sample Location	Removable Surface Activity in DPM/100cm2		
	3H	Uncertainty (95%CL)	MDA
DN4 - 55 - B7	2	15	38
DN4 - 39 - B44	0	14	37
DN4 - 39 - D20	9	15	37
DN4 - 35 - A18	8	15	37
DN4 - 35 - F3	15	16	39
DN4 - 31 - C7	19	15	36
DN4 - East Animal Facility Hallway C - F2	1	15	38
DN4 - 78A - F5	19	16	39
DN4 - 74H - F18	4	14	36
DN4 - 74F - D14	0	14	37
DN4 - 20 - D6	9	14	36
DN4 - 5 - F114	4	15	38
DN4 - 81 - F154	2	15	38
DN4 - North Hallway East - F40	4	16	41
DN4 - North Hallway West - F27	11	15	36

DPM/100cm2	
7.2	Average of the measurements
12,000,000	3H 10% of the DCGL

ATTACHMENT 9

Instrument:	Scaler/rate meter
Detector:	Gas proportional

Model:	Ludlum 2221	Serial Nr:	176940
Model:	Ludlum 43-68A	Serial Nr:	122020

Calibration Date:	12/03/08
Calibration Date:	03/31/08

Date	Time	Technician / Reviewer	Background in CPM		Acceptable Range (CPM)		Source ID Nr.	Isotope	Source Reading in CPM		Acceptable Range (CPM)		Results
			X	⎯X	+20% / -20%	+3σ / -3σ			X	⎯X	+10% / -10%	+3σ / -3σ	
12/26/2008	0630	FW	2	2	4	4	119704	230Th	3344	3344	3678	3544	Pass
		FW			-4	0					3009	3143	
12/27/2008	0630	FW	0	2	4	4	119704	230Th	3383	3345	3680	3542	Pass
		FW			-4	0					3011	3149	
12/28/2008	0630	FW	1	2	4	4	119704	230Th	3292	3343	3677	3537	Pass
		FW			-4	0					3009	3149	
12/29/2008	0700	FW	2	2	4	4	119704	230Th	3209	3337	3671	3540	Pass
		FW			-4	0					3003	3134	
12/30/2008	0700	FW	2	2	4	4	119704	230Th	3264	3334	3668	3536	Pass
		FW			-4	0					3001	3132	
1/3/2009	0700	FW	2	2	4	4	119704	230Th	3253	3331	3664	3533	Pass
		FW			-4	0					2998	3129	
1/6/2009	0600	FW	2	2	4	4	119704	230Th	3218	3327	3659	3533	Pass
		FW			-4	0					2994	3120	
1/7/2009	0600	FW	3	2	4	4	119704	230Th	3268	3324	3657	3529	Pass
		FW			-4	0					2992	3120	

Instrument:	Scaler/rate meter	**Model:** Ludlum 2221	**Serial Nr:** 211785	**Calibration Date:**	08/29/08
Detector:	Gas proportional	**Model:** Ludlum 43-68A	**Serial Nr:** 127616	**Calibration Date:**	12/03/08

Date	Time	Technician / Reviewer	Background in CPM		Acceptable Range (CPM)		Source ID Nr.	Isotope	Source Reading in CPM		Acceptable Range (CPM)		Results
			X	± X	+20% / -20%	+3σ / -3σ			X	± X	+10% / -10%	+3σ / -3σ	
12/23/2008	0630	FW	1	1	3	3	119704	230Th	3362	3362	3698	3522	Pass
		FW			-3	0					3026	3203	
12/24/2008	0630	FW	2	1	3	3	119704	230Th	3449	3366	3703	3529	Pass
		FW			-3	0					3030	3203	
12/26/2008	0630	FW	1	1	3	3	119704	230Th	3457	3370	3707	3537	Pass
		FW			-3	0					3033	3204	
12/27/2008	0630	FW	1	1	3	3	119704	230Th	3308	3368	3704	3534	Pass
		FW			-3	0					3031	3202	
12/28/2008	0630	FW	1	1	3	2	119704	230Th	3323	3366	3702	3378	Pass
		FW			-3	0					3029	3353	

Instrument:	Scaler/rate meter
Detector:	Gas proportional

Model:	Ludlum 2221	Serial Nr:	211785
Model:	Ludlum 43-68B	Serial Nr:	127616

Calibration Date:	08/29/08
Calibration Date:	12/03/08

Date	Time	Technician / Reviewer	Background in CPM		Acceptable Range (CPM)		Source ID Nr.	Isotope	Source Reading in CPM		Acceptable Range (CPM)		Results
			X	_ X	+20% / -20%	+3σ / -3σ			X	_ X	+10% / -10%	+3σ / -3σ	
12/23/2008	0600	FW	348	348	418	381	119716	99Tc	5853	5853	6439	6104	Pass
		FW			279	316					5268	5603	
12/24/2008	0600	FW	348	348	418	379	119716	99Tc	5907	5856	6441	6102	Pass
		FW			279	317					5270	5610	
12/26/2008	0600	FW	337	347	417	378	119716	99Tc	5746	5851	6436	6098	Pass
		FW			278	317					5266	5604	
12/28/2008	0600	FW	386	350	420	391	119716	99Tc	5801	5849	6434	6092	Pass
		FW			280	310					5264	5606	

Instrument:	Scaler/rate meter	**Model:**	Ludlum 2221	**Serial Nr:**	86286
Detector:	Gas proportional	**Model:**	Ludlum 43-37A	**Serial Nr:**	094515

Calibration Date:	08/29/08
Calibration Date:	08/29/08

Date	Time	Technician / Reviewer	Background in CPM		Acceptable Range (CPM)		Source ID Nr.	Isotope	Source Reading in CPM		Acceptable Range (CPM)		Results
			X	– X	+20% / -20%	+3σ / -3σ			X	– X	+10% / -10%	+3σ / -3σ	
12/26/2008	0630	FW	8	8	17	14	119704	230Th	3064	3064	3370	3184	Pass
		FW			-17	3					2758	2944	
12/27/2008	0630	FW	9	8	17	14	119704	230Th	3162	3067	3374	3193	Pass
		FW			-17	3					2760	2941	
12/28/2008	0630	FW	5	8	16	13	119704	230Th	3236	3072	3380	3219	Pass
		FW			-16	3					2765	2926	
12/29/2008	0700	FW	7	8	16	13	119704	230Th	3073	3072	3380	3216	Pass
		FW			-16	3					2765	2929	
12/31/2008	0700	FW	12	8	17	14	119704	230Th	3062	3072	3379	3214	Pass
		FW			-17	2					2765	2930	
1/2/2009	0700	FW	4	8	16	14	119704	230Th	2968	3069	3376	3216	Pass
		FW			-16	2					2762	2922	
1/3/2009	0700	FW	11	8	16	14	119704	230Th	3080	3069	3376	3214	Pass
		FW			-16	2					2763	2925	
1/4/2009	0600	FW	11	8	17	15	119704	230Th	3184	3073	3380	3223	Pass
		FW			-17	2					2765	2922	
1/6/2009	0600	FW	13	9	17	16	119704	230Th	3160	3075	3382	3228	Pass
		FW			-17	2					2767	2922	
1/7/2009	0600	FW	8	9	17	15	119704	230Th	3230	3079	3387	3243	Pass
		FW			-17	2					2771	2915	
1/9/2009	0600	FW	7	9	17	15	119704	230Th	3261	3083	3392	3262	Pass
		FW			-17	2					2775	2905	
1/16/2009	0700	FW	7	8	17	15	119704	230Th	3228	3087	3396	3272	Pass
		FW			-17	2					2778	2901	

Instrument:	Scaler/rate meter
Detector:	Gas proportional

Model:	Ludlum 2221	**Serial Nr:**	86286
Model:	Ludlum 43-37B	**Serial Nr:**	094515

Calibration Date:	08/29/08
Calibration Date:	12/03/08

Date	Time	Technician / Reviewer	Background in CPM		Acceptable Range (CPM)		Source ID Nr.	Isotope	Source Reading in CPM		Acceptable Range (CPM)		Results
			X	_ X	+20% / -20%	+3σ / -3σ			X	_ X	+10% / -10%	+3σ / -3σ	
12/26/2008	0600	FW	958	958	1150	1041	119716	99Tc	6117	6117	6729	6718	Pass
		FW			767	875					5506	5517	
12/28/2008	0600	FW	1045	966	1159	1070	119716	99Tc	6405	6127	6739	6711	Pass
		FW			773	862					5514	5543	
12/30/2008	0630	FW	938	964	1157	1065	119716	99Tc	6146	6127	6740	6700	Pass
		FW			771	863					5514	5554	
12/31/2008	0630	FW	1062	971	1166	1091	119716	99Tc	6273	6132	6745	6689	Pass
		FW			777	852					5518	5574	
1/23/2009	0700	FW	1142	984	1180	1148	119716	99Tc	6541	6144	6758	6696	Pass
		FW			787	819					5529	5592	
1/24/2009	0600	FW	1114	992	1191	1173	119716	99Tc	6375	6150	6765	6689	Pass
		FW			794	811					5535	5612	

Instrument:	Scaler/rate meter	**Model:**	Ludlum 2221	**Serial Nr:**	176948
Detector:	Gas proportional	**Model:**	Ludlum 43-37B	**Serial Nr:**	093966

Calibration Date:	12/02/08
Calibration Date:	12/03/08

Date	Time	Technician / Reviewer	Background in CPM		Acceptable Range (CPM)		Source ID Nr.	Isotope	Source Reading in CPM		Acceptable Range (CPM)		Results
			X	$\bar{X}$	+20% / -20%	+3σ / -3σ			X	$\bar{X}$	+10% / -10%	+3σ / -3σ	
12/26/2008	0600	FW	1103	1103	1324	1183	119716	99Tc	6497	6497	7146	6700	Pass
		FW			882	1023					5847	6294	
12/27/2008	0600	FW	1063	1099	1319	1181	119716	99Tc	6463	6496	7145	6696	Pass
		FW			8800	1017					5846	6295	
12/28/2008	0600	FW	1135	1100	1320	1182	119716	99Tc	6519	6497	7147	6691	Pass
		FW			880	1017					5847	6302	
12/30/2008	0630	FW	1146	1103	1324	1189	119716	99Tc	6462	6496	7145	6688	Pass
		FW			883	1018					5846	6304	
12/31/2008	0630	FW	1122	1104	1325	1188	119716	99Tc	6409	6493	7143	6686	Pass
		FW			884	1021					5844	6300	
1/2/2009	0630	FW	1096	1104	1325	1185	119716	99Tc	6392	6491	7140	6686	Pass
		FW			883	1023					5841	6295	

Instrument:	Scaler/rate meter	**Model:**	Ludlum 2221	**Serial Nr:**	168577
Detector:	Gas proportional	**Model:**	Ludlum 43-37B	**Serial Nr:**	092791

Calibration Date:	10/29/08
Calibration Date:	12/03/08

Date	Time	Technician / Reviewer	Background in CPM		Acceptable Range (CPM)		Source ID Nr.	Isotope	Source Reading in CPM		Acceptable Range (CPM)		Results
			X	$\bar{X}$	+20% / -20%	+3σ / -3σ			X	$\bar{X}$	+10% / -10%	+3σ / -3σ	
12/29/2008	0630	FW	1180	1180	1416	1283	119716	99Tc	6334	6334	6967	6507	Pass
		FW			944	1078					5701	6161	
12/30/2008	0630	FW	1175	1180	1416	1277	119716	99Tc	6323	6334	6967	6504	Pass
		FW			944	1082					5700	6163	
12/31/2008	0630	FW	1224	1184	1420	1282	119716	99Tc	6333	6334	6967	6501	Pass
		FW			947	1085					5700	6166	
1/2/2009	0630	FW	1131	1180	1415	1281	119716	99Tc	6262	6331	6965	6499	Pass
		FW			944	1078					5698	6164	
1/3/2009	0630	FW	1166	1179	1414	1277	119716	99Tc	6235	6329	6961	6499	Pass
		FW			943	1081					5696	6158	
1/10/2009	0630	FW	1140	1176	1411	1274	119716	99Tc	6280	6327	6960	6497	Pass
		FW			941	1078					5695	6158	

Instrument:	Scaler/rate meter
Detector:	Gas proportional

Model:	Ludlum 2221	**Serial Nr:**	211785
Model:	Ludlum 43-37A	**Serial Nr:**	120106

Calibration Date:	08/29/08
Calibration Date:	12/03/08

Date	Time	Technician / Reviewer	Background in CPM		Acceptable Range (CPM)		Source ID Nr.	Isotope	Source Reading in CPM		Acceptable Range (CPM)		Results
			X	$\bar{X}$	+20% / -20%	+3σ / -3σ			X	$\bar{X}$	+10% / -10%	+3σ / -3σ	
12/28/2008	0630	FW	6	6	13	10	119704	230Th	3551	3551	3906	3727	Pass
		FW			-13	3					3196	3374	
12/29/2008	0700	FW	8	7	13	10	119704	230Th	3569	3551	3906	3725	Pass
		FW			-13	3					3196	3377	
12/30/2008	0700	FW	10	7	14	11	119704	230Th	3564	3552	3907	3723	Pass
		FW			-14	2					3196	3381	
1/3/2009	0700	FW	10	7	14	12	119704	230Th	3560	3552	3907	3720	Pass
		FW			-14	2					3197	3384	
1/24/2009	0600	FW	7	7	14	12	119704	230Th	3608	3553	3909	3721	Pass
		FW			-14	2					3198	3386	

Instrument:	Scaler/rate meter
Detector:	Gas proportional

Model:	Ludlum 2221	Serial Nr:	211785
Model:	Ludlum 43-37B	Serial Nr:	120106

Calibration Date:	08/29/08
Calibration Date:	12/03/08

Date	Time	Technician / Reviewer	Background in CPM		Acceptable Range (CPM)		Source ID Nr.	Isotope	Source Reading in CPM		Acceptable Range (CPM)		Results
			X	_ X	+20% / -20%	+3σ / -3σ			X	_ X	+10% / -10%	+3σ / -3σ	
12/28/2008	0600	FW	1075	1075	1289	1198	119716	99Tc	6942	6942	7637	7174	Pass
		FW			860	951					6248	6711	
12/29/2008	0630	FW	1127	1079	1295	1203	119716	99Tc	6836	6939	7633	7172	Pass
		FW			863	955					6245	6706	
12/30/2008	0630	FW	1176	1087	1305	1226	119716	99Tc	6866	6937	7630	7168	Pass
		FW			870	949					6243	6705	
12/31/2008	0630	FW	1289	1103	1323	1299	119716	99Tc	7052	6940	7634	7174	Pass
		FW			882	907					6246	6707	
1/2/2009	0630	FW	1096	1102	1323	1291	119716	99Tc	6735	6934	7628	7181	Pass
		FW			882	914					6241	6687	
1/3/2009	0630	FW	1152	1106	1327	1290	119716	99Tc	6810	6931	7624	7180	Pass
		FW			885	921					6238	6681	
1/10/2009	0630	FW	1037	1101	1322	1285	119716	99Tc	6708	6924	7617	7188	Pass
		FW			881	918					6232	6660	
1/12/2009	0630	FW	1172	1106	1327	1289	119716	99Tc	6800	6921	7613	7187	Pass
		FW			884	922					6229	6656	
1/16/2009	0630	FW	1157	1108	1330	1289	119716	99Tc	6746	6916	7608	7188	Pass
		FW			887	928					6225	6644	
1/20/2009	0630	FW	1203	1113	1336	1297	119716	99Tc	6876	6915	7608	7184	Pass
		FW			891	929					6225	6647	

Instrument:	Scaler/rate meter
Detector:	Gas proportional

Model:	Ludlum 2221	**Serial Nr:**	176940
Model:	Ludlum 43-68B	**Serial Nr:**	122020

Calibration Date:	12/03/08
Calibration Date:	03/31/08

			Background		Acceptable				Source Reading		Acceptable		
			in CPM		Range (CPM)				in CPM		Range (CPM)		
Date	Time	Technician Reviewer	X	$\bar{X}$	+20% -20%	+3σ -3σ	Source ID Nr.	Isotope	X	$\bar{X}$	+10% -10%	+3σ -3σ	Results
12/26/2008	0600	FW	293	293	352	323	119716	99Tc	5263	5263	5789	5431	Pass
		FW			235	263					4737	5095	
12/28/2008	0600	FW	301	294	353	322	119716	99Tc	5330	5266	5793	5434	Pass
		FW			235	266					4740	5098	
12/29/2008	0630	FW	303	295	354	322	119716	99Tc	5594	5281	5809	5525	Pass
		FW			236	267					4753	5037	
12/30/2008	0630	FW	288	294	353	321	119716	99Tc	5423	5287	5816	5537	Pass
		FW			235	268					4759	5037	
12/31/2008	0630	FW	292	294	353	320	119716	99Tc	5208	5284	5812	5532	Pass
		FW			235	268					4756	5036	
1/2/2009	0630	FW	288	294	352	319	119716	99Tc	5329	5286	5814	5530	Pass
		FW			235	268					4757	5042	
1/3/2009	0630	FW	301	294	353	320	119716	99Tc	5374	5289	5818	5532	Pass
		FW			235	269					4760	5046	
1/6/2009	0630	FW	270	293	351	322	119716	99Tc	5236	5287	5816	5527	Pass
		FW			234	264					4758	5047	
1/10/2009	0630	FW	299	293	352	321	119716	99Tc	5489	5294	5824	5550	Pass
		FW			234	265					4765	5039	

This is to acknowledge the receipt of your letter/application dated

2/5/2009, and to inform you that the initial processing which includes an administrative review has been performed.

☑ ENVIRONMENTAL ASSESSMENT 19-00296-10
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

_____.

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 143310.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-96)

Sincerely,
Licensing Assistance Team Leader