

ACCEPTANCE REVIEW MEMO

Licensee: University of Hawaii

License No.: 53-00017-23

Docket No.: 030-07517

Mail Control No.: 470848

Type of Action: Amend **Date of Requested Action:** 01-29-06

Reviewer Assigned: Jim **Date Assigned to Reviewer:** 01-06-06

Reviewer(s) Who Performed Review: Torres

Response Received	Deficiencies Noted During Acceptance Review
	1.
	2.
	3.
	4.

Reviewer's Initials: _____

Date: _____

Branch Chief's and/or SR. HP's Initials: _____

Date: _____

Yes No Action - decommissioning notification should be issued within 30 days.
 Yes No Termination request < 90 days from date of expiration
 Yes No Action to be expedited
 _____ Medical emergency
 _____ Licensee in noncompliance (i.e. no RSO, location of use/storage not on license, radioactive material in possession not on license)
 _____ National Security
 _____ Other (_____)

Branch Chief's and/or Sr. HP's Initials: _____ **Date:** _____

SISP Review

Yes No **Not Publicly Available, Sensitive if any** item below is checked
 Radionuclides, forms, and quantities
 _____ Location of RAM
 Building drawings with locations of RAM
 _____ Security of RAM (locks, alarms, etc.)
 _____ SS&D Control System
 _____ Specific Emergency Plan (routes to and from RAM, response to security events, etc.)
 _____ Safeguards Information

Branch Chief's and/or Sr. HP's Initials: MT **Date:** 2/6/06

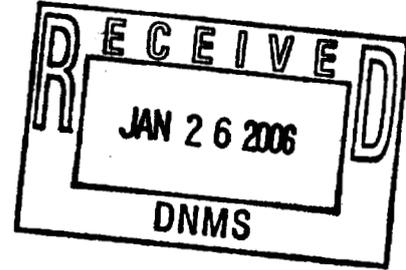
19 January 2006

Aloha Jim!

AJC

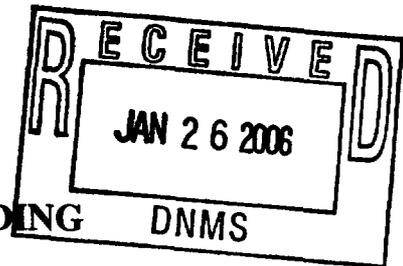
Here's a copy of the Queen's
Tower Decommission report.

Thanks for your patience.



Nancy Miyake

**FINAL RADIOLOGICAL STATUS REPORT
FOR
UNIVERSITY TOWERS IN THE QUEEN'S BUILDING**



1.0 Background Information

RTE
UH Tower is located at 1356 Lusitana Street, 7th Floor, Honolulu, Hawaii, 96813-2427. The researcher using radioisotopes at UH Tower was Dr. Richard F. Arakaki (1991-2003). Dr. Arakaki used I-125 compounds for tracer studies in radioimmunoassay and radioreceptor assays, while he used H-3-myristic, and palmitic acids, C-14-myristic acid, P-32 and S-35 in in-vitro translation system studies, and lastly, C-14-glucose was used in tracer studies of glucose transport. Dr. Arakaki worked for the University of Hawaii, Manoa at the time, under NRC License 53-00017-23.

Any unused radioactive isotopes were returned to the Environmental Health and Safety Office, Radiation Safety Program for disposal.

In June-July 2004, a survey to determine the final radiological status was performed for UH Tower, rooms 717, 720 and 722. The surveys were performed in accordance with the *Manual for Conducting Radiological Surveys in Support of License Termination (NUREG/CR-5849)*. This report describes the results of that survey and demonstrates that the room in which radioactive materials were used and stored satisfies the NRC guidelines, established for release of formerly licensed site for unrestricted use.

2.0 Site Information

2.1 Site Description

The 7th floor was under lease to the University of Hawaii, and has since been returned to Queen's Hospital. Dr. Arakaki used no radioisotopes since December 2002.

2.2 Site Conditions at Time of Final Survey

As part of the decommissioning activities, equipment were cleaned and released or disposed of as radioactive waste.

2.3 Identity of Potential Contaminants and Release Guidelines

Dr. Arakaki was authorized for ³H (30 mCi), ¹⁴C (2 mCi), ³²P (1 mCi), ³⁵S (2 mCi), and ¹²⁵I (1 mCi). The isotopes used were in liquid form. There were no major spills of any licensed isotope or any leaking sealed source used or stored by

any of the individuals named. More than ten half-lives have past since the last use of ^{125}I , ^{32}P or ^{35}S in any of the rooms used by Dr. Arakaki.

The average, maximum, and removable acceptable surface contamination levels in the NRC, "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material" dated August 1987 were used as the surface contamination guideline levels.

3.0 Final Status Survey Overview

3.1 Survey Objectives

The purpose of the final survey was to demonstrate that the radiological conditions at UH Tower rooms 717, 720, and 722 satisfy the NRC Guidelines and that the rooms can therefore be released from licensing restrictions for future use without radiological controls. The specific objectives of the survey were to show that:

a. **Surface Activity in the Rooms**

Average surface activity levels (total of fixed and removable activity) are at or below guidelines values established as acceptable by NRC.

Reasonable efforts have been made to identify, evaluate, and remove areas of residual activity exceeding the guideline value.

Reasonable efforts have been made to clean up removable activity and removable activity in a 100-cm^2 area does not exceed 20% of the average surface activity values.

b. **Exposure Rate**

Exposure rates do not exceed $5\ \mu\text{R/h}$ above background at 1 m above the surface.

The objective of the survey was to demonstrate at a 95% minimum level of confidence that the above conditions have been met.

3.2 Organization and Responsibilities

The survey performed was by a team composed of qualified personnel from the Environmental Health and Safety Office's Radiation Safety Program. The organizational structure which conducted the characterization survey activities are presented in Attachment (1). The training and qualifications of the individuals performing the surveys and decontamination is listed in Attachment (2)

The University of Hawaii's Radiation Safety Program in accordance with the University of Hawaii's NRC License 53-00017-23 performed the analysis for gross gamma, and gross beta levels on smears.

3.3 Instrumentation

Attachment (3) lists the instrumentation used for the survey activities, along with parameters and detection sensitivities for the instrumentation and survey technique. The combination of instrumentation and technique were chosen to provide a detection sensitivity of 25% or less of the guideline levels. The Micro R Meters were calibrated a minimum of once every year, the meter used for surface scans was calibrated once every six months, and the gross gamma and liquid scintillation analyzer was calibrated during use using NIST-traceable standards.

3.4 Survey Procedures

Survey planning and procedures were in accordance with the *Manual for Conducting Radiological Surveys in Support of License Termination*, NUREG/CR-5849. Procedures are briefly described in this section.

3.4.1 Area Classification

For purposes of establishing the sampling and measurement frequency and pattern, the rooms were classified as affective area. The basis for this classification is:

Affected areas: Areas that have potential radioactive contamination or known radioactive contamination (based on past or preliminary radiological surveillance). This includes areas where radioactive materials were used and stored, where records indicate spills or other unusual occurrences that could have resulted in spread of contamination.

3.4.2 Reference Grids

Grids were established for the purpose of referencing locations of samples and measurements, relative to the rooms. The grid intervals were based on the potential for residual contamination in the rooms (Attachment 4). All affected rooms, floors and walls surfaces were grid at 3 ft. intervals.

3.4.3 Surface Scans

Scanning of surfaces to identify locations of residual surface and near-surface activity was performed according to the following schedule:

Affected area surfaces: 100% of surface

Room surface scans were conducted for beta-gamma radiations.

Instrumentation for scanning is listed in Attachment (3). The instruments having the lowest detection sensitivity were used for the scans, wherever physical surface conditions and measurement locations permitted.

Scanning speeds were 1 detector width per second for beta detection instruments and 0.5 m per second for gamma instruments.

3.4.4 Surface Activity Measurements

a. Direct Measurements

Direct measurements of beta-gamma surface activity were performed over grid areas using instrumentation described in Attachment (3). Unless precluded by surface conditions or physical parameters, the most sensitive of the instruments listed for surface measurements (Attachment 3) were used. Attachment (4) shows grid over which direct measurement were taken.

Measurement spacings/frequencies were as follows:

Floor and walls:

Affected areas: 3 ft. intervals floor and walls.

b. Removable Contamination Measurements

A smear for removable contamination was performed at each grid area.

3.4.5 Exposure Rate Measurements

Gamma exposure rates were measured at 1 m above floor surfaces, using a gamma scintillation instrument. Measurements were uniformly spaced according to the following pattern:

Room Surveyed

Affected areas: Measurement was taken over the grid areas.

3.4.6 Special Measurements and Samples

Room Interiors

Hood and refrigerator in affected area was accessed, smears, direct beta-gamma scans and measurements performed at all access points, and a swab obtained from sink drains.

3.5 Background Level Determinations

Background exposure rates were determined for the rooms by taking measurements outside the rooms.

3.6 Sample Analysis

Smears and swabs for removable contamination were analyzed for gross gamma activity.

3.7 Data Interpretation

Data conversions and evaluations were performed, following the guidance in NUREG/CR-5849. Measurement data were converted to units of dpm/100 cm² (surface activity) and μ R/h (exposure rates) for comparison with guidelines.

Additional remediation and/or further sampling and measurements were not performed since guideline levels were met.

3.8 Records

Original survey data have been archived at the Radiation Safety Program office and will be held until such time as authorized by the NRC for disposal.

4.0 Survey Findings and Results

Attachment (4) contains the grids for the rooms. The numbers in the grid correspond to the results of smears and swabs taken. A total of 264 smears and

swabs were taken in the rooms. The rooms were scanned and radiation survey performed with the instrument listed in Attachment (3).

4.1 Background Levels

Background exposure rates outside the rooms were 3 to 4 $\mu\text{R}/\text{h}$ using the Ludlum Model 12S Micro R Meter. The instrument is listed in Attachment (3).

4.2 Laboratory and Counting Room Surveys

a. Scans

Scans were conducted over the grid areas of Attachment (4) and the hood. Scans of surfaces did not identify any areas of residual contamination. The readings were less than 120 counts above the background. The background was 30 to 40 cpm using the Ludlum Model 3 survey meter with Ludlum Model 44-9 pancake defector. The instrument is listed in Attachment (3).

b. Surface Activity Measurement

Surface activity measurements were determined by taking smears and swabs in the grid areas shown in Attachment (4). The results of the smears and swab in Attachment (4) correspond to the number in the grid. All individual measurements were within guideline levels. The Packard Multi-Prias Auto-Gamma System listed in Attachment (3) was used to count the smears and swabs with many of the measurement being below the sensitivity levels of the procedures.

c. Exposure Rates

Exposure rates inside the rooms from 3 to 4 $\mu\text{R}/\text{h}$ using the Ludlum Model 12S Micro R Meter. The background was 3 to 4 $\mu\text{R}/\text{hr}$. The instrument is listed in Attachment (3). These rates were within the guideline levels of 5 $\mu\text{R}/\text{h}$ above background.

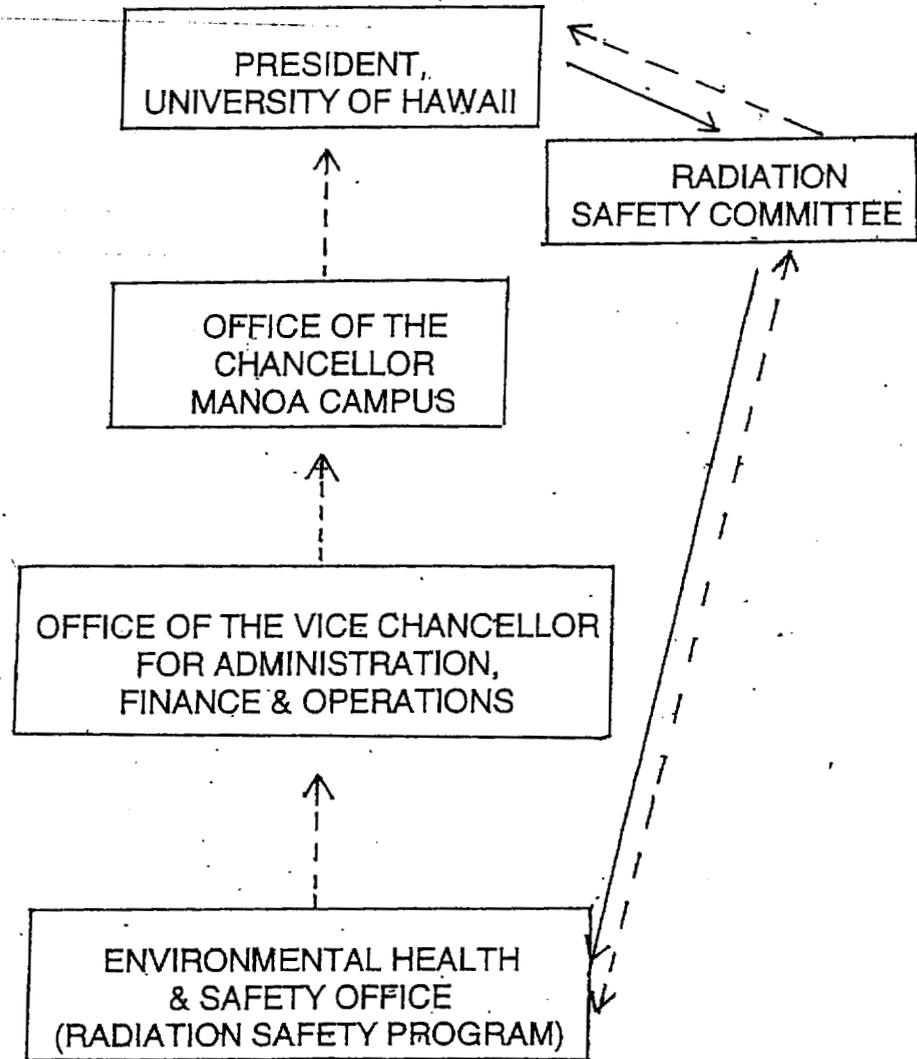
4.3 Data Evaluation

The results of the radiation and contamination surveys indicated the guidelines were satisfied at the 95% confidence level conditions.

4.4 Summary

During June-July 2004 surveys of the rooms in UH Tower at the Queen's Building, leased to the University of Hawaii at Manoa campus were conducted. Results of the survey demonstrate that the activity at the site meet the NRC limits for release for unrestricted use.

ORGANIZATIONAL CHART FOR REPORTING AND FLOW OF AUTHORITY
(Updated 05-14-03)



----- Reporting
_____ Flow of authority

[Yahoo!](#) [My Yahoo!](#) [Mail](#) [Make Yahoo! your home page](#)

Search the Web

YAHOO! LOCAL **Sign In**
Maps New User? [Sign Up](#)

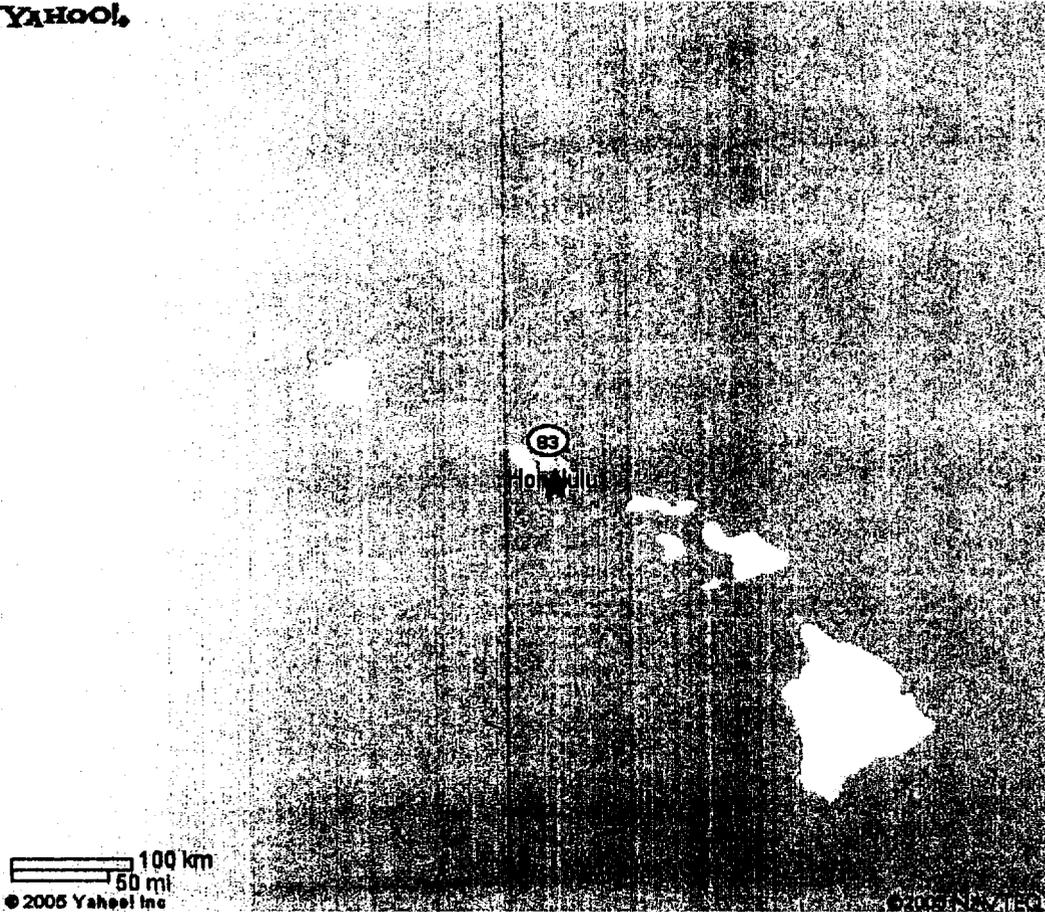
[Maps Home](#) - [Maps Beta](#) - [Help](#)

Yahoo! Maps - Honolulu, HI 96813-2421

<< [Back to Map](#)

★ 1356 Lusitana St Honolulu, HI 96813-2421

YAHOO!



When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

Copyright © 2005 Yahoo! Inc. All rights reserved.

[Privacy Policy](#) - [Terms of Service](#) - [Copyright/IP Policy](#) - [Yahoo! Maps Terms of Use](#) - [Help](#) - [Ad Feedback](#)

Yahoo! My Yahoo! Mail Make Yahoo! your home page

Search the Web Search

YAHOO! LOCAL **Sign In**
Maps New User? [Sign Up](#)

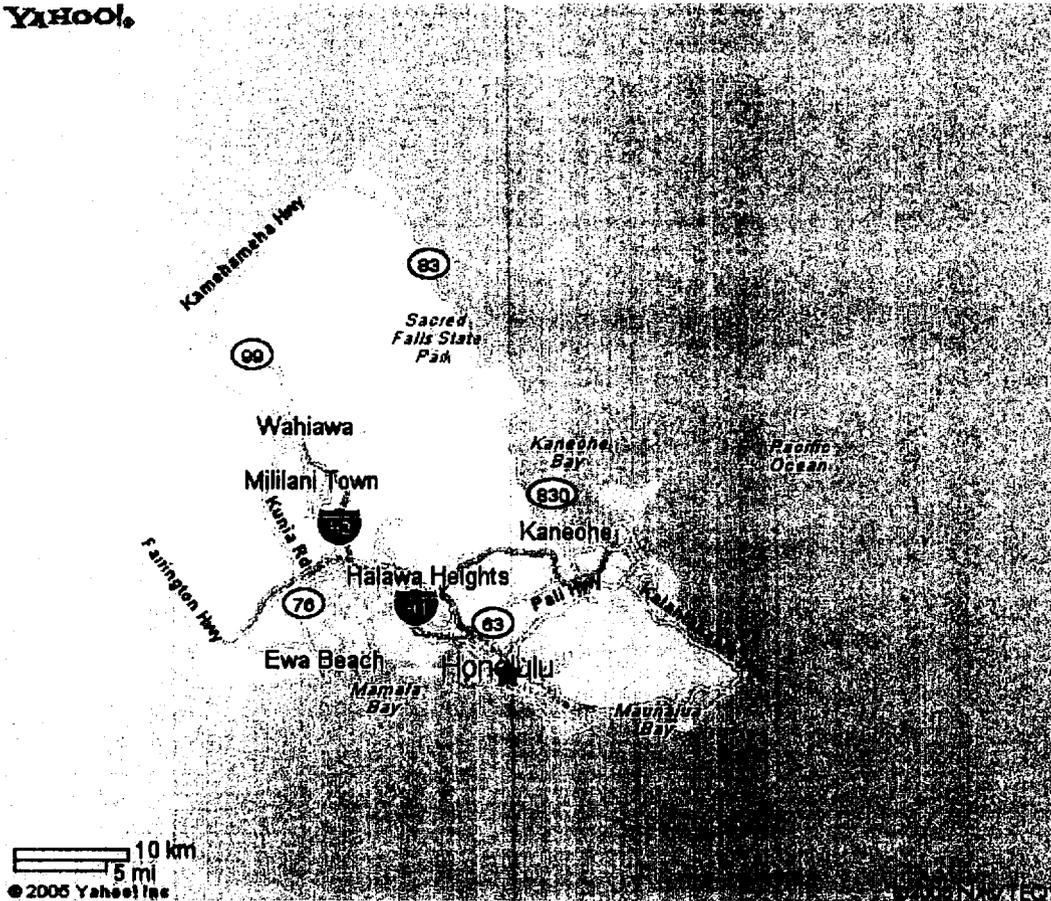
[Maps Home](#) - [Maps Beta](#) - [Help](#)

Yahoo! Maps - Honolulu, HI 96813-2421

<< [Back to Map](#)

★ 1356 Lusitana St Honolulu, HI 96813-2421

YAHOO!



When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

Copyright © 2005 Yahoo! Inc. All rights reserved.

[Privacy Policy](#) - [Terms of Service](#) - [Copyright/IP Policy](#) - [Yahoo! Maps Terms of Use](#) - [Help](#) - [Ad Feedback](#)

Yahoo! My Yahoo! Mail Make Yahoo! your home page

Search the Web Search

YAHOO! LOCAL Sign In
Maps New User? Sign Up

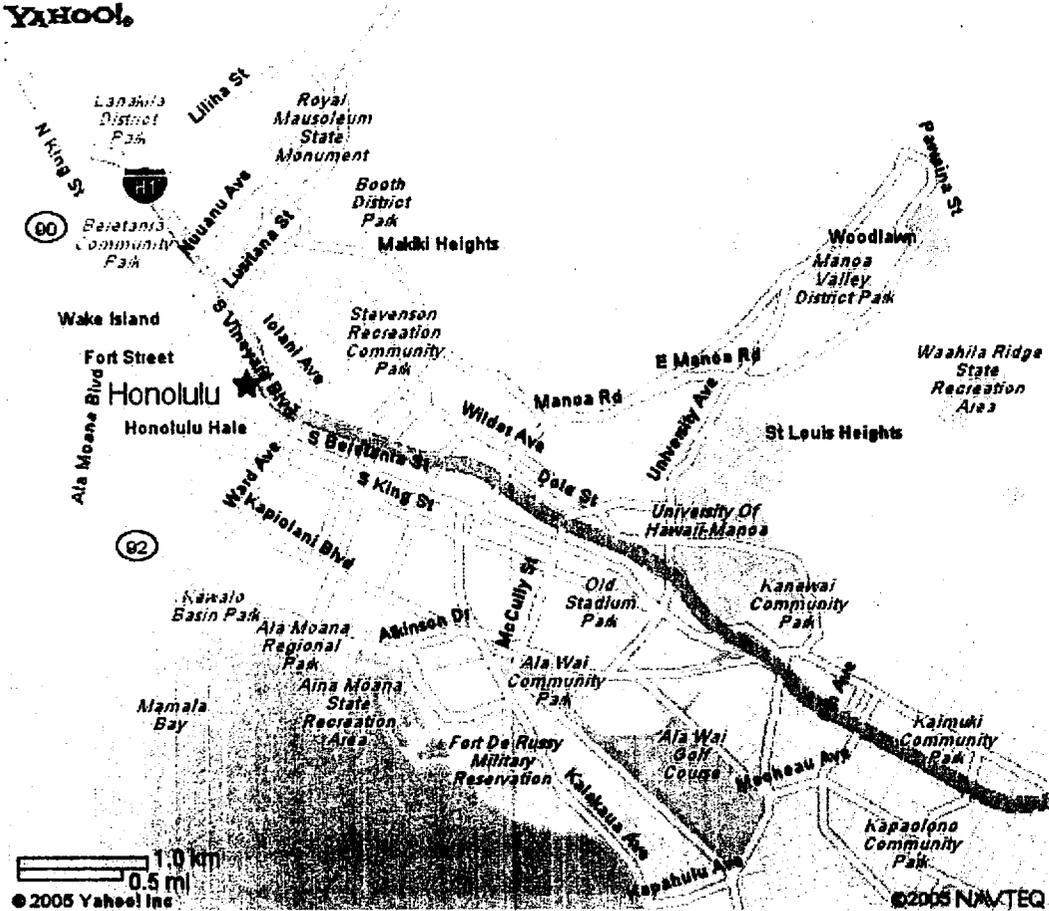
Maps Home - Maps Beta - Help

Yahoo! Maps - Honolulu, HI 96813-2421

« [Back to Map](#)

★ 1356 Lusitana St Honolulu, HI 96813-2421

YAHOO!



When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

Copyright © 2005 Yahoo! Inc. All rights reserved.
[Privacy Policy](#) - [Terms of Service](#) - [Copyright/IP Policy](#) - [Yahoo! Maps Terms of Use](#) - [Help](#) - [Ad Feedback](#)

Yahoo! My Yahoo! Mail Make Yahoo! your home page

Search the Web Search

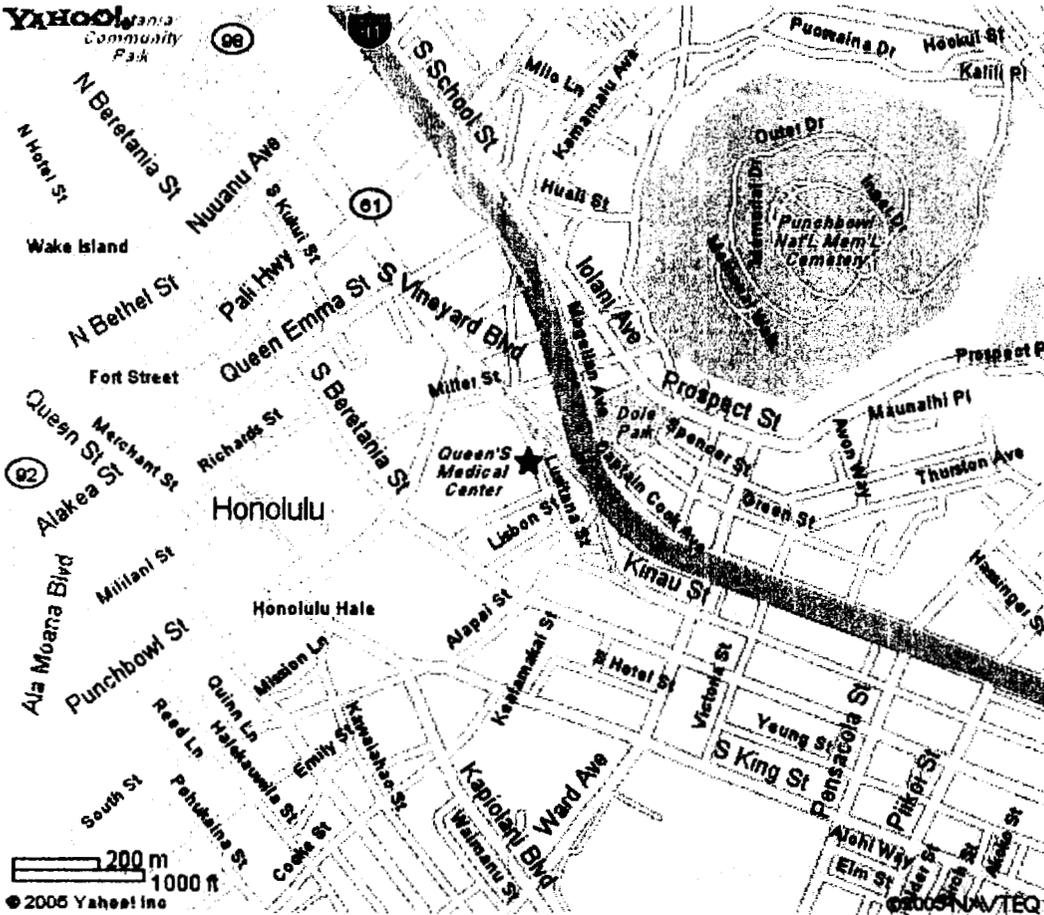
YAHOO! LOCAL Sign In
Maps New User? Sign Up

Maps Home - Maps Beta - Help

Yahoo! Maps - Honolulu, HI 96813-2421

<< [Back to Map](#)

★ 1356 Lusitana St Honolulu, HI 96813-2421



When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

Copyright © 2005 Yahoo! Inc. All rights reserved.
[Privacy Policy](#) - [Terms of Service](#) - [Copyright/IP Policy](#) - [Yahoo! Maps Terms of Use](#) - [Help](#) - [Ad Feedback](#)

[Yahoo!](#) [My Yahoo!](#) [Mail](#) [Make Yahoo! your home page](#)

Search the Web Search

YAHOO! LOCAL **Sign In**
Maps New User? [Sign Up](#)

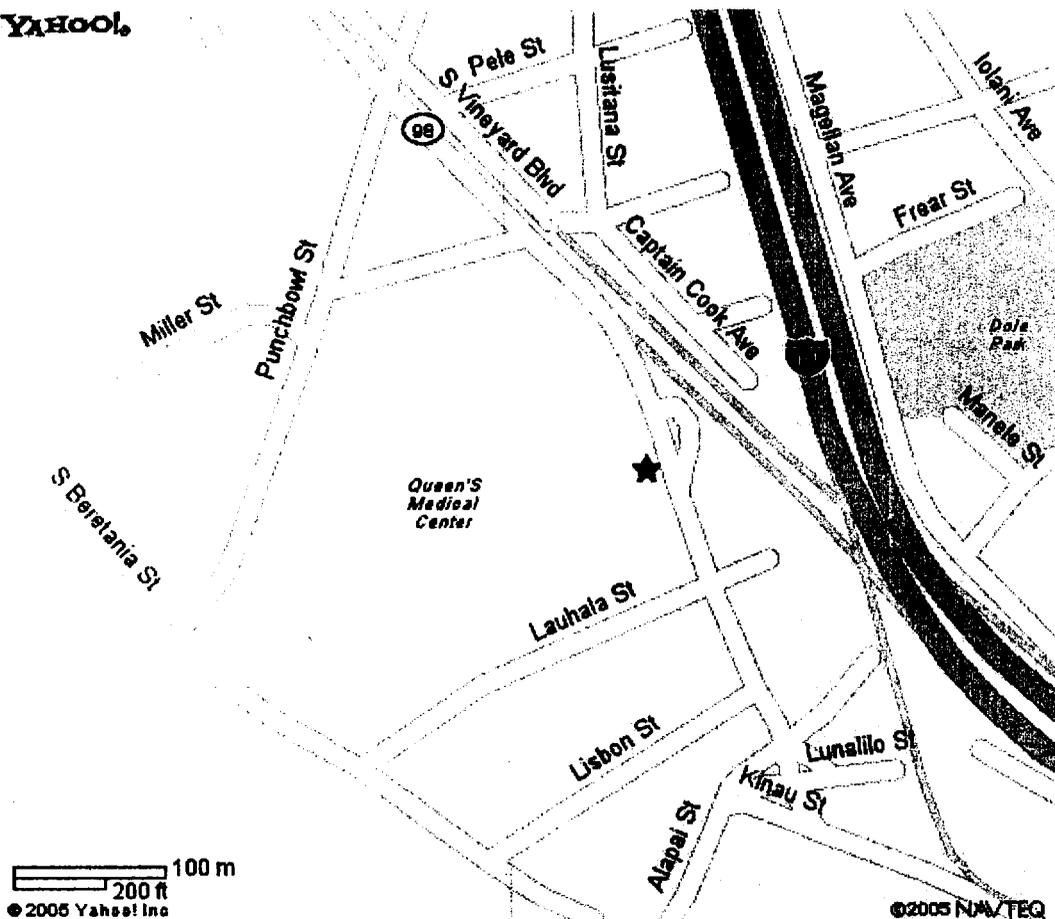
[Maps Home](#) - [Maps Beta](#) - [Help](#)

Yahoo! Maps - Honolulu, HI 96813-2421

<< [Back to Map](#)

★ 1356 Lusitana St Honolulu, HI 96813-2421

YAHOO!



When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

Copyright © 2005 Yahoo! Inc. All rights reserved.

[Privacy Policy](#) - [Terms of Service](#) - [Copyright/IP Policy](#) - [Yahoo! Maps Terms of Use](#) - [Help](#) - [Ad Feedback](#)

Attachment (2)

**Training Record for Irene Sakimoto
Radiation Safety Officer**

1. **Pearl Harbor Naval Shipyard Radiological Control Technician.
Date: 1981-1983**
2. **University of Hawaii Environmental Safety Specialist III.
Date: 1983-1990**
3. **Radiation Safety Officer training class (40 hours) at the University of Texas
Health Sciences Center.
Date: 1990**
4. **Internal Dosimetry – Short Course, Berkeley, CA.
Date: October 1991**
5. **NIOSH Ionizing and Non-ionizing Training Class (40 hours) at the University of
Southern California.
Date: September 2000**
6. **Laser Safety Officer Training (40 hours) by the Laser Institute of America.
Date: September 2000**
7. **Transporting Dangerous Good by Air, IATA Initial training.
Date: December 2004**
8. **Transportation Skills Programs, Inc., Hazardous Materials and Waste
Management and Compliance Seminar.
Date: January 2005**

Attachment (2)

**Training Record for Nancy Miyake
Radiation Safety Specialist**

1. **Radiation Safety Training by Irene Sakimoto. Radiation Safety Officer of the University of Hawaii's Radiation Safety Program.
Date: September 1995**
2. **IATA by Aloha Airlines.
Date: September 1996**
3. **Spill Prevention Guidelines, Containment and Transport of Hazardous Waste sponsored by Safety Systems.
Date: March 1997**
4. **Health Physics Technician by Radiation Safety Associates, Inc.
Date: May 1999**
5. **Radiation Safety Officer Training by Ohmart-Vega.
Date: February 2001**
6. **Hazardous Waste Management Training
Date: September 2002**
7. **Hazardous Materials & Waste Management and Compliance Seminar by Transportation Skills Program, Inc.
Date: January 2003**
8. **Radiation Detection and Measurement by Technical Management Services, Inc.
Date: March 2004**
9. **Transporting Dangerous Goods By Air – IATA Initial.
Date: July 2005**

Attachment (2)

**Training Record for A. Brad Smith
Radiation Safety Technician**

1. **Radiation Safety Training by Irene Sakimoto. Radiation Safety Officer of the University of Hawaii's Radiation Safety Program.
Date: July 2004**
2. **Transporting Dangerous Goods By Air – IATA Initial.
Date: 11/17/2004**
3. **Hazardous Materials & Waste Management and Compliance Seminar by Transportation Skills Program, Inc.
Date: 01/25/2005**
4. **Occupational and Environmental Radiation Protection by Harvard School of Public Health
Date: April 2005**

Attachment (3)

SURVEY INSTRUMENT USED AND CERTIFICATION

<u>Survey Instrument Used</u>	<u>Instrument Certification and Tested</u>	<u>Type of Measurement</u>	<u>Efficiency</u>	<u>Minimum Detectable Activity</u>
1. Ludlum Model 12S, Micro R Meter, Ser. No. 29441	09/22/2003	Surface Scans Gamma		3 uR/h above Background
2. Ludlum Model 2401-P, Ser. No. 174865 (pancake detector)	09/22/2003	Surface Scans Beta-Gamma	P-32, 58% S-35, 1.7%	200 dpm under the probe (20 cm ²), P-32 equivalent
3. Ludlum Model 3, Ser. No. 86788 with Ludlum Model 44-9 Ser. No. PR 112927 (pancake detector)	11/03/2003	Surface Scans Beta-gamma	P-32, 65% S-35, 2%	200 dpm under the probe (20 cm ²), P-32 equivalent
4. Ludlum Model 2, Ser. No. 11602 with Ludlum Model 44-7, Ser. No. RN014790 (open-end detector)	12/29/2003	Surface Scans alpha-beta-gamma surveys		2100 cpm/mR/hr, Cs-137 gamma (6 cm ²)
5. Packard, 1900CA, TRI-CARB, Liquid Scintillation Analyzer, Serial No. 102434	Before Use BG, H-3, C-14 standards provided by Packard Instrument	Gross alpha/ beta on smears, 0-12 kEv 12-156 kEv 0-200 kEv	C-14, 95% H-3, 60%	17.07 dpm 15.71 dpm

PACKARD STANDARDS USED TO CHECK ANALYZER

H-3, <2.0 uCi, 260500 dpm, 16 Feb. 1998, Serial No. 48

C-14, <0.1 uCi, 122900 dpm, 16 Feb. 1998, Serial No. 107



Designer and Manufacturer
of
Scientific and Industrial
Instruments

Attachment (3)

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.

OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER UNIV OF HAWAII

ORDER NO. 208143/277765

Mfg. Ludlum Measurements, Inc. Model 2 Serial No. 11602

Mfg. Ludlum Measurements, Inc. Model 44-7 Serial No. RNO14790

Cal. Date 29-Dec-03 Cal Due Date 29-Jun-04 Cal. Interval 6 Months Meterface 202-001

Check mark applies to applicable Instr. and/or detector IAW mfg. spec. T. 73 °F RH 20 % Alt 703.8 mm Hg

New Instrument Instrument Received Within Toler. +10% 10-20% Out of Tol. Requiring Repair Other-See comments

Mechanical ck. Meter Zeroed Background Subtract Input Sens. Linearity

F/S Resp. ck. Reset ck. Window Operation Geotropism

Audio ck. Alarm Setting ck. Batt. ck. (Min. Volt) 2.2 VDC

Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 900 V Input Sens. 31 mV Det. Oper. 900 V at 31 mV Threshold Dial Ratio =

HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 10	40 mR/hr	NA	4
X 10	10 mR/hr		4
X 1	4 mR/hr = 7600 cpm		4
X 1	1 mR/hr		4
X 0.1	760 cpm		4
X 0.1	190 cpm		4

*Uncertainty within ± 10% C.F. within ± 20%

X 0.1 Range(s) Calibrated Electronically

Digital Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	Log Scale	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978. State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N 1162 G112 M565 5105 T1008 T879 E552 E551 720 734 1616 Neutron Am-241 Be S/N T-304

Alpha S/N Beta S/N Other

m 500 S/N 132899 Oscilloscope S/N Multimeter S/N 82080087

Calibrated By: Josh Boston Date 29 Dec 03

Reviewed By: Rhonda Hermin Date 31 Dec 03

Attachment (3)
 UNIVERSITY OF HAWAII AT MANOA
 RADIATION SAFETY OFFICE
 INSTRUMENT CALIBRATION RECORD

Instrument Ludlum #3 Date of Calibration 11/3/03

Serial Number 86788 Date Due Next 11/3/04

Detector Model 44-9 Detector Serial Number PR 112927

Type of Source (1) 90 Sr Activity of Source (1) 0.0198 μ Ci
 (2) 14 C (2) 0.155 μ Ci

RANGE	CALIBRATION POINT	READING	% OFF
X0.1	100	100	
X0.1	400	400	
X1	1000	1000	
X1	4000	4000	
X10	10,000	10,000	
X10	40,000	40,000	
X100	^{NM} 100,000	100,000	
X100	400,000	400,000	

Operation Voltage 1.0 VOLTS

Efficiency (%):

Radioactive Source Check: satisfactory

S-35: 2% I-125: _____

Principal Investigator RSP

P-32: 65% Other: _____

Signature [Handwritten Signature]



Designer and Manufacturer
of
Scientific and Industrial
Instruments

Attachment (3)

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.
ORDER NO. ²⁰¹⁶⁷ 203248 / 275323

CUSTOMER UNIVERSITY OF HAWAII

Mfg. Ludlum Measurements, Inc. Model 2401-P Serial No. 174865

Mfg. Model Serial No.

Cal. Date 22-Sep-03 Cal Due Date 22-Mar-04 Cal. Interval 6 Months Meterface 202-857

Check mark applies to applicable Instr. and/or detector IAW mfg. spec. T. 74 °F RH 48 % Alt 704.8 mm Hg

New Instrument Instrument Received Within Toler. +10% 10-20% Out of Tol. Requiring Repair Other-See comments

Mechanical ck. Meter Zeroed Background Subtract Input Sens. Linearity

F/S Resp. ck. Reset ck. Window Operation Geotropism

Audio ck. Alarm Setting ck. Batt. ck. (Min. Volt) 7.2 VDC

Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 879 V Input Sens. mV Det. Oper. V at mV Threshold Dial Ratio = mV

HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	10 mR/hr	0.105	0.10
X 100	5 mR/hr	0.055	0.05
X 10	1 mR/hr = 3220 cpm	0.10	0.10
X 10	500 µR/hr	0.05	0.05
X 1	322 cpm	0.10	0.10
X 1	161 cpm	0.05	0.05

*Uncertainty within ± 10% C.F. within ± 20%

Range(s) Calibrated Electronically

Digital Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	Log Scale	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978. State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

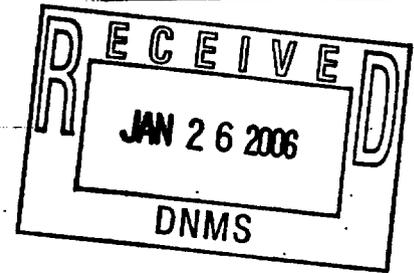
Cs-137 Gamma S/N 1162 G112 M565 5105 T1008 T879 E552 E551 Neutron Am-241 Be S/N T-304

Alpha S/N Beta S/N Other

m 500 S/N 134709 Oscilloscope S/N Multimeter S/N 57390613

Calibrated By: Conrad Galindo Date 22 Sep 03

Reviewed By: LO Robin Date 23 Sep 03 Page 4 of 6



Attachment (3)

UNIVERSITY OF HAWAII AT MANOA
RADIATION SAFETY OFFICE
INSTRUMENT CALIBRATION RECORD

Instrument Ludlum 2401-P Date of Calibration 9/22/03
 Serial Number 174365 Date Due Next 9/22/04
 Detector Model 44-9 Detector Serial Number _____
 Type of Source (1) 90 Sr Activity of Source (1) 0.0124 μ Ci
 (2) 14C (2) 0.155 μ Ci

RANGE	CALIBRATION POINT	READING	% OFF
COMPLETED BY LUDLUM			

Operation Voltage _____ VOLTS Efficiency (%):
 Radioactive Source Check Satisfactory S-35: 1.7% I-125: _____
 Principal Investigator RSP P-32: 50% Other: _____

Signature [Signature]



of
Scientific and Industrial
Instruments

Attachment (3)

CERTIFICATE OF CALIBRATION

OFFICE BOX 810 PH. 325-235-5494
501 OAK STREET FAX NO. 325-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER UNIVERSITY OF HAWAII

ORDER NO. 203248 / 275323

Mfg. Ludlum Measurements, Inc. Model 12S Serial No. 142323

Mfg. Model Serial No.

Cal. Date 22-Sep-03 Cal Due Date 22-Mar-04 Cal. Interval 6 Months Meterface 202-004

Check mark applies to applicable instr. and/or detector IAW mfg. spec. T. 74 °F RH 48 % Alt 704.8 mm Hg

New Instrument Instrument Received Within Toler. +10% 10-20% Out of Tol. Requiring Repair Other-See comments

Mechanical ck. Meter Zeroed Background Subtract Input Sens. Linearity

F/S Resp. ck. Reset ck. Window Operatlon Geotropism

Audio ck. Alarm Setting ck. Batt. ck. (Min. Volt) 2.2 VDC

Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set 775 V Input Sens. 32 mV-Det. Oper. V at mV Threshold Dial Ratio = mV

HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 1000	2000 μ R/hr	19	2
X 1000	1000 μ R/hr	1	1
X 100	200 μ R/hr = 35300 cpm	19	2
X 100	100 μ R/hr	1	1
X 10	3530 cpm	2	2
X 10	1760 cpm	1	1
X 1	353 cpm	2	2
X 1	176 cpm	1	1

*Uncertainty within $\pm 10\%$ C.F. within $\pm 20\%$

X10,X1 Range(s) Calibrated Electronically

REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout			Log Scale		

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N 1162 G112 M565 5105 T1008 T879 E552 E551 Neutron Am-241 Be S/NT-304

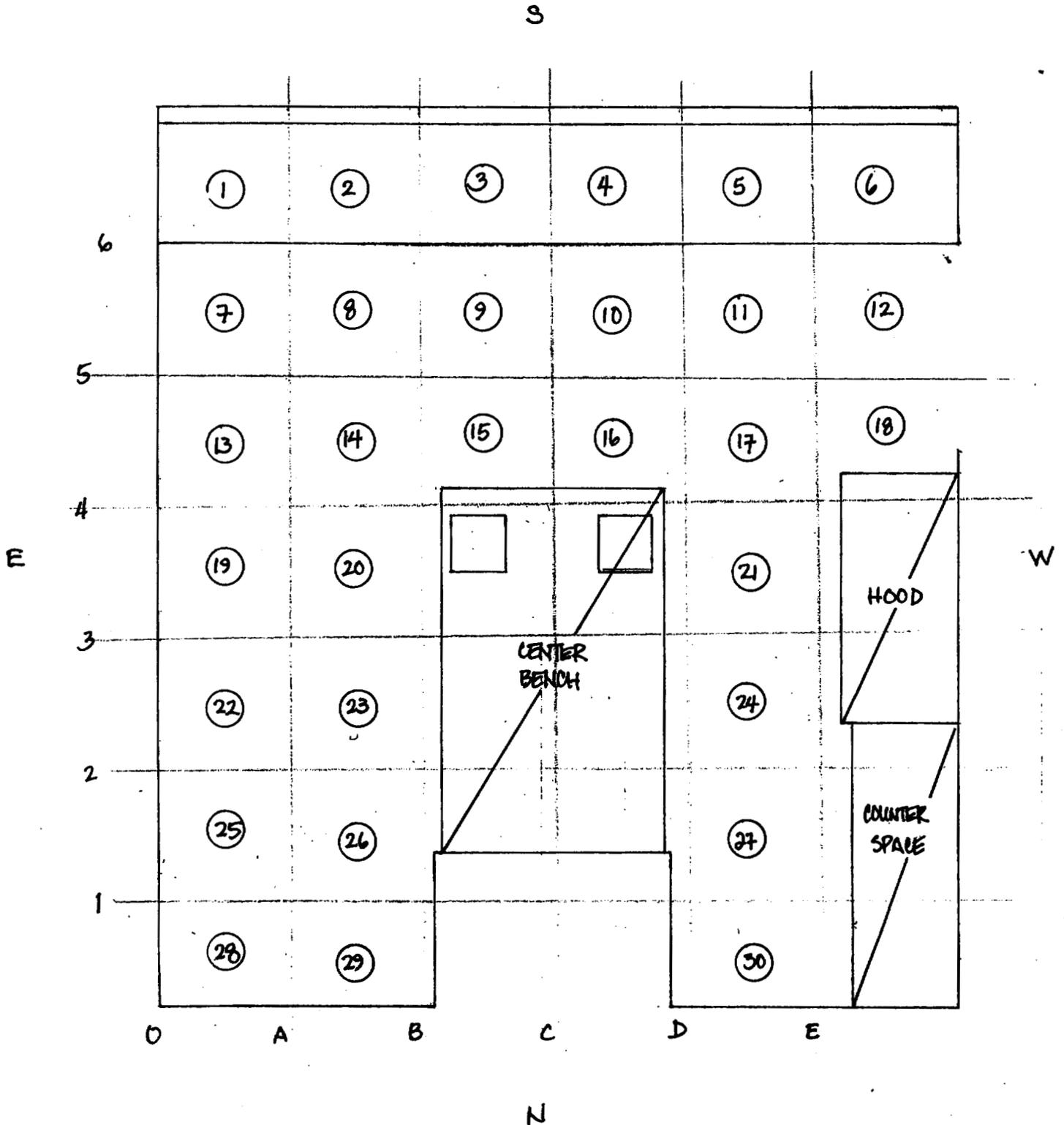
Alpha S/N Beta S/N Other

m 500 S/N 134709 Oscilloscope S/N Multimeter S/N 57390613

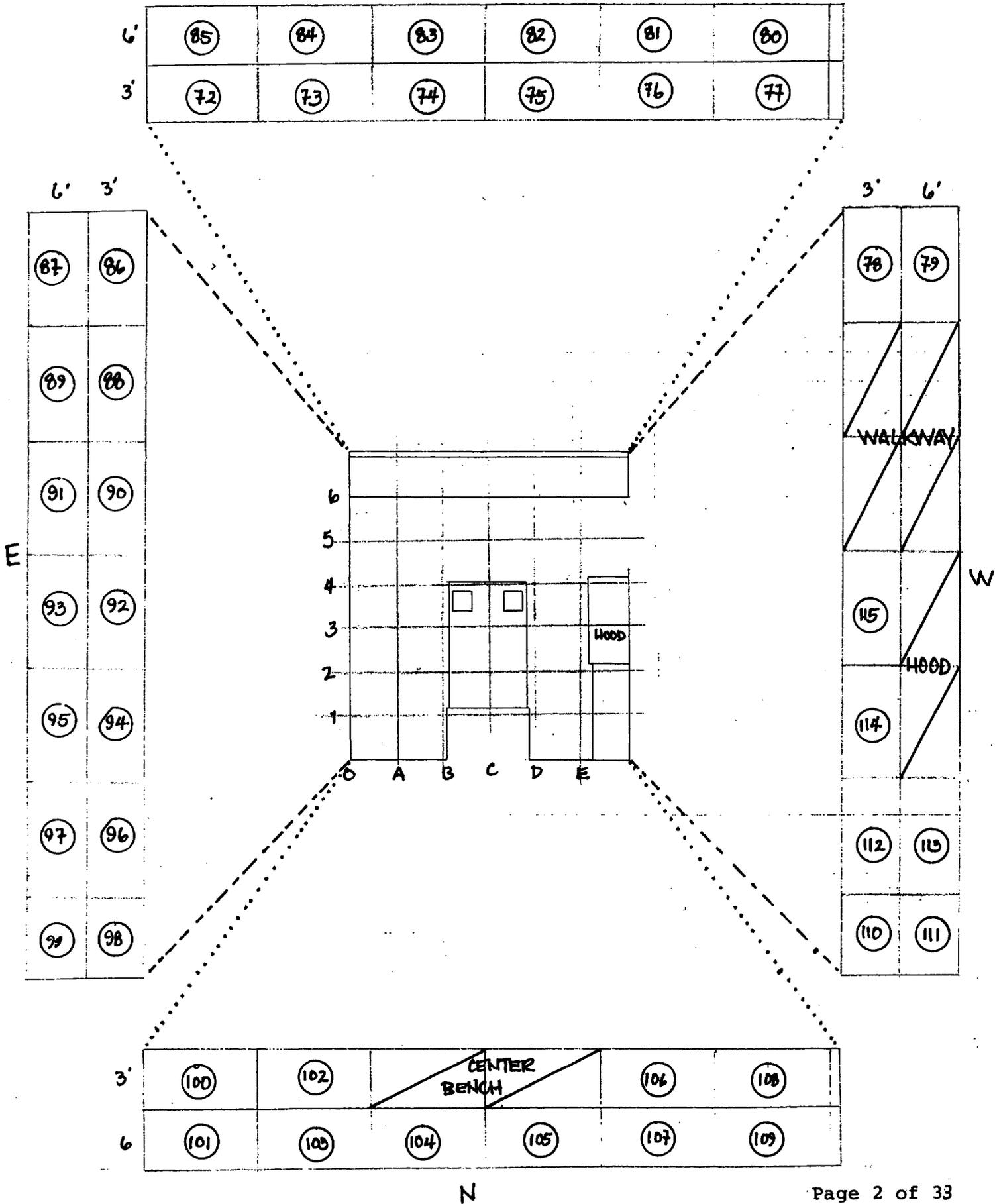
Calibrated By: Conrad Salgado Date 22 Sep 03

Reviewed By: W. Ruben Date 23 Sep 03

Attachment (4) Diagram (I)
UH Tower-floor
Room 717

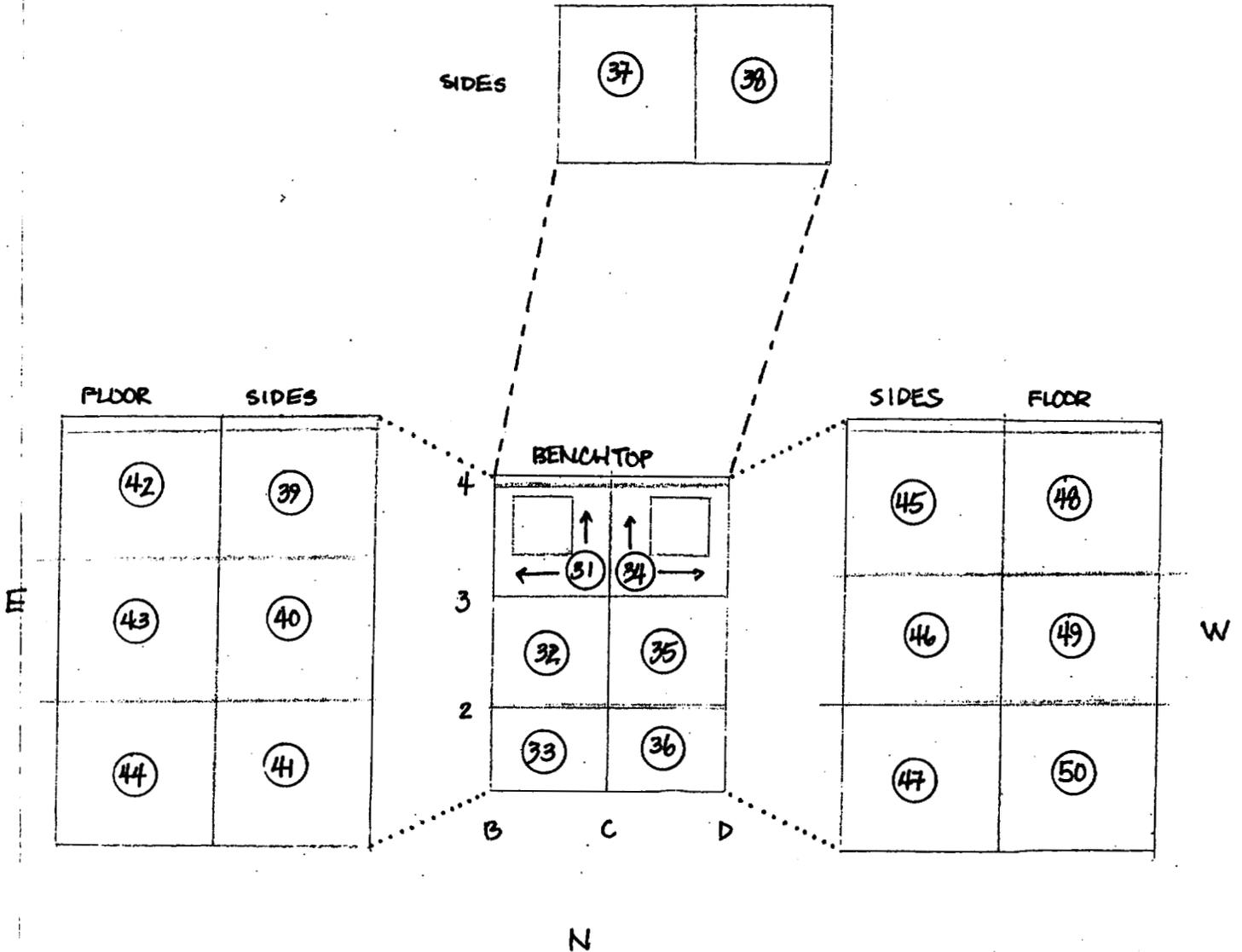


Attachment (4) Diagram (I)
 UH Tower--walls
 Room 717

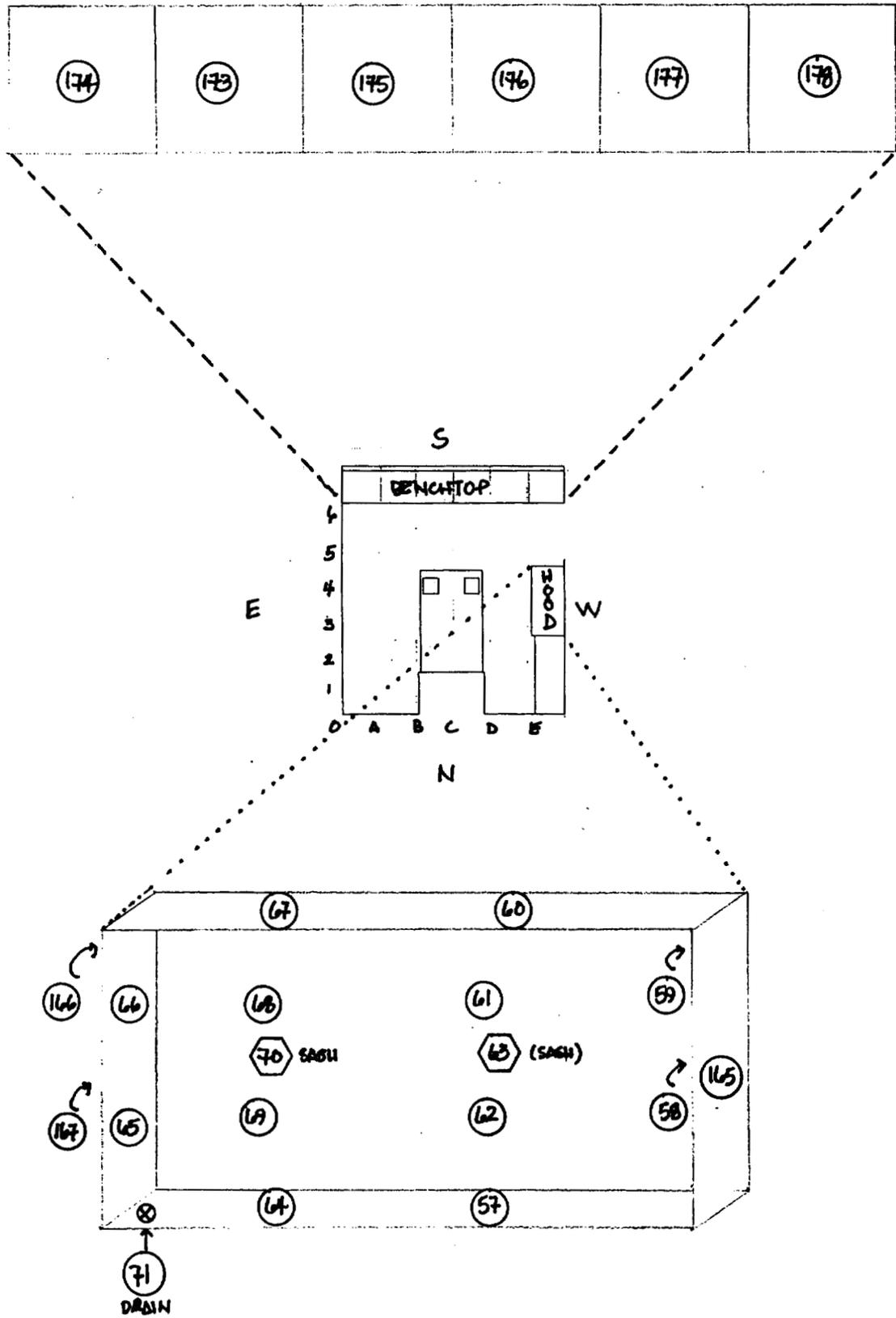


Attachment (4) Diagram (I)
 UH Tower 717-center bench (on top, sides), and floors
 Room 717

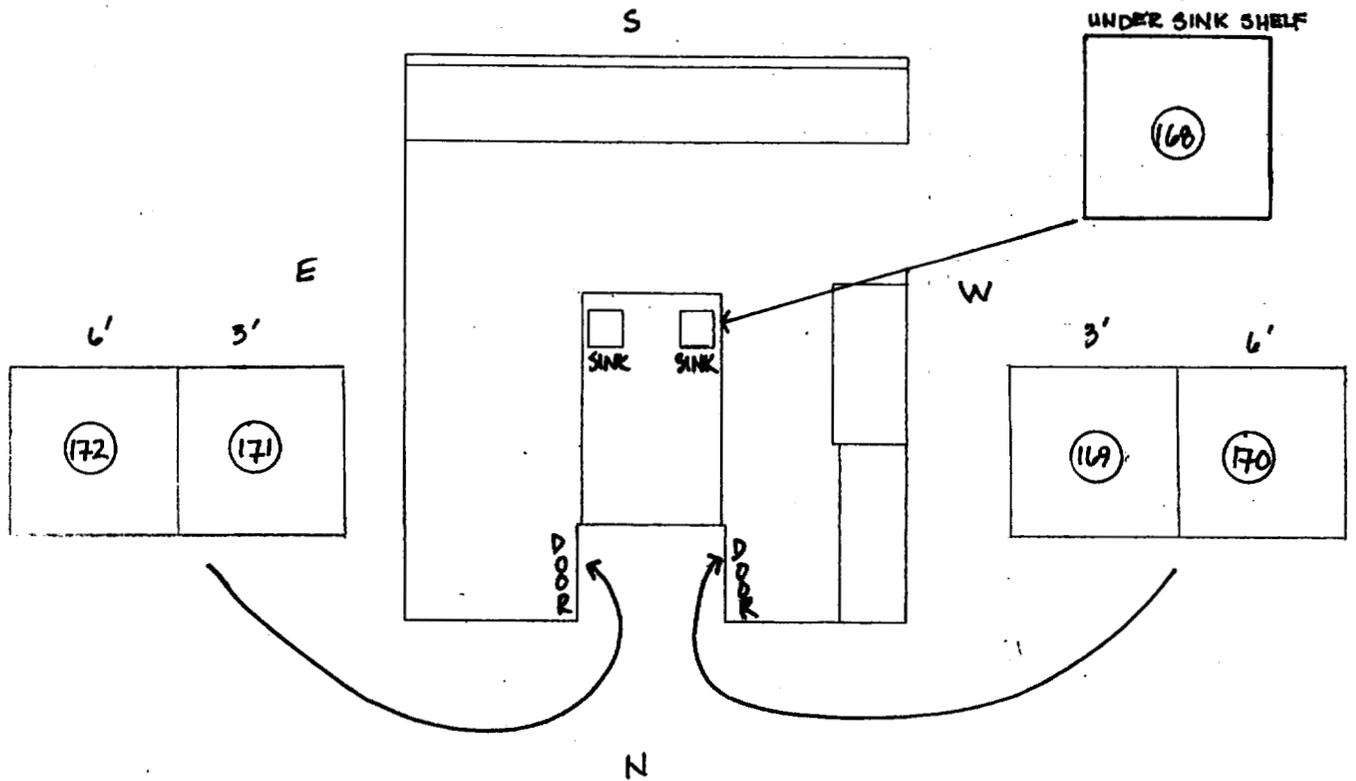
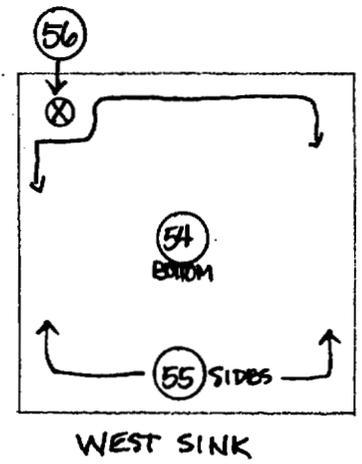
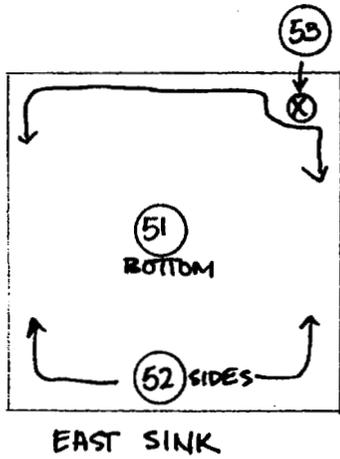
S



Attachment (4) Diagram (I)
 UH Tower-hood, bench top-southside
 Room 717

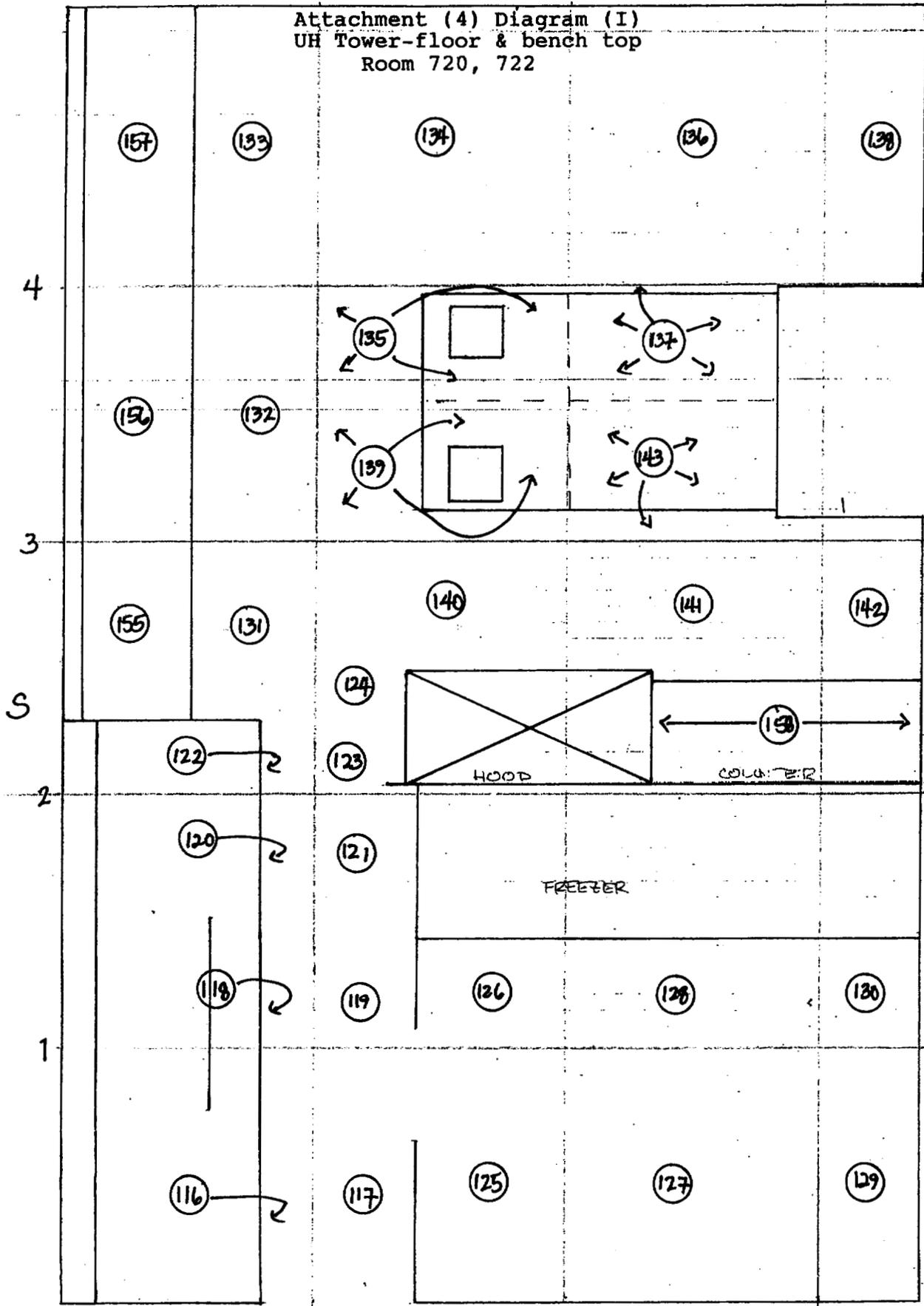


Attachment (4) Diagram (I)
 UH Tower- 2 sinks, 2 doors
 Room 717



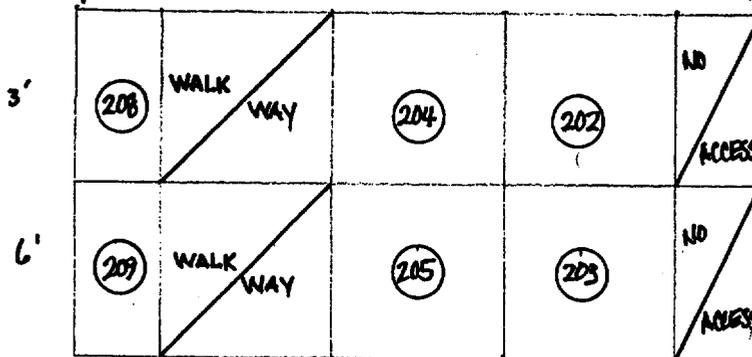
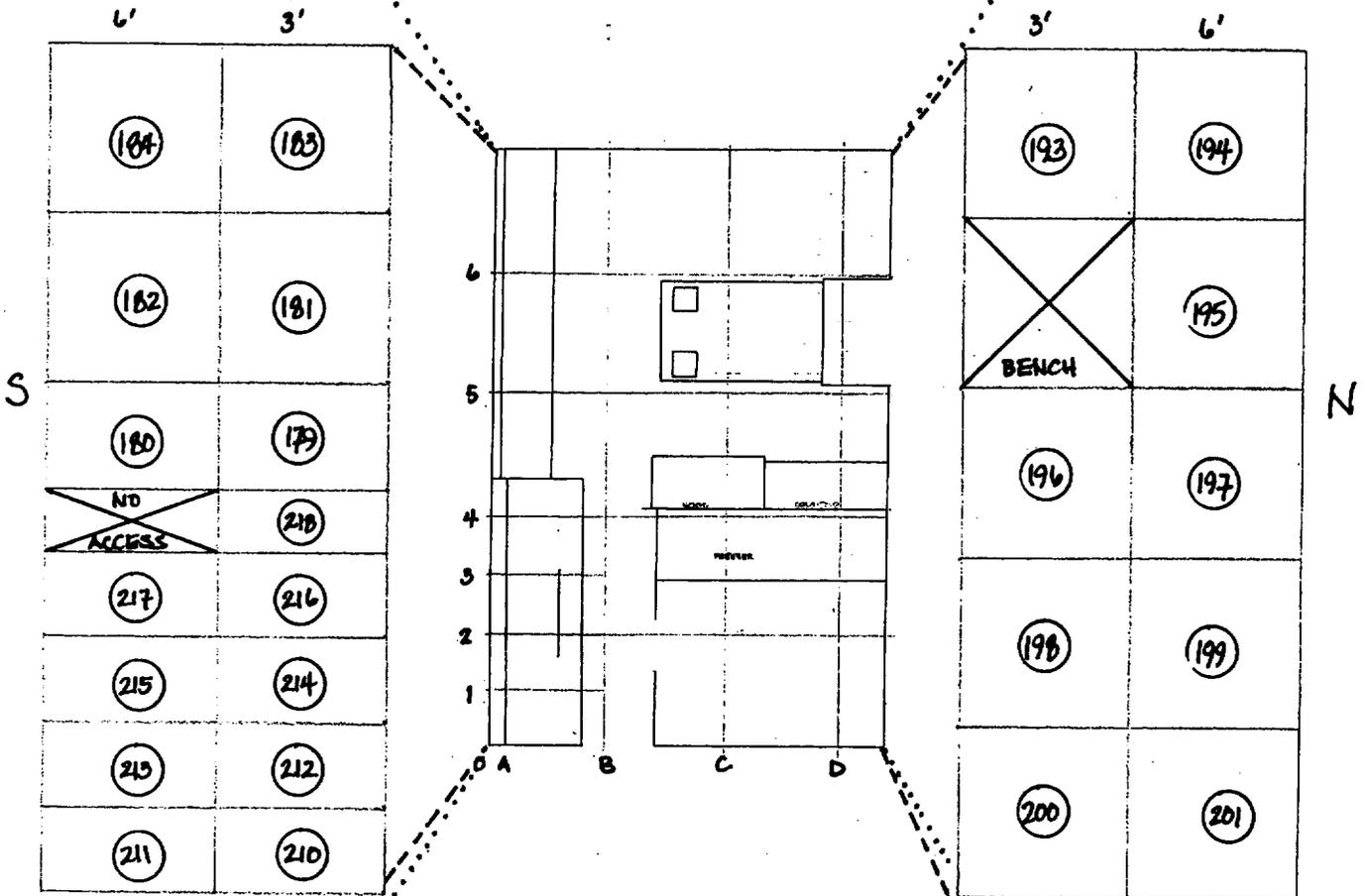
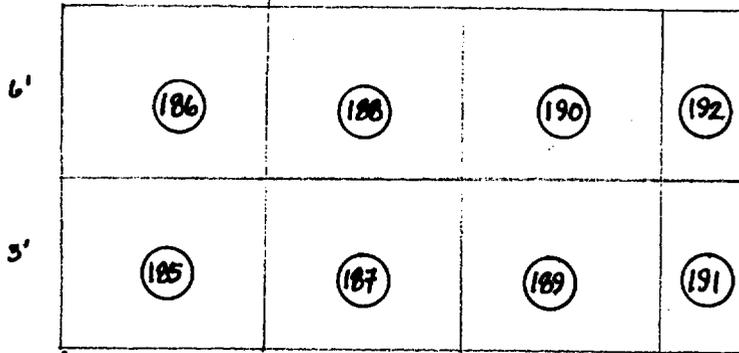
W

Attachment (4) Diagram (I)
UH Tower-floor & bench top
Room 720, 722



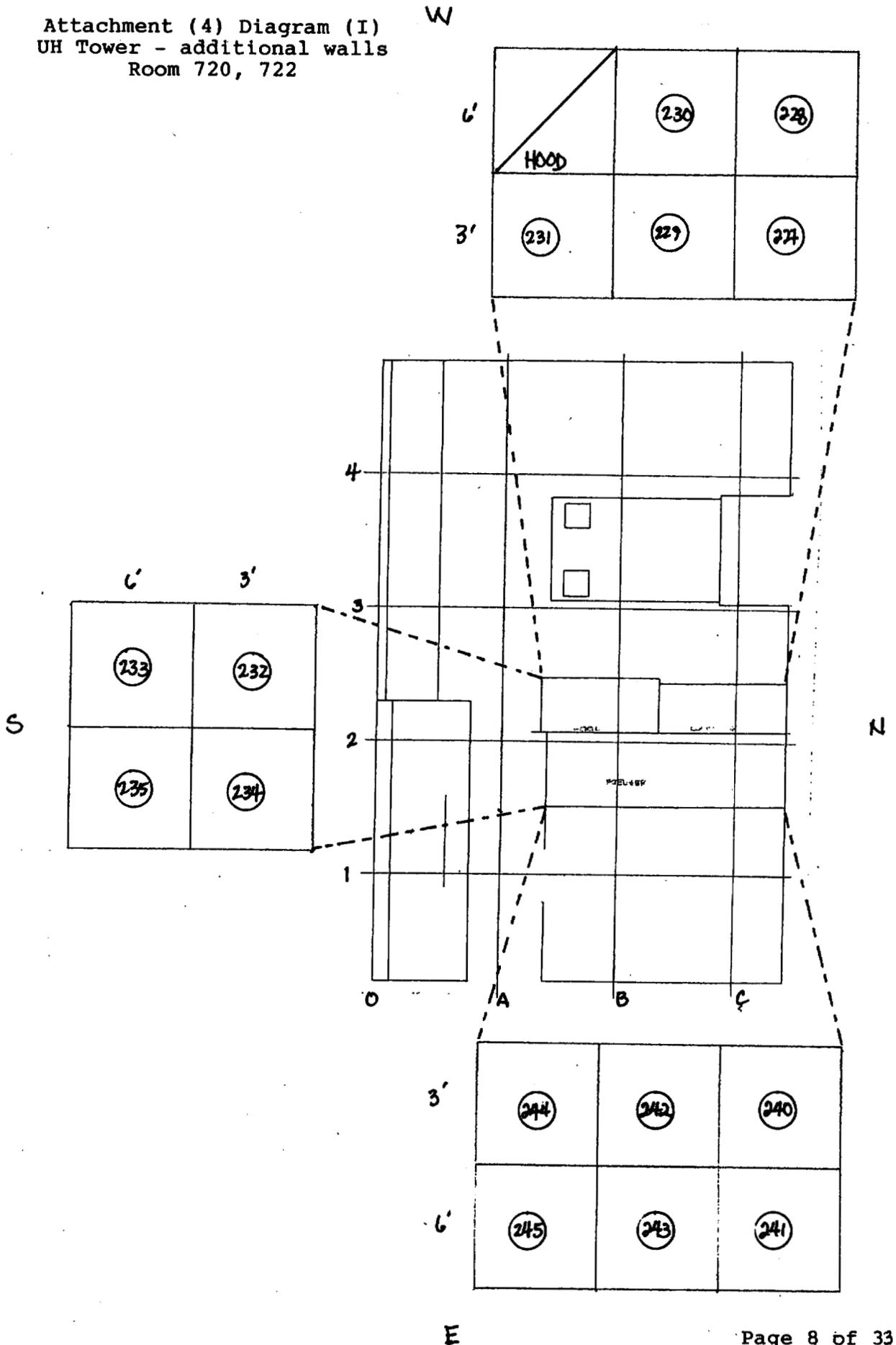
Attachment (4) Diagram (I)
 UH Tower-walls
 Room 720, 722

W

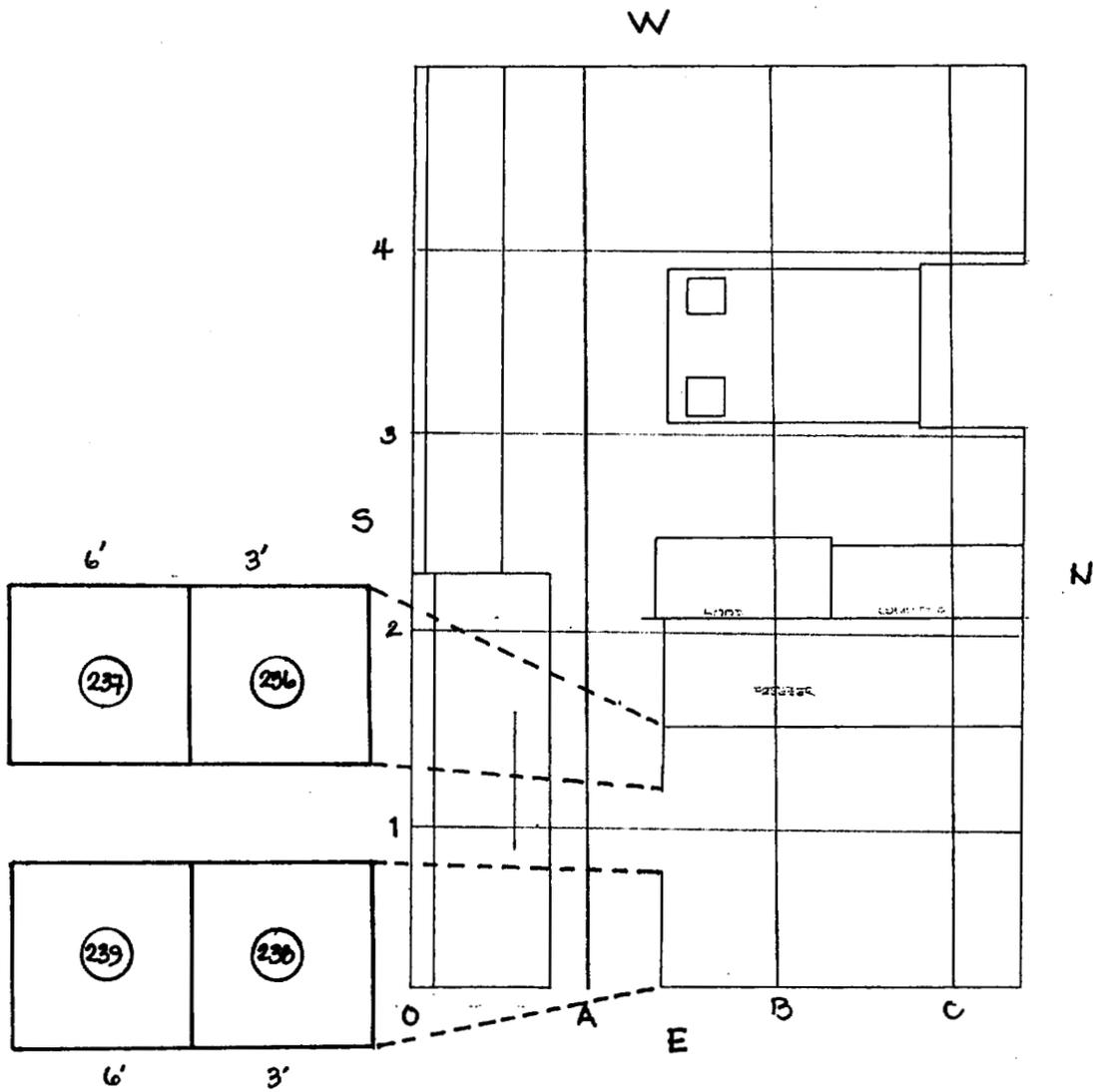


F

Attachment (4) Diagram (I)
 UH Tower - additional walls
 Room 720, 722

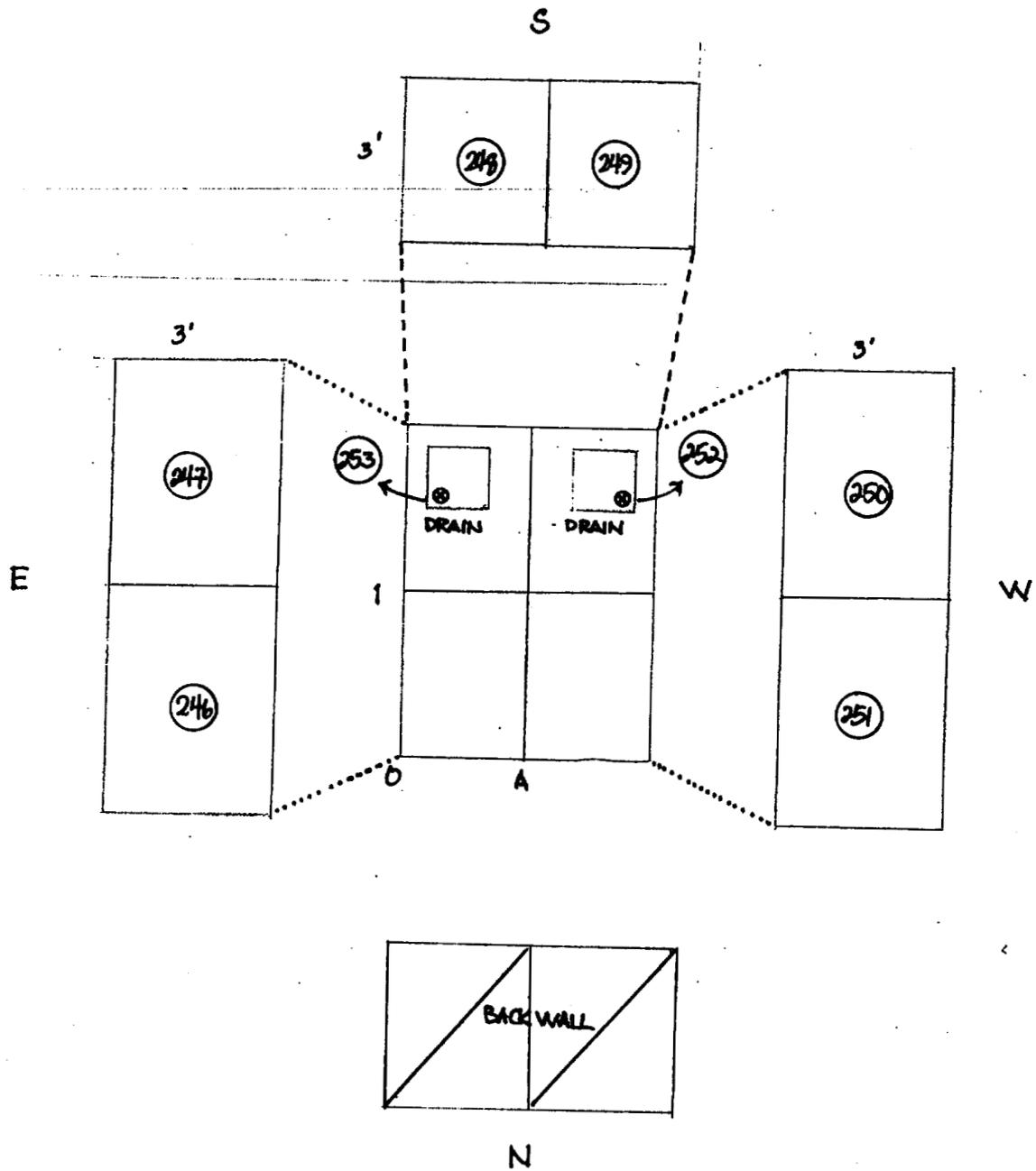


Attachment (4) Diagram (I)
UH Tower - additional walls
Room 720

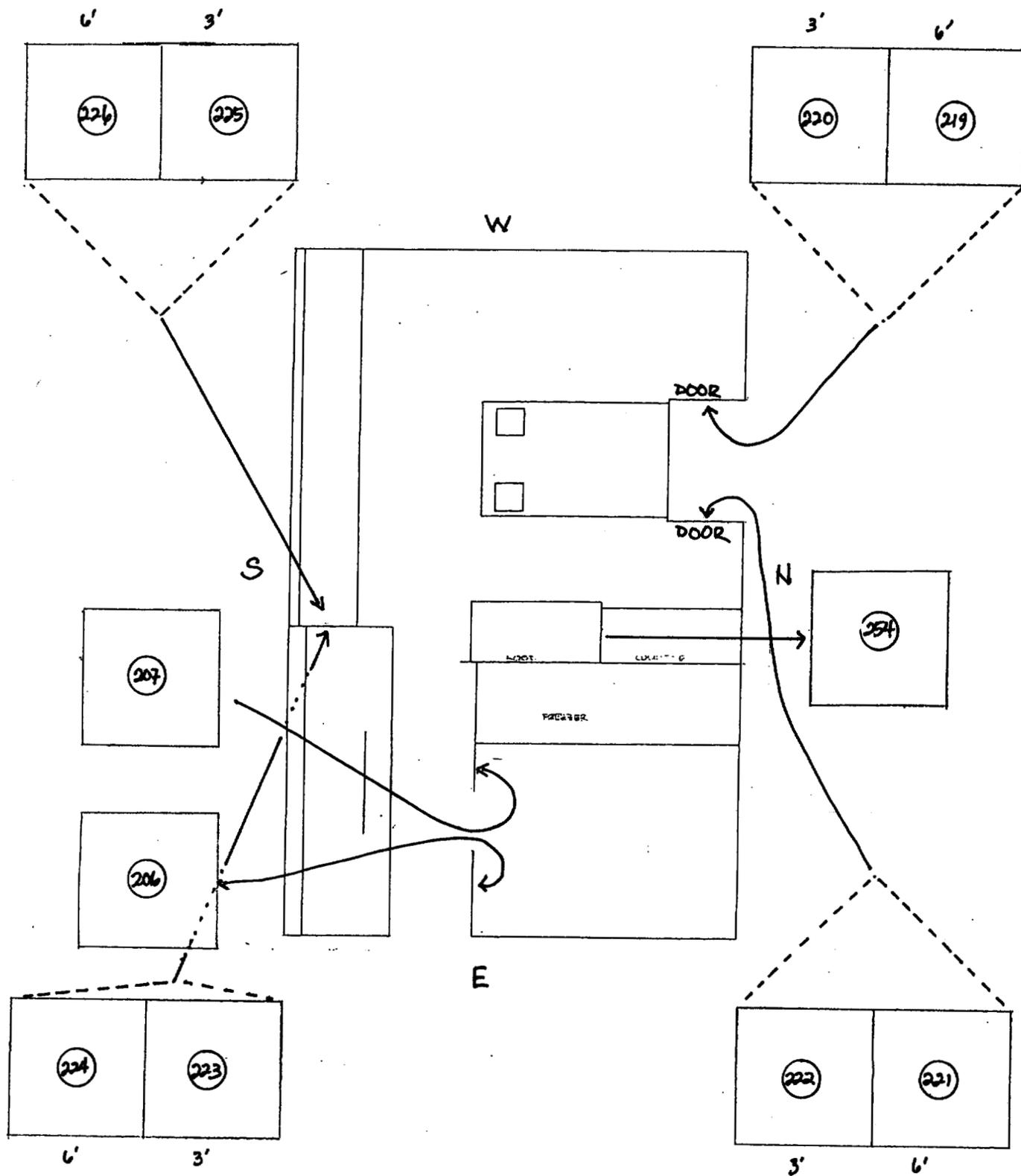


470848

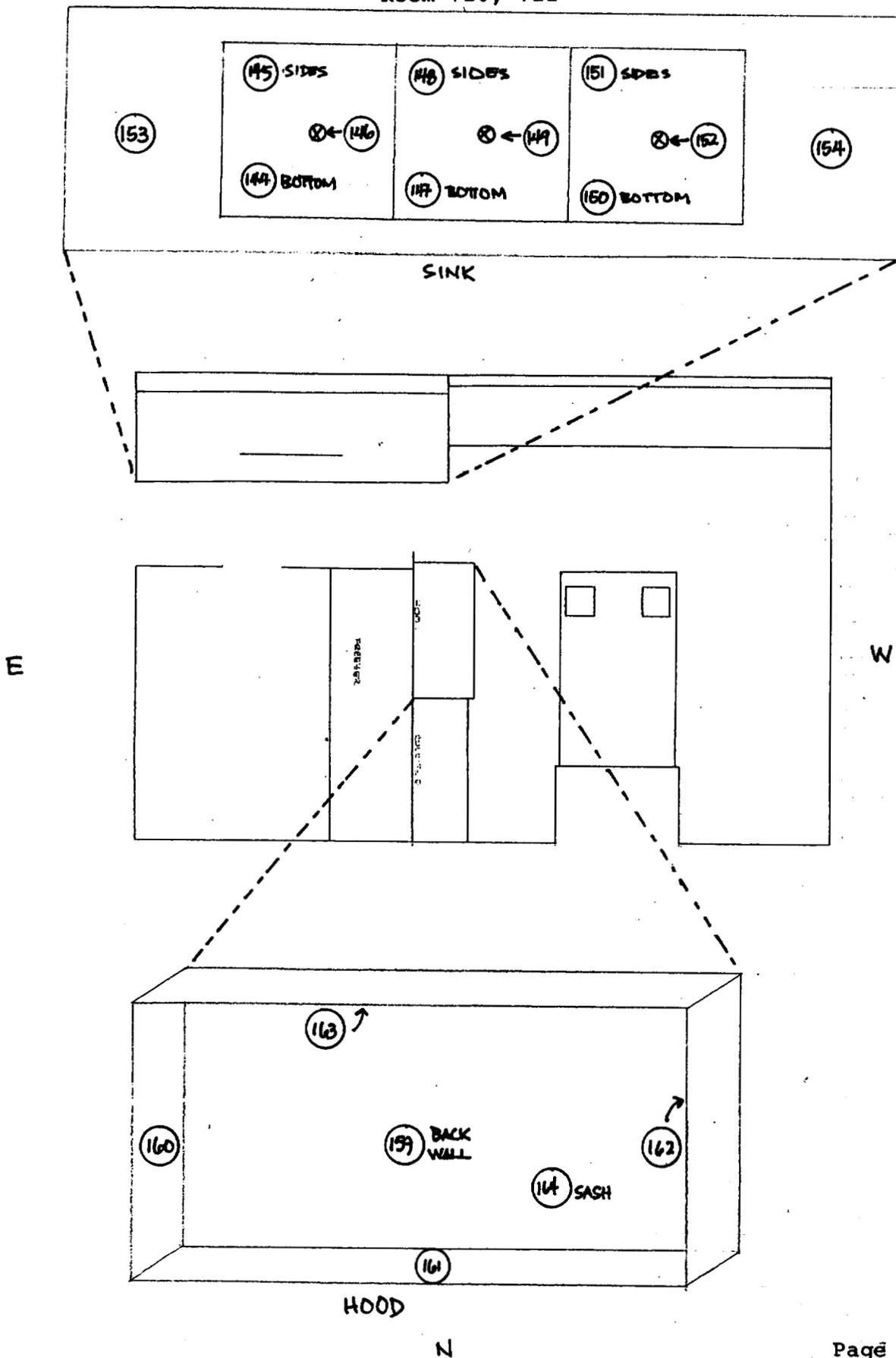
Attachment (4) Diagram (I)
UH Tower-bench (sides & drains)
Room 722



Attachment (4) Diagram (I)
UH Tower-doors & other walls
Room 720, 722



Attachment (4) Diagram (I)
 UH Tower-sink & hood
 Room 720, 722



Attachment (4) for Diagram (I)
UH Tower-swipe results
Room 717, 720, & 722

Protocol #:13 Name:H-3 DPM 30-Jun-2004 18:10
 Region A: LL-UL= 0.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Time = 5.00 QIP = tsIE ES Terminator = Count
 ARAKAKI DECOMMISSION SURVEY
 Conventional DPM
 Nuclide 1 = 253561
 Warning: User program changes may have invalidated DPM calculation

SN	TIME	CPMA	DFM1	SIS	tsIE	FLAG
6	5.00	9.44	17.04	22.299	560.	
7	5.00	16.00	30.38	18.036	506.	
8	5.00	14.80	27.46	19.846	530.	
9	5.00	12.60	23.83	22.368	510.	
10	5.00	13.00	24.27	21.013	524.	
11	5.00	17.80	33.29	20.035	522.	
12	5.00	17.64	32.48	22.889	538.	
13	5.00	17.20	32.07	18.364	525.	
14	5.00	14.04	26.27	23.158	521.	
15	5.00	8.40	15.33	24.151	548.	
16	5.00	13.40	24.63	21.464	540.	
17	5.00	14.04	25.86	21.920	538.	
18	5.00	15.84	29.44	19.445	528.	
19	5.00	8.44	15.29	20.827	556.	
20	5.00	11.00	19.99	21.069	553.	
21	5.00	16.88	31.34	19.088	529.	
22	5.00	14.04	27.90	18.022	464.	
23	5.00	15.24	28.65	18.605	516.	
24	5.00	20.04	37.07	21.138	533.	
25	5.00	13.60	24.81	21.738	548.	
26	5.00	13.00	24.39	20.544	518.	
27	5.00	12.44	22.91	19.389	538.	
28	5.00	59.24	108.53	13.881	544.	
29	5.00	15.24	28.00	18.394	540.	
30	5.00	13.60	25.65	19.402	513.	
31	5.00	31.64	59.78	16.446	511.	
32	5.00	11.24	20.59	21.925	544.	
33	5.00	14.64	27.11	22.778	532.	
34	5.00	47.80	87.49	15.190	545.	
35	5.00	20.20	37.79	16.876	521.	
36	5.00	16.00	30.54	18.819	501.	
37	5.00	15.20	27.73	19.774	548.	
38	5.00	32.44	59.49	18.576	543.	
39	5.00	8.88	16.00	21.558	562.	
40	5.00	19.20	35.39	18.407	537.	
41	5.00	17.24	31.59	21.742	544.	
42	5.00	13.20	24.14	20.768	546.	
43	5.00	19.00	35.03	18.662	537.	
44	5.00	24.64	45.74	18.895	529.	
45	5.00	18.60	34.87	18.789	519.	
46	5.00	16.80	30.41	17.579	557.	
47	5.00	15.20	27.47	21.562	559.	
48	5.00	12.20	22.67	19.023	528.	
49	5.00	14.60	26.88	19.480	538.	
50	5.00	19.84	36.77	22.081	531.	
51	5.00	15.60	28.24	22.347	557.	

Attachment (4) for Diagram (I)
UH Tower-swipe results:continued
Room 717, 720, & 722

S#	TIME	CPMA	DPM1	SIS	tSIE	FLAG
774	5.00	15.00	27.27	21.079	552.	
777	5.00	24.60	46.18	16.389	518.	
778	5.00	14.24	26.33	18.604	534.	
779	5.00	16.40	30.34	19.671	533.	
780	5.00	19.04	35.34	22.588	530.	
781	5.00	9.20	16.78	18.832	549.	
782	5.00	15.00	28.63	21.657	501.	
783	5.00	10.40	20.49	24.322	472.	
784	5.00	11.80	21.62	20.865	544.	
785	5.00	13.84	26.00	19.213	517.	
786	5.00	20.20	39.86	17.862	470.	
787	5.00	18.64	35.17	18.069	513.	
788	5.00	58.60	108.31	16.088	534.	
789	5.00	39.20	71.92	15.084	542.	
790	5.00	28.24	52.12	17.678	536.	
791	5.00	38.40	71.15	16.644	531.	
792	5.00	125.24	232.66	14.273	529.	
793	5.00	47.20	89.42	16.642	509.	
794	5.00	69.48	131.64	15.046	509.	
795	5.00	983.48	1799.67	13.970	545.	
796	5.00	88.84	160.53	14.752	559.	
797	5.00	56.64	104.52	14.723	536.	
798	5.00	106.00	195.02	14.281	539.	
799	5.00	1356.88	2518.20	13.538	530.	
800	5.00	152.44	282.25	14.314	532.	
801	5.00	19.08	37.86	20.172	465.	
802	5.00	37.20	71.42	15.230	496.	
803	5.00	39.00	72.71	15.680	525.	
804	5.00	33.04	61.77	16.604	522.	
805	5.00	20.20	36.68	15.462	554.	
806	5.00	21.84	40.21	19.319	538.	
807	5.00	22.20	40.46	18.971	549.	
808	5.00	13.60	24.72	17.513	553.	
809	5.00	14.40	26.20	22.448	551.	
810	5.00	13.80	30.77	20.749	377.	
811	5.00	8.40	20.78	19.948	322.	
812	5.00	12.20	23.11	19.602	509.	
813	5.00	12.04	23.51	19.902	480.	
814	5.00	11.40	21.66	18.106	506.	
815	5.00	11.80	21.94	21.817	528.	
816	5.00	32.24	59.19	18.114	541.	
817	5.00	16.28	29.74	19.359	547.	
818	5.00	11.84	21.81	22.579	538.	
819	5.00	13.00	23.30	18.618	569.	
820	5.00	45.68	83.50	15.452	546.	
821	5.00	23.80	42.53	16.873	572.	
822	5.00	46.24	84.66	16.925	544.	
823	5.00	25.00	45.52	16.024	551.	
824	5.00	17.24	31.25	20.902	555.	
825	5.00	26.60	48.82	17.949	542.	
826	5.00	27.40	52.12	15.605	505.	
827	5.00	31.24	57.30	16.554	542.	
828	5.00	16.64	31.59	18.506	506.	
829	5.00	10.20	18.60	22.250	548.	
830	5.00	19.80	35.78	17.444	559.	
831	5.00	23.40	42.42	17.888	555.	

Attachment (4) for Diagram (I)
UH Tower--continued swipe results
Room 717, 720, & 722

S#	TIME	CPMA	DPM1	SIS	tsIE	FLAG
102	5.00	27.60	51.26	17.795	529.	
103	5.00	234.60	426.62	14.045	552.	
104	5.00	9.24	16.67	25.087	561.	
105	5.00	12.64	22.63	21.808	570.	
106	5.00	17.00	31.00	20.292	549.	
107	5.00	16.52	30.18	17.361	547.	
108	5.00	13.60	24.67	22.305	555.	
109	5.00	15.04	27.52	19.260	545.	
110	5.00	15.04	27.57	20.223	543.	
111	5.00	13.40	24.27	19.571	557.	
112	5.00	24.24	44.50	17.601	541.	
113	5.00	14.20	25.47	20.209	568.	
114	5.00	17.40	31.67	20.385	551.	
115	5.00	2540.24	4631.75	13.805	549.	
116	5.00	18.64	33.99	19.070	549.	
117	5.00	13.80	25.49	19.400	535.	
118	5.00	15.80	28.28	20.804	570.	
119	5.00	14.60	26.78	20.755	542.	
120	5.00	86.64	160.20	13.922	534.	
121	5.00	12.28	22.95	19.523	522.	
122	5.00	15.44	28.36	19.177	541.	
123	5.00	14.44	26.18	17.900	555.	
124	5.00	12.00	22.04	21.079	541.	
125	5.00	11.04	19.97	20.048	558.	
126	5.00	11.64	21.77	23.881	521.	
127	5.00	16.00	30.12	20.163	515.	
128	5.00	13.20	24.70	23.467	521.	
129	5.00	15.40	28.10	20.677	548.	
130	5.00	14.00	26.21	21.025	521.	
131	5.00	10.60	19.35	24.499	547.	
132	5.00	10.60	19.72	22.682	527.	
133	5.00	11.40	21.50	22.104	513.	
134	5.00	12.44	23.20	22.729	525.	
135	5.00	13.80	25.84	21.609	521.	
136	5.00	14.24	26.80	23.872	515.	
137	5.00	12.64	25.05	20.840	467.	
138	5.00	11.00	21.17	20.515	493.	
139	5.00	12.80	24.02	20.765	518.	
140	5.00	15.00	28.02	18.696	523.	
141	5.00	12.84	23.65	22.771	538.	
142	5.00	9.20	17.82	20.580	487.	
143	5.00	12.00	22.01	24.155	542.	
144	5.00	8010.08	15043.7	12.918	517.	
145	5.00	99.00	197.54	13.268	461.	
146	5.00	45.80	89.99	14.263	474.	
147	5.00	114.28	215.86	13.444	512.	
148	5.00	70.60	137.51	13.040	482.	
149	5.00	239.80	469.55	13.056	477.	
150	5.00	120.80	218.89	14.870	556.	
151	5.00	51.44	94.15	15.794	545.	
152	5.00	14.00	27.49	21.191	475.	
153	5.00	170.40	318.65	13.283	522.	
154	5.00	9.88	18.89	20.767	499.	
155	5.00	10.64	20.00	19.623	516.	
156	5.00	12.60	23.81	21.196	511.	
157	5.00	11.24	20.55	20.234	546.	

Attachment (4) for Diagram (I)
UH Tower- continued swipe results
Room 717, 720, & 722

S#	TIME	CPMA	DFM1	SIS	tsIE	FLAG
170	5.00	14.40	27.80	20.435	490.	
171	5.00	13.88	26.74	19.425	492.	
172	5.00	14.40	26.48	24.276	540.	
173	5.00	12.20	23.11	20.260	509.	
174	5.00	12.40	22.92	23.920	534.	
175	5.00	12.24	22.47	20.444	541.	
176	5.00	16.80	31.32	20.254	525.	
177	5.00	24.20	45.78	17.867	510.	
178	5.00	13.24	24.16	21.984	548.	
179	5.00	60.84	118.72	14.735	480.	
180	5.00	1015.40	25233.0	10.821	53.6	E (extrapolated results)
181	5.00	20.24	37.37	17.766	535.	
182	5.00	20.00	36.91	17.623	536.	
183	5.00	11.44	21.38	24.976	523.	
184	5.00	13.40	24.48	21.619	547.	
185	5.00	13.24	24.91	19.163	515.	
186	5.00	11.20	21.19	24.562	510.	
187	5.00	12.20	23.36	20.391	498.	
188	5.00	15.24	29.35	19.894	493.	
189	5.00	11.80	21.91	23.041	529.	
190	5.00	8.44	15.61	24.343	533.	
191	5.00	12.20	23.58	21.128	489.	
192	5.00	9.04	18.38	22.934	445.	
193	5.00	11.00	20.88	22.470	507.	
194	5.00	9.00	18.00	23.504	458.	
195	5.00	9.60	18.99	21.199	468.	
196	5.00	10.28	20.34	22.753	468.	
197	5.00	14.00	26.31	21.782	517.	
198	5.00	9.40	17.80	23.187	509.	
199	5.00	12.52	22.65	23.143	558.	
200	5.00	7.40	13.33	22.427	563.	
201	5.00	13.40	24.60	25.009	542.	
202	5.00	8.60	15.87	28.143	536.	
203	5.00	11.40	21.14	22.104	530.	
204	5.00	13.80	25.53	20.097	533.	
205	5.00	11.24	20.36	22.441	557.	
206	5.00	10.04	18.11	24.171	561.	
207	5.00	15.68	28.26	22.902	562.	
208	5.00	11.80	21.48	20.566	551.	
209	5.00	11.40	20.70	22.723	553.	
210	5.00	14.08	26.47	17.930	516.	
211	5.00	16.60	29.80	22.644	567.	
212	5.00	13.20	24.10	20.087	547.	
213	5.00	12.60	23.24	24.100	536.	
214	5.00	10.20	19.42	25.198	504.	
215	5.00	21.60	40.58	18.487	517.	
216	5.00	13.24	24.35	21.765	539.	
217	5.00	27.24	51.23	16.239	516.	
218	5.00	14.24	27.06	21.068	506.	
219	5.00	11.80	21.74	21.031	537.	
220	5.00	10.00	18.11	22.021	556.	
221	5.00	14.08	27.01	20.888	496.	
222	5.00	16.44	29.34	20.963	574.	
223	5.00	11.04	20.03	22.499	555.	
224	5.00	11.40	20.88	22.780	544.	
225	5.00	10.60	19.37	21.622	547.	

Attachment (4) for Diagram (I)
UH Tower-continued swipe results
Room 717, 720, & 722

S#	TIME	CPMA	DPM1	SIS	tsIE	FLAG
214	5.00	9.84	18.22	22.765	532.	
215	5.00	13.24	24.41	23.151	537.	
216	5.00	9.00	16.45	22.042	546.	
217	5.00	9.84	18.19	21.946	534.	
218	5.00	11.80	21.65	20.675	542.	
219	5.00	9.80	17.54	23.158	570.	
220	5.00	18.20	32.58	21.168	570.	
221	5.00	11.48	20.37	25.905	580.	
222	5.00	9.88	17.90	21.749	556.	
223	5.00	13.00	24.13	22.001	530.	
224	5.00	20.60	37.65	18.216	546.	
225	5.00	14.60	27.08	18.512	530.	
226	5.00	10.88	19.45	20.895	572.	
227	5.00	10.84	20.10	23.094	531.	
228	5.00	8.40	15.48	24.037	537.	
229	5.00	9.64	18.19	23.373	513.	
230	5.00	11.04	20.50	26.818	529.	
231	5.00	10.64	19.50	24.348	543.	
232	5.00	15.08	28.54	19.538	510.	
233	5.00	14.44	26.46	20.375	543.	
234	5.00	17.40	32.66	21.953	518.	
235	5.00	11.64	21.22	18.707	549.	
236	5.00	9.00	16.43	24.895	547.	
237	5.00	12.60	22.93	24.534	551.	
238	5.00	11.40	20.74	25.004	551.	
239	5.00	11.04	19.97	20.690	558.	
240	5.00	26.88	49.46	19.017	539.	
241	5.00	13.00	25.43	20.667	478.	
242	5.00	14.00	26.53	17.586	508.	
243	5.00	12.20	22.23	20.418	549.	
244	5.00	13.80	25.27	23.272	544.	
245	5.00	16.08	30.50	19.721	508.	
246	5.00	8.08	15.02	20.103	528.	
247	5.00	11.84	21.31	21.463	564.	
248	5.00	9.80	18.50	25.123	512.	
249	5.00	10.40	19.45	22.439	521.	
250	5.00	7.00	12.69	24.396	556.	
251	5.00	11.80	21.54	21.382	547.	
252	5.00	12.40	25.40	24.049	439.	
253	5.00	10.40	20.99	27.748	451.	
254	5.00	12.60	25.25	22.597	457.	
(1 missing vial) standards follow						
255	5.00	13.00	19.54	20.914	898.	background
256	5.00	112935.	171267.	19.187	874.	
257	5.00	24676.6	36992.6	32.916	906.	

MDA H-3: 11.59 dpm

Attachment (4) for Diagram (I)
UH Tower-continued swipe results
Room 717, 720, & 722

SYSTEM NORMALIZED

C14 IPA DATA PROCESSED - 01-Jul-2004 21:54

C14 Eff (0-156 keV) = 95.18 %

WARNING: Questionable C14 Chi square value - Please view historic data

H3 IPA DATA PROCESSED - 01-Jul-2004 22:06

H3 Eff (0-18.6 keV) = 62.75 %

H3 CHI SQUARE IPA DATA PROCESSED - 01-Jul-2004 22:16

H3 Chi Square = 164.86

EKG IPA DATA PROCESSED - 01-Jul-2004 23:17

Bkg (0-18.6 keV) = 13.73 cpm

Bkg (0-156 keV) = 20.73 cpm

C14 E²/B (1-156 keV) = 561.82

H3 E²/B (1-18.6 keV) = 286.20

Attachment (4) for Diagram (I)
UH Tower - swipe result

Protocol #:13 Name:H-3 DPM 02-Jul-2004 08:42
Region A: LL-UL= 0.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 5.00 QIP = tSIE ES Terminator = Count
ARAKAKI RE-RUN #168
Conventional DPM
Nuclide 1 = 253561
Warning: User program changes may have invalidated DPM calculation

S#	TIME	CPMA	DPM1	SIS	tSIE	FLAG
1	5.00	10.60	19.15	22.743	560.	
2	5.00	1287.92	15543.9	10.761	80.2	E (extrapolated results)

Attachment (4) for Diagram (I)
UH Tower-swipe results
Room 717, 720, & 722

Protocol #:14 Name:C-14 DPM 21-Jun-2004 07:35
 Region A: LL-UL= 0.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region B: LL-UL= 4.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Time = 5.00 QIP = tSIE/AEC ES Terminator = Count
 ARAKAKI DECOMMISSION SWIPES UH TOWER 717
 Conventional DPM
 Nuclide 1 = 108000

SW	TIME	CPMA	DPM1	SIS	tSIE	FLAG
1	5.00	13.40	14.11	52.534	580.	background
2	5.00	23.20	24.51	34.853	508.	
3	5.00	18.40	19.42	49.790	530.	
4	5.00	18.40	19.43	44.888	514.	
5	5.00	19.20	20.26	48.535	536.	
6	5.00	23.40	24.70	47.597	528.	
7	5.00	20.20	21.31	41.237	543.	
8	5.00	18.40	19.42	40.893	530.	
9	5.00	16.00	16.89	40.025	520.	
10	5.00	13.20	13.92	37.037	550.	
11	5.00	16.00	16.88	59.084	538.	
12	5.00	14.20	14.98	41.414	538.	
13	5.00	19.40	20.47	52.237	532.	
14	5.00	13.20	13.92	56.370	555.	
15	5.00	19.42	20.47	53.941	559.	
16	5.00	16.80	17.73	46.621	531.	
17	5.00	16.80	17.79	28.164	465.	
18	5.00	16.40	17.32	48.718	518.	
19	5.00	24.00	25.33	39.095	533.	
20	5.00	19.40	20.46	45.800	550.	
21	5.00	18.00	19.01	34.240	521.	
22	5.00	16.40	17.30	37.933	538.	
23	5.00	59.00	62.23	21.485	545.	
24	5.00	15.60	16.45	38.870	544.	
25	5.00	17.00	17.95	39.993	523.	
26	5.00	39.47	41.70	24.689	511.	
27	5.00	17.80	18.77	42.295	545.	
28	5.00	17.80	18.79	43.353	529.	
29	5.00	47.80	50.42	27.782	541.	
30	5.00	26.60	28.08	33.017	527.	
31	5.00	19.00	20.08	39.483	501.	
32	5.00	16.20	17.09	40.997	545.	
33	5.00	33.60	35.44	29.224	544.	
34	5.00	14.20	14.97	61.080	558.	
35	5.00	27.80	29.34	36.095	532.	
36	5.00	18.60	19.62	38.606	543.	
37	5.00	17.20	18.14	53.208	544.	
38	5.00	21.40	22.58	35.505	538.	
39	5.00	28.80	30.40	28.478	528.	
40	5.00	25.20	26.60	35.272	525.	
41	5.00	20.00	21.09	35.326	553.	
42	5.00	17.80	18.76	47.699	559.	
43	5.00	17.40	18.36	45.604	529.	
44	5.00	20.00	21.10	40.767	534.	
45	5.00	20.60	21.73	40.499	537.	
46	5.00	21.40	22.55	49.290	562.	
47	5.00	17.60	18.55	45.998	555.	

Attachment (4) for Diagram (I)
UH Tower-continued swipe results
Room 717, 720, & 722

#	TIME	CFMA	DPM1	SIS	tsIE	FLAG
71	5.00	27.80	29.36	33.081	516.	
72	5.00	17.40	18.36	45.272	532.	
73	5.00	17.00	17.94	48.494	533.	
74	5.00	18.18	19.19	36.665	525.	
75	5.00	13.20	13.92	54.424	544.	
76	5.00	16.00	16.91	68.213	504.	
77	5.00	18.58	19.65	47.853	481.	
78	5.00	20.40	21.52	49.613	540.	
79	5.00	13.40	14.15	52.989	518.	
80	5.00	19.80	20.96	47.112	472.	
81	5.00	25.60	27.04	40.438	510.	
82	5.00	60.20	63.53	26.565	533.	
83	5.00	40.00	42.20	28.609	541.	
84	5.00	33.00	34.83	35.806	530.	
85	5.00	41.20	43.48	27.849	530.	
86	5.00	130.80	138.05	21.804	530.	
87	5.00	49.60	52.40	23.907	508.	
88	5.00	77.40	81.78	24.477	507.	
89	5.00	990.20	1044.34	15.894	545.	
90	5.00	87.00	91.70	24.573	558.	
91	5.00	56.80	59.94	27.353	533.	
92	5.00	113.80	120.06	19.026	538.	
93	5.00	1341.40	1415.87	16.189	528.	
94	5.00	151.20	159.58	19.126	529.	
95	5.00	20.60	21.81	42.026	470.	
96	5.00	42.40	44.81	24.628	499.	
97	5.00	39.20	41.38	29.037	526.	
98	5.00	38.40	40.53	30.595	527.	
99	5.00	28.20	29.73	41.605	554.	
100	5.00	18.40	19.41	42.236	540.	
101	5.00	26.60	28.05	39.220	551.	
102	5.00	17.00	17.92	37.406	554.	
103	5.00	15.80	16.66	63.103	548.	
104	5.00	11.80	12.62	42.546	376.	
105	5.00	14.00	15.06	41.569	335.	
106	5.00	15.40	16.27	47.275	513.	
107	5.00	14.00	14.81	47.393	477.	
108	5.00	17.00	17.96	47.848	507.	
109	5.00	12.16	12.84	58.903	525.	
110	5.00	36.00	37.97	34.472	545.	
111	5.00	19.60	20.67	40.698	548.	
112	5.00	15.00	15.82	51.724	539.	
113	5.00	18.40	19.38	45.167	572.	
114	5.00	49.80	52.53	28.316	544.	
115	5.00	26.00	27.39	38.051	573.	
116	5.00	48.20	50.84	24.958	542.	
117	5.00	30.27	31.91	31.356	551.	
118	5.00	21.40	22.56	33.735	558.	
119	5.00	27.60	29.12	27.704	539.	
120	5.00	33.00	34.87	31.963	505.	
121	5.00	33.35	35.18	33.473	541.	
122	5.00	22.20	23.45	36.799	507.	
123	5.00	17.80	18.77	43.155	552.	
124	5.00	21.00	22.14	42.815	553.	
125	5.00	25.80	27.20	41.394	556.	
126	5.00	30.00	31.67	29.832	525.	

Attachment (4) for Diagram (I)
UH Tower-continued swipe results
Room 717, 720, & 722

SN#	TIME	CPMA	DPM1	SIS	tsIE	FLAG
103	5.00	239.00	251.99	19.189	552.	
104	5.00	13.40	14.12	50.258	560.	
105	5.00	14.60	15.38	43.137	572.	
106	5.00	22.80	24.04	40.195	548.	
107	5.00	20.00	21.09	34.203	545.	
108	5.00	15.00	15.81	33.063	558.	
109	5.00	15.60	16.45	33.335	548.	
110	5.00	18.40	19.41	35.729	543.	
111	5.00	18.20	19.19	54.923	556.	
112	5.00	23.67	24.96	35.433	543.	
113	5.00	16.60	17.49	63.813	570.	
114	5.00	19.80	20.88	49.398	545.	
115	5.00	2437.60	2570.82	13.886	546.	
116	5.00	19.40	20.45	49.854	554.	
117	5.00	21.60	22.79	47.541	532.	
118	5.00	17.60	18.54	47.043	571.	
119	5.00	16.00	16.88	46.826	543.	
120	5.00	90.80	95.80	18.150	536.	
121	5.00	15.20	16.05	46.651	525.	
122	5.00	15.00	15.83	47.594	537.	
123	5.00	15.60	16.45	44.858	554.	
124	5.00	13.40	14.13	52.869	544.	
125	5.00	16.20	17.08	48.903	556.	
126	5.00	16.40	17.32	44.079	521.	
127	5.00	14.20	15.00	40.939	511.	
128	5.00	17.73	18.72	51.488	520.	
129	5.00	15.00	15.82	58.593	550.	
130	5.00	17.40	18.37	44.184	523.	
131	5.00	15.60	16.45	53.397	547.	
132	5.00	16.20	17.10	52.608	525.	
133	5.00	17.40	18.39	48.747	503.	
134	5.00	15.20	16.04	60.166	530.	
135	5.00	18.00	19.01	49.167	517.	
136	5.00	15.40	16.26	48.171	516.	
137	5.00	15.20	16.10	41.308	461.	
138	5.00	15.20	16.07	54.380	490.	
139	5.00	17.60	18.59	46.654	518.	
140	5.00	17.40	18.37	55.271	524.	
141	5.00	14.00	14.77	45.032	537.	
142	5.00	13.80	14.59	50.290	486.	
143	5.00	16.70	17.62	51.360	544.	
144	5.00	7092.60	7490.89	12.617	514.	
145	5.00	93.59	99.09	17.957	469.	
146	5.00	55.80	59.03	20.865	481.	
147	5.00	130.00	137.31	17.040	512.	
148	5.00	73.20	77.42	21.198	484.	
149	5.00	234.00	247.48	14.371	485.	
150	5.00	118.40	124.86	18.623	547.	
151	5.00	50.40	53.16	23.922	542.	
152	5.00	17.60	18.62	38.757	476.	
153	5.00	178.60	188.56	15.275	523.	
154	5.00	16.60	17.54	52.017	500.	
155	5.00	14.08	14.87	55.969	515.	
156	5.00	12.00	12.67	49.889	516.	
157	5.00	18.00	18.98	44.334	549.	
158	5.00	12.40	13.11	45.794	493.	

Attachment (4) for Diagram (I)
UH Tower-continued swipe results
Room 717, 720, & 722

#	TIME	CPMA	DFM1	SIS	tsIE	FLAG
159	5.00	15.60	16.49	37.285	494.	
160	5.00	15.80	16.67	57.069	540.	
161	5.00	15.80	16.70	45.143	504.	
162	5.00	14.80	15.61	54.527	537.	
163	5.00	13.34	14.07	51.020	545.	
164	5.00	23.60	24.91	43.158	526.	
165	5.00	28.20	29.79	35.060	513.	
166	5.00	15.40	16.24	38.186	550.	
167	5.00	57.60	60.91	24.549	486.	
168	5.00	1165.22	1596.49	11.729	64.4	E (extrapolated results)
169	5.00	21.60	22.79	28.637	537.	
170	5.00	25.80	27.20	34.675	554.	
171	5.00	14.60	15.41	71.697	525.	
172	5.00	13.80	14.55	55.254	545.	
173	5.00	14.80	15.63	53.681	516.	
174	5.00	13.00	13.73	53.385	509.	
175	5.00	13.00	13.74	35.483	499.	
176	5.00	17.00	17.97	42.399	496.	
177	5.00	13.80	14.57	39.171	527.	
178	5.00	12.40	13.09	43.677	533.	
179	5.00	16.60	17.55	48.885	493.	
180	5.00	12.00	12.74	48.444	443.	
181	5.00	15.40	16.27	54.174	510.	
182	5.00	14.00	14.84	61.242	457.	
183	5.00	14.60	15.45	56.791	473.	
184	5.00	17.60	18.65	50.382	459.	
185	5.00	13.80	14.57	44.987	520.	
186	5.00	17.47	18.46	46.803	503.	
187	5.00	13.80	14.55	51.779	557.	
188	5.00	16.20	17.07	54.610	564.	
189	5.00	14.80	15.61	39.236	543.	
190	5.00	12.60	13.29	52.455	543.	
191	5.00	12.80	13.51	53.216	533.	
192	5.00	11.40	12.03	43.822	540.	
193	5.00	14.00	14.76	46.820	554.	
194	5.00	13.80	14.54	49.546	563.	
195	5.00	15.80	16.65	49.267	566.	
196	5.00	14.40	15.18	58.560	552.	
197	5.00	13.00	13.70	53.311	557.	
198	5.00	16.20	17.11	33.725	516.	
199	5.00	20.60	21.71	37.242	566.	
200	5.00	16.20	17.08	60.421	550.	
201	5.00	12.20	12.87	46.650	538.	
202	5.00	15.80	16.69	55.301	505.	
203	5.00	27.20	28.72	48.504	519.	
204	5.00	18.00	18.98	41.355	547.	
205	5.00	25.00	26.39	36.209	526.	
206	5.00	19.40	20.50	38.735	504.	
207	5.00	17.60	18.57	51.342	540.	
208	5.00	14.00	14.76	52.965	560.	
209	5.00	18.60	19.66	44.146	494.	
210	5.00	18.40	19.38	49.267	575.	
211	5.00	15.60	16.45	44.158	554.	
212	5.00	12.80	13.50	63.272	547.	
213	5.00	15.40	16.24	39.729	549.	
214	5.00	13.60	14.35	53.343	531.	

Attachment (4) for Diagram (I)
UH Tower-continued swipe results
Room 717, 720, & 722

BS#	TIME	CPMA	DPM1	SIS	tsIE	FLAG
215	5.00	14.60	15.40	44.236	538.	
216	5.00	17.00	17.93	51.473	547.	
217	5.00	14.20	14.99	57.735	530.	
218	5.00	15.00	15.82	49.169	543.	
219	5.00	12.00	12.64	66.447	566.	
220	5.00	19.97	21.04	38.909	565.	
221	5.00	13.20	13.90	44.940	580.	
222	5.00	13.40	14.12	51.600	557.	
223	5.00	15.20	16.04	63.250	533.	
224	5.00	18.80	19.82	41.207	553.	
225	5.00	15.20	16.04	42.321	529.	
226	5.00	11.00	11.59	57.430	576.	
227	5.00	13.80	14.56	51.569	540.	
228	5.00	11.80	12.45	51.822	541.	
229	5.00	12.40	13.09	56.408	518.	
230	5.00	16.40	17.31	51.203	531.	
231	5.00	10.40	10.97	47.317	548.	
232	5.00	21.60	22.81	49.190	514.	
233	5.00	19.60	20.67	53.096	548.	
234	5.00	19.20	20.27	42.716	525.	
235	5.00	15.80	16.66	58.247	553.	
236	5.00	15.80	16.66	53.168	547.	
237	5.00	15.40	16.23	61.219	555.	
238	5.00	13.80	14.55	42.381	551.	
239	5.00	15.20	16.01	52.247	569.	
240	5.00	28.60	30.17	35.927	541.	
241	5.00	20.40	21.58	38.536	477.	
242	5.00	20.40	21.56	49.267	504.	
243	5.00	17.40	18.35	49.681	552.	
244	5.00	18.20	19.18	52.806	559.	
245	5.00	24.00	25.36	32.662	502.	
246	5.00	16.60	17.50	63.833	549.	
247	5.00	12.60	13.28	42.724	565.	
248	5.00	12.40	13.10	59.489	516.	
249	5.00	14.00	14.78	48.173	525.	
250	5.00	16.00	16.87	53.768	558.	
251	5.00	13.20	13.92	66.340	549.	
252	5.00	13.00	13.79	44.570	447.	
253	5.00	14.60	15.46	52.877	468.	
254	5.00	16.80	17.80	49.105	462.	
(1 missing vial) re-run of swipe 168						
255	5.00	20.80	21.94	29.368	541.	
(1 missing vial) standard follow						
256	5.00	13.60	14.10	57.332	898.	background
257	5.00	113580.	117836.	19.185	869.	H-3 standard
258	5.00	115564.	119793.	154.84	895.	C-14 standard

MDA C-14: 8.61 dpm

Attachment (4) for Diagram (I)
UH Tower-continued swipe results
Room 717, 720, & 722

SYSTEM NORMALIZED

C14 IPA DATA PROCESSED - 22-Jun-2004 11:23

C14 Eff (0-156 keV) = 95.48 %

WARNING: Questionable C14 Chi square value - Please view historic data

H3 IPA DATA PROCESSED - 22-Jun-2004 11:35

H3 Eff (0-18.6 keV) = 63.03 %

H3 CHI SQUARE IPA DATA PROCESSED - 22-Jun-2004 11:45

H3 Chi Square = 100.60

BKG IPA DATA PROCESSED - 22-Jun-2004 12:45

Bkg (0-18.6 keV) = 14.77 cpm

Bkg (0-156 keV) = 20.93 cpm

C14 E²/B (1-156 keV) = 575.57

H3 E²/B (1-18.6 keV) = 267.91

Attachment (4) for Diagram (I)
UH Tower-reswipe results

Protocol #:13 Name:H-3 DPM 06-Jul-2004 14:0c
 Region A: LL-UL= 0.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Time = 5.00 QIP = tSIE ES Terminator = Count
 ARAKAKI RE-SURVEY
 Conventional DPM
 Nuclide 1 = 253561
 Warning: User program changes may have invalidated DPM calculation

S#	TIME	CPMA	DPM1	SIS	tSIE	FLAG
1	5.00	8.80	15.71	24.403	573.	(background)
21	5.00	366.64	705.92	14.187	493.	(swipe 65)
22	5.00	37.20	71.94	16.369	489.	(swipe 66)
23	5.00	17.40	33.92	17.341	481.	(swipe 70)
24	5.00	622.36	1232.99	12.950	467.	(swipe 69)
25	5.00	68.48	133.75	13.938	479.	(swipe 68)
26	5.00	33.44	65.90	13.907	471.	(swipe 67)
27	5.00	53.80	104.31	14.851	486.	(swipe 62)
28	5.00	27.84	53.34	15.530	498.	(swipe 61)
29	5.00	20.60	39.85	16.081	488.	(swipe 60)
30	5.00	18.84	36.26	18.287	493.	(swipe 63)
31	5.00	52.44	102.06	14.776	483.	(swipe 58)
32	5.00	14.40	28.13	20.107	479.	(swipe 59)
33	5.00	11.04	21.36	20.281	488.	(swipe 64)
34	5.00	1266.84	2454.17	12.135	487.	(swipe 115)
35	5.00	43.00	84.85	16.042	470.	(swipe 72)
36	5.00	28.28	55.57	15.777	474.	(swipe 73)
37	5.00	45.04	88.52	14.287	474.	(swipe 74)
38	5.00	78.64	158.68	13.122	451.	(swipe 86)
39	5.00	21.80	43.18	18.892	467.	(swipe 90)
40	5.00	14.00	27.51	20.498	474.	(swipe 92)
41	5.00	13.24	25.94	20.403	477.	(swipe 96)
42	5.00	14.20	27.81	19.870	477.	(swipe 97)
43	5.00	18.40	35.85	17.097	482.	(swipe 102)
44	5.00	10.80	20.92	20.984	487.	(swipe 103)
45	5.00	15.00	29.76	18.425	466.	(swipe 167)
46	5.00	272.36	552.30	13.803	447.	(swipe 168)
47	5.00	25.60	51.20	16.802	459.	(swipe 22)
48	5.00	55.44	112.69	15.032	445.	(swipe 25)
49	5.00	103.24	206.76	13.748	457.	(swipe 28)
50	5.00	11.40	22.40	19.682	474.	(swipe 153)
51	5.00	8.24	15.96	19.495	487.	(swipe 145)
52	5.00	11.20	22.60	23.158	451.	(swipe 144)
53	5.00	14.00	29.64	18.549	413.	(swipe 146)
54	5.00	14.60	28.20	22.514	490.	(swipe 148)
55	5.00	38.84	75.94	14.826	479.	(swipe 147)
56	5.00	49.64	104.90	14.218	415.	(swipe 149)
57	5.00	15.04	29.42	17.826	478.	(swipe 150)
58	5.00	10.04	19.62	23.289	479.	(swipe 151)
59	5.00	10.60	20.84	19.563	473.	(swipe 120)

Attachment (4) for Diagram (I)
UH Tower - reswipe results 2

Protocol #:14 Name:C-14 DPM 07-Jul-2004 11:48
 Region A: LL-UL= 0.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region B: LL-UL= 4.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Time = 5.00 QIP = tSIE/AEC ES Terminator = Count
 ARAKAKI RESURVEY 7-7-2004
 Conventional DPM
 Nuclide 1 = 108000

S#	TIME	CPMA	DPM1	SIS	tSIE	FLAG
7	5.00	16.20	17.07	47.139	564.	(background)
71	5.00	15.40	16.28	41.897	488.	(swipe 86)
72	5.00	15.00	15.86	46.588	487.	(swipe 72)
73	5.00	10.60	11.21	49.725	490.	(swipe 73)
74	5.00	11.00	11.63	59.852	494.	(swipe 74)
75	5.00	16.60	17.56	41.846	486.	(swipe 28)
76	5.00	14.20	15.02	46.002	485.	(swipe 25)
77	5.00	16.00	16.92	49.755	491.	(swipe 168)
78	5.00	35.80	38.16	33.409	404.	(swipe 168)
79	5.00	65.00	68.73	25.468	489.	(swipe 65)
710	5.00	20.60	21.78	53.479	491.	(swipe 66)
711	5.00	130.60	138.11	18.935	487.	(swipe 69)
712	5.00	26.60	28.13	31.991	488.	(swipe 68)
713	5.00	24.20	25.61	36.690	476.	(swipe 67)
(1 missing vial)						
714	5.00	20.60	21.79	34.001	485.	(swipe 62)
715	5.00	18.60	19.68	61.421	481.	(swipe 58)
716	5.00	21.80	23.06	31.982	485.	(swipe 147)
717	5.00	40.06	42.59	23.850	427.	(swipe 149)
718	5.00	104.80	110.81	18.876	489.	(swipe 115)
719	5.00	13.49	14.26	54.043	491.	(swipe 115)

Attachment (4) for Diagram (I)
UH Tower - reswipe results 3

Protocol #:14 Name:C-14 DPM 08-Jul-2004 15:18
Region A: LL-UL= 0.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 4.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 5.00 QIP = tSIE/AEC ES Terminator = Count
ARAKAKI RE-RE-SURVEY 7/8/04
Conventional DPM
Nuclide 1 = 108000

S#	TIME	CPMA	DPM1	SIS	tSIE	FLAG
N	5.00	12.40	13.08	67.042	574.	(background)
81	5.00	32.20	34.09	31.033	471.	(swipe 168)
82	5.00	148.00	156.55	21.488	482.	(swipe 65)
83	5.00	176.20	186.40	20.484	479.	(swipe 69)
84	5.00	17.00	18.07	46.073	431.	(swipe 149)
85	5.00	30.00	31.72	33.502	490.	(swipe 115)
86	5.00	9.60	10.15	47.214	486.	(swipe 115)
87	5.00	14.40	15.23	53.812	488.	(swipe 115)

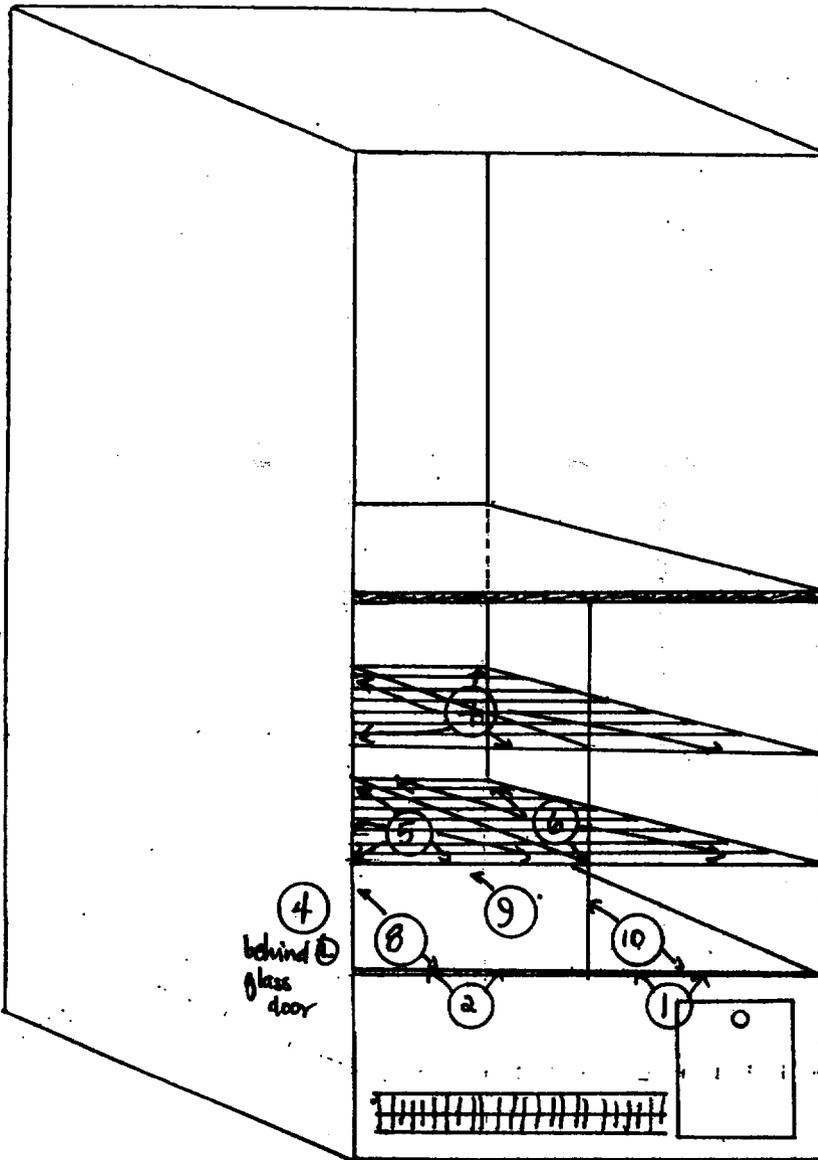
Attachment (4) for Diagram (I)
UH Tower - reswipe results 4

Protocol #:13 Name:H-3 DPM 09-Jul-2004 15:51
Region A: LL-UL= 0.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 5.00 QIP = tSIE ES Terminator = Count
ARAKAKI RE-SURVEY 7/9/04
Conventional DPM
Nuclide 1 = 253561
Warning: User program changes may have invalidated DPM calculation

S#	TIME	CPMA	DPM1	SIS	tSIE	FLAG
1	5.00	12.80	22.83	22.625	556.	(background)
2	5.00	12.84	25.06	21.893	480.	(swipe 69)
3	5.00	13.00	24.82	21.334	501.	(swipe 65)

Attachment (4) Diagram (II)
University of Hawaii

UH Tower - Room 717
Isotope Storage Refrigerator



Forma Scientific
Lab Refrigerator
F101QK State of HI - UH

④
behind glass door

③
behind glass door

Room:
Date:

Attachment (4) Diagram(II)
 UH Tower - swipe results
 Room 717
 Isotope Refrigerator

Protocol #: 3 Name:Swipes 02-Jun-04 13:35
 Region A: LL-UL= 0.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region C: LL-UL= 0.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Time = 1.00 QIP = SIS
 Swipe Test

FID	S#	TIME	CPMA	CPMB	CPMC	3H	DPM	
4	1	1.00	37	20	51.00	34		- Control
4	2	1.00	33	16	42.00	27		- TR door
4	3	1.00	27	16	43.00	27		- TL door
4	4	1.00	24	17	34.00	29		- BR door
4	4	1.00	28	24	42.00	40		- BL door
4	5	1.00	44	30	52.00	50		- rack L
4	6	1.00	138	78	148.00	131		- Rack R
4	7	1.00	45	32	60.00	54		- Rack #2
4	8	1.00	45	30	59.00	50		B L
4	9	1.00	58	44	68.00	74		BM
4	10	1.00	80	58	89.00	97		BR

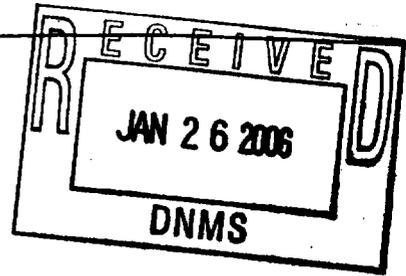
Attachment (4) Diagram (I)
 Additional Hood Swipes
 Room 717

HOOD AREA

Protocol #: 3 Name: Swipes 30-Jun-04 11:48
 Region A: LL-UL= 0.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Region C: LL-UL= 0.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
 Time = 1.00 QIP = SIS

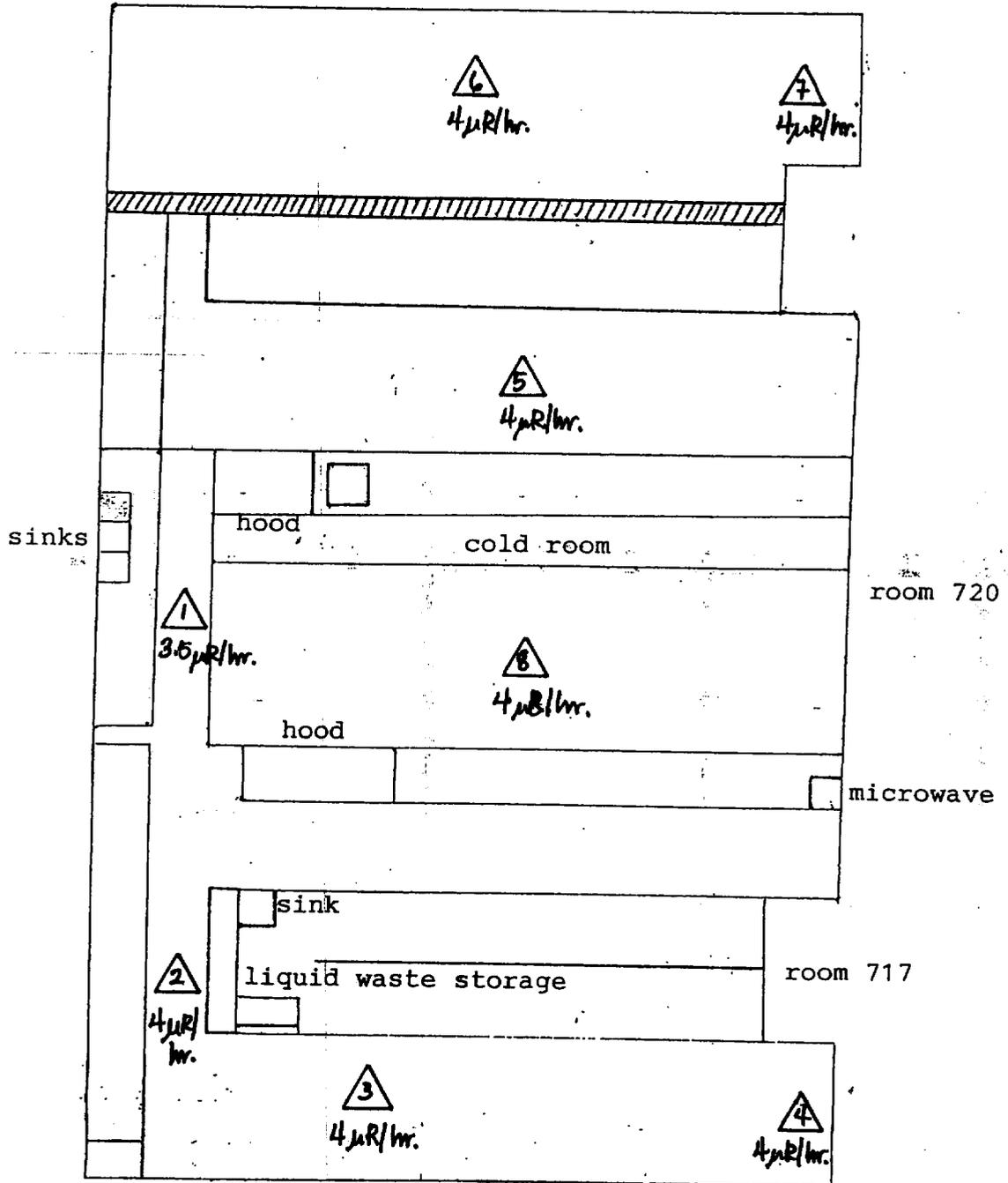
Swipe Test
 Warning: Not Normalized

PID	S#	TIME	CPMA	CPMB	CPMC	3H DPM	
4	1	1.00	35	18	47.00	30	Bkg = 56
4	2	1.00	25	14	38.00	24	sink - 168
4	3	1.00	55	38	73.00	64	undersink
4	4	1.00	2953	1495	3338.00	2513	left cab door } -115
4	5	1.00	37	29	47.00	49	right cab door }
4	6	1.00	40	29	48.00	49	left cab door } cabinet doors of hood
4	7	1.00	41	22	59.00	37	right cab door }
4	8	1.00	28	23	36.00	38	floor by sink - floor under hot sink
4	9	1.00	32	20	44.00	34	wall by light - # 103
4	10	1.00	33	24	48.00	40	wall by chalk bar # 22
4	11	1.00	35	28	44.00	47	floor by counter # 28



University of Hawaii

University Tower, 7th Floor
1356 Lusitana Street
Room 717, 720, 722



room 720

room 717

70848

Room: UHT 717
Date:

2-8-06
DATE

This is to acknowledge the receipt of your letter/application dated 1-19-06, and to inform you that the initial processing, which includes an administrative review, has been performed.

There were no administrative omissions. Your application will be 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:

The action you requested is normally processed within 90 days.

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 470848.
When calling to inquire about this action, please refer to this mail control number.
You may call me at 817-860-8103.

Sincerely,
Colleen Murnahan
Licensing Assistant

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

(FOR LEMS USE)
 INFORMATION FROM LTS

Program Code: 01100
 Status Code: 0
 Fee Category: EX 3L 2C
 Exp. Date: 20150831
 Fee Comments: 170.11 (A) (4)
 Decom Fin Assur Req'd: Y

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED
 Applicant/Licensee: HAWAII, UNIVERSITY OF
 Received Date: 20060126
 Docket No: 3007517
 Control No.: 470848
 License No.: 53-00017-23
 Action Type: Amendment

2. FEE ATTACHED

Amount: _____
 Check No.: / /

3. COMMENTS

Signed *[Signature]*
 Date 02/03/06

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered / __/)

1. Fee Category and Amount: _____
2. Correct Fee Paid. Application may be processed for:
 - Amendment _____
 - Renewal _____
 - License _____
3. OTHER _____

Signed _____
 Date _____

ress

FedEx. US Airbill
Express

8540 9125 4821

Date: 1/25/06

Sender: Jim Montemery

USNRC

111 RYAN PLAZA DR

WINGTOWN

San TX ZIP 76011-4005

Recipient: Colleen MURPHY

USNRC

611 RYAN PLAZA DR

STE 405

Address: WASHINGTON TX ZIP 76011-4005

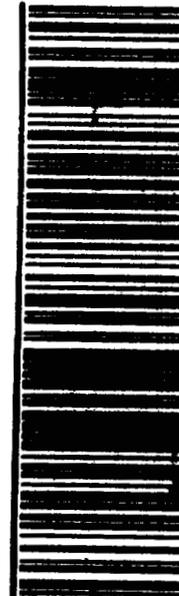


8540 9125 4825

© 2005 FedEx 158398 REV 4/05 BP
58544-0805

FedEx PRIORITY OVERNIGHT THU
Deliver By: 26 JAN 06 01

TRK# 8540 9125 4826
76011 DNMRSUS AD FWHA
DFW



FedEx 2Day

FedEx Express Saver

FedEx 1Day Freight

FedEx 2Day Freight

This pouch is resealable. Press here. Press here. Press here. Press here. Press here.

