DEPARTMENT OF THE ARMY
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO
ATTENTION OF

12 JUL 2000

MEDICAL RADIATION SURVEY NO. 28-MF-6209-99
FACILITY CLOSE-OUT AND TERMINATION SURVEY
PHASE II-BUILDING 500, WALTER REED ARMY INSITITUTE OF RESEARCH
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, DC
10-15 May 1997

I. REFERENCES. See Appendix A for a list of references.

II. AUTHORITY. CHPPM Form 250-R-E, MEDCOM, dated 15 October 1996.

III. PURPOSE.

A. This survey was conducted to determine the presence and extent of health hazards from the use of radioactive materials in the East-West Wing of Building 500, Walter Reed Army Institute of Research (WRAIR), Walter Reed Army Medical Center (WRAMC), Washington, DC.

B. This survey was also conducted to determine if any residual radioactivity remaining after cessation of activities at the facility, East-West Wing of Building 500, WRAIR, is in compliance with the Nuclear Regulatory Commission (NRC) guidelines for facilities released for unrestricted use.

IV. GENERAL.

A. Project management for the Close-Out and Termination Survey was provided by Mr. John Collins, US Army Center for Health Promotion and Preventive Medicine (USACHPPM).

B. The study was performed under the supervision of SSG David Collins, Health Physics Specialist, Industrial and Environmental Health Physics Program, USACHPPM, during the period 10-15 May 99.

C. Laboratory analyses were performed by the Radiologic, Classic, and Clinical Chemistry Division (RCCCD), Directorate of Logistics, USACHPPM. The laboratory requirements and procedures are maintained on file at USACHPPM and are available upon request.

D. Survey procedures and methodologies used during this survey are outlined in the USACHPPM Medical Radiation Survey Protocol No. 28-MF-6209-P-98 (Reference 8).

E. Appendix B contains a list of abbreviations used in this report.

V. BACKGROUND.

A. Chronology.

1. The history of the use, storage and disposal of radioactive material was documented in Medical Radiation Survey No. 28-MF-6209-H-97, Historical Site Assessment, Walter Reed Army Institute of Research, Walter Reed Army Medical Center, December 1997 (Reference 7).

2. The rooms/areas where surveys were performed are listed in Appendix D with their associated survey results listed in Appendix C.

3. The USACHPPM began preparation for performing the radiological surveys in April 1999. The survey was performed during the period of 10 through 15 May 1999. The data analysis was completed on 19 August 1999.

B. Identity of Potential Contaminants/Release Guidelines.

1. Detailed listings of the radioactive materials potentially used at WRAIR are contained in Medical Radiation Survey No. 28-MF-6209-H-97, Historical Site Assessment (Reference 7, Appendix F) and Medical Radiation Survey Protocol No. 28-MF-6209-P-97 (Reference 8, paragraph 1.3.5).

2. A copy of the release guidelines listed in the NRC Regulatory Guide 1.86 is provided in Appendix F.

VI. RADIATION SURVEYS AND RESULTS.

A. Instrumentation/Equipment.

1. A list of field instruments utilized during the surveys and their associated QC data are included in Appendix G. Minimum Detectable Activities (MDA) determined for the alpha and beta instrumentation are presented with the building survey results in Appendix C. All survey instrumentation was within the calibration schedule throughout the survey period.

2. An efficiency factor for the alpha and beta instrumentation was determined using the applicable instrument QC data. All efficiency factors were determined with radioisotope source standards that are traceable to the National Institute of Standards and Technology (NIST). All radioactive sources used to determine the efficiency factors have energies similar to the energies of the isotopes used and stored at WRAIR

3. The surface area of each alpha and beta detector was 100 square centimeters (cm^2).

4. The net instrument measurement divided by the applicable instrument efficiency factor was used to calculate the survey activity results. All measurement results are in appropriate units to demonstrate compliance with the NRC regulatory criteria. For fixed alpha and beta activities, the results (see Appendix C for all results) are expressed in terms of disintegrations per minute per 100 cm^2 (dpm/100 cm^2) above the determined background activity. For gamma exposure rates, the results, see Appendix C for all results, are expressed in terms of microroentgen per hour (μR/hr) above determined background.

5. Operational checks were performed on all survey instrumentation. Each survey meter and associated detector combination were matched with its calibration documentation upon arrival on the site. After all initial operability checks were completed, 30 background readings were randomly taken in the area to establish the average background reading. Thirty measurements were taken with each appropriate survey meter to determine the following operational profile: the mean or average net source count and the associated standard deviation were calculated; the

control limits were set at 3 standard deviations from the mean; the warning ranges were established at 2 standard deviations from the mean. All QC data and the associated operational limits were plotted. All data is included in Appendix G.

6. The operation checks were performed on all "in-use" survey instrumentation three times daily (AM, MIDDAY, and PM). Verification checks consist of obtaining a 1 minute source reading and one background reading for each survey meter. Prior to taking the source reading, an appropriate source was placed in a dedicated source holder to promote a reproducible source-to - detector geometry. The net result of each operability check was compared to the previously determined operational limits and plotted on the associated instrument's QC chart. All instrumentation QC charts were reviewed by the QA Consultant. No unacceptable source readings or trends were noted.

a. Scanning Instrumentation. The scanning instrumentation used had the ability to simultaneously detect alpha and beta-gamma emitting radionuclides. The operational checks were performed using one alpha emitting and one beta emitting source.

b. Sources. The NIST traceable sources were used for all source readings. A thorium-230 (Th-230) source was used for the alpha instrumentation source readings, a technetium-99 (Tc-99) source was used for the beta instrumentation, and a Cesuim-137 (Cs-137) source was used for the gamma instrumentation.

B. Instrumentation Surveys.

1. Scoping surveys, which consist of instrumentation scans were performed in areas listed in Appendix C. Scoping surveys were performed in areas that were identified by the historical data review as areas where radioactive materials may have been used or stored.

2. Specific survey areas (units) are identified by the building number combined with an area or room identifier, usually a room number. Survey data was collected and managed according to individual survey units. An area grid map for each survey unit and the associated survey data table(s) are included in Appendix C. The survey results for a specific survey unit may be presented in multiple tables. The background measurement

displayed in the data table(s) for each survey unit is unique to that survey unit. Survey unit background readings were performed at the beginning of each survey and verified daily if the survey was to extend beyond one day.

3. The survey team leader reviewed all survey data and evaluated the survey results. No discrepancies were noted which would invalidate the survey data. The survey grid system uses alpha-numeric grid designators. The survey team leader's duties and responsibilities and the gridding procedures used are outlined in the Survey Protocol (Reference 8, Appendix B).

4. For each survey area identified, sample point locations were divided into three groups: floor samples, wall samples, and bias/random samples. The walls and floors were gridded and random samples were collected. All bias sampling was performed in areas where potential residual radioactivity most likely would have occurred. All bias/random sampling locations are included on the survey data tables in Appendix C.

5. All survey units were classified as defined in reference 1 and gridded accordingly. Areas that were classified as "affected" were physically gridded in 1 meter x 1 meter (m) grids for all floor area and wall space to a height of 2m. Ceiling space and areas above 2m were sampled as randoms.

6. Each survey instrument was set to alert the survey officer when the survey meter detected 75% of the appropriate guideline values. Field survey instrumentation alarms were set prior to beginning each survey unit to immediately warn the surveyor of any location containing an elevated activity reading. These alarm set points are also referred to as instrument "flags". Each flag is determined based upon the daily background associated with the survey area. The alpha and beta-gamma flag values are the gross count value for a particular survey instrument that corresponds to 75% of the appropriate guideline value. The gamma instrument flag value was established at 5 uR/hr above background. The scanning instrumentation flag was set at three times background.

C. Survey Results. Final status surveys were performed in 22 survey units. Following a scan of each grid and at each bias sampling point, static readings were taken to evaluate the

presence of beta, and gamma emitting radionuclides. Wipe test surveys for removable tritium and gross alpha, beta-gamma and emitters were performed in each grid and at each bias sampling point. All final status survey data is presented in Appendix C.

1. Background Results. Survey unit background readings were taken in designated areas of similar building materials. The MDAs for alpha and beta-gamma instrumentation were calculated; calculations were based on the background count, the determined efficiencies, and each instrumentation's active detector's surface area. The actual count time was adjusted to 1 minute maximum to ensure an MDA of 75% or less of the guideline values. Procedures used for calculating MDAs are located in Section 11, Reference 8.

a. Beta-gamma Measurements. The averaged daily background reading was determined by taking 10 1 minute integrated readings in designated building areas. All areas selected were similar to the construction materials used in the areas to be surveyed. The background counts ranged from 215 to 532 cpm, for the range of background materials sampled. Sample count times were set to 60 seconds. The MDAs ranged from 257 to 417 dpm/100 cm'.

b. Gamma Measurements. Background readings varied from 5.1 to 16.7 μR/hr. Gamma background measurements were taken approximately 1 m from surface areas and in designated areas. All areas selected for background readings were similar to the construction materials used in the buildings that were surveyed.

2. Instrumentation Survey Results.

a. Scanning Measurements. Floor and wall scans were conducted using a gas-flow proportional 425 cm^2 detector. After the initial start of the survey, the detector for the floor scanner was damaged and the 100 cm^2 detectors used for static readings were also used for scanning. The detector was positioned approximately 1 cm away from the surface area and moved at a rate of approximately one probe width per time constant. There were no scanning measurements above the determined background activities.

b. Static Measurements.

(1) Beta-gamma Measurements. The beta detector was positioned approximately 1 cm or less from the surface of the area to be surveyed. A sample count time was determined (based on the background, efficiency, and detector surface area) and an integrated count was performed and logged. One integrated measurement was performed and logged for each grid; the survey was performed in the center of each survey grid. The guideline value for beta is 5000 dpm/ 100 cm^2 above background. All beta activity results are presented in Appendix C.

(2) Gamma Measurements. The gamma probe was positioned approximately 1m over the grid center and then the ratemeter measurement was logged. The guideline value for gamma exposure rates is 5μR/hr above background.

c. Wipe Test Survey Results. Wipe test surveys were performed to determine the presence of removable contamination in the area to be surveyed. Two wipe test samples, one to determine gross alpha and beta-gamma contamination levels and one to determine removable tritium, were collected in each grid and at each bias sample point. The Survey Protocol (Reference 3) specifies that the wipe test samples are to be collected at the location of the highest observed beta-gamma reading in each grid scanned.

(1) Gross Alpha and Gross Beta-Gamma Wipe Test Results. Gross alpha and gross beta-gamma wipe test activities are presented for all final status surveys in Appendix C.

(2) Gross alpha wipe test MDAs ranged from 1.53 to 4.13 dpm/100 cm^2. The guideline value for removable alpha activity is 20 dpm/ 100 cm^2 for removable contamination.

(3) Gross beta-gamma wipe test MDAs ranged from 4.16 to 7.78 dpm/100 cm^2. The guideline value for removable beta activity is 1000 dpm/ 100 cm^2.

(4) Tritium Wipe Test Results. Tritium wipe test activities are presented for all final status surveys in Appendix C. Tritium wipe test MDAs ranged from 31.55 to 47.45 dpm/ 100cm^2. The guideline value for removable tritium activity is 1000 dpm/ 100cm^2

(5) QC Samples. Blank wipe test samples were used to screen for potential cross-contamination; tritium spiked wipe test samples were used for a QC measure. The results of these QC samples can be found throughout the data presented in Appendix C. No cross-contamination was detected in the blank wipes. The four spike sample were analyzed with recovery values of 87-100% with an acceptable range of 80-120%.

D. Specific Survey Unit Data

1. During the initial survey of the survey unit containing Rm 28-30, two areas of contamination above the release criteria were found. Field instrument data indicated that the countertop area covering grids FD4, FD5, FE4 and FE5 had contamination levels exceeding the release criteria; specifically grid FD5 has a recorded level of 14,057 dpm/100cm^2. Also contamination was identified in the fume hood located in FD7 and FE7, with a recorded reading of 5574 dpm/100cm^2 measured in grid FE7. These two items, the counter top and the hood, were removed by the WRAMC Health Physic Department personnel.

2. Results of laboratory analysis indicated levels of residual radioactivity in the following survey units. All levels detected were below 75% of the release criteria.

(a) Room 38, had numerous areas where tritium was detected. All areas were well below the 1000 dpm/100cm^2 release criteria, with the highest recorded area was on the floor in Grid FD1 at 690 dpm/100cm^2.

(b) Room 40, had one area along the back wall (wall grid WC5B, the splash area behind the sink where 170 dpm/100 cm^2 was observed.

(c) Room 42, along the east wall, three lower grids showed evidence of tritium with levels of 28 to 530 dpm/100cm^2 being observed.

(d) Room B1-1 (Basement Lab), had one grid in which 110 dpm/100cm^2 was observed. This grid was located on the counter top located in Grid FA3, next to the sink.

VII. CONCLUSIONS.

A. A review of the survey results indicated that there were no radiological health hazards identified as a result of the medical research use of radioactive materials in the East-West Wing of Building 500 by WRAIR at WRAMC, Washington, DC. This report is for the results of rooms that were surveyed during the period, 10 through 15 May 1999.

B. The survey results demonstrated that all rooms surveyed at in the East-West Wing of Building 500 by WRAIR at WRAMC, Washington, DC, were in compliance with the appropriate NRC guidelines for facilities released for unrestricted use.

VIII. RECOMMENDATION.

Recommend that the East-West Wing of Building 500, WRAIR at WRAMC, Washington, DC, be released for unrestricted use.

DAVID M COLLINS
Industrial Health Physics
Survey Team Leader

APPROVED:

JOHN COLLINS
Project Coordinator
Medical Health Physics

GARY J. MATCEK
MAJ, MS
Program Manager, MHP

APPENDIX A

REFERENCES

1. NUREG/CR-5849, Manual for Conducting Radiological Surveys in Support of License Termination, Draft for Comment, June 1992.

2. NUREG-1500, Working Draft Regulatory Guide on Release Criteria for Decommissioning: NRC Staff's Draft for Comment, August 1994.

3. AR 385-11, Ionizing Radiation Protection (Licensing, Control, Transportation, Disposal, and Radiation Safety), 1 May 1980

4. Title 10, Code of Federal Regulations (CFR), Part 20, Standards for Protection Against Radiation, 1997 Rev.

5. NRC Reg Guide 1.86, Termination of Operating Licenses for Nuclear Reactors, June 1974.

6. USAEHA TG No. 155, Environmental Sampling Guide, February 1993.

7. Historical Data Review No. 28-MF-6209-H-98, Historical Data Review, Walter Reed Army Institute of Research, Walter Reed Army Medical Center, Washington, DC, August - December 1997.

8. Radiation Survey Protocol No. 28-MF-6209-P-97, Walter Reed Army Institute of Research-Building 500, WRAMC, Washington, D.C., December 1997.

APPENDIX B

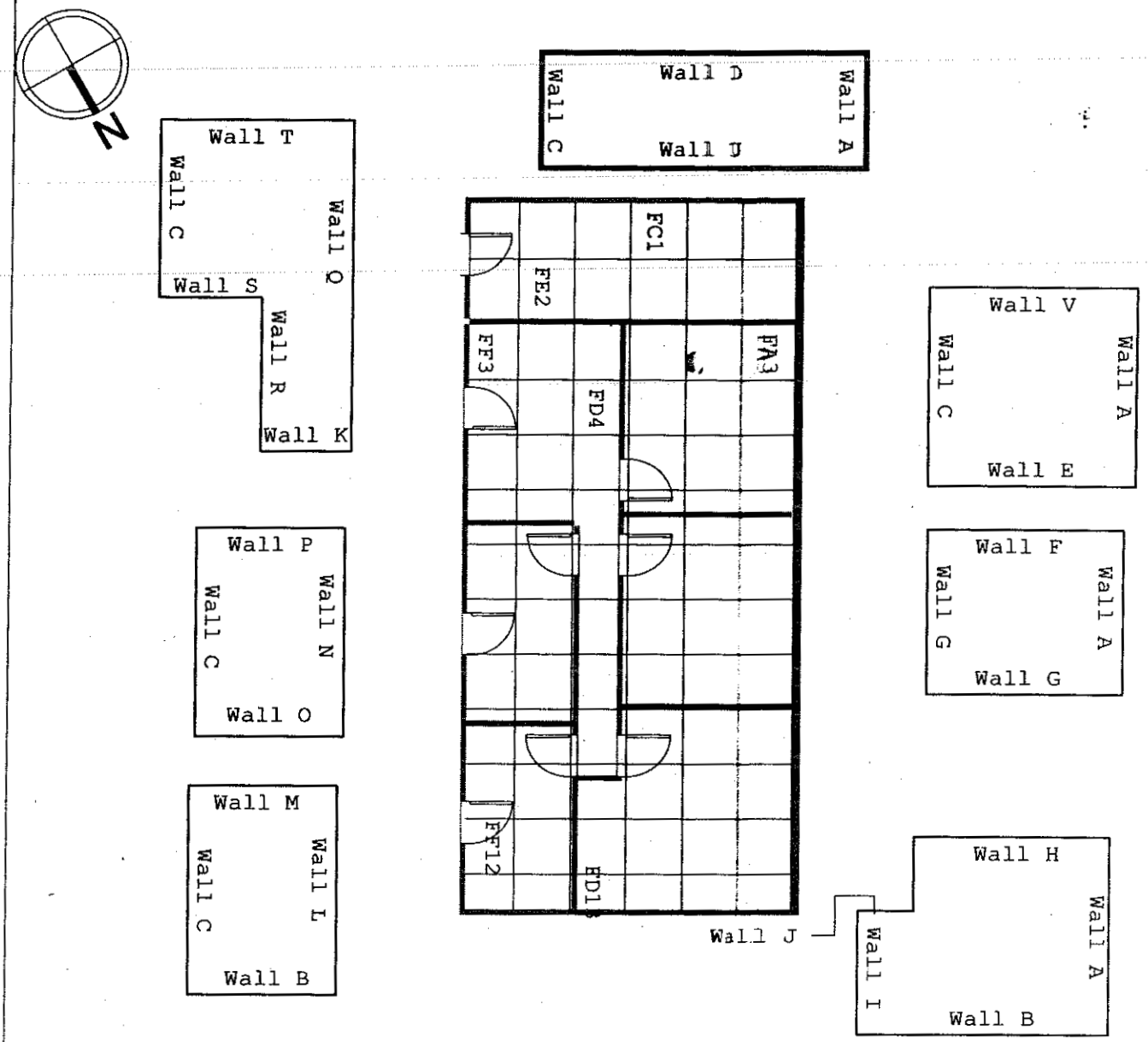
ABBREVIATIONS

Cs	Cesium
cm	centimeter
DC	District of Columbia
dpm	disintegration per minute
hr	hour
m	meter
MDA	Minimum Detectable Activity
MEDCOM	Medical Command
NIST	National Institute of Standards and Technology
NRC	Nuclear Regulatory Commission
QA	Quality Assurance
QC	Quality Control
RCCCD	Radiologic Classic and Clinical Chemistry Division
Tc	Technetium
Th	Thorium
µR	micro-Roentgen
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
WRAIR	Walter Reed Army Institute of Research
WRAMC	Walter Reed Army Medical Center

APPENDIX C

SURVEY DATA RESULTS

GRAPHICAL ILLUSTRATION

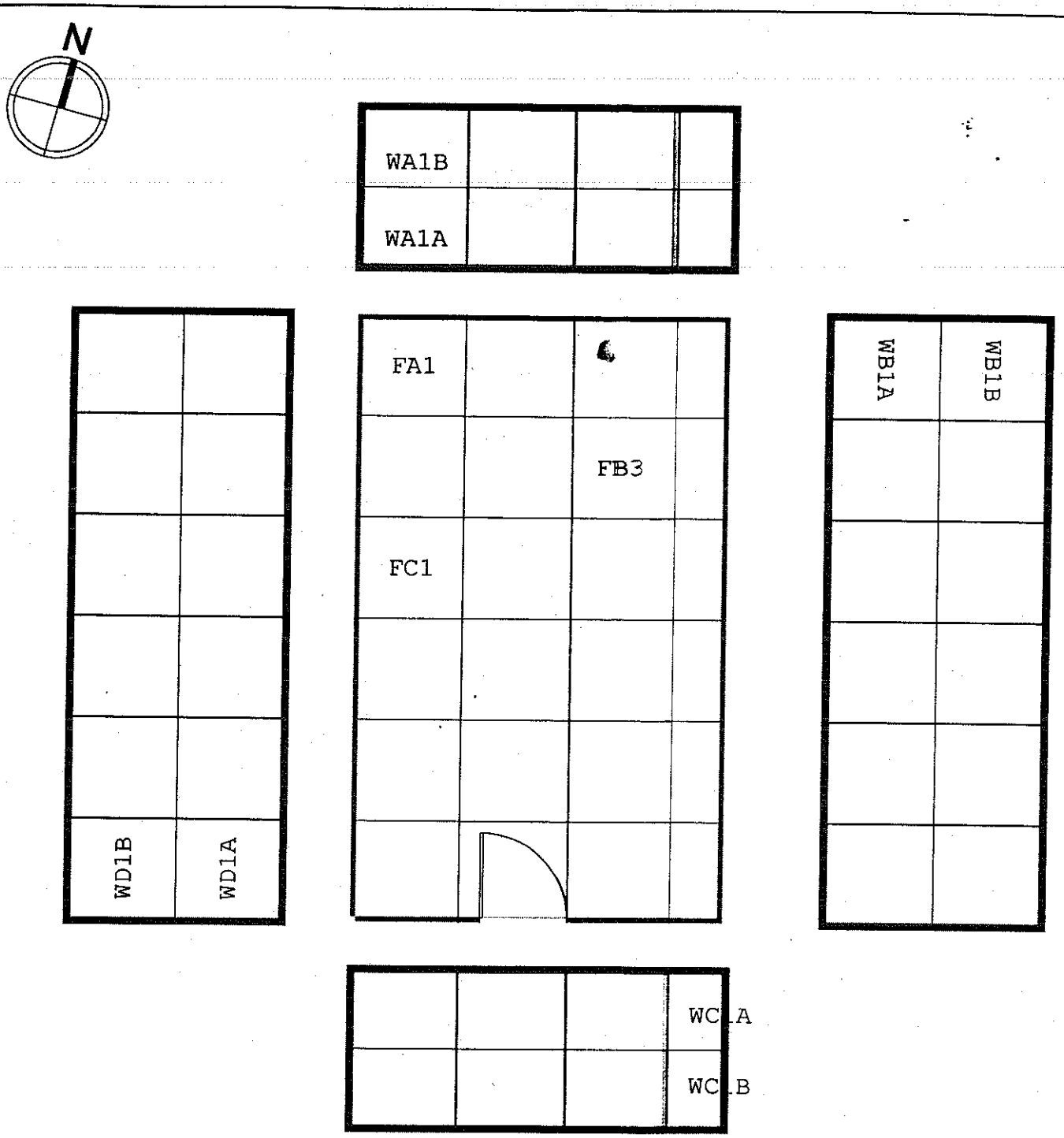


WALTER REED ARMY MEDICAL CENTER BUILDING 500 Rooms 1,3,5,7	DATE 19 MAR 99 DRAWN D.COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm1_7						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.1	1.3	9.2	
(MDA =>)	308	-	2.25	4.16	46.04 *	
FA3	205.8	0.0	-0.4 ± 0.6	-0.2 ± 2.1	1.0 ± 8.0	WC00001
FC1	257.8	2.5	0.5 ± 1.1	0.5 ± 2.2	2.4 ± 8.0	WC00002
FD4	192.8	-1.5	0.2 ± 1.0	0.7 ± 2.3	-1.3 ± 8.0	WC00003
FD11	-37.0	-3.3	-0.1 ± 0.8	1.8 ± 2.5	3.7 ± 8.0	WC00004
FD13	166.8	-4.2	-0.1 ± 0.8	-0.4 ± 2.1	8.6 ± 9.0	WC00005
FE12	158.1	-3.9	-0.4 ± 0.6	-0.4 ± 2.1	-7.7 ± 7.0	WC00006
FF2	279.5	0.8	-0.1 ± 0.8	-0.2 ± 2.1	5.1 ± 9.0	WC00007
FF3	84.4	-1.5	-0.4 ± 0.6	1.1 ± 2.4	1.9 ± 8.0	WC00008
FF11	-89.0	-3.5	0.2 ± 1.0	1.1 ± 2.4	-4.9 ± 8.0	WC00009
FF12	67.1	-3.7	-0.1 ± 0.8	-0.2 ± 2.1	-2.7 ± 8.0	WC00010
WA2A	132.1	0.0	-0.4 ± 0.6	0.3 ± 2.2	-0.4 ± 8.0	WC00011
WA9A	41.0	-1.5	-0.4 ± 0.6	0.7 ± 2.3	-0.4 ± 8.0	WC00012
WA2B	192.8	-0.2	0.8 ± 1.3	-1.3 ± 1.9	-2.2 ± 11.0	WC00013
WA7B	62.7	-1.6	0.2 ± 1.0	1.4 ± 2.4	-5.3 ± 9.0	WC00014
WA9B	32.4	-1.7	-0.1 ± 0.8	-0.2 ± 2.1	-4.8 ± 9.0	WC00015
WB1A	-158.4	-1.7	-0.1 ± 0.8	0.3 ± 2.2	-2.6 ± 8.0	WC00016
WC4A	-197.4	-1.5	0.2 ± 1.0	1.1 ± 2.4	0.1 ± 8.0	WC00017
WD1A	-149.7	-0.9	-0.4 ± 0.6	-1.0 ± 1.9	-8.4 ± 7.0	WC00018
WD3A	80.1	-0.3	-0.1 ± 0.8	-0.4 ± 2.1	-0.4 ± 8.0	WC00019
WE1B	-97.7	-2.2	0.2 ± 1.0	1.6 ± 2.4	0.5 ± 8.0	WC00020
WF2A	-284.1	-2.1	-0.4 ± 0.6	0.5 ± 2.2	-2.1 ± 8.0	WC00021
WF3A	-258.1	-2.9	-0.1 ± 0.8	1.4 ± 2.4	-4.7 ± 7.0	WC00022
WG2A	-63.0	-2.1	-0.4 ± 0.6	-0.4 ± 2.1	1.0 ± 8.0	WC00023
WH2B	-167.1	-1.8	-0.4 ± 0.6	0.1 ± 2.2	0.1 ± 8.0	WC00024
WH4B	-154.1	-2.6	-0.1 ± 0.8	0.1 ± 2.2	1.4 ± 8.0	WC00025
WI1A	-323.2	-3.2	-0.4 ± 0.6	0.5 ± 2.2	1.0 ± 8.0	WC00026
WI3A	-262.5	-3.3	-0.1 ± 0.8	1.8 ± 2.5	-0.8 ± 8.0	WC00027
WJ1A	-219.1	-3.9	-0.4 ± 0.6	-0.2 ± 2.1	-4.3 ± 7.0	WC00028
WK1A	-288.5	-3.3	-0.4 ± 0.6	-0.2 ± 2.1	5.8 ± 8.0	WC00029
WK1B	-197.4	-3.5	-0.4 ± 0.6	1.6 ± 2.4	7.6 ± 9.0	WC00030

* Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 34.47 to 46.04 dpm

GRAPHICAL ILLUSTRATION

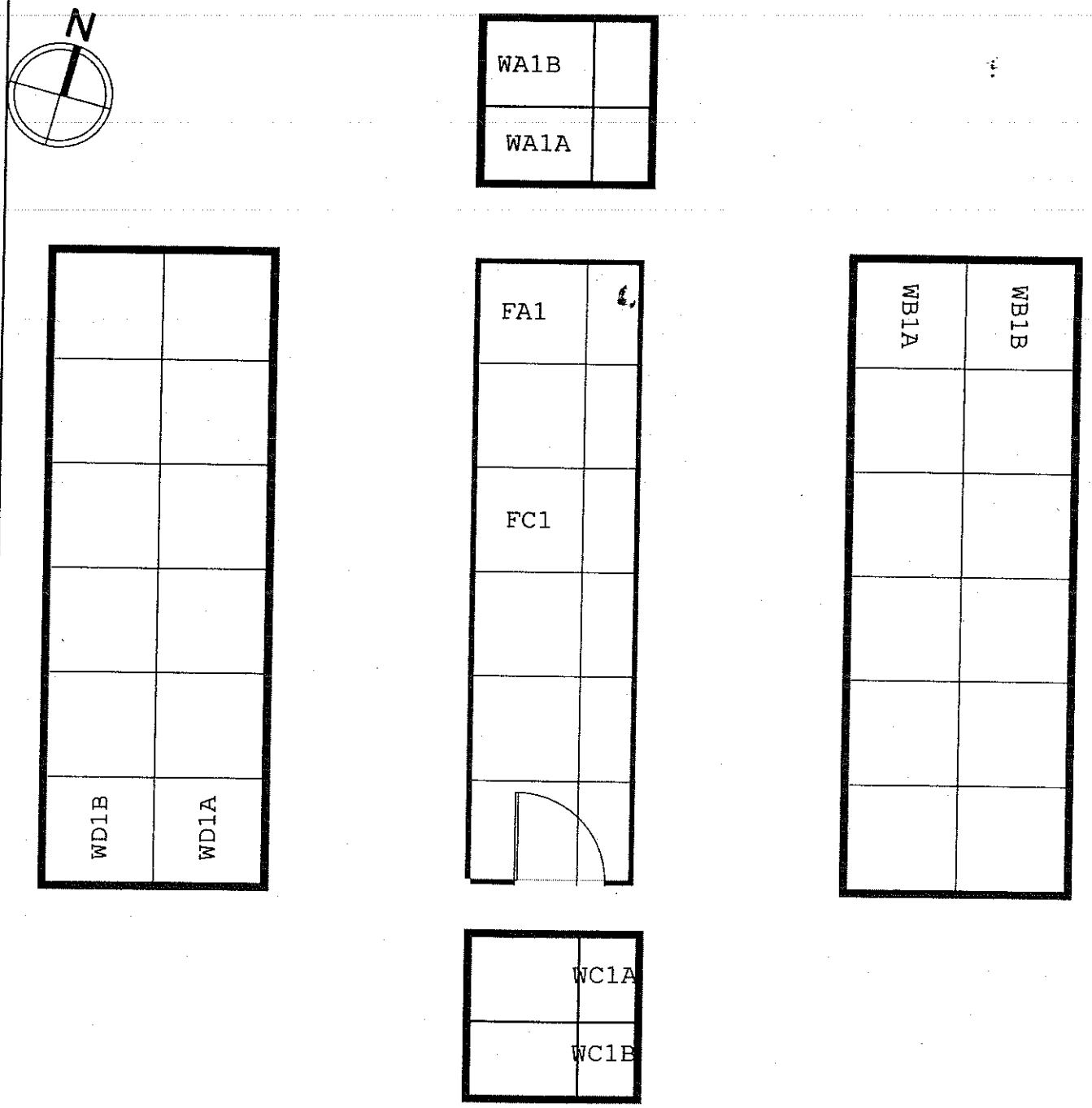


WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 9	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm9						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	248.7	8.6	0.1	1.3	9.2	
(MDA =>)	309	-	2.25	4.16	45.96 *	
FF2	395.5	-2.0	-0.4 ± 0.6	0.5 ± 2.2	-2.7 ± 8.0	WC00031
FA4	269.5	-1.8	-0.1 ± 0.8	1.4 ± 2.4	0.1 ± 9.0	WC00032
FB3	277.6	-1.5	0.2 ± 1.0	-0.2 ± 2.1	1.9 ± 8.0	WC00033
FC2	180.0	-1.8	-0.4 ± 0.6	1.8 ± 2.5	-2.1 ± 8.0	WC00034
FC3	216.6	-2.6	-0.1 ± 0.8	-0.4 ± 2.1	-1.3 ± 8.0	WC00035
FD2	155.6	-2.7	-0.4 ± 0.6	-0.4 ± 2.1	-1.7 ± 8.0	WC00036
FD3	281.7	-3.1	-0.4 ± 0.6	-1.0 ± 1.9	3.7 ± 8.0	WC00037
FD4	424.0	-2.3	1.0 ± 1.4	1.1 ± 2.4	0.1 ± 9.0	WC00038
FE1	192.2	-3.2	-0.1 ± 0.8	1.4 ± 2.4	2.0 ± 9.0	WC00039
FE2	196.3	-3.0	-0.1 ± 0.8	-0.2 ± 2.1	-7.3 ± 7.0	WC00040
FF1	159.7	-3.4	0.2 ± 1.0	0.7 ± 2.3	2.0 ± 9.0	WC00041
FF3	106.8	-3.3	-0.4 ± 0.6	0.9 ± 2.3	1.9 ± 8.0	WC00042
FF4	-186.0	-3.4	0.2 ± 1.0	1.1 ± 2.4	-1.9 ± 9.0	WC00043
WA1A	-153.4	-2.7	-0.4 ± 0.6	-0.4 ± 2.1	2.7 ± 8.0	WC00044
WA1B	-92.4	-1.9	-0.4 ± 0.6	0.3 ± 2.2	12.0 ± 12.0	WC00045
WA2B	-19.2	-0.7	0.2 ± 1.0	0.7 ± 2.3	5.4 ± 11.0	WC00046
WA4B	-96.5	-0.8	-0.4 ± 0.6	0.5 ± 2.2	-1.7 ± 8.0	WC00047
WB1A	-259.2	-0.8	-0.4 ± 0.6	0.5 ± 2.2	3.1 ± 8.0	WC00048
WB3A	-328.3	-1.8	-0.4 ± 0.6	-0.8 ± 2.0	-2.2 ± 8.0	WC00049
WB6A	-389.3	-2.8	-0.1 ± 0.8	-0.2 ± 2.1	-2.1 ± 8.0	WC00050
WB1B	-328.3	-1.8	-0.4 ± 0.6	0.1 ± 2.2	-2.1 ± 8.0	WC00051
WB3B	-450.3	-1.9	-0.4 ± 0.6	1.8 ± 2.5	-1.7 ± 8.0	WC00052
WB5B	-369.0	-2.6	0.2 ± 1.0	-1.2 ± 1.9	-3.0 ± 8.0	WC00053
WC4A	-312.0	-4.2	0.2 ± 1.0	-0.2 ± 2.1	-4.3 ± 7.0	WC00054
WC1B	-397.4	-3.5	0.2 ± 1.0	0.5 ± 2.2	-2.5 ± 7.0	WC00055
WC2B	-344.6	-4.1	-0.4 ± 0.6	-0.8 ± 2.0	-0.8 ± 8.0	WC00056
WC3B	-425.9	-4.3	-0.4 ± 0.6	0.9 ± 2.3	-0.4 ± 8.0	WC00057
WD1A	-450.3	-3.7	-0.4 ± 0.6	-0.6 ± 2.0	0.5 ± 8.0	WC00058
WD2A	-336.4	-3.6	-0.4 ± 0.6	-0.6 ± 2.0	-3.9 ± 7.0	WC00059
WD2B	-271.4	-3.7	-0.1 ± 0.8	0.1 ± 2.2	0.1 ± 8.0	WC00060

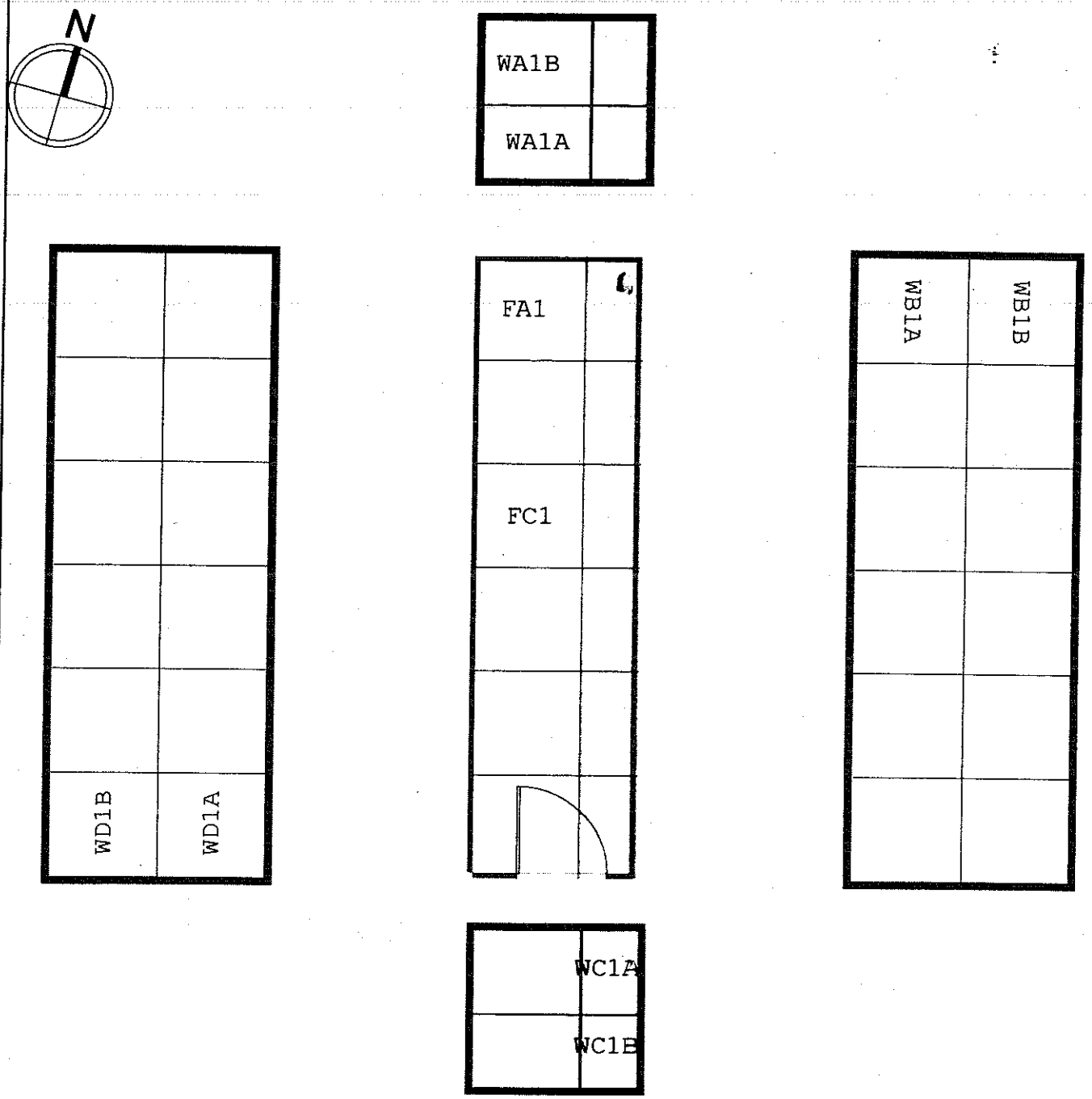
* Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 34.29 to 45.96 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 13	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

GRAPHICAL ILLUSTRATION

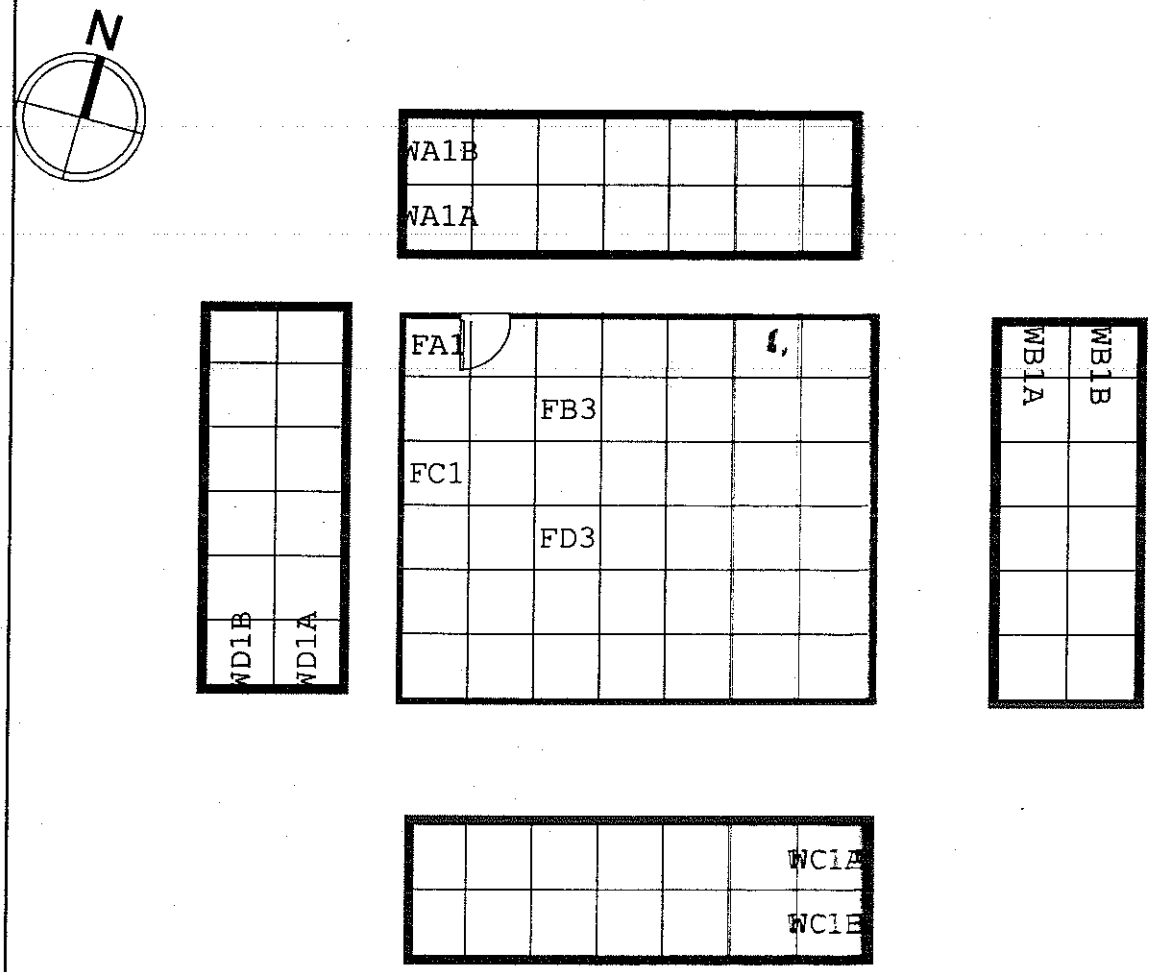


WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 13	
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS

Walter Reed Army Institute of Research, Rm13						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	248.5	9.6	0.1	1.3	9.2	
(MDA =>)	309	-	2.25	4.16	45.52 *	
FB2	95.4	3.1	-0.4 ± 0.6	1.6 ± 2.4	-1.9 ± 9.0	WC00061
FC2	128.0	0.4	-0.1 ± 0.8	0.9 ± 2.3	-4.5 ± 9.0	WC00062
FD1	75.1	-0.8	-0.1 ± 0.8	0.7 ± 2.3	4.2 ± 10.0	WC00063
FE1	115.8	-1.5	-0.1 ± 0.8	0.3 ± 2.2	-5.4 ± 9.0	WC00064
FE2	-79.4	-1.4	-0.1 ± 0.8	-0.2 ± 2.1	9.1 ± 12.0	WC00065
FF1	-83.5	-2.4	0.2 ± 1.0	2.9 ± 2.6	1.4 ± 8.0	WC00066
FF2	-10.3	-2.3	-0.1 ± 0.8	-0.2 ± 2.1	-0.4 ± 8.0	WC00067
WA2A	363.8	1.9	-0.4 ± 0.6	1.8 ± 2.5	0.5 ± 8.0	WC00068
WA2B	473.6	2.8	-0.4 ± 0.6	0.3 ± 2.2	0.1 ± 8.0	WC00069
WB1A	388.2	3.3	-0.4 ± 0.6	-0.6 ± 2.0	1.0 ± 8.0	WC00070
WB3A	331.3	0.8	0.2 ± 1.0	1.6 ± 2.4	-3.1 ± 8.0	WC00071
WB4A	-254.3	-1.5	0.2 ± 1.0	0.7 ± 2.3	1.0 ± 9.0	WC00072
WB5A	465.5	-2.3	-0.4 ± 0.6	0.5 ± 2.2	-1.7 ± 8.0	WC00073
WB6A	376.0	-0.3	-0.4 ± 0.6	0.3 ± 2.2	3.8 ± 10.0	WC00074
WB1B	449.2	2.3	0.5 ± 1.1	1.1 ± 2.4	2.3 ± 8.0	WC00075
WB2B	339.4	2.5	-0.4 ± 0.6	-0.4 ± 2.1	-3.1 ± 8.0	WC00076
WB3B	-173.0	1.9	-0.4 ± 0.6	0.7 ± 2.3	1.5 ± 8.0	WC00077
WB4B	249.9	1.4	-0.1 ± 0.8	0.9 ± 2.3	1.5 ± 9.0	WC00078
WB6B	-254.3	1.8	0.2 ± 1.0	0.3 ± 2.2	0.1 ± 8.0	WC00079
WC1A	-168.9	0.9	-0.4 ± 0.6	0.1 ± 2.2	3.8 ± 9.0	WC00080
WC1B	-286.8	0.0	0.2 ± 1.0	0.3 ± 2.2	0.6 ± 8.0	WC00081
WC2B	-185.2	-2.0	-0.1 ± 0.8	0.7 ± 2.3	1.1 ± 9.0	WC00082
WD1A	-294.9	-3.5	0.2 ± 1.0	0.7 ± 2.3	-0.4 ± 8.0	WC00083
WD2A	-294.9	-3.3	-0.4 ± 0.6	-0.2 ± 2.1	3.7 ± 8.0	WC00084
WD3A	-274.6	-2.6	-0.1 ± 0.8	0.5 ± 2.2	0.5 ± 8.0	WC00085
WD4A	-388.5	-1.3	-0.1 ± 0.8	-0.6 ± 2.0	-4.8 ± 7.0	WC00086
WD6A	42.6	1.0	-0.1 ± 0.8	0.1 ± 2.2	-3.1 ± 8.0	WC00087
WD1B	-294.9	-1.2	0.2 ± 1.0	-1.5 ± 1.8	0.1 ± 8.0	WC00088
WD2B	-351.9	-2.1	-0.4 ± 0.6	1.8 ± 2.5	1.9 ± 8.0	WC00089
WD4B	-177.0	-0.7	0.2 ± 1.0	0.9 ± 2.3	1.9 ± 8.0	WC00090
B001	-30.6	-0.5	0.2 ± 1.0	1.8 ± 2.5	900.0 ± 43.0	WC00091

* Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 33.28 to 45.52 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 2	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

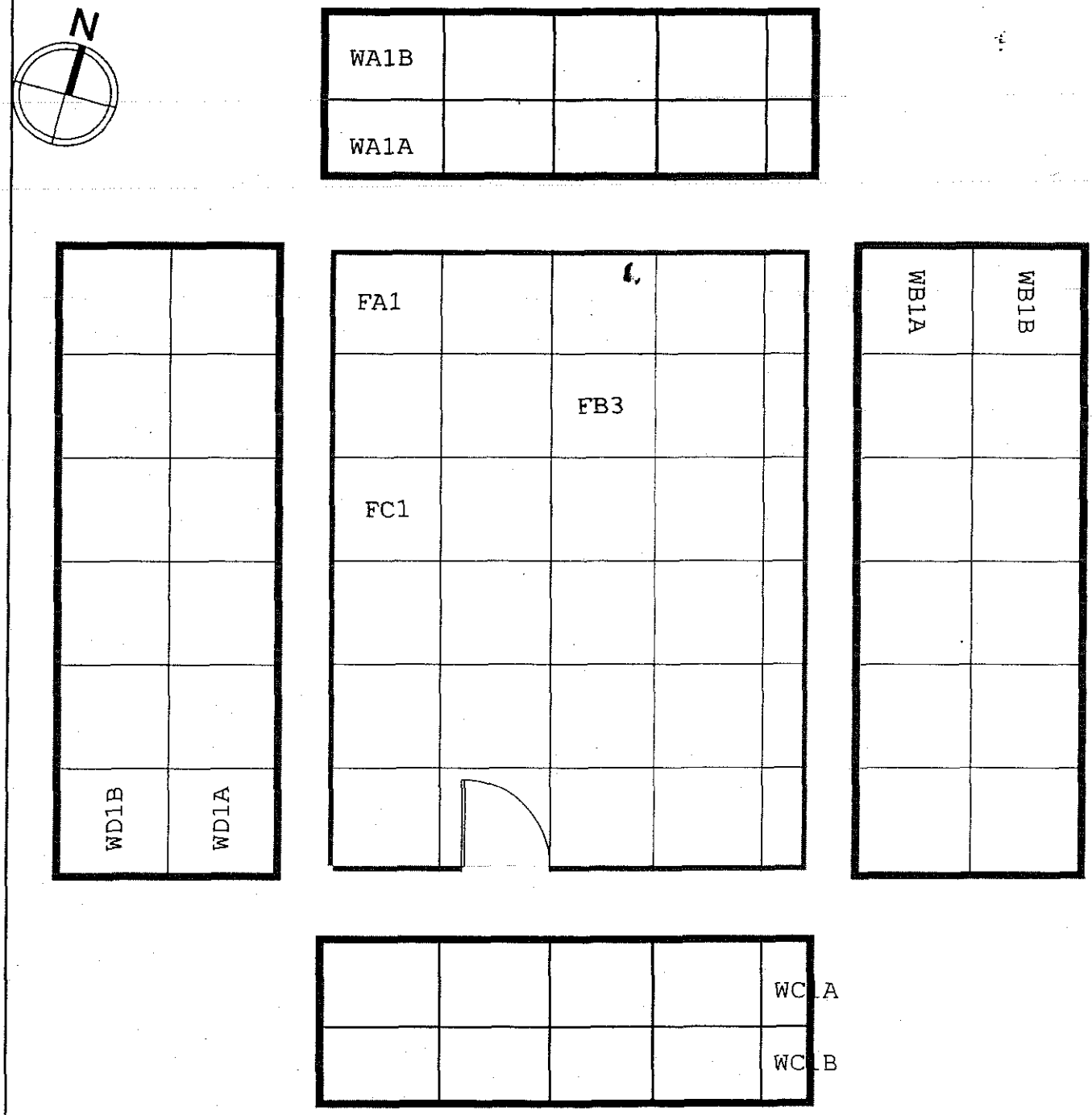
Walter Reed Army Institute of Research, Rm2						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	278.1	9.6	0.1 to 0.2	1.3 to 1.7	9.2	
(MDA =>)	327	-	2.62 *	4.70 *	45.85 *	
FA5	-277.1	-2.1	-0.1 ± 0.8	-0.6 ± 2.0	-0.8 ± 8.0	WC00092
FA7	-346.2	-2.8	-0.4 ± 0.6	0.3 ± 2.2	-4.0 ± 9.0	WC00093
FB1	-33.1	-0.6	-0.4 ± 0.6	-0.2 ± 2.1	-3.0 ± 8.0	WC00094
FB7	-338.1	-1.1	-0.1 ± 0.8	1.6 ± 2.4	-1.3 ± 8.0	WC00095
FC5	-273.0	-2.0	-0.1 ± 0.8	-0.4 ± 2.1	7.2 ± 9.0	WC00096
FC6	-293.3	-2.6	0.2 ± 1.0	0.5 ± 2.2	2.8 ± 8.0	WC00097
FD1	-81.9	1.2	-0.4 ± 0.6	0.1 ± 2.2	2.3 ± 8.0	WC00098
FD2	-33.1	0.4	-0.1 ± 0.8	-0.8 ± 2.0	-1.7 ± 8.0	WC00099
FE5	-61.5	0.3	-0.4 ± 0.6	1.6 ± 2.4	-1.2 ± 8.0	WC00100
FF2	-130.7	-0.4	0.0 ± 1.1	1.4 ± 2.7	6.2 ± 8.0	WC00101
FF3	-203.9	0.3	-0.6 ± 0.8	0.7 ± 2.6	1.0 ± 8.0	WC00102
FF4	-191.7	-0.4	0.6 ± 1.4	0.0 ± 2.5	-2.1 ± 8.0	WC00103
FF7	528.1	-1.0	-0.6 ± 0.8	0.9 ± 2.6	0.1 ± 8.0	WC00104
WA1A	890.0	4.5	-0.3 ± 1.0	-0.2 ± 2.4	-6.9 ± 7.0	WC00105
WA2A	-317.7	3.0	-0.6 ± 0.8	-0.6 ± 2.4	-2.5 ± 8.0	WC00106
WA6A	-521.0	-3.9	-0.6 ± 0.8	2.2 ± 2.8	-0.4 ± 8.0	WC00107
WA7A	-582.0	-4.1	-0.3 ± 1.0	0.3 ± 2.5	1.0 ± 8.0	WC00108
WA2B	-256.7	1.9	0.0 ± 1.1	2.2 ± 2.8	3.2 ± 8.0	WC00109
WA4B	-525.1	-1.8	-0.3 ± 1.0	-1.0 ± 2.3	-0.4 ± 8.0	WC00110
WB1A	-634.9	-4.4	-0.6 ± 0.8	-0.2 ± 2.4	1.0 ± 8.0	WC00111
WB4A	-411.2	-1.6	-0.6 ± 0.8	0.1 ± 2.5	-0.8 ± 8.0	WC00112
WB2B	-484.4	-2.6	-0.3 ± 1.0	0.7 ± 2.6	0.1 ± 8.0	WC00113
WB4B	-423.4	-2.5	-0.3 ± 1.0	-0.2 ± 2.4	-4.9 ± 8.0	WC00114
WC1A	-338.1	-2.7	-0.6 ± 0.8	0.7 ± 2.6	-2.2 ± 8.0	WC00115
WC2B	-199.8	-1.6	-0.3 ± 1.0	-0.4 ± 2.4	0.6 ± 10.0	WC00116
WC3B	-277.1	-1.2	0.3 ± 1.2	-1.3 ± 2.2	-3.8 ± 8.0	WC00117
WC4B	-338.1	-0.4	0.0 ± 1.1	0.9 ± 2.6	2.8 ± 8.0	WC00118
WD6A	621.6	6.0	-0.6 ± 0.8	0.5 ± 2.5	-5.6 ± 7.0	WC00119
WD1B	-81.9	1.4	-0.6 ± 0.8	-0.4 ± 2.4	3.6 ± 8.0	WC00120
WD5B	-85.9	3.8	0.3 ± 1.2	0.9 ± 2.6	0.1 ± 8.0	WC00121

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 2.25 to 2.62 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 4.16 to 4.7 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 37.39 to 45.85 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 11	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm11						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0 to 0.2	0.7 to 1.7	9.2	
(MDA =>)	308	-	2.62 *	4.70 *	47.50 *	
FA1	0.0	1.1	-0.3 ± 1.0	12.0 ± 4.0	-2.3 ± 8.0	WC00122
FA2	0.0	1.1	0.0 ± 1.1	4.0 ± 3.0	-1.9 ± 9.0	WC00123
FA3	0.0	1.7	0.0 ± 1.1	7.0 ± 3.4	11.0 ± 10.0	WC00124
FA4	106.1	1.2	0.0 ± 1.1	0.5 ± 2.5	-4.4 ± 8.0	WC00125
FB1	231.8	-0.3	0.0 ± 1.1	0.7 ± 2.6	3.0 ± 9.0	WC00126
FB2	244.8	-1.0	-0.6 ± 0.8	0.3 ± 2.5	3.5 ± 9.0	WC00127
FB3	305.5	-1.0	-0.6 ± 0.8	0.7 ± 2.6	6.5 ± 9.0	WC00128
FB4	153.8	-0.8	0.0 ± 1.1	1.6 ± 2.7	-2.4 ± 9.0	WC00129
FC1	249.2	-1.7	0.0 ± 1.1	0.3 ± 2.5	-6.5 ± 8.0	WC00130
FC2	223.1	-1.6	-0.3 ± 1.0	0.7 ± 2.6	-1.3 ± 8.0	WC00131
FC3	201.5	-1.4	-0.6 ± 0.8	0.1 ± 2.5	0.1 ± 9.0	WC00132
FC4	162.4	-2.0	0.0 ± 1.1	0.5 ± 2.5	0.1 ± 9.0	WC00133
FD1	54.1	-2.7	-0.6 ± 0.8	-0.2 ± 2.4	-6.5 ± 11.0	WC00134
FD2	175.4	-2.6	0.0 ± 1.1	0.3 ± 2.5	-0.4 ± 8.0	WC00135
FD3	205.8	-2.3	0.0 ± 1.1	0.5 ± 2.5	-0.4 ± 9.0	WC00136
FD4	23.7	-2.5	-0.6 ± 0.8	0.7 ± 2.6	7.2 ± 10.0	WC00137
FE1	106.1	-2.6	0.3 ± 1.2	0.9 ± 2.6	-1.3 ± 8.0	WC00138
FE2	283.8	-2.7	0.0 ± 1.1	-0.6 ± 2.4	2.3 ± 10.0	WC00139
FE3	171.1	-2.6	0.0 ± 1.1	2.9 ± 2.9	1.1 ± 9.0	WC00140
FE4	-6.6	-2.6	-0.3 ± 1.0	-0.2 ± 2.4	1.5 ± 9.0	WC00141
FF1	19.4	-3.3	-0.3 ± 1.0	-0.2 ± 2.4	2.6 ± 9.0	WC00142
FF2	58.4	-3.5	-0.6 ± 0.8	-0.6 ± 2.4	1.1 ± 9.0	WC00143
FF3	75.7	-3.3	-0.6 ± 0.8	-1.0 ± 2.3	-3.8 ± 8.0	WC00144
FF4	110.4	-3.6	-0.3 ± 1.0	3.1 ± 2.9	2.2 ± 10.0	WC00145
WA1A	67.1	-0.5	-0.6 ± 0.8	-1.0 ± 2.3	-1.3 ± 8.0	WC00146
WA2A	-6.6	0.4	-0.6 ± 0.8	-1.7 ± 2.2	1.5 ± 8.0	WC00147
WA3A	-41.3	1.8	0.0 ± 1.1	-0.2 ± 2.4	-2.2 ± 8.0	WC00148
WA4A	747.8	1.5	-0.6 ± 0.8	0.1 ± 2.5	-2.7 ± 8.0	WC00149
WA1B	587.3	-0.3	-0.3 ± 1.0	-0.2 ± 2.4	3.6 ± 11.0	WC00150
WA2B	435.6	0.3	0.3 ± 1.2	1.6 ± 2.7	0.7 ± 11.0	WC00151
WA3B	1614.9	0.8	0.3 ± 1.2	1.3 ± 2.7	-4.3 ± 8.0	WC00152
WA4B	-2.3	0.9	-0.6 ± 0.8	0.1 ± 2.5	2.9 ± 9.0	WC00153
WB1A	-32.7	1.3	-0.6 ± 0.8	0.9 ± 2.6	-2.7 ± 8.0	WC00154
WB2A	-11.0	-0.6	-0.6 ± 0.8	-0.4 ± 2.4	-1.7 ± 8.0	WC00155
WB3A	613.3	-1.4	-0.6 ± 0.8	0.5 ± 2.5	-0.4 ± 8.0	WC00156
WB4A	49.7	-1.6	-0.6 ± 0.8	-0.8 ± 2.3	-0.8 ± 8.0	WC00157
WB5A	-24.0	-2.4	-0.6 ± 0.8	-1.0 ± 2.3	-2.6 ± 8.0	WC00158
WB6A	-167.1	-2.4	-0.3 ± 1.0	0.3 ± 2.5	-2.2 ± 8.0	WC00159
WB1B	-245.1	-1.0	-0.6 ± 0.8	-1.9 ± 2.1	0.6 ± 8.0	WC00160
WB2B	-119.4	-0.2	-0.3 ± 1.0	0.7 ± 2.6	-7.8 ± 7.0	WC00161
WB3B	-93.4	-1.2	-0.6 ± 0.8	-0.6 ± 2.4	-4.0 ± 8.0	WC00162
WB4B	166.8	-1.6	-0.3 ± 1.0	-0.4 ± 2.4	4.2 ± 9.0	WC00163
WB5B	-171.4	-1.9	-0.6 ± 0.8	-1.0 ± 2.3	0.5 ± 8.0	WC00164
WB6B	-149.7	-1.7	-0.6 ± 0.8	-1.2 ± 2.2	-3.1 ± 8.0	WC00165
WC1A	-184.4	-2.4	0.0 ± 1.1	0.1 ± 2.5	-2.6 ± 8.0	WC00166
WC2A	-197.4	-2.7	-0.6 ± 0.8	-0.4 ± 2.4	2.8 ± 8.0	WC00167
WC3A	-262.5	-3.0	0.0 ± 1.1	1.1 ± 2.6	-1.3 ± 8.0	WC00168
WC4A	-232.1	-3.6	-0.6 ± 0.8	2.4 ± 2.8	-4.0 ± 8.0	WC00169
WC1B	-249.4	-3.5	-0.3 ± 1.0	0.1 ± 2.5	-1.7 ± 8.0	WC00170

Walter Reed Army Institute of Research, Rm11						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0 to 0.2	0.7 to 1.7	9.2	
(MDA =>)	308	-	2.62 *	4.70 *	47.50 *	
WC2B	-175.7	-3.1	-0.6 ± 0.8	1.1 ± 2.6	-0.4 ± 8.0	WC00171
WC3B	-171.4	-2.9	0.0 ± 1.1	0.5 ± 2.5	2.4 ± 9.0	WC00172
WC4B	-219.1	-2.4	-0.3 ± 1.0	-0.6 ± 2.4	-1.9 ± 9.0	WC00173
WD1A	-193.1	-3.4	0.0 ± 1.1	-0.6 ± 2.4	0.5 ± 8.0	WC00174
WD2A	-149.7	-2.8	0.9 ± 1.5	-1.1 ± 2.3	-7.5 ± 7.0	WC00175
WD3A	-271.1	-3.1	0.0 ± 1.1	-1.2 ± 2.2	0.1 ± 9.0	WC00176
WD4A	-245.1	-2.3	-0.3 ± 1.0	-0.6 ± 2.4	-0.8 ± 8.0	WC00177
WD5A	-54.3	-1.9	-0.3 ± 1.0	-0.2 ± 2.4	-2.2 ± 8.0	WC00178
WD6A	-240.8	-1.7	-0.6 ± 0.8	-0.2 ± 2.4	4.6 ± 8.0	WC00179
WD1B	-110.7	-1.8	-0.6 ± 0.8	-1.0 ± 2.3	-0.8 ± 8.0	WC00180
WD2B	-344.8	-2.8	-0.3 ± 1.0	0.9 ± 2.6	-5.0 ± 8.0	WC00181
WD3B	-110.7	-2.9	0.0 ± 1.1	-1.7 ± 2.2	-0.8 ± 8.0	WC00182
WD4B	-301.5	-2.4	0.0 ± 1.1	-0.2 ± 2.4	-2.2 ± 8.0	WC00183
WD5B	-193.1	-2.1	-0.6 ± 0.8	-0.4 ± 2.4	-4.0 ± 8.0	WC00184
WD6B	-219.1	-1.9	-0.6 ± 0.8	-0.4 ± 2.4	2.4 ± 8.0	WC00185
B001	-141.1	-1.7	-0.6 ± 0.8	-0.6 ± 2.4	-7.1 ± 7.0	WC00186
RCFA1	-249.4	-0.6	-0.3 ± 1.0	-0.4 ± 2.4	3.3 ± 8.0	WC00187
RCFA2	-80.4	-1.0	-0.3 ± 1.0	0.1 ± 2.5	-5.8 ± 7.0	WC00188
RCFA3	140.8	-0.6	-0.6 ± 0.8	-0.2 ± 2.4	-5.4 ± 8.0	WC00189
RCFA4	626.4	0.6	0.0 ± 1.1	2.0 ± 2.8	-8.7 ± 7.0	WC00190
RCFB1	578.7	-1.5	-0.6 ± 0.8	0.3 ± 2.5	-3.6 ± 8.0	WC00191
RCFB2	448.6	-1.3	-0.6 ± 0.8	-2.3 ± 2.0	2.1 ± 9.0	WC00192
RCFB3	478.9	-0.8	-0.3 ± 1.0	-0.6 ± 2.4	-1.8 ± 8.0	WC00193
RCFB4	483.3	-1.1	0.0 ± 1.1	0.3 ± 2.5	-0.8 ± 8.0	WC00194
RCFC1	613.3	-2.4	-0.3 ± 1.0	-0.2 ± 2.4	-3.1 ± 8.0	WC00195
RCFC2	513.6	-1.9	-0.3 ± 1.0	0.5 ± 2.5	3.3 ± 8.0	WC00196
RCFC3	635.0	-1.9	0.9 ± 1.5	-1.3 ± 2.2	3.4 ± 9.0	WC00197
RCFC4	431.3	-1.7	0.3 ± 1.2	-1.3 ± 2.2	-1.3 ± 8.0	WC00198
RCFD1	431.3	-2.0	-0.6 ± 0.8	0.1 ± 2.5	0.6 ± 8.0	WC00199
RCFD2	522.3	-2.4	-0.6 ± 0.8	-1.5 ± 2.2	3.0 ± 9.0	WC00200
RCFD3	444.3	-2.4	0.2 ± 0.7	-0.3 ± 1.6	1.0 ± 8.0	WC00201
RCFD4	305.5	-2.5	0.2 ± 0.7	-0.9 ± 1.4	-0.4 ± 8.0	WC00202
RCFE1	474.6	-2.5	-0.1 ± 0.3	0.2 ± 1.8	-5.4 ± 8.0	WC00203
RCFE2	483.3	-2.6	-0.1 ± 0.3	0.5 ± 1.8	0.1 ± 8.0	WC00204
RCFE3	487.6	-3.2	-0.1 ± 0.3	-0.5 ± 1.6	-0.9 ± 8.0	WC00205
RCFE4	492.0	-2.6	0.2 ± 0.7	-0.5 ± 1.6	-5.8 ± 7.0	WC00206
RCFF1	305.5	-3.2	-0.1 ± 0.3	0.2 ± 1.8	-2.2 ± 8.0	WC00207
RCFF2	522.3	-3.1	-0.1 ± 0.3	-0.2 ± 1.6	4.2 ± 8.0	WC00208
RCFF3	557.0	-2.1	0.2 ± 0.7	0.2 ± 1.8	1.4 ± 8.0	WC00209
RCFF4	392.2	-3.1	0.2 ± 0.7	0.5 ± 1.8	-2.2 ± 8.0	WC00210

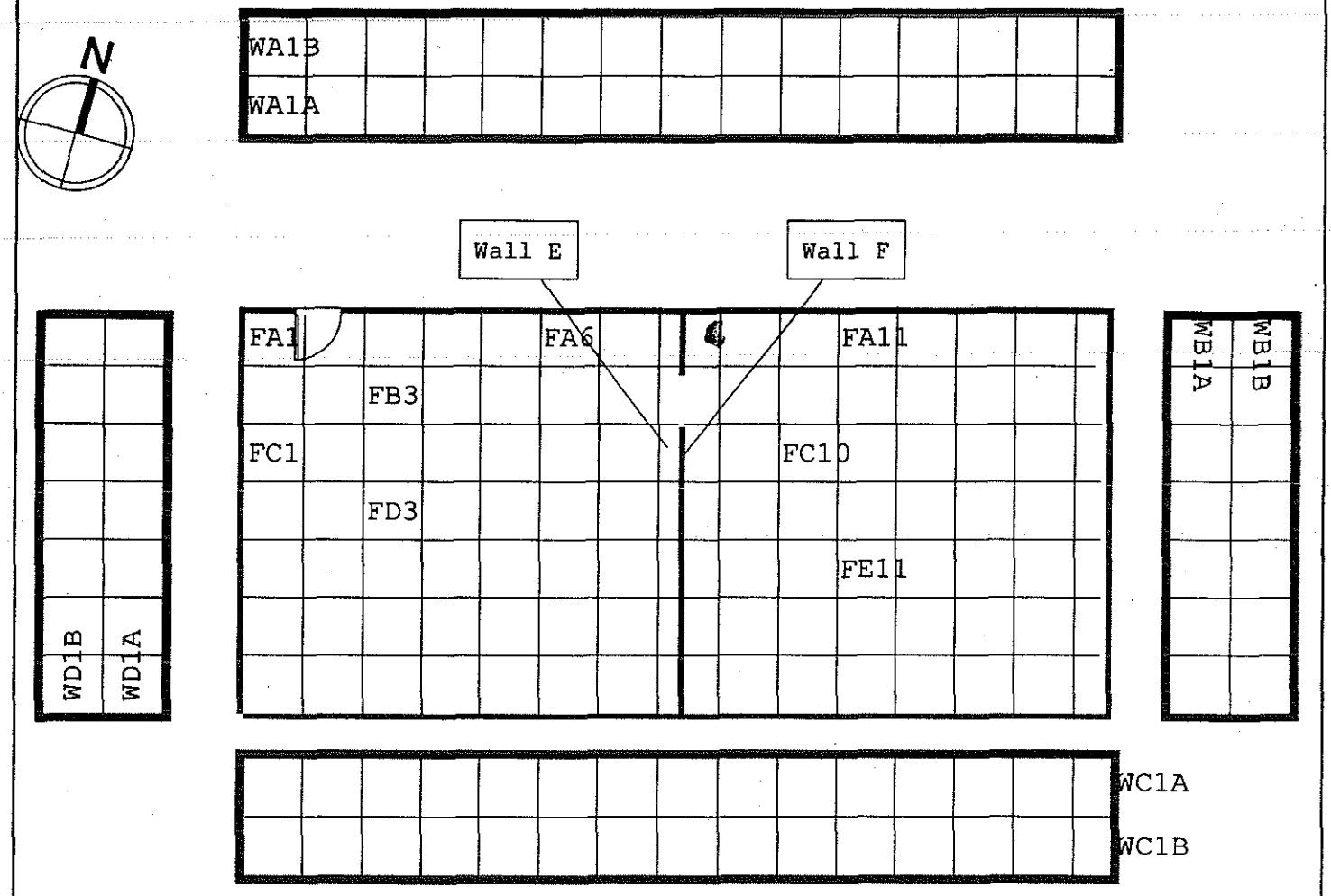
Walter Reed Army Institute of Research, Rm11						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0 to 0.2	0.7 to 1.7	9.2	
(MDA =>)	308	-	2.62 *	4.70 *	47.50 *	

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.53 to 2.62 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 3.47 to 4.7 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 32.93 to 47.5 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 28-30	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm28_30						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1 to 215.5	8.6	0.0 to 0.1	0.7 to 1.8	5.4 to 9.2	
(MDA =>)	332	-	3.06 *	7.25 *	47.47 *	
FA1	154.3	-3.1	-0.1 ± 0.3	3.9 ± 2.5	11.0 ± 10.0	WC00211
FA2	199.0	-3.2	-0.1 ± 0.3	1.2 ± 2.0	0.1 ± 9.0	WC00212
FA3	255.9	-3.8	1.1 ± 1.2	6.6 ± 3.0	19.0 ± 11.0	WC00213
FA4	308.8	-3.0	-0.1 ± 0.3	4.4 ± 2.6	3.9 ± 11.0	WC00214
FA5	825.2	-3.7	0.2 ± 0.7	7.1 ± 3.0	49.0 ± 14.0	WC00215
FA6	178.6	-4.2	-0.1 ± 0.3	0.7 ± 1.9	1.1 ± 9.0	WC00216
FA7	40.4	-3.4	0.2 ± 0.7	1.6 ± 2.1	3.0 ± 9.0	WC00217
FA8	577.2	-3.0	0.2 ± 0.7	13.0 ± 3.8	16.0 ± 11.0	WC00218
FA9	613.8	-2.5	0.2 ± 0.7	5.3 ± 2.8	24.0 ± 12.0	WC00219
FA10	434.8	-2.8	0.2 ± 0.7	30.0 ± 5.4	39.0 ± 14.0	WC00220
FA11	174.6	-3.5	-0.1 ± 0.3	0.9 ± 1.9	36.0 ± 16.0	WC00221
FA12	138.0	-3.7	0.2 ± 0.7	2.3 ± 2.2	11.0 ± 11.0	WC00222
FA13	117.7	-3.6	0.2 ± 0.7	3.2 ± 2.4	9.4 ± 11.0	WC00223
FA14	32.3	-3.6	0.2 ± 0.7	2.5 ± 2.3	6.7 ± 10.0	WC00224
FA15	16.0	-3.2	0.8 ± 1.0	0.4 ± 1.8	6.5 ± 11.0	WC00225
FB1	634.1	-3.3	0.8 ± 1.0	1.1 ± 2.0	13.0 ± 10.0	WC00226
FB2	316.9	-3.5	-0.1 ± 0.3	2.3 ± 2.2	15.0 ± 11.0	WC00227
FB3	170.5	-3.3	0.8 ± 1.0	14.0 ± 3.9	22.0 ± 12.0	WC00228
FB4	406.4	-3.6	0.2 ± 0.7	4.4 ± 2.6	49.0 ± 18.0	WC00229
FB5	443.0	-3.8	-0.1 ± 0.3	4.6 ± 2.6	22.0 ± 12.0	WC00230
FB6	284.4	-3.0	-0.1 ± 0.3	1.4 ± 2.0	12.0 ± 11.0	WC00231
FB7	60.7	-2.8	-0.1 ± 0.3	0.0 ± 1.7	5.7 ± 10.0	WC00232
FB8	-61.3	-3.2	0.2 ± 0.7	0.0 ± 1.7	3.5 ± 9.0	WC00233
FB9	146.1	-3.2	0.5 ± 0.9	1.1 ± 2.0	2.1 ± 9.0	WC00234
FB10	44.5	-3.3	0.2 ± 0.7	-0.7 ± 1.5	14.0 ± 11.0	WC00235
FB11	-0.3	-3.5	-0.1 ± 0.3	1.2 ± 2.0	1.1 ± 9.0	WC00236
FB12	174.6	-3.1	-0.1 ± 0.3	1.6 ± 2.1	6.5 ± 11.0	WC00237
FB13	97.3	-3.5	0.8 ± 1.0	-0.3 ± 1.6	8.6 ± 11.0	WC00238
FB14	44.5	-3.0	-0.1 ± 0.3	0.9 ± 1.9	17.0 ± 14.0	WC00239
FB15	101.4	-3.6	-0.1 ± 0.3	-0.5 ± 1.6	1.1 ± 9.0	WC00240
FC1	377.9	-3.6	0.2 ± 0.7	0.9 ± 1.9	44.0 ± 18.0	WC00241
FC2	321.0	-3.3	0.2 ± 0.7	2.1 ± 2.2	3.9 ± 9.0	WC00242
FC3	268.1	-2.6	0.2 ± 0.7	2.1 ± 2.2	150.0 ± 30.0	WC00243
FC4	365.7	-3.1	-0.1 ± 0.3	0.9 ± 1.9	13.0 ± 11.0	WC00244
FC5	247.8	-3.2	0.2 ± 0.7	0.7 ± 1.9	240.0 ± 23.0	WC00245
FC6	215.2	-3.6	-0.1 ± 0.3	0.5 ± 1.8	1.6 ± 9.0	WC00246
FC7	345.4	-3.1	0.5 ± 0.9	2.7 ± 2.3	44.0 ± 18.0	WC00247
FC8	2354.2	-3.3	0.5 ± 0.9	1.1 ± 2.0	-0.8 ± 8.0	WC00248
FC9	-97.9	-3.2	-0.1 ± 0.3	1.4 ± 2.0	3.2 ± 9.0	WC00249
FC10	199.0	-3.3	-0.1 ± 0.3	0.5 ± 1.8	1.6 ± 9.0	WC00250
FC11	89.2	-3.2	-0.1 ± 0.3	1.2 ± 2.0	0.6 ± 9.0	WC00251
FC12	-8.4	-3.3	0.2 ± 0.7	-0.3 ± 1.6	-0.4 ± 9.0	WC00252
FC13	16.0	-3.0	-0.1 ± 0.3	1.4 ± 2.0	14.0 ± 11.0	WC00253
FC14	129.9	-2.9	-0.1 ± 0.3	0.2 ± 1.8	5.2 ± 10.0	WC00254
FC15	64.8	-3.7	0.5 ± 0.9	-0.3 ± 1.6	4.0 ± 9.0	WC00255
FD1	626.0	-2.9	-0.1 ± 0.3	1.2 ± 2.0	8.2 ± 9.0	WC00256
FD2	227.4	-3.7	0.2 ± 0.7	1.6 ± 2.1	-1.3 ± 8.0	WC00257
FD3	296.6	-3.4	0.2 ± 0.7	1.8 ± 2.1	7.9 ± 10.0	WC00258
FD4	3269.1	-3.7	-0.1 ± 0.3	0.7 ± 1.9	57.0 ± 14.0	WC00259

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Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1 to 215.5	8.6	0.0 to 0.1	0.7 to 1.8	5.4 to 9.2	
(MDA =>)	332	-	3.06 *	7.25 *	47.47 *	
FD5	14057.2	-3.0	-0.1 ± 0.3	-0.5 ± 1.6	570.0 ± 34.0	WC00260
FD6	577.2	-3.3	0.2 ± 0.7	4.1 ± 2.6	19.0 ± 11.0	WC00261
FD7	337.2	-3.2	-0.1 ± 0.3	1.4 ± 2.0	10.0 ± 9.0	WC00262
FD8	2626.6	-3.7	-0.1 ± 0.3	2.1 ± 2.2	3.2 ± 8.0	WC00263
FD9	60.7	-2.9	0.2 ± 0.7	-0.5 ± 1.6	0.6 ± 9.0	WC00264
FD10	-40.9	-2.7	-0.1 ± 0.3	1.4 ± 2.0	0.1 ± 9.0	WC00265
FD11	68.9	-2.8	-0.1 ± 0.3	0.5 ± 1.8	5.3 ± 9.0	WC00266
FD12	-4.3	-2.7	-0.1 ± 0.3	-0.5 ± 1.6	0.7 ± 10.0	WC00267
FD13	36.3	-2.8	0.2 ± 0.7	1.6 ± 2.1	5.5 ± 9.0	WC00268
FD14	93.3	-3.4	-0.1 ± 0.3	0.2 ± 1.8	-0.9 ± 9.0	WC00269
FD15	-20.6	-3.1	0.2 ± 0.7	1.4 ± 2.0	2.0 ± 9.0	WC00270
FE1	109.5	-2.9	0.2 ± 0.7	2.1 ± 2.2	7.1 ± 10.0	WC00271
FE2	447.0	-2.3	-0.1 ± 0.3	0.2 ± 1.8	2.5 ± 9.0	WC00272
FE3	186.8	-2.1	0.2 ± 0.7	1.4 ± 2.0	11.0 ± 11.0	WC00273
FE4	723.5	-3.0	0.5 ± 0.9	1.8 ± 2.1	58.0 ± 15.0	WC00274
FE5	898.4	-3.4	0.2 ± 0.7	0.2 ± 1.8	28.0 ± 12.0	WC00275
FE6	300.6	-3.1	0.2 ± 0.7	-0.3 ± 1.6	1.5 ± 9.0	WC00276
FE7	5574.7	-2.9	-0.1 ± 0.3	1.6 ± 2.1	15.0 ± 9.0	WC00277
FE8	101.4	-3.0	-0.1 ± 0.3	0.7 ± 1.9	-5.1 ± 8.0	WC00278
FE9	68.9	-3.4	-0.1 ± 0.3	2.1 ± 2.2	15.0 ± 11.0	WC00279
FE10	101.4	-3.3	-0.1 ± 0.3	0.7 ± 1.9	-0.4 ± 9.0	WC00280
FE11	121.7	-3.3	0.5 ± 0.9	0.7 ± 1.9	7.1 ± 9.0	WC00281
FE12	68.9	-3.0	0.2 ± 0.7	2.5 ± 2.3	-3.8 ± 8.0	WC00282
FE13	93.3	-2.5	0.2 ± 0.7	-0.3 ± 1.6	12.0 ± 10.0	WC00283
FE14	154.3	-2.6	0.2 ± 0.7	0.7 ± 1.9	8.8 ± 13.0	WC00284
FE15	81.1	-3.1	0.2 ± 0.7	1.4 ± 2.0	4.2 ± 11.0	WC00285
FF1	333.2	-2.3	0.2 ± 0.7	1.8 ± 2.1	3.5 ± 9.0	WC00286
FF2	398.2	-1.8	0.5 ± 0.9	0.4 ± 1.8	4.9 ± 9.0	WC00287
FF3	512.1	-2.2	0.5 ± 0.9	1.1 ± 2.0	98.0 ± 21.0	WC00288
FF4	2203.7	-2.5	-0.1 ± 0.3	0.0 ± 1.7	85.0 ± 17.0	WC00289
FF5	215.2	-2.6	-0.1 ± 0.3	0.9 ± 1.9	15.0 ± 10.0	WC00290
FF6	292.5	-2.1	-0.1 ± 0.3	0.9 ± 1.9	16.0 ± 12.0	WC00291
FF7	532.4	-2.3	-0.1 ± 0.3	0.0 ± 1.7	2.1 ± 9.0	WC00292
FF8	129.9	-2.2	-0.1 ± 0.3	0.7 ± 1.9	1.7 ± 9.0	WC00293
FF9	211.2	-2.0	-0.1 ± 0.3	0.5 ± 1.8	-4.8 ± 8.0	WC00294
FF10	28.2	-1.4	-0.1 ± 0.3	0.7 ± 1.9	8.6 ± 10.0	WC00295
FF11	142.1	-2.0	0.2 ± 0.7	0.2 ± 1.8	4.2 ± 9.0	WC00296
FF12	97.3	-1.2	0.5 ± 0.9	0.4 ± 1.8	7.0 ± 9.0	WC00297
FF13	219.3	-1.2	-0.1 ± 0.3	0.7 ± 1.9	-0.4 ± 9.0	WC00298
FF14	138.0	-1.1	-0.1 ± 0.3	-0.2 ± 1.6	3.9 ± 9.0	WC00299
FF15	174.6	-1.6	-0.1 ± 0.3	0.9 ± 1.9	-3.7 ± 8.0	WC00300
WA1A	-110.1	-3.7	0.4 ± 1.3	0.0 ± 3.6	-2.0 ± 8.0	WC00301
WA2A	-158.9	-3.7	-0.2 ± 0.7	-1.3 ± 3.3	0.7 ± 8.0	WC00302
WA3A	-175.1	-4.0	-0.2 ± 0.7	-1.3 ± 3.3	3.5 ± 8.0	WC00303
WA4A	-171.1	-2.7	-0.2 ± 0.7	-1.3 ± 3.3	3.4 ± 8.0	WC00304
WA5A	-28.7	-3.4	0.4 ± 1.3	-1.3 ± 3.3	3.9 ± 8.0	WC00305
WA6A	-85.7	-3.9	-0.2 ± 0.7	1.3 ± 3.9	3.5 ± 8.0	WC00306
WA7A	-228.0	-3.9	0.4 ± 1.3	2.2 ± 4.1	3.0 ± 8.0	WC00307
WA8A	-110.1	-3.9	-0.2 ± 0.7	-1.7 ± 3.2	2.7 ± 9.0	WC00308

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Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1 to 215.5	8.6	0.0 to 0.1	0.7 to 1.8	5.4 to 9.2	
(MDA =>)	332	-	3.06 *	7.25 *	47.47 *	
WA9A	-219.9	-3.7	0.9 ± 1.7	-0.5 ± 3.5	23.0 ± 11.0	WC00309
WA10A	-162.9	-4.4	2.1 ± 2.3	-1.9 ± 3.2	8.5 ± 9.0	WC00310
WA11A	-171.1	-3.2	-0.2 ± 0.7	-1.7 ± 3.2	0.3 ± 8.0	WC00311
WA12A	-244.3	-3.4	-0.2 ± 0.7	0.4 ± 3.7	-1.1 ± 8.0	WC00312
WA13A	-203.6	-3.5	-0.2 ± 0.7	0.0 ± 3.6	-0.6 ± 8.0	WC00313
WA14A	-195.5	-3.2	0.9 ± 1.7	0.8 ± 3.8	-1.1 ± 8.0	WC00314
WA15A	-228.0	-3.4	0.4 ± 1.3	0.4 ± 3.7	-0.2 ± 8.0	WC00315
WA1B	-154.8	-3.5	-0.2 ± 0.7	-1.3 ± 3.3	3.5 ± 9.0	WC00316
WA2B	-297.1	-3.7	-0.2 ± 0.7	3.0 ± 4.3	-2.1 ± 8.0	WC00317
WA3B	-313.4	-3.4	0.4 ± 1.3	0.4 ± 3.7	6.4 ± 9.0	WC00318
WA4B	-329.6	-3.1	0.4 ± 1.3	2.2 ± 4.1	0.7 ± 8.0	WC00319
WA5B	-248.3	-3.7	-0.2 ± 0.7	1.3 ± 3.9	-0.6 ± 8.0	WC00320
WA6B	-154.8	-3.8	-0.2 ± 0.7	1.7 ± 4.0	3.1 ± 9.0	WC00321
WA7B	-228.0	-3.4	0.4 ± 1.3	0.0 ± 3.6	2.5 ± 8.0	WC00322
WA8B	-16.5	-3.3	-0.2 ± 0.7	0.4 ± 3.7	-0.8 ± 11.0	WC00323
WA9B	-223.9	-3.6	0.4 ± 1.3	0.0 ± 3.6	2.8 ± 9.0	WC00324
WA10B	-252.4	-4.0	0.4 ± 1.3	2.6 ± 4.2	-3.4 ± 8.0	WC00325
WA11B	-53.1	-4.0	-0.2 ± 0.7	-0.9 ± 3.4	-2.0 ± 8.0	WC00326
WA12B	-171.1	-3.7	-0.2 ± 0.7	-2.2 ± 3.1	3.6 ± 9.0	WC00327
WA13B	-167.0	-2.9	0.4 ± 1.3	0.9 ± 3.8	-1.1 ± 8.0	WC00328
WA14B	-240.2	-3.3	0.4 ± 1.3	-0.5 ± 3.5	-1.1 ± 8.0	WC00329
WA15B	-167.0	-3.0	0.4 ± 1.3	0.9 ± 3.8	2.4 ± 10.0	WC00330
WB1A	-305.2	-3.8	-0.2 ± 0.7	1.3 ± 3.9	-1.6 ± 8.0	WC00331
WB2A	-65.3	-3.5	0.4 ± 1.3	0.4 ± 3.7	3.8 ± 8.0	WC00332
WB3A	-150.7	-3.6	-0.2 ± 0.7	1.3 ± 3.9	2.1 ± 8.0	WC00333
WB4A	-199.5	-2.8	-0.2 ± 0.7	1.7 ± 4.0	-1.9 ± 10.0	WC00334
WB5A	-187.3	-2.7	-0.2 ± 0.7	0.4 ± 3.7	4.2 ± 8.0	WC00335
WB6A	-175.1	-3.0	0.4 ± 1.3	1.7 ± 4.0	-2.4 ± 8.0	WC00336
WB1B	-284.9	-2.9	-0.2 ± 0.7	0.0 ± 3.6	-1.6 ± 8.0	WC00337
WB2B	-256.5	-3.3	-0.2 ± 0.7	0.4 ± 3.7	0.3 ± 9.0	WC00338
WB3B	-211.7	-2.7	0.4 ± 1.3	-0.9 ± 3.4	1.2 ± 8.0	WC00339
WB4B	-134.5	-3.5	-0.2 ± 0.7	-0.9 ± 3.4	6.0 ± 9.0	WC00340
WB5B	-158.9	-2.9	-0.2 ± 0.7	-0.4 ± 3.5	-1.7 ± 8.0	WC00341
WB6B	-203.6	-2.6	-0.2 ± 0.7	0.0 ± 3.6	-6.1 ± 7.0	WC00342
WC1A	-162.9	-3.1	-0.2 ± 0.7	-2.2 ± 3.1	0.3 ± 9.0	WC00343
WC2A	-122.3	-3.2	-0.2 ± 0.7	-1.3 ± 3.3	2.5 ± 8.0	WC00344
WC3A	-106.0	-2.6	-0.2 ± 0.7	-0.4 ± 3.5	0.7 ± 8.0	WC00345
WC4A	44.5	-2.9	-0.2 ± 0.7	-0.9 ± 3.4	-2.0 ± 8.0	WC00346
WC5A	-171.1	-2.7	0.4 ± 1.3	-2.2 ± 3.1	1.6 ± 8.0	WC00347
WC6A	20.1	-3.1	-0.2 ± 0.7	-0.9 ± 3.4	2.5 ± 8.0	WC00348
WC7A	-32.8	-2.6	0.4 ± 1.3	-1.3 ± 3.3	-3.7 ± 7.0	WC00349
WC8A	-69.4	-1.5	0.4 ± 1.3	0.9 ± 3.8	7.3 ± 8.0	WC00350
WC9A	48.5	-1.4	-0.2 ± 0.7	0.0 ± 3.6	3.0 ± 8.0	WC00351
WC10A	-12.5	-1.7	0.4 ± 1.3	1.7 ± 4.0	0.7 ± 8.0	WC00352
WC11A	68.9	-3.3	0.4 ± 1.3	0.4 ± 3.7	-4.4 ± 8.0	WC00353
WC12A	390.1	-3.6	0.4 ± 1.3	-0.5 ± 3.5	0.7 ± 8.0	WC00354
WC13A	223.4	-2.9	0.4 ± 1.3	1.7 ± 4.0	3.5 ± 8.0	WC00355
WC14A	81.1	-3.0	-0.2 ± 0.7	0.0 ± 3.6	1.1 ± 8.0	WC00356
WC15A	-97.9	-2.9	-0.2 ± 0.7	-0.9 ± 3.4	3.7 ± 8.0	WC00357

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Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1 to 215.5	8.6	0.0 to 0.1	0.7 to 1.8	5.4 to 9.2	
(MDA =>)	332	-	3.06 *	7.25 *	47.47 *	
WC1B	97.3	-2.1	-0.2 ± 0.7	0.0 ± 3.6	-2.5 ± 8.0	WC00358
WC2B	56.7	-2.5	0.4 ± 1.3	0.9 ± 3.8	-5.7 ± 11.0	WC00359
WC3B	-81.6	-1.6	-0.2 ± 0.7	-1.3 ± 3.3	4.1 ± 10.0	WC00360
WC4B	-36.9	-1.1	0.4 ± 1.3	1.3 ± 3.9	-0.2 ± 9.0	WC00361
WC5B	203.0	-2.0	0.4 ± 1.3	2.6 ± 4.2	-2.8 ± 12.0	WC00362
WC6B	199.0	-1.8	0.4 ± 1.3	1.3 ± 3.9	3.3 ± 9.0	WC00363
WC7B	-8.4	-1.6	2.1 ± 2.3	-0.6 ± 3.6	3.3 ± 9.0	WC00364
WC8B	-77.5	-1.9	-0.2 ± 0.7	-1.7 ± 3.2	-2.3 ± 9.0	WC00365
WC9B	48.5	-1.4	-0.2 ± 0.7	2.2 ± 4.1	-3.0 ± 10.0	WC00366
WC10B	264.0	-1.4	0.4 ± 1.3	-1.3 ± 3.3	19.0 ± 18.0	WC00367
WC11B	109.5	-0.7	0.9 ± 1.7	-0.5 ± 3.5	-2.8 ± 12.0	WC00368
WC12B	138.0	-2.1	1.5 ± 2.0	7.7 ± 5.1	-0.2 ± 8.0	WC00369
WC13B	-0.3	-2.2	0.9 ± 1.7	5.6 ± 4.8	14.0 ± 9.0	WC00370
WC14B	11.9	-1.9	-0.2 ± 0.7	1.3 ± 3.9	2.5 ± 8.0	WC00371
WC15B	32.3	-2.0	-0.2 ± 0.7	2.6 ± 4.2	-2.0 ± 8.0	WC00372
WD1A	40.4	-2.4	-0.2 ± 0.7	-0.9 ± 3.4	0.3 ± 8.0	WC00373
WD2A	-97.9	-2.8	-0.2 ± 0.7	-0.9 ± 3.4	-0.2 ± 8.0	WC00374
WD3A	-187.3	-3.3	-0.2 ± 0.7	0.9 ± 3.8	7.6 ± 9.0	WC00375
WD4A	-146.7	-3.3	0.4 ± 1.3	-1.3 ± 3.3	-2.4 ± 8.0	WC00376
WD5A	-207.7	-2.8	-0.2 ± 0.7	-1.3 ± 3.3	-1.1 ± 8.0	WC00377
WD6A	-232.1	-3.5	-0.2 ± 0.7	-0.4 ± 3.5	-1.5 ± 8.0	WC00378
WD1B	-118.2	-2.4	-0.2 ± 0.7	1.3 ± 3.9	-1.5 ± 8.0	WC00379
WD2B	-61.3	-2.3	-0.2 ± 0.7	0.4 ± 3.7	7.1 ± 9.0	WC00380
WD3B	-101.9	-2.6	-0.2 ± 0.7	-0.9 ± 3.4	-2.5 ± 8.0	WC00381
WD4B	-126.3	-3.5	0.4 ± 1.3	1.7 ± 4.0	2.6 ± 8.0	WC00382
WD5B	-154.8	-3.8	-0.2 ± 0.7	-0.4 ± 3.5	1.2 ± 9.0	WC00383
WD6B	-118.2	-3.8	-0.2 ± 0.7	0.0 ± 3.6	1.7 ± 8.0	WC00384
RCFA12	-167.0	-3.1	-0.2 ± 0.7	-0.9 ± 3.4	7.9 ± 9.0	WC00385
RCFA15	528.4	-3.0	-0.2 ± 0.7	-1.3 ± 3.3	-2.5 ± 8.0	WC00386
RCFB1	422.6	-4.0	-0.2 ± 0.7	-0.9 ± 3.4	6.4 ± 8.0	WC00387
RCFB2	341.3	-3.8	0.9 ± 1.7	-1.8 ± 3.2	3.6 ± 9.0	WC00388
RCFB3	361.6	-3.2	-0.2 ± 0.7	1.3 ± 3.9	0.3 ± 8.0	WC00389
RCFB5	284.4	-3.2	-0.2 ± 0.7	-0.9 ± 3.4	-0.2 ± 8.0	WC00390
RCFB7	373.8	-3.7	-0.2 ± 0.7	2.6 ± 4.2	8.1 ± 9.0	WC00391
RCFB8	345.4	-4.1	-0.2 ± 0.7	-0.9 ± 3.4	-5.2 ± 7.0	WC00392
RCFB10	382.0	-3.3	-0.2 ± 0.7	1.7 ± 4.0	-0.6 ± 8.0	WC00393
RCFB11	422.6	-3.4	-0.2 ± 0.7	-0.4 ± 3.5	-3.8 ± 8.0	WC00394
RCFB13	365.7	-3.3	-0.2 ± 0.7	2.6 ± 4.2	-1.5 ± 8.0	WC00395
RCFB14	467.4	-3.3	0.4 ± 1.3	-1.8 ± 3.2	-1.6 ± 8.0	WC00396
RCFC7	394.2	-3.3	0.9 ± 1.7	-0.5 ± 3.5	-0.6 ± 8.0	WC00397
RCFC9	455.2	-3.4	-0.2 ± 0.7	1.3 ± 3.9	-0.7 ± 8.0	WC00398
RCFC11	154.3	-3.0	1.5 ± 2.0	12.0 ± 5.7	-4.5 ± 8.0	WC00399
RCFD3	81.1	-3.5	0.9 ± 1.7	-2.2 ± 3.1	4.8 ± 8.0	WC00400
RCFD5	296.6	-3.2	-0.2 ± 0.7	-0.4 ± 3.5	4.8 ± 8.0	WC00401
RCFD6	418.6	-3.1	0.4 ± 1.3	1.3 ± 3.9	7.2 ± 9.0	WC00402
RCFD7	353.5	-3.6	-0.2 ± 0.7	-2.2 ± 3.1	4.7 ± 8.0	WC00403
RCFD9	361.6	-3.3	-0.2 ± 0.7	1.3 ± 3.9	0.3 ± 8.0	WC00404
RCFD10	422.6	-2.8	-0.2 ± 0.7	-1.3 ± 3.3	-0.7 ± 9.0	WC00405
RCFD12	455.2	-2.7	-0.2 ± 0.7	-0.4 ± 3.5	-0.6 ± 8.0	WC00406

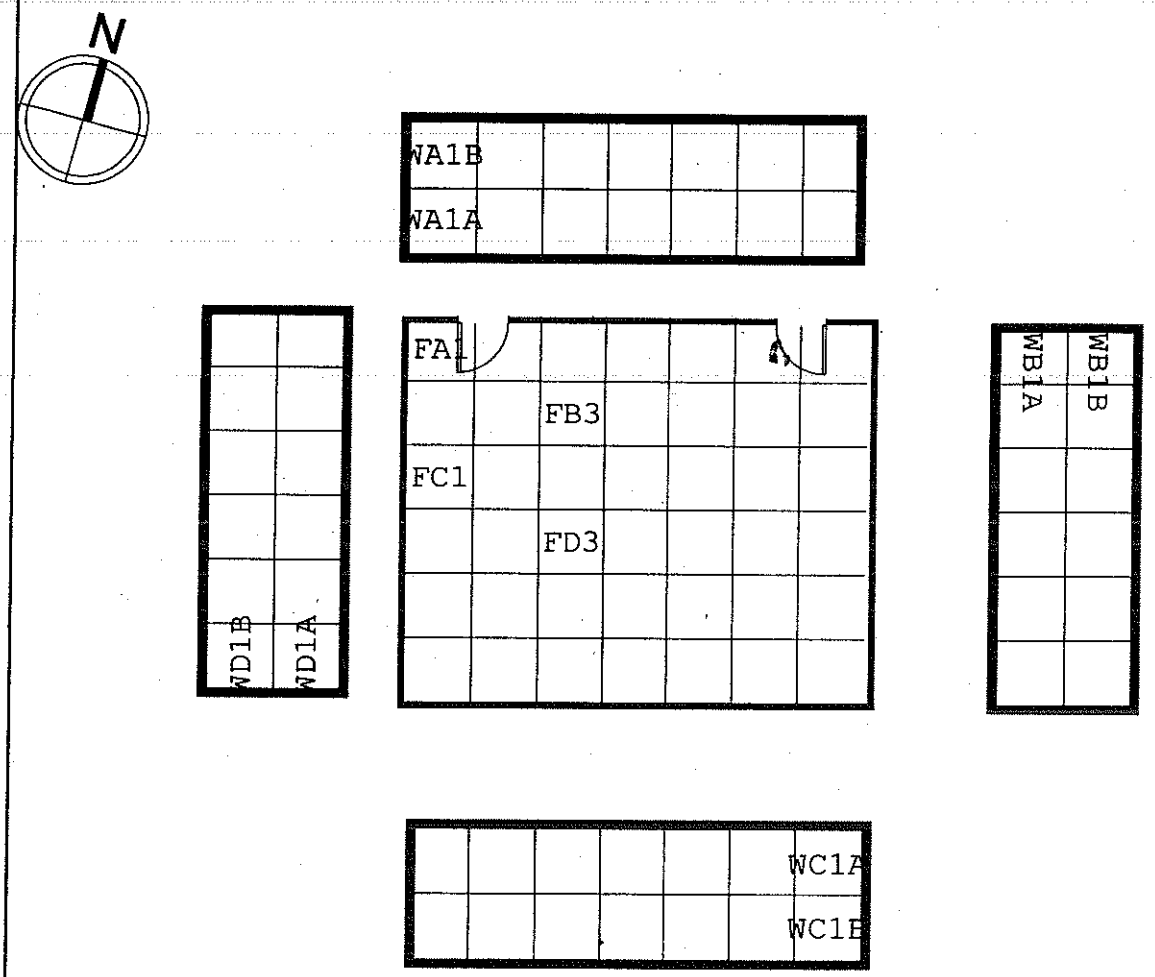
Walter Reed Army Institute of Research, Rm28_30						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1 to 215.5	8.6	0.0 to 0.1	0.7 to 1.8	5.4 to 9.2	
(MDA =>)	332	-	3.06 *	7.25 *	47.47 *	
RCFE5	443.0	-2.3	1.5 ± 2.0	1.2 ± 3.9	4.2 ± 9.0	WC00407
RCFE7	349.4	-2.6	-0.2 ± 0.7	-0.9 ± 3.4	4.5 ± 9.0	WC00408
RCFE8	390.1	-2.9	-0.2 ± 0.7	1.7 ± 4.0	5.7 ± 9.0	WC00409
RCFE9	304.7	-2.0	-0.2 ± 0.7	-0.4 ± 3.5	15.0 ± 10.0	WC00410
RCFF1	463.3	-3.0	0.4 ± 1.3	-2.2 ± 3.1	3.4 ± 8.0	WC00411
RCFF4	443.0	-2.4	0.4 ± 1.3	-2.2 ± 3.1	8.6 ± 9.0	WC00412
RCFF5	430.8	-2.4	-0.2 ± 0.7	-0.9 ± 3.4	-2.0 ± 8.0	WC00413
RCFF13	491.8	-2.0	-0.2 ± 0.7	0.0 ± 3.6	1.7 ± 8.0	WC00414
RSFD1	377.9	-3.8	0.4 ± 1.3	1.3 ± 3.9	5.7 ± 9.0	WC00415
RSFE1	20.1	-3.1	-0.2 ± 0.7	0.4 ± 3.7	8.2 ± 9.0	WC00416
RSFE8	3078.0	-2.7	-0.2 ± 0.7	0.0 ± 3.6	5.1 ± 8.0	WC00417
RSFE14	170.5	-3.0	0.9 ± 1.7	-1.8 ± 3.2	1.6 ± 8.0	WC00418
B003	109.5	-3.0	0.4 ± 1.3	0.0 ± 3.6	-1.1 ± 8.0	WC00419
WE1A	-258.1	-3.5	0.0 ± 0.0	0.0 ± 2.6	-0.9 ± 10.0	WC01920
WE2A	-310.1	-3.9	0.0 ± 0.0	1.9 ± 3.2	3.0 ± 11.0	WC01921
WE3A	-206.1	-3.0	0.6 ± 1.1	-0.5 ± 2.4	0.2 ± 9.0	WC01922
WE4A	-136.7	-2.6	0.6 ± 1.1	-0.5 ± 2.4	1.3 ± 10.0	WC01923
WE5A	-32.7	-2.4	0.0 ± 0.0	0.0 ± 2.6	-3.6 ± 9.0	WC01924
WE1B	-229.2	-3.2	0.6 ± 1.1	0.9 ± 2.9	10.0 ± 11.0	WC01925
WE2B	-339.0	-3.4	0.0 ± 0.0	-1.4 ± 2.0	4.0 ± 10.0	WC01926
WE3B	83.0	-3.3	0.0 ± 0.0	1.9 ± 3.2	18.0 ± 12.0	WC01927
WE4B	389.3	-2.9	0.6 ± 1.1	1.3 ± 3.0	0.7 ± 9.0	WC01928
WE5B	-183.0	-2.7	0.6 ± 1.1	-0.5 ± 2.4	-2.5 ± 9.0	WC01929
WF1A	-26.9	-2.7	0.0 ± 0.0	0.0 ± 2.6	0.7 ± 9.0	WC01930
WF2A	-154.1	-3.2	0.6 ± 1.1	-0.5 ± 2.4	2.9 ± 10.0	WC01931
WF3A	-246.6	-2.5	0.0 ± 0.0	0.0 ± 2.6	-2.0 ± 10.0	WC01932
WF4A	-148.3	-3.3	0.0 ± 0.0	0.9 ± 2.9	1.3 ± 11.0	WC01933
WF5A	-315.9	-2.7	0.0 ± 0.0	0.9 ± 2.9	1.4 ± 11.0	WC01934
WF1B	-136.7	-3.1	0.0 ± 0.0	0.0 ± 2.6	5.6 ± 10.0	WC01935
WF2B	-206.1	-3.3	0.6 ± 1.1	0.4 ± 2.7	6.2 ± 11.0	WC01936
WF3B	-200.3	-2.7	0.0 ± 0.0	-0.5 ± 2.4	-1.4 ± 9.0	WC01937
WF4B	48.3	-2.9	0.0 ± 0.0	0.0 ± 2.6	-0.9 ± 9.0	WC01938
WF5B	-321.7	-2.8	0.0 ± 0.0	0.5 ± 2.7	0.2 ± 10.0	WC01939

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.53 to 3.06 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 3.47 to 7.25 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 17.53 to 47.47 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 34	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm 34						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0 to 0.1	1.4 to 1.8	5.4 to 10.2	
(MDA =>)	332	-	3.06 *	7.25 *	46.29 *	
FA1	140.8	-3.7	3.7 ± 3.0	20.0 ± 6.9	2.4 ± 9.0	WC00420
FA2	111.9	-3.7	0.4 ± 1.3	0.9 ± 3.8	-0.7 ± 8.0	WC00421
FA3	-142.5	-3.7	-0.2 ± 0.7	0.4 ± 3.7	4.2 ± 9.0	WC00422
FA4	256.4	-3.7	-0.2 ± 0.7	-1.7 ± 3.2	0.3 ± 9.0	WC00423
FA5	71.4	-3.8	0.4 ± 1.3	0.9 ± 3.8	4.6 ± 10.0	WC00424
FA6	-119.4	-4.0	0.9 ± 1.7	0.4 ± 3.7	2.2 ± 9.0	WC00425
FA7	7.8	-4.0	-0.2 ± 0.7	-0.4 ± 3.5	2.7 ± 11.0	WC00426
FB1	129.2	-3.7	-0.2 ± 0.7	0.9 ± 3.8	4.3 ± 9.0	WC00427
FB2	71.4	-3.9	-0.2 ± 0.7	-0.4 ± 3.5	2.2 ± 9.0	WC00428
FB3	100.3	-3.4	-0.2 ± 0.7	0.9 ± 3.8	5.5 ± 9.0	WC00429
FB4	48.3	-3.7	-0.2 ± 0.7	-1.7 ± 3.2	-3.1 ± 8.0	WC00430
FB5	7.8	-3.4	-0.2 ± 0.7	1.3 ± 3.9	-4.2 ± 8.0	WC00431
FB6	158.1	-3.0	-0.2 ± 0.7	-0.9 ± 3.4	8.2 ± 10.0	WC00432
FB7	-44.2	-2.9	-0.2 ± 0.7	0.4 ± 3.7	8.6 ± 11.0	WC00433
FC1	54.1	-2.9	-0.2 ± 0.7	-1.7 ± 3.2	-2.7 ± 8.0	WC00434
FC2	-90.5	-3.0	-0.2 ± 0.7	-0.9 ± 3.4	-1.6 ± 8.0	WC00435
FC3	-3.8	-2.7	0.9 ± 1.7	-0.9 ± 3.4	9.5 ± 9.0	WC00436
FC4	770.9	-2.9	-0.2 ± 0.7	-0.4 ± 3.5	-3.3 ± 7.0	WC00437
FC5	135.0	-2.7	-0.2 ± 0.7	-1.3 ± 3.3	-0.2 ± 8.0	WC00438
FC6	77.2	-3.4	-0.2 ± 0.7	-0.4 ± 3.5	17.0 ± 11.0	WC00439
FC7	-78.9	-3.7	0.9 ± 1.7	-0.5 ± 3.5	1.3 ± 9.0	WC00440
FD1	146.5	-3.0	0.9 ± 1.7	4.3 ± 4.5	96.0 ± 31.0	WC00441
FD2	36.7	-2.7	-0.2 ± 0.7	0.9 ± 3.8	5.5 ± 10.0	WC00442
FD3	175.4	-2.3	0.4 ± 1.3	1.3 ± 3.9	31.0 ± 17.0	WC00443
FD4	106.1	-2.6	0.4 ± 1.3	0.0 ± 3.6	2.2 ± 9.0	WC00444
FD5	-15.3	-2.4	-0.2 ± 0.7	-0.9 ± 3.4	5.5 ± 10.0	WC00445
FD6	71.4	-2.5	-0.2 ± 0.7	0.9 ± 3.8	17.0 ± 11.0	WC00446
FD7	100.3	-3.2	-0.2 ± 0.7	0.4 ± 3.7	12.0 ± 10.0	WC00447
FE1	244.8	-2.9	0.4 ± 1.3	2.2 ± 4.1	85.0 ± 16.0	WC00448
FE2	279.5	-2.0	-0.2 ± 0.7	-0.9 ± 3.4	11.0 ± 9.0	WC00449
FE3	204.4	-2.9	0.4 ± 1.3	1.7 ± 4.0	-3.4 ± 8.0	WC00450
FE4	996.3	-1.2	0.6 ± 1.1	-0.9 ± 3.0	-2.7 ± 8.0	WC00451
FE5	2.0	-2.6	0.0 ± 0.0	0.4 ± 3.3	8.0 ± 9.0	WC00452
FE6	-26.9	-2.6	0.0 ± 0.0	-0.9 ± 2.9	7.2 ± 9.0	WC00453
FE7	187.0	-2.5	0.6 ± 1.1	2.1 ± 3.7	20.0 ± 11.0	WC00454
FF1	869.2	-2.0	0.6 ± 1.1	0.4 ± 3.3	19.0 ± 12.0	WC00455
FF2	707.3	-1.4	0.6 ± 1.1	0.8 ± 3.4	5.7 ± 11.0	WC00456
FF3	678.4	-0.6	0.0 ± 0.0	0.9 ± 3.4	2.9 ± 9.0	WC00457
FF4	915.4	-2.0	0.0 ± 0.0	3.5 ± 4.0	6.6 ± 10.0	WC00458
FF5	753.5	-1.5	0.0 ± 0.0	-0.4 ± 3.1	1.9 ± 9.0	WC00459
FF6	672.6	-1.8	1.1 ± 1.6	-0.9 ± 3.0	-2.8 ± 9.0	WC00460
FF7	851.8	-1.6	0.0 ± 0.0	1.7 ± 3.6	3.6 ± 10.0	WC00461
WA1A	-298.6	-4.2	0.0 ± 0.0	-0.4 ± 3.1	9.4 ± 9.0	WC00462
WA2A	-356.4	-3.7	0.0 ± 0.0	-0.4 ± 3.1	-4.9 ± 7.0	WC00463
WA3A	-217.6	-4.3	0.0 ± 0.0	1.7 ± 3.6	3.0 ± 8.0	WC00464
WA4A	-229.2	-3.9	0.0 ± 0.0	0.0 ± 3.2	2.6 ± 8.0	WC00465
WA5A	-281.2	-4.2	0.0 ± 0.0	2.6 ± 3.8	-1.5 ± 8.0	WC00466
WA6A	-183.0	-4.0	0.0 ± 0.0	0.9 ± 3.4	-1.9 ± 7.0	WC00467
WA7A	-275.5	-4.1	0.0 ± 0.0	0.4 ± 3.3	5.6 ± 8.0	WC00468

Walter Reed Army Institute of Research, Rm 34						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0 to 0.1	1.4 to 1.8	5.4 to 10.2	
(MDA =>)	332	-	3.06 *	7.25 *	46.29 *	
WA1B	-165.6	-4.0	0.6 ± 1.1	0.0 ± 3.2	-0.6 ± 8.0	WC00469
WA2B	-258.1	-3.8	0.0 ± 0.0	-2.2 ± 2.5	0.3 ± 8.0	WC00470
WA3B	-315.9	-4.0	0.0 ± 0.0	0.9 ± 3.4	2.1 ± 8.0	WC00471
WA4B	-281.2	-3.7	0.0 ± 0.0	-0.4 ± 3.1	2.1 ± 8.0	WC00472
WA5B	-304.4	-3.7	0.0 ± 0.0	0.0 ± 3.2	1.8 ± 9.0	WC00473
WA6B	-113.6	-3.8	0.0 ± 0.0	-1.7 ± 2.7	-1.1 ± 8.0	WC00474
WA7B	-315.9	-3.8	0.0 ± 0.0	-0.4 ± 3.1	2.9 ± 8.0	WC00475
WB1A	-327.5	-4.0	0.0 ± 0.0	1.7 ± 3.6	12.0 ± 9.0	WC00476
WB2A	-339.0	-3.9	0.0 ± 0.0	0.0 ± 3.2	3.9 ± 8.0	WC00477
WB3A	-258.1	-3.2	0.0 ± 0.0	1.7 ± 3.6	5.0 ± 9.0	WC00478
WB4A	-171.4	-3.2	0.0 ± 0.0	0.9 ± 3.4	4.6 ± 8.0	WC00479
WB5A	-119.4	-3.1	0.6 ± 1.1	-0.5 ± 3.1	-0.2 ± 8.0	WC00480
WB6A	-90.5	-2.3	0.6 ± 1.1	3.4 ± 4.0	-2.0 ± 8.0	WC00481
WB1B	-414.2	-3.6	0.6 ± 1.1	1.7 ± 3.6	0.7 ± 8.0	WC00482
WB2B	-339.0	-4.2	0.0 ± 0.0	0.0 ± 3.2	-0.6 ± 8.0	WC00483
WB3B	-177.2	-3.8	0.0 ± 0.0	0.0 ± 3.2	8.1 ± 9.0	WC00484
WB4B	-102.0	-2.9	0.6 ± 1.1	0.8 ± 3.4	-1.6 ± 8.0	WC00485
WB5B	-148.3	-2.7	0.6 ± 1.1	0.0 ± 3.2	7.1 ± 9.0	WC00486
WB6B	-26.9	-2.2	0.6 ± 1.1	2.1 ± 3.7	-1.1 ± 8.0	WC00487
WC1A	-125.2	-1.9	0.0 ± 0.0	3.5 ± 4.0	-0.2 ± 8.0	WC00488
WC2A	1557.1	-2.6	0.6 ± 1.1	1.7 ± 3.6	3.8 ± 8.0	WC00489
WC3A	-130.9	-2.6	0.0 ± 0.0	1.3 ± 3.5	-3.7 ± 7.0	WC00490
WC4A	-130.9	-1.4	0.0 ± 0.0	-0.9 ± 2.9	8.3 ± 9.0	WC00491
WC5A	-73.1	-1.1	0.0 ± 0.0	0.0 ± 3.2	1.1 ± 8.0	WC00492
WC6A	-130.9	-1.2	0.0 ± 0.0	0.0 ± 3.2	5.1 ± 8.0	WC00493
WC7A	-96.3	-1.8	0.0 ± 0.0	1.7 ± 3.6	4.2 ± 8.0	WC00494
WC1B	-130.9	-1.2	0.0 ± 0.0	-0.4 ± 3.1	-1.1 ± 8.0	WC00495
WC2B	-223.4	-1.1	0.6 ± 1.1	1.7 ± 3.6	-0.7 ± 8.0	WC00496
WC3B	-107.8	-1.2	0.6 ± 1.1	0.0 ± 3.2	-0.6 ± 8.0	WC00497
WC4B	-275.5	-1.4	0.0 ± 0.0	-1.3 ± 2.8	-4.3 ± 7.0	WC00498
WC5B	123.4	-0.3	0.0 ± 0.0	-1.3 ± 2.8	2.7 ± 9.0	WC00499
WC6B	54.1	-0.9	0.0 ± 0.0	-0.4 ± 3.1	0.3 ± 8.0	WC00500
WB7B	19.4	-0.8	0.0 ± 0.0	0.9 ± 3.4	0.5 ± 12.0	WC00501
WD1A	233.3	-1.8	0.0 ± 0.0	-2.2 ± 2.5	-10.0 ± 9.0	WC00502
WD2A	48.3	-2.3	0.0 ± 0.0	1.7 ± 3.6	-0.1 ± 10.0	WC00503
WD3A	25.1	-2.2	0.0 ± 0.0	0.9 ± 3.4	16.0 ± 15.0	WC00504
WD4A	152.3	-2.4	0.0 ± 0.0	0.9 ± 3.4	5.2 ± 12.0	WC00505
WD5A	-200.3	-3.4	0.0 ± 0.0	0.0 ± 3.2	-2.8 ± 11.0	WC00506
WD6A	-211.9	-4.4	0.0 ± 0.0	1.7 ± 3.6	-2.8 ± 11.0	WC00507
WD1B	-3.8	-2.5	0.0 ± 0.0	2.2 ± 3.7	3.8 ± 11.0	WC00508
WD2B	25.1	-2.8	0.0 ± 0.0	0.0 ± 3.2	1.5 ± 11.0	WC00509
WD3B	-90.5	-3.1	0.0 ± 0.0	1.7 ± 3.6	5.5 ± 12.0	WC00510
WD4B	-252.3	-3.1	0.0 ± 0.0	0.4 ± 3.3	-1.7 ± 10.0	WC00511
WD5B	-344.8	-4.0	0.0 ± 0.0	0.9 ± 3.4	-3.8 ± 10.0	WC00512
WD6B	-315.9	-4.7	0.0 ± 0.0	0.4 ± 3.3	-6.0 ± 10.0	WC00513
RCFA1	360.4	-4.1	0.0 ± 0.0	0.4 ± 3.3	-7.4 ± 9.0	WC00514
RCFA2	499.2	-4.0	0.6 ± 1.1	0.4 ± 3.3	-7.5 ± 9.0	WC00515
RCFA3	481.8	-3.9	1.7 ± 1.9	-0.1 ± 3.2	-4.2 ± 9.0	WC00516
RCFA4	516.5	-3.2	0.6 ± 1.1	-0.5 ± 3.1	-7.8 ± 9.0	WC00517

Walter Reed Army Institute of Research, Rm 34						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0 to 0.1	1.4 to 1.8	5.4 to 10.2	
(MDA =>)	332	-	3.06 *	7.25 *	46.29 *	
RCFA5	435.6	-3.6	0.0 ± 0.0	1.3 ± 3.5	-6.2 ± 10.0	WC00518
RCFA6	314.2	-3.3	1.1 ± 1.6	-0.5 ± 3.1	-3.8 ± 10.0	WC00519
RCFA7	476.1	-3.4	0.0 ± 0.0	0.0 ± 3.2	-5.1 ± 11.0	WC00520
RCFB1	383.6	-3.8	0.0 ± 0.0	-1.3 ± 2.8	-4.3 ± 10.0	WC00521
RCFB2	609.0	-3.1	0.0 ± 0.0	1.3 ± 3.5	-0.1 ± 10.0	WC00522
RCFB3	481.8	-3.2	0.6 ± 1.1	-1.3 ± 2.8	-6.9 ± 9.0	WC00523
RCFB4	799.8	-3.2	0.0 ± 0.0	0.0 ± 3.2	-9.3 ± 9.0	WC00524
RCFB5	372.0	-3.0	0.0 ± 0.0	0.4 ± 3.3	-6.3 ± 9.0	WC00525
RCFB6	435.6	-3.4	0.0 ± 0.0	0.9 ± 3.4	-7.5 ± 9.0	WC00526
RCFB7	337.3	-3.3	0.6 ± 1.1	1.3 ± 3.5	-1.2 ± 10.0	WC00527
RCFC1	348.9	-3.4	0.0 ± 0.0	0.9 ± 3.4	3.5 ± 11.0	WC00528
RCFC2	406.7	-3.4	0.0 ± 0.0	0.9 ± 3.4	0.4 ± 11.0	WC00529
RCFC3	458.7	-3.0	0.0 ± 0.0	-0.9 ± 2.9	-6.6 ± 10.0	WC00530
RCFC4	343.1	-2.8	0.6 ± 1.1	1.3 ± 3.5	-1.1 ± 10.0	WC00531
RCFC5	372.0	-2.9	0.0 ± 0.0	-1.3 ± 2.8	-1.7 ± 10.0	WC00532
RCFC6	262.2	-2.9	1.1 ± 1.6	1.2 ± 3.5	-3.9 ± 10.0	WC00533
RCFC7	325.8	-2.9	0.0 ± 0.0	0.9 ± 3.4	-7.2 ± 9.0	WC00534
RCFD1	470.3	-2.4	0.6 ± 1.1	0.0 ± 3.2	-8.4 ± 9.0	WC00535
RCFD2	256.4	-2.5	0.0 ± 0.0	3.0 ± 3.9	-0.6 ± 9.0	WC00536
RCFD3	452.9	-2.2	0.0 ± 0.0	-0.4 ± 3.1	-6.1 ± 10.0	WC00537
RCFD4	487.6	-2.6	0.0 ± 0.0	0.4 ± 3.3	-4.8 ± 9.0	WC00538
RCFD5	539.6	-2.4	0.0 ± 0.0	-0.9 ± 2.9	-1.2 ± 11.0	WC00539
RCFD6	493.4	-2.2	0.0 ± 0.0	1.3 ± 3.5	-2.3 ± 11.0	WC00540
RCFD7	458.7	-2.4	0.0 ± 0.0	-2.2 ± 2.5	-1.2 ± 11.0	WC00541
RCFE1	505.0	-2.3	0.0 ± 0.0	-0.9 ± 2.9	-5.4 ± 10.0	WC00542
RCFE2	360.4	-2.2	0.0 ± 0.0	1.7 ± 3.6	-2.2 ± 10.0	WC00543
RCFE3	204.4	-1.9	0.0 ± 0.0	1.7 ± 3.6	-7.0 ± 11.0	WC00544
RCFE4	481.8	-2.2	0.0 ± 0.0	-1.7 ± 2.7	-0.7 ± 11.0	WC00545
RCFE5	585.9	-2.1	0.0 ± 0.0	-1.3 ± 2.8	-4.3 ± 11.0	WC00546
RCFE6	464.5	-1.9	0.6 ± 1.1	2.6 ± 3.8	-7.3 ± 9.0	WC00547
RCFE7	632.1	-2.0	0.0 ± 0.0	1.7 ± 3.6	3.6 ± 11.0	WC00548
RCFF1	464.5	-2.3	0.6 ± 1.1	2.1 ± 3.7	-0.6 ± 10.0	WC00549
RCFF2	562.8	-1.7	0.0 ± 0.0	0.4 ± 3.3	-2.8 ± 10.0	WC00550
RCFF3	221.7	-2.1	0.6 ± 1.1	0.8 ± 3.4	-1.7 ± 11.0	WC00551
RCFF4	481.8	-2.4	0.0 ± 0.0	-0.4 ± 3.1	-4.9 ± 10.0	WC00552
RCFF5	609.0	-1.7	0.0 ± 0.0	-1.7 ± 2.7	-8.5 ± 10.0	WC00553
RCFF6	435.6	-2.1	0.6 ± 1.1	0.8 ± 3.4	-2.8 ± 11.0	WC00554
RCFF7	609.0	-2.2	0.0 ± 0.0	-0.4 ± 3.1	-4.0 ± 11.0	WC00555
RSFF2	389.4	-0.8	0.0 ± 0.0	-0.9 ± 2.9	-5.3 ± 9.0	WC00556
RSFF5	464.5	-1.2	0.6 ± 1.1	0.0 ± 3.2	1.5 ± 11.0	WC00557
RHFC7	285.3	-3.4	0.0 ± 0.0	1.3 ± 3.5	14.0 ± 13.0	WC00558
RHFD7	129.2	-4.3	0.6 ± 1.1	0.8 ± 3.4	-2.0 ± 12.0	WC00559

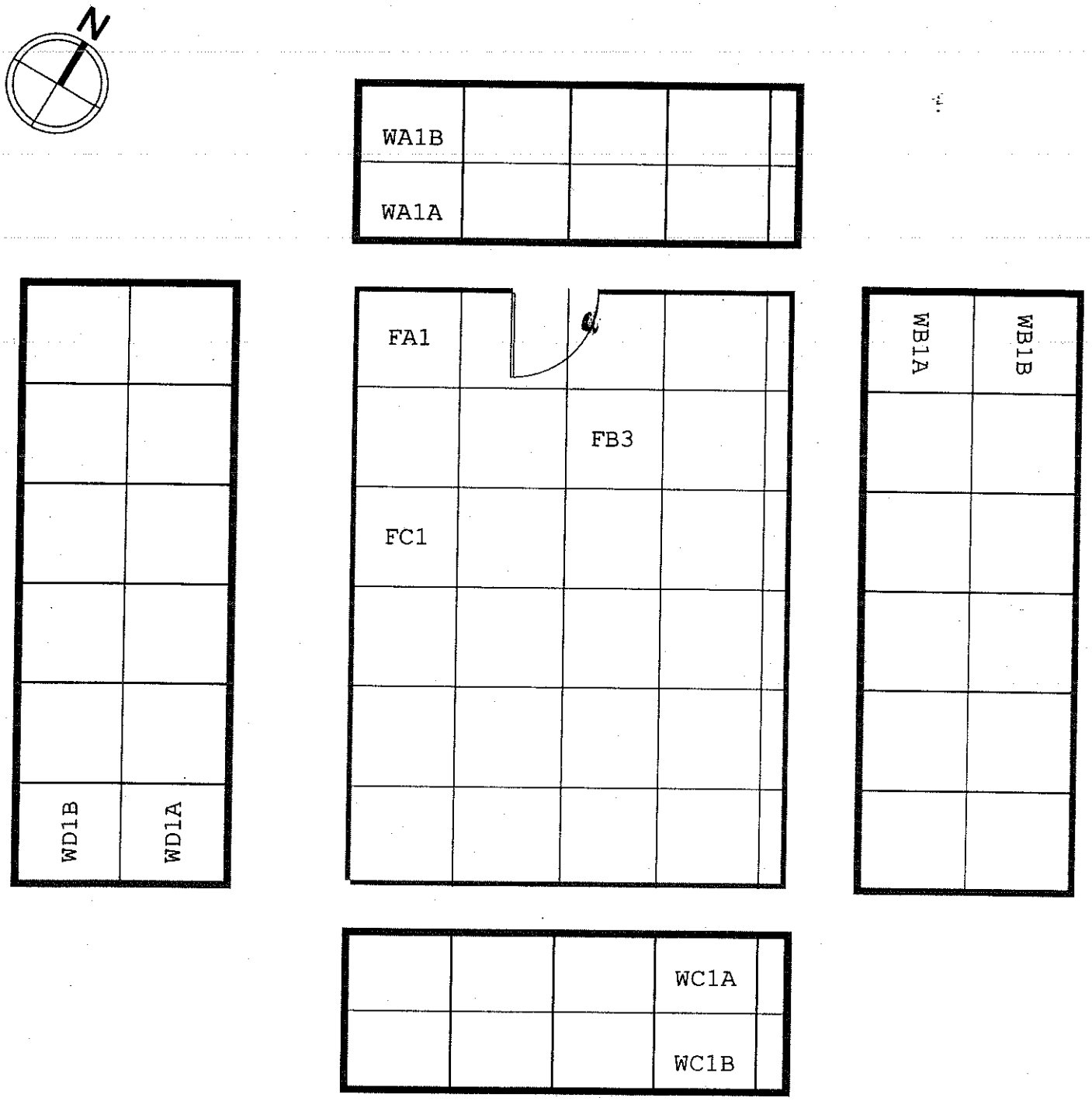
Walter Reed Army Institute of Research, Rm 34						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0 to 0.1	1.4 to 1.8	5.4 to 10.2	
(MDA =>)	332	-	3.06 *	7.25 *	46.29 *	

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.52 to 3.06 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 6.5 to 7.25 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 14.11 to 46.29 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 38	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm 38						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1	8.6	0.0	1.4 to 2.1	10.2	
(MDA =>)	305	-	1.53 *	7.78 *	40.36 *	
FA1	79.7	-3.8	0.0 ± 0.0	-0.9 ± 2.9	57.0 ± 17.0	WC00560
FA2	63.4	-3.5	0.0 ± 0.0	2.6 ± 3.8	88.0 ± 18.0	WC00561
FA3	30.9	-3.7	0.6 ± 1.1	1.3 ± 3.5	70.0 ± 18.0	WC00562
FB1	101.4	-2.9	1.1 ± 1.6	1.2 ± 3.5	16.0 ± 17.0	WC00563
FB2	14.6	-3.0	0.6 ± 1.1	0.0 ± 3.2	49.0 ± 17.0	WC00564
FB3	236.9	-2.3	1.7 ± 1.9	2.5 ± 3.8	72.0 ± 19.0	WC00565
FC1	25.5	-3.4	0.0 ± 0.0	0.0 ± 3.2	15.0 ± 13.0	WC00566
FC2	166.5	-3.4	0.0 ± 0.0	1.3 ± 3.5	31.0 ± 14.0	WC00567
FC3	231.5	-2.7	0.0 ± 0.0	-0.4 ± 3.1	49.0 ± 17.0	WC00568
FD1	74.3	-3.1	1.1 ± 1.6	0.4 ± 3.3	690.0 ± 42.0	WC00569
FD2	166.5	-2.8	0.6 ± 1.1	0.4 ± 3.3	96.0 ± 20.0	WC00570
FD3	90.5	-2.2	0.0 ± 0.0	0.4 ± 3.3	24.0 ± 14.0	WC00571
FE1	204.4	-3.3	0.6 ± 1.1	0.0 ± 3.2	29.0 ± 14.0	WC00572
FE2	280.3	-2.9	1.1 ± 1.6	3.0 ± 3.9	68.0 ± 18.0	WC00573
FE3	123.1	-2.7	0.6 ± 1.1	3.4 ± 4.0	9.3 ± 13.0	WC00574
FF1	-126.3	-2.6	0.0 ± 0.0	3.0 ± 3.9	31.0 ± 19.0	WC00575
FF2	96.0	-2.3	0.0 ± 0.0	1.7 ± 3.6	29.0 ± 14.0	WC00576
FF3	14.6	-1.7	0.0 ± 0.0	0.9 ± 3.4	15.0 ± 16.0	WC00577
WA1A	-137.2	-2.7	0.6 ± 1.1	-1.3 ± 2.8	-4.2 ± 9.0	WC00578
WA2A	-131.8	-3.3	0.0 ± 0.0	-2.2 ± 2.5	-3.8 ± 10.0	WC00579
WA3A	-191.4	-3.3	0.0 ± 0.0	1.3 ± 3.5	-6.1 ± 9.0	WC00580
WA1B	-202.2	-2.9	0.0 ± 0.0	0.0 ± 3.2	-3.7 ± 9.0	WC00581
WA2B	-131.8	-3.5	0.0 ± 0.0	1.7 ± 3.6	-1.6 ± 10.0	WC00582
WA3B	-104.6	-3.6	0.6 ± 1.1	-1.3 ± 2.8	-5.9 ± 9.0	WC00583
WB1A	-169.7	-3.4	1.7 ± 1.9	0.8 ± 3.4	4.6 ± 11.0	WC00584
WB2A	-148.0	-3.1	0.6 ± 1.1	2.6 ± 3.8	1.0 ± 11.0	WC00585
WB3A	-186.0	-2.7	0.0 ± 0.0	-0.4 ± 3.1	-4.8 ± 9.0	WC00586
WB4A	-191.4	-2.6	0.0 ± 0.0	1.7 ± 3.6	610.0 ± 38.0	WC00587
WB5A	-207.7	-2.6	0.0 ± 0.0	-0.9 ± 2.9	9.9 ± 11.0	WC00588
WB6A	-175.1	-2.4	0.0 ± 0.0	0.4 ± 3.3	15.0 ± 13.0	WC00589
WB1B	-28.7	-3.9	0.0 ± 0.0	2.2 ± 3.7	3.1 ± 11.0	WC00590
WB2B	-272.7	-4.1	0.0 ± 0.0	0.0 ± 3.2	3.2 ± 11.0	WC00591
WB3B	-186.0	-3.7	0.0 ± 0.0	-0.4 ± 3.1	22.0 ± 13.0	WC00592
WB4B	-299.8	-3.3	0.6 ± 1.1	-0.5 ± 3.1	44.0 ± 18.0	WC00593
WB5B	-88.4	-3.4	0.0 ± 0.0	1.3 ± 3.5	-0.7 ± 11.0	WC00594
WB6B	47.2	-2.5	0.0 ± 0.0	2.2 ± 3.7	-6.4 ± 9.0	WC00595
WC1A	-104.6	-2.1	0.0 ± 0.0	1.3 ± 3.5	16.0 ± 12.0	WC00596
WC2A	-202.2	-2.0	0.6 ± 1.1	-1.3 ± 2.8	13.0 ± 12.0	WC00597
WC3A	-12.5	-2.3	0.0 ± 0.0	0.9 ± 3.4	11.0 ± 12.0	WC00598
WC1B	-180.5	-2.2	0.0 ± 0.0	1.7 ± 3.6	-4.4 ± 10.0	WC00599
WC2B	-142.6	-2.4	0.0 ± 0.0	-0.4 ± 3.1	-1.9 ± 12.0	WC00600
WC3B	74.3	-2.9	0.0 ± 0.0	0.3 ± 4.0	-2.4 ± 15.0	WC00601
WD1A	-28.7	-2.6	0.0 ± 0.0	-0.2 ± 3.9	40.0 ± 15.0	WC00602
WD2A	-148.0	-2.9	0.0 ± 0.0	-3.2 ± 3.2	4.5 ± 11.0	WC00603
WD3A	-223.9	-3.1	0.0 ± 0.0	-1.5 ± 3.6	4.6 ± 11.0	WC00604
WD4A	-251.0	-2.6	0.0 ± 0.0	-0.2 ± 3.9	-3.2 ± 10.0	WC00605
WD5A	-158.9	-3.4	0.0 ± 0.0	-3.2 ± 3.2	-1.2 ± 10.0	WC00606
WD6A	-148.0	-3.4	0.6 ± 1.1	-3.3 ± 3.2	1.5 ± 11.0	WC00607
WD1B	-28.7	-2.8	0.0 ± 0.0	-1.9 ± 3.5	-4.2 ± 9.0	WC00608

Med Radn Surv No. 28-MF-6209-99, Facility Close-Out and Termination Survey Phase II, Building 500, WRAIR, WRAMC, Washington, DC, 10-15 May 99

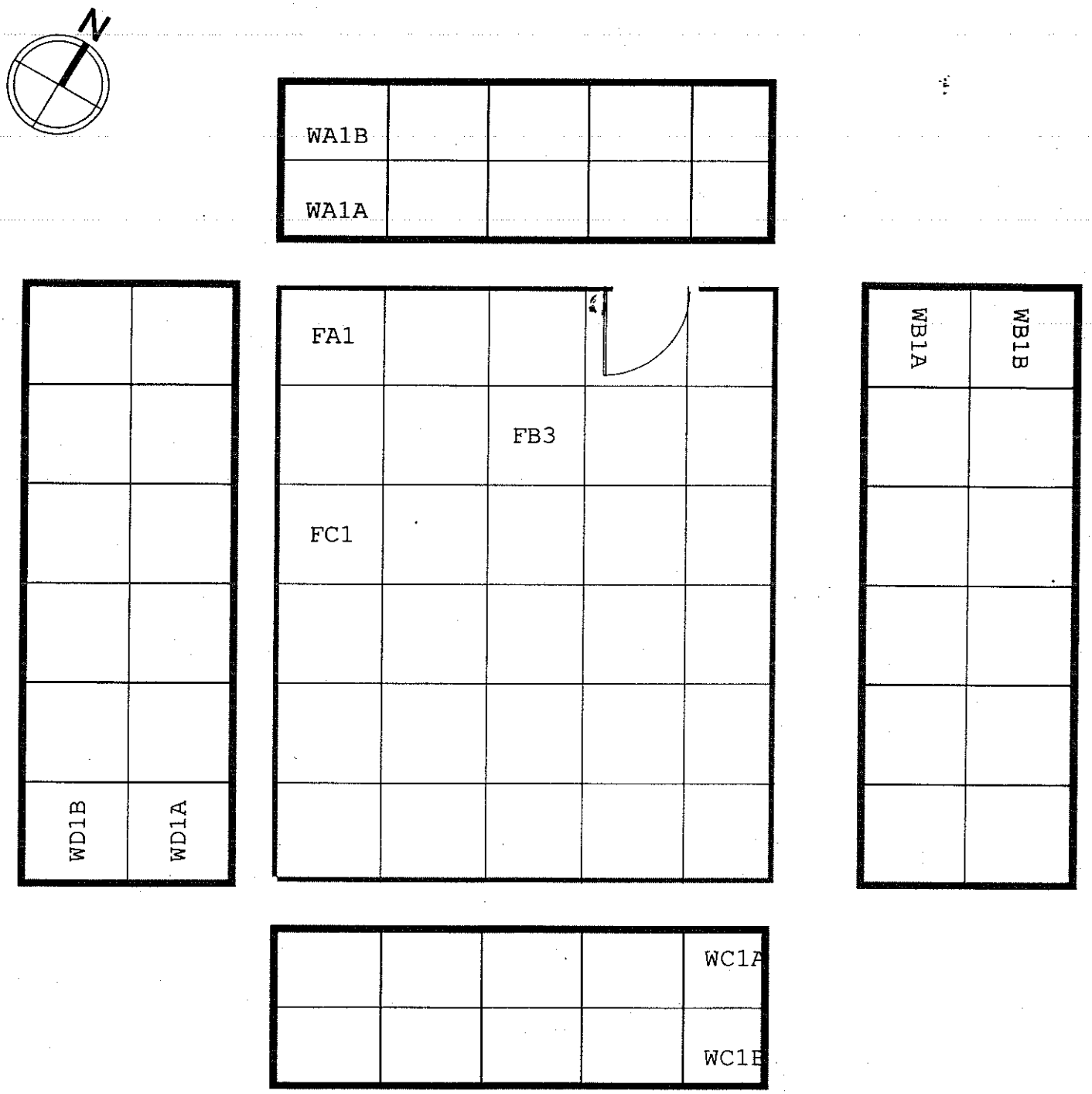
Walter Reed Army Institute of Research, Rm 38						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1	8.6	0.0	1.4 to 2.1	10.2	
(MDA =>)	305	-	1.53 *	7.78 *	40.36 *	
WD2B	-234.8	-2.8	0.0 ± 0.0	-3.7 ± 3.0	-5.8 ± 9.0	WC00609
WD3B	-223.9	-3.3	0.0 ± 0.0	-2.4 ± 3.4	-2.3 ± 11.0	WC00610
WD4B	-251.0	-3.7	0.0 ± 0.0	-1.0 ± 3.7	0.4 ± 10.0	WC00611
WD5B	-289.0	-3.1	0.0 ± 0.0	-1.9 ± 3.5	-2.7 ± 10.0	WC00612
WD6B	-272.7	-3.8	0.0 ± 0.0	-3.7 ± 3.0	-1.2 ± 10.0	WC00613
RCFA1	339.9	-3.7	0.0 ± 0.0	-1.0 ± 3.7	-2.6 ± 9.0	WC00614
RCFA2	508.0	-3.5	0.0 ± 0.0	-1.5 ± 3.6	-7.8 ± 9.0	WC00615
RCFA3	285.7	-3.4	0.0 ± 0.0	-2.4 ± 3.4	-1.1 ± 10.0	WC00616
RCFB1	258.6	-3.0	1.1 ± 1.6	-2.4 ± 3.4	-2.1 ± 9.0	WC00617
RCFB2	-55.8	-2.9	0.0 ± 0.0	-1.5 ± 3.6	-11.0 ± 9.0	WC00618
RCFB3	47.2	-3.6	0.0 ± 0.0	-1.0 ± 3.7	-3.2 ± 9.0	WC00619
RCFC1	318.3	-3.3	0.0 ± 0.0	-0.2 ± 3.9	-2.6 ± 9.0	WC00620
RCFC2	296.6	-3.2	0.0 ± 0.0	2.5 ± 4.4	-6.4 ± 9.0	WC00621
RCFC3	41.7	-3.1	0.0 ± 0.0	-1.5 ± 3.6	-5.3 ± 9.0	WC00622
RCFD1	480.9	-3.0	0.0 ± 0.0	-0.2 ± 3.9	3.0 ± 10.0	WC00623
RCFD2	367.1	-3.1	0.0 ± 0.0	-2.4 ± 3.4	2.5 ± 11.0	WC00624
RCFD3	611.0	-3.0	0.0 ± 0.0	-0.2 ± 3.9	-2.8 ± 10.0	WC00625
RCFE1	383.3	-2.6	0.6 ± 1.1	-0.2 ± 3.9	-7.6 ± 9.0	WC00626
RCFE2	421.3	-2.6	0.6 ± 1.1	-1.5 ± 3.6	-7.6 ± 11.0	WC00627
RCFE3	383.3	-2.4	1.1 ± 1.6	-0.2 ± 3.9	-4.0 ± 11.0	WC00628
RCFF1	583.9	-2.8	0.0 ± 0.0	-1.5 ± 3.6	-3.4 ± 11.0	WC00629
RCFF2	589.4	-2.3	0.6 ± 1.1	-1.1 ± 3.7	5.6 ± 11.0	WC00630
RCFF3	497.2	-2.8	0.0 ± 0.0	-1.9 ± 3.5	3.0 ± 11.0	WC00631
RSFF2	101.4	-1.9	0.0 ± 0.0	-1.0 ± 3.7	20.0 ± 13.0	WC00632
RHFB3	-7.0	-3.7	0.0 ± 0.0	-1.0 ± 3.7	24.0 ± 13.0	WC00633
RHFC3	-1.6	-4.2	0.0 ± 0.0	-0.6 ± 3.8	370.0 ± 30.0	WC00634
RHFD3	-142.6	-4.4	0.0 ± 0.0	-1.9 ± 3.5	14.0 ± 13.0	WC00635

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.52 to 1.53 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 6.5 to 7.78 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 24.71 to 40.36 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 40	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

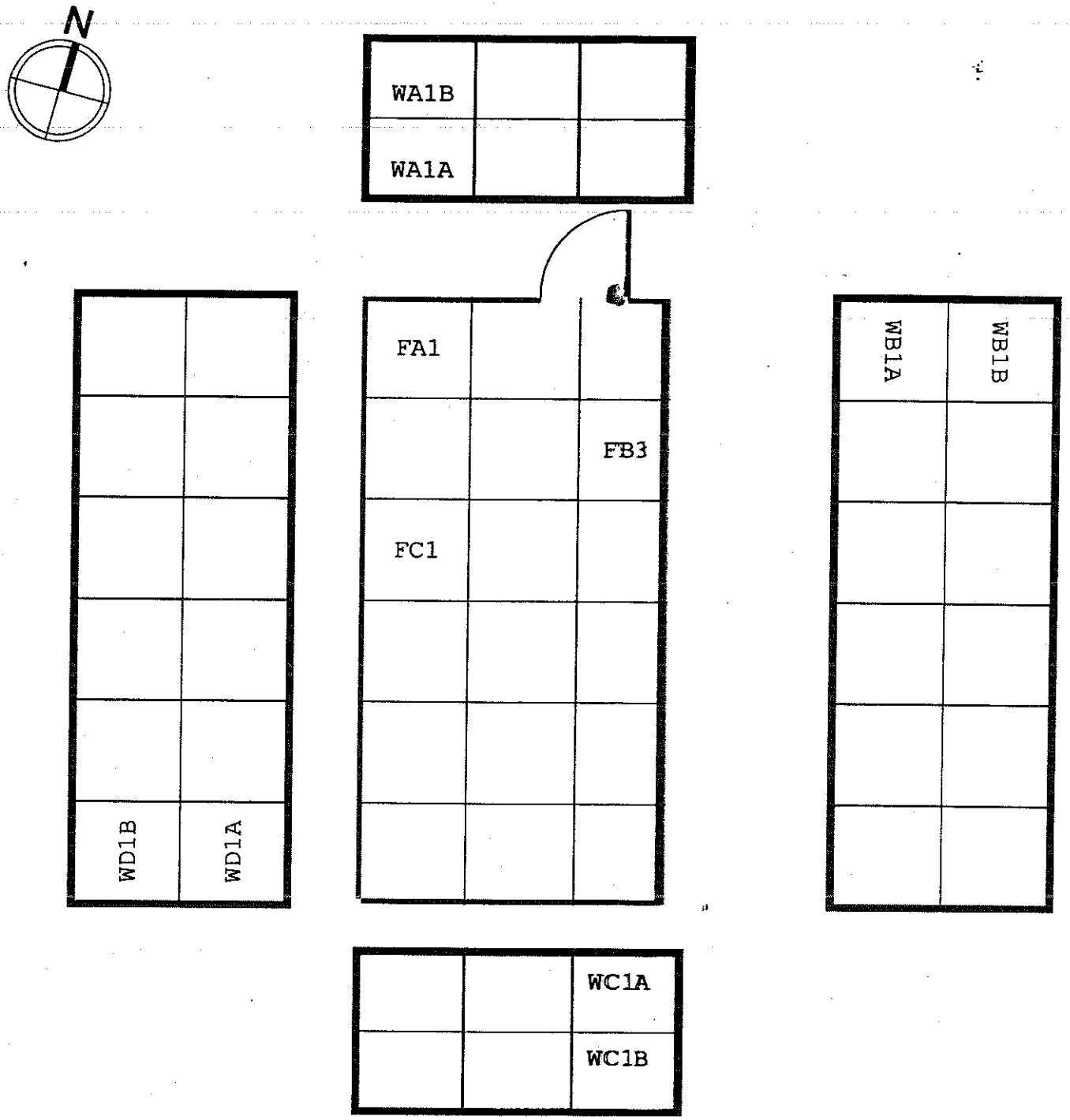
Walter Reed Army Institute of Research, Rm 40						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	2.1	10.2	
(MDA =>)	332	-	1.53	7.78	39.70 *	
FA1	239.0	-2.0	0.6 ± 1.1	11.0 ± 5.8	-0.6 ± 10.0	WC00636
FA2	94.5	-1.9	1.1 ± 1.6	0.2 ± 4.0	0.9 ± 10.0	WC00637
FA3	111.9	-3.1	0.6 ± 1.1	-1.1 ± 3.7	-0.1 ± 11.0	WC00638
FA4	7.8	-3.2	0.0 ± 0.0	0.3 ± 4.0	18.0 ± 15.0	WC00639
FA5	83.0	-3.4	0.0 ± 0.0	-1.9 ± 3.5	-4.4 ± 10.0	WC00640
FB1	175.4	-2.8	0.6 ± 1.1	-2.8 ± 3.3	-1.7 ± 11.0	WC00641
FB2	13.6	-2.1	0.0 ± 0.0	-2.8 ± 3.3	-3.7 ± 11.0	WC00642
FB3	77.2	-3.1	0.6 ± 1.1	3.3 ± 4.6	3.1 ± 11.0	WC00643
FB4	-9.5	-3.5	0.0 ± 0.0	1.6 ± 4.3	-5.6 ± 10.0	WC00644
FB5	-50.0	-3.6	0.0 ± 0.0	0.3 ± 4.0	2.7 ± 12.0	WC00645
FC1	94.5	-3.1	0.0 ± 0.0	0.3 ± 4.0	-6.4 ± 9.0	WC00646
FC2	169.7	-2.8	1.1 ± 1.6	-1.6 ± 3.6	-0.6 ± 11.0	WC00647
FC3	152.3	-3.1	0.6 ± 1.1	-1.5 ± 3.6	3.2 ± 11.0	WC00648
FC4	117.6	-3.3	0.0 ± 0.0	-0.2 ± 3.9	-2.2 ± 10.0	WC00649
FC5	181.2	-3.4	0.0 ± 0.0	-0.2 ± 3.9	9.0 ± 13.0	WC00650
FD1	626.4	-1.4	0.6 ± 1.1	2.9 ± 4.5	15.0 ± 13.0	WC00651
FD2	383.6	-2.8	0.0 ± 0.0	0.7 ± 4.1	3.3 ± 11.0	WC00652
FD3	163.9	-3.2	0.0 ± 0.0	-0.6 ± 3.8	14.0 ± 12.0	WC00653
FD4	163.9	-3.6	0.0 ± 0.0	1.6 ± 4.3	3.5 ± 12.0	WC00654
FD5	25.1	-3.2	0.0 ± 0.0	1.6 ± 4.3	1.6 ± 11.0	WC00655
FE1	169.7	-2.4	0.0 ± 0.0	-2.4 ± 3.4	-1.3 ± 11.0	WC00656
FE2	267.9	-2.3	1.1 ± 1.6	-2.0 ± 3.5	5.3 ± 12.0	WC00657
FE3	83.0	-2.6	1.1 ± 1.6	-3.8 ± 3.1	-1.2 ± 10.0	WC00658
FE4	152.3	-3.0	0.6 ± 1.1	-2.8 ± 3.3	-7.4 ± 10.0	WC00659
FE5	175.4	-3.1	0.6 ± 1.1	0.3 ± 4.0	3.6 ± 13.0	WC00660
FF1	1158.2	-1.8	0.0 ± 0.0	0.7 ± 4.1	11.0 ± 12.0	WC00661
FF2	955.9	0.0	0.0 ± 0.0	-1.5 ± 3.6	-0.6 ± 11.0	WC00662
FF3	955.9	-2.2	0.0 ± 0.0	-1.5 ± 3.6	9.7 ± 12.0	WC00663
FF4	262.2	-1.9	0.0 ± 0.0	-1.0 ± 3.7	-4.7 ± 11.0	WC00664
FF5	1100.4	-2.0	0.0 ± 0.0	0.7 ± 4.1	19.0 ± 13.0	WC00665
WA1A	-217.6	-3.4	0.0 ± 0.0	-3.7 ± 3.0	-6.7 ± 10.0	WC00666
WA2A	-304.4	-2.6	0.0 ± 0.0	2.0 ± 4.3	-5.3 ± 9.0	WC00667
WA3A	-130.9	-2.6	0.6 ± 1.1	-3.3 ± 3.2	-8.9 ± 9.0	WC00668
WA4A	-333.3	-2.6	0.0 ± 0.0	-0.2 ± 3.9	-2.7 ± 9.0	WC00669
WA5A	-171.4	-2.8	0.0 ± 0.0	-0.2 ± 3.9	0.9 ± 10.0	WC00670
WA1B	-142.5	-2.3	0.6 ± 1.1	-1.1 ± 3.7	-2.7 ± 10.0	WC00671
WA2B	-223.4	-2.4	0.6 ± 1.1	-1.5 ± 3.6	-4.2 ± 9.0	WC00672
WA3B	-211.9	-2.6	0.0 ± 0.0	-1.9 ± 3.5	-0.1 ± 10.0	WC00673
WA4B	-171.4	-3.4	0.6 ± 1.1	-1.5 ± 3.6	0.4 ± 10.0	WC00674
WA5B	-159.8	-3.6	0.0 ± 0.0	-1.0 ± 3.7	-5.1 ± 11.0	WC00675
WB1A	-327.5	-3.6	0.0 ± 0.0	0.7 ± 4.1	1.0 ± 11.0	WC00676
WB2A	-235.0	-3.1	0.6 ± 1.1	-0.2 ± 3.9	-0.1 ± 10.0	WC00677
WB3A	-217.6	-3.6	0.0 ± 0.0	-1.5 ± 3.6	-1.7 ± 10.0	WC00678
WB4A	-240.8	-3.6	0.6 ± 1.1	-0.6 ± 3.8	-3.2 ± 10.0	WC00679
WB5A	-188.7	-3.4	0.0 ± 0.0	0.3 ± 4.0	12.0 ± 12.0	WC00680
WB6A	-188.7	-2.4	0.0 ± 0.0	0.3 ± 4.0	-2.3 ± 10.0	WC00681
WB1B	-78.9	-3.1	0.0 ± 0.0	-2.8 ± 3.3	-8.5 ± 9.0	WC00682
WB2B	-310.1	-3.4	0.0 ± 0.0	-0.6 ± 3.8	-7.1 ± 11.0	WC00683
WB3B	-217.6	-2.7	0.0 ± 0.0	-1.5 ± 3.6	-8.5 ± 9.0	WC00684

Walter Reed Army Institute of Research, Rm 40						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	2.1	10.2	
(MDA =>)	332	-	1.53	7.78	39.70 *	
WB4B	-263.9	-3.0	0.6 ± 1.1	-2.4 ± 3.4	-3.7 ± 9.0	WC00685
WB5B	-183.0	-3.2	0.0 ± 0.0	-2.8 ± 3.3	-7.4 ± 9.0	WC00686
WB6B	-206.1	-2.8	0.6 ± 1.1	-2.4 ± 3.4	-1.1 ± 10.0	WC00687
WC1A	-142.5	-2.9	0.0 ± 0.0	-1.9 ± 3.5	-4.3 ± 10.0	WC00688
WC2A	-73.1	-2.7	0.0 ± 0.0	-1.0 ± 3.7	-4.3 ± 9.0	WC00689
WC3A	-229.2	-3.3	0.0 ± 0.0	-1.5 ± 3.6	-5.5 ± 10.0	WC00690
WC4A	-50.0	-1.3	0.0 ± 0.0	-3.2 ± 3.2	-4.7 ± 9.0	WC00691
WC5A	-21.1	-1.1	0.0 ± 0.0	-1.9 ± 3.5	4.7 ± 11.0	WC00692
WC1B	123.4	-1.8	0.6 ± 1.1	-1.5 ± 3.6	-0.1 ± 12.0	WC00693
WC2B	135.0	-1.2	0.0 ± 0.0	-0.6 ± 3.8	2.8 ± 12.0	WC00694
WC3B	94.5	-1.1	0.0 ± 0.0	-1.0 ± 3.7	0.5 ± 12.0	WC00695
WC4B	13.6	-2.3	0.0 ± 0.0	-0.6 ± 3.8	-4.7 ± 11.0	WC00696
WC5B	36.7	-1.2	1.7 ± 1.9	32.0 ± 8.4	170.0 ± 23.0	WC00697
WD1A	-130.9	1.1	0.0 ± 0.0	0.3 ± 4.0	-6.5 ± 9.0	WC00698
WD2A	-50.0	-0.3	0.0 ± 0.0	2.9 ± 4.5	-2.8 ± 10.0	WC00699
WD3A	-148.3	-2.1	0.0 ± 0.0	-1.0 ± 3.7	0.4 ± 10.0	WC00700
WD4A	-292.8	-3.0	0.0 ± 0.0	-3.2 ± 3.2	-1.1 ± 10.0	WC00701
WD5A	-183.0	-2.7	0.0 ± 0.0	-1.5 ± 3.6	-5.5 ± 10.0	WC00702
WD6A	-258.1	-2.6	0.0 ± 0.0	-0.2 ± 3.9	5.9 ± 11.0	WC00703
WD1B	-113.6	-1.0	0.0 ± 0.0	-3.7 ± 3.0	0.4 ± 10.0	WC00704
WD2B	-67.3	-1.1	0.6 ± 1.1	-0.2 ± 3.9	-8.2 ± 9.0	WC00705
WD3B	-55.8	-2.2	0.6 ± 1.1	-2.8 ± 3.3	-2.2 ± 10.0	WC00706
WD4B	-148.3	-2.7	0.0 ± 0.0	-1.5 ± 3.6	-7.4 ± 9.0	WC00707
WD5B	-38.4	-2.9	0.0 ± 0.0	-0.2 ± 3.9	-2.3 ± 11.0	WC00708
WD6B	-102.0	-2.7	0.0 ± 0.0	1.2 ± 4.2	-3.8 ± 10.0	WC00709
RCFA1	325.8	-2.9	0.6 ± 1.1	-1.5 ± 3.6	2.0 ± 11.0	WC00710
RCFA2	273.7	-2.7	0.0 ± 0.0	0.7 ± 4.1	-1.7 ± 10.0	WC00711
RCFA3	476.1	-2.7	0.0 ± 0.0	0.3 ± 4.0	-4.8 ± 9.0	WC00712
RCFA4	337.3	-3.0	0.0 ± 0.0	-1.0 ± 3.7	-4.8 ± 9.0	WC00713
RCFA5	400.9	-3.7	0.0 ± 0.0	0.3 ± 4.0	6.7 ± 11.0	WC00714
RCFB1	458.7	-3.8	0.0 ± 0.0	-1.0 ± 3.7	1.4 ± 10.0	WC00715
RCFB2	395.1	-2.9	0.0 ± 0.0	-1.5 ± 3.6	-5.1 ± 9.0	WC00716
RCFB3	-9.5	-3.1	0.6 ± 1.1	-2.0 ± 3.5	-5.4 ± 9.0	WC00717
RCFB4	354.7	-2.9	0.6 ± 1.1	1.1 ± 4.2	-5.3 ± 9.0	WC00718
RCFB5	291.1	-3.3	0.0 ± 0.0	-1.5 ± 3.6	4.6 ± 11.0	WC00719
RCFC1	539.6	-2.4	0.6 ± 1.1	-2.4 ± 3.4	2.9 ± 10.0	WC00720
RCFC2	585.9	-2.8	0.0 ± 0.0	-1.9 ± 3.5	-3.2 ± 9.0	WC00721
RCFC3	568.5	-3.1	0.0 ± 0.0	-2.4 ± 3.4	0.4 ± 10.0	WC00722
RCFC4	308.4	-2.8	2.3 ± 2.2	-1.2 ± 3.7	4.0 ± 10.0	WC00723
RCFC5	637.9	-3.0	0.0 ± 0.0	-1.5 ± 3.6	0.4 ± 10.0	WC00724
RCFD1	557.0	-2.0	0.0 ± 0.0	-4.1 ± 2.9	-1.7 ± 10.0	WC00725
RCFD2	452.9	-2.5	0.0 ± 0.0	-1.5 ± 3.6	-1.7 ± 10.0	WC00726
RCFD3	516.5	-2.4	0.0 ± 0.0	-2.8 ± 3.3	-2.7 ± 10.0	WC00727
RCFD4	215.9	-3.2	0.0 ± 0.0	-2.8 ± 3.3	-2.1 ± 9.0	WC00728
RCFD5	505.0	-3.0	0.6 ± 1.1	-0.6 ± 3.8	-10.0 ± 9.0	WC00729
RCFE1	505.0	-2.0	1.1 ± 1.6	0.2 ± 4.0	-6.9 ± 9.0	WC00730
RCFE2	568.5	-1.9	0.0 ± 0.0	-1.5 ± 3.6	4.0 ± 11.0	WC00731
RCFE3	395.1	-2.6	0.0 ± 0.0	-1.0 ± 3.7	-3.2 ± 10.0	WC00732
RCFE4	672.6	-2.2	0.6 ± 1.1	-2.4 ± 3.4	-4.7 ± 9.0	WC00733

Walter Reed Army Institute of Research, Rm 40						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	2.1	10.2	
(MDA =>)	332	-	1.53	7.78	39.70 *	
RCFE5	539.6	-2.6	0.0 ± 0.0	-1.0 ± 3.7	-2.2 ± 10.0	WC00734
RCFF1	533.9	-0.8	0.0 ± 0.0	-1.5 ± 3.6	1.0 ± 11.0	WC00735
RCFF2	557.0	-1.1	0.0 ± 0.0	-2.8 ± 3.3	-4.4 ± 10.0	WC00736
TCFF3	557.0	-2.5	0.0 ± 0.0	-1.9 ± 3.5	-1.7 ± 10.0	WC00737
RCFF4	522.3	-2.2	0.0 ± 0.0	0.3 ± 4.0	-1.7 ± 10.0	WC00738
RCFF5	585.9	-2.1	0.0 ± 0.0	-1.0 ± 3.7	-0.1 ± 11.0	WC00739
RSFF1	2591.9	1.9	0.6 ± 1.1	1.1 ± 4.2	-8.1 ± 9.0	WC00740
RRFF4	840.2	-2.8	1.1 ± 1.6	0.2 ± 3.9	2.6 ± 11.0	WC00741
B004	464.5	-2.0	0.0 ± 0.0	-0.6 ± 3.8	460.0 ± 35.0	WC00742

* Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 28.73 to 39.7 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 42	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm42						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	1.7 to 2.1	9.6 to 10.2	
(MDA =>)	332	-	1.54 *	7.78 *	40.42 *	
FA1	210.1	-0.3	0.0 ± 0.0	2.0 ± 4.3	1.1 ± 12.0	WC00743
FA2	239.0	0.1	1.1 ± 1.6	0.7 ± 4.1	3.4 ± 12.0	WC00744
FB1	100.3	0.2	0.6 ± 1.1	-1.1 ± 3.7	-1.8 ± 11.0	WC00745
FB2	117.6	-0.4	0.0 ± 0.0	-1.5 ± 3.6	5.6 ± 15.0	WC00746
FC1	244.8	-0.2	0.0 ± 0.0	-1.9 ± 3.5	5.6 ± 13.0	WC00747
FC2	267.9	-0.7	0.0 ± 0.0	-1.5 ± 3.6	12.0 ± 13.0	WC00748
FD1	77.2	-0.5	0.0 ± 0.0	-3.7 ± 3.0	7.1 ± 13.0	WC00749
FD2	129.2	-0.8	0.0 ± 0.0	-1.0 ± 3.7	40.0 ± 15.0	WC00750
FE1	210.1	-1.3	2.3 ± 2.2	-1.2 ± 3.3	2.7 ± 12.0	WC00751
FE2	106.1	-1.6	0.0 ± 0.0	0.3 ± 3.5	1.1 ± 12.0	WC00752
FF1	320.0	1.3	0.0 ± 0.0	-2.7 ± 2.7	-5.1 ± 11.0	WC00753
FF2	94.5	0.6	0.6 ± 1.1	0.2 ± 3.5	2.1 ± 11.0	WC00754
WA1A	-9.5	0.5	0.0 ± 0.0	-1.5 ± 3.1	3.1 ± 11.0	WC00755
WA2A	-246.6	0.0	0.0 ± 0.0	2.0 ± 3.9	0.4 ± 10.0	WC00756
WA1B	-130.9	0.8	0.0 ± 0.0	1.6 ± 3.8	-1.6 ± 9.0	WC00757
WA2B	-183.0	-0.6	0.6 ± 1.1	-0.6 ± 3.3	-3.7 ± 9.0	WC00758
WB1A	-206.1	-1.0	0.0 ± 0.0	-0.2 ± 3.4	-6.0 ± 10.0	WC00759
WB2A	-102.0	-1.4	0.6 ± 1.1	-1.1 ± 3.2	-5.8 ± 9.0	WC00760
WB3A	-142.5	-1.6	0.0 ± 0.0	-1.0 ± 3.2	530.0 ± 34.0	WC00761
WB4A	-44.2	-1.5	0.0 ± 0.0	-1.5 ± 3.1	71.0 ± 16.0	WC00762
WB5A	-183.0	-1.5	0.0 ± 0.0	-1.0 ± 3.2	28.0 ± 13.0	WC00763
WB6A	-78.9	-1.0	0.0 ± 0.0	-0.2 ± 3.4	4.2 ± 11.0	WC00764
WB1A	-96.3	-0.8	0.0 ± 0.0	1.6 ± 3.8	8.0 ± 12.0	WC00765
WB2B	-50.0	-1.2	0.6 ± 1.1	2.0 ± 3.9	6.8 ± 11.0	WC00766
WB3B	-154.1	-0.6	0.6 ± 1.1	1.5 ± 3.8	-8.0 ± 9.0	WC00767
WB4B	7.8	-0.1	0.0 ± 0.0	0.3 ± 3.5	-1.1 ± 10.0	WC00768
WB5B	-194.5	-0.5	0.6 ± 1.1	0.7 ± 3.6	-4.6 ± 9.0	WC00769
WB6B	-61.6	-0.6	0.0 ± 0.0	-0.2 ± 3.4	5.0 ± 11.0	WC00770
WC1A	-67.3	-0.2	0.0 ± 0.0	-1.0 ± 3.2	-6.4 ± 9.0	WC00771
WC2A	19.4	-0.1	0.6 ± 1.1	-0.2 ± 3.4	-3.2 ± 9.0	WC00772
WC1B	83.0	-0.4	1.1 ± 1.6	0.2 ± 3.6	-4.4 ± 12.0	WC00773
WC2B	175.4	1.0	0.6 ± 1.1	0.2 ± 3.5	-0.1 ± 10.0	WC00774
WD1A	-55.8	0.0	0.0 ± 0.0	0.7 ± 3.6	-1.7 ± 10.0	WC00775
WD2A	59.8	0.0	0.0 ± 0.0	-2.3 ± 2.9	-6.7 ± 9.0	WC00776
WD3A	123.4	0.2	1.1 ± 1.6	-0.2 ± 3.4	-4.1 ± 9.0	WC00777
WD4A	94.5	0.3	0.0 ± 0.0	0.7 ± 3.6	-3.2 ± 10.0	WC00778
WD5A	-73.1	-0.5	0.0 ± 0.0	1.6 ± 3.8	-3.2 ± 9.0	WC00779
WD6A	2.0	-0.2	0.0 ± 0.0	0.3 ± 3.5	-0.1 ± 10.0	WC00780
WD1B	192.8	3.6	0.0 ± 0.0	-0.2 ± 3.4	-8.8 ± 9.0	WC00781
WD2B	452.9	4.0	0.6 ± 1.1	2.4 ± 4.0	-0.1 ± 10.0	WC00782
WD3B	973.2	2.9	0.0 ± 0.0	0.7 ± 3.6	-3.1 ± 9.0	WC00783
WD4B	435.6	3.3	0.0 ± 0.0	-0.2 ± 3.4	0.4 ± 10.0	WC00784
WD5B	1244.9	2.4	0.0 ± 0.0	1.6 ± 3.8	-5.9 ± 9.0	WC00785
WD6B	210.1	1.7	0.0 ± 0.0	-1.0 ± 3.2	-3.1 ± 9.0	WC00786
RCFA1	412.5	1.1	0.0 ± 0.0	-0.2 ± 3.4	-5.1 ± 9.0	WC00787
RCFA2	435.6	0.3	0.0 ± 0.0	2.0 ± 3.9	-3.2 ± 9.0	WC00788
RCFB1	620.6	0.1	0.6 ± 1.1	-1.5 ± 3.1	0.9 ± 10.0	WC00789
RCFB2	666.8	-0.9	0.0 ± 0.0	-1.0 ± 3.2	-2.7 ± 10.0	WC00790
RCFC1	539.6	0.5	0.6 ± 1.1	2.8 ± 4.1	-3.1 ± 9.0	WC00791

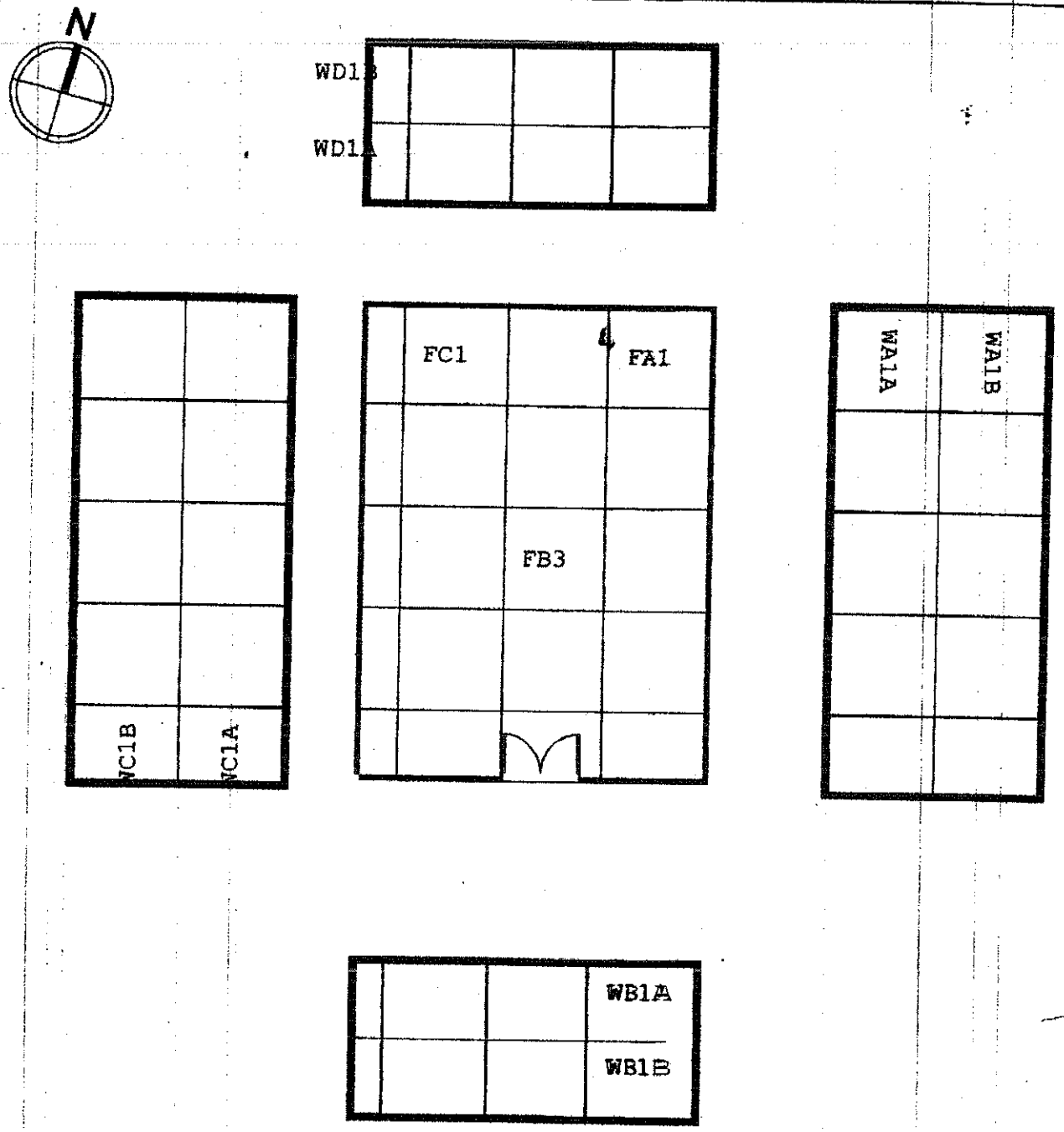
Walter Reed Army Institute of Research, Rm42						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	1.7 to 2.1	9.6 to 10.2	
(MDA =>)	332	-	1.54 *	7.78 *	40.42 *	
RCFC2	689.9	-0.4	0.0 ± 0.0	-1.9 ± 3.0	-1.6 ± 10.0	WC00792
RCFD1	585.9	1.8	0.0 ± 0.0	0.3 ± 3.5	-2.1 ± 9.0	WC00793
RCFD2	505.0	0.2	0.0 ± 0.0	-0.2 ± 3.4	-6.8 ± 9.0	WC00794
RCFE1	643.7	2.0	0.0 ± 0.0	-2.3 ± 2.9	-1.1 ± 9.0	WC00795
RCFE2	505.0	1.0	0.6 ± 1.1	-1.1 ± 3.2	2.0 ± 11.0	WC00796
RCFF1	661.0	2.3	0.0 ± 0.0	1.1 ± 3.7	-5.6 ± 9.0	WC00797
RCFF2	412.5	1.0	0.0 ± 0.0	0.7 ± 3.6	-0.1 ± 10.0	WC00798
RSFE1	383.6	2.8	0.6 ± 1.1	-0.6 ± 3.3	2.6 ± 11.0	WC00799
RSFF2	-3.8	0.1	0.0 ± 0.0	-0.2 ± 3.4	4.7 ± 12.0	WC00800
RHFC2	48.3	0.1	0.0 ± 0.0	1.1 ± 3.7	9.1 ± 12.0	WC00801
RHFD2	152.3	-1.4	0.6 ± 1.1	-1.5 ± 3.1	-2.6 ± 10.0	WC00802
RHFE2	48.3	-1.9	0.0 ± 0.0	-1.9 ± 3.0	9.3 ± 13.0	WC00803
B005	30.9	0.8	0.0 ± 0.0	-0.6 ± 3.3	5.4 ± 13.0	WC00804

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.53 to 1.54 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 6.99 to 7.78 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 27.98 to 40.42 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 41A	DATE 04 APR 99 DRAWN D. COLLINS APPROVED SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

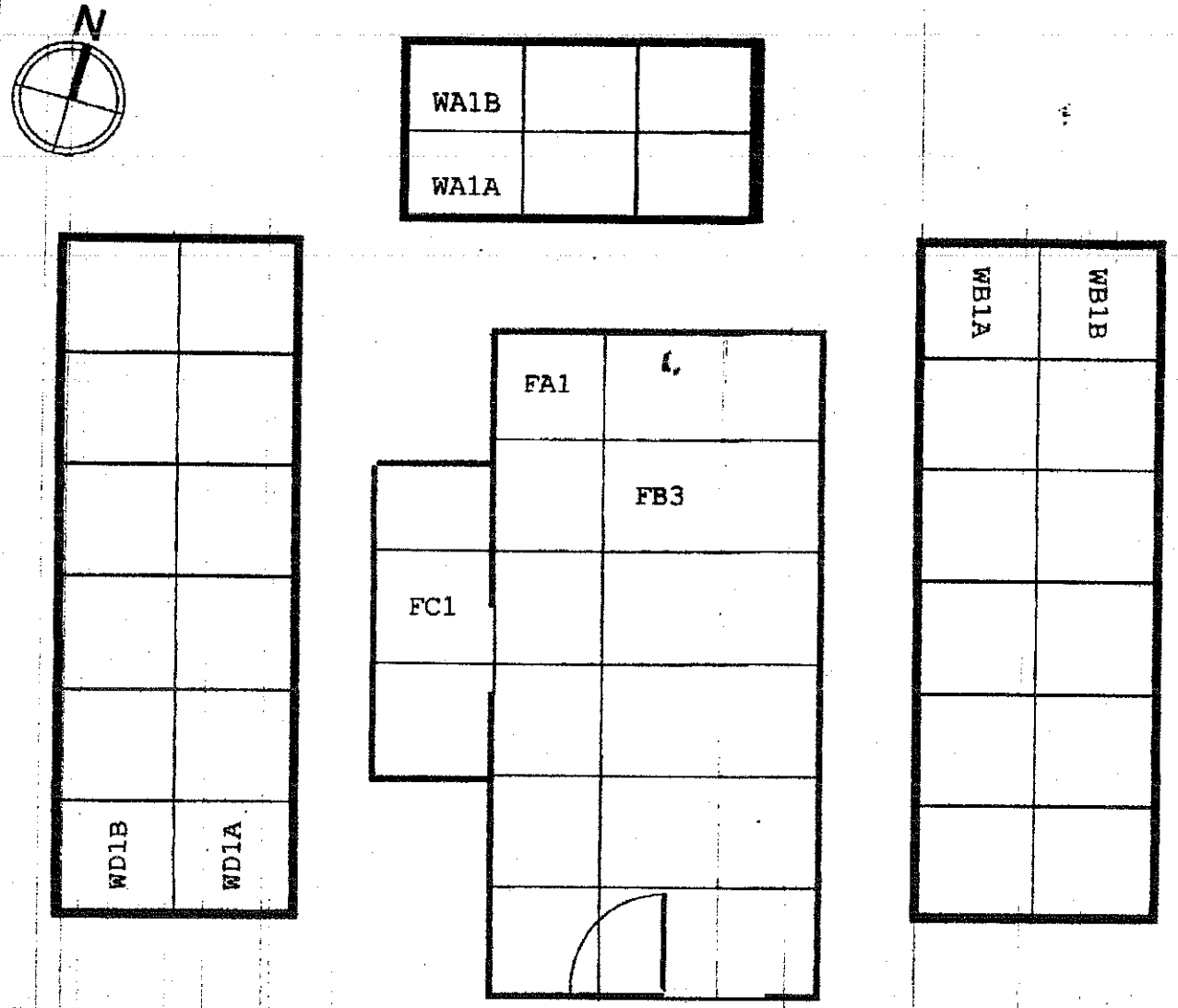
Med Radn Surv No. 28-MF-6209-99, Facility Close-Out and Termination Survey
Phase II, Building 500, WRAIR, WRAMC, Washington, DC, 10-15 May 99

Walter Reed Army Institute of Research, Rm41A						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	215.5	11.5	0.0	1.7	9.6	
(MDA =>)	332	-	1.54	6.99	41.70	
FA1	412.5	-3.1	0.0 ± 0.0	4.2 ± 4.4	22.0 ± 18.0	WC00805
FA2	163.9	-3.3	0.0 ± 0.0	1.6 ± 3.8	6.3 ± 12.0	WC00806
FA3	458.7	-3.0	0.0 ± 0.0	-0.2 ± 3.4	4.0 ± 13.0	WC00807
FA4	244.8	-2.0	1.1 ± 1.6	2.4 ± 4.0	-4.8 ± 13.0	WC00808
FA5	412.5	-1.1	0.0 ± 0.0	2.0 ± 3.9	6.6 ± 14.0	WC00809
FB1	400.9	-3.9	0.6 ± 1.1	-0.6 ± 3.3	4.1 ± 11.0	WC00810
FB2	320.0	-2.9	0.6 ± 1.1	1.5 ± 3.8	4.1 ± 13.0	WC00811
FB3	395.1	-2.9	0.0 ± 0.0	-1.5 ± 3.1	5.0 ± 14.0	WC00812
FB4	279.5	-3.3	0.6 ± 1.1	2.0 ± 3.9	5.5 ± 15.0	WC00813
FB5	262.2	-1.4	0.6 ± 1.1	-1.5 ± 3.1	8.7 ± 15.0	WC00814
FC1	320.0	-3.7	0.0 ± 0.0	0.7 ± 3.6	9.5 ± 16.0	WC00815
FC2	447.1	-3.5	0.6 ± 1.1	0.7 ± 3.6	7.8 ± 15.0	WC00816
FC3	481.8	-2.8	0.0 ± 0.0	2.4 ± 4.0	15.0 ± 17.0	WC00817
FC4	418.2	-2.7	0.0 ± 0.0	-0.2 ± 3.4	2.0 ± 18.0	WC00818
FC4	441.4	0.2	0.6 ± 1.1	-1.1 ± 3.2	23.0 ± 26.0	WC00819
FD1	302.6	-2.6	1.1 ± 1.6	1.1 ± 3.7	28.0 ± 21.0	WC00820
FD2	447.1	-3.7	0.0 ± 0.0	0.3 ± 3.5	3.7 ± 14.0	WC00821
FD3	262.2	-3.0	0.0 ± 0.0	2.0 ± 3.9	22.0 ± 24.0	WC00822
FD4	354.7	-2.2	0.0 ± 0.0	0.7 ± 3.6	15.0 ± 17.0	WC00823
FD5	487.6	-0.5	0.0 ± 0.0	4.6 ± 4.4	1.0 ± 17.0	WC00824
WA1A	83.0	-3.4	0.0 ± 0.0	2.0 ± 3.9	-9.8 ± 14.0	WC00825
WA2A	88.7	-2.8	0.0 ± 0.0	-1.5 ± 3.1	0.7 ± 11.0	WC00826
WA3A	94.5	-1.7	0.6 ± 1.1	-1.9 ± 3.0	2.3 ± 11.0	WC00827
WA4A	308.4	-2.3	0.0 ± 0.0	-1.9 ± 3.0	-2.7 ± 11.0	WC00828
WA5A	331.5	-2.1	0.6 ± 1.1	0.2 ± 3.5	2.6 ± 12.0	WC00829
WA1B	-26.9	-3.1	0.0 ± 0.0	-1.0 ± 3.2	-1.6 ± 11.0	WC00830
WA2B	65.6	-2.7	0.0 ± 0.0	1.6 ± 3.6	1.5 ± 13.0	WC00831
WA3B	175.4	-1.7	0.0 ± 0.0	0.7 ± 3.6	7.3 ± 12.0	WC00832
WA4B	227.5	-1.2	0.6 ± 1.1	-1.1 ± 3.2	-1.1 ± 12.0	WC00833
WA5B	198.6	-0.9	0.0 ± 0.0	-1.9 ± 3.0	-0.5 ± 12.0	WC00834
WB1A	1129.3	-0.5	0.0 ± 0.0	0.3 ± 3.5	-3.5 ± 11.0	WC00835
WB2A	-9.5	-1.6	0.0 ± 0.0	1.1 ± 3.7	4.6 ± 11.0	WC00836
WB3A	967.4	-2.0	0.0 ± 0.0	-1.0 ± 3.2	1.7 ± 15.0	WC00837
WB4A	1077.3	-1.3	0.0 ± 0.0	0.3 ± 3.5	3.6 ± 11.0	WC00838
WB1B	1198.7	-0.8	1.7 ± 1.9	-1.1 ± 3.2	-4.0 ± 11.0	WC00839
WB2B	-44.2	-1.4	0.6 ± 1.1	-1.1 ± 3.2	-4.8 ± 11.0	WC00840
WB3B	1331.6	-0.6	0.6 ± 1.1	-1.1 ± 3.2	-3.9 ± 11.0	WC00841
WB4B	1129.3	-0.2	0.6 ± 1.1	-0.2 ± 3.4	3.6 ± 11.0	WC00842
WC1A	2.0	-0.2	0.0 ± 0.0	-0.6 ± 3.3	15.0 ± 17.0	WC00843
WC2A	106.1	-3.3	1.7 ± 1.9	1.5 ± 3.9	0.1 ± 13.0	WC00844
WC3A	88.7	-3.0	1.7 ± 1.9	1.5 ± 3.9	7.7 ± 13.0	WC00845
WC4A	-171.4	-3.5	0.6 ± 1.1	-1.1 ± 3.2	-2.8 ± 11.0	WC00846
WC5A	-96.3	-4.1	0.0 ± 0.0	0.3 ± 3.5	-6.8 ± 11.0	WC00847
WC1B	42.5	-0.6	0.0 ± 0.0	-1.0 ± 3.2	6.7 ± 12.0	WC00848
WC2B	36.7	-2.8	0.0 ± 0.0	1.1 ± 3.7	4.8 ± 12.0	WC00849
WC3B	2.0	-3.5	0.0 ± 0.0	0.3 ± 3.5	-4.3 ± 12.0	WC00850
WC4B	-21.1	-3.6	0.0 ± 0.0	-1.5 ± 3.1	1.3 ± 11.0	WC00851
WC5B	-67.3	-3.9	0.0 ± 0.0	0.7 ± 3.6	0.1 ± 12.0	WC00852
WD1A	-32.7	-4.0	0.6 ± 1.1	0.7 ± 3.6	5.8 ± 13.0	WC00853

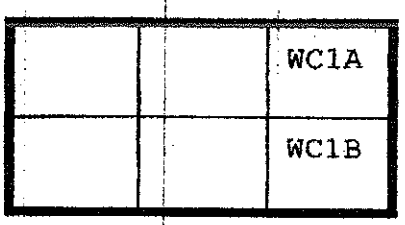
Walter Reed Army Institute of Research, Rm41A						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>)	215.5	11.5	0.0	1.7	9.6	
(MDA =>)	332	-	1.54	6.99	41.70 *	
WD2A	-21.1	-4.8	0.0 ± 0.0	1.1 ± 3.7	-0.4 ± 10.0	WC00854
WD3A	-130.9	-4.7	1.1 ± 1.6	0.2 ± 3.6	-7.1 ± 9.0	WC00855
WD4A	94.5	-3.5	0.0 ± 0.0	2.0 ± 3.9	0.7 ± 12.0	WC00856
WD1B	-15.3	-3.2	0.6 ± 1.1	-1.5 ± 3.1	2.9 ± 11.0	WC00857
WD2B	221.7	-3.2	0.0 ± 0.0	0.7 ± 3.6	10.0 ± 12.0	WC00858
WD3B	65.6	-3.6	0.0 ± 0.0	-1.0 ± 3.2	5.0 ± 11.0	WC00859
WD4B	117.6	-3.3	0.6 ± 1.1	-1.5 ± 3.1	0.1 ± 11.0	WC00860
RCFA1	360.4	-3.5	0.0 ± 0.0	-0.6 ± 3.3	0.1 ± 9.0	WC00861
RCFA2	372.0	-1.8	0.0 ± 0.0	1.1 ± 3.7	1.1 ± 9.0	WC00862
RCFA3	302.6	-2.7	0.0 ± 0.0	2.0 ± 3.9	-1.9 ± 9.0	WC00863
RCFA4	348.9	-1.2	0.0 ± 0.0	1.6 ± 3.8	-0.9 ± 9.0	WC00864
RCFA5	331.5	-0.6	0.6 ± 1.1	-0.6 ± 3.3	-2.1 ± 10.0	WC00865
RCFB1	447.1	-2.3	0.0 ± 0.0	0.7 ± 3.6	13.0 ± 11.0	WC00866
RCFB2	221.7	-2.4	0.0 ± 0.0	-2.3 ± 2.9	-4.0 ± 9.0	WC00867
RCFB3	273.7	-2.6	0.0 ± 0.0	1.1 ± 3.7	13.0 ± 12.0	WC00868
RCFB4	215.9	-2.0	0.6 ± 1.1	-1.9 ± 3.0	-2.4 ± 9.0	WC00869
RCFB5	493.4	-1.4	0.6 ± 1.1	2.8 ± 4.1	1.2 ± 10.0	WC00870
RCFC1	267.9	-3.3	0.0 ± 0.0	1.6 ± 3.8	0.1 ± 10.0	WC00871
RCFC2	204.4	-2.7	0.0 ± 0.0	1.6 ± 3.8	-7.3 ± 9.0	WC00872
RCFC3	181.2	-3.2	0.0 ± 0.0	-0.6 ± 3.3	-4.8 ± 9.0	WC00873
RCFC4	250.6	-1.7	0.0 ± 0.0	-0.2 ± 3.4	4.7 ± 10.0	WC00874
RCFC5	406.7	-0.8	0.0 ± 0.0	-0.6 ± 3.3	-3.0 ± 9.0	WC00875
RCFD1	244.8	-2.7	0.0 ± 0.0	-1.5 ± 3.1	-4.2 ± 10.0	WC00876
RCFD2	291.1	-2.9	0.0 ± 0.0	1.6 ± 3.8	-11.0 ± 8.0	WC00877
RCFD3	163.9	-3.1	0.6 ± 1.1	-0.2 ± 3.4	-1.0 ± 10.0	WC00878
RCFD4	279.5	-2.3	0.0 ± 0.0	-0.6 ± 3.3	-3.1 ± 9.0	WC00879
RCFD5	308.4	0.1	0.6 ± 1.1	1.5 ± 3.8	-0.4 ± 9.0	WC00880
B006	0.0	-1.6	0.0 ± 0.0	0.7 ± 3.6	-0.4 ± 9.0	WC00881

* Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 15.85 to 41.7 dpm

GRAPHICAL ILLUSTRATION



Closet located on west wall included walls, E through H. Radiation levels in this closet were elevated due to the counting geometry invloved (i.e.,cinder block construction with floor space less than one meter wide).



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 41	DATE 04 APR 99
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	DRAWN D. COLLINS APPROVED _____ SCALE NTS

Med Radn Surv No. 28-MF-6209-99, Facility Close-Out and Termination Phase II, Building 500, WRAIR, WRAMC, Washington, DC, 10-15 May 99

Walter Reed Army Institute of Research, Rm41						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	292.3	8.6 to 17.3	0.0 to 0.2	1.6 to 1.7	9.6	
(MDA =>)	384	-	4.13 *	6.99 *	40.63 *	
FA1	108.7	2.7	0.0 ± 0.0	-0.2 ± 3.4	4.9 ± 11.0	WC00882
FA2	114.5	2.2	0.0 ± 0.0	-0.6 ± 3.3	0.1 ± 10.0	WC00883
FA3	33.5	1.6	0.0 ± 0.0	-0.2 ± 3.4	2.9 ± 11.0	WC00884
FB1	-6.9	3.6	0.6 ± 1.1	-1.1 ± 3.2	0.1 ± 10.0	WC00885
FB2	247.4	0.0	0.6 ± 1.1	0.2 ± 3.5	-2.6 ± 10.0	WC00886
FB3	-6.9	2.9	0.0 ± 0.0	-0.6 ± 3.3	-1.5 ± 10.0	WC00887
FB4	-174.6	1.5	0.0 ± 0.0	0.3 ± 3.5	-6.4 ± 9.0	WC00888
FC1	241.6	-1.2	0.0 ± 0.0	0.3 ± 3.5	1.2 ± 10.0	WC00889
FC2	154.9	3.0	0.6 ± 1.1	1.1 ± 3.7	2.6 ± 10.0	WC00890
FC3	-47.4	1.0	0.0 ± 0.0	1.6 ± 3.8	-3.1 ± 10.0	WC00891
FC4	-12.7	1.1	0.0 ± 0.0	-2.3 ± 2.9	2.6 ± 10.0	WC00892
FD1	189.6	7.2	1.1 ± 1.6	0.2 ± 3.6	3.4 ± 11.0	WC00893
FD2	85.6	3.9	0.6 ± 1.1	0.7 ± 3.6	-1.5 ± 10.0	WC00894
FD3	-47.4	1.8	0.0 ± 0.0	1.1 ± 3.7	-6.9 ± 9.0	WC00895
FD4	-157.2	1.0	0.0 ± 0.0	0.7 ± 3.6	-7.5 ± 9.0	WC00896
FE1	27.7	4.2	0.0 ± 0.0	-1.5 ± 3.1	-3.2 ± 10.0	WC00897
FE2	-105.2	2.6	0.0 ± 0.0	0.7 ± 3.6	-6.9 ± 9.0	WC00898
FE3	-290.2	1.2	0.0 ± 0.0	1.1 ± 3.7	-1.5 ± 10.0	WC00899
FF1	-41.6	2.2	0.0 ± 0.0	-0.6 ± 3.3	-3.2 ± 10.0	WC00900
FF2	-191.9	0.8	-0.6 ± 1.1	0.4 ± 3.5	0.6 ± 10.0	WC00901
FF3	-145.7	0.3	-0.6 ± 1.1	-1.3 ± 3.1	-2.5 ± 9.0	WC00902
WA1A	-41.6	-3.1	-0.6 ± 1.1	-0.4 ± 3.3	2.2 ± 10.0	WC00903
WA2A	-244.0	3.3	-0.6 ± 1.1	1.7 ± 3.8	-0.9 ± 9.0	WC00904
WA3A	-197.7	1.6	0.0 ± 1.6	1.3 ± 3.7	-5.2 ± 9.0	WC00905
WA1B	-134.1	3.4	0.0 ± 1.6	1.7 ± 3.8	-7.0 ± 13.0	WC00906
WA2B	-215.0	2.8	0.0 ± 1.6	0.0 ± 3.4	-1.7 ± 11.0	WC00907
WA3B	-197.7	0.8	0.0 ± 1.6	1.7 ± 3.8	-5.6 ± 12.0	WC00908
WB1A	-538.8	0.4	-0.6 ± 1.1	0.4 ± 3.5	-1.5 ± 9.0	WC00909
WB2A	-475.2	-0.2	-0.6 ± 1.1	-0.4 ± 3.3	-7.6 ± 9.0	WC00910
WB3A	-440.5	-0.8	-0.6 ± 1.1	-0.9 ± 3.2	-1.5 ± 9.0	WC00911
WB4A	-469.4	-0.6	0.0 ± 1.6	0.9 ± 3.6	-3.0 ± 9.0	WC00912
WB5A	-405.8	-0.9	-0.6 ± 1.1	0.4 ± 3.5	-3.5 ± 9.0	WC00913
WB6A	-434.7	-1.4	0.0 ± 1.6	-0.9 ± 3.2	4.6 ± 10.0	WC00914
WB1B	-324.9	1.0	-0.6 ± 1.1	0.0 ± 3.4	-3.5 ± 9.0	WC00915
WB2B	-440.5	0.8	-0.6 ± 1.1	0.0 ± 3.4	-9.2 ± 8.0	WC00916
WB3B	-353.8	1.1	-0.6 ± 1.1	-0.4 ± 3.3	6.7 ± 10.0	WC00917
WB4B	-388.5	0.0	0.6 ± 1.9	-1.8 ± 3.0	3.8 ± 10.0	WC00918
WB5B	-440.5	0.1	-0.6 ± 1.1	-0.9 ± 3.2	3.2 ± 10.0	WC00919
WB6B	-371.1	-0.8	0.0 ± 1.6	-0.4 ± 3.3	-3.5 ± 9.0	WC00920
WC1A	-353.8	-0.9	-0.6 ± 1.1	2.2 ± 3.9	-4.0 ± 9.0	WC00921
WC2A	-446.3	0.0	0.6 ± 1.9	0.4 ± 3.5	1.6 ± 10.0	WC00922
WC3A	-330.7	2.6	-0.6 ± 1.1	-0.9 ± 3.2	-3.5 ± 9.0	WC00923
WC1B	-324.9	0.5	-0.6 ± 1.1	1.7 ± 3.8	-7.3 ± 9.0	WC00924
WC2B	-434.7	0.7	-0.6 ± 1.1	-1.3 ± 3.1	0.1 ± 9.0	WC00925
WC3B	-255.5	1.8	-0.6 ± 1.1	1.7 ± 3.8	-1.4 ± 9.0	WC00926
WD1A	681.0	3.1	-0.6 ± 1.1	1.3 ± 3.7	-1.0 ± 10.0	WC00927
WD2A	854.4	4.2	0.0 ± 1.6	0.0 ± 3.4	9.3 ± 11.0	WC00928
WD3A	871.8	4.9	-0.6 ± 1.1	-0.4 ± 3.3	2.7 ± 10.0	WC00929
WD4A	866.0	4.4	0.0 ± 1.6	-1.3 ± 3.1	0.6 ± 9.0	WC00930

Walter Reed Army Institute of Research, Rm41						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	292.3	8.6 to 17.3	0.0 to 0.2	1.6 to 1.7	9.6	
(MDA =>)	384	-	4.13 *	6.99 *	40.63 *	
WD5A	889.1	-2.8	0.6 ± 1.9	0.8 ± 3.6	-3.7 ± 10.0	WC00931
WD1B	-168.8	1.8	-0.6 ± 1.1	0.9 ± 3.6	1.6 ± 10.0	WC00932
WD2B	-128.3	2.4	-0.6 ± 1.1	0.0 ± 3.4	1.1 ± 9.0	WC00933
WD3B	-160.4	3.3	-0.6 ± 1.1	0.4 ± 3.5	5.2 ± 10.0	WC00934
WD4B	-134.1	3.1	0.0 ± 1.6	-0.4 ± 3.3	1.1 ± 9.0	WC00935
WD5B	102.9	-2.9	-0.6 ± 1.1	0.9 ± 3.6	0.6 ± 9.0	WC00936
WE1A	507.6	3.3	-0.6 ± 1.1	0.0 ± 3.4	4.6 ± 10.0	WC00937
WE1B	889.1	1.4	-0.6 ± 1.1	0.0 ± 3.4	-3.5 ± 9.0	WC00938
WF1A	542.2	1.3	0.6 ± 1.9	0.0 ± 3.4	-3.5 ± 9.0	WC00939
WF2A	368.8	0.9	0.0 ± 1.6	-0.9 ± 3.2	2.6 ± 10.0	WC00940
WF1B	605.8	1.0	-0.6 ± 1.1	0.0 ± 3.4	-0.4 ± 9.0	WC00941
WF2B	565.4	1.4	0.0 ± 1.6	1.3 ± 3.7	-3.4 ± 9.0	WC00942
WG1A	287.9	0.6	-0.6 ± 1.1	0.0 ± 3.4	-2.5 ± 9.0	WC00943
WG1B	981.6	0.9	-0.6 ± 1.1	0.0 ± 3.4	4.2 ± 10.0	WC00944
WH1A	472.9	0.3	0.0 ± 1.6	1.3 ± 3.7	1.7 ± 10.0	WC00945
WH2A	259.0	2.5	-0.6 ± 1.1	-2.6 ± 2.7	-2.5 ± 9.0	WC00946
WH3A	727.2	4.8	0.0 ± 1.6	0.9 ± 3.6	-8.3 ± 9.0	WC00947
WH1B	530.7	1.3	-0.6 ± 1.1	0.0 ± 3.4	-1.4 ± 9.0	WC00948
WH2B	345.7	-0.2	-0.6 ± 1.1	-1.7 ± 2.9	-0.9 ± 9.0	WC00949
WH3B	576.9	4.4	-0.6 ± 1.1	2.2 ± 3.9	-0.9 ± 9.0	WC00950
RCFA1	467.1	4.0	-0.6 ± 1.1	0.0 ± 3.4	-4.1 ± 9.0	WC00951
RCFA2	299.4	1.7	0.0 ± 1.6	-2.2 ± 2.8	-4.0 ± 9.0	WC00952
RCFA3	264.8	0.4	-0.6 ± 1.1	0.0 ± 3.4	-4.0 ± 9.0	WC00953
RCFB1	380.4	1.0	-0.6 ± 1.1	0.0 ± 3.4	1.6 ± 9.0	WC00954
RCFB2	432.4	3.9	-0.6 ± 1.1	-0.4 ± 3.3	-1.4 ± 9.0	WC00955
RCFB3	264.8	1.8	-0.6 ± 1.1	-1.3 ± 3.1	-4.3 ± 9.0	WC00956
RCFB4	27.7	0.4	0.0 ± 1.6	-0.9 ± 3.2	-0.4 ± 9.0	WC00957
RCFC1	409.3	2.3	-0.6 ± 1.1	0.0 ± 3.4	-1.9 ± 9.0	WC00958
RCFC2	548.0	3.4	0.0 ± 1.6	-0.9 ± 3.2	4.3 ± 10.0	WC00959
RCFC3	316.8	0.8	-0.6 ± 1.1	2.2 ± 3.9	2.2 ± 10.0	WC00960
RCFC4	79.8	0.5	-0.6 ± 1.1	-2.2 ± 2.8	1.1 ± 9.0	WC00961
RCFD1	322.6	2.5	0.0 ± 1.6	-0.4 ± 3.3	0.1 ± 9.0	WC00962
RCFD2	368.8	3.0	0.6 ± 1.9	-0.5 ± 3.3	-0.4 ± 9.0	WC00963
RCFD3	172.3	0.6	-0.6 ± 1.1	-0.4 ± 3.3	1.1 ± 9.0	WC00964
RCFD4	339.9	-0.9	0.0 ± 1.6	0.9 ± 3.6	-6.7 ± 10.0	WC00965
RCFE1	172.3	1.7	0.6 ± 1.9	-0.9 ± 3.2	-1.4 ± 9.0	WC00966
RCFE2	108.7	1.6	0.6 ± 1.9	0.0 ± 3.4	-0.9 ± 9.0	WC00967
RCFE3	131.8	-0.7	0.0 ± 1.6	-1.3 ± 3.1	-4.5 ± 9.0	WC00968
RCFF1	160.7	1.2	0.0 ± 1.6	2.2 ± 3.9	-2.5 ± 9.0	WC00969
RCFF2	108.7	0.1	0.0 ± 1.6	-0.4 ± 3.3	-1.4 ± 9.0	WC00970
RCFF3	-35.8	-0.5	0.6 ± 1.9	-0.5 ± 3.3	1.1 ± 10.0	WC00971

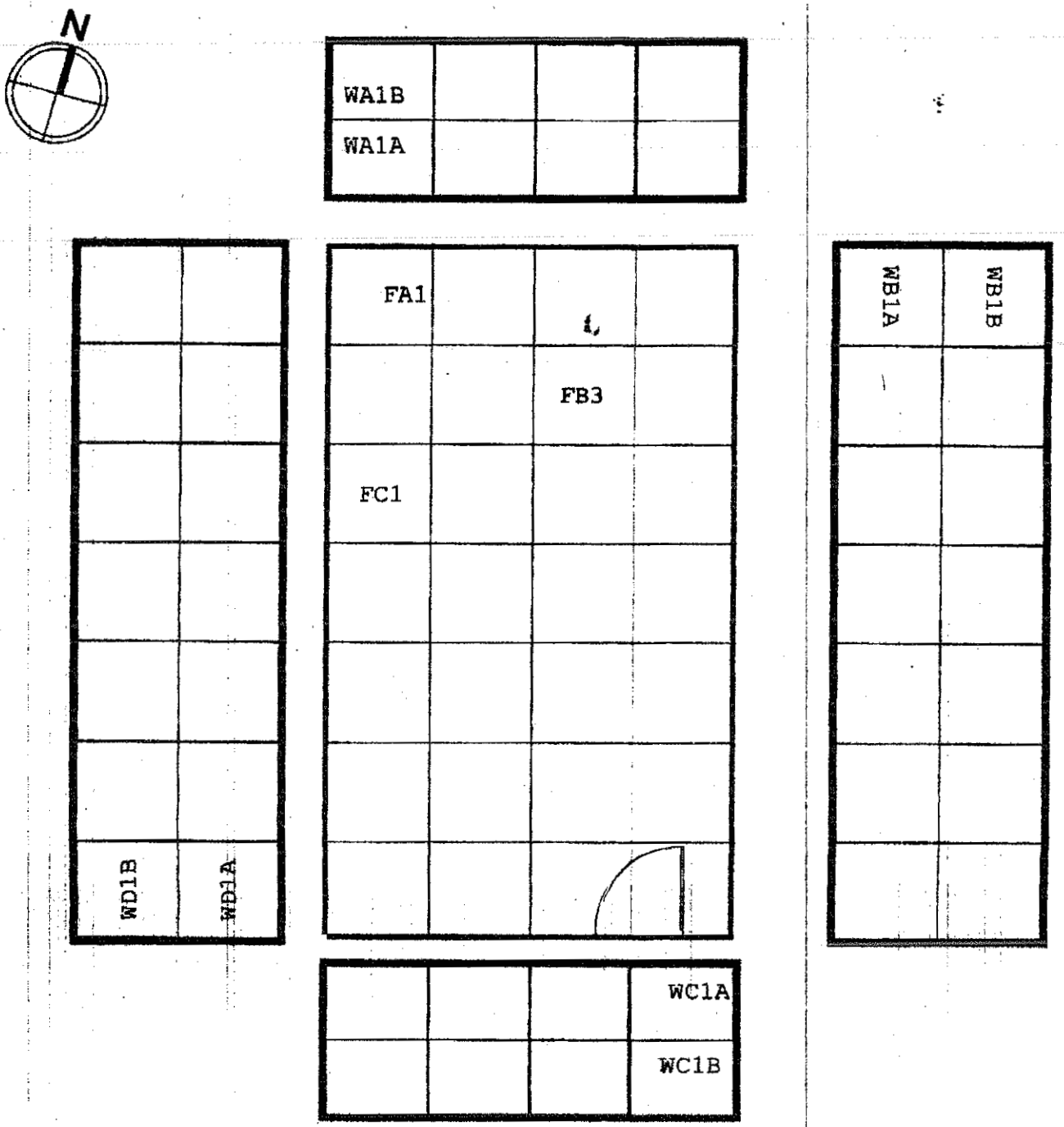
Walter Reed Army Institute of Research, Rm41						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	292.3	8.6 to 17.3	0.0 to 0.2	1.6 to 1.7	9.6	
(MDA =>)	384	-	4.13 *	6.99 *	40.63 *	

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.54 to 4.13 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 6.87 to 6.99 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 28.12 to 40.63 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 39	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm 39						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1	8.6	0.1 to 0.2	1.0 to 1.6	8.1 to 9.6	
(MDA =>)	305	-	4.13 *	6.87 *	47.45 *	
FA1	779.1	0.1	-0.6 ± 1.1	0.0 ± 3.4	3.2 ± 12.0	WC00972
FA2	616.5	0.6	-0.6 ± 1.1	-1.3 ± 3.1	2.3 ± 11.0	WC00973
FA3	849.6	-0.4	0.0 ± 1.6	1.7 ± 3.8	-4.7 ± 11.0	WC00974
FA4	600.2	-0.3	0.0 ± 1.6	2.6 ± 4.0	-1.2 ± 12.0	WC00975
FB1	117.7	-1.6	-0.6 ± 1.1	-1.7 ± 2.9	6.4 ± 14.0	WC00976
FB2	377.9	-2.3	-0.6 ± 1.1	1.3 ± 3.7	12.0 ± 15.0	WC00977
FB3	432.1	-1.6	-0.6 ± 1.1	0.4 ± 3.5	-7.5 ± 16.0	WC00978
FB4	513.4	-2.2	-0.6 ± 1.1	0.9 ± 3.6	-0.5 ± 11.0	WC00979
FC1	199.0	-1.9	-0.6 ± 1.1	0.0 ± 3.4	2.0 ± 12.0	WC00980
FC2	415.9	-1.8	-0.6 ± 1.1	-0.9 ± 3.2	8.2 ± 16.0	WC00981
FC3	236.9	-2.1	0.0 ± 1.6	1.7 ± 3.8	2.7 ± 16.0	WC00982
FC4	621.9	-1.3	-0.6 ± 1.1	0.4 ± 3.5	-4.6 ± 11.0	WC00983
FD1	318.3	-2.2	0.0 ± 1.6	0.4 ± 3.5	16.0 ± 20.0	WC00984
FD2	285.7	-1.9	-0.6 ± 1.1	-0.9 ± 3.2	1.9 ± 16.0	WC00985
FD3	372.5	-2.5	-0.6 ± 1.1	-0.9 ± 3.2	3.0 ± 14.0	WC00986
FD4	811.0	-2.2	0.0 ± 1.6	1.3 ± 3.7	2.0 ± 12.0	WC00987
FE1	394.2	-2.0	-0.6 ± 1.1	1.7 ± 3.8	6.6 ± 14.0	WC00988
FE2	497.2	-2.0	-0.6 ± 1.1	1.3 ± 3.7	0.1 ± 12.0	WC00989
FE3	491.8	-2.4	-0.6 ± 1.1	0.4 ± 3.5	0.8 ± 12.0	WC00990
FE4	724.9	-2.6	-0.6 ± 1.1	2.6 ± 4.0	-3.2 ± 10.0	WC00991
FG1	339.9	-2.9	0.6 ± 1.9	-0.9 ± 3.2	-7.8 ± 14.0	WC00992
FG2	475.5	-2.0	0.0 ± 1.6	0.0 ± 3.4	10.0 ± 14.0	WC00993
FG3	318.3	-2.0	-0.6 ± 1.1	-0.4 ± 3.3	19.0 ± 16.0	WC00994
FG4	665.3	-2.4	5.1 ± 3.7	73.0 ± 12.0	-4.9 ± 11.0	WC00995
WA1A	-148.0	-0.4	-0.6 ± 1.1	0.9 ± 3.6	-5.2 ± 9.0	WC00996
WA2A	-110.1	-1.8	0.0 ± 1.6	0.9 ± 3.6	-0.4 ± 9.0	WC00997
WA3A	-160.5	-1.2	0.0 ± 1.6	0.4 ± 3.5	-6.5 ± 9.0	WC00998
WA4A	383.3	-1.6	1.1 ± 2.2	0.8 ± 3.6	-2.5 ± 9.0	WC00999
WA1B	133.9	-1.6	1.1 ± 2.2	1.2 ± 3.7	-9.2 ± 12.0	WC01000
WA2B	204.4	-1.4	-0.2 ± 0.7	0.9 ± 3.1	-6.1 ± 14.0	WC01001
WA3B	41.7	-1.6	0.4 ± 1.3	1.4 ± 3.3	3.7 ± 11.0	WC01002
WA4B	199.0	-1.3	0.4 ± 1.3	-1.4 ± 2.4	1.8 ± 9.0	WC01003
WB1A	-164.3	-2.2	0.4 ± 1.3	-1.0 ± 2.6	1.3 ± 9.0	WC01004
WB2A	-148.0	-2.5	-0.2 ± 0.7	-0.9 ± 2.6	6.4 ± 8.0	WC01005
WB3A	453.8	-2.5	-0.2 ± 0.7	-0.9 ± 2.6	0.7 ± 9.0	WC01006
WB4A	-229.3	-2.2	0.4 ± 1.3	-1.9 ± 2.2	0.2 ± 9.0	WC01007
WB5A	-7.0	-2.6	-0.2 ± 0.7	-2.3 ± 2.0	-2.9 ± 8.0	WC01008
WB6A	25.5	-2.8	0.4 ± 1.3	-0.5 ± 2.7	5.0 ± 9.0	WC01009
WB1B	36.3	-1.0	-0.2 ± 0.7	0.5 ± 3.0	2.0 ± 8.0	WC01010
WB2B	-142.6	-2.0	1.0 ± 1.7	0.4 ± 3.0	-5.1 ± 8.0	WC01011
WB3B	-164.3	-1.9	-0.2 ± 0.7	1.4 ± 3.3	2.7 ± 9.0	WC01012
WB4B	-137.2	-2.3	1.0 ± 1.7	-0.5 ± 2.7	2.4 ± 8.0	WC01013
WB5B	-223.9	-2.4	-0.2 ± 0.7	-0.5 ± 2.7	-2.4 ± 8.0	WC01014
WB6B	-126.3	-2.5	-0.2 ± 0.7	-1.4 ± 2.4	-6.2 ± 7.0	WC01015
WC1A	-131.8	-2.1	-0.2 ± 0.7	-1.9 ± 2.2	1.5 ± 8.0	WC01016
WC2A	-245.6	-2.2	-0.2 ± 0.7	-1.4 ± 2.4	3.3 ± 8.0	WC01017
WC3A	-207.7	-2.5	-0.2 ± 0.7	-0.9 ± 2.6	1.6 ± 8.0	WC01018
WC4A	-229.3	-2.6	0.4 ± 1.3	0.9 ± 3.2	-0.3 ± 7.0	WC01019
WC1B	-164.3	-3.0	-0.2 ± 0.7	-0.5 ± 2.7	-5.7 ± 7.0	WC01020

Walter Reed Army Institute of Research, Rm 39						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1	8.6	0.1 to 0.2	1.0 to 1.6	8.1 to 9.6	
(MDA =>)	305	-	4.13 *	6.87 *	47.45 *	
WC2B	-110.1	-2.5	0.4 ± 1.3	-0.5 ± 2.7	2.5 ± 8.0	WC01021
WC3B	-213.1	-2.9	-0.2 ± 0.7	-0.9 ± 2.6	5.1 ± 8.0	WC01022
WC4B	-223.9	-2.3	0.4 ± 1.3	0.0 ± 2.9	2.4 ± 8.0	WC01023
WD1A	-126.3	-1.9	-0.2 ± 0.7	1.4 ± 3.3	0.2 ± 7.0	WC01024
WD2A	-131.8	-1.7	-0.2 ± 0.7	-0.9 ± 2.6	7.4 ± 8.0	WC01025
WD3A	-213.1	-1.7	-0.2 ± 0.7	0.9 ± 3.1	-0.7 ± 7.0	WC01026
WD4A	-196.8	-2.9	0.4 ± 1.3	-1.0 ± 2.6	8.6 ± 8.0	WC01027
WD5A	-12.5	-2.0	-0.2 ± 0.7	-0.9 ± 2.6	10.0 ± 9.0	WC01028
WD6A	-66.7	-2.1	0.4 ± 1.3	-1.0 ± 2.6	13.0 ± 9.0	WC01029
WD1B	-278.1	-2.1	-0.2 ± 0.7	-0.5 ± 2.7	1.1 ± 7.0	WC01030
WD2B	-72.1	-2.5	-0.2 ± 0.7	-0.9 ± 2.6	0.6 ± 8.0	WC01031
WD3B	-45.0	-1.8	-0.2 ± 0.7	-2.3 ± 2.0	11.0 ± 9.0	WC01032
WD4B	-126.3	-2.3	-0.2 ± 0.7	-1.9 ± 2.2	6.3 ± 8.0	WC01033
WD5B	-28.7	-1.2	-0.2 ± 0.7	1.4 ± 3.3	0.6 ± 8.0	WC01034
WD6B	-55.8	-0.9	-0.2 ± 0.7	-1.4 ± 2.4	2.4 ± 8.0	WC01035
RCFA1	475.5	-0.8	-0.2 ± 0.7	-1.4 ± 2.4	-0.3 ± 8.0	WC01036
RCFA2	562.2	-1.6	-0.2 ± 0.7	-0.5 ± 2.7	2.8 ± 8.0	WC01037
RCFA3	405.0	-1.5	1.0 ± 1.7	-0.5 ± 2.7	7.3 ± 8.0	WC01038
RCFA4	621.9	-1.2	1.0 ± 1.7	-1.5 ± 2.4	4.2 ± 8.0	WC01039
RCFB1	502.6	-1.6	-0.2 ± 0.7	0.5 ± 3.0	-2.5 ± 7.0	WC01040
RCFB2	594.8	-1.4	-0.2 ± 0.7	-0.9 ± 2.6	-1.2 ± 7.0	WC01041
RCFB3	274.9	-1.3	0.4 ± 1.3	-0.5 ± 2.7	-2.1 ± 7.0	WC01042
RCFB4	312.6	-2.1	-0.2 ± 0.7	-0.9 ± 2.6	4.2 ± 8.0	WC01043
RCFC1	432.1	-2.1	-0.2 ± 0.7	-1.4 ± 2.4	-0.3 ± 7.0	WC01044
RCFC2	459.2	-2.1	-0.2 ± 0.7	0.9 ± 3.1	1.1 ± 8.0	WC01045
RCFC3	350.8	-2.2	-0.2 ± 0.7	-0.5 ± 2.7	-0.7 ± 7.0	WC01046
RCFC4	334.5	-2.6	0.4 ± 1.3	0.4 ± 3.0	-4.7 ± 7.0	WC01047
RCFD1	296.6	-2.0	-0.2 ± 0.7	0.0 ± 2.9	-2.0 ± 7.0	WC01048
RCFD2	242.4	-2.2	0.4 ± 1.3	-0.5 ± 2.7	6.8 ± 10.0	WC01049
RCFD3	356.2	-2.5	-0.2 ± 0.7	-1.4 ± 2.4	0.6 ± 8.0	WC01050
RCFD4	247.8	-3.1	-0.2 ± 0.7	0.0 ± 2.9	4.6 ± 8.0	WC01051
RCFE1	302.0	-1.7	-0.2 ± 0.7	-1.4 ± 2.4	-0.7 ± 7.0	WC01052
RCFE2	345.4	-2.0	-0.2 ± 0.7	0.9 ± 3.1	6.2 ± 8.0	WC01053
RCFE3	388.7	-2.8	1.0 ± 1.7	-2.4 ± 2.1	7.5 ± 8.0	WC01054
RCFE4	426.7	-2.7	-0.2 ± 0.7	-0.5 ± 2.7	-1.6 ± 7.0	WC01055
RCFF1	453.8	-2.3	-0.2 ± 0.7	0.5 ± 3.0	5.7 ± 8.0	WC01056
RCFF2	377.9	-2.9	1.0 ± 1.7	-0.1 ± 2.9	3.6 ± 7.0	WC01057
RCFF3	480.9	-2.8	-0.2 ± 0.7	-1.9 ± 2.2	0.6 ± 7.0	WC01058
RCFF4	339.9	-3.0	0.4 ± 1.3	0.4 ± 3.0	1.5 ± 8.0	WC01059
B007	-842.0	0.9	-0.2 ± 0.7	-0.9 ± 2.6	5.2 ± 8.0	WC01060
RSFA2	242.4	-0.8	0.4 ± 1.3	0.9 ± 3.2	-0.3 ± 8.0	WC01061
RSFB1	74.3	-1.6	0.4 ± 1.3	0.0 ± 2.9	0.7 ± 8.0	WC01062
RHFC1	63.4	-1.5	0.4 ± 1.3	0.4 ± 3.0	0.2 ± 8.0	WC01063
RHFD1	-93.8	-1.8	0.4 ± 1.3	1.4 ± 3.3	11.0 ± 9.0	WC01064

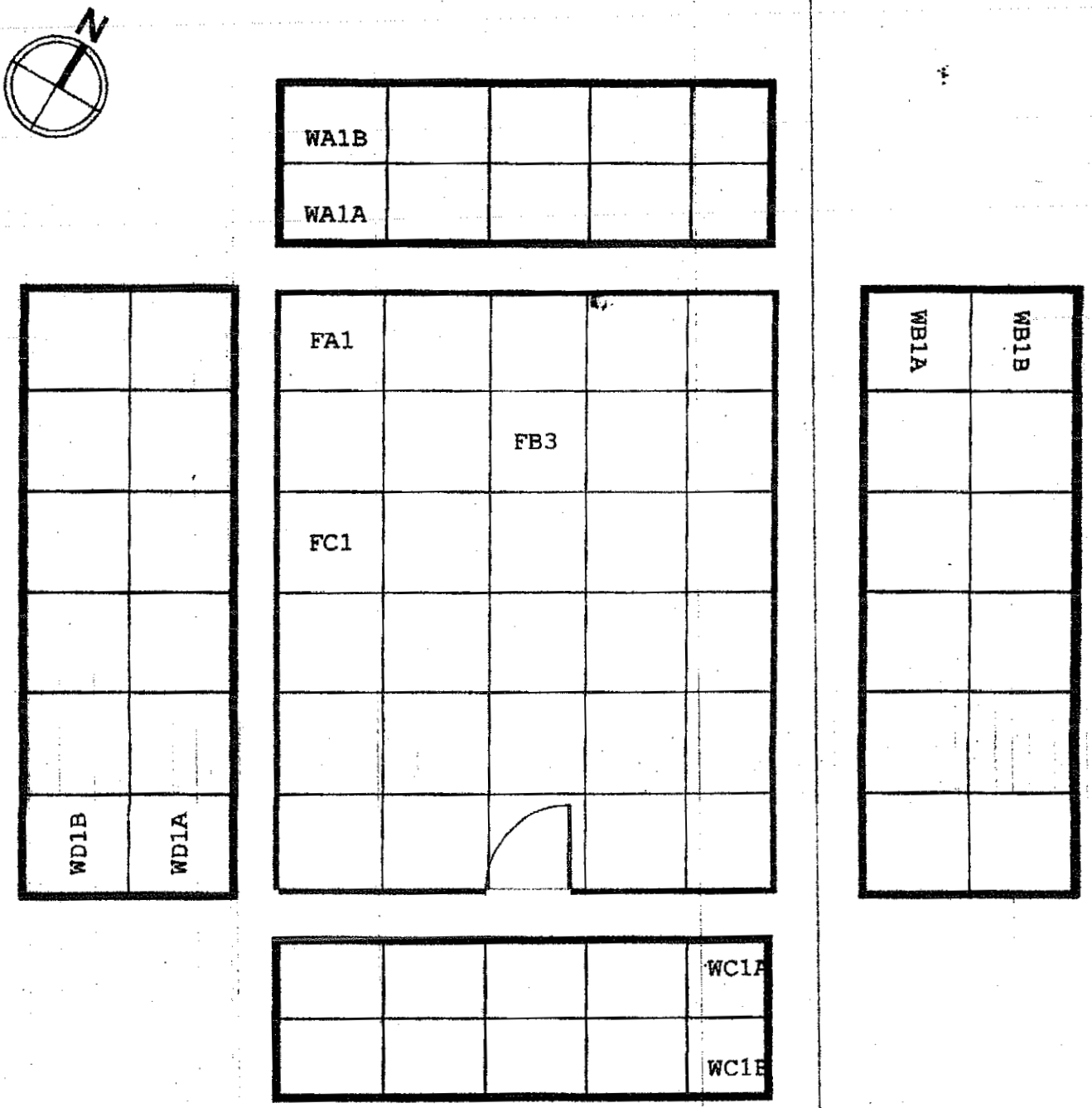
Walter Reed Army Institute of Research, Rm 39						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1	8.6	0.1 to 0.2	1.0 to 1.6	8.1 to 9.6	
(MDA =>)	305	-	4.13 *	6.87 *	47.45 *	

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 3.16 to 4.13 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 6.07 to 6.87 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 20.25 to 47.45 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 37	DATE 04 APR 99
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	DRAWN D. COLLINS APPROVED _____ SCALE NTS

Walter Reed Army Institute of Research, Rm 37						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1	8.6	0.0 to 0.1	0.9 to 1.0	8.1	
(MDA =>)	305	-	3.16 *	6.07 *	45.76 *	
FA1	752.0	-0.7	0.4 ± 1.3	0.0 ± 2.9	2.3 ± 9.0	WC01065
FA2	621.9	-0.7	1.0 ± 1.7	6.4 ± 4.5	9.5 ± 9.0	WC01066
FA3	703.2	-0.4	0.4 ± 1.3	-1.4 ± 2.4	9.0 ± 9.0	WC01067
FA4	719.5	-0.8	-0.2 ± 0.7	6.5 ± 4.4	24.0 ± 11.0	WC01068
FA5	616.5	-1.1	-0.2 ± 0.7	0.0 ± 2.9	12.0 ± 9.0	WC01069
FB1	659.8	-1.7	-0.2 ± 0.7	-0.9 ± 2.6	-0.3 ± 8.0	WC01070
FB2	63.4	-2.1	0.4 ± 1.3	-0.5 ± 2.7	8.3 ± 9.0	WC01071
FB3	150.2	-2.3	-0.2 ± 0.7	0.0 ± 2.9	-1.7 ± 8.0	WC01072
FB4	182.7	-2.2	-0.2 ± 0.7	1.4 ± 3.3	2.5 ± 8.0	WC01073
FB5	177.3	-2.0	1.0 ± 1.7	-0.1 ± 2.9	1.6 ± 8.0	WC01074
FC1	551.4	-2.5	1.0 ± 1.7	-1.5 ± 2.4	4.7 ± 8.0	WC01075
FC2	258.6	-2.4	-0.2 ± 0.7	0.0 ± 2.9	5.3 ± 8.0	WC01076
FC3	171.9	-2.7	-0.2 ± 0.7	-0.5 ± 2.7	4.1 ± 9.0	WC01077
FC4	193.6	-2.5	0.4 ± 1.3	-1.0 ± 2.6	4.3 ± 9.0	WC01078
FC5	90.5	-3.1	1.0 ± 1.7	2.2 ± 3.5	0.2 ± 8.0	WC01079
FD1	952.6	-2.9	0.4 ± 1.3	0.0 ± 2.9	12.0 ± 9.0	WC01080
FD2	52.6	-2.7	-0.2 ± 0.7	0.0 ± 2.9	7.2 ± 9.0	WC01081
FD3	144.8	-2.5	-0.2 ± 0.7	-1.4 ± 2.4	5.2 ± 8.0	WC01082
FD4	264.0	-3.1	0.4 ± 1.3	-0.5 ± 2.7	8.2 ± 9.0	WC01083
FD5	106.8	-3.1	1.0 ± 1.7	-0.1 ± 2.9	7.8 ± 9.0	WC01084
FE1	182.7	-3.6	0.4 ± 1.3	0.9 ± 3.2	7.9 ± 9.0	WC01085
FE2	117.7	-2.9	-0.2 ± 0.7	0.5 ± 3.0	-1.2 ± 8.0	WC01086
FE3	41.7	-3.0	-0.2 ± 0.7	-1.4 ± 2.4	10.0 ± 9.0	WC01087
FE4	150.2	-3.1	-0.2 ± 0.7	-0.9 ± 2.6	5.0 ± 8.0	WC01088
FE5	68.9	-3.3	0.4 ± 1.3	-1.0 ± 2.6	2.1 ± 8.0	WC01089
FF1	112.2	-3.4	-0.2 ± 0.7	0.0 ± 2.9	-2.2 ± 8.0	WC01090
FF2	133.9	-3.8	-0.2 ± 0.7	-0.9 ± 2.6	1.6 ± 8.0	WC01091
FF3	74.3	-3.7	0.4 ± 1.3	-1.0 ± 2.6	8.3 ± 9.0	WC01092
FF4	171.9	-4.0	-0.2 ± 0.7	0.9 ± 3.1	5.4 ± 9.0	WC01093
FF5	-28.7	-3.8	-0.2 ± 0.7	-1.9 ± 2.2	6.2 ± 8.0	WC01094
WA1A	-256.5	-0.3	-0.2 ± 0.7	0.5 ± 3.0	4.7 ± 8.0	WC01095
WA2A	166.5	0.6	-0.2 ± 0.7	0.5 ± 3.0	2.7 ± 9.0	WC01096
WA3A	-23.3	-0.2	0.4 ± 1.3	-1.0 ± 2.6	6.9 ± 8.0	WC01097
WA4A	3.8	-1.3	-0.2 ± 0.7	-0.9 ± 2.6	6.2 ± 9.0	WC01098
WA5A	25.5	-1.8	-0.2 ± 0.7	-1.4 ± 2.4	1.8 ± 9.0	WC01099
WA1B	144.8	-1.1	-0.2 ± 0.7	-0.5 ± 2.7	-1.2 ± 8.0	WC01100
WA2B	85.1	-1.0	1.0 ± 1.7	-0.5 ± 2.7	1.1 ± 8.0	WC01101
WA3B	133.9	-1.0	-0.2 ± 0.7	0.5 ± 3.0	2.2 ± 8.0	WC01102
WA4B	90.5	-1.4	-0.2 ± 0.7	-1.9 ± 2.2	6.1 ± 8.0	WC01103
WA5B	25.5	-2.1	2.1 ± 2.4	-0.6 ± 2.8	-5.0 ± 7.0	WC01104
WB1A	-158.9	-2.3	1.0 ± 1.7	0.9 ± 3.2	-0.3 ± 8.0	WC01105
WB2A	-153.4	-2.7	0.4 ± 1.3	0.0 ± 2.9	-2.5 ± 7.0	WC01106
WB3A	-169.7	-3.8	-0.2 ± 0.7	-0.5 ± 2.7	-0.3 ± 8.0	WC01107
WB4A	-186.0	-4.3	-0.2 ± 0.7	-1.4 ± 2.4	-3.5 ± 7.0	WC01108
WB5A	-158.9	-4.0	0.4 ± 1.3	-1.0 ± 2.6	2.5 ± 8.0	WC01109
WB6A	-191.4	-4.0	-0.2 ± 0.7	0.5 ± 3.0	-0.7 ± 7.0	WC01110
WB1B	-34.2	-2.4	-0.2 ± 0.7	-1.9 ± 2.2	0.2 ± 7.0	WC01111
WB2B	-194.6	-2.1	-0.2 ± 0.7	0.9 ± 3.1	3.4 ± 8.0	WC01112
WB3B	-218.5	-2.7	-0.2 ± 0.7	-1.4 ± 2.4	2.9 ± 8.0	WC01113

Med Radn Surv No. 28-MF-6209-99, Facility Close-Out and Termination Survey
Phase II, Building 500, WRAIR, WRAMC, Washington, DC, 10-15 May 99

Walter Reed Army Institute of Research, Rm 37						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1	8.6	0.0 to 0.1	0.9 to 1.0	8.1	
(MDA =>)	305	-	3.16 *	6.07 *	45.78 *	
WB4B	-158.9	-3.3	-0.2 ± 0.7	-1.4 ± 2.4	-3.0 ± 7.0	WC01114
WB5B	-186.0	-4.1	-0.2 ± 0.7	-1.4 ± 2.4	0.6 ± 8.0	WC01115
WB6B	-229.3	-4.1	-0.2 ± 0.7	-0.9 ± 2.6	-1.6 ± 7.0	WC01116
WC1A	-223.9	-3.6	-0.2 ± 0.7	-1.9 ± 2.2	3.3 ± 8.0	WC01117
WC2A	-148.0	-3.4	0.4 ± 1.3	-1.0 ± 2.6	1.5 ± 8.0	WC01118
WC3A	-137.2	-4.3	0.4 ± 1.3	-1.4 ± 2.4	3.7 ± 8.0	WC01119
WC4A	-283.6	-3.6	-0.2 ± 0.7	-0.5 ± 2.7	7.0 ± 9.0	WC01120
WC5A	-256.5	-4.1	-0.2 ± 0.7	-2.3 ± 2.0	2.0 ± 8.0	WC01121
WC1B	-77.5	-3.5	1.0 ± 1.7	-1.0 ± 2.6	4.3 ± 8.0	WC01122
WC2B	-191.4	-3.7	0.4 ± 1.3	-0.5 ± 2.7	6.0 ± 8.0	WC01123
WC3B	-202.2	-3.4	0.4 ± 1.3	-1.0 ± 2.6	0.2 ± 7.0	WC01124
WC4B	-137.2	-3.6	-0.2 ± 0.7	0.5 ± 3.0	-3.9 ± 7.0	WC01125
WC5B	-142.6	-3.5	-0.2 ± 0.7	-1.4 ± 2.4	5.1 ± 8.0	WC01126
WD1A	-256.5	-3.2	-0.2 ± 0.7	-1.4 ± 2.4	0.6 ± 8.0	WC01127
WD2A	-148.0	-3.5	-0.2 ± 0.7	0.0 ± 2.9	3.8 ± 8.0	WC01128
WD3A	-207.7	-3.1	-0.2 ± 0.7	-1.4 ± 2.4	0.2 ± 8.0	WC01129
WD4A	-23.3	-3.2	-0.2 ± 0.7	-2.3 ± 2.0	5.6 ± 8.0	WC01130
WD5A	-93.8	-2.6	-0.2 ± 0.7	1.4 ± 3.3	2.9 ± 8.0	WC01131
WD6A	-93.8	-2.3	1.0 ± 1.7	-0.1 ± 2.9	7.0 ± 8.0	WC01132
WD1B	-256.5	-3.2	-0.2 ± 0.7	-1.4 ± 2.4	4.7 ± 8.0	WC01133
WD2B	-137.2	-2.8	-0.2 ± 0.7	-1.4 ± 2.4	2.0 ± 8.0	WC01134
WD3B	-83.0	-3.0	0.4 ± 1.3	-1.4 ± 2.4	0.2 ± 7.0	WC01135
WD4B	25.5	-2.8	0.4 ± 1.3	-1.4 ± 2.4	2.4 ± 8.0	WC01136
WD5B	58.0	-2.4	-0.2 ± 0.7	-0.5 ± 2.7	-2.1 ± 7.0	WC01137
WD6B	-180.5	-1.7	-0.2 ± 0.7	-1.4 ± 2.4	4.3 ± 8.0	WC01138
RCFA1	405.0	-1.7	0.4 ± 1.3	-1.4 ± 2.4	5.4 ± 8.0	WC01139
RCFA2	356.2	-1.2	-0.2 ± 0.7	0.0 ± 2.9	6.8 ± 8.0	WC01140
RCFA3	302.0	-1.3	-0.2 ± 0.7	-1.4 ± 2.4	1.5 ± 8.0	WC01141
RCFA4	334.5	-1.6	-0.2 ± 0.7	0.5 ± 3.0	1.1 ± 7.0	WC01142
RCFA5	394.2	-2.2	0.4 ± 1.3	0.0 ± 2.9	4.6 ± 8.0	WC01143
RCFB1	692.4	-2.2	-0.2 ± 0.7	-0.9 ± 2.6	-0.7 ± 7.0	WC01144
RCFB2	459.2	-1.8	0.4 ± 1.3	-1.0 ± 2.6	-1.7 ± 8.0	WC01145
RCFB3	280.3	-2.0	-0.2 ± 0.7	-0.9 ± 2.6	3.8 ± 8.0	WC01146
RCFB4	518.9	-1.9	0.4 ± 1.3	-1.4 ± 2.4	-0.7 ± 7.0	WC01147
RCFB5	383.3	-2.7	-0.2 ± 0.7	0.0 ± 2.9	7.7 ± 9.0	WC01148
RCFC1	464.7	-2.6	0.4 ± 1.3	-0.5 ± 2.7	2.4 ± 8.0	WC01149
RCFC2	361.6	-2.8	-0.2 ± 0.7	0.5 ± 3.0	-3.0 ± 7.0	WC01150
RCFC3	372.5	-2.6	0.0 ± 0.0	0.6 ± 3.0	-0.3 ± 7.0	WC01151
RCFC4	562.2	-2.4	0.0 ± 0.0	-0.3 ± 2.7	1.1 ± 8.0	WC01152
RCFC5	491.8	-3.0	0.0 ± 0.0	-1.2 ± 2.3	3.3 ± 8.0	WC01153
RCFD1	274.9	-3.0	0.6 ± 1.1	-0.3 ± 2.7	2.6 ± 8.0	WC01154
RCFD2	367.1	-3.1	0.0 ± 0.0	-0.8 ± 2.5	-0.3 ± 7.0	WC01155
RCFD3	508.0	-2.9	0.6 ± 1.1	-2.2 ± 2.0	-0.7 ± 7.0	WC01156
RCFD4	291.2	-2.9	0.6 ± 1.1	0.1 ± 2.8	1.8 ± 9.0	WC01157
RCFD5	415.9	-3.4	0.0 ± 0.0	-2.2 ± 2.0	1.5 ± 8.0	WC01158
RCFE1	350.8	-3.5	0.0 ± 0.0	-1.7 ± 2.2	-0.3 ± 7.0	WC01159
RCFE2	437.5	-3.3	0.6 ± 1.1	-1.3 ± 2.4	1.1 ± 7.0	WC01160
RCFE3	247.8	-3.6	0.0 ± 0.0	-0.3 ± 2.7	-1.1 ± 7.0	WC01161
RCFE4	632.7	-3.8	0.0 ± 0.0	-0.3 ± 2.7	3.3 ± 8.0	WC01162

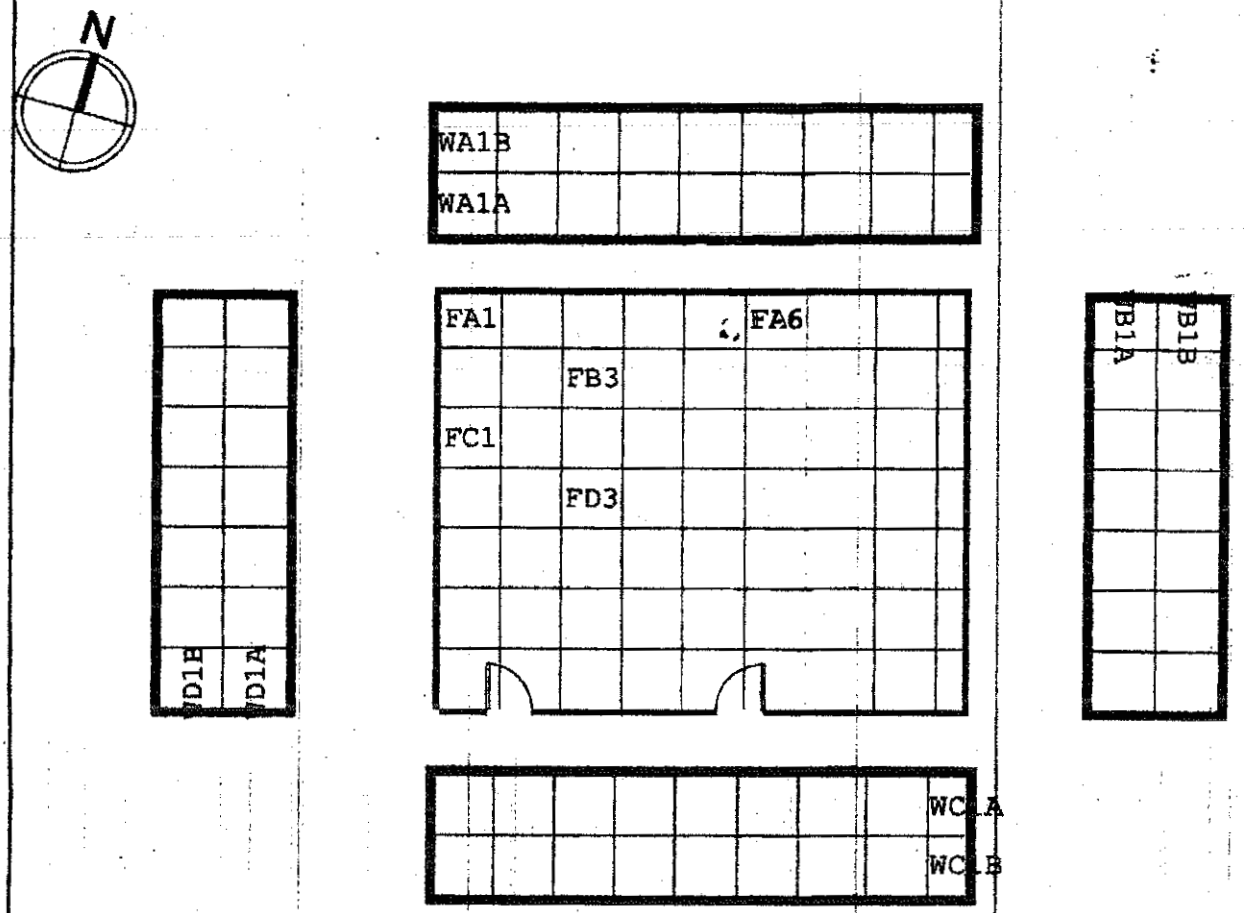
Walter Reed Army Institute of Research, Rm 37						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1	8.6	0.0 to 0.1	0.9 to 1.0	8.1	
(MDA =>)	305	-	3.16 *	6.07 *	45.78 *	
RCFE5	546.0	-3.8	0.0 ± 0.0	-1.2 ± 2.3	5.1 ± 8.0	WC01163
RCFF1	377.9	-3.3	0.0 ± 0.0	0.6 ± 3.0	-1.6 ± 7.0	WC01164
RCFF2	497.2	-3.4	0.0 ± 0.0	0.2 ± 2.8	5.0 ± 8.0	WC01165
RCFF3	285.7	-3.7	0.0 ± 0.0	-1.2 ± 2.3	-0.3 ± 7.0	WC01166
RCFF4	372.5	-3.4	0.0 ± 0.0	0.2 ± 2.8	1.5 ± 8.0	WC01167
RCFF5	491.8	-3.7	0.0 ± 0.0	-0.8 ± 2.5	5.5 ± 8.0	WC01168
RSFA4	334.5	-0.9	0.0 ± 0.0	-0.8 ± 2.5	-2.1 ± 8.0	WC01169
B008	161.0	0.9	0.0 ± 0.0	-1.7 ± 2.2	1.1 ± 8.0	WC01170

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.56 to 3.16 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 5.91 to 6.07 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 37.39 to 45.78 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 33-35	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm33_35						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	0.7 to 0.9	5.4 to 9.2	
(MDA =>)	332	-	1.56 *	5.91 *	45.89 *	
FA1	2.0	-3.5	0.6 ± 1.1	-1.3 ± 2.4	7.9 ± 8.0	WC01171
FA2	152.3	-2.9	0.0 ± 0.0	3.4 ± 3.7	21.0 ± 11.0	WC01172
FA3	661.0	-1.2	0.0 ± 0.0	1.6 ± 3.2	6.4 ± 11.0	WC01173
FA4	984.8	-1.8	0.0 ± 0.0	-0.8 ± 2.5	7.4 ± 11.0	WC01174
FA5	481.8	-1.3	0.0 ± 0.0	-0.3 ± 2.7	0.2 ± 10.0	WC01175
FA6	256.4	-1.4	0.0 ± 0.0	0.6 ± 3.0	5.5 ± 12.0	WC01176
FA7	140.8	-1.4	0.0 ± 0.0	-0.8 ± 2.5	2.5 ± 8.0	WC01177
FA8	296.8	-0.6	0.6 ± 1.1	-0.3 ± 2.7	1.6 ± 8.0	WC01178
FA9	227.5	-1.0	0.0 ± 0.0	1.1 ± 3.1	4.7 ± 8.0	WC01179
FB9	215.9	-1.2	1.2 ± 1.6	1.5 ± 3.3	4.4 ± 8.0	WC01180
FB8	325.8	-1.2	0.0 ± 0.0	1.1 ± 3.1	0.7 ± 8.0	WC01181
FB7	273.7	-1.7	0.6 ± 1.1	1.5 ± 3.2	0.2 ± 8.0	WC01182
FB6	65.6	-1.5	0.0 ± 0.0	-0.3 ± 2.7	3.9 ± 9.0	WC01183
FB5	215.9	-1.7	0.6 ± 1.1	-0.3 ± 2.7	-1.5 ± 10.0	WC01184
FB4	7.8	-2.1	0.0 ± 0.0	-0.8 ± 2.5	0.2 ± 8.0	WC01185
FB3	1059.9	-1.3	0.0 ± 0.0	0.2 ± 2.8	6.0 ± 9.0	WC01186
FB2	13.6	-1.8	0.6 ± 1.1	-0.8 ± 2.5	14.0 ± 10.0	WC01187
FB1	36.7	-1.7	1.2 ± 1.6	-1.3 ± 2.4	12.0 ± 9.0	WC01188
FC1	291.1	-2.2	0.6 ± 1.1	-0.3 ± 2.7	7.6 ± 9.0	WC01189
FC2	262.2	-3.2	1.2 ± 1.6	-0.9 ± 2.5	7.2 ± 9.0	WC01190
FC3	776.7	-2.3	0.0 ± 0.0	1.6 ± 3.2	9.8 ± 10.0	WC01191
FC4	163.9	-1.5	0.0 ± 0.0	0.6 ± 3.0	10.0 ± 10.0	WC01192
FC5	244.8	-1.4	0.6 ± 1.1	-0.8 ± 2.5	-4.5 ± 8.0	WC01193
FC6	227.5	-1.7	0.6 ± 1.1	1.0 ± 3.1	16.0 ± 12.0	WC01194
FC7	30.9	-2.1	0.0 ± 0.0	0.6 ± 3.0	-0.3 ± 8.0	WC01195
FC8	77.2	-2.2	0.0 ± 0.0	0.6 ± 3.0	5.7 ± 8.0	WC01196
FC9	83.0	-2.3	0.0 ± 0.0	-1.2 ± 2.3	4.8 ± 8.0	WC01197
FD9	77.2	-2.8	0.0 ± 0.0	0.6 ± 3.0	3.4 ± 8.0	WC01198
FD8	129.2	-2.4	0.0 ± 0.0	-2.2 ± 2.0	1.1 ± 8.0	WC01199
FD7	221.7	-2.9	1.7 ± 2.0	3.3 ± 3.7	29.0 ± 15.0	WC01200
FD6	65.6	-2.4	0.0 ± 0.0	-0.3 ± 2.7	13.0 ± 11.0	WC01201
FD5	822.9	-3.0	0.0 ± 0.0	-0.3 ± 2.7	3.2 ± 9.0	WC01202
FD4	874.9	-2.8	0.0 ± 0.0	-0.8 ± 2.5	13.0 ± 11.0	WC01203
FD3	909.6	-1.5	0.0 ± 0.0	-1.2 ± 2.3	1.7 ± 8.0	WC01204
FD2	59.8	-2.7	0.0 ± 0.0	0.2 ± 2.8	5.6 ± 9.0	WC01205
FD1	36.7	-3.1	0.0 ± 0.0	-1.7 ± 2.2	2.8 ± 9.0	WC01206
FE1	77.2	-2.8	0.6 ± 1.1	2.0 ± 3.4	8.9 ± 11.0	WC01207
FE2	7.8	-2.7	0.0 ± 0.0	-0.3 ± 2.7	9.8 ± 10.0	WC01208
FE3	-50.0	-3.1	0.0 ± 0.0	1.1 ± 3.1	8.7 ± 9.0	WC01209
FE4	2.0	-3.3	0.6 ± 1.1	-1.3 ± 2.4	-0.8 ± 8.0	WC01210
FE5	187.0	-3.5	0.6 ± 1.1	1.0 ± 3.1	3.2 ± 9.0	WC01211
FE6	169.7	-3.2	0.0 ± 0.0	-0.3 ± 2.7	2.7 ± 9.0	WC01212
FE7	395.1	-3.4	0.0 ± 0.0	-0.8 ± 2.5	-4.9 ± 8.0	WC01213
FE8	135.0	-3.5	1.2 ± 1.6	-0.4 ± 2.7	2.6 ± 8.0	WC01214
FE9	198.6	-3.2	0.0 ± 0.0	-0.8 ± 2.5	1.6 ± 8.0	WC01215
FG9	-3.8	-3.4	0.0 ± 0.0	1.6 ± 3.2	7.8 ± 9.0	WC01216
FG8	25.1	-3.4	0.0 ± 0.0	1.1 ± 3.1	0.7 ± 8.0	WC01217
FG7	-3.8	-3.4	0.6 ± 1.1	2.0 ± 3.4	1.2 ± 9.0	WC01218
FG6	158.1	-3.0	0.0 ± 0.0	1.1 ± 3.1	3.2 ± 9.0	WC01219

Walter Reed Army Institute of Research, Rm33_35						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	0.7 to 0.9	5.4 to 9.2	
(MDA =>)	332	-	1.56 *	5.91 *	45.89 *	
FG5	181.2	-3.4	0.6 ± 1.1	1.0 ± 3.1	1.3 ± 9.0	WC01220
FG4	-194.5	-4.3	0.0 ± 0.0	-1.7 ± 2.2	2.1 ± 8.0	WC01221
FG3	163.9	-4.2	1.2 ± 1.6	30.0 ± 7.9	51.0 ± 20.0	WC01222
FG2	7.8	-3.2	0.0 ± 0.0	2.9 ± 3.6	11.0 ± 11.0	WC01223
FG1	950.1	-2.0	0.0 ± 0.0	0.2 ± 2.8	6.3 ± 9.0	WC01224
WA1A	-171.4	-1.7	0.0 ± 0.0	-1.2 ± 2.3	6.7 ± 8.0	WC01225
WA2A	-188.7	-1.7	0.0 ± 0.0	-1.2 ± 2.3	1.5 ± 8.0	WC01226
WA3A	-136.7	-1.4	0.6 ± 1.1	-0.3 ± 2.7	4.3 ± 8.0	WC01227
WA4A	7.8	-0.4	0.0 ± 0.0	-0.3 ± 2.7	2.5 ± 8.0	WC01228
WA5A	-67.3	-0.6	0.6 ± 1.1	-0.3 ± 2.7	1.6 ± 8.0	WC01229
WA6A	-194.5	-0.4	0.0 ± 0.0	1.1 ± 3.1	1.1 ± 8.0	WC01230
WA7A	-32.7	-2.1	1.7 ± 2.0	0.0 ± 2.9	1.1 ± 8.0	WC01231
WA8A	-78.9	-2.0	0.0 ± 0.0	-1.7 ± 2.2	1.5 ± 8.0	WC01232
WA9A	-15.3	-1.6	0.0 ± 0.0	-1.7 ± 2.2	8.6 ± 16.0	WC01233
WA9B	354.7	-2.4	0.6 ± 1.1	-0.3 ± 2.7	1.5 ± 8.0	WC01234
WA8B	19.4	-1.5	0.0 ± 0.0	-1.2 ± 2.3	3.7 ± 15.0	WC01235
WA7B	227.5	-1.2	0.0 ± 0.0	-0.8 ± 2.5	98.0 ± 15.0	WC01236
WA6B	181.2	-1.2	0.6 ± 1.1	0.1 ± 2.8	6.4 ± 9.0	WC01237
WA5B	13.6	-0.9	0.0 ± 0.0	1.1 ± 3.1	-1.3 ± 8.0	WC01238
WA4B	227.5	0.0	0.0 ± 0.0	-1.2 ± 2.3	2.4 ± 8.0	WC01239
WA3B	-9.5	-1.5	0.6 ± 1.1	1.0 ± 3.1	3.2 ± 9.0	WC01240
WA2B	-21.1	-1.3	0.6 ± 1.1	4.8 ± 4.0	7.8 ± 9.0	WC01241
WA1B	-9.5	-1.4	0.6 ± 1.1	1.0 ± 3.1	6.8 ± 9.0	WC01242
WB1A	2.0	-1.6	0.0 ± 0.0	-2.2 ± 2.0	1.1 ± 8.0	WC01243
WB2A	-159.8	-2.1	0.0 ± 0.0	0.2 ± 2.8	8.2 ± 8.0	WC01244
WB3A	-217.6	-2.4	0.6 ± 1.1	0.1 ± 2.8	1.1 ± 8.0	WC01245
WB4A	-281.2	-1.7	0.0 ± 0.0	-1.2 ± 2.3	0.2 ± 7.0	WC01246
WB5A	-177.2	-2.2	0.6 ± 1.1	-1.7 ± 2.2	2.0 ± 8.0	WC01247
WB6A	-188.7	-3.1	0.6 ± 1.1	-1.3 ± 2.4	2.0 ± 8.0	WC01248
WB6B	-84.7	-3.6	0.0 ± 0.0	-1.2 ± 2.3	1.5 ± 8.0	WC01249
WB5B	-339.0	-3.0	0.0 ± 0.0	-0.3 ± 2.7	0.6 ± 8.0	WC01250
WB4B	-183.0	-2.8	0.0 ± 0.0	0.2 ± 2.8	0.2 ± 8.0	WC01251
WB3B	-73.1	-2.7	0.6 ± 1.1	-1.3 ± 2.4	-3.9 ± 7.0	WC01252
WB2B	-96.3	-2.7	0.0 ± 0.0	0.2 ± 2.8	2.4 ± 8.0	WC01253
WB1B	-61.6	-2.4	0.0 ± 0.0	-0.8 ± 2.5	5.9 ± 8.0	WC01254
WC1A	-223.4	-3.1	0.0 ± 0.0	-1.7 ± 2.2	-1.6 ± 7.0	WC01255
WC2A	-287.0	-2.6	0.0 ± 0.0	-0.8 ± 2.5	-0.3 ± 8.0	WC01256
WC3A	-194.5	-3.3	0.0 ± 0.0	1.1 ± 3.1	-0.3 ± 7.0	WC01257
WC4A	-171.4	-3.4	0.0 ± 0.0	-0.8 ± 2.5	3.3 ± 8.0	WC01258
WC5A	-333.3	-3.8	0.0 ± 0.0	-1.2 ± 2.3	8.9 ± 9.0	WC01259
WC6A	-339.0	-4.5	0.0 ± 0.0	-1.7 ± 2.2	6.1 ± 8.0	WC01260
WC7A	-258.1	-4.2	0.0 ± 0.0	-0.3 ± 2.7	4.7 ± 8.0	WC01261
WC8A	-200.3	-3.8	0.0 ± 0.0	-0.8 ± 2.5	4.7 ± 8.0	WC01262
WC9A	-223.4	-3.7	0.0 ± 0.0	-0.8 ± 2.5	5.2 ± 8.0	WC01263
WC9B	-148.3	-3.8	0.6 ± 1.1	-0.8 ± 2.5	-5.6 ± 7.0	WC01264
WC8B	-38.4	-3.4	0.0 ± 0.0	-0.3 ± 2.7	2.5 ± 8.0	WC01265
WC7B	-281.2	-3.8	0.6 ± 1.1	-0.8 ± 2.5	4.6 ± 8.0	WC01266
WC6B	-159.8	-3.5	0.6 ± 1.1	0.6 ± 3.0	13.0 ± 9.0	WC01267
WC5B	-217.6	-3.5	0.0 ± 0.0	-0.8 ± 2.5	-3.4 ± 7.0	WC01268

Walter Reed Army Institute of Research, Rm33_35						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	0.7 to 0.9	5.4 to 9.2	
(MDA =>)	332	-	1.56 *	5.91 *	45.89 *	
WC4B	-217.6	-3.2	0.0 ± 0.0	0.6 ± 3.0	1.5 ± 8.0	WC01269
WC3B	-217.6	-3.3	0.6 ± 1.1	-0.8 ± 2.5	0.2 ± 8.0	WC01270
WC2B	-159.8	-3.5	0.0 ± 0.0	0.2 ± 2.8	2.0 ± 8.0	WC01271
WC1B	-107.8	-3.9	0.0 ± 0.0	-0.3 ± 2.7	0.6 ± 7.0	WC01272
WD1A	-102.0	-3.6	0.0 ± 0.0	-1.2 ± 2.3	2.0 ± 8.0	WC01273
WD2A	-183.0	-3.0	0.0 ± 0.0	-0.8 ± 2.5	-1.2 ± 7.0	WC01274
WD3A	-183.0	-3.6	0.0 ± 0.0	-1.2 ± 2.3	5.7 ± 8.0	WC01275
WD4A	-200.3	-3.5	0.0 ± 0.0	-0.2 ± 2.3	-3.4 ± 7.0	WC01276
WD5A	-78.9	-3.5	0.0 ± 0.0	-0.2 ± 2.3	-3.2 ± 8.0	WC01277
WD6A	-159.8	-3.7	0.0 ± 0.0	0.8 ± 2.6	1.1 ± 8.0	WC01278
WD6B	-188.7	-2.1	0.6 ± 1.1	0.3 ± 2.5	-3.0 ± 7.0	WC01279
WD5B	-229.2	-2.0	0.0 ± 0.0	-0.6 ± 2.1	1.5 ± 8.0	WC01280
WD4B	-344.8	-3.0	0.0 ± 0.0	-0.6 ± 2.1	6.8 ± 9.0	WC01281
WD3B	-154.1	-3.5	0.0 ± 0.0	1.2 ± 2.8	-0.3 ± 8.0	WC01282
WD2B	-84.7	-3.9	0.0 ± 0.0	0.3 ± 2.5	7.9 ± 8.0	WC01283
WD1B	152.3	-2.8	0.0 ± 0.0	-1.1 ± 1.9	2.0 ± 8.0	WC01284
RCFA1	505.0	-2.0	0.0 ± 0.0	-0.2 ± 2.3	3.9 ± 8.0	WC01285
RCFA2	424.0	-1.9	0.0 ± 0.0	1.7 ± 2.9	-0.7 ± 8.0	WC01286
RCFA3	418.2	-1.7	0.6 ± 1.1	-0.2 ± 2.3	7.9 ± 8.0	WC01287
RCFA4	452.9	-0.9	0.0 ± 0.0	0.3 ± 2.5	2.9 ± 8.0	WC01288
RCFA5	568.5	-1.3	0.0 ± 0.0	-1.6 ± 1.7	5.2 ± 8.0	WC01289
RCFA6	655.3	-1.1	0.6 ± 1.1	-0.2 ± 2.3	2.9 ± 8.0	WC01290
RCFA7	539.6	-1.5	0.6 ± 1.1	0.3 ± 2.5	-3.5 ± 7.0	WC01291
RCFA8	476.1	-1.8	0.0 ± 0.0	0.3 ± 2.5	0.6 ± 8.0	WC01292
RCFA9	655.3	-2.0	0.0 ± 0.0	1.2 ± 2.8	2.4 ± 8.0	WC01293
RCFB9	487.6	-2.6	0.0 ± 0.0	-0.6 ± 2.1	6.2 ± 9.0	WC01294
RCFB8	585.9	-2.0	0.0 ± 0.0	-0.2 ± 2.3	-3.7 ± 8.0	WC01295
RCFB7	545.4	-1.7	0.0 ± 0.0	1.2 ± 2.8	0.4 ± 8.0	WC01296
RCFB6	487.6	-1.5	0.6 ± 1.1	-0.2 ± 2.3	-5.5 ± 7.0	WC01297
RCFB5	452.9	-2.2	0.0 ± 0.0	1.2 ± 2.8	2.2 ± 8.0	WC01298
RCFB4	516.5	-2.0	0.0 ± 0.0	0.8 ± 2.6	-5.5 ± 7.0	WC01299
RCFB3	533.9	-2.1	0.6 ± 1.1	0.3 ± 2.5	-0.6 ± 8.0	WC01300
RCFB2	539.6	-1.9	0.0 ± 0.0	-0.2 ± 2.3	4.4 ± 8.0	WC01301
RCFB1	88.7	-2.4	0.0 ± 0.0	0.3 ± 2.5	-2.7 ± 7.0	WC01302
RCFC1	267.9	-3.1	0.6 ± 1.1	2.6 ± 3.2	-4.0 ± 7.0	WC01303
RCFC2	325.8	-2.5	0.0 ± 0.0	1.7 ± 2.9	-7.5 ± 7.0	WC01304
RCFC3	296.8	-2.3	0.0 ± 0.0	-0.2 ± 2.3	1.3 ± 8.0	WC01305
RCFC4	348.9	-2.3	0.0 ± 0.0	1.7 ± 2.9	1.7 ± 8.0	WC01306
RCFC5	441.4	-2.4	0.0 ± 0.0	-1.1 ± 1.9	-0.1 ± 8.0	WC01307
RCFC6	684.2	-2.2	0.0 ± 0.0	1.7 ± 2.9	-5.1 ± 8.0	WC01308
RCFC7	591.7	-2.2	0.0 ± 0.0	-0.2 ± 2.3	-0.1 ± 8.0	WC01309
RCFC8	528.1	-1.8	0.0 ± 0.0	0.3 ± 2.5	3.1 ± 8.0	WC01310
RCFC9	585.9	-2.8	1.1 ± 1.6	-0.3 ± 2.3	-1.4 ± 8.0	WC01311
RCFD9	435.6	-2.5	0.0 ± 0.0	-0.2 ± 2.3	0.4 ± 8.0	WC01312
RCFD8	505.0	-2.4	0.6 ± 1.1	0.3 ± 2.5	-2.3 ± 8.0	WC01313
RCFD7	441.4	-2.7	1.1 ± 1.6	1.1 ± 2.8	-2.9 ± 8.0	WC01314
RCFD6	250.6	-2.4	0.0 ± 0.0	1.2 ± 2.8	-0.1 ± 8.0	WC01315
RCFD5	637.9	-2.2	0.0 ± 0.0	0.8 ± 2.6	5.3 ± 8.0	WC01316
RCFD4	296.8	-2.7	0.0 ± 0.0	0.3 ± 2.5	4.8 ± 8.0	WC01317

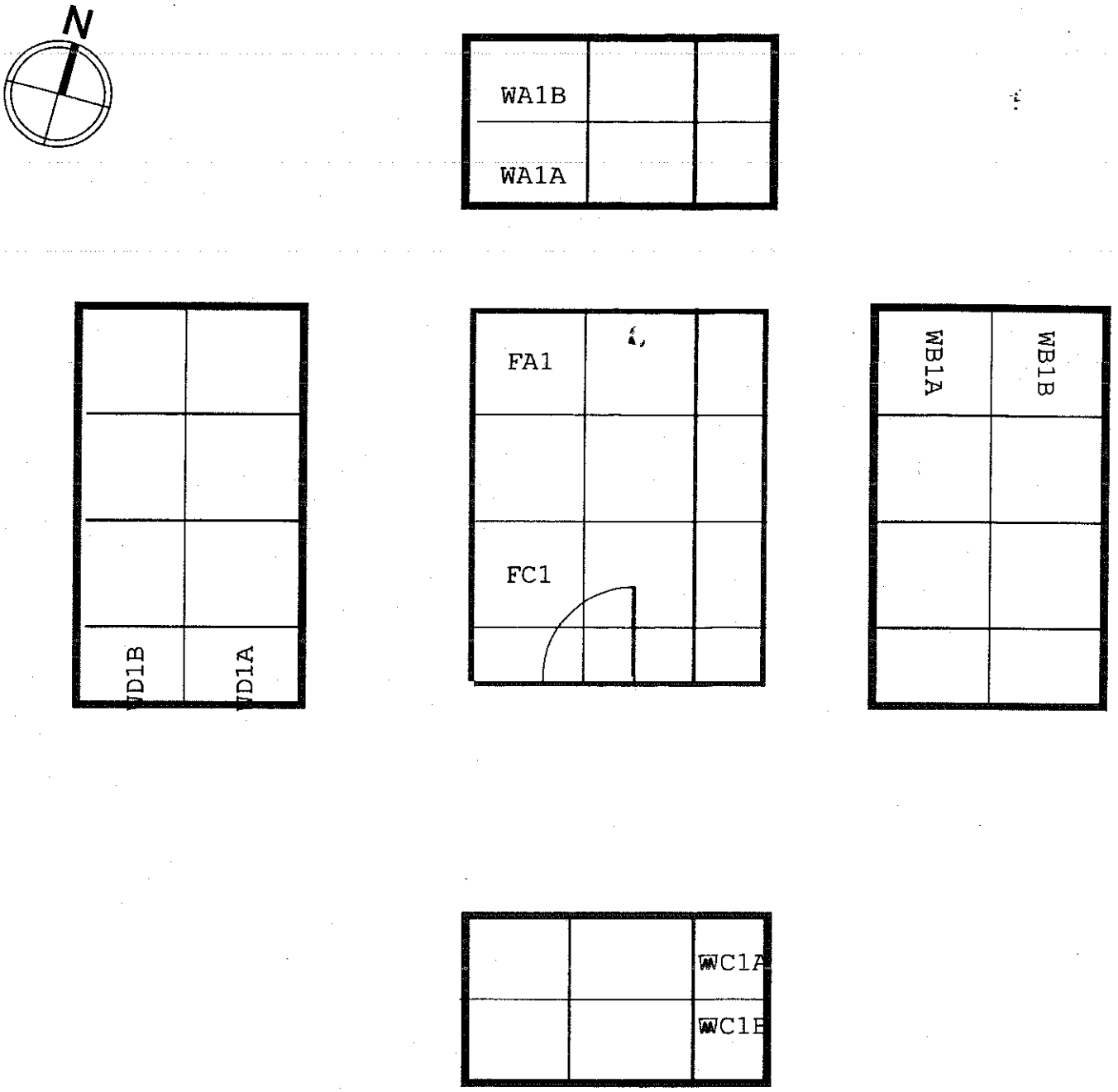
Walter Reed Army Institute of Research, Rm33_35						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	0.7 to 0.9	5.4 to 9.2	
(MDA =>)	332	-	1.56 *	5.91 *	45.89 *	
RCFD3	458.7	-2.7	0.0 ± 0.0	-0.2 ± 2.3	1.7 ± 8.0	WC01318
RCFD2	557.0	-2.9	1.1 ± 1.6	0.7 ± 2.7	-1.0 ± 8.0	WC01319
RCFD1	551.2	-3.3	0.0 ± 0.0	-1.1 ± 1.9	6.7 ± 9.0	WC01320
RCFE1	493.4	-3.7	0.0 ± 0.0	0.8 ± 2.6	-1.4 ± 8.0	WC01321
RCFE2	464.5	-3.2	0.0 ± 0.0	-0.6 ± 2.1	-2.3 ± 8.0	WC01322
RCFE3	476.1	-3.4	0.0 ± 0.0	0.3 ± 2.5	-1.0 ± 8.0	WC01323
RCFE4	516.5	-3.3	0.0 ± 0.0	0.8 ± 2.6	-4.6 ± 8.0	WC01324
RCFE5	372.0	-2.6	0.0 ± 0.0	-0.2 ± 2.3	-3.7 ± 8.0	WC01325
RCFE6	267.9	-2.9	0.0 ± 0.0	-0.6 ± 2.1	-0.5 ± 8.0	WC01326
RCFE7	227.5	-3.1	0.0 ± 0.0	-0.2 ± 2.3	-2.8 ± 8.0	WC01327
RCFE8	412.5	-3.2	0.0 ± 0.0	-1.1 ± 1.9	-0.5 ± 8.0	WC01328
RCFE9	522.3	-3.4	0.0 ± 0.0	-0.2 ± 2.3	-3.2 ± 8.0	WC01329
RCFF9	718.9	-3.5	0.6 ± 1.1	0.3 ± 2.5	6.2 ± 9.0	WC01330
RCFF8	320.0	-2.9	0.0 ± 0.0	-0.2 ± 2.3	-1.5 ± 8.0	WC01331
RCFF7	528.1	-2.7	0.0 ± 0.0	0.3 ± 2.5	-1.4 ± 8.0	WC01332
RCFF6	348.9	-3.5	0.0 ± 0.0	0.8 ± 2.6	-2.4 ± 8.0	WC01333
RCFF5	539.6	-3.9	0.0 ± 0.0	2.2 ± 3.1	-2.4 ± 8.0	WC01334
RCFF4	215.9	-3.4	1.1 ± 1.6	-1.2 ± 1.9	0.9 ± 9.0	WC01335
RCFF3	435.6	-2.5	1.1 ± 1.6	-0.7 ± 2.1	3.2 ± 9.0	WC01336
RCFF2	447.1	-2.8	0.0 ± 0.0	0.8 ± 2.6	-2.8 ± 8.0	WC01337
RCFF1	406.7	-3.8	0.0 ± 0.0	-0.6 ± 2.1	-0.1 ± 8.0	WC01338
RSFB1	267.9	-2.4	0.6 ± 1.1	0.7 ± 2.6	3.1 ± 8.0	WC01339
RSFA1	54.1	-3.3	0.0 ± 0.0	0.3 ± 2.5	5.4 ± 9.0	WC01340
RSFA2	-21.1	-2.7	0.0 ± 0.0	2.2 ± 3.1	2.7 ± 9.0	WC01341
RSFB3	250.6	-0.7	0.0 ± 0.0	1.7 ± 2.9	-1.0 ± 8.0	WC01342
RHFC1	597.5	-4.3	0.0 ± 0.0	5.4 ± 3.9	4.3 ± 9.0	WC01343
RHFD1	106.1	-4.9	0.0 ± 0.0	1.2 ± 2.8	3.3 ± 9.0	WC01344
RSFD1	-165.6	-4.9	0.0 ± 0.0	-1.1 ± 1.9	-6.9 ± 8.0	WC01345
RHFF3	-177.2	-4.5	0.0 ± 0.0	-0.2 ± 2.3	2.2 ± 8.0	WC01346
RHFF4	-113.6	-4.0	0.0 ± 0.0	-0.2 ± 2.3	4.0 ± 9.0	WC01347
RSFF4	-26.9	-4.6	0.0 ± 0.0	-0.6 ± 2.1	46.0 ± 13.0	WC01348
RSFC5	198.6	-2.9	0.0 ± 0.0	19.0 ± 6.3	11.0 ± 9.0	WC01349
B009	320.0	1.6	0.0 ± 0.0	-0.6 ± 2.1	1.3 ± 8.0	WC01350

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.55 to 1.56 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 5.2 to 5.91 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 20.71 to 45.89 dpm

GRAPHICAL ILLUSTRATION



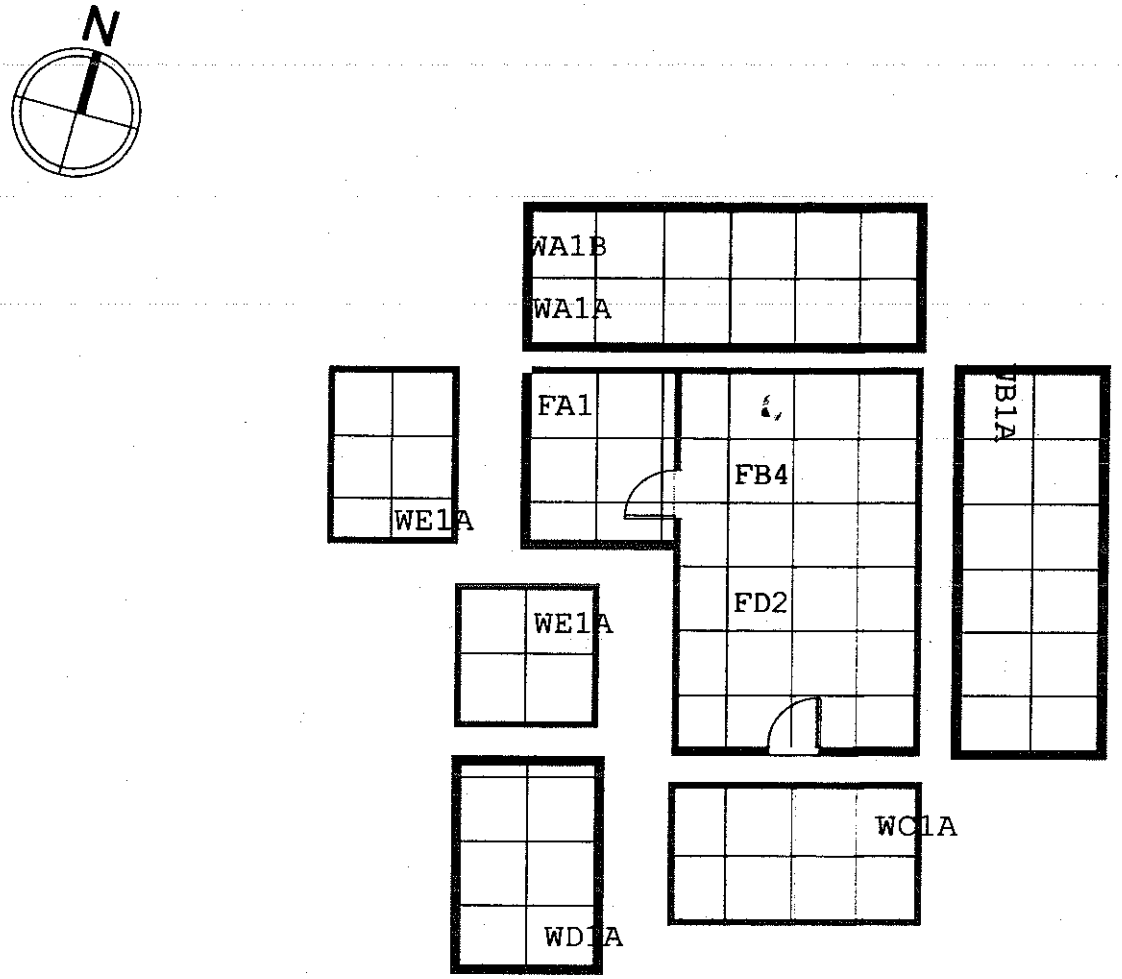
WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 31	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm31						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1	8.6	0.0	0.7	9.2	
(MDA =>)	305	-	1.55	5.20	45.35 *	
FA1	849.6	-2.2	0.0 ± 0.0	-0.2 ± 2.3	6.0 ± 9.0	WC01351
FA2	714.1	-2.1	0.0 ± 0.0	0.3 ± 2.5	-1.9 ± 8.0	WC01352
FA3	616.5	-1.7	0.0 ± 0.0	0.8 ± 2.6	-0.1 ± 8.0	WC01353
FB1	1093.6	-1.5	0.0 ± 0.0	-0.2 ± 2.3	-4.6 ± 8.0	WC01354
FB2	177.3	-1.9	0.0 ± 0.0	1.2 ± 2.8	-3.8 ± 8.0	WC01355
FB3	182.7	-2.1	0.0 ± 0.0	0.8 ± 2.6	3.7 ± 9.0	WC01356
FC1	936.4	-2.3	0.6 ± 1.1	1.7 ± 2.9	-2.0 ± 8.0	WC01357
FC2	139.3	-2.5	0.6 ± 1.1	-0.7 ± 2.1	-1.1 ± 9.0	WC01358
FC3	274.9	-2.8	0.0 ± 0.0	0.8 ± 2.6	-2.9 ± 8.0	WC01359
FD1	177.3	-3.2	0.0 ± 0.0	0.3 ± 2.5	2.3 ± 9.0	WC01360
FD2	231.5	-3.3	0.6 ± 1.1	-0.2 ± 2.3	8.6 ± 9.0	WC01361
FD3	74.3	-3.5	0.0 ± 0.0	0.3 ± 2.5	-0.1 ± 9.0	WC01362
WA1A	-88.4	-2.6	0.0 ± 0.0	0.8 ± 2.6	5.7 ± 8.0	WC01363
WA2A	-148.0	-2.7	1.1 ± 1.6	-0.3 ± 2.3	-5.5 ± 8.0	WC01364
WA3A	25.5	-2.8	0.0 ± 0.0	-0.6 ± 2.1	0.4 ± 8.0	WC01365
WA1B	-39.6	-2.3	0.0 ± 0.0	0.3 ± 2.5	-2.3 ± 8.0	WC01366
WA2B	-88.4	-2.9	0.0 ± 0.0	-0.6 ± 2.1	-1.0 ± 8.0	WC01367
WA3B	-88.4	-3.3	1.1 ± 1.6	-0.3 ± 2.3	-2.8 ± 8.0	WC01368
WB1A	-66.7	-3.0	0.0 ± 0.0	-0.2 ± 2.3	7.0 ± 9.0	WC01369
WB2A	-202.2	-2.8	0.6 ± 1.1	1.7 ± 2.9	1.3 ± 8.0	WC01370
WB3A	-142.6	-2.9	0.0 ± 0.0	-1.1 ± 1.9	-2.8 ± 8.0	WC01371
WB4A	-115.5	-3.6	0.6 ± 1.1	-1.1 ± 1.9	-1.9 ± 8.0	WC01372
WB1B	-104.6	-2.6	0.6 ± 1.1	-0.2 ± 2.3	0.4 ± 8.0	WC01373
WB2B	-93.8	-3.1	0.6 ± 1.1	0.7 ± 2.6	1.3 ± 8.0	WC01374
WB3B	-77.5	-2.9	0.0 ± 0.0	-0.2 ± 2.3	1.3 ± 8.0	WC01375
WB4B	-186.0	-3.8	0.0 ± 0.0	0.8 ± 2.6	0.4 ± 8.0	WC01376
WC1A	-196.8	-3.9	1.1 ± 1.6	0.7 ± 2.7	6.3 ± 9.0	WC01377
WC2A	-283.6	-3.6	0.0 ± 0.0	0.8 ± 2.6	2.6 ± 8.0	WC01378
WC3A	-148.0	-3.8	0.0 ± 0.0	2.2 ± 3.1	-5.9 ± 7.0	WC01379
WC1B	-153.4	-3.8	0.6 ± 1.1	-0.2 ± 2.3	-2.3 ± 8.0	WC01380
WC2B	-202.2	-3.6	0.6 ± 1.1	-0.2 ± 2.3	-0.1 ± 8.0	WC01381
WC3B	-261.9	-3.4	0.0 ± 0.0	-0.6 ± 2.1	4.4 ± 8.0	WC01382
WD1A	-289.0	-3.4	0.0 ± 0.0	-1.1 ± 1.9	-0.1 ± 8.0	WC01383
WD2A	-1.6	-2.8	0.0 ± 0.0	0.8 ± 2.6	0.4 ± 8.0	WC01384
WD3A	-218.5	-2.9	0.0 ± 0.0	3.1 ± 3.3	9.0 ± 9.0	WC01385
WD4A	-77.5	-2.3	0.0 ± 0.0	0.3 ± 2.5	-2.3 ± 8.0	WC01386
WD1B	-164.3	-3.6	0.0 ± 0.0	-0.2 ± 2.3	2.6 ± 8.0	WC01387
WD2B	-148.0	-3.1	0.0 ± 0.0	-0.6 ± 2.1	2.6 ± 8.0	WC01388
WD3B	-110.1	-2.8	0.0 ± 0.0	-0.6 ± 2.1	5.3 ± 9.0	WC01389
WD4B	-104.6	-1.5	0.0 ± 0.0	-0.6 ± 2.1	1.3 ± 8.0	WC01390
RCFA1	421.3	-3.2	0.0 ± 0.0	0.8 ± 2.6	2.2 ± 8.0	WC01391
RCFA2	508.0	-3.3	0.6 ± 1.1	0.3 ± 2.5	0.4 ± 8.0	WC01392
RCFA3	410.4	-3.3	0.0 ± 0.0	0.8 ± 2.6	-5.1 ± 8.0	WC01393
RCFB1	453.8	-3.5	0.0 ± 0.0	-0.2 ± 2.3	-3.3 ± 8.0	WC01394
RCFB2	329.1	-3.1	0.0 ± 0.0	-0.2 ± 2.3	4.5 ± 9.0	WC01395
RCFB3	453.8	-3.0	0.0 ± 0.0	0.3 ± 2.5	-7.0 ± 8.0	WC01396
RCFC1	480.9	-3.1	0.0 ± 0.0	0.3 ± 2.5	-2.8 ± 8.0	WC01397
RCFC2	443.0	-3.2	0.0 ± 0.0	0.8 ± 2.6	2.2 ± 8.0	WC01398
RCFC3	453.8	-3.6	0.0 ± 0.0	0.8 ± 2.6	-0.6 ± 8.0	WC01399

Walter Reed Army Institute of Research, Rm31						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	207.1	8.6	0.0	0.7	9.2	
(MDA =>)	305	-	1.55	5.20	45.35 *	
RCFD1	372.5	-3.2	0.0 ± 0.0	1.2 ± 2.8	-0.1 ± 8.0	WC01400
RCFD2	177.3	-4.0	0.0 ± 0.0	-1.6 ± 1.7	3.5 ± 8.0	WC01401
RCFD3	405.0	-4.2	1.1 ± 1.6	1.6 ± 3.0	-2.3 ± 8.0	WC01402
RSFA2	85.1	-2.7	0.6 ± 1.1	-0.2 ± 2.3	0.8 ± 8.0	WC01403
B010	204.4	-1.1	0.0 ± 0.0	0.3 ± 2.5	3.4 ± 8.0	WC01404

* Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 39.75 to 45.35 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 29-29A	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm29_29A						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5 to 215.5	8.6	0.0 to 0.2	0.7 to 1.6	8.8 to 9.2	
(MDA =>)	332	-	4.13 *	6.87 *	45.53 *	
FA1	152.3	-2.0	0.0 ± 0.0	2.2 ± 3.1	0.8 ± 8.0	WC01405
FA2	400.9	-0.7	0.6 ± 1.1	-0.2 ± 2.3	9.8 ± 9.0	WC01406
FA3	395.1	-1.7	0.0 ± 0.0	-0.6 ± 2.1	-1.9 ± 8.0	WC01407
FA4	308.4	-0.6	0.0 ± 0.0	-0.6 ± 2.1	0.4 ± 8.0	WC01408
FA5	320.0	-0.5	0.0 ± 0.0	-0.6 ± 2.1	1.7 ± 8.0	WC01409
FA6	331.5	0.0	0.0 ± 0.0	-1.6 ± 1.7	-4.6 ± 8.0	WC01410
FB1	221.7	-1.4	0.0 ± 0.0	-0.6 ± 2.1	0.8 ± 8.0	WC01411
FB2	158.1	-1.1	0.0 ± 0.0	-0.6 ± 2.1	-2.8 ± 8.0	WC01412
FB3	395.1	-0.8	0.0 ± 0.0	-0.6 ± 2.1	-1.0 ± 8.0	WC01413
FB4	343.1	-0.7	1.1 ± 1.6	-1.6 ± 1.7	-1.5 ± 8.0	WC01414
FB5	210.1	-0.1	0.0 ± 0.0	-1.1 ± 1.9	-2.0 ± 8.0	WC01415
FB6	395.1	-0.2	0.6 ± 1.1	-0.2 ± 2.3	-1.0 ± 8.0	WC01416
FC1	377.8	-2.0	0.6 ± 1.1	0.7 ± 2.6	2.7 ± 9.0	WC01417
FC2	267.9	-1.7	0.0 ± 0.0	-0.6 ± 2.1	-1.0 ± 8.0	WC01418
FC3	123.4	-1.5	0.0 ± 0.0	-1.1 ± 1.9	4.6 ± 9.0	WC01419
FC4	192.8	-1.9	0.0 ± 0.0	0.8 ± 2.6	-3.8 ± 8.0	WC01420
FC5	135.0	-1.6	0.6 ± 1.1	-0.7 ± 2.1	-3.3 ± 8.0	WC01421
FC6	175.4	-1.7	0.0 ± 0.0	-1.1 ± 1.9	-1.5 ± 8.0	WC01422
FD1	77.2	-2.3	0.0 ± 0.0	-0.6 ± 2.1	0.8 ± 8.0	WC01423
FD2	233.3	-2.3	0.0 ± 0.0	1.2 ± 2.8	-3.3 ± 8.0	WC01424
FD3	343.1	-2.2	0.0 ± 0.0	-0.2 ± 2.3	-6.9 ± 7.0	WC01425
FD4	106.1	-2.3	0.4 ± 1.3	2.8 ± 3.4	-3.3 ± 8.0	WC01426
FE1	250.6	-2.8	-0.2 ± 0.7	2.3 ± 3.3	1.3 ± 8.0	WC01427
FE2	204.4	-2.6	0.4 ± 1.3	-0.5 ± 2.4	-1.9 ± 8.0	WC01428
FE3	256.4	-2.2	0.4 ± 1.3	-1.4 ± 2.1	3.1 ± 8.0	WC01429
FE4	204.4	-2.7	-0.2 ± 0.7	0.0 ± 2.6	1.7 ± 8.0	WC01430
FF1	204.4	-2.8	0.4 ± 1.3	-1.0 ± 2.2	-1.5 ± 8.0	WC01431
FF2	123.4	-3.0	-0.2 ± 0.7	-1.4 ± 2.0	1.8 ± 9.0	WC01432
FF3	320.0	-2.6	-0.2 ± 0.7	0.5 ± 2.7	-3.3 ± 8.0	WC01433
FF4	146.5	-2.9	-0.2 ± 0.7	-0.5 ± 2.4	4.4 ± 8.0	WC01434
WA1A	71.4	-1.5	-0.2 ± 0.7	1.4 ± 3.0	1.3 ± 9.0	WC01435
WA2A	2.0	-0.5	1.5 ± 2.1	1.3 ± 3.1	-0.1 ± 8.0	WC01436
WA3A	65.6	-0.6	-0.2 ± 0.7	1.9 ± 3.2	-4.5 ± 7.0	WC01437
WA4A	244.8	0.9	-0.2 ± 0.7	-0.5 ± 2.4	-1.5 ± 8.0	WC01438
WA5A	-32.7	0.5	-0.2 ± 0.7	-0.9 ± 2.2	4.0 ± 8.0	WC01439
WA6A	42.5	-0.1	-0.2 ± 0.7	-0.9 ± 2.2	-0.1 ± 8.0	WC01440
WA1B	36.7	-1.1	0.4 ± 1.3	-0.5 ± 2.4	5.2 ± 8.0	WC01441
WA2B	94.5	-1.1	0.4 ± 1.3	-1.0 ± 2.2	1.3 ± 8.0	WC01442
WA3B	163.9	-1.0	1.0 ± 1.7	-0.5 ± 2.4	-1.5 ± 8.0	WC01443
WA4B	-32.7	-0.9	0.4 ± 1.3	0.9 ± 2.9	-3.1 ± 11.0	WC01444
WA5B	59.8	-1.0	-0.2 ± 0.7	-0.9 ± 2.2	-2.8 ± 9.0	WC01445
WA6B	-21.1	-1.5	-0.2 ± 0.7	0.5 ± 2.7	-2.1 ± 9.0	WC01446
WB1A	-90.5	-1.0	-0.2 ± 0.7	0.0 ± 2.6	1.2 ± 8.0	WC01447
WB2A	-21.1	-0.5	0.4 ± 1.3	-1.4 ± 2.1	3.4 ± 8.0	WC01448
WB3A	-142.5	-1.1	-0.2 ± 0.7	-0.9 ± 2.2	-1.0 ± 8.0	WC01449
WB4A	-113.6	-1.8	-0.2 ± 0.7	-0.9 ± 2.2	-1.4 ± 8.0	WC01450
WB5A	-44.2	-2.3	0.4 ± 1.3	0.0 ± 2.6	-2.3 ± 8.0	WC01451
WB6A	-258.1	-3.1	-0.2 ± 0.7	0.0 ± 2.6	-8.5 ± 7.0	WC01452
WB1B	25.1	-1.0	0.4 ± 1.3	0.0 ± 2.6	1.2 ± 8.0	WC01453

Walter Reed Army Institute of Research, Rm29_29A						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5 to 215.5	8.6	0.0 to 0.2	0.7 to 1.6	8.8 to 9.2	
(MDA =>)	332	-	4.13 *	6.87 *	45.53 *	
WB2B	-90.5	-1.6	0.4 ± 1.3	0.4 ± 2.7	-1.0 ± 8.0	WC01454
WB3B	-67.3	-1.7	-0.2 ± 0.7	-0.9 ± 2.2	-1.0 ± 8.0	WC01455
WB4B	-177.2	-2.1	-0.2 ± 0.7	-0.5 ± 2.4	-0.1 ± 8.0	WC01456
WB5B	-235.0	-2.6	-0.2 ± 0.7	0.5 ± 2.7	-0.1 ± 8.0	WC01457
WB6B	-165.6	-3.2	-0.2 ± 0.7	-0.9 ± 2.2	4.8 ± 8.0	WC01458
WC1A	-252.3	-3.1	-0.2 ± 0.7	-1.9 ± 1.8	1.3 ± 8.0	WC01459
WC2A	-84.7	-3.6	-0.2 ± 0.7	-1.4 ± 2.0	-3.2 ± 8.0	WC01460
WC3A	-223.4	-3.4	-0.2 ± 0.7	-0.9 ± 2.2	0.4 ± 8.0	WC01461
WC4A	-200.3	-3.8	-0.2 ± 0.7	-1.4 ± 2.0	3.0 ± 8.0	WC01462
WC1B	-292.8	-2.7	-0.2 ± 0.7	0.0 ± 2.6	0.4 ± 8.0	WC01463
WC2B	-78.9	-3.1	-0.2 ± 0.7	-1.4 ± 2.0	-4.1 ± 8.0	WC01464
WC3B	-119.4	-3.1	0.4 ± 1.3	-1.0 ± 2.2	-0.1 ± 8.0	WC01465
WC4B	-258.1	-3.7	-0.2 ± 0.7	-0.9 ± 2.2	3.9 ± 8.0	WC01466
WD1A	-165.6	-3.8	0.4 ± 1.3	0.4 ± 2.7	0.8 ± 8.0	WC01467
WD2A	-177.2	-3.5	-0.2 ± 0.7	0.0 ± 2.6	4.4 ± 9.0	WC01468
WD3A	-171.4	-2.8	-0.2 ± 0.7	0.5 ± 2.7	-2.8 ± 8.0	WC01469
WD4A	-73.1	-1.7	-0.2 ± 0.7	-1.4 ± 2.0	1.3 ± 8.0	WC01470
WD5A	-90.5	-1.2	1.0 ± 1.7	-0.5 ± 2.4	4.8 ± 8.0	WC01471
WD6A	-50.0	-0.7	-0.2 ± 0.7	2.8 ± 3.4	1.2 ± 8.0	WC01472
WD1B	127.8	-2.2	-0.2 ± 0.7	-0.9 ± 2.2	4.4 ± 8.0	WC01473
WD2B	-206.1	-3.0	-0.2 ± 0.7	0.5 ± 2.7	-3.7 ± 8.0	WC01474
WD3B	-188.7	-2.6	1.0 ± 1.7	0.4 ± 2.8	-0.1 ± 8.0	WC01475
WD4B	-113.6	-2.7	-0.2 ± 0.7	-1.9 ± 1.8	1.3 ± 8.0	WC01476
WD5B	-26.9	-2.5	-0.2 ± 0.7	-0.5 ± 2.4	0.4 ± 8.0	WC01477
WD6B	-96.3	-1.7	1.0 ± 1.7	-0.1 ± 2.6	4.4 ± 8.0	WC01478
WE1A	-78.9	-0.4	-0.2 ± 0.7	0.5 ± 2.7	0.4 ± 8.0	WC01479
WE2A	2.0	-1.3	-0.2 ± 0.7	-0.5 ± 2.4	0.8 ± 8.0	WC01480
WE1B	-32.7	-1.5	0.4 ± 1.3	-1.0 ± 2.2	-0.1 ± 8.0	WC01481
WE2B	-38.4	-2.1	0.4 ± 1.3	0.9 ± 2.9	-1.4 ± 8.0	WC01482
WF1A	-142.5	-1.7	0.4 ± 1.3	-1.0 ± 2.2	1.3 ± 8.0	WC01483
WF2A	-73.1	-1.7	0.4 ± 1.3	0.0 ± 2.6	-3.7 ± 8.0	WC01484
WF3A	-148.3	-1.7	-0.2 ± 0.7	-0.9 ± 2.2	-1.4 ± 8.0	WC01485
WF1B	-15.3	-1.9	0.4 ± 1.3	-1.0 ± 2.2	-0.5 ± 8.0	WC01486
WF2B	-21.1	-2.4	-0.2 ± 0.7	0.5 ± 2.7	1.2 ± 8.0	WC01487
WF3B	-84.7	-2.4	-0.2 ± 0.7	-0.9 ± 2.2	0.8 ± 8.0	WC01488
WG1A	-159.8	-1.8	-0.2 ± 0.7	0.5 ± 2.7	2.2 ± 8.0	WC01489
WG2A	-90.5	-1.1	1.0 ± 1.7	1.8 ± 3.2	-5.9 ± 7.0	WC01490
WG3A	-130.9	-0.9	-0.2 ± 0.7	-0.5 ± 2.4	-1.0 ± 8.0	WC01491
WG1B	-165.6	-1.5	0.4 ± 1.3	-0.5 ± 2.4	1.3 ± 8.0	WC01492
WG2B	-188.7	-1.4	-0.2 ± 0.7	-1.4 ± 2.0	-2.3 ± 8.0	WC01493
WG3B	-84.7	-1.6	-0.2 ± 0.7	0.0 ± 2.6	7.9 ± 9.0	WC01494
WE3A	-50.0	-0.8	0.4 ± 1.3	-1.0 ± 2.2	2.1 ± 8.0	WC01495
WE3B	-113.6	-1.9	0.4 ± 1.3	1.4 ± 3.0	3.0 ± 8.0	WC01496
RCFA1	840.2	-1.7	-0.2 ± 0.7	0.9 ± 2.9	-1.9 ± 8.0	WC01497
RCFA2	510.7	-2.0	0.4 ± 1.3	0.9 ± 2.9	-0.1 ± 8.0	WC01498
RCFA3	562.8	-1.6	1.0 ± 1.7	0.4 ± 2.8	0.4 ± 8.0	WC01499
RCFA4	447.1	-2.3	-0.2 ± 0.7	0.0 ± 2.6	-6.4 ± 7.0	WC01500
RCFA5	557.0	-2.5	-0.6 ± 1.1	-0.9 ± 3.2	4.4 ± 11.0	WC01501
RCFA6	713.1	-2.4	-0.6 ± 1.1	0.9 ± 3.6	-3.8 ± 9.0	WC01502

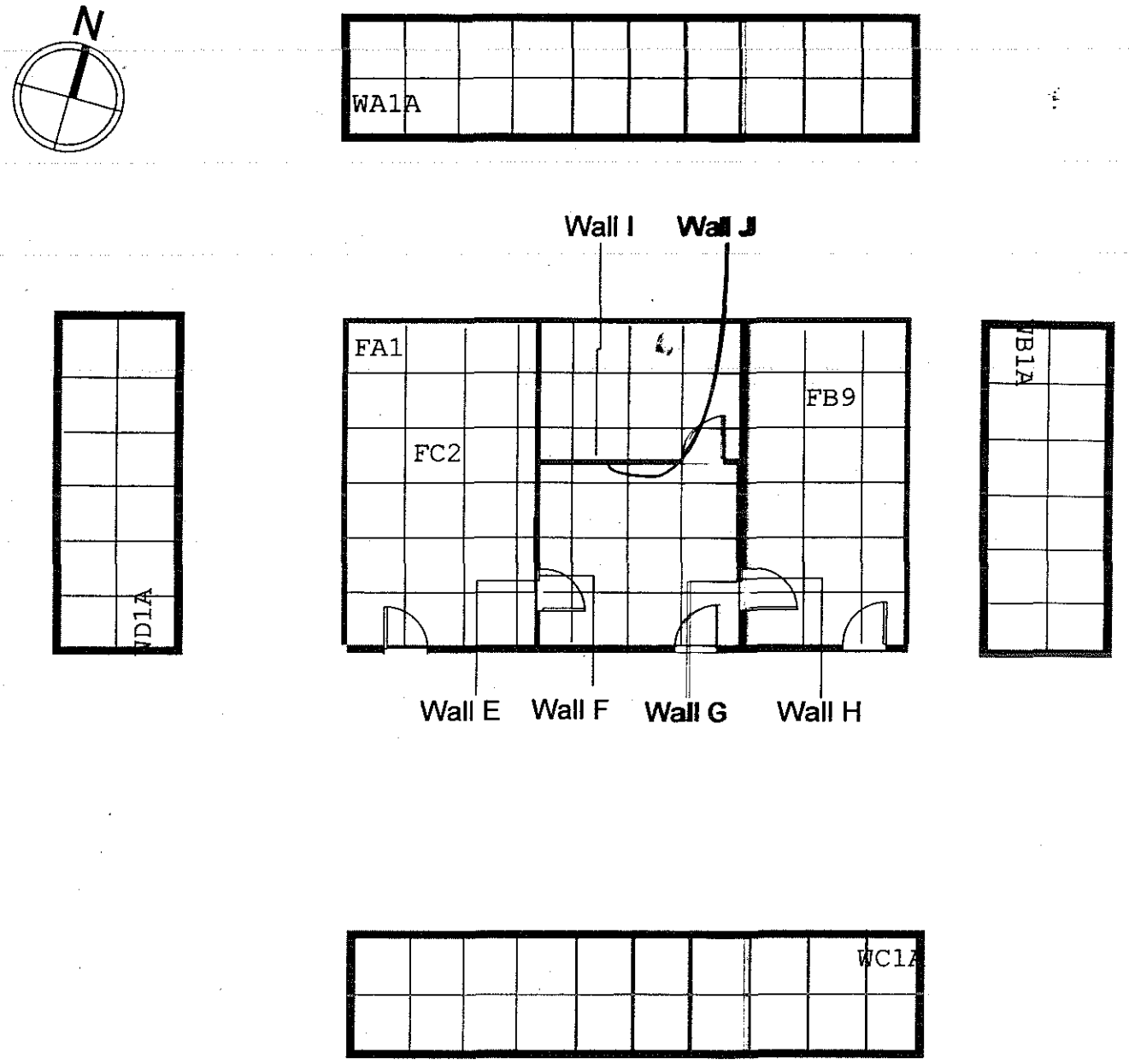
Walter Reed Army Institute of Research, Rm29_29A						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5 to 215.5	8.6	0.0 to 0.2	0.7 to 1.6	8.8 to 9.2	
(MDA =>)	332	-	4.13 *	6.87 *	45.53 *	
RCFB1	574.3	-2.4	-0.6 ± 1.1	1.3 ± 3.7	8.4 ± 11.0	WC01503
RCFB2	568.5	-1.7	-0.6 ± 1.1	1.3 ± 3.7	0.6 ± 10.0	WC01504
RCFB3	458.7	-1.5	0.0 ± 1.6	1.3 ± 3.7	1.7 ± 10.0	WC01505
RCFB4	718.9	-1.4	-0.6 ± 1.1	2.6 ± 4.0	-0.6 ± 10.0	WC01506
RCFB5	516.5	-1.7	-0.6 ± 1.1	0.0 ± 3.4	1.1 ± 10.0	WC01507
RCFB6	672.6	-2.3	0.0 ± 1.6	-0.4 ± 3.3	-2.2 ± 9.0	WC01508
RCFC1	400.9	-2.2	-0.6 ± 1.1	-0.4 ± 3.3	2.3 ± 11.0	WC01509
RCFC2	481.8	-2.2	-0.6 ± 1.1	0.0 ± 3.4	-2.8 ± 10.0	WC01510
RCFC3	655.3	-3.0	0.0 ± 1.6	-1.3 ± 3.1	-3.5 ± 10.0	WC01511
RCFC4	447.1	-2.5	0.0 ± 1.6	-0.4 ± 3.3	-1.1 ± 10.0	WC01512
RCFC5	458.7	-2.1	-0.6 ± 1.1	-0.9 ± 3.2	-2.8 ± 10.0	WC01513
RCFC6	551.2	-2.4	-0.6 ± 1.1	1.3 ± 3.7	2.9 ± 11.0	WC01514
RCFD1	458.7	-2.8	-0.6 ± 1.1	0.9 ± 3.6	2.3 ± 11.0	WC01515
RCFD2	429.8	-2.3	-0.6 ± 1.1	-1.3 ± 3.1	4.1 ± 11.0	WC01516
RCFD3	637.9	-2.3	0.0 ± 1.6	0.9 ± 3.6	2.8 ± 10.0	WC01517
RCFD4	580.1	-2.5	0.6 ± 1.9	0.8 ± 3.6	7.4 ± 11.0	WC01518
RCFE1	545.4	-2.7	-0.6 ± 1.1	-0.9 ± 3.2	3.3 ± 11.0	WC01519
RCFE2	551.2	-2.7	-0.6 ± 1.1	-0.9 ± 3.2	-0.6 ± 10.0	WC01520
RCFE3	452.9	-2.9	-0.6 ± 1.1	-2.2 ± 2.8	-3.9 ± 9.0	WC01521
RCFE4	481.8	-2.7	-0.6 ± 1.1	1.7 ± 3.8	1.7 ± 10.0	WC01522
RCFF1	493.4	-3.6	0.0 ± 1.6	0.9 ± 3.6	11.0 ± 11.0	WC01523
RCFF2	366.2	-3.2	-0.6 ± 1.1	-0.9 ± 3.2	4.0 ± 11.0	WC01524
RCFF3	551.2	-3.1	1.1 ± 2.2	-0.1 ± 3.4	0.0 ± 10.0	WC01525
RCFF4	505.0	-3.6	-0.6 ± 1.1	0.4 ± 3.5	3.4 ± 11.0	WC01526
B009	163.9	-3.0	-0.6 ± 1.1	-1.3 ± 3.1	-3.4 ± 10.0	WC01527

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.55 to 4.13 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 5.2 to 6.87 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 33.96 to 45.53 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 23, 25, 27	DATE 04 APR 99
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	DRAWN D. COLLINS APPROVED _____ SCALE NTS

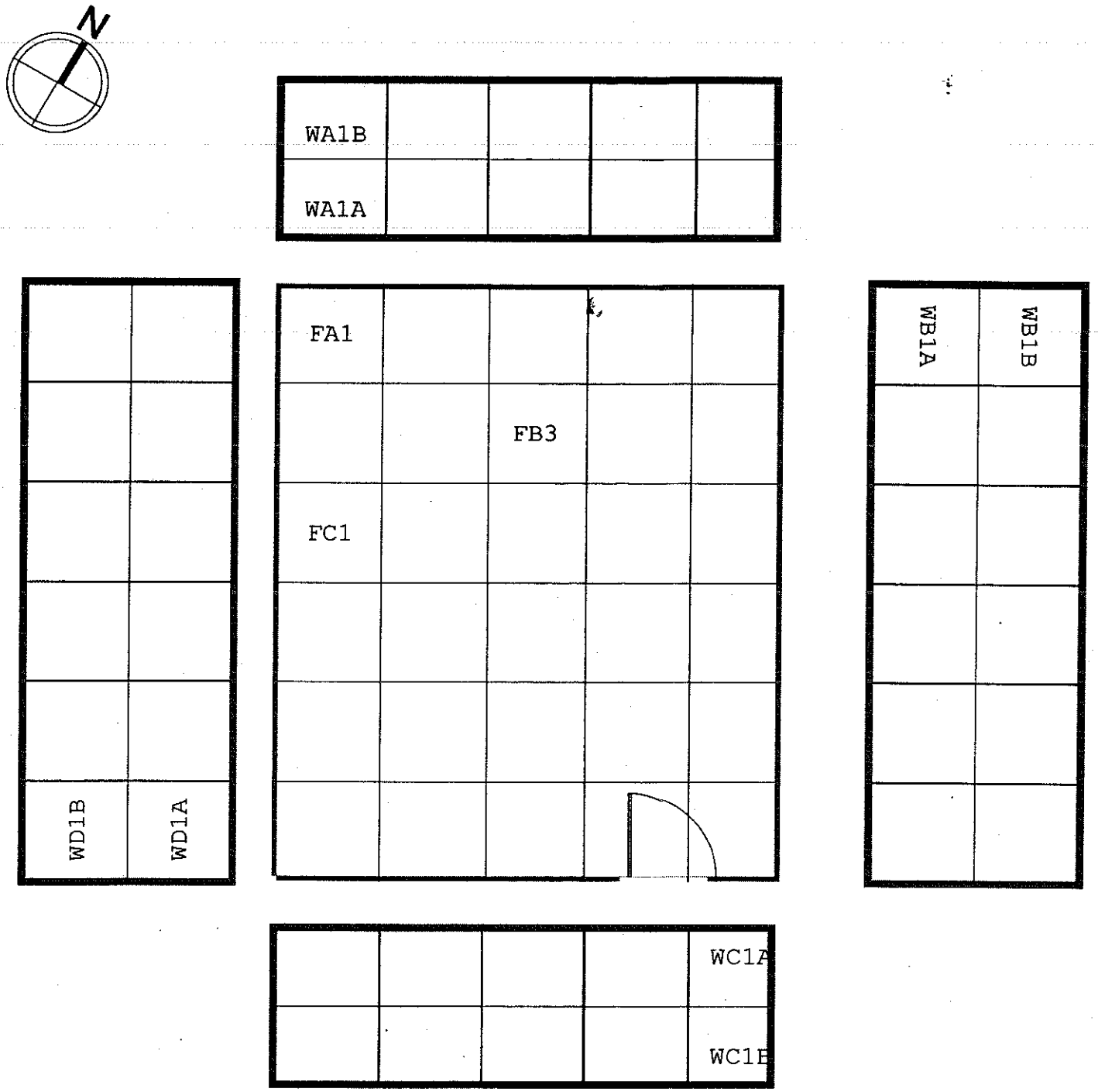
Walter Reed Army Institute of Research, Rm23_27						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0 to 0.2	0.9 to 1.6	8.8	
(MDA =>)	332	-	4.13 *	6.87 *	37.71 *	
FA4	181.2	-1.9	-0.6 ± 1.1	0.9 ± 3.6	1.8 ± 11.0	WC01528
FA5	256.4	-1.1	-0.6 ± 1.1	0.0 ± 3.4	6.2 ± 11.0	WC01529
FB2	360.4	-1.1	-0.6 ± 1.1	-0.4 ± 3.3	2.3 ± 11.0	WC01530
FB8	71.4	-1.1	-0.6 ± 1.1	-0.9 ± 3.2	2.2 ± 11.0	WC01531
FE2	163.9	-1.5	-0.6 ± 1.1	-0.4 ± 3.3	6.1 ± 11.0	WC01532
FE3	215.9	-2.6	0.0 ± 1.6	0.0 ± 3.4	11.0 ± 12.0	WC01533
FE5	239.0	-2.8	-0.6 ± 1.1	-0.4 ± 3.3	8.9 ± 11.0	WC01534
FE7	285.3	-1.4	0.0 ± 1.6	-1.3 ± 3.1	-5.0 ± 9.0	WC01535
FE9	215.9	-1.8	0.0 ± 1.6	1.7 ± 3.8	-6.1 ± 9.0	WC01536
FF2	279.5	-2.7	0.6 ± 1.9	1.7 ± 3.8	-0.6 ± 10.0	WC01537
FF7	204.4	-3.4	-0.6 ± 1.1	0.0 ± 3.4	-6.2 ± 9.0	WC01538
FF8	65.6	-2.5	0.0 ± 1.6	0.9 ± 3.6	4.0 ± 11.0	WC01539
WA2B	-67.3	-1.3	0.0 ± 1.6	0.4 ± 3.5	1.1 ± 10.0	WC01540
WA3B	-102.0	-1.7	-0.6 ± 1.1	-1.3 ± 3.1	5.9 ± 11.0	WC01541
WA5B	-44.2	-1.7	-0.6 ± 1.1	0.4 ± 3.5	8.8 ± 11.0	WC01542
WA6B	-38.4	-1.6	-0.6 ± 1.1	-0.9 ± 3.2	2.1 ± 10.0	WC01543
WA7B	-194.5	-1.5	-0.6 ± 1.1	-0.4 ± 3.3	-3.8 ± 9.0	WC01544
WB5A	-125.2	-1.6	-0.6 ± 1.1	-0.4 ± 3.3	16.0 ± 12.0	WC01545
WB2B	-235.0	-1.1	0.0 ± 1.6	0.9 ± 3.6	3.8 ± 10.0	WC01546
WC4A	-96.3	-1.8	-0.6 ± 1.1	0.9 ± 3.6	1.1 ± 10.0	WC01547
WC5A	-211.9	-2.0	-0.6 ± 1.1	-0.9 ± 3.2	3.3 ± 10.0	WC01548
WC8B	-32.7	-2.7	-0.6 ± 1.1	0.4 ± 3.5	-1.6 ± 9.0	WC01549
WD6B	-96.3	-1.5	-0.6 ± 1.1	1.7 ± 3.8	-5.9 ± 9.0	WC01550
WE3A	-96.3	-1.6	0.0 ± 0.0	0.2 ± 2.8	2.2 ± 10.0	WC01551
WE5A	-32.7	-2.2	0.6 ± 1.1	-1.7 ± 2.1	1.7 ± 10.0	WC01552
WG2A	-229.2	-1.7	0.0 ± 0.0	0.2 ± 2.8	1.1 ± 10.0	WC01553
WG3B	-21.1	-2.0	0.0 ± 0.0	2.9 ± 3.5	4.4 ± 10.0	WC01554
WH3B	-154.1	-2.2	0.0 ± 0.0	-0.8 ± 2.5	2.2 ± 10.0	WC01555
WH6B	-44.2	-0.3	0.0 ± 0.0	0.6 ± 2.9	4.9 ± 10.0	WC01556
WI2A	7.8	-1.7	0.0 ± 0.0	-0.3 ± 2.6	3.8 ± 11.0	WC01557

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.56 to 4.13 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 5.83 to 6.87 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 34.25 to 37.71 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Room 21	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

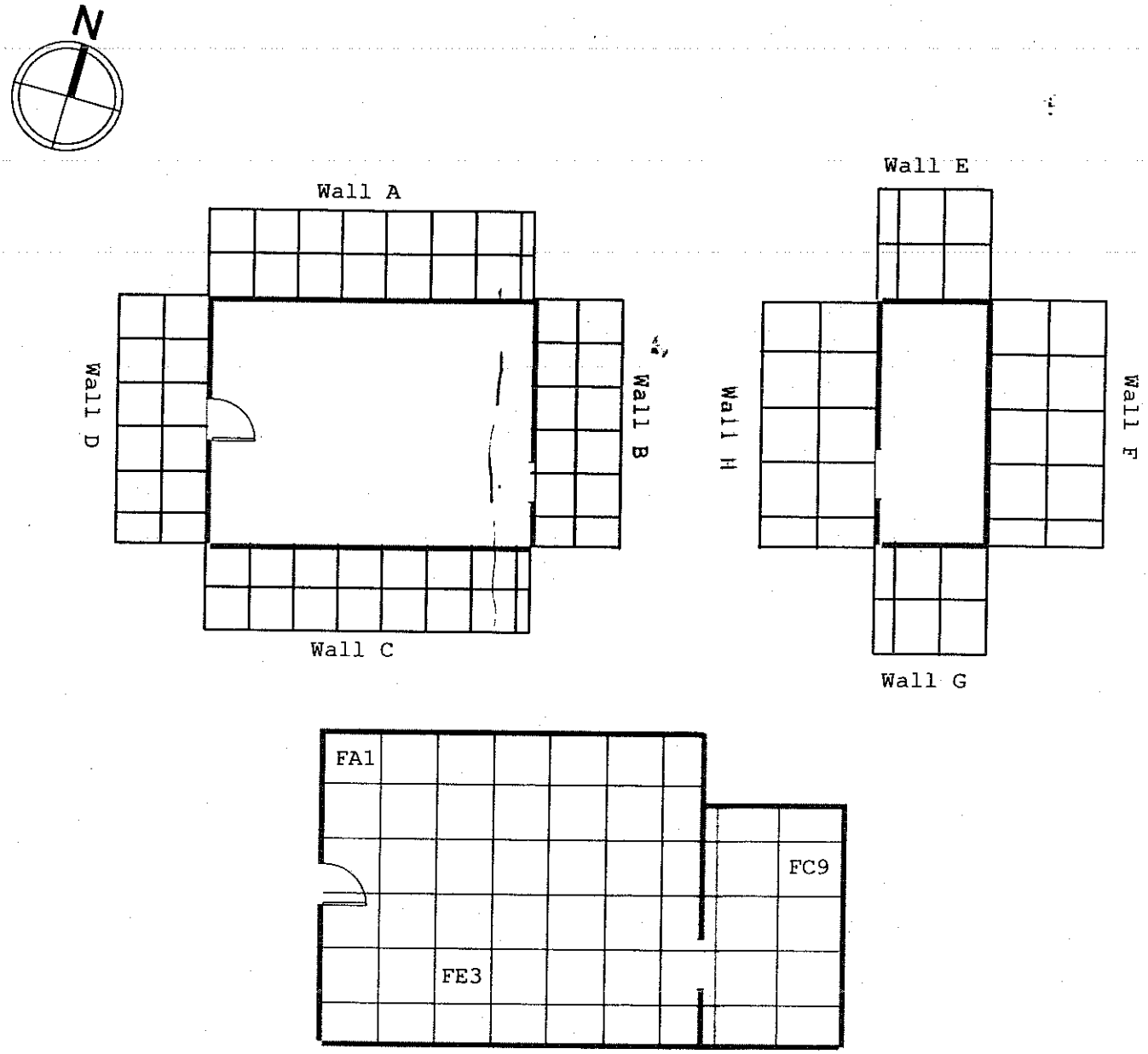
Walter Reed Army Institute of Research, Rm21						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	0.9	8.8	
(MDA =>)	332	-	1.56	5.83	38.79 *	
FA1	262.2	1.3	0.0 ± 0.0	-0.3 ± 2.6	6.2 ± 11.0	WC01558
FA2	412.5	3.2	0.6 ± 1.1	1.0 ± 3.1	-2.6 ± 12.0	WC01559
FA3	505.0	2.8	0.0 ± 0.0	0.6 ± 2.9	-1.1 ± 10.0	WC01560
FA4	395.1	3.2	0.0 ± 0.0	-0.3 ± 2.6	-2.8 ± 10.0	WC01561
FA5	522.3	4.5	0.0 ± 0.0	-0.8 ± 2.5	0.6 ± 11.0	WC01562
FB1	111.9	1.4	0.0 ± 0.0	-0.3 ± 2.6	4.3 ± 12.0	WC01563
FB2	452.9	1.1	0.0 ± 0.0	-0.8 ± 2.5	-1.7 ± 10.0	WC01564
FB3	372.0	1.6	0.0 ± 0.0	-1.2 ± 2.3	-0.6 ± 10.0	WC01565
FB4	406.7	3.0	0.6 ± 1.1	3.3 ± 3.7	-0.6 ± 10.0	WC01566
FB5	239.0	4.1	0.0 ± 0.0	0.2 ± 2.8	-1.2 ± 11.0	WC01567
FC1	198.6	1.4	0.0 ± 0.0	1.1 ± 3.1	15.0 ± 13.0	WC01568
FC2	146.5	0.8	0.0 ± 0.0	-0.8 ± 2.5	2.3 ± 11.0	WC01569
FC3	406.7	1.8	0.0 ± 0.0	0.2 ± 2.8	4.2 ± 12.0	WC01570
FC4	470.3	2.1	0.0 ± 0.0	-1.2 ± 2.3	0.0 ± 10.0	WC01571
FC5	395.1	3.2	0.0 ± 0.0	0.2 ± 2.8	12.0 ± 11.0	WC01572
FD1	163.9	0.2	0.0 ± 0.0	-0.3 ± 2.6	11.0 ± 13.0	WC01573
FD2	452.9	0.7	0.6 ± 1.1	-0.8 ± 2.5	-5.1 ± 9.0	WC01574
FD3	452.9	0.8	0.0 ± 0.0	-1.2 ± 2.3	0.6 ± 11.0	WC01575
FD4	412.5	1.9	0.0 ± 0.0	-0.8 ± 2.5	1.7 ± 11.0	WC01576
FD5	481.8	2.5	0.6 ± 1.1	-0.3 ± 2.7	3.6 ± 11.0	WC01577
FE1	296.8	-0.2	0.6 ± 1.1	-0.3 ± 2.7	2.9 ± 11.0	WC01578
FE2	314.2	-0.2	0.0 ± 0.0	-0.3 ± 2.6	0.0 ± 11.0	WC01579
FE3	406.7	0.6	0.0 ± 0.0	-0.3 ± 2.6	3.5 ± 11.0	WC01580
FE4	418.2	1.8	0.0 ± 0.0	-0.3 ± 2.6	9.6 ± 12.0	WC01581
FE5	372.0	2.6	0.6 ± 1.1	-0.3 ± 2.7	-5.0 ± 9.0	WC01582
FF1	221.7	-0.5	0.0 ± 0.0	-0.8 ± 2.5	2.4 ± 11.0	WC01583
FF2	400.9	-0.3	1.2 ± 1.6	0.1 ± 2.8	2.9 ± 11.0	WC01584
FF3	175.4	-0.5	0.0 ± 0.0	-1.7 ± 2.1	2.2 ± 11.0	WC01585
FF4	343.1	1.2	0.0 ± 0.0	1.1 ± 3.1	3.6 ± 12.0	WC01586
FF5	580.1	1.8	0.6 ± 1.1	0.1 ± 2.8	3.5 ± 11.0	WC01587
WA1A	94.5	1.8	0.0 ± 0.0	-0.8 ± 2.5	3.8 ± 10.0	WC01588
WA2A	77.2	3.2	0.0 ± 0.0	0.2 ± 2.8	-1.1 ± 9.0	WC01589
WA3A	539.6	3.3	0.6 ± 1.1	-0.3 ± 2.7	4.8 ± 10.0	WC01590
WA4A	1395.2	3.5	0.0 ± 0.0	-0.3 ± 2.6	5.0 ± 11.0	WC01591
WA5A	1447.2	3.3	0.0 ± 0.0	1.1 ± 3.1	2.1 ± 10.0	WC01592
WA1B	129.2	0.8	0.0 ± 0.0	-0.3 ± 2.6	0.0 ± 9.0	WC01593
WA2B	36.7	2.1	0.0 ± 0.0	-0.8 ± 2.5	-0.5 ± 9.0	WC01594
WA3B	129.2	2.3	0.6 ± 1.1	-0.3 ± 2.7	0.5 ± 9.0	WC01595
WA4B	244.8	2.2	0.6 ± 1.1	-1.3 ± 2.3	7.0 ± 11.0	WC01596
WA5B	106.1	2.1	0.6 ± 1.1	-1.3 ± 2.3	5.4 ± 11.0	WC01597
WB1A	1088.8	4.1	0.0 ± 0.0	-1.7 ± 2.1	2.7 ± 10.0	WC01598
WB2A	1117.7	2.3	0.0 ± 0.0	-0.3 ± 2.6	-1.6 ± 9.0	WC01599
WB3A	1268.0	1.6	0.0 ± 0.0	-0.3 ± 2.6	3.8 ± 10.0	WC01600
WB4A	990.6	2.8	0.0 ± 0.0	0.2 ± 2.8	3.3 ± 10.0	WC01601
WB5A	1291.2	2.3	0.0 ± 0.0	-1.7 ± 2.1	3.3 ± 10.0	WC01602
WB6A	48.3	0.8	0.6 ± 1.1	0.1 ± 2.8	3.8 ± 10.0	WC01603
WB1B	106.1	2.5	0.0 ± 0.0	-0.8 ± 2.5	-2.2 ± 9.0	WC01604
WB2B	83.0	1.8	0.6 ± 1.1	-1.3 ± 2.3	-1.1 ± 10.0	WC01605
WB3B	100.3	1.6	0.0 ± 0.0	0.2 ± 2.8	3.7 ± 10.0	WC01606

Walter Reed Army Institute of Research, Rm21						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	0.9	8.8	
(MDA =>)	332	-	1.56	5.83	38.79 *	
WB4B	83.0	2.3	0.6 ± 1.1	-1.3 ± 2.3	-5.4 ± 9.0	WC01607
WB5B	354.7	1.6	0.0 ± 0.0	-0.3 ± 2.6	-0.5 ± 9.0	WC01608
WB6B	94.5	1.3	0.0 ± 0.0	-0.8 ± 2.5	3.2 ± 10.0	WC01609
WC1A	-148.3	1.5	0.0 ± 0.0	2.0 ± 3.3	5.9 ± 11.0	WC01610
WC2A	48.3	0.4	0.0 ± 0.0	-1.2 ± 2.3	5.4 ± 10.0	WC01611
WC3A	-78.9	-0.2	0.0 ± 0.0	-0.3 ± 2.6	-1.1 ± 9.0	WC01612
WC4A	88.7	-0.3	0.0 ± 0.0	-0.3 ± 2.6	2.1 ± 9.0	WC01613
WC5A	71.4	-0.7	0.0 ± 0.0	-0.8 ± 2.5	1.6 ± 10.0	WC01614
WC1B	-61.6	0.3	0.0 ± 0.0	-0.8 ± 2.5	4.4 ± 11.0	WC01615
WC2B	-136.7	0.8	1.2 ± 1.6	1.0 ± 3.1	4.8 ± 10.0	WC01616
WC3B	-67.3	-0.5	0.0 ± 0.0	-1.2 ± 2.3	-1.6 ± 9.0	WC01617
WC4B	-55.8	-1.0	1.2 ± 1.6	-1.3 ± 2.3	2.6 ± 10.0	WC01618
WC5B	-217.6	-1.3	0.0 ± 0.0	0.2 ± 2.8	5.8 ± 10.0	WC01619
WD1A	65.6	-1.1	0.0 ± 0.0	-0.8 ± 2.5	-4.2 ± 9.0	WC01620
WD2A	-90.5	-0.3	0.0 ± 0.0	-1.7 ± 2.1	-0.6 ± 11.0	WC01621
WD3A	-32.7	-0.8	0.0 ± 0.0	1.1 ± 3.1	3.4 ± 11.0	WC01622
WD4A	106.1	-0.7	0.6 ± 1.1	0.6 ± 2.9	4.2 ± 11.0	WC01623
WD5A	-113.6	-0.1	0.0 ± 0.0	-1.7 ± 2.1	-1.8 ± 11.0	WC01624
WD6A	-246.6	0.9	0.6 ± 1.1	-1.3 ± 2.3	-11.0 ± 9.0	WC01625
WD1B	-165.6	-0.4	0.6 ± 1.1	0.6 ± 2.9	2.7 ± 10.0	WC01626
WD2B	-183.0	-0.9	0.0 ± 0.0	-0.8 ± 2.5	-3.2 ± 9.0	WC01627
WD3B	-275.5	-0.5	0.0 ± 0.0	-1.7 ± 2.1	2.1 ± 10.0	WC01628
WD4B	-183.0	-0.4	0.6 ± 1.1	-0.8 ± 2.5	4.9 ± 10.0	WC01629
WD5B	296.8	0.2	0.6 ± 1.1	-1.7 ± 2.1	13.0 ± 12.0	WC01630
WD6B	383.6	1.2	0.0 ± 0.0	-0.8 ± 2.5	5.7 ± 11.0	WC01631
RCFA1	348.9	1.8	0.0 ± 0.0	2.4 ± 3.4	3.3 ± 10.0	WC01632
RCFA2	348.9	1.6	0.0 ± 0.0	-1.2 ± 2.3	1.1 ± 9.0	WC01633
RCFA3	187.0	1.7	0.0 ± 0.0	-0.8 ± 2.5	-4.2 ± 9.0	WC01634
RCFA4	325.8	1.8	0.6 ± 1.1	0.1 ± 2.8	1.6 ± 10.0	WC01635
RCFA5	331.5	1.9	0.0 ± 0.0	-0.8 ± 2.5	7.4 ± 10.0	WC01636
RCFB1	383.6	1.2	0.6 ± 1.1	-1.3 ± 2.3	-2.7 ± 9.0	WC01637
RCFB2	204.4	0.1	0.6 ± 1.1	-1.3 ± 2.3	0.0 ± 9.0	WC01638
RCFB3	296.8	1.9	0.0 ± 0.0	-0.8 ± 2.5	4.8 ± 10.0	WC01639
RCFB4	377.8	1.7	0.0 ± 0.0	-1.7 ± 2.1	4.2 ± 10.0	WC01640
RCFB5	308.4	2.0	0.0 ± 0.0	1.1 ± 3.1	-1.6 ± 9.0	WC01641
RCFC1	429.8	0.3	0.6 ± 1.1	-2.2 ± 2.0	2.7 ± 10.0	WC01642
RCFC2	429.8	0.1	0.0 ± 0.0	-0.8 ± 2.5	2.1 ± 10.0	WC01643
RCFC3	296.8	1.4	0.0 ± 0.0	-1.7 ± 2.1	-0.5 ± 9.0	WC01644
RCFC4	140.8	2.3	0.6 ± 1.1	1.0 ± 3.1	-3.7 ± 9.0	WC01645
RCFC5	215.9	2.7	0.0 ± 0.0	-0.8 ± 2.5	-2.1 ± 9.0	WC01646
RCFD1	221.7	-0.7	0.0 ± 0.0	-0.8 ± 2.5	-1.6 ± 9.0	WC01647
RCFD2	169.7	0.4	0.0 ± 0.0	-0.3 ± 2.6	8.1 ± 11.0	WC01648
RCFD3	239.0	1.3	0.0 ± 0.0	-1.7 ± 2.1	7.9 ± 11.0	WC01649
RCFD4	175.4	1.1	0.0 ± 0.0	-2.1 ± 1.9	12.0 ± 11.0	WC01650
RCFD5	111.9	1.8	0.0 ± 0.0	-0.8 ± 2.5	2.7 ± 10.0	WC01651
RCFE1	476.1	-0.9	0.0 ± 0.0	-0.8 ± 2.5	-1.6 ± 9.0	WC01652
RCFE2	447.1	-0.5	0.0 ± 0.0	-1.7 ± 2.1	-4.7 ± 9.0	WC01653
RCFE3	424.0	0.3	0.6 ± 1.1	-0.3 ± 2.7	1.1 ± 10.0	WC01654
RCFE4	215.9	0.8	1.2 ± 1.6	0.5 ± 3.0	2.1 ± 10.0	WC01655

Walter Reed Army Institute of Research, Rm21						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	0.9	8.8	
(MDA =>)	332	-	1.56	5.83	38.79 *	
RCFE5	215.9	1.9	0.0 ± 0.0	-1.2 ± 2.3	-3.7 ± 9.0	WC01656
RCFF1	83.0	-0.6	0.0 ± 0.0	-1.7 ± 2.1	-0.5 ± 9.0	WC01657
RCFF2	71.4	-1.5	1.7 ± 2.0	0.5 ± 3.0	-2.1 ± 9.0	WC01658
RCFF3	117.6	-1.0	0.0 ± 0.0	-0.8 ± 2.5	-0.5 ± 9.0	WC01659
RCFF4	169.7	-0.7	0.0 ± 0.0	-0.3 ± 2.6	3.3 ± 11.0	WC01660
RCFF5	320.0	1.0	0.6 ± 1.1	-0.8 ± 2.5	-0.6 ± 10.0	WC01661
RSFB5	580.1	3.5	0.0 ± 0.0	0.6 ± 2.9	7.1 ± 11.0	WC01662
RHFA4	458.7	1.3	0.0 ± 0.0	1.1 ± 3.1	3.0 ± 11.0	WC01663

* Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 30.28 to 38.79 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Basement Laboratory	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, Rm B1-1						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6 to 17.3	0.0 to 0.1	0.8 to 2.0	8.8 to 9.6	
(MDA =>)	332	-	3.62 *	7.66 *	39.57 *	
FA1	291.1	1.1	0.0 ± 0.0	1.1 ± 3.1	22.0 ± 13.0	WC01694
FA2	499.2	1.4	0.6 ± 1.1	-0.8 ± 2.5	0.0 ± 10.0	WC01695
FA3	476.1	2.6	0.0 ± 0.0	0.2 ± 2.8	110.0 ± 20.0	WC01696
FA4	539.6	1.4	0.6 ± 1.1	-0.8 ± 2.5	18.0 ± 13.0	WC01697
FA5	447.1	2.0	0.0 ± 0.0	0.2 ± 2.8	1.1 ± 11.0	WC01698
FA6	418.2	2.5	0.6 ± 1.1	0.6 ± 2.9	6.9 ± 13.0	WC01699
FA7	603.2	3.8	0.6 ± 1.1	0.6 ± 2.9	6.1 ± 11.0	WC01700
FB1	562.8	1.4	0.8 ± 1.8	2.2 ± 4.3	3.9 ± 11.0	WC01701
FB2	528.1	1.2	-0.4 ± 0.9	-1.3 ± 3.6	15.0 ± 13.0	WC01702
FB3	360.4	0.8	-0.4 ± 0.9	0.4 ± 4.0	-3.4 ± 11.0	WC01703
FB4	528.1	1.6	-0.4 ± 0.9	0.4 ± 4.0	5.7 ± 12.0	WC01704
FB5	603.2	1.7	0.2 ± 1.4	-2.2 ± 3.3	15.0 ± 13.0	WC01705
FB6	609.0	1.5	-0.4 ± 0.9	-2.2 ± 3.3	-0.6 ± 11.0	WC01706
FB7	510.7	2.4	0.2 ± 1.4	-1.3 ± 3.6	-0.6 ± 11.0	WC01707
FC1	458.7	1.5	0.2 ± 1.4	2.2 ± 4.3	9.5 ± 12.0	WC01708
FC2	343.1	0.6	0.2 ± 1.4	0.9 ± 4.1	1.1 ± 10.0	WC01709
FC3	470.3	1.1	-0.4 ± 0.9	2.2 ± 4.3	2.7 ± 11.0	WC01710
FC4	372.0	0.4	±	±	7.3 ± 12.0	WC01711
FC5	221.7	1.0	-0.4 ± 0.9	0.4 ± 4.0	6.3 ± 12.0	WC01712
FC6	215.9	1.1	-0.4 ± 0.9	-0.4 ± 3.8	12.0 ± 12.0	WC01713
FC7	366.2	3.2	-0.4 ± 0.9	0.0 ± 3.9	-0.6 ± 11.0	WC01714
FD1	476.1	2.0	0.8 ± 1.8	0.0 ± 3.9	2.2 ± 11.0	WC01715
FD2	609.0	0.9	-0.4 ± 0.9	-1.3 ± 3.6	-0.6 ± 11.0	WC01716
FD3	389.3	1.3	0.2 ± 1.4	-2.7 ± 3.2	14.0 ± 13.0	WC01717
FD4	591.7	0.8	-0.4 ± 0.9	1.8 ± 4.2	2.9 ± 11.0	WC01718
FD5	522.3	1.7	-0.4 ± 0.9	0.9 ± 4.1	4.9 ± 11.0	WC01719
FD6	591.7	2.2	-0.4 ± 0.9	1.8 ± 4.2	-9.3 ± 9.0	WC01720
FD7	470.3	2.4	0.8 ± 1.8	-0.5 ± 3.8	5.1 ± 11.0	WC01721
FD8	689.9	2.7	-0.4 ± 0.9	-2.6 ± 3.2	12.0 ± 13.0	WC01722
FD9	533.9	3.5	0.2 ± 1.4	1.3 ± 4.1	-2.5 ± 12.0	WC01723
FC8	707.3	3.5	-0.4 ± 0.9	1.3 ± 4.1	4.5 ± 13.0	WC01724
FC9	626.4	-0.1	-0.4 ± 0.9	-0.4 ± 3.8	3.7 ± 12.0	WC01725
FB8	788.2	0.6	0.8 ± 1.8	-0.5 ± 3.8	1.6 ± 10.0	WC01726
FB9	499.2	3.2	-0.4 ± 0.9	0.4 ± 4.0	0.0 ± 11.0	WC01727
FE1	302.6	1.8	0.2 ± 1.4	1.3 ± 4.1	1.6 ± 11.0	WC01728
FE2	499.2	1.9	-0.4 ± 0.9	0.9 ± 4.1	8.5 ± 12.0	WC01729
FE3	435.6	1.7	-0.4 ± 0.9	-2.2 ± 3.3	0.0 ± 11.0	WC01730
FE4	528.1	-0.1	1.3 ± 2.1	-0.5 ± 3.8	1.7 ± 11.0	WC01731
FE5	562.8	1.0	0.2 ± 1.4	0.0 ± 3.9	2.7 ± 11.0	WC01732
FE6	580.1	2.6	-0.4 ± 0.9	-1.8 ± 3.5	6.0 ± 11.0	WC01733
FE7	562.8	4.2	-0.4 ± 0.9	-0.9 ± 3.7	8.2 ± 11.0	WC01734
FE8	609.0	0.0	-0.4 ± 0.9	-1.3 ± 3.6	-0.6 ± 10.0	WC01735
FE9	689.9	0.0	-0.4 ± 0.9	-0.4 ± 3.8	7.9 ± 12.0	WC01736
FF1	343.1	3.4	-0.4 ± 0.9	0.4 ± 4.0	8.7 ± 11.0	WC01737
FF2	372.0	3.2	-0.4 ± 0.9	-0.4 ± 3.8	1.1 ± 10.0	WC01738
FF3	117.6	1.1	-0.4 ± 0.9	1.8 ± 4.2	7.5 ± 11.0	WC01739
FF4	239.0	1.3	0.2 ± 1.4	-0.5 ± 3.8	-2.3 ± 11.0	WC01740
FF5	591.7	1.4	0.2 ± 1.4	-0.5 ± 3.8	0.0 ± 11.0	WC01741
FF6	464.5	3.1	-0.4 ± 0.9	-1.8 ± 3.5	8.6 ± 12.0	WC01742

Walter Reed Army Institute of Research, Rm B1-1						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6 to 17.3	0.0 to 0.1	0.8 to 2.0	8.8 to 9.6	
(MDA =>)	332	-	3.62 *	7.66 *	39.57 *	
FF7	984.8	1.1	-0.4 ± 0.9	-1.3 ± 3.6	7.8 ± 11.0	WC01743
FF8	794.0	2.7	-0.4 ± 0.9	-2.6 ± 3.2	7.6 ± 11.0	WC01744
FF9	834.5	0.6	0.2 ± 1.4	-0.5 ± 3.8	4.0 ± 11.0	WC01745
WA1A	-102.0	1.5	-0.4 ± 0.9	-1.8 ± 3.5	-0.5 ± 10.0	WC01746
WA2A	-171.4	1.0	-0.4 ± 0.9	-1.3 ± 3.6	3.2 ± 11.0	WC01747
WA3A	354.7	0.7	-0.4 ± 0.9	-0.4 ± 3.8	11.0 ± 12.0	WC01748
WA4A	302.6	0.9	-0.4 ± 0.9	0.4 ± 4.0	-1.6 ± 10.0	WC01749
WA5A	273.7	2.0	-0.4 ± 0.9	1.8 ± 4.2	-1.1 ± 10.0	WC01750
WA6A	-50.0	1.0	-0.4 ± 0.9	2.2 ± 4.3	0.0 ± 10.0	WC01751
WA7A	-44.2	3.5	-0.4 ± 0.9	-1.8 ± 3.5	0.5 ± 10.0	WC01752
WA1B	244.8	2.8	-0.4 ± 0.9	-0.9 ± 3.7	-3.7 ± 9.0	WC01753
WA2B	175.4	2.6	0.8 ± 1.8	-0.5 ± 3.8	-8.6 ± 9.0	WC01754
WA3B	354.7	2.2	-0.4 ± 0.9	0.9 ± 4.1	-1.1 ± 10.0	WC01755
WA4B	233.3	2.9	-0.4 ± 0.9	-0.9 ± 3.7	-1.6 ± 10.0	WC01756
WA5B	372.0	2.0	-0.4 ± 0.9	0.0 ± 3.9	1.6 ± 10.0	WC01757
WA6B	285.3	3.1	-0.4 ± 0.9	-0.4 ± 3.8	-3.7 ± 9.0	WC01758
WA7B	302.6	3.2	-0.4 ± 0.9	0.0 ± 3.9	-0.5 ± 9.0	WC01759
WB1A	-61.6	2.3	-0.4 ± 0.9	-2.6 ± 3.2	3.3 ± 11.0	WC01760
WB2A	239.0	2.3	-0.4 ± 0.9	0.0 ± 3.9	4.8 ± 11.0	WC01761
WB3A	-148.3	0.9	0.2 ± 1.4	-1.8 ± 3.5	3.8 ± 11.0	WC01762
WB4A	-55.8	0.7	-0.4 ± 0.9	-2.6 ± 3.2	1.1 ± 11.0	WC01763
WB5A	366.2	3.6	-0.4 ± 0.9	-0.4 ± 3.8	5.8 ± 11.0	WC01764
WB1B	221.7	3.3	-0.4 ± 0.9	-1.3 ± 3.6	-6.8 ± 9.0	WC01765
WB2B	239.0	3.2	-0.4 ± 0.9	-1.3 ± 3.6	4.9 ± 11.0	WC01766
WB3B	221.7	2.7	0.2 ± 1.4	-0.5 ± 3.8	-1.6 ± 10.0	WC01767
WB4B	429.8	2.6	-0.4 ± 0.9	-0.9 ± 3.7	-3.2 ± 9.0	WC01768
WB5B	400.9	4.3	-0.4 ± 0.9	-0.4 ± 3.8	1.1 ± 10.0	WC01769
WC1A	505.0	2.5	-0.4 ± 0.9	-0.9 ± 3.7	1.7 ± 11.0	WC01770
WC2A	13.6	1.0	-0.4 ± 0.9	0.9 ± 4.1	3.2 ± 11.0	WC01771
WC3A	256.4	1.2	-0.4 ± 0.9	-1.3 ± 3.6	3.3 ± 11.0	WC01772
WC4A	111.9	-0.3	-0.4 ± 0.9	-1.3 ± 3.6	8.0 ± 11.0	WC01773
WC5A	181.2	0.5	-0.4 ± 0.9	-1.8 ± 3.5	-1.1 ± 10.0	WC01774
WC6A	-159.8	-0.2	-0.4 ± 0.9	-2.2 ± 3.3	12.0 ± 12.0	WC01775
WC7A	83.0	1.3	0.2 ± 1.4	0.9 ± 4.1	4.3 ± 11.0	WC01776
WC1B	337.3	2.5	-0.4 ± 0.9	0.0 ± 3.9	-6.0 ± 9.0	WC01777
WC2B	146.5	3.1	0.2 ± 1.4	-0.9 ± 3.7	6.9 ± 11.0	WC01778
WC3B	7.8	2.2	1.9 ± 2.4	-0.1 ± 3.9	2.1 ± 10.0	WC01779
WC4B	-229.2	1.0	-0.4 ± 0.9	1.3 ± 4.1	5.5 ± 11.0	WC01780
WC5B	-148.3	0.1	-0.4 ± 0.9	0.4 ± 4.0	6.6 ± 11.0	WC01781
WC6B	129.2	0.8	-0.4 ± 0.9	0.9 ± 4.1	-5.4 ± 9.0	WC01782
WC7B	360.4	1.3	0.8 ± 1.8	-1.8 ± 3.5	2.7 ± 11.0	WC01783
WD1A	-32.7	0.7	-0.4 ± 0.9	-1.8 ± 3.5	2.1 ± 10.0	WC01784
WD2A	-90.5	0.6	0.2 ± 1.4	0.9 ± 4.1	-4.3 ± 9.0	WC01785
WD3A	-119.4	1.6	-0.4 ± 0.9	-0.4 ± 3.8	1.6 ± 10.0	WC01786
WD4A	19.4	0.8	-0.4 ± 0.9	0.4 ± 4.0	-6.0 ± 9.0	WC01787
WD5A	-73.1	0.9	-0.4 ± 0.9	-0.4 ± 3.8	1.6 ± 10.0	WC01788
WD6A	2.0	1.4	-0.4 ± 0.9	-2.6 ± 3.2	4.3 ± 11.0	WC01789
WD1B	418.2	1.4	-0.4 ± 0.9	0.0 ± 3.9	4.1 ± 10.0	WC01790
WD2B	54.1	1.2	-0.4 ± 0.9	0.9 ± 4.1	0.6 ± 11.0	WC01791

Walter Reed Army Institute of Research, Rm B1-1						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6 to 17.3	0.0 to 0.1	0.8 to 2.0	8.8 to 9.6	
(MDA =>)	332	-	3.62 *	7.66 *	39.57 *	
WD3B	94.5	0.8	-0.4 ± 0.9	0.4 ± 4.0	5.8 ± 11.0	WC01792
WD4B	-84.7	1.6	-0.4 ± 0.9	-1.3 ± 3.6	-3.2 ± 10.0	WC01793
WD5B	36.7	2.3	-0.4 ± 0.9	-0.4 ± 3.8	0.0 ± 10.0	WC01794
WD6B	187.0	2.5	-0.4 ± 0.9	3.5 ± 4.6	4.3 ± 11.0	WC01795
WE1A	1921.3	3.3	-0.4 ± 0.9	0.0 ± 3.9	-2.1 ± 9.0	WC01796
WE2A	1684.3	1.7	-0.4 ± 0.9	0.0 ± 3.9	-2.1 ± 10.0	WC01797
WE3A	1794.1	-1.5	-0.4 ± 0.9	0.9 ± 4.1	1.0 ± 10.0	WC01798
WE1B	1973.3	5.5	-0.4 ± 0.9	-0.9 ± 3.7	-2.6 ± 9.0	WC01799
WE2B	1591.8	2.6	0.2 ± 1.4	-0.5 ± 3.8	1.1 ± 10.0	WC01800
WE3B	1736.3	0.2	-0.4 ± 0.9	0.4 ± 4.0	4.0 ± 10.0	WC01801
WF1A	1077.3	-0.9	-0.4 ± 0.9	-0.9 ± 3.7	2.4 ± 10.0	WC01802
WF2A	707.3	1.3	-0.4 ± 0.9	0.0 ± 3.9	-0.8 ± 9.0	WC01803
WF3A	626.4	-2.3	0.8 ± 1.8	0.8 ± 4.1	3.4 ± 10.0	WC01804
WF4A	-15.3	0.1	0.8 ± 1.8	-0.9 ± 3.7	2.4 ± 10.0	WC01805
WF5A	649.5	0.0	-0.4 ± 0.9	0.4 ± 4.0	4.5 ± 10.0	WC01806
WF1B	909.6	0.4	0.2 ± 1.4	-2.7 ± 3.2	-1.9 ± 9.0	WC01807
WF2B	759.3	2.7	-0.4 ± 0.9	-1.8 ± 3.5	2.8 ± 9.0	WC01808
WF3B	481.8	-1.4	0.2 ± 1.4	-2.7 ± 3.2	-1.4 ± 9.0	WC01809
WF4B	94.5	-0.7	-0.4 ± 0.9	-1.3 ± 3.6	3.5 ± 10.0	WC01810
WF5B	788.2	3.5	-0.4 ± 0.9	-0.4 ± 3.8	-3.5 ± 9.0	WC01811
WG1A	1655.4	0.4	-0.4 ± 0.9	-0.4 ± 3.8	-1.4 ± 9.0	WC01812
WG2A	1794.1	-2.1	-0.4 ± 0.9	3.5 ± 4.6	2.9 ± 10.0	WC01813
WG3A	1886.6	-1.4	-0.4 ± 0.9	-0.4 ± 3.8	2.9 ± 10.0	WC01814
WG1B	1713.2	-0.7	0.8 ± 1.8	-0.5 ± 3.8	3.9 ± 10.0	WC01815
WG2B	1632.2	0.6	-0.4 ± 0.9	0.0 ± 3.9	2.9 ± 10.0	WC01816
WG3B	1880.8	-0.1	-0.4 ± 0.9	-1.3 ± 3.6	-0.3 ± 10.0	WC01817
WH1A	1678.5	0.6	-0.4 ± 0.9	-2.2 ± 3.3	-2.0 ± 9.0	WC01818
WH2A	1632.2	1.1	0.2 ± 1.4	-0.5 ± 3.8	-0.9 ± 9.0	WC01819
WH3A	1678.5	1.0	-0.4 ± 0.9	1.3 ± 4.1	1.3 ± 10.0	WC01820
WH4A	1742.1	-0.5	-0.4 ± 0.9	0.0 ± 3.9	2.9 ± 10.0	WC01821
WH5A	1846.1	1.7	-0.4 ± 0.9	1.3 ± 4.1	-0.9 ± 10.0	WC01822
WH1B	1736.3	4.3	-0.4 ± 0.9	-0.4 ± 3.8	3.5 ± 10.0	WC01823
WH2B	1690.0	2.8	-0.4 ± 0.9	-0.4 ± 3.8	-3.0 ± 9.0	WC01824
WH3B	1372.1	0.2	0.2 ± 1.4	-2.7 ± 3.2	0.2 ± 10.0	WC01825
WH4B	1742.1	3.0	-0.4 ± 0.9	-0.4 ± 3.8	5.6 ± 11.0	WC01826
WH5B	2031.1	2.3	-0.4 ± 0.9	0.0 ± 3.9	-0.9 ± 10.0	WC01827
RCFA1	724.6	2.9	0.2 ± 1.4	0.9 ± 4.1	2.9 ± 10.0	WC01828
RCFA3	1025.2	2.7	0.2 ± 1.4	-0.9 ± 3.7	-0.3 ± 9.0	WC01829
RCFA4	1048.4	2.4	-0.4 ± 0.9	-0.9 ± 3.7	0.2 ± 10.0	WC01830
RCFA5	909.6	1.6	-0.4 ± 0.9	-1.3 ± 3.6	14.0 ± 11.0	WC01831
RCFA6	1100.4	2.6	-0.4 ± 0.9	-1.3 ± 3.6	-0.3 ± 9.0	WC01832
RCFB3	927.0	1.4	0.2 ± 1.4	-1.3 ± 3.6	14.0 ± 11.0	WC01833
RCFB5	689.9	1.8	-0.4 ± 0.9	-0.4 ± 3.8	9.4 ± 11.0	WC01834
RCFB6	932.7	3.3	0.2 ± 1.4	-0.5 ± 3.8	5.7 ± 11.0	WC01835
RCFB7	938.5	3.0	-0.4 ± 0.9	0.0 ± 3.9	2.4 ± 10.0	WC01836
RCFC3	903.8	2.1	-0.4 ± 0.9	1.8 ± 4.2	-2.0 ± 9.0	WC01837
RCFC5	759.3	1.0	-0.4 ± 0.9	-1.3 ± 3.6	3.5 ± 10.0	WC01838
RCFD1	921.2	1.6	-0.4 ± 0.9	-2.6 ± 3.2	13.0 ± 11.0	WC01839
RCFD2	724.6	1.0	-0.4 ± 0.9	-2.6 ± 3.2	2.4 ± 10.0	WC01840

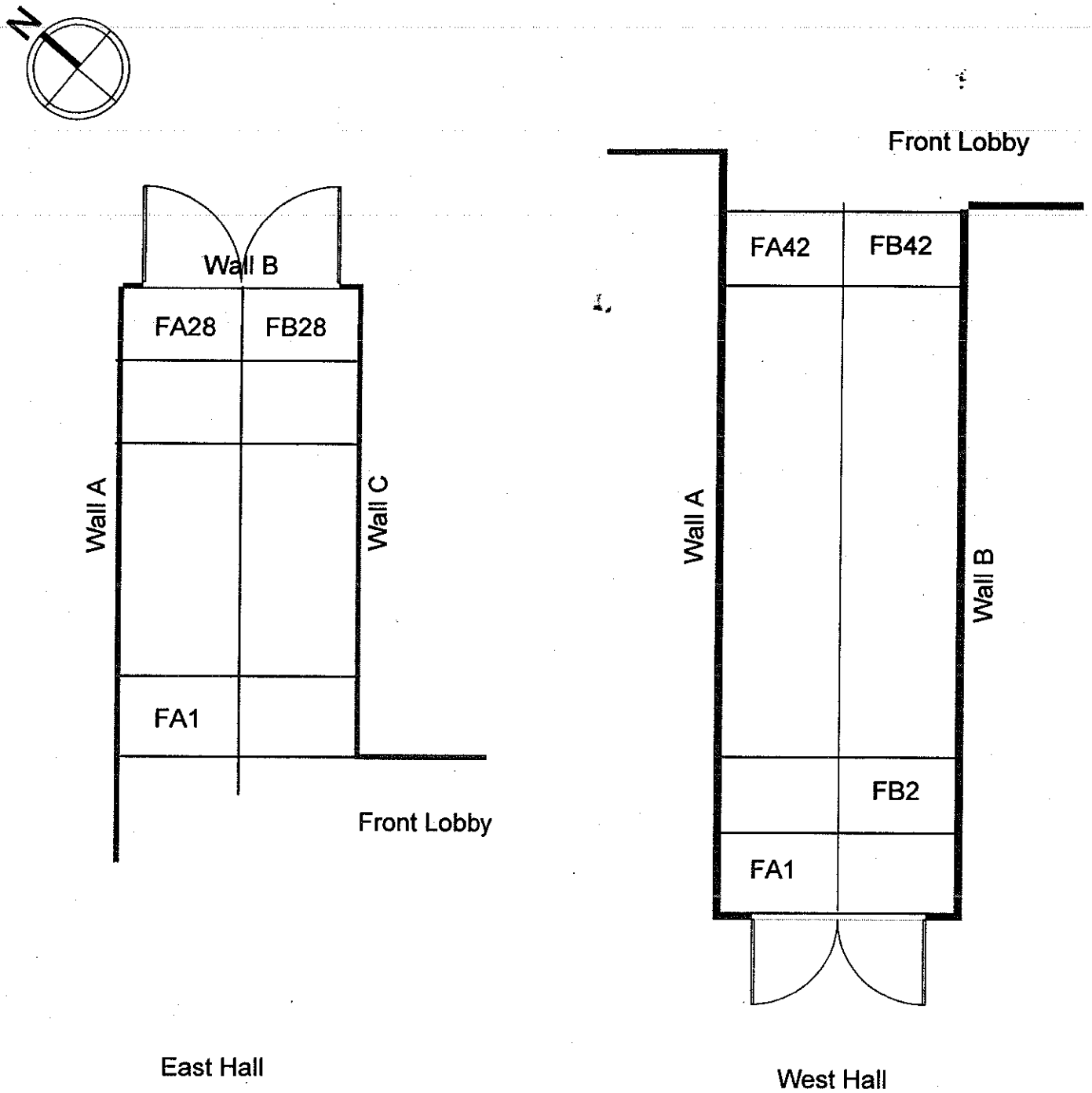
Walter Reed Army Institute of Research, Rm B1-1						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6 to 17.3	0.0 to 0.1	0.8 to 2.0	8.8 to 9.6	
(MDA =>)	332	-	3.62 *	7.66 *	39.57 *	
RCFD3	817.1	0.9	-0.4 ± 0.9	-1.8 ± 3.5	0.2 ± 10.0	WC01841
RCFD4	1019.5	2.0	-0.4 ± 0.9	0.4 ± 4.0	-0.3 ± 10.0	WC01842
RCFD5	927.0	2.2	-0.4 ± 0.9	0.9 ± 4.1	3.9 ± 10.0	WC01843
RCFD7	713.1	2.4	-0.4 ± 0.9	-1.8 ± 3.5	-1.9 ± 9.0	WC01844
RCFD9	470.3	-0.8	-0.4 ± 0.9	0.4 ± 4.0	-2.0 ± 9.0	WC01845
RCFC8	695.7	-1.1	-0.4 ± 0.9	1.8 ± 4.2	2.9 ± 10.0	WC01846
RCFB9	684.2	1.3	0.2 ± 1.4	-1.8 ± 3.5	0.8 ± 10.0	WC01847
RCFE2	857.6	2.4	-0.4 ± 0.9	0.0 ± 3.9	4.9 ± 10.0	WC01848
RCFE4	643.7	1.7	-0.4 ± 0.9	-1.8 ± 3.5	-5.2 ± 9.0	WC01849
RCFE5	886.5	1.6	0.2 ± 1.4	0.4 ± 4.0	-2.4 ± 9.0	WC01850
RCFE6	996.3	1.7	1.1 ± 1.6	0.4 ± 2.8	-0.9 ± 9.0	WC01851
RCFE8	557.0	0.5	0.0 ± 0.0	-0.5 ± 2.4	0.2 ± 11.0	WC01852
RCFF1	1083.0	3.6	0.0 ± 0.0	-1.4 ± 2.0	-4.7 ± 9.0	WC01853
RCFF4	724.6	0.4	0.0 ± 0.0	0.0 ± 2.6	5.1 ± 10.0	WC01854
RCFF7	730.4	1.4	0.0 ± 0.0	-0.9 ± 2.2	-0.3 ± 9.0	WC01855
RCFF8	464.5	1.4	0.0 ± 0.0	-0.9 ± 2.2	-1.9 ± 9.0	WC01856
RCFF9	776.7	4.0	0.0 ± 0.0	-1.4 ± 2.0	-1.4 ± 9.0	WC01857
RSFA2	25.1	0.9	0.0 ± 0.0	2.3 ± 3.3	16.0 ± 12.0	WC01858
QA	N/A	N/A	0.0 ± 0.0	-0.9 ± 2.2	200.0 ± 24.0	WC01859

* Indicates the highest MDA for this survey unit. The Alpha MDA ranged from 1.56 to 3.62 dpm

Indicates the highest MDA for this survey unit. The Beta MDA ranged from 5.57 to 7.66 dpm

Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 19 to 39.57 dpm

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER BLDG 500 Hallway	DATE 04 APR 99 DRAWN D. COLLINS APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

Walter Reed Army Institute of Research, WestHall						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	0.8	8.9	
(MDA =>)	332	-	1.56	5.57	38.21 *	
FA3	-55.8	-2.1	0.0 ± 0.0	-0.5 ± 2.4	0.8 ± 10.0	WC01860
FA4	192.8	-1.1	0.0 ± 0.0	0.9 ± 2.9	8.2 ± 12.0	WC01861
FA5	-67.3	-1.7	0.0 ± 0.0	0.0 ± 2.6	2.5 ± 11.0	WC01862
FA14	-102.0	-2.7	0.0 ± 0.0	0.9 ± 2.9	11.0 ± 11.0	WC01863
FA32	13.6	-3.7	0.0 ± 0.0	-0.5 ± 2.4	-2.5 ± 9.0	WC01864
FA34	-90.5	-3.4	0.0 ± 0.0	-0.5 ± 2.4	1.9 ± 10.0	WC01865
FA36	-15.3	-3.4	0.6 ± 1.1	-1.4 ± 2.1	-3.1 ± 9.0	WC01866
FA38	140.8	-2.7	0.0 ± 0.0	-0.5 ± 2.4	3.4 ± 10.0	WC01867
FB3	262.2	-2.3	0.6 ± 1.1	0.9 ± 2.9	7.7 ± 11.0	WC01868
FB19	-67.3	-3.4	0.0 ± 0.0	-1.4 ± 2.0	4.6 ± 11.0	WC01869
FB21	71.4	-3.6	0.0 ± 0.0	1.4 ± 3.0	1.4 ± 11.0	WC01870
WA3A	-177.2	-0.7	1.1 ± 1.6	-0.1 ± 2.6	-7.2 ± 9.0	WC01871
WA29A	-315.9	-3.3	0.0 ± 0.0	-0.5 ± 2.4	0.7 ± 9.0	WC01872
WA33A	-113.6	-3.4	0.0 ± 0.0	0.5 ± 2.7	2.8 ± 10.0	WC01873
WA39A	-67.3	-2.4	0.6 ± 1.1	0.4 ± 2.7	1.3 ± 10.0	WC01874
WA40A	-15.3	-1.3	0.6 ± 1.1	0.9 ± 2.9	0.7 ± 9.0	WC01875
WA6B	-90.5	-3.7	0.0 ± 0.0	0.9 ± 2.9	-4.6 ± 9.0	WC01876
WA11B	-275.5	-3.7	0.0 ± 0.0	0.9 ± 2.9	-2.4 ± 9.0	WC01877
WA18B	-217.6	-4.0	0.0 ± 0.0	-0.9 ± 2.2	5.6 ± 10.0	WC01878
WA25B	-171.4	-3.6	0.6 ± 1.1	0.9 ± 2.9	-4.2 ± 9.0	WC01879
WA35B	-275.5	-3.5	0.6 ± 1.1	0.4 ± 2.7	0.2 ± 9.0	WC01880
WA36B	-142.5	-3.6	0.0 ± 0.0	0.5 ± 2.7	0.7 ± 9.0	WC01881
WA39B	-165.6	-2.6	0.0 ± 0.0	-0.5 ± 2.4	2.4 ± 11.0	WC01882
WB2A	30.9	-0.5	0.6 ± 1.1	-1.4 ± 2.1	-1.4 ± 9.0	WC01883
WB4B	-44.2	-2.6	0.0 ± 0.0	-0.5 ± 2.4	5.5 ± 10.0	WC01884
WB5B	-84.7	-2.2	0.0 ± 0.0	0.0 ± 2.6	-2.0 ± 9.0	WC01885
WB15B	-194.5	-4.0	1.1 ± 1.6	-1.0 ± 2.3	3.9 ± 10.0	WC01886
WB19B	-211.9	-4.0	0.0 ± 0.0	0.0 ± 2.6	-0.3 ± 9.0	WC01887
WB27B	-327.5	-4.1	0.0 ± 0.0	-0.9 ± 2.2	-6.3 ± 9.0	WC01888
WB34B	-298.6	-3.0	0.0 ± 0.0	-0.5 ± 2.4	-0.3 ± 10.0	WC01889

* Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 32.64 to 38.21 dpm

Walter Reed Army Institute of Research, EastHall						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	215.5	8.6	0.0	0.8	8.9	
(MDA =>)	332	-	1.56	5.57	38.71 *	
FA3	106.1	2.6	0.0 ± 0.0	0.5 ± 2.7	3.0 ± 11.0	WC01890
FA6	140.8	1.6	0.0 ± 0.0	-0.5 ± 2.4	0.2 ± 10.0	WC01891
FA7	88.7	2.1	0.6 ± 1.1	-0.5 ± 2.4	-5.9 ± 9.0	WC01892
FA19	-119.4	-2.9	1.1 ± 1.6	-0.1 ± 2.6	-1.5 ± 10.0	WC01893
FA22	94.5	-3.8	0.0 ± 0.0	0.0 ± 2.6	5.3 ± 11.0	WC01894
FA24	117.6	-4.3	0.6 ± 1.1	0.9 ± 2.9	6.4 ± 11.0	WC01895
FB6	83.0	1.2	0.0 ± 0.0	0.5 ± 2.7	6.9 ± 11.0	WC01896
FB11	-96.3	-0.9	0.0 ± 0.0	0.0 ± 2.6	6.2 ± 11.0	WC01897
FB13	-159.8	-2.9	0.0 ± 0.0	-0.5 ± 2.4	0.2 ± 10.0	WC01898
FB17	-38.4	-3.4	0.0 ± 0.0	0.5 ± 2.7	-0.9 ± 10.0	WC01899
FB20	-165.6	-3.3	0.0 ± 0.0	0.9 ± 2.9	-3.3 ± 10.0	WC01900
FB24	-183.0	-3.8	0.0 ± 0.0	-0.9 ± 2.2	11.0 ± 11.0	WC01901
WA12A	-148.3	-1.2	0.0 ± 0.0	-0.5 ± 2.4	-1.4 ± 9.0	WC01902
WALWA20A	-32.7	-4.2	0.0 ± 0.0	0.0 ± 2.6	-3.0 ± 9.0	WC01903
WA26A	-194.5	-3.0	0.0 ± 0.0	-1.4 ± 2.0	5.7 ± 11.0	WC01904
WA5B	-206.1	2.5	0.6 ± 1.1	0.0 ± 2.6	6.7 ± 11.0	WC01905
WA11B	-246.6	-1.5	0.0 ± 0.0	0.9 ± 2.9	-2.9 ± 9.0	WC01906
WA24B	-229.2	-3.3	0.0 ± 0.0	0.0 ± 2.6	2.9 ± 10.0	WC01907
WA25B	-9.5	-3.2	0.0 ± 0.0	0.9 ± 2.9	1.8 ± 10.0	WC01908
WA27B	-78.9	-2.9	0.0 ± 0.0	0.9 ± 2.9	-4.2 ± 9.0	WC01909
WA28B	-246.6	-2.5	0.0 ± 0.0	-1.4 ± 2.0	1.9 ± 10.0	WC01910
WC1A	-206.1	-1.6	0.0 ± 0.0	-1.4 ± 2.0	3.9 ± 10.0	WC01911
WC7A	30.9	-3.0	0.0 ± 0.0	-0.5 ± 2.4	-2.5 ± 9.0	WC01912
WC18A	-44.2	-3.2	0.0 ± 0.0	0.9 ± 2.9	2.4 ± 10.0	WC01913
WC26A	-125.2	1.7	0.6 ± 1.1	0.9 ± 2.9	6.8 ± 11.0	WC01914
WC8B	-165.6	-3.3	0.0 ± 0.0	0.0 ± 2.6	-4.7 ± 9.0	WC01915
WC10B	-223.4	-3.5	0.0 ± 0.0	0.5 ± 2.7	0.2 ± 10.0	WC01916
WC11B	152.3	-3.8	0.0 ± 0.0	-0.9 ± 2.2	2.4 ± 10.0	WC01917
WC23B	36.7	1.5	0.0 ± 0.0	-1.9 ± 1.8	4.0 ± 10.0	WC01918
WC20A	36.7	2.6	0.6 ± 1.1	-0.5 ± 2.4	0.2 ± 10.0	WC01919

* Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 34.28 to 38.71 dpm

Walter Reed Army Institute of Research, Misc						
Location Code	Monitoring		Wipe Test			Sample Number
	Beta	Gamma	Alpha	Beta	LS	
(Units =>)	dpm/100cm^2	uR/hr	dpm/100cm^2 +/- 2 sigma			
(Bkgd =>) **	to	8.6	0.0	0.8	8.9	
(MDA =>)	0	-	1.56	5.57	31.55 *	
RV01	0.0	-3.7	4.6 ± 3.2	6.2 ± 4.3	3.8 ± 13.0	WC01940
RV02	0.0	-4.6	1.7 ± 2.0	5.4 ± 4.1	2.6 ± 14.0	WC01941
RV03	0.0	-4.4	0.6 ± 1.1	1.8 ± 3.2	2.8 ± 12.0	WC01942
RV04	0.0	-7.1	0.0 ± 0.0	-0.9 ± 2.2	-1.0 ± 12.0	WC01943

* Indicates the highest MDA for this survey unit. The Tritium MDA ranged from 26.39 to 31.55 dpm

APPENDIX D

The following survey area, in building 500, were identified during the survey conducted 10 - 15 May 1999:

All areas located in the East-West Wing of Building 500 excluding the library, the lobby, and the administrative offices located in room 22 and 24.

APPENDIX E

NRC REGULATORY GUIDE 1.86

Med Radn Surv No. 28-MF-6209-99, Facility Close-Out and Termination Survey, Phase II Building 500, WRAIR, WRAMC, Washington, DC, 10-15 May 99

Acceptable Surface Contamination Levels

Nuclides[a]	Average[b,c,f] (dpm/100cm^2)	Maximum[b,d,f] (dpm/100cm^2)	Removable[b,e,f] (dpm/100cm^2)
U-Nat, ^{235}U, ^{238}U, and associated products	5,000 α	15,000 α	1,000 α
Transuranics, ^{226}Ra, ^{228}Ra, ^{230}Th, ^{228}Th, ^{231}Pa, ^{227}Ac, ^{125}I, ^{129}I	100	300	20
Th-nat, ^{232}Th, ^{90}Sr, ^{223}Ra, ^{224}Ra, ^{232}U, ^{126}I, ^{131}I, ^{133}I	1,000	3,000	200
Beta/gamma emitters(nuclides with decay modes other than alpha emission or spontaneous fission) except ^{90}Sr and other noted above	5,000 β-γ	15,000 β-γ	1,000 β-γ

a Where surface contamination by both alpha- and beta/gamma-emitting nuclides exists, the limits established for alpha-and beta/gamma-emitting nuclides should apply independently

b As used in this table dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

c Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object

d The maximum contamination level applies to an area of not more than 100 cm^2

e The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, then pertinent levels should be reduced proportionally and the entire surface should be wiped.

f The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

Reference: Guidelines for Decontamination of Facilities and Equipment prior to Release for Unrestricted use or Termination of Licenses for Byproducts, Source, or Special Nuclear Material., U.S. Nuclear Regulatory Commission, April 1993.

APPENDIX F

FIELD INSTRUMENTATION

Med Radn Surv No. 28-MF-6209-99, Facility Close-Out and Termination Survey, Phase II Building 500, WRAIR, WRAMC, Washington, DC, 10-15 May 99

The beta and gamma survey results listed in this report were measured using the following data-logging instrumentation:

Manufacturer	Model #	Serial #	Probe Type	Probe Model	Probe Serial #	Cal Date
Ludlum	2350	120602	Gamma	44-2	122225	6 Jun 98
Ludlum	2350	120579	Beta	43-68	122121	6 Jun 98
Ludlum	2350	120594	Beta	43-68	122126	6 Jun 98

All calibrations are for a one year cycle.

The beta probes are gas-flow proportional counters with a 100cm^2 open area. The gamma detector used is a 1 inch by 1 inch Sodium Iodide scintillation crystal. All measurements were stored in the instruments logging memory and "downloaded" utilizing a Data Management System software program.

To ensure the validity and reproducibility of all field data collected during the performance of the close-out survey, two types of instrument operational charts are maintained by the field survey team. The Instrument Control Chart is used to plot the initial instrument source data when determining instrument control limits (2 sigma and 3 sigma ranges). The Daily QC Chart is used to plot three daily source readings to verify instrument operability.

Each Instrument Control Chart includes in this appendix is flowed by the associated Instrument Daily QC Chart.

Instrument Control Chart

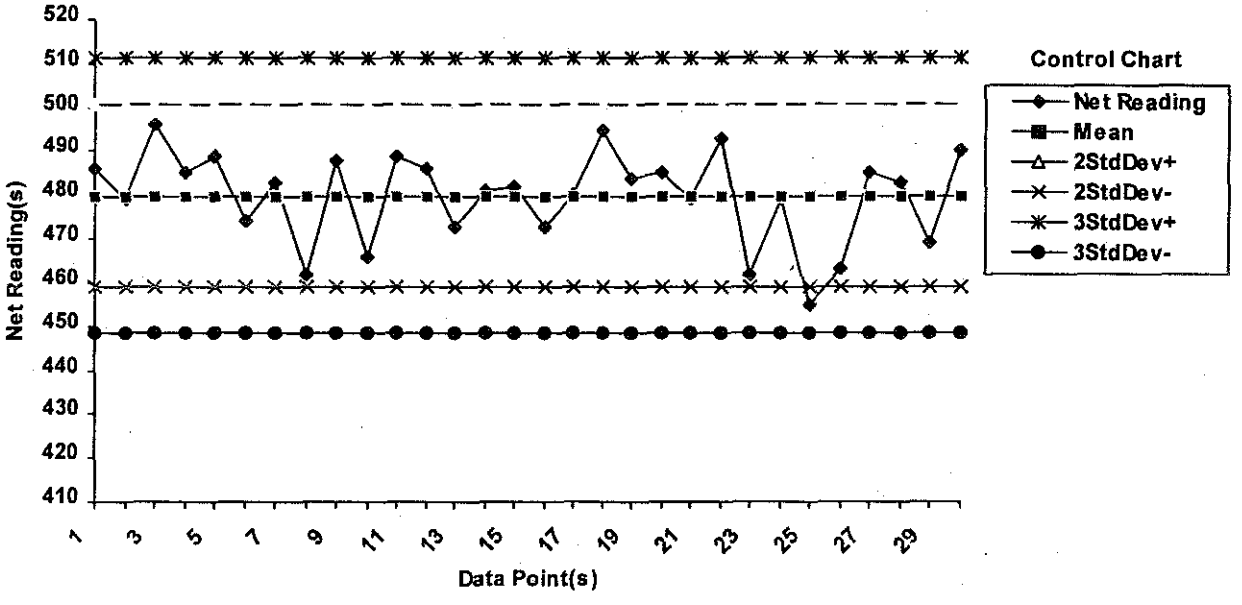
Meter Serial #: 120602
Meter Make / Model #: LUDLUM 2350
QCDateTime: 5/10/99 3:33:11 PM
Surveyor: David Collins
Background: 12.0 uR/hr

Probe Serial #: 122225
Probe Make / Model #: 44-2
Check Source **Isotope** Cs-137
Serial Number 95CS2503066
Activity 1642800 **DPM**

Mean:	479.8	**# Data Points**	30		
StdDev:	10.5				
2StdDev:	20.9	458.8	500.7	**Count Time:**	0 sec
3StdDev:	31.4	448.4	511.2	**Instrument Efficiency:**	N/A

Instrument QC Data:

1	498	0	uR/hr	13	485	0	uR/hr	25	467	0	uR/hr
2	491	0	uR/hr	14	493	0	uR/hr	26	475	0	uR/hr
3	508	0	uR/hr	15	494	0	uR/hr	27	497	0	uR/hr
4	497	0	uR/hr	16	485	0	uR/hr	28	495	0	uR/hr
5	501	0	uR/hr	17	492	0	uR/hr	29	481	0	uR/hr
6	486	0	uR/hr	18	507	0	uR/hr	30	502	0	uR/hr
7	495	0	uR/hr	19	496	0	uR/hr				
8	474	0	uR/hr	20	497	0	uR/hr				
9	500	0	uR/hr	21	491	0	uR/hr				
10	478	0	uR/hr	22	505	0	uR/hr				
11	501	0	uR/hr	23	474	0	uR/hr				
12	498	0	uR/hr	24	491	0	uR/hr				



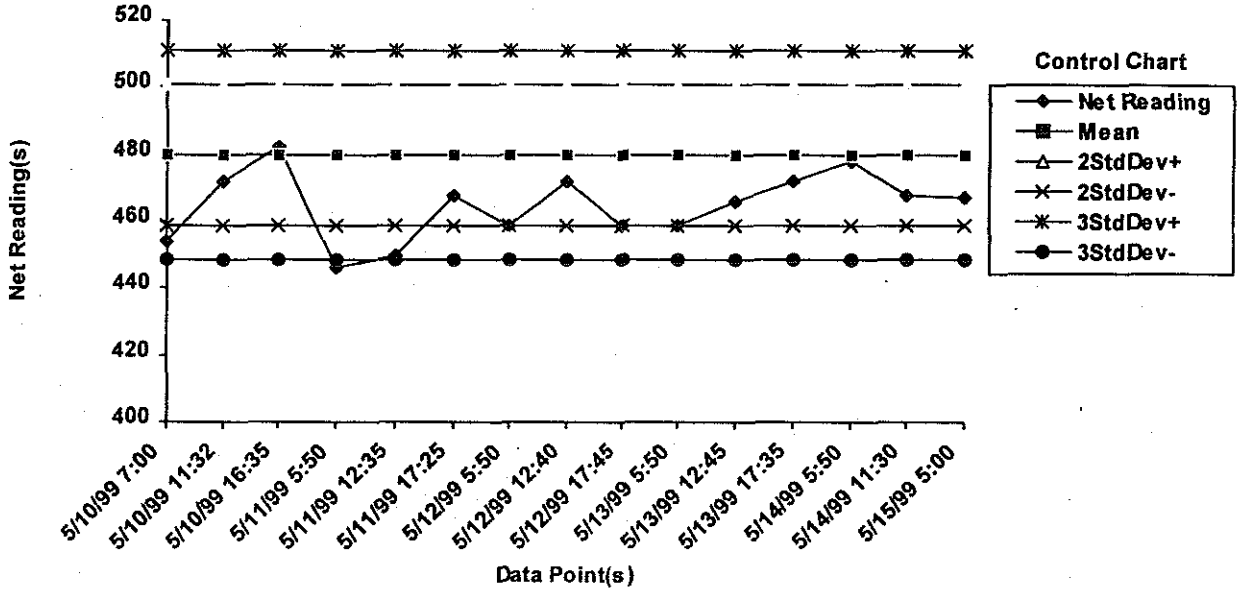
Instrument Daily Control Chart

Meter Serial #:	120602	**Probe Serial #:**	122225
Meter Make / Model #:	LUDLUM 2350	**Probe Make / Model #:**	44-2
QCDateTime:	5/10/99 3:33:11 PM	**Check Source**	**Isotope** Cs-137
Surveyor:	David Collins		**Serial Number** 95CS2503066
Background:	12.0 uR/hr		**Activity** 1642800 **DPM**

Mean:	479.8	**# Data Points**	30		
StdDev:	10.5				
2StdDev:	20.9	458.8	500.7	**Count Time:**	0 sec
3StdDev:	31.4	448.4	511.2	**Instrument Efficiency:**	N/A

Instrument QC Data:

5/10/99 7:00:00 AM	454		AM	5/14/99 5:50:00 AM	478		AM
5/10/99 11:32:00 AM	472		MidDay	5/14/99 11:30:00 AM	468		MidDay
5/10/99 4:35:00 PM	482		PM	5/15/99 5:00:00 AM	467		AM
5/11/99 5:50:00 AM	446		AM				
5/11/99 12:35:00 PM	450		MidDay				
5/11/99 5:25:00 PM	468		PM				
5/12/99 5:50:00 AM	459		AM				
5/12/99 12:40:00 PM	472		MidDay				
5/12/99 5:45:00 PM	459		PM				
5/13/99 5:50:00 AM	459		AM				
5/13/99 12:45:00 PM	466		MidDay				
5/13/99 5:35:00 PM	472		PM				



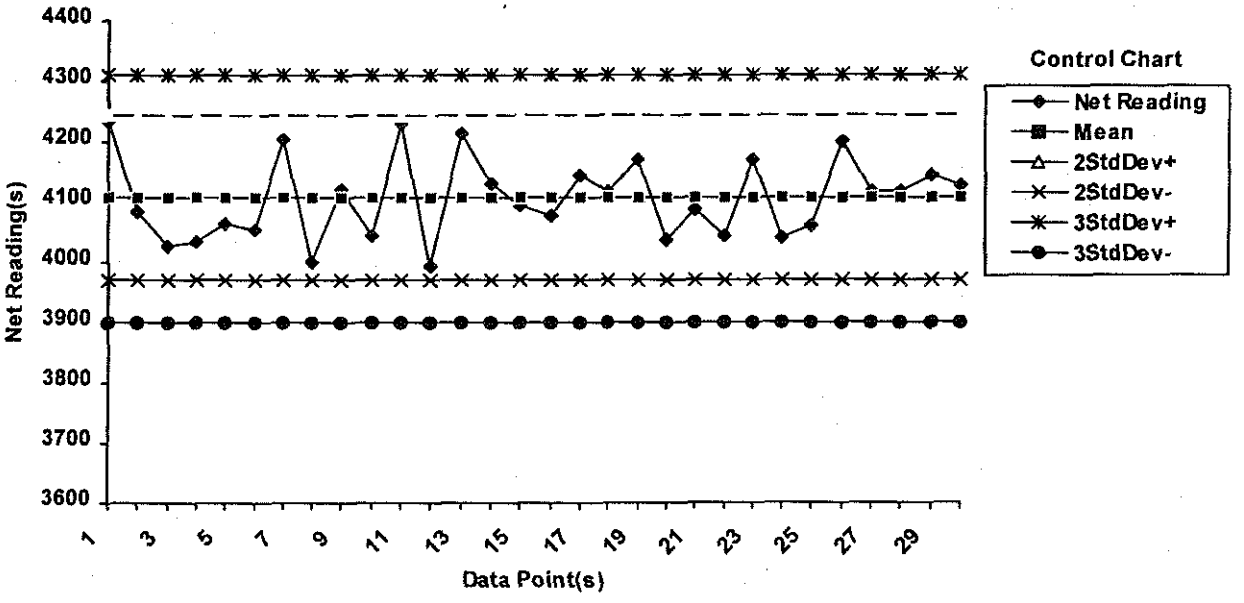
Instrument Control Chart

Meter Serial #:	120579	**Probe Serial #:**	122121
Meter Make / Model #:	LUDLUM 2350	**Probe Make / Model #:**	43-68
QCDateTime:	5/10/99 4:56:18 PM	**Check Source**	**Isotope** Tc-99
Surveyor:	David Collins		**Serial Number** 95TC2203065
Background:	258.0 Counts		**Activity** 17800 DPM

Mean:	4105.5	**# Data Points**	30		
StdDev:	68.2				
2StdDev:	136.4	3969.1	4241.9	**Count Time:**	60 sec
3StdDev:	204.6	3900.9	4310.1	**Instrument Efficiency:**	23.06%

Instrument QC Data:

1	4493	60	Counts	13	4471	60	Counts	25	4317	60	Counts
2	4343	60	Counts	14	4389	60	Counts	26	4457	60	Counts
3	4284	60	Counts	15	4350	60	Counts	27	4376	60	Counts
4	4293	60	Counts	16	4335	60	Counts	28	4375	60	Counts
5	4320	60	Counts	17	4402	60	Counts	29	4401	60	Counts
6	4312	60	Counts	18	4374	60	Counts	30	4385	60	Counts
7	4460	60	Counts	19	4427	60	Counts				
8	4259	60	Counts	20	4295	60	Counts				
9	4377	60	Counts	21	4344	60	Counts				
10	4300	60	Counts	22	4302	60	Counts				
11	4488	60	Counts	23	4428	60	Counts				
12	4251	60	Counts	24	4298	60	Counts				



Med Radn Surv No. 28-MF-6209-99, Facility Close-Out and Termination Phase II, Building 500, WRAIR, WRAMC, Washington, DC, 10-15 May 99

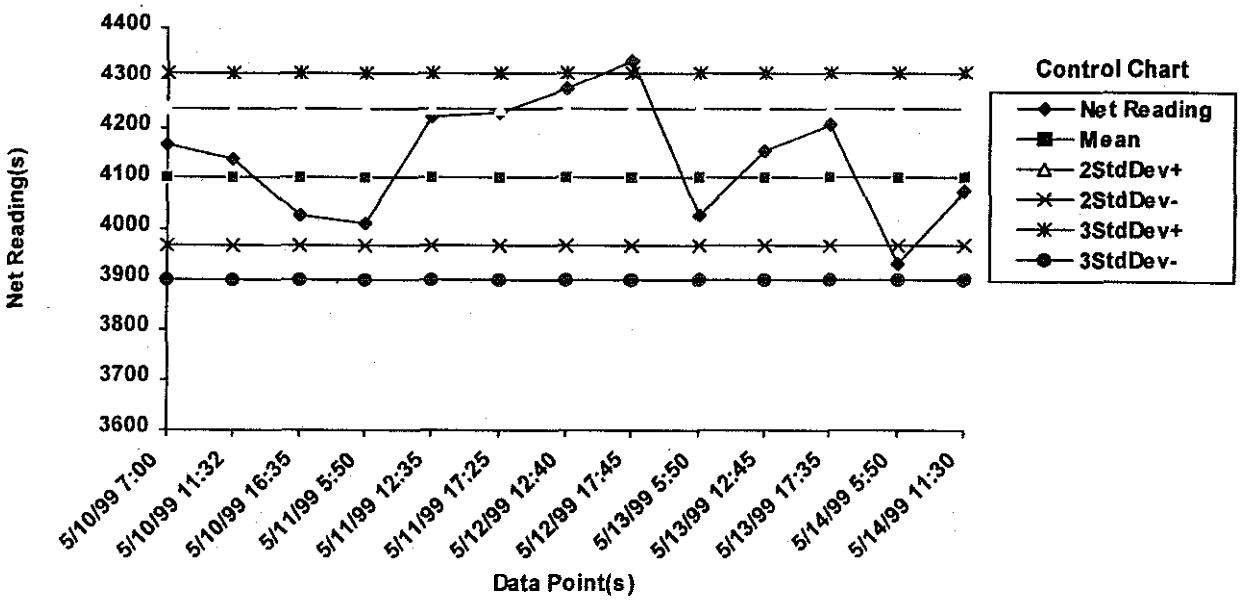
Instrument Daily Control Chart

Meter Serial #:	120579	**Probe Serial #:**	122121
Meter Make / Model #:	LUDLUM 2350	**Probe Make / Model #:**	43-68
QCDateTime:	5/10/99 4:56:18 PM	**Check Source**	**Isotope** Tc-99
Surveyor:	David Collins		**Serial Number** 95TC2203065
Background:	258.0 Counts		**Activity** 17800 **DPM**

Mean:	4105.5	**# Data Points**	30		
StdDev:	68.2				
2StdDev:	136.4	3969.1	4241.9	**Count Time:**	60 sec
3StdDev:	204.6	3900.9	4310.1	**Instrument Efficiency:**	23.06%

Instrument QC Data:

5/10/99 7:00:00 AM	4168	Counts	AM	5/14/99 11:30:00 AM	4078	Counts	MidDay
5/10/99 11:32:00 AM	4139	Counts	MidDay				
5/10/99 4:35:00 PM	4029	Counts	PM				
5/11/99 5:50:00 AM	4013	Counts	AM				
5/11/99 12:35:00 PM	4223	Counts	MidDay				
5/11/99 5:25:00 PM	4231	Counts	PM				
5/12/99 12:40:00 PM	4279	Counts	MidDay				
5/12/99 5:45:00 PM	4338	Counts	PM				
5/13/99 5:50:00 AM	4027	Counts	AM				
5/13/99 12:45:00 PM	4155	Counts	MidDay				
5/13/99 5:35:00 PM	4209	Counts	PM				
5/14/99 5:50:00 AM	3931	Counts	AM				



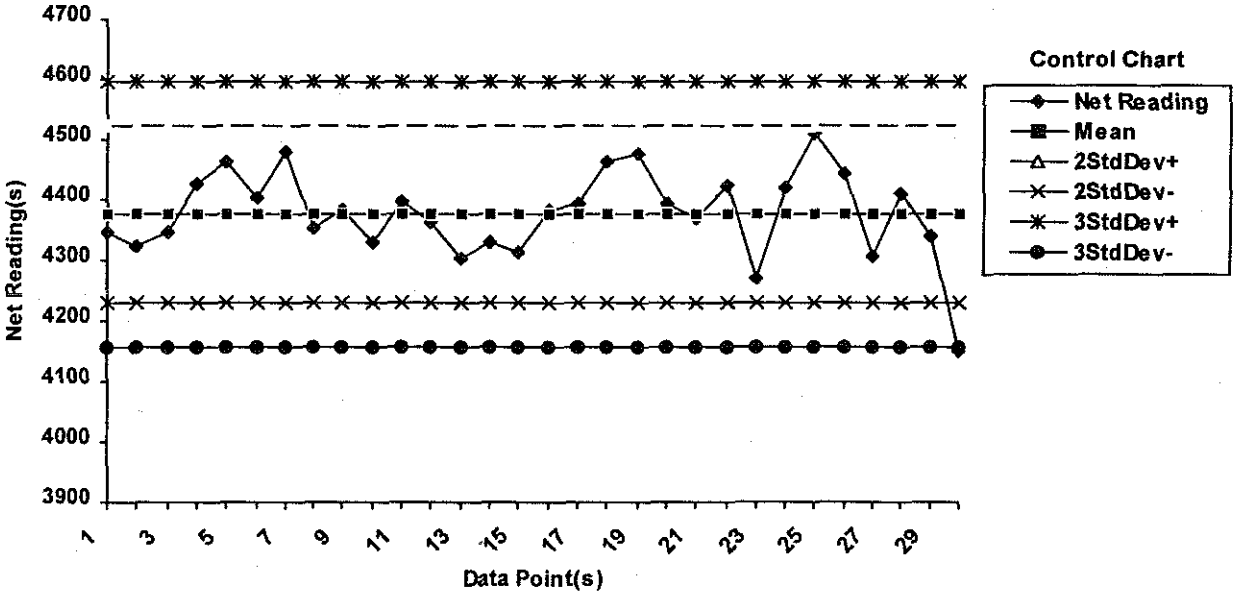
Instrument Control Chart

Meter Serial #:	120594	**Probe Serial #:**	PR122126
Meter Make / Model #:	LUDLUM 2350	**Probe Make / Model #:**	43-68
QCDateTime:	5/11/99 7:24:00 AM	**Check Source**	**Isotope** Tc-99
Surveyor:	David Collins		**Serial Number** 95TC2203065
Background:	248.7 **Counts**		**Activity** 17800 **DPM**

Mean:	4377.4	**# Data Points**	30		
StdDev:	73.1				
2StdDev:	146.2	4231.1	4523.6	**Count Time:**	60 sec
3StdDev:	219.3	4158.0	4596.7	**Instrument Efficiency:**	24.59%

Instrument QC Data:

1	4595	60	Counts	13	4553	60	Counts	25	4759	60	Counts
2	4573	60	Counts	14	4580	60	Counts	26	4693	60	Counts
3	4597	60	Counts	15	4561	60	Counts	27	4556	60	Counts
4	4674	60	Counts	16	4631	60	Counts	28	4660	60	Counts
5	4713	60	Counts	17	4641	60	Counts	29	4589	60	Counts
6	4652	60	Counts	18	4713	60	Counts	30	4399	60	Counts
7	4729	60	Counts	19	4725	60	Counts				
8	4603	60	Counts	20	4643	60	Counts				
9	4631	60	Counts	21	4618	60	Counts				
10	4579	60	Counts	22	4672	60	Counts				
11	4645	60	Counts	23	4520	60	Counts				
12	4611	60	Counts	24	4668	60	Counts				



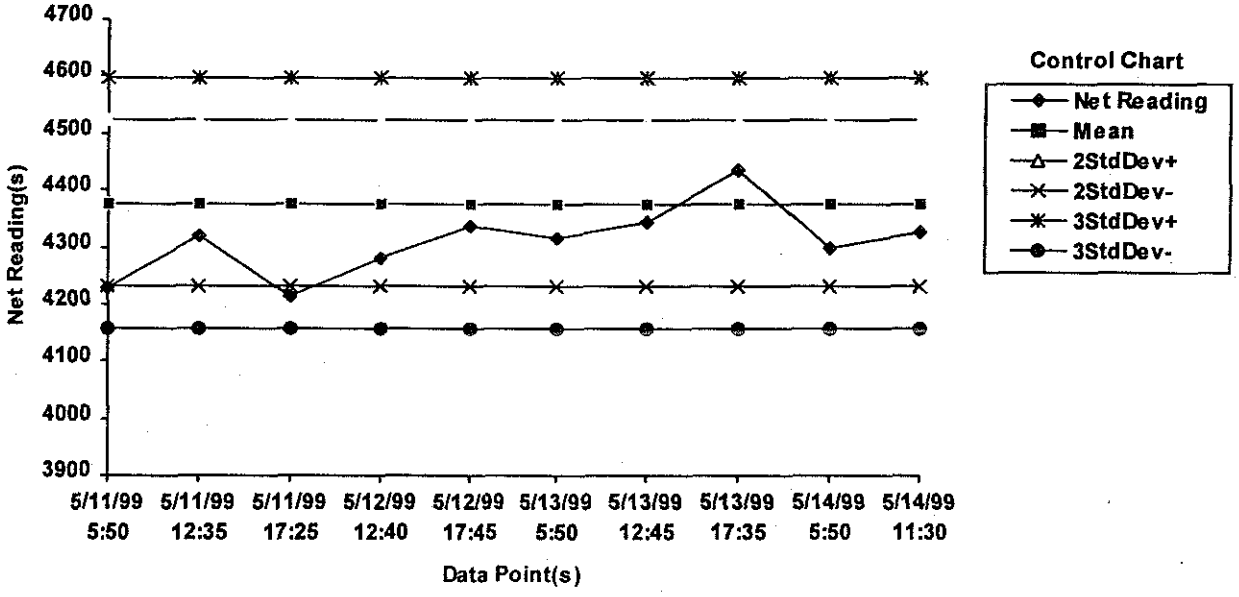
Instrument Daily Control Chart

Meter Serial #:	120594	**Probe Serial #:**	PR122126
Meter Make / Model #:	LUDLUM 2350	**Probe Make / Model #:**	43-68
QCDateTime:	5/11/99 7:24:00 AM	**Check Source**	**Isotope** Tc-99
Surveyor:	David Collins		**Serial Number** 95TC2203065
Background:	248.7 **Counts**		**Activity** 17800 **DPM**

Mean:	4377.4	**# Data Points**	30		
StdDev:	73.1				
2StdDev:	146.2	4231.1	4523.6	**Count Time:**	60 sec
3StdDev:	219.3	4158.0	4596.7	**Instrument Efficiency:**	24.59%

Instrument QC Data:

5/11/99 5:50:00 AM	4227	Counts	AM
5/11/99 12:35:00 PM	4320	Counts	MidDay
5/11/99 5:25:00 PM	4214	Counts	PM
5/12/99 12:40:00 PM	4279	Counts	MidDay
5/12/99 5:45:00 PM	4338	Counts	PM
5/13/99 5:50:00 AM	4316	Counts	AM
5/13/99 12:45:00 PM	4344	Counts	MidDay
5/13/99 5:35:00 PM	4437	Counts	PM
5/14/99 5:50:00 AM	4299	Counts	AM
5/14/99 11:30:00 AM	4327	Counts	MidDay



APPENDIX G

NIST TRACEABLE SOURCE INFORMATION

Med Radn Surv No. 28-MF-6209-99, Facility Close-Out and Termination Survey, Phase II Building 500, WRAIR, WRAMC, Washington, DC, 10-15 May 99

The following NIST traceable sources were used to for initial instrument set-up as well as daily instrument checks.

Nuclide	Manufacturer	Serial #	Calibrated Activity	Cal Date
Tc-99		95TC2203065	17800 dpm	
Cs-137		95CS2503066	0.74 :Ci	

DEPARTMENT OF THE ARMY
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO
ATTENTION OF

MCHB-TS-OMH (40)

15 JUN 1999

MEMORANDUM FOR Commander, Walter Reed Army Institute of Research, ATTN: COL Robert Gifford, Executive Officer, Washington, DC 20307-5100

SUBJECT: Release of Buildings for Unrestricted Use at the Walter Reed Army Institute of Research

1. The U.S. Army Center for Health Promotion and Preventive Medicine recommends that the East and West Wings of Building 500, (Phase II), currently used by the Walter Reed Army Institute of Research, be released for unrestricted use to the general public. A final report will be provided with all radiological survey data, diagrams, sampling locations and instrumentation used.

2. A review of all survey and laboratory data indicates that there is no radiological contamination detected above the release criteria for these sites. We therefore conclude that the above listed wings of Building 500 be released for unrestricted use. All radiological surveys were performed to meet the Nuclear Regulatory Commission requirements outlined in NUREG/5849.

3. The point of contact is Mr. John Collins at DSN 584-3548 or (410) 436-3548.

FOR THE COMMANDER:

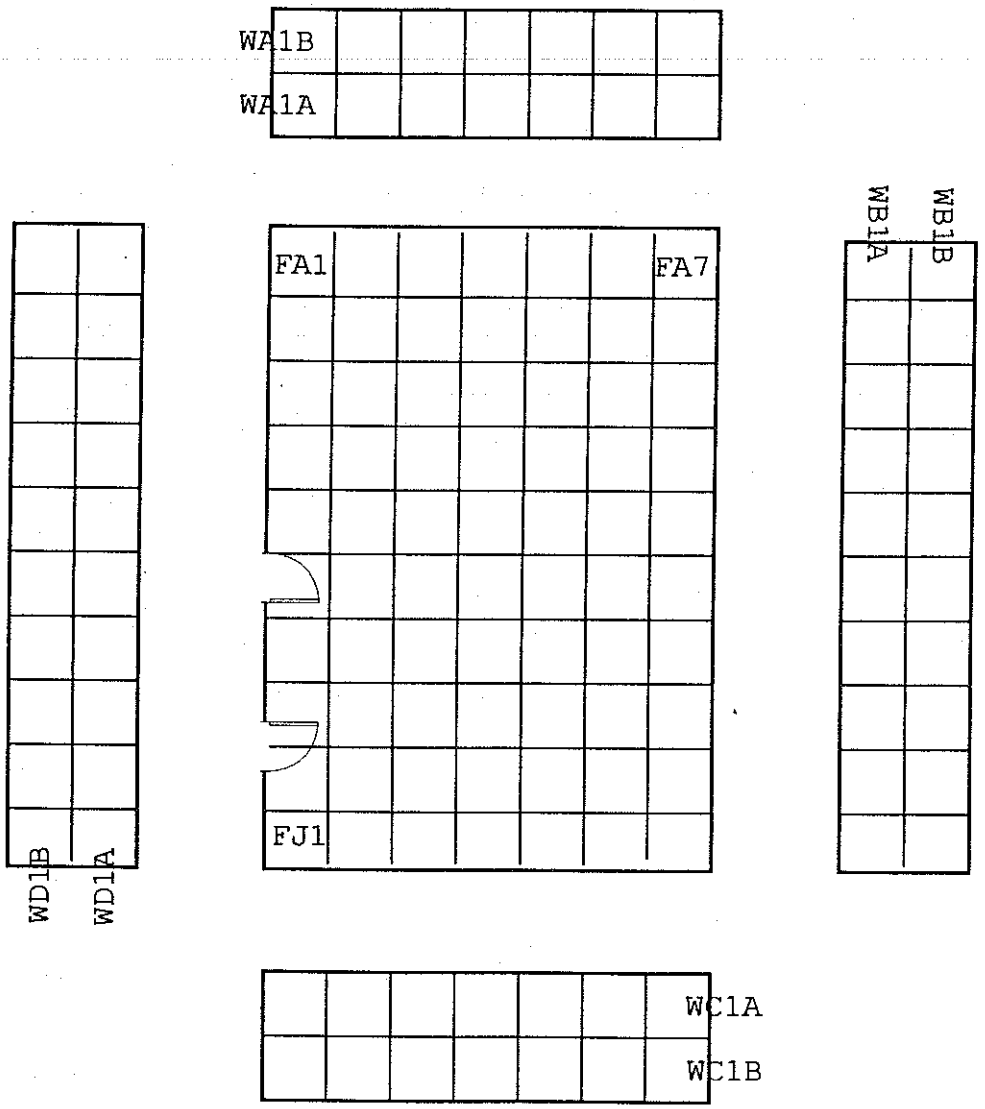
GARY J. MATCEK
MAJ, MS
Program Manager
Medical Health Physics

CF:
CDR, WRAMC, ATTN: MCHL-HP (COL JOHNSON)
CDR, WRAIR, ATTN: HFPO (LTC RICHARD BOND)
CDR, WRAIR, ATTN: DCSLOG (COL LUIS ROLON)

Readiness thru Health

GRAPHICAL ILLUSTRATION

Building 500 Room 74



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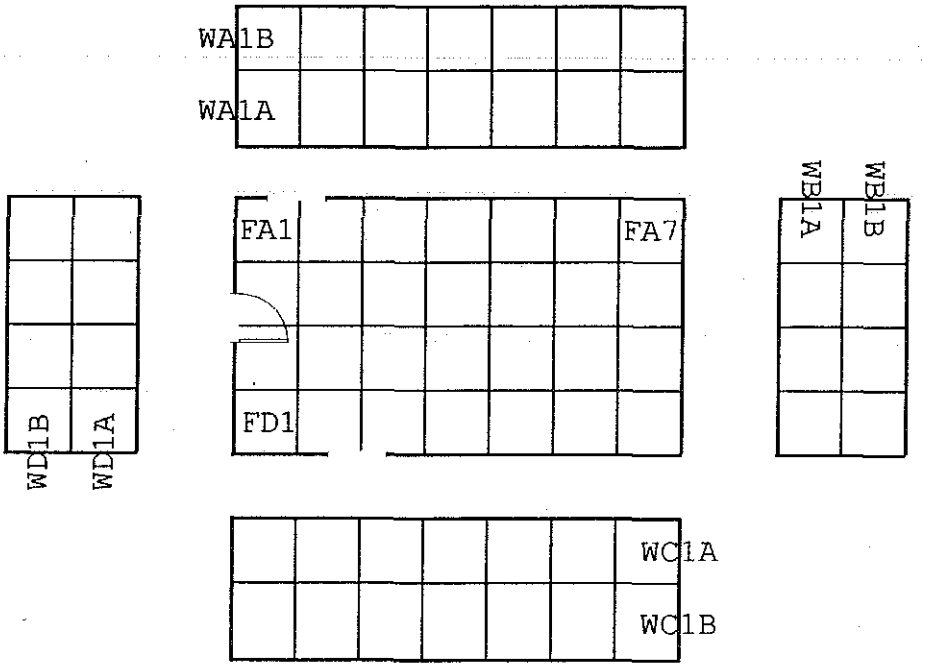
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	DRAWN C.WIBLIN APPROVED _____ SCALE NTS

GRAPHICAL ILLUSTRATION

Building 500 Room 72A



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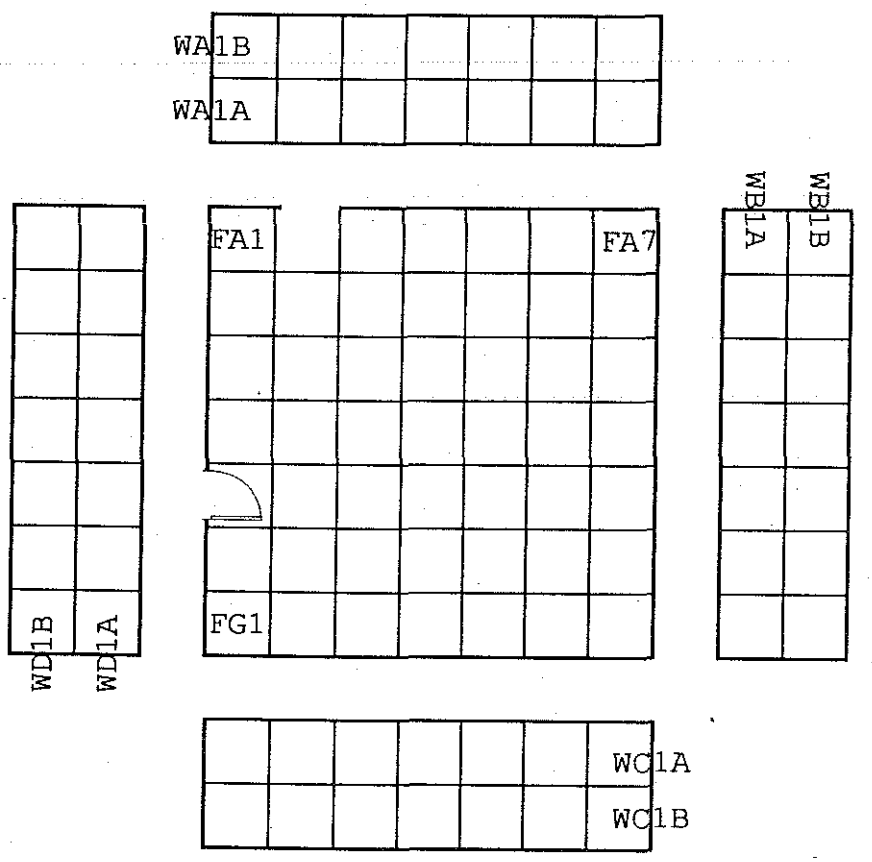
U.S. ARMY CENTER FOR HEALTH PROMOTION *AND PREVENTIVE MEDICINE* UNITED STATES ARMY MEDICAL DEPARTMENT	DRAWN C.WIBLIN APPROVED _____ SCALE NTS

GRAPHICAL ILLUSTRATION

Building 500 Room 72



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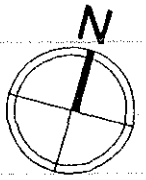
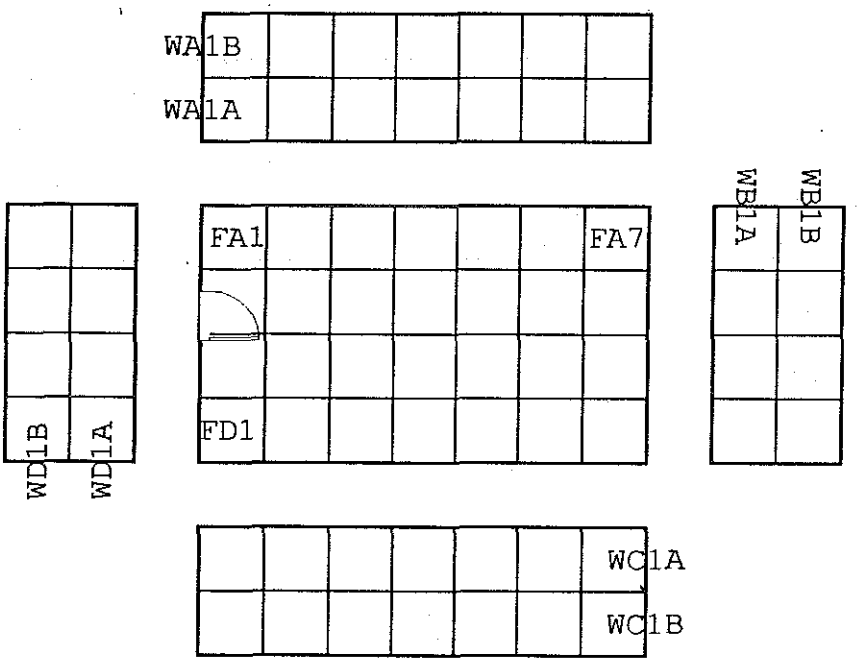
GRAPHICAL ILLUSTRATION



Building 500 Room 66



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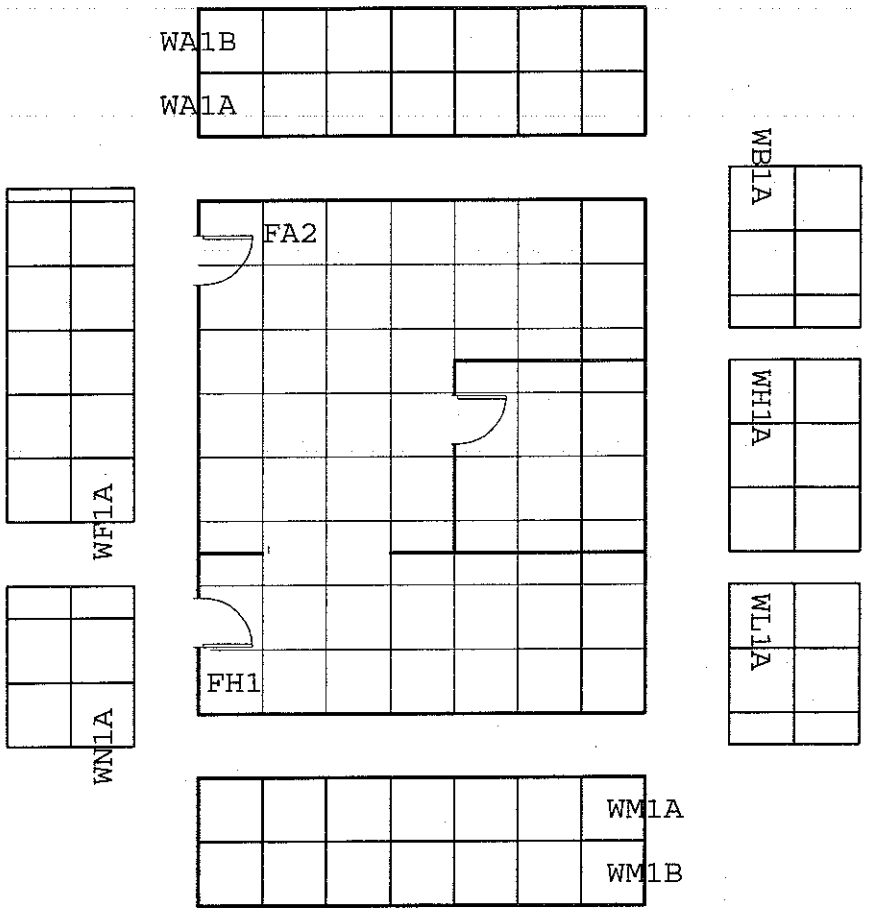
GRAPHICAL ILLUSTRATION

Building 500 Room 62,64,64A



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UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 24 NOV 97
DRAWN C.WIBLIN
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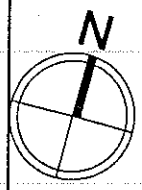
GRAPHICAL ILLUSTRATION



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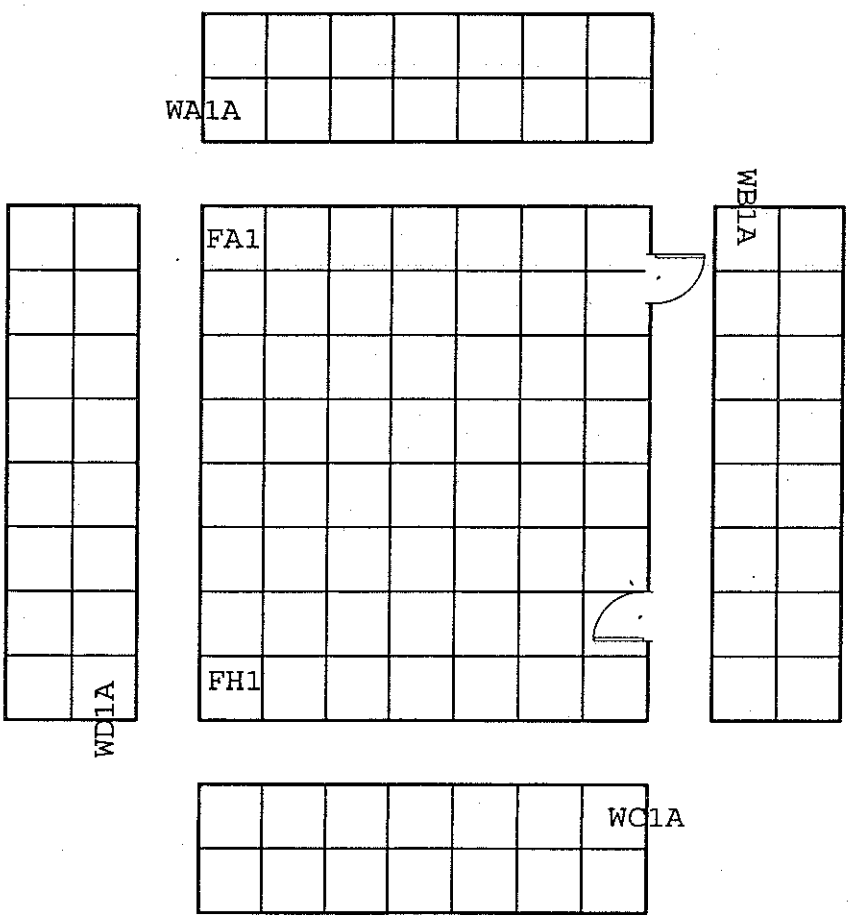

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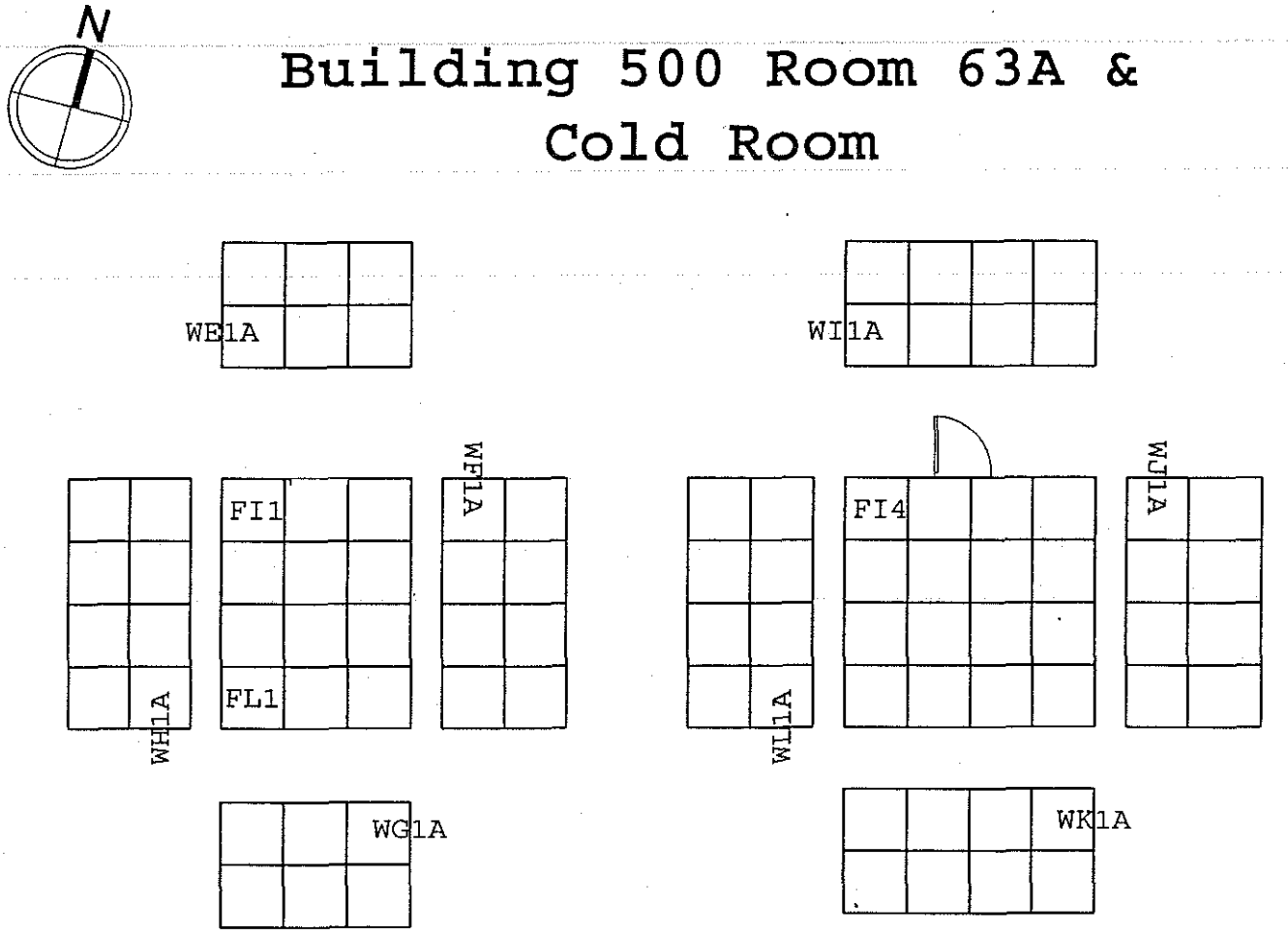
GRAPHICAL ILLUSTRATION



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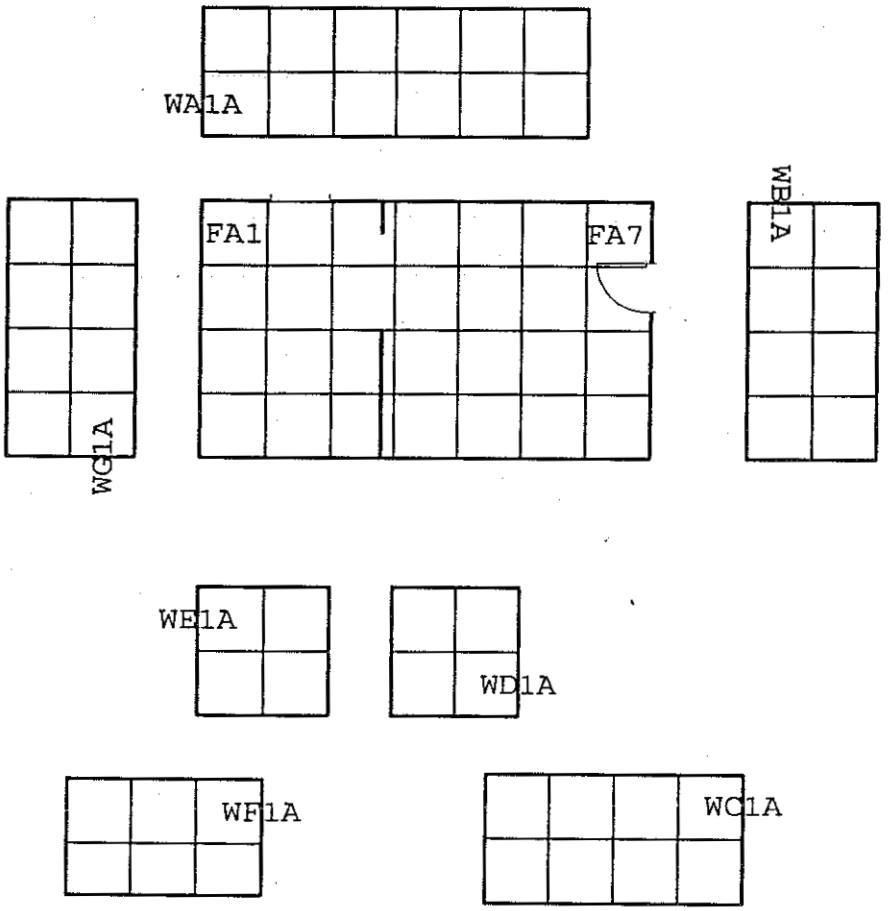
GRAPHICAL ILLUSTRATION

Building 500 Room 69 &69A



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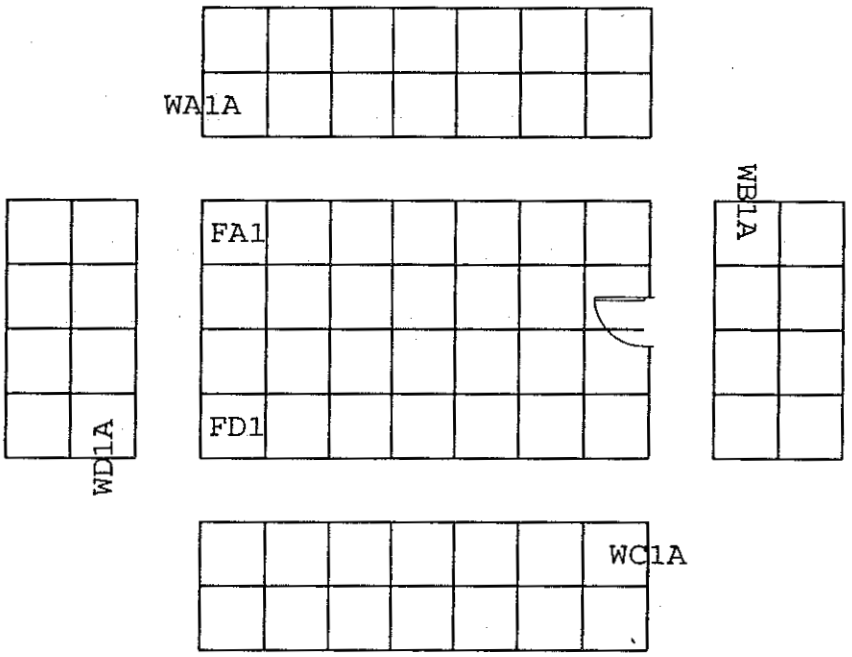
GRAPHICAL ILLUSTRATION

Building 500 Room 67



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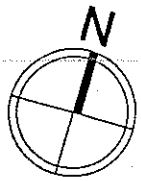
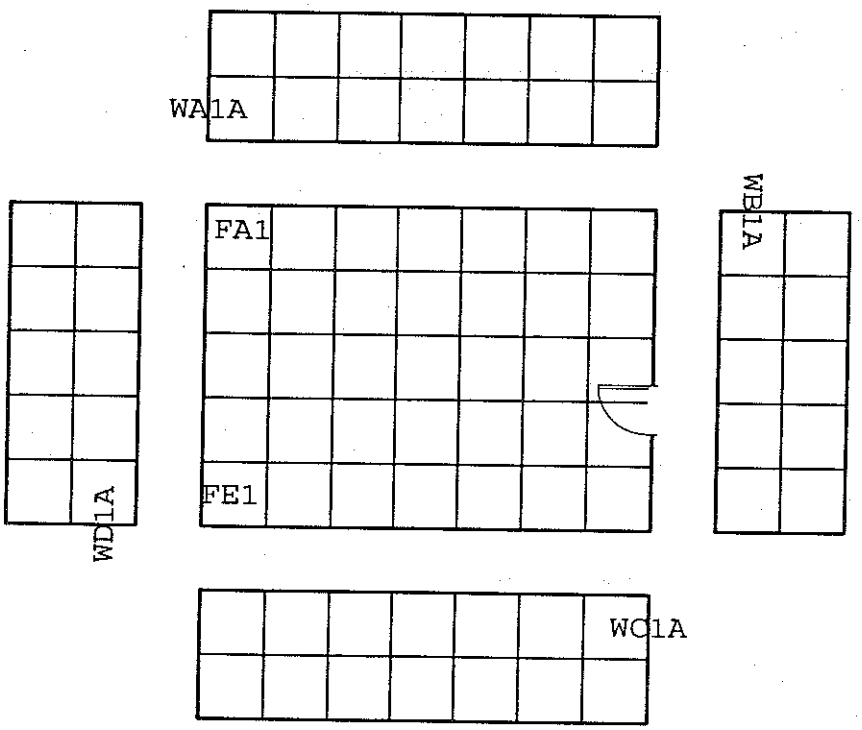


Building 500 Room 71



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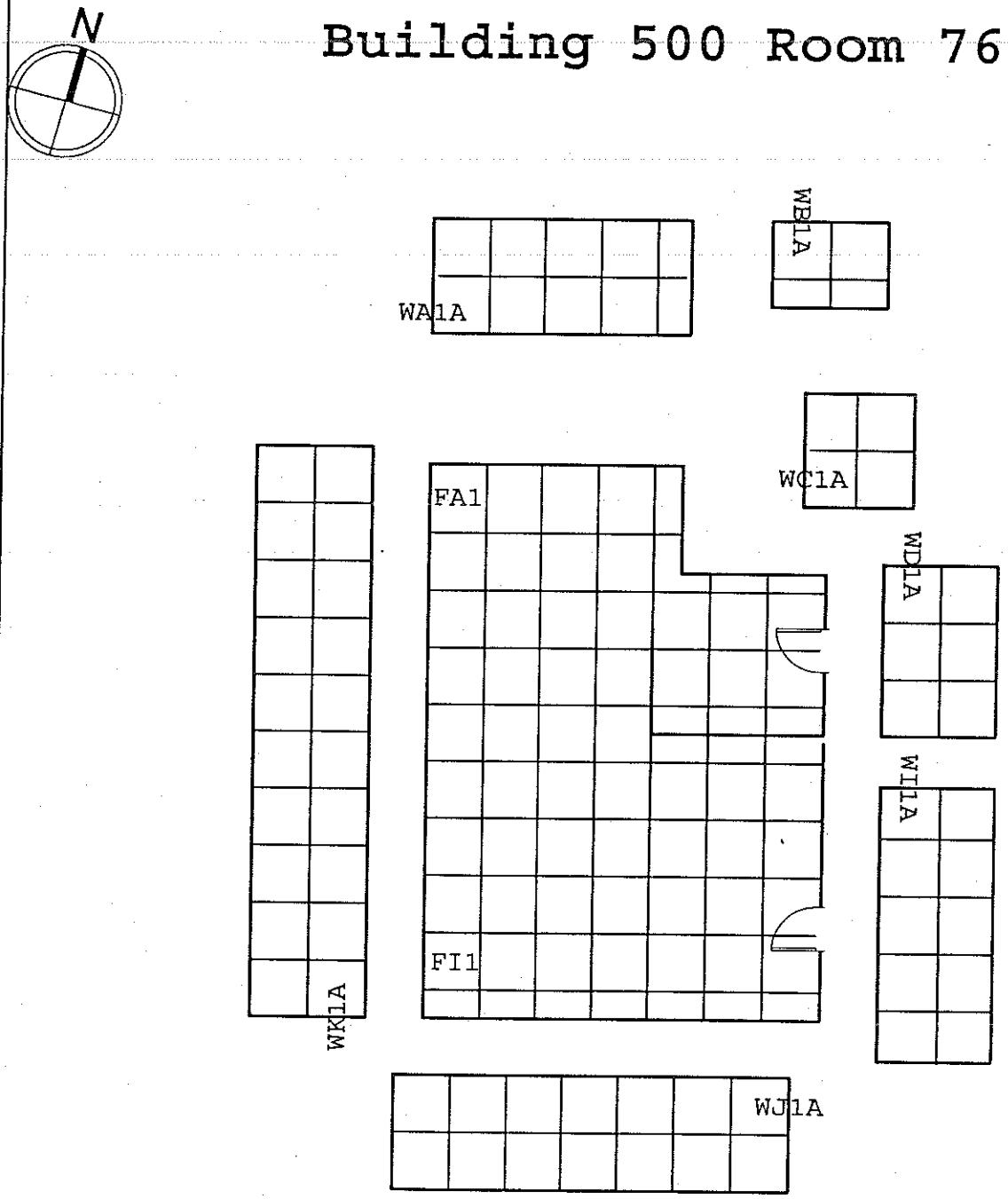
GRAPHICAL ILLUSTRATION

Building 500 Room 76



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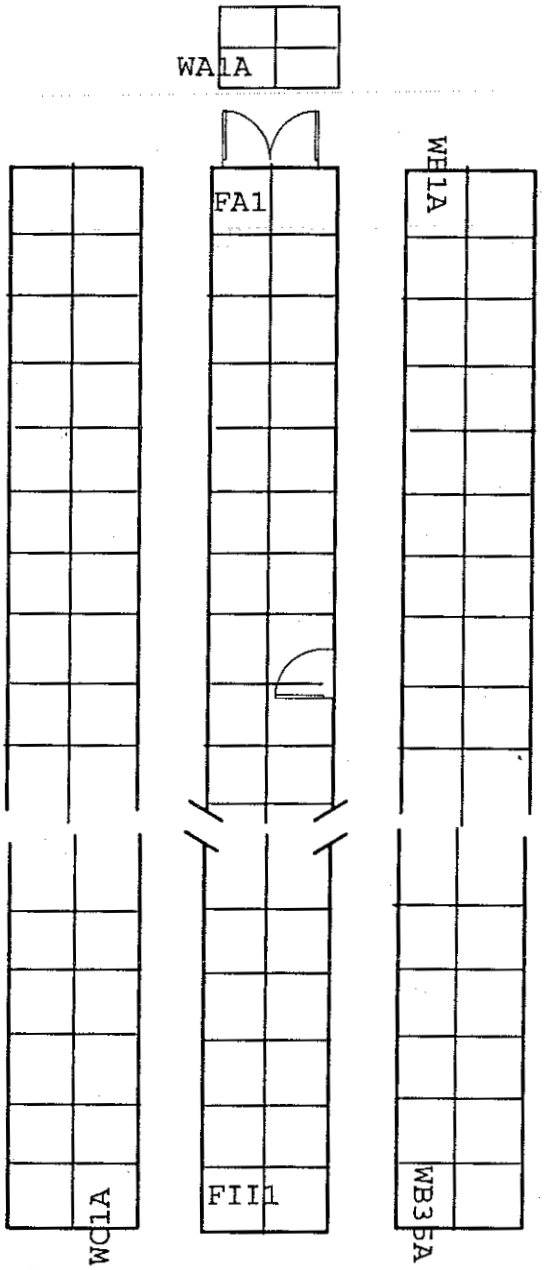
GRAPHICAL ILLUSTRATION

Building 500 North Wing Hallway



Door in Grid FI2;
North side = WD1A
South side = WD2A

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MEDICAL RADIATION SURVEY PROTOCOL
NO. 28-MH-6209-P1-97
WALTER REED ARMY INSTITUTE OF RESEARCH
WALTER REED ARMY MEDICAL CENTER
WASHINGTON, D.C.
DECEMBER 1997

TABLE OF CONTENTS

SECTION **PAGE**

APPENDICES

TABLES

KEY PARTICIPANTS FOR THE WRAIR SURVEY

1. Walter Reed Army Institute of Research. Will coordinate the funding for surveys at WRAIR. Provide guidance and coordination between WRAIR and USACHPPM. [WRAIR Deputy Commander COL Martin Crumrine.]

2. Walter Reed Army Medical Center (WRAMC) Health Physics Office. Will coordinate all NRC license concerns as holder of the NRC radioactive material license. Will provide storage and ultimate disposal of radioactive waste generated from any small decontamination and survey effort. [Health Physics Officer COL William B. Johnson (301) 356-0058

3. WRAIR Logistics. Supervises and coordinates all contractors on site regarding base closure. [Mr. Edward D. Keiper. (202) 782-1244]

4. WRAIR Safety Office. Will provide the onsite general safety program. [Mr. Bert J. Mueck (202) 782-3019 and for Building 500, Dr Bing T. Poon (301) 295-7786]

5. WRAIR DPW and Transition Office. Will provide access to the buildings and a secure area to act as a site office for surveys work. [LTC Richard Bond, 1LT James Goetschius (301) 295-8327)]

6. U.S. Army Center for Health Promotion and Preventive Medicine, Medical Health Physics Program. Will manage the overall radiological surveying efforts at the installation. Will provide resources and subject matter experts to address any DA licensed and non-licensed material issues with WRAMC, WRAIR, NRC and state regulators. Coordinate survey activities with the Installation Commander and the BRAC Office. [Mr. John Collins, DSN: 584-3548, commercial: (410) 612-7155]

7. U.S. Army Center for Health Promotion and Preventive Medicine, Radiologic, Classic, and Clinical Chemistry Division (RCCCD). Will manage the overall Radiochemistry Laboratory efforts at the installation. Provide technical assistance to IHPP, and perform all necessary laboratory analyses for samples generated for this project. [Mr. Gary W. Wright, DSN: 584-3983, commercial: (410)671-3983]

8. U.S. Army Center for Health Promotion and Preventive Medicine, Safety Manager. Will manage the overall safety program for USACHPPM personnel and contractors. Provide technical assistance to IHPP, and perform all necessary laboratory analyses for samples generated for this project. [Mr. Jake Jacobson, DSN: 584-3841, commercial: (410)671-3841]

TENTATIVE SCHEDULE

1. Provide onsite laboratory support through RCCCD, USACHPPM by 15 Dec 1997.

2. Draft Survey Protocol completed by USACHPPM by 8 Dec 1997.

3. Submit Draft SP to WRAIR for review by 8 Dec 97.

4. Coordinate the expected arrival of contract personnel at WRAIR by 1 Dec 97.

5. USACHPPM personnel and the QA Coordinator arrived onsite to begin survey on 8 Dec 1997. One day were scheduled for site-specific training, SP indoctrination sessions, survey plan packet review, survey instrumentation familiarization sessions and review of all participants' roles.

6. Radiological surveys are scheduled to be completed by 19 Dec 97. The current schedule is for the North Wing of Building 500 only.

7. Draft report or letter due by 1 Mar 97.

SECTION 1

INTRODUCTION

1.1 General

1.1.1 This SP involves facilities and areas that had operations involving radioactive materials and commodities that contained licensed NRC and DA authorized radioactive materials. Release of these facilities and sites for unrestricted use will be authorized following completion the final radiological surveys.

1.1.2 The SP follows at a minimum the format and content specified in the NUREG/CR-5849, Manual for Conducting Radiological Surveys in Support of License Termination, Draft Report for Comment. The SP content has been previously approved by the NRC Region I. The final protocol will be made available to the public through local public repositories, when requested.

1.1.3 This SP addresses radioactive materials used by WRAIR under control of a broad scope medical NRC license, a DA Radiation Authorization (DARA), and those radioactive materials that do not require a specific NRC license to possess and use. This facility used both sealed and unsealed sources of radioactive material for the treatment and diagnosis of diseases in personnel authorized treatment at the hospital. Activities and operations were associated with the following licenses:

Nuclear Regulatory Commission Byproduct Material License No. BML 08-01738-02.

DARA A 08-17-01 for other radioactive material not controlled by the NRC.

1.2 Mission of WRAIR

The mission of the WRAIR has been to provide the medical research and professional graduate training required by the Army to fulfill its role in national defense. Part of the WRAIR activities were located on the Forest Glen Annex including Building 500.

As a leader in medical research and development, WRAIR expanded into many medical areas to include the use of radioactive materials and other radiation sources. The WRAIR is preparing to move a large portion of their activities to a new facility under construction at the Forest Glen Annex.

1.3 Description of Facilities and Location

Only a part of the facility is to be surveyed at this time. Specifically, the North Wing of Building 500 located at 9100 Brookeville Road, Silver Spring, MD 20910. The facility is a

permanent one story brick structure with a basement. The basement was used for mechanical equipment and storage. The first floor was constructed for general laboratory research purposes and is that area to be surveyed under this plan.

SECTION 2

HISTORICAL DATA REVIEW

2.1 The Historical Data Review aids in identifying the structures or land areas that may have been involved in the usage or storage of radioactive material, furthermore, it supports the classification of areas as affected, unaffected, or non-impacted.
The specific historical use of radioactive material at WRAIR can be found in the USACHPPM Historical Data Review No. 28-MH-6209-H-97. A list of buildings and rooms that are known to have radioactive materials on the premises are identified in that report. The historical data review verifies the isotopes, activities, chemical and physical forms, incident/accident leaks, and the general history of all activities involving radioactive material on the installation or in support of an NRC license.

2.2 The following tables is a listing of unsealed radioactive material identified as being used in the laboratories. No alpha emitters were identified.

Table 2-1 Identified Unsealed Radioactive Material

Element	Isotope	Half-life
Hydrogen	H-3	12.26 years
Carbon	C-14	5730 years
Phosphorus	P-32	14.29 days
Phosphorus	P-33	24.4 days
Sulphur	S-35	87.44 days
Potassium	K-42	12.36 days
Chromium	Cr-51	27.7 days
Selenium	Se-75	119.17 days
Strontium	Sr-90	27.7 years
Antimony	Sb-125	2.71 years
Iodine	I-125	60.14 days

2.3 Classification of Rooms. Radioactive material was used extensively within the first floor of this building. There was RAM stored in the hallways and RAM movement between laboratories. Records indicated the use of radioactive sinks and ventilation hoods. Floor plans with proposed

radiation survey grids of specific rooms and isotopes used within these rooms is listed in Appendix C. The historical recommended specific rooms in Building 500 be classified as outlined below. The historical also recommended that all sinks and ventilation hoods within rooms that used RAM be surveyed to assure no residual radioactivity.

Table 2-2 Room/Area Classifications

Room/Area	Classification
Room 63 with 63A and cold room Rooms 66,67,69 and 69A,71,72,74 Hallway	Affected, Non-Uniform
Office areas 62, 64,64A; Room 76	Unaffected

2.4 Initial Classification of Areas.

2.4.1 General. Based on a review of readily available information and a walk-through of the areas/facilities, the areas were assigned an initial classification made on the potential for radioactive contamination. It is expected that some areas will be reclassified as survey results become available.

2.4.2 Classification of areas.

2.4.2.1 Affected Area(s): Area(s) that have the potential for radioactive contamination (based on facility operating history) or known radioactive contamination (based on past or preliminary radiological survey/surveillance). This would normally include areas where radioactive materials were used and stored, where records indicate spills or other unusual occurrences that could have resulted in the spread of radioactive contamination, and where radioactive materials were buried. Areas immediately surrounding or adjacent to locations where radioactive materials were used or stored, spilled, or buried are included in this classification because of the potential for the inadvertent spread of radioactive contamination. Affected areas are further divided into those areas that are considered to have a potential for containing small areas of elevated residual radioactivity (hot spots) in excess of the regulatory guideline levels and those in which such areas of elevated radioactivity would <u>not</u> be anticipated. If there is any doubt, the area should be designated as an affected area.

2.4.2.1.1 <u>Affected/Non-Uniform Area</u>: An area that has the potential for a non-uniform or spotty residual radioactivity pattern. Indoor survey units that are classified as affected/non-uniform will generally consist of a single room. NOTE: Any area that has been remediated or decontaminated shall be designated as affected/non-uniform. <u>In</u>

general, all areas shall be treated as affected/non-uniform until substantial basis are provided to reclassify them to either affected/uniform, unaffected, or non-impacted areas.

2.4.2.1.2 Affected/Uniform Area: An area with little or no potential for non-uniform or spotty residual radioactivity.

2.4.2.2 Unaffected Area: Any area that is not expected to contain any residual radioactivity, based on a knowledge of site history and previous radiological survey information. The unaffected areas of a facility may consist of a single survey unit of unlimited size.

2.4.2.3 Non-Impacted Area: Any area that has no potential for residual radioactive contamination.

SECTION 3

SURVEY OBJECTIVES

3.1 The purpose of the survey is (1) to establish the radiological conditions at WRAIR Building 500, North Wing and (2) to determine if all or part of the plant site can satisfy the NRC release criteria for unrestricted use.

3.1.1 Scoping and Characterization. These surveys should clearly identify those portions of the site (structures) that have been affected by site activities and are potentially contaminated, and those portions of the site that have not been affected by site activities. When no remediation is anticipated, results of the characterization survey may indicate compliance with release criteria.

3.1.2 Remediation. Remedial action support surveys are conducted to: 1) support remediation activities; and 2) determine when a site or survey unit is ready for the final status survey.

3.1.3 Final Status. The final status survey will be performed to demonstrate that residual radioactivity in each survey unit satisfies the predetermined criteria for release for unrestricted use or, where appropriate, for use with designated limitations.

3.2 Acceptable Radiation Levels

3.2.1 The values deemed acceptable for surface contamination levels for each survey unit are shown in the following Table 1-2.

Table 3-1 WRAIR Acceptable Surface Contamination Levels

Nuclide	Removable (dpm/100cm^2)	Average (dpm/100cm^2)	Maximum (dpm/100cm^2)
I-125	20	100	300
Sr-90	200	1000	3000
All other beta-gama emitters	1000	5000	15000

3.2.3 Small, areas of residual activity, known as "hot spots" do not exceed three times the average value. The hot-spot limit applies to areas of up to 100 cm^2. The average activity level within the 1 m^2 area containing a hot-spot must be within the guideline.

Med Radn Surv Protocol No. 28-MH-6209-P1-97, WRAIR, Washington, D.C. Dec 97

3.2.4 Reasonable efforts have been made to clean up removable activity and removable activity does not exceed 20% of the average surface activity guidelines, see table values above.

3.2.5 Exposure rates in occupiable locations are less than 5 μR per hour above background. Exposure levels are measured at 1 m from floor/lower wall surfaces and are averaged over floor areas, not to exceed the size of a small office, i.e. about 10 m^2.

3.3 General Survey Plan.

This survey plan consists of systematic processes and procedures that have been deemed acceptable by industry standards and the NRC. Activities (organized units of work needed to complete a function) have been defined and tasks (specific work assignments within a specific activity) have been delegated to the appropriate team members.

3.3.1 Performance of Tasks. Tasks will be performed in accordance with guidelines stated in the *Manual for Conducting Radiological Surveys in Support of License Termination, NUREG/CR-5849.* The procedures and task guidelines are organized in this SP as follows:

- Section 4, Background Study
- Section 5, Scoping, Characterization, and Remediation Surveys
- Section 6, Final Status Survey and Release Criteria
- Section 7, Survey Procedures

3.3.2 Training.

USACHPPM provides continuing training for its health physics personnel and other workers who may be exposed to radioactive materials. Training varies according to potential exposure and nature of the employee's job duties. In addition to the regular training, special training will be provided on equipment, special techniques, and practices relative to the survey activities for those employees/contractors who will be involved in taking radiological measurements and samples. All members of the final status survey team will attend an in-house training session reviewing radiation protection, survey procedures, and quality assurance activities.

SECTION 4

BACKGROUND STUDY

4.1 Need for the Background Study.

For radionuclides that occur as part of natural background, it is necessary to establish what the average natural background activity concentrations are in the vicinity of the site or area to be surveyed where radioactive materials were used and/or stored. This background, or reference, study will entail conducting radiological surveys in one or more areas to produce sufficient data to determine the radiological characteristics of background.

4.2 Objectives.

4.2.1 Gamma Exposure Rate. Determine the ambient gamma exposure rate (μR/hr) in the reference area caused by gamma emitting radionuclides that occur in the natural environment. This exposure rate (μR/hr) caused by gamma emitting radionuclides is comprised of terrestrial and cosmic gamma radiation from natural background for outdoor or open land areas.

4.2.2 Alpha and Beta-Gamma Surface Activity. These radiation backgrounds originate from naturally occurring radionuclides present in the building materials, soils and atmosphere surrounding the space being surveyed. A determination is made of this normal alpha and beta-gamma activity per 100 square centimeter and the ambient gamma exposure rate (μR/hr) inside the buildings which are identified as reference areas.

4.2.3 Concentrations. The concentration picocurie per gram or picocurie per liter (pCi/g or pCi/L) and the identity of radionuclides is established for the reference area. [Note- If the radionuclides in the reference area are indicative of site operations a different reference area will be selected.]

4.3 Reference Area Requirements.

A reference or background area is a geographical area from which representative samples of background will be selected for comparison with samples collected in specific survey areas/units at the site. This reference area should have no history of previous use of radioactive material. Measurements in both the reference area and survey unit may be spatially correlated. The reference area and the survey unit should be surveyed and sampled during the same or similar time periods to minimize transient environmental effects.

4.3.1 Similar Characteristics. The reference or background areas are defined areas within the reference region that are chosen because of similar physical, chemical, radiological, and

biological characteristics to the site or area to be investigated, but should not have been contaminated by operations or activities at the site or area. The distribution of background radiation and radioactivity in the reference area should be the same as that which would be expected on the site or area had it never been contaminated.

4.3.2 Multiple Reference Areas. It may be necessary to select more than one reference area for a specific site or area, if the site includes so much physical, chemical, radiological, or biological variability that it cannot be represented by a single reference or background area.

4.3.3 Use of Onsite Buildings. To establish reference (background) areas for building interiors, onsite buildings of similar construction, but with no history that radioactive material or operations with radioactive material occurred, can be used. The reference areas and survey units to which they are compared should have similar age, construction, and materials.

4.3.4 Historical Data. In some situations, pre-operational or historical radiation measurements may be available. These data should be compared to current data.

4.3.5 Methodology. The survey methodology used to characterize background must be consistent with the survey methodology used to define radiological conditions at the site to make valid comparisons or conclusions.

4.3.6 Minimizing Biases. The selection of reference area and the measurement locations within it should also meet strict criteria to minimize biases in the comparison. For example, the same sampling procedure, measurement techniques, building geometry, and instrumentation should be used at the survey unit and the reference area.

4.3.7 Parameters and Number of Measurements. Where only gamma emitting contaminants are present and soil is not affected, it may be adequate to perform only background exposure rate determinations. Background measurements and/or samples will be taken at unaffected areas. It is necessary to collect a minimum of samples for each measured parameter of concern; the mean of all samples per sample media and the standard deviation at the 95% confidence level be determined. If the upper 95% confidence level bound on the background mean is less than 10% of the guideline value for that parameter, variations in background may be considered insignificant and no further determinations are necessary. However, if the 95% confidence level bound on the mean is greater than 10% of the guideline value, the background data should be tested to assure that the sample mean represents the true mean to within ±20% at the 95% confidence level. If necessary, additional background determinations should be performed to satisfy this level of representativeness. For information on how many additional samples are needed to satisfy

this level of significance, see NUREG/CR-5849, Section 8.6 Identifying Additional Measurement/ Sampling Needs for a discussion of the requirements.

4.4 Use of Background Data.

Once radiation background levels have been established, the data can be compared and incorporated in the decision making guideline. If any area shows radiation levels above the determined background levels, a determination should be made as to whether the increases/ differences between background data are due to contamination that results from operations that use radioactive materials, or increased levels of naturally occurring radioactive materials in building/construction materials. This data will be useful in demonstrating compliance with NRC and state requirements.

4.5 Quality Control Blanks.

Blank (unused) wipes should be submitted to the laboratory for use in determining background for the wipe test samples.

4.6 General Techniques and Procedures.

4.6.1 Use of Undisturbed Areas. As a general rule, background instrumentation measurements and soil sample measurements should be collected from areas where the topsoil has not been disturbed. When possible, collecting background measurements from newly developed areas will be avoided.

4.6.2 Instrument Operational Checks. All instrumentation will have operational checks performed with an appropriate radioactive calibration standard prior to shipping to the field site; before starting the site survey and during the scheduled site survey. All operational checks will be documented.

4.6.3 Instrument Location. All gamma surveys will be performed with the gamma detector at approximately 1 meter from the soil surface. Alpha and beta-gamma surveys will be performed when gamma measurements are three times the lowest gamma measurement detected in the background; all alpha and beta-gamma measurements will be taken when the detector is approximately 1 cm from the soil surface. All measurements will be randomly selected throughout the installation.

4.6.4 Building Material Samples. If necessary, building material samples will be collected to assist in a more detailed profiling of the background radioisotope concentrations or for actual contamination. Samples will be analyzed for gross alpha and gross beta-gamma activities. Samples that have activities greater than three times the lowest activity detected

will be screened for radioisotope content. All sample locations will be posted/marked with an identifiable marker.

4.6.5 Water Samples. If necessary, water samples will be collected from available surface water sources; available well water sources and tap water sources. All background water samples will be collected up gradient from the survey site. Water sample analyses will be performed in accordance with the EPA's Drinking Water Quality Protocol, when applicable. The USACHPPM will utilize the methodology for sampling outlined in the USAEHA TG No. 155 Sampling Protocol.

4.6.6 Air Samples. If necessary, air samples will be collected when appropriate to assist in determining potential radionuclide airborne concentrations. Air samples will be positioned at breathing zone levels for the average man, and downwind from the site to be surveyed. All air samples will be analyzed for gross alpha and gross beta-gamma activities. Air samples with detectable activity above three times the background concentrations will be analyzed for specific radioisotopes. The USACHPPM will utilize the methodology for sampling outlined in the USAEHA TG No. 155 Sampling Protocol.

SECTION 5

SCOPING, CHARACTERIZATION, AND REMEDIATION SURVEYS

5.1 Scoping Survey.

The scoping survey is the initial radiological data acquisition survey performed at the site. The Scoping Survey could consist of limited surface scans, direct radiation measurements, and samples (e.g., smears, soil, water, etc.) obtained from site locations considered most likely to have residual radioactivity, and other site locations both immediately adjacent to where radioactive materials were used or stored, and areas not expected to have been affected by site operations. The scoping survey does not require that all radiological parameters be assessed. This survey provides preliminary assessment or screening of site conditions, relative to guideline values, and enables further guidance in classification of the site into "affected (uniform or non-uniform)", "unaffected", or "non-impacted" survey units.

5.1.1 Objectives. The objectives of the scoping survey continues to be:

5.1.1.1 Augment the Historical Data Review for sites with the potential for residual radioactive contamination and reclassify initial areas if substantiated.

5.1.1.2 Provide a basis for initial estimates of the level of effort required for decommissioning and for planning the characterization survey.

5.1.1.3 Better define the identity of potential radioactive contaminants.

5.1.1.4 Determine the relative ratios in which the radionuclides occur.

5.1.1.5 Determine the general levels and extent of the radioactive contamination. This will help in defining what areas require a characterization survey prior to final surveys.

5.1.2 Technique. When planning and conducting the scoping survey, instrumentation and procedures used should meet the standards of a final status survey. Results can be utilized as valid data to supplement the final status survey reports, if appropriate procedures are followed and the subsequent decommissioning activities have not altered the survey location. The scoping survey could therefore eliminate the need for further sampling or survey.

5.2 Characterization Survey.

The characterization survey will be designed to concentrate on those portions of the site which have been identified, in the Historical Data Review or scoping survey, to have been affected by operations involving radioactive materials.

5.2.1 Objectives.
5.2.1.1 Define the quantities and special distribution of onsite residual radioactivity.
5.2.1.2 Define the limits of onsite residual radioactivity.
5.2.1.3 Define, more precisely, the extent and magnitude of contamination of all affected facilities and sites.

5.2.2 Physical Inspection. A physical inspection of the site to be surveyed should be done to ensure the condition of the site has not changed since the scoping survey. If the site has been compromised by any activity, the site must be resurveyed.

5.2.3 Magnitude of Survey. The magnitude of the survey depends on how the survey information will be used. The surveys will be designed to concentrate on those portions of the area or site which have been identified (by a historical data review or scoping survey) to have been affected by operations involving radioactive materials. The characterization surveys will be sufficiently detailed to demonstrate compliance with NRC and state requirements, and/or provide data for planning remediation or decontamination efforts.

5.2.3.1 If the site records or the scoping survey show that the area is contaminated, the characterization survey may only be designed to define the boundaries of contamination in support of planning associated with remediation or decontamination activities.

5.2.3.2 If the survey area is expected to be uncontaminated, the survey will be more the final status survey. The results will be used to support the final status survey.

5.2.3 Gridding. Prior to implementation of a characterization survey, the area of interest will be gridded to comply with survey requirements for an affected area. The survey technique should take into consideration the possible future use of the results to supplement the final status survey data. The characterization survey requires a high degree of data accuracy when values are near regulatory guidelines, to assure proper decision making, regarding true radiological conditions.

5.2.4 Remediation Levels. Areas where radioactive material concentrations exceed the criteria to release for unrestricted use will be remediated or decontaminated to meet the guidelines in Regulatory Guide 1.86, Table I (see Table 7-1).

5.2.4.1 This survey protocol does not cover destructive remediation.

5.2.4.2 USACHPPM currently possesses three NRC licenses which authorize the use of

byproduct and source material: License Numbers: BML-19-09880-01, SMB-707, and SNM-860. All NRC licenses cover the use of open sources and routine surface decontamination.

5.2.5 Reclassification. Characterization survey results that indicate a change of the surveyed areas initial classification will be presented to the site customer with an estimate of the changes that may impact any schedules, manpower, and supply needs. For example, a characterization survey is performed anticipating the use of the results for the final status survey and the area is found contaminated. The customer will be notified and provided with an estimate of the remediation or decontamination efforts impact on schedules, manpower, and supplies.

5.3 Remediation Control Surveys.

The USACHPPM will only perform small scale surface decontamination; however, remediation control surveys are used to monitor the effectiveness of decontamination efforts in reducing residual radioactivity to acceptable levels and to guide the cleanup in real-time mode. Such a survey is intended for expediency and does not produce thorough or accurate data describing the final radiological status of the site.

5.3.1 Objectives.

5.3.1.1 Provide real-time radiation measurements during the remediation or cleanup effort.

5.3.1.2 Ensure that remediation workers, the public and the environment are adequately protected against exposures to radiation and radioactive materials arising from the decontamination activities.

5.3.2 Size of Area. The area(s) to be remediated will be a maximum size of 2 meters by 2 meters. As the magnitude of the contamination decreases and the contaminated area becomes smaller, the original grid pattern of 1 meter by 1 meter will be surveyed to demonstrate that the area meets the standards for release to unrestricted use.

5.3.3 Characterization. Each building/room must be characterized with regard to its specific isotopes of interest and mode of decay, e.g., alpha, beta or gamma. The degree of decontamination will depend highly on the extent and nature of contamination. A health and safety plan, and a remediation work plan may be required.

5.3.4 Procedure. Small scale removable contamination will be remediated to meet NRC and state standards for release as an unrestricted area, using soap and water or an equivalent agent that will remove the contamination (e.g., EDTA solution). The decontamination procedure should be performed by cleaning the area of least contamination and moving

toward the area of greater contamination. The grid will be scanned with an appropriate radiation detector if wipe results warrant such actions. Frequent surveys and wipes of surfaces will be performed during the decontamination process to assess its effectiveness.

5.3.5 Personal Protective Equipment. At a minimum, personnel will wear overgarments, gloves and protective shoe covers during the decontamination procedure. Respirators or other specialized protective equipment may be needed depending on the extent and type of hazard associated with the contaminant and the aggressiveness of the decontamination procedure.

5.3.6 Instruments. The instruments that are utilized should be able to detect 25% of the NRC guidelines for release to unrestricted use for structure surveys and 75% of the NRC guidelines for open land surveys.

5.3.7 Waste. Waste generated during cleanup procedures should be kept to a minimum and collected in appropriate containers. The generated waste will be disposed of by the AMC in accordance with current NRC, federal and state guidelines.

SECTION 6

FINAL STATUS SURVEY AND RELEASE CRITERIA

6.1 Final Status Survey.

The final status survey is used to evaluate the site or area's contamination status after all operations and remediations are completed in that area. It's also a tool used to show that an NRC licensee's areas of operation are not a hazard to the general public, or it can identify areas where further actions are necessary. The final status survey is also known as a termination survey or a close-out survey of operations involving radioactive material. The survey is a planned and reproducible study of an area that results in a formal report. When combined with data from an historical data review and other surveys, the licensee will have the data to show that all radiological parameters, (total surface activity, removable surface activity, and exposure rate) are in compliance with all applicable federal, state and local radiological guidelines for release to unrestricted use.

6.2 Objectives.

6.2.1 Demonstrate that the radiological parameters from residual radioactive contamination are below the release criteria (see Table 6-1)for each area surveyed.

6.2.2 Demonstrate that the radiation exposure rates from gamma emitting residual contamination is below 5 μR per hour at one meter distance.

6.2.3 Demonstrate that the radiological parameters from small areas of elevated residual radioactivity are below the release criteria for each surveyed area.

Table 6-1 NRC Acceptable Surface Contamination Levels

Nuclide[a]	Removable[b,e,f] (dpm/100cm^2)	Average[b,c,f] (dpm/100cm^2)	Maximum[b,d,f] (dpm/100cm^2)
U-nat, U-235, U-238, and associated decay products	1000 α	5000 α	15000 α
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, and I-129	20	100	300
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-133, and I-131	200	1000	3000
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above	1000 βγ	5000 βγ	15000 βγ

[a] Where surface contamination by both alpha- and beta-gamma emitting nuclide exists, the limits established for alpha- and beta-gamma emitting nuclide should apply independently.

[b] As used in this table, disintegrations per minute (dpm) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

[c] Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should de derived for each such object.

[d] The maximum contamination level applies to an area of not more than 100 cm^2

[e] The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

[f] The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

References:

Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use of Termination of Licenses for Byproducts, Source, or Special Nuclear Material, U.S. Nuclear Regulatory Commission, April 1993.

US Atomic Energy Commission Regulatory Guide 1.86, Termination of Operating Licenses for Nuclear Reactors, June 1974..

Prior to the initiation of the survey, the project officer will review the data from the historical document search and all previous surveys to develop a detailed sampling plan (see Appendix C.

A thorough review of the survey procedures, the associated data, and the reports will be conducted prior to developing the sampling plan. The sampling plan will be a systematic sampling to comply with the standard set forth in NUREG/CR-5849, in addition, a random and/or bias sampling of other locations should be performed, as determined by the project officer. The formal sampling plan will be written with the goals of reproducibility and final report in mind. It is important to remember that the final report is a collection of all data. If the final status survey is documented in a manner that allows it to be imported directly into the final report much time can be saved.

6.4 Coordination.

The project manager will coordinate the laboratory, technician, safety, and any other support required to perform the survey. The project manager will be responsible for the collection and review of all pertinent documentation and information. The project manager will also ensure that a sampling plan is written to include sampling methods, instrumentation, schedules, costs, analysis, and special considerations.

6. Performance.

The performance of the actual survey will vary due to installation size, numbers and diversity of facility operations. The applicability of these factors, as well as the time constraints of the survey, will dictate the use of separate or concurrent surveys. The preparation of the site may include, but is not restricted to the following.

6.5.1 Physical Inspection. Physical inspection of the site to be surveyed to ensure the condition of the site has not changed since any remediation was completed.

6.5.2 Gridding. Preparation of a grid system to verify that the referenced locations are reproducible. The system should be a network of evenly spaced horizontal and vertical lines that can be utilized to assist in locating sampling points and reproducing the sampling data.

6.5.2.1 The structures should be gridded 1 meter by 1 meter for affected areas, or where there is a probability of radioactive contamination.
6.5.2.2 Areas classified as unaffected may be gridded 1 meter by 1 meter or marked around sampling points for reproducibility of the data and sampling locations.

6.5.3 Team Setup Area. A clean area, building, room, or office, which has never been compromised by the use, storage, or any activity involving radioactive material will be converted into a field office. This is where all instrumentation QA/QC functions will be performed and all paperwork can be filled out. This field office will be final status surveyed at the end of the project. Periodic health physics surveys of the field office will

also be performed during the survey. If needed, a field counting laboratory may also be established depending on project requirements.

6.5.4 Background Study. Perform a radiological background reference study to determine the magnitude and variance of the natural background radiation which are typical to the area, and to the types of building construction materials. Areas which are known not to have radioactive material stored or used will be identified and surveyed for this purpose, see Section 4, Background Study.

6.5.5 Survey Design. Survey design includes, but is not limited to selecting appropriate survey and laboratory instruments. Establishment of appropriate survey techniques, and suitable level of PPE to prevent or minimize potential personnel and equipment contamination. Implementation of QC for survey instruments, field data, laboratory data, and final survey data.

6.5.6 Conduct. The survey will be conducted in accordance with the guidelines established in NUREG/CR-5849 and Section 7, Survey Procedures, of this SP. Field and laboratory data will be combined into a final report. Those buildings and areas found to meet the release criteria should be recommended to be released for unrestricted use.
6.5.6.1 Flag value: A survey meter measurement that is equivalent to at most 75% of NRC or state limits for release to unrestricted use for the isotope(s) of interest.

6.5.6.2 For rooms that used or stored tritium, at least one data set will be taken on the ceiling (paying particular attention to duct work and ventilation systems).

6.6 Data Review.

If contamination radiation dose rates are found by instrumental or analytical methods to be greater than the release limit for unrestricted use, the area will be remediated and resurveyed until measurements are below the release limits. If unable to decontaminate the area and measurements are not due to naturally occurring radioactivity in building material(s), the area will be added to the decontamination list, and managed under a separate decontamination plan.

6.6.1 Results > 75% of Criteria. If contamination is found to be between 75-100% of the release limit, the room will be resurveyed in accordance with NUREG/CR-5849 (1 meter by 1 meter grids for 100% of the grids). If no grids are found to exceed the release limit, then the room will be labeled as surveyed, and ready to be released for unrestricted use. If further contamination over the release limit is found, the room is added to the decontamination list.

6.6.2 Results < 75% of Criteria. If all methods show contamination less than 75% of the release limit, the room will be immediately recommended for release for unrestricted use.

6.7 Final Report.

A final report will be generated by USACHPPM upon completion of final status/verification survey and all other parts of the surveying process. It will contain all survey data to include instrumentation and quality assurance. It will explain all pertinent data, information or occurrences not included in the protocol, and will make a recommendation to release all buildings found free of contamination to unrestricted use. The report will be staffed through appropriate agencies to the NRC for approval.

SECTION 7

SURVEY PROCEDURES

7.1 General.

This Section provides guidance for determining levels of total surface contamination, to include, type of instruments, and supplies required to conduct a detailed radiation survey to meet the NRC and state guidelines for release to unrestricted use. It discusses wipe sampling for the removable surface contamination, sampling building material to determine if it contains increased levels of radioactivity. Surveys for total surface contamination includes, monitoring with an appropriate survey instrument/probe system, and wipe smears to quantify removable surface contamination. Every data point taken will normally have associated alpha, beta-gamma, and gamma static measurements plus a wipe sample for the isotope(s) of concern. Before any data points are collected, a walkthrough of the area with a gamma detector will be performed to establish initial radiation measurements for work area exposure rate. Typical data collected either manually or electronically downloaded from a survey is described in Appendix C, Survey Area Plans.

7.2 Alpha Surveys.

Surveys to determine total alpha contamination will be conducted with a Ludlum Model 2350 (or equivalent) survey instrument, mated with 100 cm^2 gas flow proportional (or equivalent) detector.

7.2.1 Pre-Survey Checks. Prior to beginning any survey, the operator will perform a pre-operational check that will include background and QA checks (see Section 11).

Perform battery check.

Check if cables are broken or frayed.

Check detectors for possible light leaks.

Take background measurement and ensure it is within the parameters of the background study.

Perform QC checks on instrument to ensure calibration parameters are as recorded on the calibration documents in the QC Section.

7.2.2 Affected Area Scans and Fixed Measurements. Affected area surveys will be scanned at the surface with a 425 cm^2 or 615 cm^2 gas-flow proportional detector. If the

area is classified as affected non-uniform, it will be scanned 100%. If classified as affected uniform, then an approximate 50% biased scan will be performed. The surveyor will always take a fixed measurement by positioning a 100 cm^2 probe less than 0.5 cm away from the surface at the center of the grid. During the scanning procedure, measurements found up to three times background may have an additional random fixed measurement recorded at that point using a 100 cm^2 probe. All measurements found at three times background or greater will have a fixed measurement using a 100 cm^2 probe. These additional random measurements within the grid will be marked and the fixed reading shall be taken in the marked area. The 100 cm^2 alpha probe will be held in place for the static reading and is not typically used for room or area scans. A minimum of 30 additional measurements or 1 per 20 m^2, whichever is greater, will be performed on upper walls, ceilings, and other overhead surface locations. At each additional location, a scan of the immediate area is performed to identify the presence of any elevated activity levels, followed by the measurement.

7.2.3 Unaffected Area Scans and Fixed Measurements. Unaffected areas may not be physically gridded as is done for affected areas. For reproducibility purposes, a diagram for surveying will be generated with a grid system in place. Areas classified as unaffected will have a biased 10% of the surface area scanned using a 425 cm^2 or 615 cm^2 gas flow proportional detector. During the scanning procedure, measurements found up to three times background may have a random fixed measurement recorded and marked at that point using a 100 cm^2 detector. If an unaffected area is found to be three times above background, it will be marked and a fixed reading taken at that point. Further investigation may be warranted and a change of the initial classification may be made. If all measurements are less than three times background, the surveyor will take 30 (or an average measurement of 1 per 50 m^2 of building surface area, whichever is greater) random generated fixed measurements in the area being surveyed by holding a 100 cm^2 detector less than 0.5 cm away from the surface to be surveyed at the center of the generated location. Additional biased measurements may be taken at surveyors discretion. The 100 cm^2 alpha detector will be held in place for the static measurement and is not typically used for room or area scans.

7.2.4 Survey Performance.

7.2.4.1 While performing surveys, the alpha detector may become contaminated, causing the background count rate to increase. If this is suspected, clean the detector repeatedly and re-sample the background until the background returns within the previously determined control limits.

7.2.4.2 The thin window of the alpha detector is easily punctured. Care should be taken to protect the surface from sharp objects.

7.2.4.3 Take a count of predetermined duration (0.25 min to 1 min) based on minimum detectable activity (MDA) and record the count.

7.2.4.4 Electronically download stored measurements or record measured values on an appropriate data sheet, ensuring all entries are completed. When form is complete, return it to the data storage area.

7.3 Beta Surveys.

Surveys for total beta-gamma contamination will be conducted with a Ludlum model 2350 (or equivalent) survey instrument, mated with a 100 cm^2 gas flow proportional (or equivalent) detector.

7.3.1 Pre-Survey Checks. Prior to beginning any survey, the operator will perform a pre-operational check that will include background and QA checks (see Section 12).

Perform battery check.

Check if cables are broken or frayed.

Check detectors for possible light leaks.

Take background measurement and ensure it's within the parameters of the background study.

Perform QC checks on instrument to ensure calibration parameters are as recorded on the calibration documents in the QC Section.

7.3.2 Affected area scans and fixed measurements. Affected area surveys will be scanned at the surface with a 425 cm^2 or 615 cm^2 probe. If the area is classified as affected non-uniform, it will be scanned 100%. If classified as affected uniform, then an approximate 50% biased scan will be performed. The surveyor will always take a <u>fixed measurement</u> by holding a 100 cm^2 probe less than 0.5 cm away from the surface at the center of the grid. During the scanning procedure, measurements found up to three times background may have a random fixed measurement recorded at that point using a 100 cm^2 probe. All measurements found at three times background or greater will have a fixed measurement using a 100 cm^2 probe. These additional random measurements within the grid will be marked and the fixed reading shall be taken in the marked area. The 100 cm^2 beta detector will be held in place for the static reading and will not typically be used for room or area scans. A minimum of 30 additional measurements or 1 per 20 m^2, whichever is greater, will be performed on upper walls, ceilings, and other overhead surface locations. At each

additional location, a scan of the immediate area is performed to identify the presence of any elevated activity levels, followed by the measurement.

7.3.3 Unaffected area scans and fixed measurements. Unaffected areas may not be physically gridded as is done for affected areas. For reproducibility purposes, a diagram for surveying will be generated with a grid system in place. Areas classified as unaffected will have a biased 10% of the surface area scanned using a 425 cm^2 or 625 cm^2 probe. During the scanning procedure, measurements found up to three times background may have a random fixed measurement recorded and marked at that point using a 100 cm^2 probe. If an unaffected area is found to exceed three times above background, it will be marked and a fixed measurement taken at that point. Further investigation may be warranted and a change of the initial classification may be made. If no measurements are found three times above background, the surveyor will take 30 (or an average measurement of 1 per 50 m^2 of building surface area, whichever is greater) random generated fixed measurements in the area being surveyed by positioning a 100 cm^2 probe at less than 0.5 cm away from the surface to be surveyed at the center of the generated location. The 100 cm^2 beta probe should be held in place for the static reading and will not typically be used for room or area scans.

7.3.4 Survey Performance. While performing surveys, the beta detector may become contaminated, causing the background count rate to increase. If this is suspected, clean the detector repeatedly and resample the background until the background returns within the previously determined control limits.

7.3.4.1 The thin window of the beta detector is easily punctured. Care should be taken to protect the surface from sharp objects.

7.3.4.2 Take a count of predetermined duration (0.25 min to 1 min) based on the MDA and record the count.

7.3.4.3 Electronically download stored measurements or record measured values on an appropriate data sheet, making sure all entries are completed. When the form is complete, store it in the field office survey unit file.

7.4 Gamma Surveys.

Surveys for areas classified as affected or unaffected. Surveys for total gamma exposure rate will be performed with a Ludlum Model 2350 (or equivalent) survey instrument, mated with a high energy gamma detector. Typically a 1 inch by 1 inch or 2 inch by 2 inch sodium iodide (NaI) probe will be used.

7.4.1 Pre-survey Checks. Prior to beginning any survey, the operator will perform a pre-operational check that will include background and QA checks (see Section 10).

Perform battery check.

Check if cables are broken or frayed.

Take background measurement and ensure it is within the parameters of the background study.

Perform QC checks on instrument to ensure calibration parameters are as recorded on the calibration documents in Section 8.

7.4.2 Survey Performance

7.4.2.1 Gamma survey instruments will be held approximately 1 meter from the area to be surveyed.

7.4.2.2 One data point will taken in the center of the grid or generated location at approximately 1 meter above the surface of the area to be surveyed.

7.4.2.3 While performing surveys, the gamma detector may become contaminated, causing the background exposure rate to increase. If this is suspected, repeatedly clean the detector and repeat the background until the measurements return to within the previously determined control limits.

7.4.2.4 Take a measurement with the gamma detector until measured value appears stabilized and record the exposure rate. (This is usually five time constants of the survey meter —about 63% of full reading is achieved in one time constant, 85% in two time constants, and 90% in three time constants.)

7.4.2.5 Electronically download stored measurements or record the measured values on an appropriate data sheet, ensuring all entries are completed. When the form is complete, return it to the QA Officer for review.

7.5 Evaluating High Exposure Rates.

Elevated gamma exposure rates must be carefully interpreted. Areas free of contamination may exhibit high exposure rates from photon scatter if they are near an area contaminated with gamma emitters. Areas free of contamination may also exhibit high measured values in proximity to extended sources such as building or construction materials containing low levels of naturally occurring radioactive materials. The following techniques may be applied to identify

an extended or point source of gamma-emitting radionuclides (it should be noted that these are considered screening techniques only, rather than definitive measures).

7.5.1 Photon Scatter. To determine photon scatter, walk slowly in the area of interest, holding the NaI detector waist high, and note the highest exposure rate. At that point, lower the probe and compare the exposure rate obtained at waist height with the exposure rate obtained at ground level. If both exposure rates are above background and increase rapidly as the detector approaches the ground surface, the anomalous area may be an isolated hot spot with an area of only a fraction of a square meter. If the high measured value is broad in extent and there is little difference in the exposure rate at ground level and waist height, the anomalous area may not be highly localized.

7.5.2 Nearby Anomalies. To recognize photon scatter from nearby anomalies. Walk slowly in the area of interest holding the NaI detector waist high. If the exposure rate increases while leaving the area of interest or if the exposure rate increases as the height of the detector above the ground increases, some of the photon exposure rate observed at the area of interest may be due to photon scatter from an adjacent gamma source.

7.6 Pressurized Ionization Chamber (PIC) Measurements.

7.6.1 Description. The PIC is an extremely accurate instrument for measuring gamma radiation exposure rates in the field. The PIC can be used to field calibrate or standardize portable instruments (like hand-held scintillation instruments) measuring exposure rates.

7.6.2 Procedure. This procedure describes the equipment and proper method to determine the gamma exposure rate at a height of 1 meter above the soil or other surfaces using a PIC.

(1) Assemble the equipment and supplies needed and perform all operational checks prior to survey.

Turn on the display/recorder switch.

Turn the electrometer switch to zero.

Turn the mode switch to the BATT position.

Depress the push-to-read switch (located below the digital display device) and the switch designated 300 volts (V) simultaneously.

If the digital display shows less than 85 (as a percent of the charge), replace the 300-V battery according to the operational manual.

Check the charge on the -14V, +14V, and 12-V lead-acid batteries by depressing the switch immediately below the voltmeters for each battery. If the needle is on or near the shaded area of the meter, recharge these batteries before proceeding.

(2) Necessary equipment.

Reuter-Stokes or equivalent (PIC) and associated equipment.

Reuter-Stokes PIC operational manual.

Stopwatch and hand-held calculator.

7.6.3 Exposure Rate Measurements.

Place the mode switch in the DC position.

Place the electrometer switch in the zero position and wait 60 sec.

Place the electrometer switch in the read position.

Turn the recorder on (if recorder is included).

Reset the mechanical counter and start the stopwatch simultaneously.

After about 10 min and at the time that the counter indicates the next 1-μR integral, record the elapsed time and exposure.

Determine the exposure rate in μR/hr with the formula shown below.

$$\text{Exposure rate } \left(\frac{\mu R}{hr}\right) = \frac{60\ (min)}{} * \frac{\text{exposure recorded by PIC } (\mu R)}{\text{count time (min)}}$$

7.6.4 Perform a background measurement. Normal background measurements at sites not exhibiting high radionuclide content may range from 5 to 20 μR/hr due to contributions from cosmic and terrestrial radiation. Measurements taken in areas known not to be contaminated that are outside of this range may indicate a functional problem with the instrument and should be investigated.

7.7 Wipe Sampling.

This procedure provides guidance on using wipe sampling to test for removable surface contamination. Gloves should be worn while taking wipe test samples.

7.7.1 NUCON® Wipes. Take a round swipe pad, 2-inch in diameter and wipe an area of at least 100 cm^2 (4" by 4" area), stick the wipe on the inside of a sample holder or glassine envelope, close holder and write sample number and other pertinent data on cover. Wipe tests for gross alpha and gross beta-gamma activity are counted using a gas-flow proportional counter, while wipe tests for gamma contamination are counted using a gamma spectrometer.

(1) Use sufficient pressure on the swipe to pick up loose contamination without tearing or separating the swipe. During wipe surveys, pay particular attention to areas on surfaces where contamination is most likely to occur.

(2) Return the swipe to a properly labeled envelope. Maintain the swipe integrity and ensure that the sample material is not dislodged from the swipe. Labeling will be done to coincide with the static measurements taken at grid locations specified on the data sampling sheets (e.g., Appendix C) or the downloaded printout sheets, whichever is applicable. Make sure a sufficient number of swipes are available for the desired tasks. Fill out appropriate chain-of-custody forms and return samples to laboratory.

7.7.2 Liquid Scintillation. Moisten metricel® with distilled water, and immediately take wipe of affected area. Place metricel® wipe in cocktail and allow to dissolve. Label wipe container appropriately, making sure all markings are made on caps and no markings are made on vials. Fill out appropriate chain-of-custody form and return wipe to laboratory.

7.7.3 Wipes will be analyzed by procedures outlined in Section 10 of this protocol.

SECTION 8

INSTRUMENTATION AND EQUIPMENT

8.1 Instrumentation.

Table 8-1 lists the instrumentation (or equivalent) to be used for the survey activities, along with typical parameters and detections sensitivities for the instrumentation and survey technique.

Table 8-1 Typical Instrumentation for Radiological Surveys

Type of Measurement	Instrumentation		Bkgd.[1]	4 π [1] Eff. (%)	Detection Sensitivity
	Detector	Meter			
Surface scans-alpha	large area gas prop. Ludlum 43-37-1 819 cm^2	Scaler/ Ratemeter[2] Ludlum 2224	2 cpm	12.5	8 dpm/100cm^2
Surface scans-beta	large area gas prop. Ludlum 43-37-1 819 cm^2	Scaler/ Ratemeter[2] Ludlum 2224	705 cpm	20.1	1,700dpm/ 100cm^2
Surface activity-alpha	large area gas prop. Ludlum 43-68 126 cm^2	Data Logger[3] Ludlum 2350	1 cpm	19.2	30 dpm/100cm^2
Surface activity-beta	large area gas prop. Ludlum 43-68 126 cm^2	Data Logger[3] Ludlum 2350	260 cpm	22.7	270 dpm/100cm^2
Surface scans-gamma	1″ x 1″ NaI Ludlum 44-2 2 inch dia.	Data Logger[2&4] Ludlum 2350	8 μR/h 1,400 cpm	N/A	24 μR/h @ 2 cm implies <1 μR/h @ 1 m above bkgd.
Exposure rates	pressurized ionization Reuter Stokes Model RSS-112	Same as detector	-	-	<1 μR/h

[1] Nominal Values
[2] Monitoring audible signal

[3] 1 minute integrated count
[4] Value at 1 m height is calculated for disk source with radius of 50 cm.

8.2 Calibration and Efficiency.

Each survey instrument will be calibrated with a radioisotope traceable to the National Institute of Standards and Technology (NIST) with an energy approximately the energy of the isotope of interest. If this condition cannot be achieved, an instrument response as a function of energy may be obtained so a correction factor can be applied. An efficiency factor will be developed to correlate the meter measurement to the actual radioactivity traceable to NIST. All NIST traceable source activities should be decay corrected to the time of efficiency determinations.

$$\text{Efficiency (\%)} = \frac{\text{net cpm}}{\text{dpm}} \times 100$$

8.2.1 Detector Area Correction. A detector area conversion factor will be applied to extrapolate from the detector surface area to a normalized 100 cm^2 detector area.

$$\frac{100\ cm^2}{\text{Detector Physical Area}}$$

8.2.2 Efficiency Factor. The efficiency factor of the instrument coupled with the detector area conversion factor will convert the instrument measurement into standardized regulatory criteria expressed in dpm/100cm^2.

8.3 Determining MDA.

The sensitivity, i.e., minimum detectable activity (MDA) will be established for each type of instrument and documented. A comparison of MDA with regulatory limits will be made to ensure that the MDA is at most 25% of the guideline or regulatory limits. See NUREG/CR-5849 and Section 12 of this SP for equations to calculate the MDA values.

8.4 Periodic Calibration Requirements.

All portable survey instruments will be calibrated on an annual basis, checked for operability and that calibration period is adequate for the entire survey, prior to packaging and shipping to the survey site. The operability check will include a review of the calibration data sheet, and an operability verification (calculate the efficiencies) using a calibration standard.

8.5 Operations Check.

An operations check, as mentioned in the previous paragraph, to include background radiation measurements, will be performed and recorded prior to shipment and after arrival at the survey site. Prior to performing any survey, the appropriate QA checks will be made, to include operability checks at least three times daily (at the beginning, half-way through the day, and at the end of the day) and recorded on the data collection sheet(see Section 11, Quality Assurance and Quality Control). For analog readout (count rate) instruments, a variation of ± 20% is acceptable.

8.5.1 Alpha survey instruments will be mated with 100 cm^2 gas flow proportional detector or equivalent alpha detector, and have operational checks performed with an alpha emitting calibration standard, with energies approximating that of the isotope of interest.

8.5.2 Beta-gamma survey instruments will be mated with an appropriate beta-gamma detector, and operational checks performed with a beta emitting calibration standard, with energies approximating that of the isotope of interest. For those radioisotopes which emit low energy beta radiation, e.g., tritium, carbon-14 or nickel-63, a Berthold Model LB 1210B survey instrument (or equivalent mated with a windowless gas flow detector (or equivalent) is required for optimum detection efficiency.

8.5.3 A gamma survey meter will be mated with a 1 inch by 1 inch or 2 inch by 2 inch NaI scintillation detector (or equivalent) for radioisotopes with gamma radiation energies greater than 0.1 million electron volts (MeV), and an operational check performed with a gamma emitting calibration standard, with energies approximating that of the isotope of interest. For gamma energies less than 0.1 MeV, the survey instrument should be mated to a low energy, thin crystal NaI scintillation detector. This type of detector has a sensitivity about 12 times below normal ambient background and meets the recommended criteria of being no more than 25% of the guideline or regulatory limit.

SECTION 9

QUALITY ASSURANCE AND QUALITY CONTROL

9.1 Quality Assurance Program.

9.1.1 Purpose. To provide USACHPPM an independent check of survey data collected by USACHPPM Radiological Survey Teams.

9.1.2 Objective. The objective of this QA Plan is to provide independent onsite technical oversight and guidance during the radiological survey process; to ensure procedures, techniques and methodologies outlined in the USACHPPM Industrial Radiation Survey Protocol are followed and executed.

9.2 Actions of the Independent QA Person.

9.2.1 Attend meetings with the BRAC Environmental Coordinator (BEC) to discuss technical information concerning radiological surveys and their process.

9.2.2 Furnish guidance on the optimum techniques of radiological surveys to USACHPPM.

9.2.2.1 Guidance will ensure compliance with 10 CFR, Parts 19, 20, 30, 40, 70, NUREG/CR-5849 and USACHPPM Industrial Radiation Survey Protocol.

9.2.2.2 Provide survey team personnel with periodic QA of survey data collected.

9.2.2.3 Provide periodic oversight of survey procedures, survey techniques, and accepted health physics practices. Violations of acceptable health physics practices, survey techniques, and survey procedures as outlined in USACHPPM Industrial Radiation Survey Protocol will be reported at once to the USACHPPM Project Manager or designated assistant. Review the results of weekly radiation and smear survey of the sample holding and shipment area.

9.2.3 Review and become familiar with all the NRC licenses that authorize the use of radiological materials on the site; and any DA or DoD radiation authorization(s) to use or store radioactive materials on the site.

9.2.3.1 Screen existing files for radioactive material inventory records, radiological survey records, shipping and receiving records, storage locations, disposal records, and personnel exposure records.

9.2.3.2 Screen existing files for locations where radioactive materials were used and stored; radiation committee files; incidents and accidents involving radioactive material reports.

9.2.4 Provide the USACHPPM Project Manager with a written report on any technical conflict or noncompliance area not covered by the USACHPPM Industrial Radiation Survey Protocol. The Radiological Data Check List included in Appendix F may be used as a guide to meet the requirements of the written report.

9.2.5 Contact the USACHPPM Project Manager directly to consult on technical and administrative issues or concerns.

9.3 Field Instrumentation.

Prior to departing for the survey site, all survey instruments will be calibrated and have valid calibration certificates. All survey instruments will have the operability checks performed as noted in the instrumentation section. Copies of the instrument users manual, calibration certificates and setup information will be shipped with the instruments to the site. When instruments arrive at the site, operability checks will be repeated and a QA chart initiated. Examples are given in Appendix G, Quality Control Chart.

9.3.1 QA Chart. The QA chart is created by obtaining 20 to 30 data measurements with an appropriate calibration standard. Attempts to obtain a 1% counting uncertainty at the 1σ level will be made by attaining 10,000 counts for each QC check. Calculate the mean and the standard

$$\overline{X} = \frac{\sum_{i=1}^{n} x_i}{n}$$

$$S_x = \sqrt{\frac{\sum_{i=1}^{n} (\overline{x}-x_i)^2}{n-1}}$$

deviation using the above equations.

Create a chart with the date on the horizontal axis and source measurements on the vertical axis. The mean is assumed to be the "true" value. The values for the warning limits (±2σ) and control limits (±3σ) are then calculated. Draw horizontal lines at the values that

represents the mean, warning limits, and control limits. The chart will be used to plot the daily operability checks for survey instruments operated in the integrate mode. The same procedure will be employed for analog rate instruments. However, warning limits will be set at ± 15% and control limits at ± 20% of the mean value.

9.3.1.1 If daily operability checks fall outside the warning limits (but inside the control limits), the operability check should be repeated. If it falls in this range again, the onsite QA consultant will be notified and the cause of the potential trend will be investigated.

9.3.1.2 If the daily operability check falls outside the control limits, the operability check will be repeated. If the check falls outside the control limits again, the instrument will be removed from service until it is either repaired, recalibrated or the cause for the out of control measurement is identified. The instrument will also be removed from service and recalibrated whenever a malfunction is suspected. A new QA chart will be initiated when the instrument is recalibrated or repaired when required.

9.3.1.3 All daily operability checks (including any outside the warning or control limits) will be recorded in the instrument QA/QC files.

9.3.2 Efficiency. The efficiency factor and detector area conversion factor (as calculated in Section 11) are used to convert instrument measurements to units of activity in dpm per 100 cm^2 (dpm/100 cm^2).

9.3.3 MDA Determination. Calculate the MDA using the appropriate formula.

9.3.3.1 For an integrated measurement over a preset time:

$$MDA = \frac{2.71 + 4.65\sqrt{B_R * t}}{t * E * \frac{A}{100}}$$

Where:

MDA = activity in dpm/100 cm^2
B_R = background rate in cpm
t = counting time in minutes
E = detector efficiency in cpm/dpm
A = physical probe area in cm^2

The actual field counting time is used here (t) and is usually 1 minute. Use an average efficiency for the instrument determined with the lowest activity calibration standard possible (an attempt should be made to accumulate at least 10,000 counts for the efficiency determination).

9.3.3.2 For a rate meter measurement:

$$MDA = \frac{4.65 * \sqrt{\frac{B_R}{2t_c}}}{E * \frac{A}{100}}$$

Where:

MDA = activity in dpm/100 cm^2
B_R = background rate in cpm
t_c = meter time constant in minutes
E = detector efficiency in cpm/dpm
A = physical probe area in cm^2

Note: The detector must remain over the measured area for two time constants before the measurement is recorded (e.g. if the instrument time constant is 10 seconds, the detector counting time is 20 seconds before the instrument measurement is valid).

9.3.3.3 These MDA formulas calculate the activity level in dpm/100 cm^2 which can be detected with 95% confidence. At this level there is a 5% probability of a false positive and a 5% probability of a false negative.
9.3.3.4 Compare this value to the site guidelines to determine adequate sensitivity of the instrumentation. The MDA should be less than 75% of the applicable criteria.

9.3.4 QA/QC Responsibilities. The responsibility of ensuring quality surveys is that of <u>all</u> members of the survey team from the laboratory technician on up to the senior project officer. All data obtained during the survey will be reviewed by the onsite QA person. At a minimum the following should be reviewed in the data package, which includes the Area Gridding Sheets, Instrument QA/QC Sheets, Data Collection Sheets, and subsequent laboratory sample analysis reports.

9.3.4.1 Instrument MDAs are less than the 25% of the applicable guidelines for release to unrestricted use.

9.3.4.2 All data sheets are properly filled out.

9.3.4.3 All instrument operational checks are within the control limits established as described above.

9.3.4.4 A comparison for the testing data relative to a guideline value (see NUREG/CR-5849, Section 8.5.5). Ensure any value above guidelines are explained.

9.4 Laboratory Instruments. Laboratory instruments will have the same or more stringent QA requirements as field instrumentation as implemented by the laboratory's QA Program.

9.5 Laboratory Procedures.

9.5.1 Blanks and Spikes. Spike samples will be made by the QA laboratory to be introduced in the survey process without the measuring laboratory's knowledge. These spikes along with randomly placed blank samples will be coordinated between the onsite team leader and the QA person. These spikes will serve as QA checks of the measuring laboratory. Percent recoveries will be calculated by the onsite QA consultant. Recoveries are expected to fall in the range of 80-120%. Spike results outside this range will be investigated and necessary actions, such as reanalyzing samples, will be taken. The QC samples (spikes and blanks) will consist of approximately 0.5 to 1% of the total samples. Blank samples, with results above the MDA, will also be investigated and the necessary corrective actions implemented.

9.5.2 Verifications. The QA laboratory will perform verification analyses of the measuring laboratory on 5 to 10% of the samples as selected by the QA/QC person. After analysis by the QA laboratory, samples will be returned to the measuring laboratory for archival. Spikes will not be returned and will be retained by the QA laboratory. Sample chain-of-custody forms will be maintained.

9.6 QA Reviews.

In addition to the reviews mentioned in paragraph 9.3.5, external reviews will also be performed. These external reviews will be performed by representatives from independent government organizations. External reviews of the laboratory will be performed by representatives from USACHPPM's RCCCD.

SECTION 10

WIPE TEST ANALYSIS

10.1 Alpha and Beta-Gamma Wipe Tests. The USACHPPM's RCCCD Procedure (AB002) will be the methodology utilized for analyzing hard smear wipe test samples. All calculations will be performed as indicated in Section 10.3 below.

10.2 Low Energy Beta Emitters. The USACHPPM's RCCCD Procedure (H_003) will be the methodology utilized for analyzing LS wipe test samples. The liquid scintillation cocktail to be used is Ecolite(+) or its equivalent.

10.3 Calculations. All results (MDA, activity and counting uncertainty) will be calculated in units of dpm per 100 cm^2.

10.3.1 MDA.

If the sample and background counting times are the same, then the MDA will be calculated as follows:

$$MDA = \frac{2.71 + 4.65\sqrt{B_s * t}}{t * E}$$

This equation is often expressed as follows:

$$MDA = \frac{\frac{2.71}{t} + 4.65\sqrt{\frac{B_s}{t}}}{E}$$

Where:

MDA = activity in dpm per 100 cm^2
B_R = background rate in cpm
t = counting time in minutes
E = detector efficiency in cpm/dpm

If the sample and background counting times are different, then the MDA will be calculated as follows:

$$MDA = \frac{\frac{2.71}{t_{s+b}} + 3.29\sqrt{\frac{B_R}{t_{s+b}} + \frac{B_R}{t_b}}}{E}$$

Where:

MDA = activity in dpm per 100 cm^2
B_R = background rate in cpm
t_{s+b} = sample counting time in minutes
t_b = background counting time in minutes
E = detector efficiency in cpm/dpm

10.3.2 Activity. The net activity will be calculated as follows:

$$Activity = \frac{CPM_{s+b} - B_R}{E}$$

Where:

CPM_{s+b} = sample count rate in counts per minute
B_R = background rate in cpm
E = detector efficiency in cpm/dpm

10.3.3 Counting Uncertainty. The 95% counting uncertainty will be calculated as follows:

$$\text{Uncertainty} = \frac{1.96 * \sqrt{\frac{CPM_{s+b}}{t_{s+b}} + \frac{B_R}{t_b}}}{E}$$

Where:

CPM_{s+b} = sample count rate in counts per minute
B_R = background rate in cpm
t_{s+b} = sample counting time in minutes
t_b = background counting time in minutes
E = detector efficiency in cpm/dpm

10.4 Laboratory Requirements. The technical requirements for laboratory analysis of wipe test samples for gross alpha, gross beta-gamma, and tritium are detailed in Section 1-9. All laboratories analyzing samples will meet these requirements at a minimum.

SECTION 11

PERSONNEL DECONTAMINATION

11.1 General.

The aim of personnel decontamination is cleanliness, and all the principles of good personal hygiene apply. Radioactive contamination gets on a person the same as ordinary "dirt", and the methods that apply to the removal of dirt from the skin apply also to the removal of radioactive differ from isotopes of the same elements in chemical properties because they are radioactive. Nothing could be further from the truth. All isotopes of the same element are chemically identical.

11.2 Importance.

The importance of removing the radioactive "dirt" stems directly from the fact that it is radioactive. It is continuously emitting radiation which may be absorbed by the body. If the level of contamination is high, the contaminant must be removed immediately to prevent radiation burns, total body irradiation, or internal deposition of the contaminant. Even low-level contamination presents a hazard if taken into the body.

11.3 Monitoring Procedure.

As with equipment and terrain, the simplest procedures for decontamination should be utilized first. The first step in effective personnel decontamination is a thorough monitoring of the entire body. Procedures when monitoring are:

11.3.1 Monitor both hands and forearms with palms up; repeat with hands and arms turned over.

11.3.2 Monitor the entire front of the body, starting at the top of the head. The forehead, nose, mouth, neckline, torso, knees, and ankles should be thoroughly checked. Repeat the procedures for the back.

11.3.3 Monitor the soles of the feet.

11.4 Decontamination.

Next, elevated measurements on the body should be spot cleaned to prevent the spread of this contamination to the rest of the body. Washing with soap and lukewarm water, using cotton swabs or gauze, is a good procedure for spot cleaning. Masking tape is effective in removal of dry contaminations. In stubborn
cases, several preparations for skin cleansing have been tried and proved effective. The examples below give several preparations which may be used:

11.4.1 Aqueous.

11.4.1.1 A mixture of 50% Tide and 50% cornmeal made into a paste with water. Scrub, using additional water.

11.4.1.2 Mildly abrasive soap (Lava).

11.4.1.3 A 5-percent water solution of a mixture of 30% Tide, 65% Calgon, and 5% Carbose (carboxymethyl cellulose) used with added water.

11.4.2 Waterless.

11.4.2.1 Mechanic's waterless hand-cleansing cream.

11.4.2.2 A homogeneous cream of 8% Carbose, 3% Tide, 1% Versene, and 88% water.

11.4.3 Shower. The final step in decontamination is showering. Large amounts of soap and lukewarm water should be used. Special attention should be given to the hair, hands, and fingernails. In most cases, all the contamination will be removed by use of the above methods.

11.5 Routine Methods Fail to Decontamination.

If contamination persists, repeat the operations until it is obvious that these methods are ineffective. The following procedures should be used with caution and are presented for the sake of thoroughness and to outline steps to be taken if extremely stubborn contamination is encountered. They are primarily meant as procedures for hand decontamination but can be applied to other parts of the body.

11.6 Chemical Methods.

If physical methods for decontamination fail, chemical methods might be necessary. Two such methods are:

11.6.1 Citrates. Apply ammonium citrate or citric acid, rub for approximately 5 minutes, wash with water, dry, and monitor. Citrates form water-soluble complexes with many contaminates. With some contaminates, it might be more efficient to soak the contaminated area in a basin of warm water containing one-half gram each of tartaric and citric acids.

11.6.2 Treat With Stable Isotope. If the contaminating isotope is known, it is possible to reduce the contamination level by treating the affected area with a stable isotope of the same element. Rinse or soak in a solution containing a stable isotope of the contaminant. This reduces the concentration of the radioactive atoms through an exchange process with the stable atoms. Monitor after drying.

11.7 Debridement.

If the foregoing methods fail and the contamination level is still dangerously high after two or three trials, an attempt can be made to remove the outer layers of skin on which the contamination has been deposited. This method should be used only with a doctor's consent and under his supervision! The procedure involves rubbing the contaminated area with a swab soaked with a 4-percent solution of potassium permanganate and then removing the stain with a 4-percent solution of sodium bisulfate.

11.8 Use Common Sense and Consult a Physician.

The removal of contamination from a person should be as complete as practicable. However, it should be realized that the removal of the last few radioactive atoms does not justify injury to the skin. The biological significance of a small amount of contamination must be compared with the damage produced when vigorous decontamination techniques are employed. When in doubt, always consult a competent authority before proceeding with any decontamination technique that may injure the body tissues. The Industrial Health Physics Program Project Officer in consultation
with the Medical Health Physics Program at the US Army Center for Health Promotion and Preventive Medicine (USACHPPM), Aberdeen Proving Ground, Maryland will be consulted before beginning any decontamination that may result in injury. The Project Officer or the Alternate Project Officer can be reached at (410) 671-3502.

11.9 Bioassay.

Bioassay will be performed on personnel who have a potential of receiving an internal dose 10 percent of the limits set forth in Table 1 of Appendix B to 10 CFR 20.1001-20.2401.

SECTION 12

SITE SAFETY PLAN

12.1 Involved Individuals.

Safety is the responsibility of everyone involved in every aspect of this survey. It will be the number one concern and under no circumstances will any compromises be made on established safety standards.

12.1.1 All individuals involved in this project will receive a general safety and a radiation safety briefing from the installation's Safety and Radiation Safety Officers. They will be required to follow all pertinent standing operating procedures (SOPs) of the site. They will be familiar with the location and magnitude of any contamination to which they may be exposed to and the radiological health hazards associated with the use of NRC licensed radioactive commodities or items.

12.1.2 The project team may consist of: Department of the Army Civilian (DAC) employees from USACHPPM or other Army organizations; personnel from a USACHPPM managed contract; and one independent USACHPPM QA Coordinator. All surveying personnel who may be exposed to contamination levels exceeding unrestricted area limits will be enrolled in a medical surveillance program which includes a preemployment screening, and annual medical examinations which are appropriate for handling radiological materials. They will be approved as necessary to wear appropriate personnel protective equipment including respirators. If personnel are known or suspected to have been exposed to a potentially harmful substance during this project, all appropriate medical and health officials, safety officials and environmental staffers will be notified immediately.

12.2 Key personnel/organization.

a. Mr. Harris Edge - Manager, Industrial Health Physics Program, USACHPPM.

b. WRAIR Deputy Commander, COL Martin Crumrine

c. WRAMC Health Physics Officer, COL William B. Johnson (202)356-0058

d. WRAIR Logistics, Mr. Edward D. Keiper. (202) 782-1244]

e. WRAIR Safety Office, Mr. Bert J. Mueck (202) 782-3019 and for Building 500, Dr Bing T. Poon (301) 295-7786

f. WRAIR DPW and Transition Office, LTC Richard Bond or 1LT James Goetschius (301) 295-8327

g. Mr. Creighton (Jake) Jacobson - Safety Officer, USACHPPM, (410) 671-3502.

h. Mr. John Collins - Project Coordinator, Health Physicist, Henry Jackson Foundation Participant, USACHPPM,(410)612-7155.

I. Mr. Claude M. Wiblin, CHP, - Project Manager, Certified Health Physicist, Henry Jackson Foundation Participant, USACHPPM, (410)671-3502.

j. SSG David M. Collins - Survey Team Leader, USACHPPM, (410) 671-3502.

12.3 Hazard Analysis. The potential hazards associated with this project are described and actions used to mitigate specific hazards are also identified in the following text.

12.3.1 Biological/Infectious Hazards. Some building have infestation of rodent and feline populations. Biological waste products from these animals may be encountered during the survey. Survey members are also to be reminded that this facility continues as operating medical facility. Some of the laboratories and clinics that will be surveyed may have contained bodily fluids that could have contained infectious agents. Any container found which is suspected of containing infectious materials will not be handled by the survey team. All materials found, of suspicious nature, will be reported to the survey team leader for coordination of removal from survey area.

12.3.2 Chemical Hazards. MSDS sheets for materials brought by the survey team are enclonsed in Appendix F. All facilities to be surveyed should be cleared of chemical and toxic materials. The survey teams are not to open any containers that may have been overlooked by installation safety personnel. Any suspect containers will be reported to the Safety Office. Buildings will not be entered by the survey teams until the site's Safety Office has evaluated the potential hazards and given the team leader permission to enter the buildings. Team members will be made aware this is a medical site and there may be various systems in the process of transition to closure status.

12.3.3 Climatic Hazards/Temperature. This project could be conducted at anytime throughout the year and based on normal climatic conditions, hazards could be severe. Team members will be required to evaluate conditions daily and dress accordingly.

12.3.4 Flammable/Explosive. This project will include areas for which oxygen and methane gas was supplied through hard piping into the laboratories. Team members are reminded that smoking is not permitted during project operations nor is it permitted in government buildings.

12.3.5 Oxygen. All areas are designed for human occupancy. Team members will not be allowed to enter confined space areas without the required training and authorization by the WRAIR Safety Office. Buildings that were sealed will be opened and time allotted for air to circulate prior to the survey team entering. Team members will be made aware of facility systems which contain gaseous or volatile liquids which are capable of displacing oxygen in rooms or buildings (e.g., argon or Freon). Oxygen monitoring instruments may be required if displacement is possible.

12.3.6 Noise. The survey equipment poses no noise hazards. Surveys to be performed in the vicinity of operations which are noise hazards will require the use of hearing protection as prescribed by the SAEP Safety Office.

12.3.7 Physical.

12.3.7.1 Tripping. Tripping hazards are present. Many area floors have been patched in several spots with raised or elevated seams where old and new concrete meet. Floors with vinyl tiles have loose, broken, and missing tiles. Some areas contain pipe chases with metal grates or plates at floor level, above floor level, and below floor level.

12.3.7.2 Falling. Ladders and appropriate safety equipment will be used to reach areas greater than 6 feet in height. They will be placed on solid, horizontal surfaces and not leaned against walls or other vertical surfaces unless specifically designed as such. Ladders will be held by a team member if sampling is to be done above 10 feet. Attention will also be payed to structural openings (e.g., sumps, shafts, pits, and floor openings), ensuring they are appropriately marked and all team members are made aware of their locations.

12.3.7.3 Cuts, burns, punctures, and crushing is not normally associated with the survey equipment, or procedures. If building construction material is to be removed, then team members will wear leather gloves to protect their hands.

12.3.74 Eye hazards are not associated with the survey equipment, however, if any building construction material is to be removed, team members will wear eye protection. Eye protection may also be required while traversing areas where production is still active or transitioning to closure.

12.3.8 Radioactive. Radioactive hazards are minimal. Team members will be issued dosimetry devices at the discretion of the local RPO. Contamination control procedures will be established.

12.4 Confined Space. Spaces not designed for human occupancy will not be entered by the team members without permission of the site's Safety Office. For the purpose of this plan, garages, closets, halls, outdoors, and other such areas are for human occupancy. Any space with limited access such as by ladder will not be entered without permission of the WRAIR Safety Officer.

12.5 Monitoring. All project personnel will be required to comply with AR 40-14 personnel monitoring requirements which implement 10 CFR 20 and 29 CFR 1910.96. Appropriate dosimetry monitoring devices will be utilized at the discretion of the local RPO. Additionally, the RPO will have access to survey meters for personnel monitoring, in the unlikely event that there is an incident whereby personnel or equipment would be contaminated.

12.6 Personal Protective Equipment (PPE). If required, all surveying personnel will be required to wear protective clothes, to include shoe covers and latex gloves while performing wipe tests. Each outdoor site will have a site control area.

12.7 Decontamination Procedures. Decontamination procedures for personnel and equipment will be performed in accordance with the site plan.

12.8 Emergency Response Procedures. The WRAIR RPO will ensure that all surveying personnel understand local safety procedures prior to the start of the survey. The Safety Officer and staff have agreed to assist in staffing this plan through appropriate organizations and safety.

12.9 Emergency Numbers. The following numbers will be obtained and presented to personnel in case of an emergency. The surveying personnel will remain in contact with the WRAIR Security Office personnel through the use of the building telephone or by radio.

12.9.1 For all emergencies notify the WRAMC Fire Department to obtain the appropriate response regarding security, police, fires, or ambulance needs: **301-295-7543**

12.9.2 Mr. Bert Mueck, Safety Manager, WRAIR, Tel. Number: 202-782-3019

12.9.3 COL William Johnson, Health Physics Officer, WRAMC, Tel. Number: 202-356-0058

12.10 All incident injuries or accidents will be reported to the Safety Office or RPO, who will refer all, minor illnesses and injuries to the appropriate medical support center.

APPENDIX A

REFERENCES

1. AR 40-5, 15 October 1990, Preventive Medicine.

2. AR 40-14, 30 June 1995, Occupational Ionizing Radiation Personnel Dosimetry.

3. DA Pam 40-18, 30 June 1995, Personnel Dosimetry Guidance and Dose Recording Procedures for Personnel Occupationally Exposed to Ionizing Radiation.

4. AR 385-11, 1 May 1980, Ionizing Radiation protection (Licensing, Control, Transportation, Disposal, and Radiation Safety).

5. AR 385-30, 15 September 1983, Safety Color Code Markings and Signs.

6. AR 700-64, 19 April 1985, Radioactive Commodities in the DOD Supply Systems.

7. AR 750-25, 1 September 1983, Army Test, Measurement, Diagnostic Equipment (TMDE) Calibration and Repair Support Program.

8. DoD Instruction No. 6055.8, 3 January 1983, Occupational Radiation Protection Program.

9. AMCCOM Pamphlet 285-1, April 1992.

10. Title 10, CFR, 1996 rev, Parts 19-40, Nuclear Regulatory Commission.

11. Title 29, CFR, 1995 rev, Chapter I, Department of Labor.

12. Title 49, CFR, 1996 rev, Parts 100-177, Transportation.

13. TM 3-261, 12 May 1988, Handling and Disposal of Unwanted Radioactive Material.

14. TB MED 522, 1 August 1980, Control of Health Hazards from Protective Material Used in Self-Luminous Devices.

15. TB 43-0216, "Safety and Hazard Warnings for Operation and Maintenance of TACOM Equipment.

16. NUREG/CR-5849, ORAU-92/C57, 1 June 1992, Manual for Conducting Radiological Surveys in Support of License Termination.

Med Radn Surv Protocol No. 28-MH-6209-P1-97, WRAIR, Washington, D.C. Dec 97

17. Draft Medical Radiation Historical Assessment No. 27-MH-6209-97, Walter Reed Institute for Research (WRAIR),Walter Reed Army Medical Center, December 1997.

18. NUREG/CR-5512, October 1992, Residual Radioactive Contamination From Decommissioning.

19. USAEHA, TG No. 142, Managing Health Hazards Associated With Bird and Bat Excrement, Dec 1992.

20. USAEHA, TG No. 155, Environmental Sampling Guide, Feb 1993.

APPENDIX B

ABBREVIATIONS

CFR	Code of Federal Regulations
CTP	Chemical Treatment Plant
DA	Department of the Army
DARA	Department of the Army Radiation Authorization
DoD	Department of Defense
mCi	millicurie
NRC	Nuclear Regulatory Commission
NSN	National Stock Number
NUREG	Nuclear Regulatory Guide
QA	Quality Assurance
RCCD	Radiologic, Classic and Clinical Chemistry Division
RPO	Radiation Protection Officer
SAEP	Stratford Army Engine Plant
SOPs	standing operating procedures
µCi	microcurie
µRem	microrem
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
USAEHA	U.S. Army Environmental Hygiene Agency

APPENDIX C

SURVEY AREA PLANS

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: **Walter Reed Army Medical Center**
PROJECT NUMBER: **27-MH-6000-S-97**
POINT OF CONTACT:
FACILITY: Building 500 North Wing Hallway

AREA CLASSIFICATION: Affected-Non-uniform
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: 1.9m x 31.2m / grid dimensions 1m x 1m
NUMBER OF GRIDS: 64 floor and 136 wall = 200
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned 100%.
Alpha and Beta Scan: Floor and lower walls shall be scanned 100%.

DIRECT MEASUREMENTS:

Gamma Inst. Reading: One reading per floor survey grid **and** 1 per every 4 m^2 on lower walls.
Alpha and Beta Inst. Reading: One reading per survey grid.

SAMPLING:

Floors and Lower Walls:

Hard Wipes: Take one per survey grid, shown on room grid map. **REQUIRED: 200**
L/S Wipes: Take one per survey grid, shown on room grid map. **REQUIRED: 200**

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:** ___
Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

RANDOM SAMPLING: Yes **NUMBER OF SURVEY POINTS:** 30
Remarks: **30 points will be taken above the 2 meter wall height. Select both horizontal and** vertical surfaces where dust would settle such as air exhaust vents.

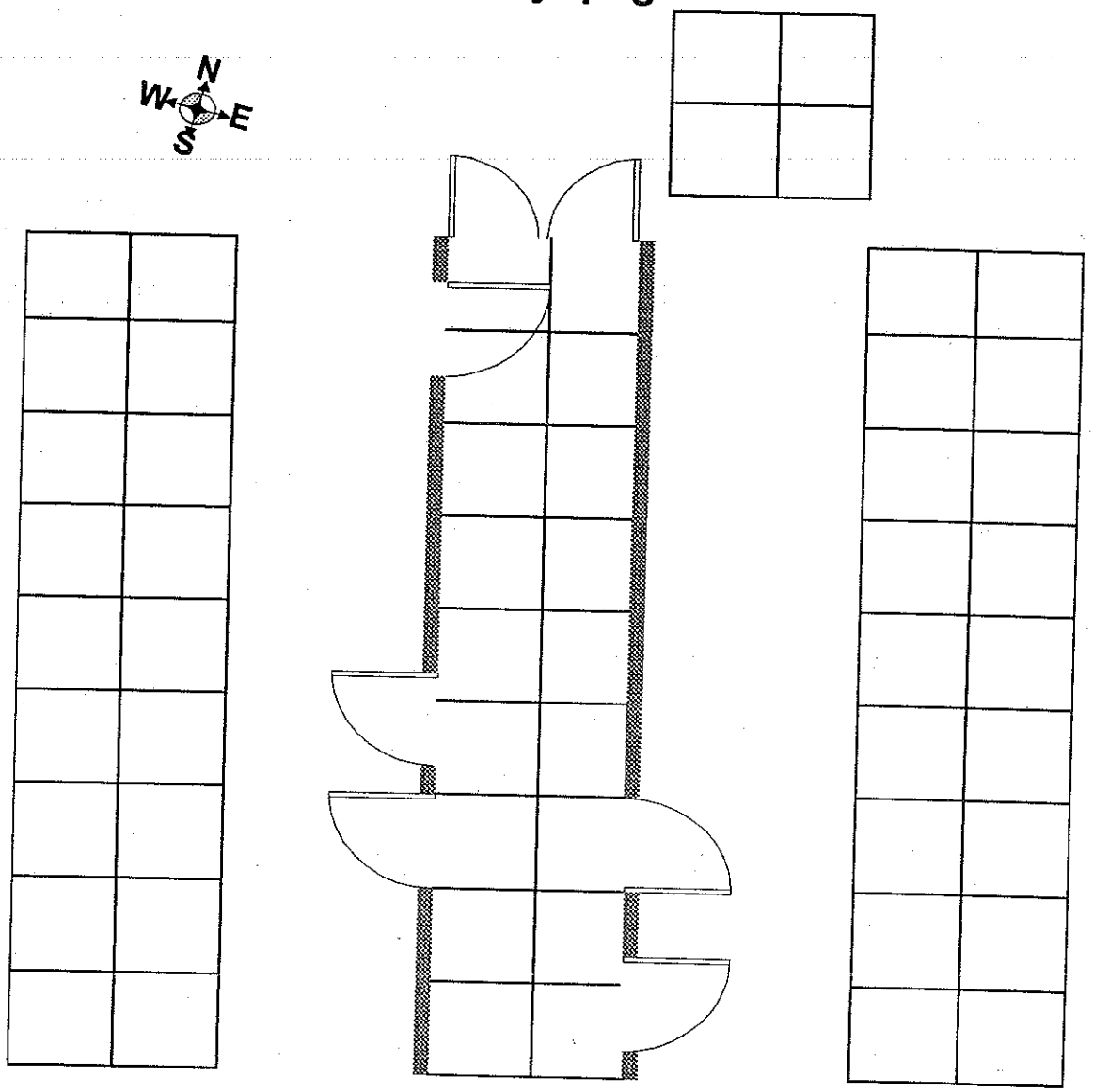
BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125

PROJECT TEAM LEADER PROJECT OFFICER

GRAPHICAL ILLUSTRATION

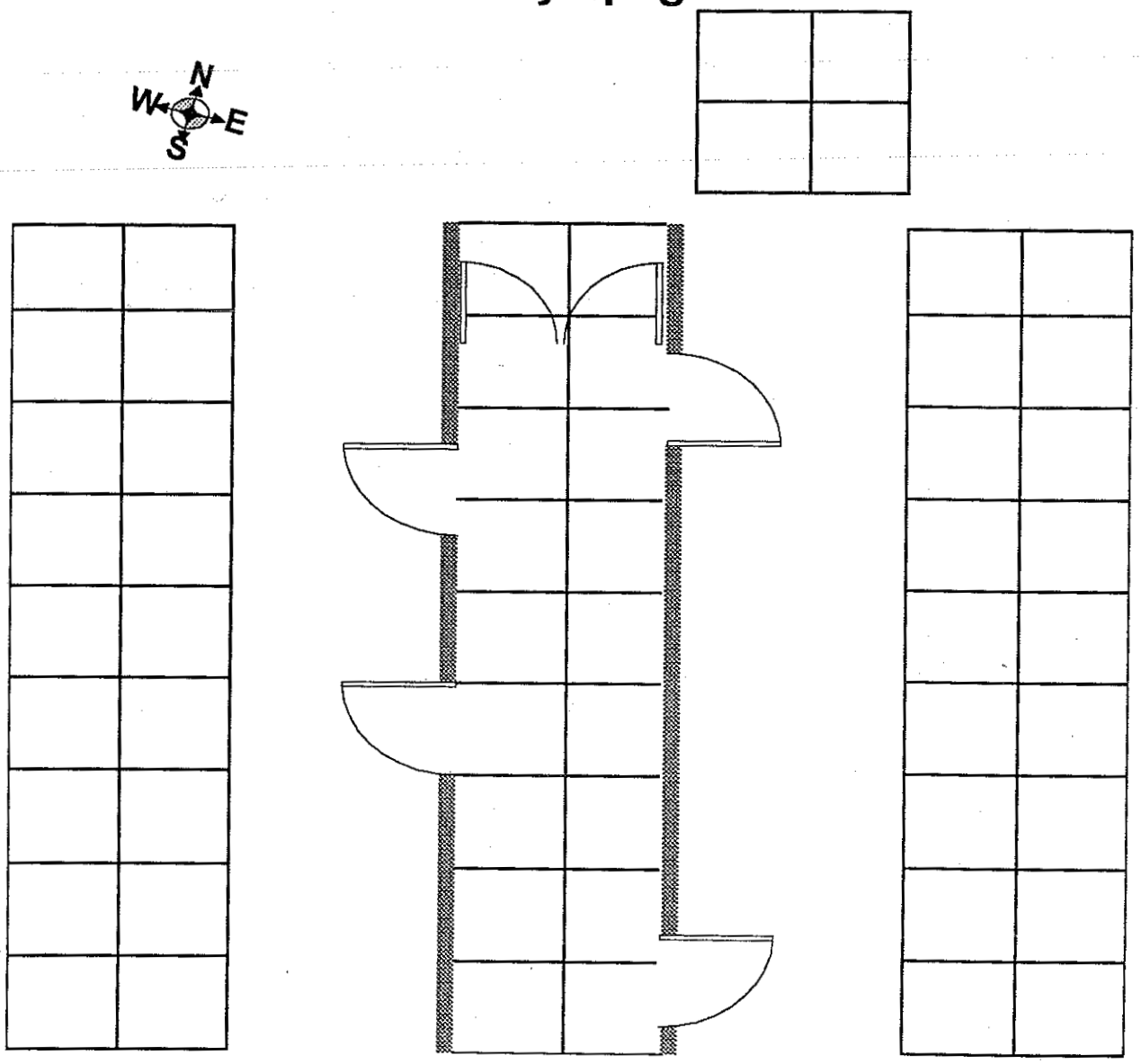
Building 500 North Wing
Hallway -page 1



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

GRAPHICAL ILLUSTRATION

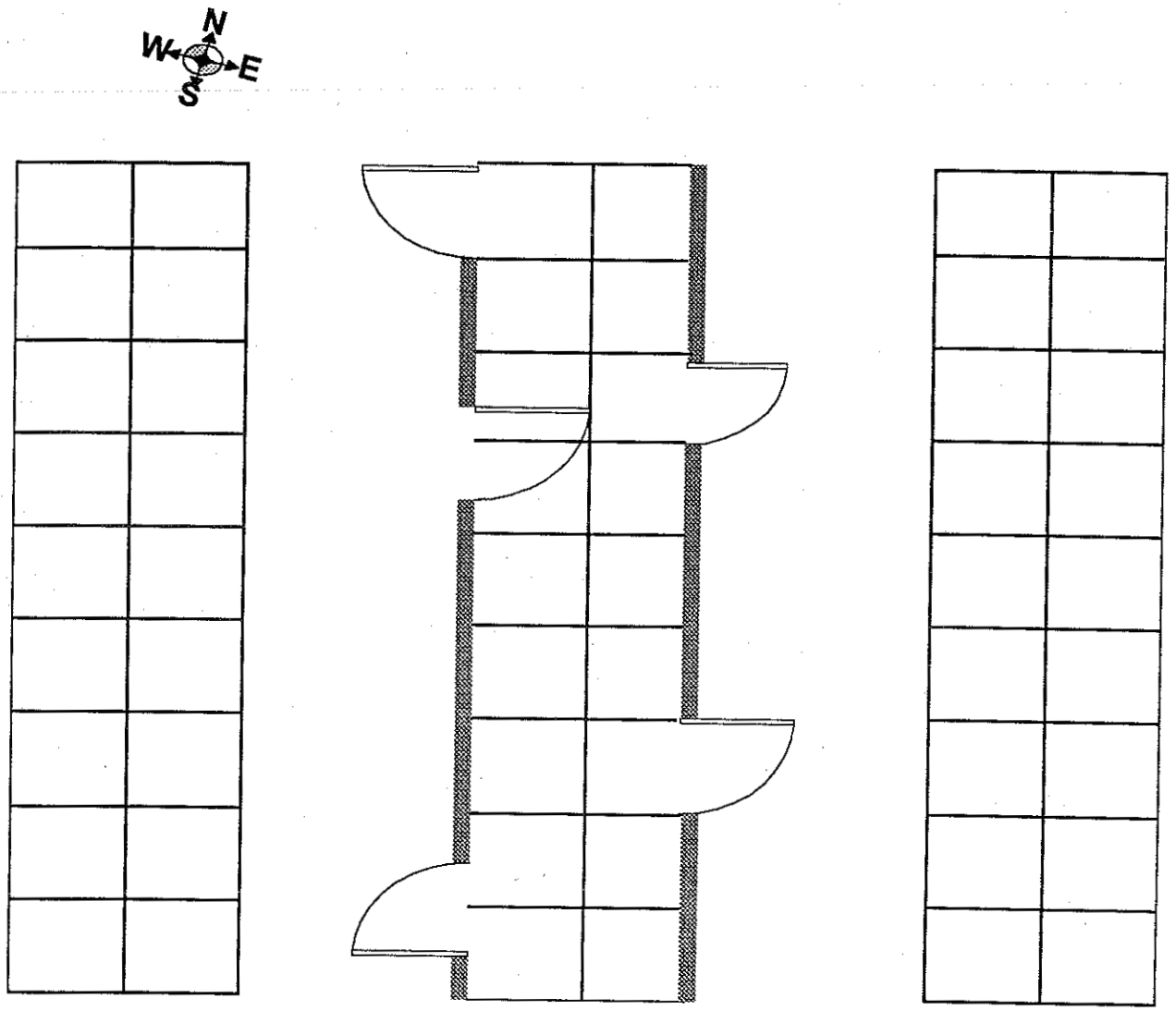
Building 500 North Wing
Hallway -page 2



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

GRAPHICAL ILLUSTRATION

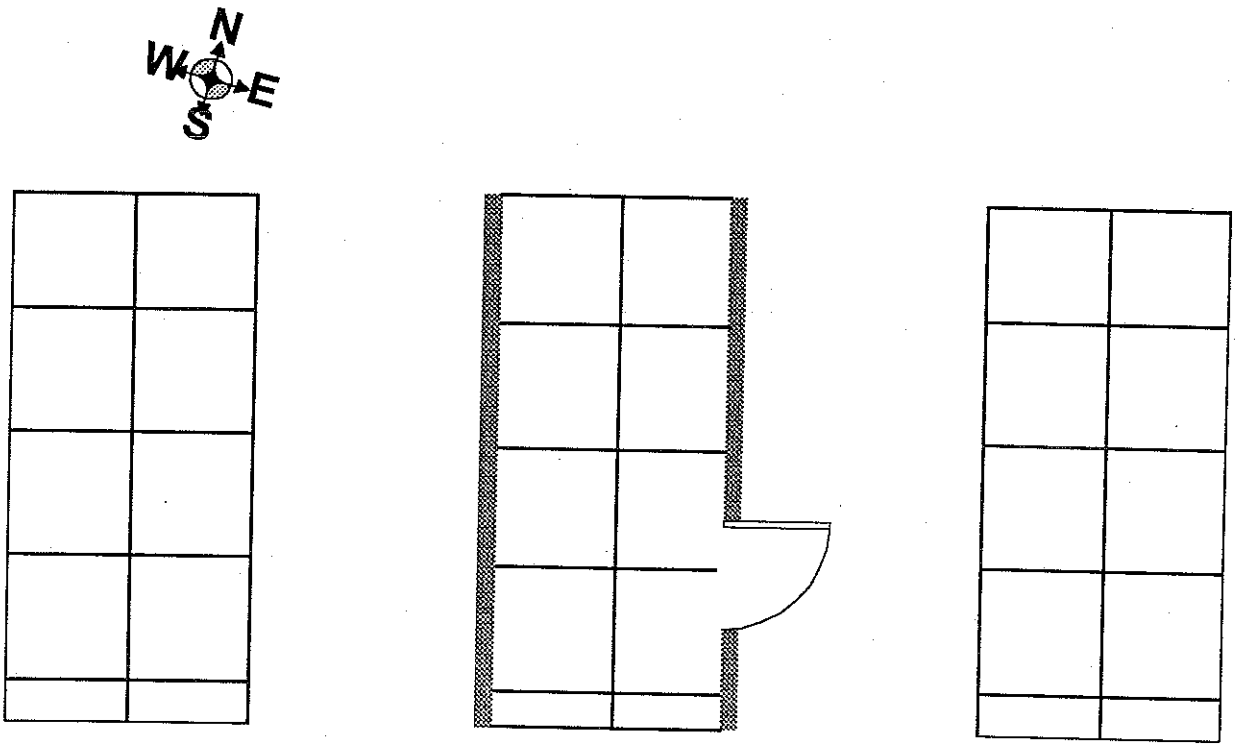
Building 500 North Wing
Hallway -page 3



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

GRAPHICAL ILLUSTRATION

Building 500 North Wing
Hallway -page 4



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: **Walter Reed Army Medical Center**
PROJECT NUMBER: **27-MH-6000-S-97**
POINT OF CONTACT:
FACILITY: Building 500 Rooms **62, 64, and 64 A**

AREA CLASSIFICATION: Unaffected- **Listed rooms are one survey area**
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: 6m x 2m (equivalent)/ grid dimensions 1m x 1m
NUMBER OF GRIDS: 18 floor and 36 wall = 54
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned 10%.
Alpha and Beta Scan: Floor and lower walls shall be scanned 10%.

DIRECT MEASUREMENTS:

Gamma Inst. Reading: 30 readings
Alpha and Beta Inst. Reading: 30 readings - same location as gamma

SAMPLING:

Floors and Lower Walls:

Hard Wipes: **REQUIRED:** 30
L/S Wipes: **REQUIRED:** 30

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:**____

Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

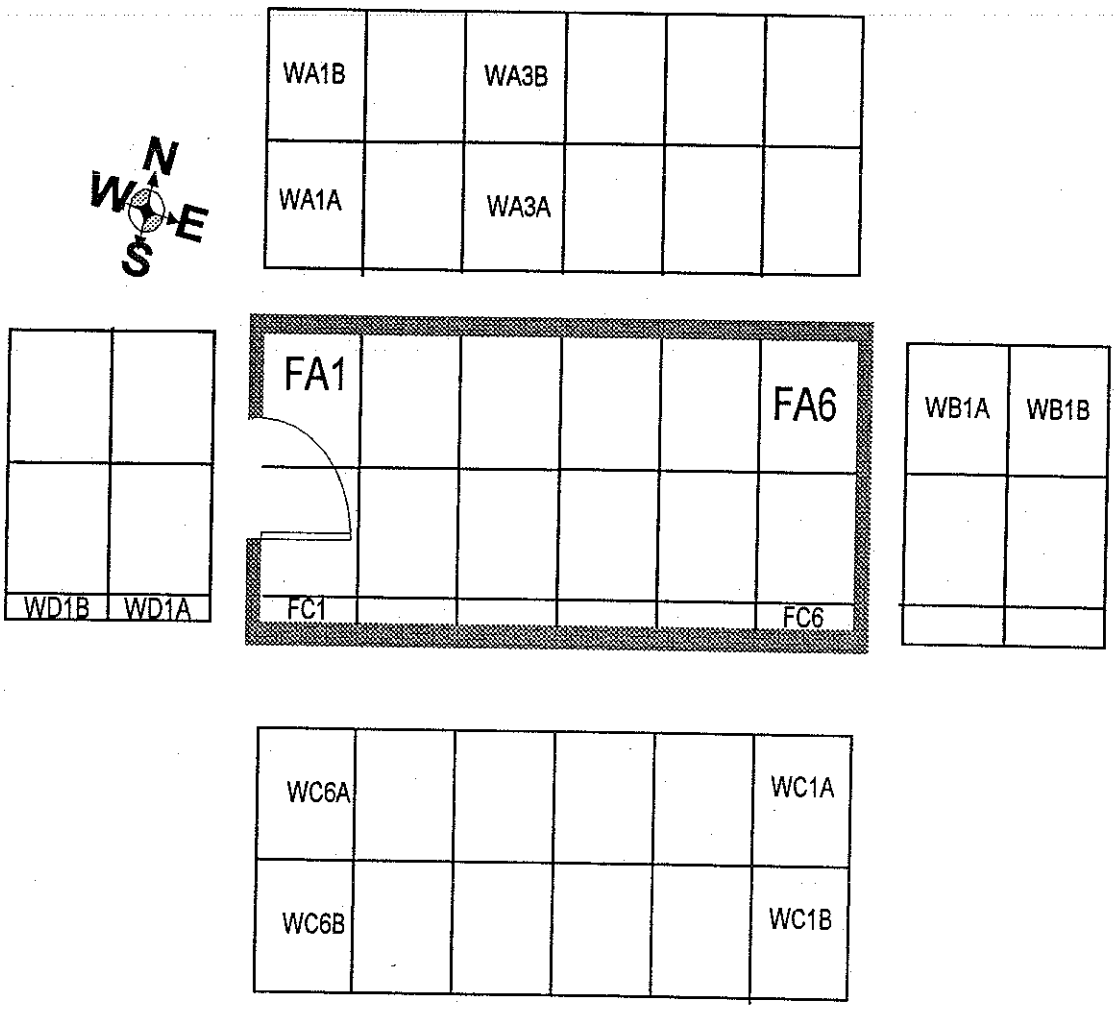
ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125

_____ PROJECT TEAM LEADER

_____ PROJECT OFFICER

GRAPHICAL ILLUSTRATION

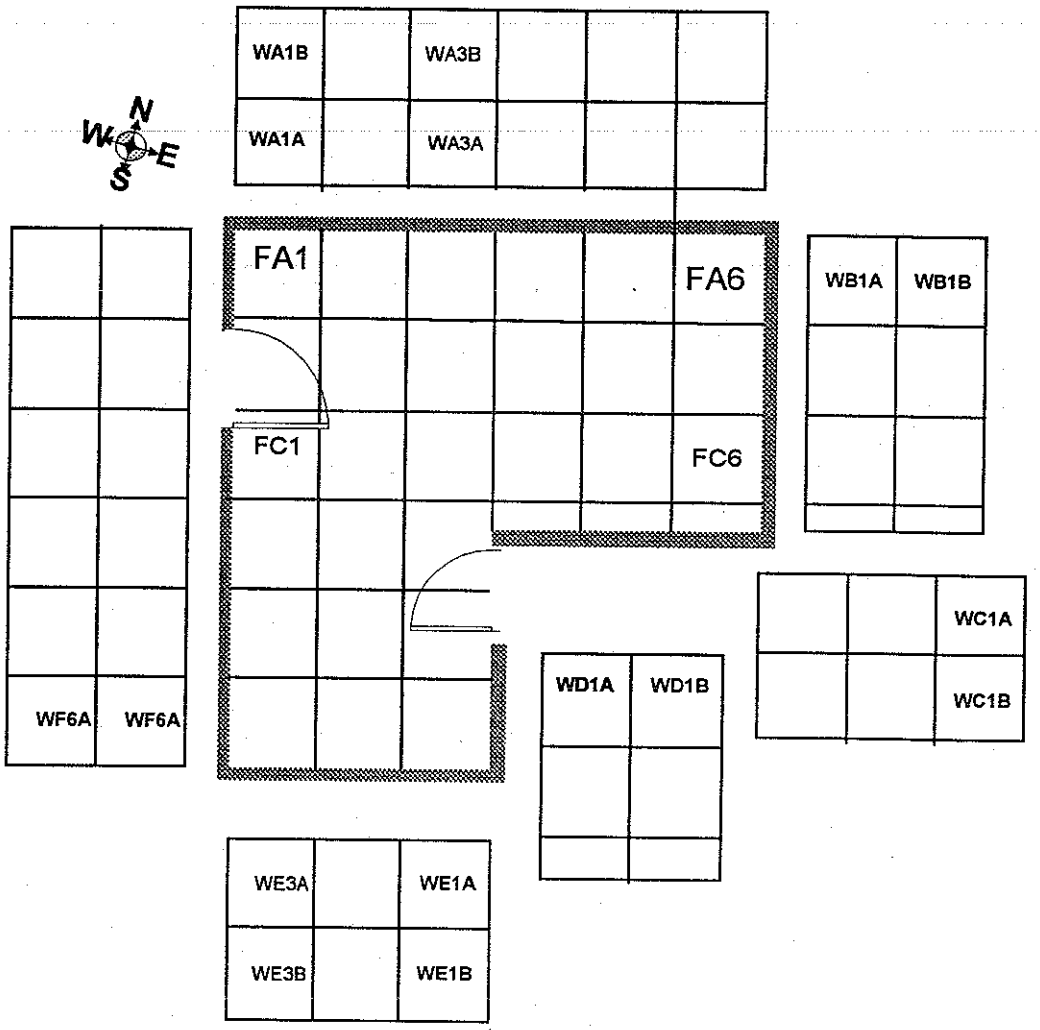
Building 500 Room 62



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

GRAPHICAL ILLUSTRATION

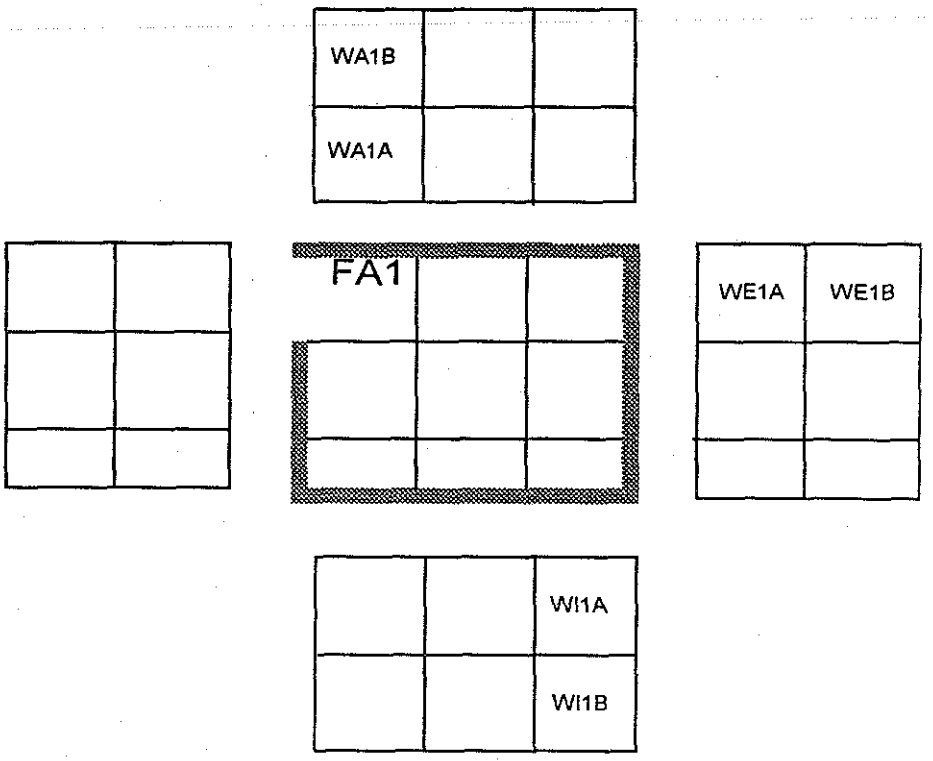
Building 500 Room 64



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

GRAPHICAL ILLUSTRATION

Building 500 Rooms 64A



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: **Walter Reed Army Medical Center**
PROJECT NUMBER: **27-MH-6000-S-97**
POINT OF CONTACT:
FACILITY: Building 500 Rooms **63, 63 A and Cold Room**

AREA CLASSIFICATION: Affected-Non-uniform **Above list is one survey area.**
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: 6m x 11.6m (equivalent)/ grid dimensions 1m x 1m
NUMBER OF GRIDS: 72 floor and 112 wall = 184
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned 100%.
Alpha and Beta Scan: Floor and lower walls shall be scanned 100%.

DIRECT MEASUREMENTS:

Gamma Inst. Reading: One reading per floor survey grid **and** 1 per every 4 m^2 on lower walls.
Alpha and Beta Inst. Reading: One reading per survey grid.

SAMPLING:

Floors and Lower Walls:

Hard Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 184
L/S Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 184

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:**___
Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

RANDOM SAMPLING: Yes **NUMBER OF SURVEY POINTS:** 30
Remarks: 30 points will be taken above the 2 meter wall height. Select both horizontal and vertical surfaces where dust would settle such as air exhaust vents.

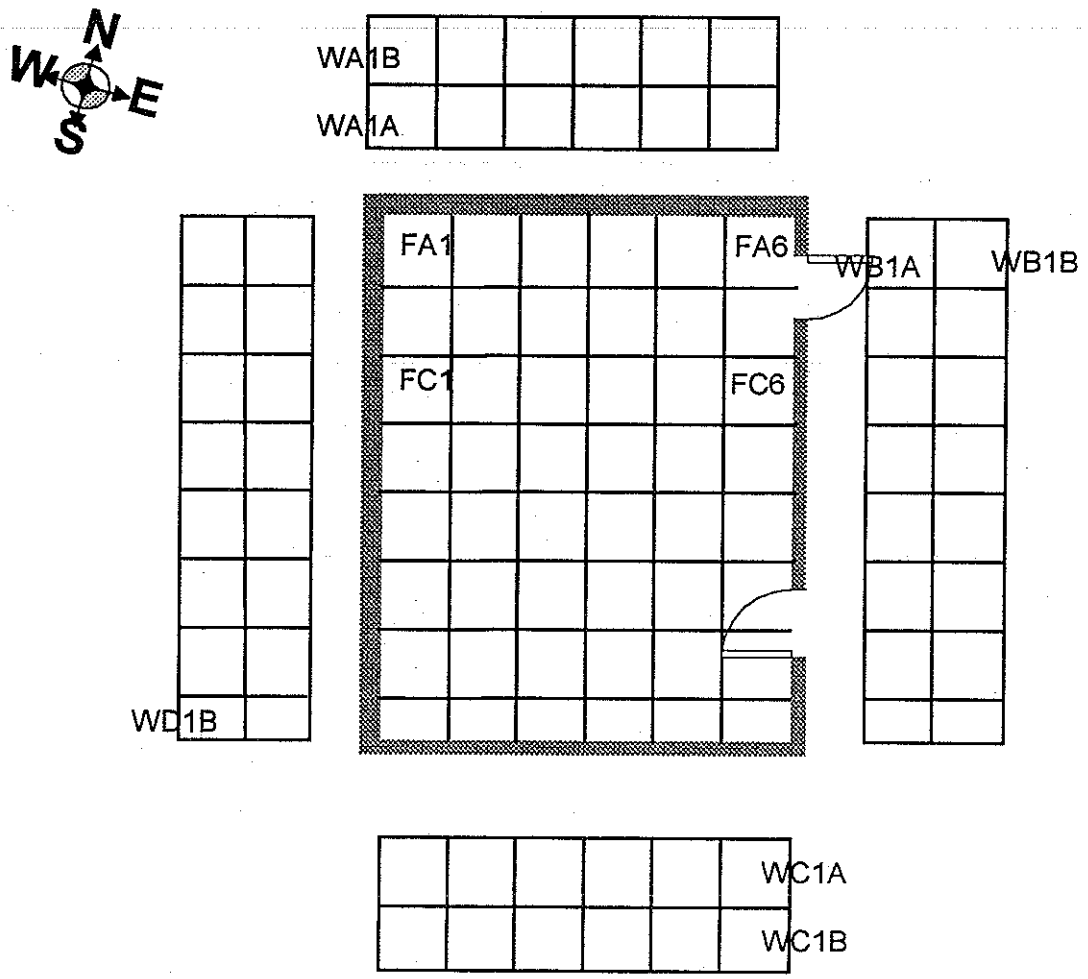
BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125

_____ _____
PROJECT TEAM LEADER PROJECT OFFICER

GRAPHICAL ILLUSTRATION

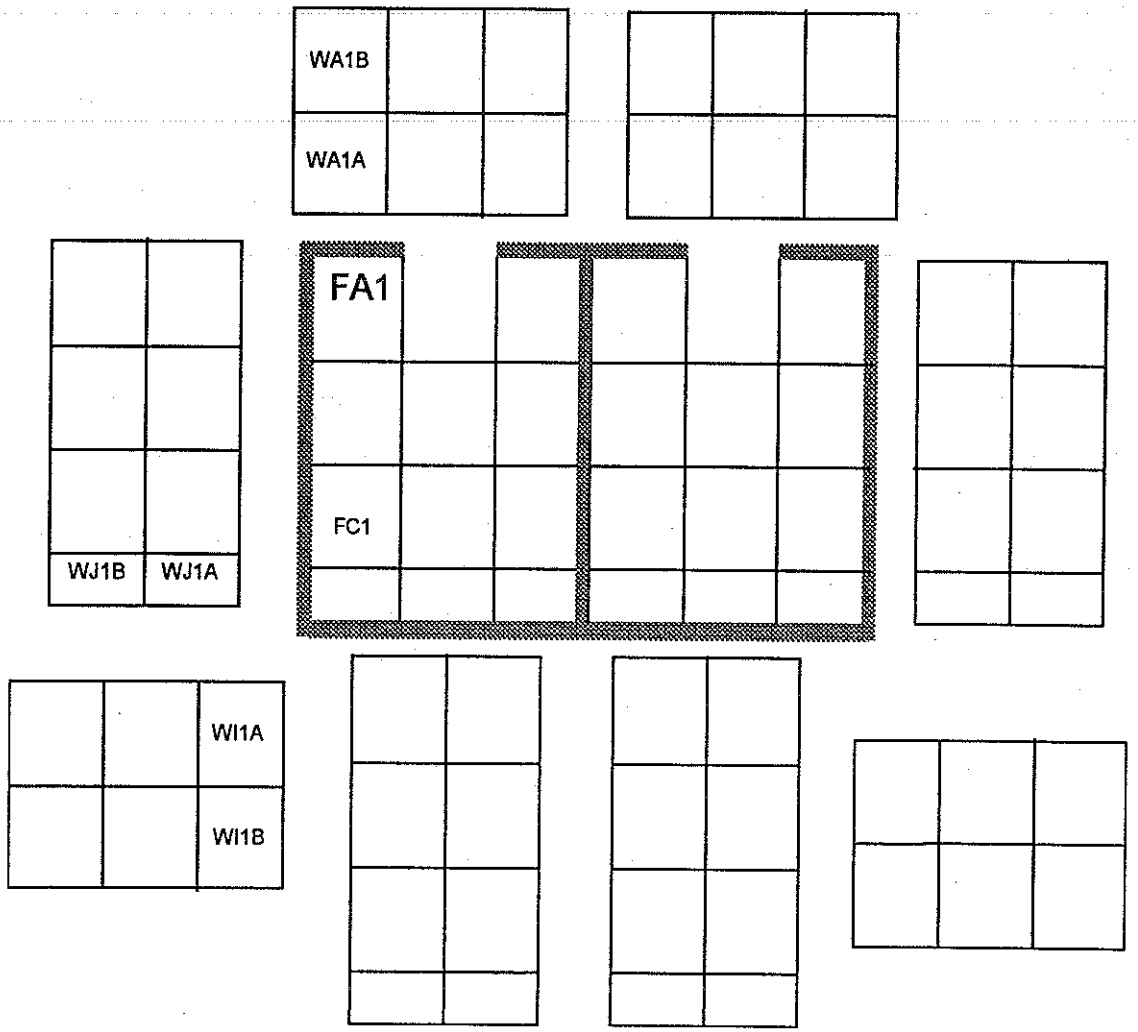
Building 500 Room 63



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

GRAPHICAL ILLUSTRATION

Building 500 Rooms 63A & Cold Room



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: **Walter Reed Army Medical Center**
PROJECT NUMBER: **27-MH-6000-S-97**
POINT OF CONTACT:
FACILITY: Building 500 Room 66

AREA CLASSIFICATION: Affected-Non-uniform
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: 6m x 3.5m (equivalent)/ grid dimensions 1m x 1m
NUMBER OF GRIDS: 24 floor and 40 wall = 64
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned 100%.
Alpha and Beta Scan: Floor and lower walls shall be scanned 100%.

DIRECT MEASUREMENTS:

Gamma Inst. Reading: One reading per floor survey grid **and** 1 per every 4 m^2 on lower walls.
Alpha and Beta Inst. Reading: One reading per survey grid.

SAMPLING:

Floors and Lower Walls:

Hard Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 64
L/S Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 64

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:**___
Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

RANDOM SAMPLING: Yes **NUMBER OF SURVEY POINTS:** 30
Remarks: 30 points will be taken above the 2 meter wall height. Select both horizontal and vertical surfaces where dust would settle such as air exhaust vents.

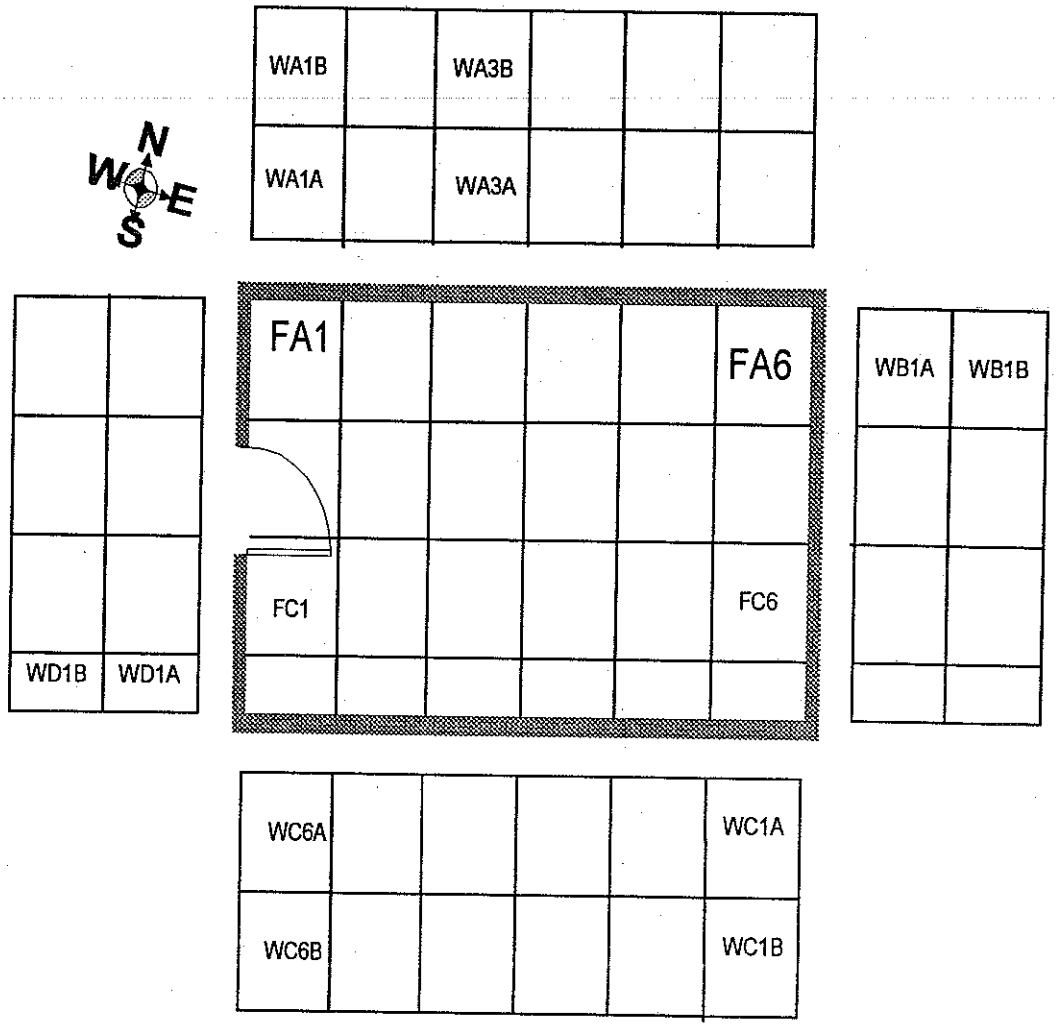
BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125

_____ _____
PROJECT TEAM LEADER PROJECT OFFICER

GRAPHICAL ILLUSTRATION

Building 500 Room 66



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: **Walter Reed Army Medical Center**
PROJECT NUMBER: **27-MH-6000-S-97**
POINT OF CONTACT:
FACILITY: Building 500 Room 67

AREA CLASSIFICATION: Affected-Non-uniform
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: 6m x 4.5m (equivalent)/ grid dimensions 1m x 1m
NUMBER OF GRIDS: 24 floor and 40 wall = 64
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned 100%.
Alpha and Beta Scan: Floor and lower walls shall be scanned 100%.

DIRECT MEASUREMENTS:

Gamma Inst. Reading: One reading per floor survey grid **and** 1 per every 4 m^2 on lower walls.
Alpha and Beta Inst. Reading: One reading per survey grid.

SAMPLING:

Floors and Lower Walls:

Hard Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 64
L/S Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 64

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:**___
Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

RANDOM SAMPLING: Yes **NUMBER OF SURVEY POINTS:** 30
Remarks: 30 points will be taken above the 2 meter wall height. Select both horizontal and vertical surfaces where dust would settle such as air exhaust vents.

BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

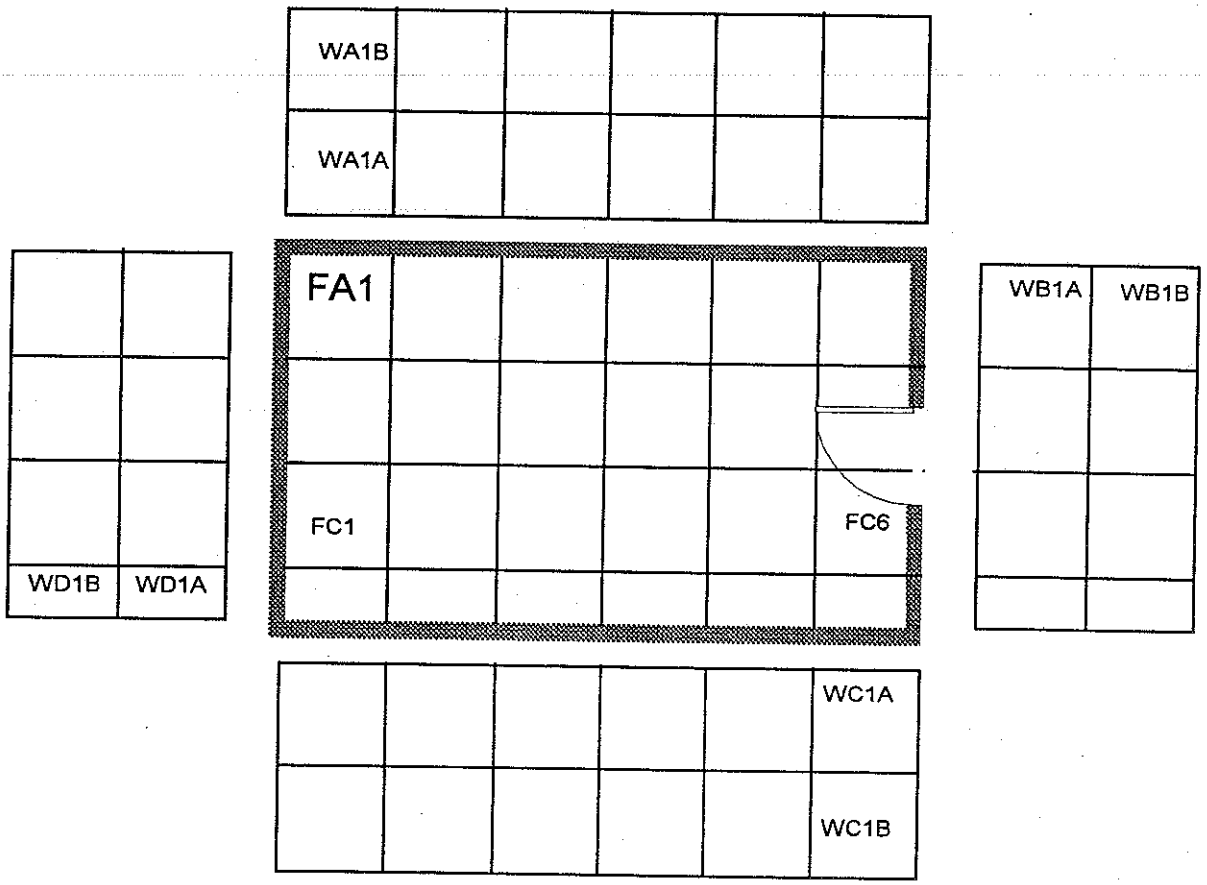
ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125, **Sr-90**

PROJECT TEAM LEADER

PROJECT OFFICER

GRAPHICAL ILLUSTRATION

Building 500 Room 67



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: Walter Reed Army Medical Center
PROJECT NUMBER: 27-MH-6000-S-97
POINT OF CONTACT:
FACILITY: Building 500 Room 69A & 69

AREA CLASSIFICATION: Affected-Non-uniform
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: 6m x 3.5m (equivalent)/ grid dimensions 1m x 1m
NUMBER OF GRIDS: 24 floor and 48 wall = 72
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned 100%.
Alpha and Beta Scan: Floor and lower walls shall be scanned 100%.

DIRECT MEASUREMENTS:

Gamma Inst. Reading: One reading per floor survey grid **and** 1 per every 4 m^2 on lower walls.
Alpha and Beta Inst. Reading: One reading per survey grid.

SAMPLING:

Floors and Lower Walls:

Hard Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 72
L/S Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 72

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:**___
Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

RANDOM SAMPLING: Yes **NUMBER OF SURVEY POINTS:** 30
Remarks: 30 points will be taken above the 2 meter wall height. Select both horizontal and vertical surfaces where dust would settle such as air exhaust vents.

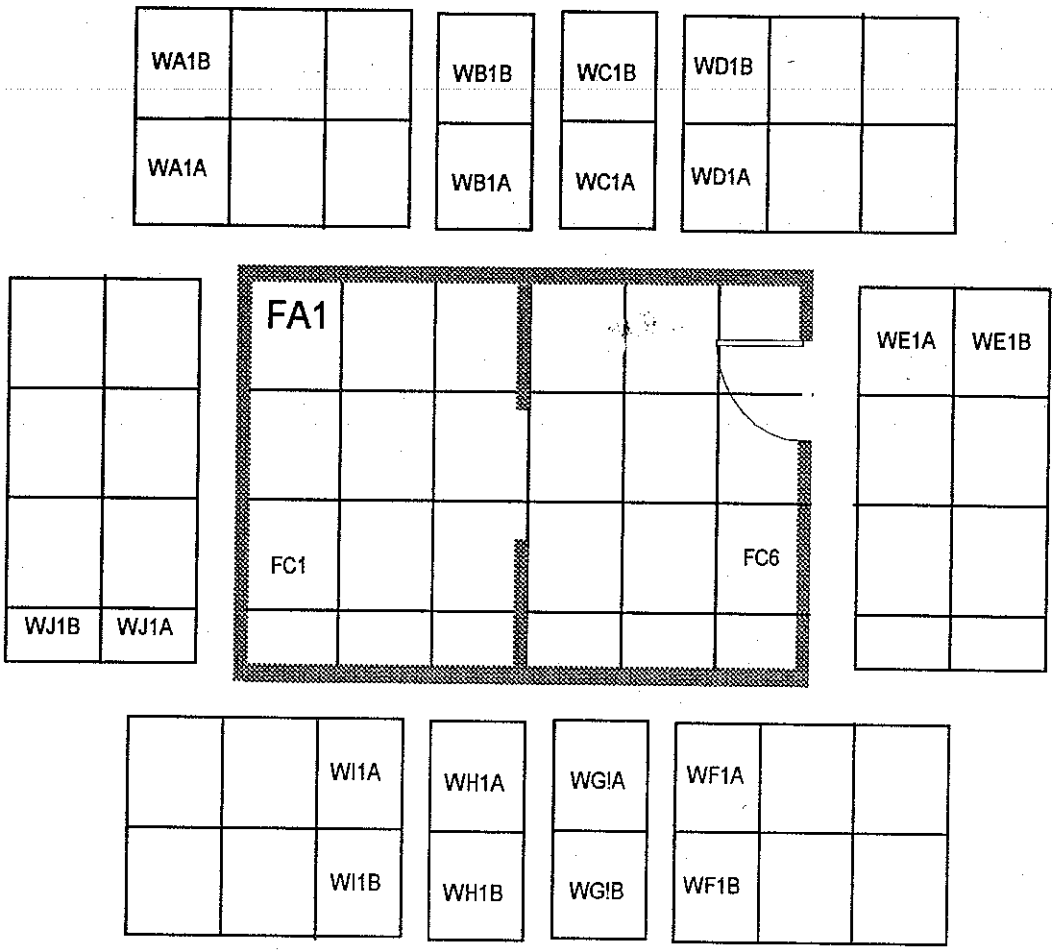
BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125

PROJECT TEAM LEADER PROJECT OFFICER

GRAPHICAL ILLUSTRATION

Building 500 Rooms 69A & 69



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: **Walter Reed Army Medical Center**
PROJECT NUMBER: **27-MH-6000-S-97**
POINT OF CONTACT:
FACILITY: Building 500 Room 71

AREA CLASSIFICATION: Affected-Non-uniform
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: 6m x 4.5m (equivalent)/ grid dimensions 1m x 1m
NUMBER OF GRIDS: 30 floor and 44 wall = 74
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned 100%.
Alpha and Beta Scan: Floor and lower walls shall be scanned 100%.

DIRECT MEASUREMENTS:

Gamma Inst. Reading: One reading per floor survey grid **and** 1 per every 4 m^2 on lower walls.
Alpha and Beta Inst. Reading: One reading per survey grid.

SAMPLING:

Floors and Lower Walls:

Hard Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 74
L/S Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 74

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:**___
Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

RANDOM SAMPLING: Yes **NUMBER OF SURVEY POINTS:** 30
Remarks: 30 points will be taken above the 2 meter wall height. Select both horizontal and vertical surfaces where dust would settle such as air exhaust vents.

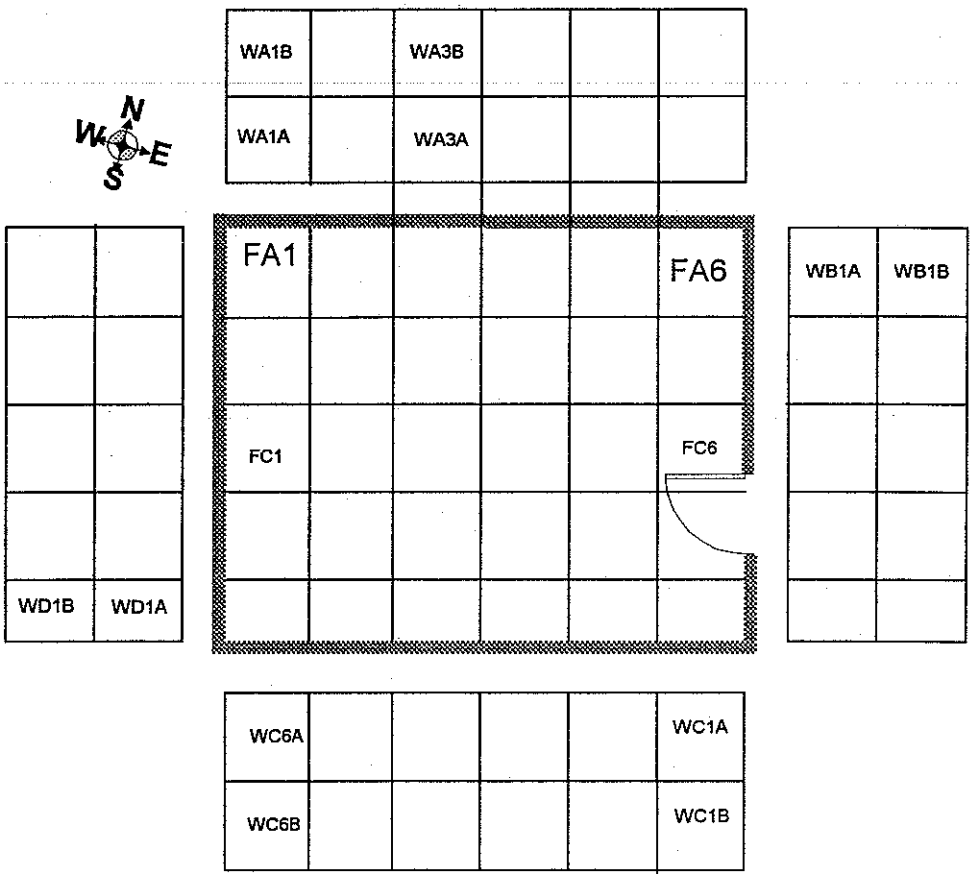
BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125

PROJECT TEAM LEADER PROJECT OFFICER

GRAPHICAL ILLUSTRATION

Building 500 Room 71



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: ***Walter Reed Army Medical Center***
PROJECT NUMBER: **27-MH-6000-S-97**
POINT OF CONTACT:
FACILITY: Building 500 Room 72

AREA CLASSIFICATION: Affected-Non-uniform
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: 6m x 5.7m (equivalent)/ grid dimensions 1m x 1m
NUMBER OF GRIDS: 36 floor and 48 wall = 84
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned 100%.
Alpha and Beta Scan: Floor and lower walls shall be scanned 100%.

DIRECT MEASUREMENTS:

Gamma Inst. Reading: One reading per floor survey grid **and** 1 per every 4 m^2 on lower walls.
Alpha and Beta Inst. Reading: *One reading per survey grid.*

SAMPLING:

Floors and Lower Walls:

Hard Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 84
L/S Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 84

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:**___
Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

RANDOM SAMPLING: Yes **NUMBER OF SURVEY POINTS:** 30
Remarks: 30 points will be taken above the 2 meter wall height. Select both horizontal and vertical surfaces where dust would settle such as air exhaust vents.

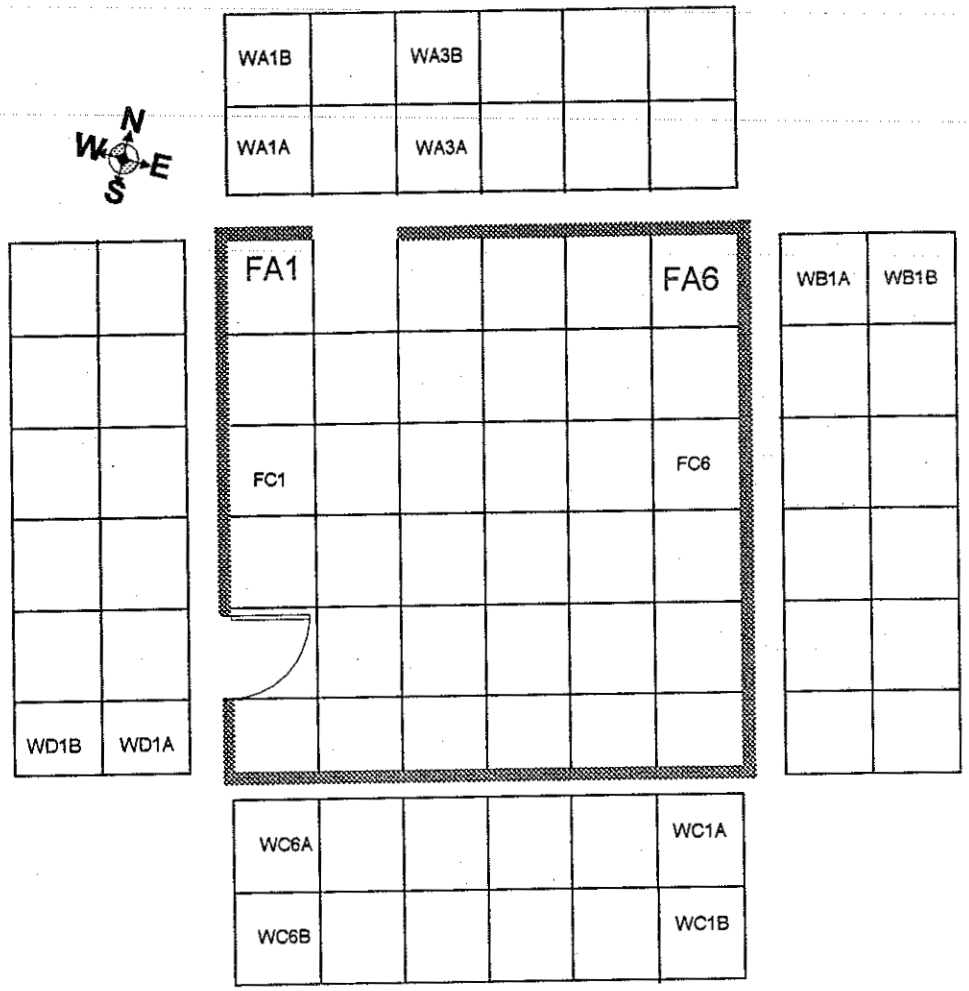
BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125

PROJECT TEAM LEADER PROJECT OFFICER

GRAPHICAL ILLUSTRATION

Building 500 Room 72



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: **Walter Reed Army Medical Center**
PROJECT NUMBER: ***27-MH-6000-S-97***
POINT OF CONTACT:
FACILITY: Building 500 Room 72A

AREA CLASSIFICATION: Affected-Non-uniform
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: 6m x 3.5m (equivalent)/ grid dimensions 1m x 1m
NUMBER OF GRIDS: 24 floor and 40 wall = 64
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned 100%.
Alpha and Beta Scan: Floor and lower walls shall be scanned 100%.

DIRECT MEASUREMENTS:

Gamma Inst. Reading: One reading per floor survey grid **and** 1 per every 4 m^2 on lower walls.
Alpha and Beta Inst. Reading: One reading per survey grid.

SAMPLING:

Floors and Lower Walls:

Hard Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 64
L/S Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 64

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:**___
Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

RANDOM SAMPLING: Yes **NUMBER OF SURVEY POINTS:** 30
Remarks: 30 points will be taken above the 2 meter wall height. Select both horizontal and vertical surfaces where dust would settle such as air exhaust vents.

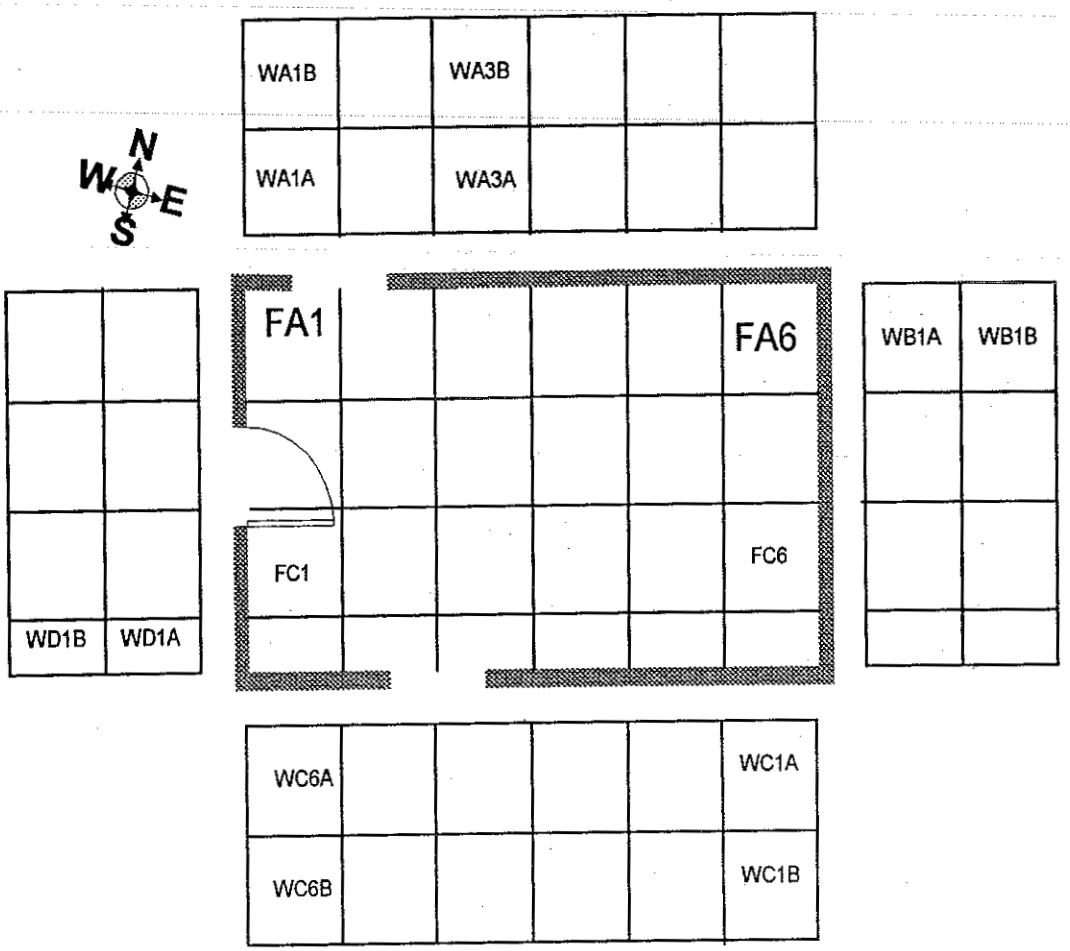
BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125

PROJECT TEAM LEADER PROJECT OFFICER

GRAPHICAL ILLUSTRATION

Building 500 Room 72A



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: **Walter Reed Army Medical Center**
PROJECT NUMBER: **27-MH-6000-S-97**
POINT OF CONTACT:
FACILITY: Building 500 Room 74

AREA CLASSIFICATION: Affected-Non-uniform
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: 6m x 3.5m (equivalent)/ grid dimensions 1m x 1m
NUMBER OF GRIDS: 60 floor and 64 wall = 124
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned 100%.
Alpha and Beta Scan: Floor and lower walls shall be scanned 100%.

DIRECT MEASUREMENTS:

Gamma Inst. Reading: One reading per floor survey grid **and** 1 per every 4 m^2 on lower walls.
Alpha and Beta Inst. Reading: One reading per survey grid.

SAMPLING:

Floors and Lower Walls:

Hard Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 124
L/S Wipes: Take one per survey grid, shown on room grid map. **REQUIRED:** 124

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:**____
Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

RANDOM SAMPLING: Yes **NUMBER OF SURVEY POINTS:** 30
Remarks: 30 points will be taken above the 2 meter wall height. Select both horizontal and vertical surfaces where dust would settle such as air exhaust vents.

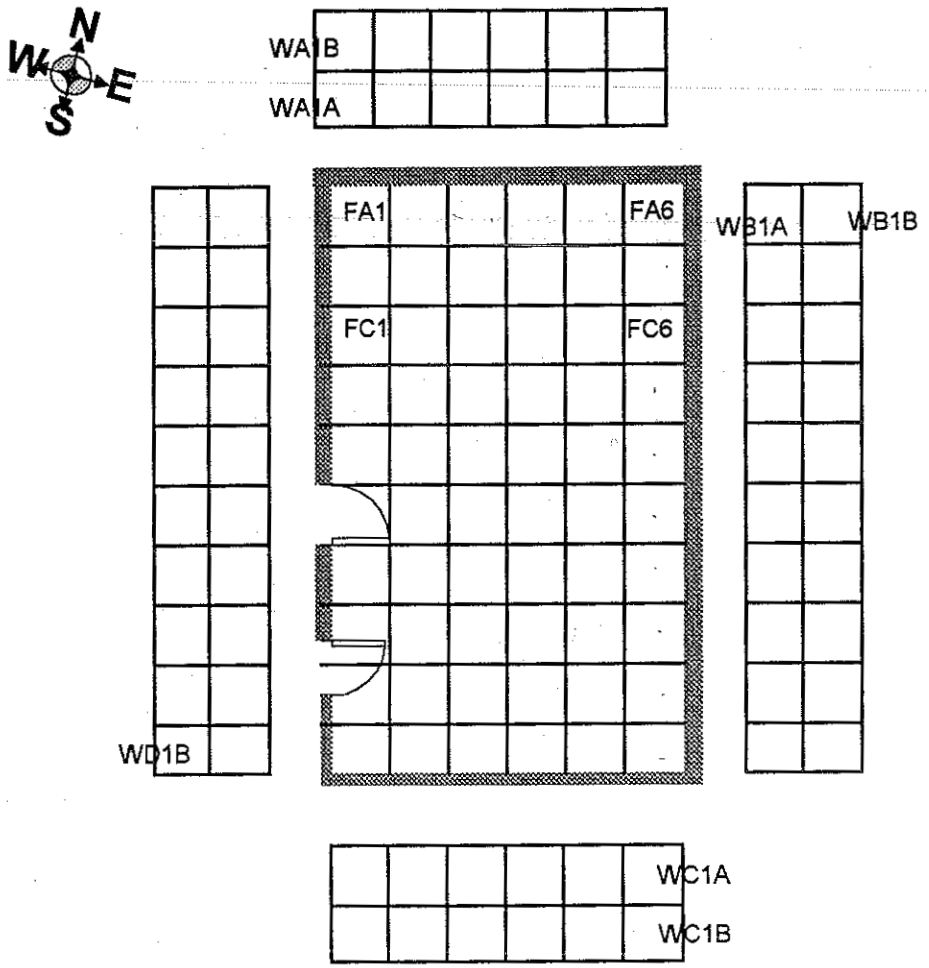
BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125

_____ _____
PROJECT TEAM LEADER PROJECT OFFICER

GRAPHICAL ILLUSTRATION

Building 500 Room 74



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

SURVEY PLAN

DATE: 8 -19 December 1997
SITE: **Walter Reed Army Medical Center**
PROJECT NUMBER: **27-MH-6000-S-97**
POINT OF CONTACT:
FACILITY: Building 500 Room 76 maybe 75 per old map

AREA CLASSIFICATION: ~~Unaffected~~ Affected non-uniform
ASSUMPTIONS FOR CLASSIFICATION: Draft Historical

AREA DIMENSIONS: Various / grid dimensions 1m x 1m
NUMBER OF GRIDS: ~~N/A~~ 60 wall + 42 floor = 102
SURVEY UNIT GRAPHIC GENERATED: Yes
BACKGROUND LOCATION: Building 500, Library

SCANNING:

Gamma Scan: Floor and lower walls shall be scanned ~~10%~~. 100 %
Alpha and Beta Scan: Floor and lower walls shall be scanned ~~10%~~. 100 %

DIRECT MEASUREMENTS:

Gamma Inst. Reading: 30 readings
Alpha and Beta Inst. Reading: 30 readings - same location as gamma

SAMPLING:

Floors and Lower Walls:

Hard Wipes: take one per survey grid **REQUIRED:** ~~30~~ 102
L/S Wipes: take one per survey grid. **REQUIRED:** ~~30~~ 102

BIAS SAMPLING: Yes **NUMBER OF SURVEY POINTS:**___
Remarks: Samples will be taken in areas where radioactive contamination would most likely be expected should it be present (e.g. drain traps, water drainage paths, air ducts and vents). Remaining furniture, cabinets, etc., should be scanned and sampled.

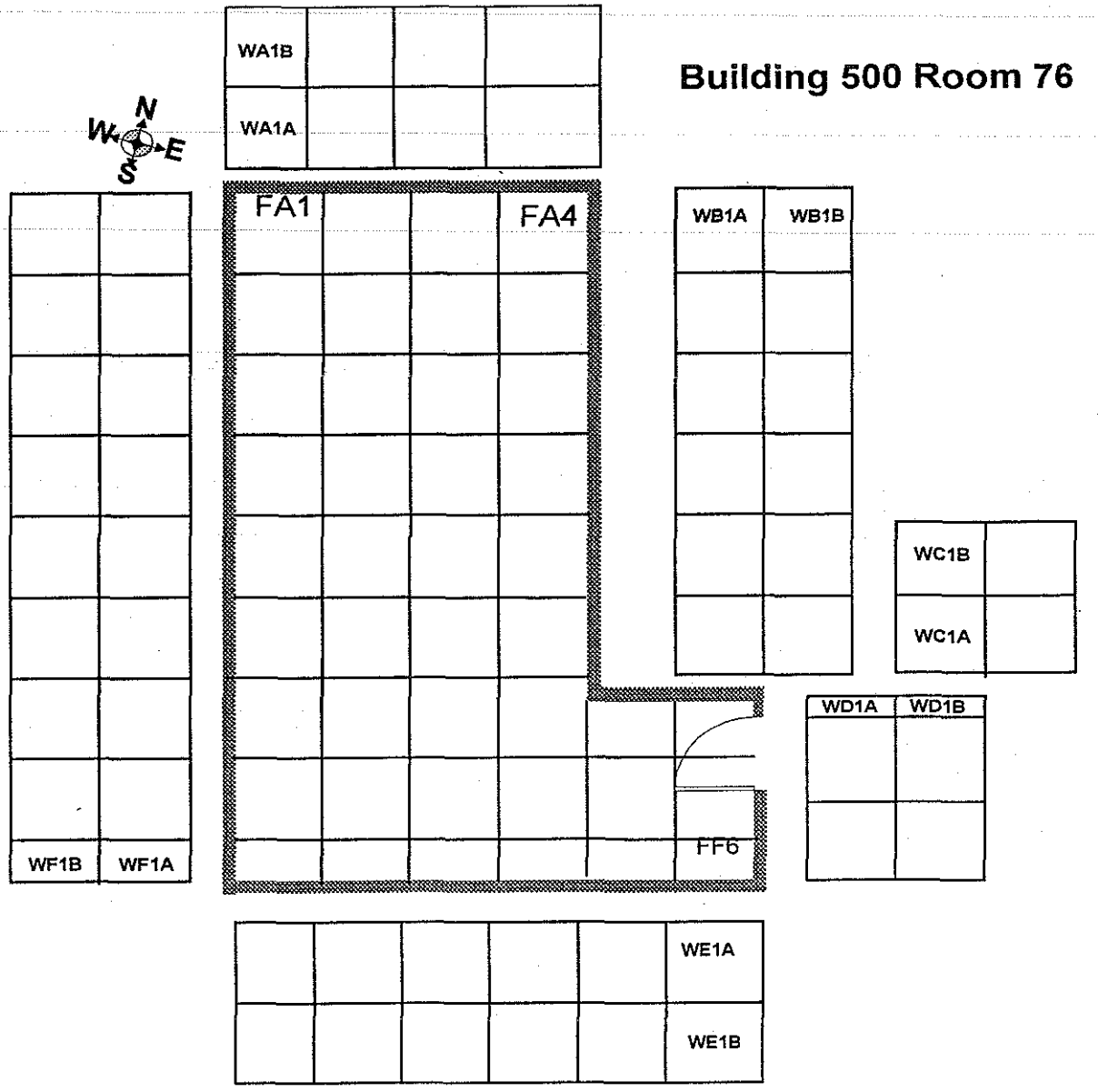
BUILDING MATERIAL SAMPLING REQUIRED: No
ENVIRONMENTAL SAMPLING REQUIRED: None
LABORATORY CONTACTED: Yes

ISOTOPES OF CONCERN: H-3,C-14,P-32, P-33, S-35, Cr-51, Se-75, Sb-125, I-125

PROJECT TEAM LEADER PROJECT OFFICER

Random Sampling - Yes Number of survey points: 30
Remarks: 30 points will be taken above the 2 meter wall height. Select both horizontal & vertical surfaces where dust would settle such as air exhaust vents.

GRAPHICAL ILLUSTRATION



WALTER REED ARMY MEDICAL CENTER	DATE 24-NOV-97 DRAWN C. WIBLIN APPROVED _____ SCALE NTS
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE UNITED STATES ARMY MEDICAL DEPARTMENT	

APPENDIX D

QUALITY ASSURANCE CHECKLIST

1. Purpose.

a. Provide U.S. USACHPPM key radiological data checks to ensure compliance with Title 10, Code of Regulations (CFR), Parts 19, 20, 30 and 40; and NUREG/CR-5849.

b. Provide decommissioning personnel with day-to-day QA overview of key data.

c. Provide day-to-day overview of decommissioning procedures and health physics practices.

2. References:

a. Title 10, Parts 19, 20, 30 and 40.

b. NUREG/CR-5849, June 1992, Manual for Conducting Radiological Surveys in Support of Licenses Termination (Draft Report of Comment).

c. The DA, NRC licenses for world-wide use of DA Radioactive Commodities.

d. US Atomic Energy Commission Regulatory Guide 1.86, Termination of Operating Licenses for Nuclear Reactors, July 1974.

3. Check the following items:

Items to be Checked	YES	NO
Personnel wearing TLDs	___	___
Survey meters operational	___	___
Operational Checks Performed and Logged	___	___

Items to be Checked	YES	NO
Background (bkg) checked	___	___
bkg subtracted	___	___

Gridding done properly	___	___
Meter readings IAW 10 CFR 30.36	___	___
- alpha readings @ ≤0.5 cm	___	___
- alpha readings in dpm/100 cm^2	___	___
- b-g readings @ ≤0.5 cm	___	___
- b-g readings in dpm/100cm^2	___	___
- gamma readings @ 1 meter	___	___
- gamma readings in µR/hr	___	___
Periodic operational check made	___	___
Instrument download reviewed immediately	___	___
Wipe test samples labeled	___	___
Can wipe test be reproduced?	___	___
Meter readings IAW Reg Guide 1.86	___	___
- less than 5 µR/hr>bkg	___	___
Was decon needed?	___	___
Did they know what to do?	___	___
Were they familiar with plan?	___	___

Items to be Checked	YES	NO
Did they ask questions?	___	___
Did RCCCD Lab follow plan procedures?	___	___
Did RCCCD Lab QA data?	___	___
Did RCCCD Lab determine MDA?	___	___
Was MDA adequate?	___	___

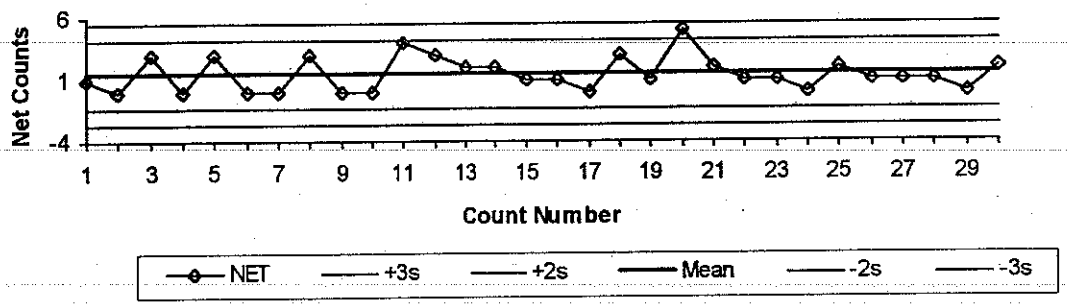
Sample controls in place	___	___
Data exceed Reg Guide 1.86	___	___
Was rad waste managed?	___	___
Was mixed-waste present?	___	___
Was mixed-waste managed?	___	___
Were air samples needed?	___	___
- indicate isotope(s) present	___	___
- indicate # of people	___	___
Was bioassay needed?	___	___
All personnel trained	___	___
Training documented	___	___
Appropriate instruments used	___	___
- calibration performed	___	___
- MDA < guidelines	___	___
Wipe test results in dpm/100cm^2	___	___

APPENDIX E

QUALITY CONTROL CHARTS

Models for QC charts for Background and Efficiency analysis follow.

BACKGROUND STUDY
S/N 120594
ALPHA BACKGROUND
Inst QC rm



Model:	2350	SN#	120594	PROBE	43-68	SN#	122126	Cal Due:	30Apr98
Building:	2	Room:	28	Comments:		inst QC rm alpha			
Mean	+2s		-2s		+3s:		-3s	Date:	13Jun97
1	4	to	-1	to	6	to	-3	Efficiency:	0.198

Chk.#	Gross	Net	Chk.#	Gross	Net	Chk.#	Gross	Net	COMMENTS
1	1	1	11	4	4	21	2	2	
2	0	0	12	3	3	22	1	1	
3	3	3	13	2	2	23	1	1	
4	0	0	14	2	2	24	0	0	
5	3	3	15	1	1	25	2	2	
6	0	0	16	1	1	26	1	1	
7	0	0	17	0	0	27	1	1	
8	3	3	18	3	3	28	1	1	
9	0	0	19	1	1	29	0	0	
10	0	0	20	5	5	30	2	2	

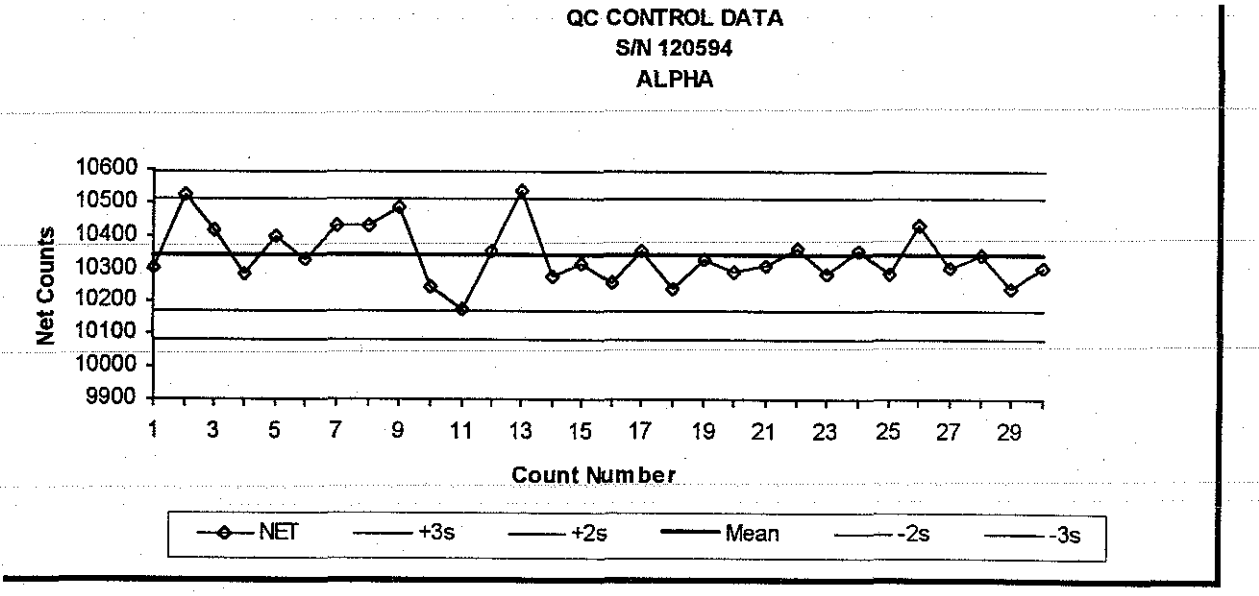
		Mean:	1.43 cnts	2sigma:	3 cnts	3sigma:	4 cnts

n= 30

Mean	1.43	STDV	1.36	Test (nB)	64.65013	Flag (cpm)	38.55833
				ENSURE	nB < n	Flag (dpm)	194.7391

MDA(dpm)	16.72803		
ensure MDA < flag			

Bkg Count Time (min):	2.5
Sample + Bkg Count Time (min):	2.5



Model:	2350	SN#	120594	PROBE	43-68	SN#	122126	Cal Due:	30Apr98
Source:	Th-230	SN#	combo	Activity:	20,820	dpm		Cal Date:	*
Mean	+2s		-2s		+3s:		-3s	Date:	14Jun97
10340	10511	to	10170	to	10596	to	10084	Efficiency:	0.198658

Chk.#	Gross	Net	Chk.#	Gross	Net	Chk.#	Gross	Net	COM-MENTS
1	10305	10304	11	10179	10178	21	10308	10307	count
2	10528	10527	12	10358	10357	22	10363	10362	time =
3	10418	10417	13	10535	10534	23	10287	10286	2.5
4	10287	10286	14	10279	10278	24	10357	10356	min
5	10401	10400	15	10315	10314	25	10288	10287	
6	10327	10326	16	10260	10259	26	10432	10431	
7	10428	10427	17	10352	10351	27	10302	10301	
8	10430	10429	18	10243	10242	28	10345	10344	
9	10488	10487	19	10332	10331	29	10243	10242	
10	10247	10246	20	10291	10290	30	10306	10305	

Bkgd:	1	counts	Mean:	10340	counts	2sigma:	170counts	3sigma:	255counts

QC Evaluation:

PASS - Good to go!

F=150

*Sources: Th-230 #3056 13100 dpm on 5/24/95

1828-94 7720 dpm on 5/20/94

USACHPPM INSTRUMENTATION QA/QC SHEET

1. All steps in the survey plan will be followed; this document is to provide guidance on the completion of the instrumentation sheet.

* NOTE: ALL BLANKS ON THE INSTRUMENTATION SHEET WILL BE FILLED IN, IF IT DOES NOT APPLY TO A PARTICULAR INSTRUMENT PLACE N/A (NOT APPLICABLE) IN THE BLANK SO THAT IT IS CLEAR THAT IT WAS NOT FORGOTTEN!

2. INSTRUMENTATION SHEET.

a. Fill in the blanks as stated below:

(1) Areas: INSTALLATION (List the installation for which the survey is being performed).

(2) Building: Place the first building number of the sampling day in the blank. If a new building is started that day, add that building number here also.

(3) Date: Place today's date in this blank. This is the MOST IMPORTANT blank to fill in. This information is crucial in correlating the sampling forms with the correct instrumentation QA/QC.

(4) Surveyor: Enter the name of the team leader and team ID in this blank, e.g., Doe (F).

(5) Page-of-: Enter 1 in the first blank and count up all the sampling forms for that day and add 1 for the QA/QC sheet. Place that number in the second blank on each page.

(6) Make of instrument: Place the name brand (e.g. E-berline, Ludlum) of the instrument in the blank.

(7) Model of instrument: Enter the model number of the instrument in the blank.

(8) Serial Number (SN): Insert the serial number of the instrument in the blank.

(9) Calibration Date: Place the date of the last time the instrument was calibrated in the blank.

(10) Source: Each survey meter will be calibrated with a radioisotope traceable to NIST. Place the type of source (e.g. Tc-99) and the activity of the source (e.g. 9,180 dpm) in the blank.

(11) Source date: Place the date that the source was calibrated (e.g. 06/04/92) and its serial number (e.g. 9-2TC2201719) in the blank.

(12) Reading: Enter the measurement and the units (e.g. 1193 cpm) of the source from the instrument in the blank.

(13) Instrument efficiency: An efficiency factor will be developed for alpha and beta instruments to correlate the meter reading to the actual radioactivity present. The efficiency will be calculated by using the following formula:

$$\text{EFFICIENCY} = \frac{(\text{CPM-BACKGROUND})}{\text{DPM}}$$

CPM = Reading of the NIST source
BACKGROUND = Background rate in cpm
DPM = Calculated activity of the NIST source

(14) Flags: The flag is a value that warrants possible investigation. The formula to calculate the flag is as follows:

$$\text{FLAG} = N * .7 * E * (100\ cm^2/A) + (B)$$

N = NRC guideline value for certain emitters
* Alpha emitters- 100 dpm/100 cm^2
* Beta emitters- 5000 dpm/100 cm^2
** Gamma emitters- 5 μR/hr above background is the flag
E = Detector efficiency
A = Active probe area in cm^2
B = Background rate in cpm

(15) Probe make: Place the name brand (e.g., Eberline, Ludlum) of the probe in the blank.

(16) Probe model: Enter the model number of the probe in the blank.

(17) Probe serial number: Insert the serial number of the probe in the blank.

(18) Background: At a minimum five background radiation readings will be averaged over a 2 minute period for each instrument to be used. These readings should be taken in an area that is known to be an unaffected area.

(19) Midday reading: After returning back to work from lunch each day, a reading should be taken from the appropriate NIST source so to ensure that the instrument is within the control limits and was not damaged earlier in the day. The value

that is recorded should be very similar to the reading taken at the beginning of each day. This will ensure that the data is dependable.

(20) Evening reading: At the end of each working day, a reading should be taken from the appropriate NIST source to ensure that the instrument has not been damaged or changed performance characteristics during the sampling day. The value should be similar to the midday and the beginning day readings.

3. Minimum Detectable Activity (MDA).

a. THE MDA is the minimum level of radiation or radioactivity that can be measured by a specific instrument and technique. The MDA is usually established on the basis of assuring false positive and false negative rates of less than 5%. The MDA on the instruments will be performed monthly at a minimum and/or after calibration of the instrument.

APPENDIX F

MATERIAL SAFETY DATA SHEETS