

U.S. Army Center for Health Promotion and Preventive Medicine

INDUSTRIAL RADIATION SURVEY NO. 27-MH-7748-98
U.S. ARMY CHEMICAL SCHOOL AND FORT MCCLELLAN
FORT MCCLELLAN, ALABAMA
6-10 APRIL 1998



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Readiness Thru Health

U.S. Army Center for Health Promotion and Preventive Medicine

The lineage of the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) can be traced back over 50 years. This organization began as the U.S. Army Industrial Hygiene Laboratory, established during the industrial buildup for World War II, under the direct supervision of the Army Surgeon General. Its original location was at the Johns Hopkins School of Hygiene and Public Health. Its mission was to conduct occupational health surveys and investigations within the Department of Defense's (DOD's) industrial production base. It was staffed with three personnel and had a limited annual operating budget of three thousand dollars.

Most recently, it became internationally known as the U.S. Army Environmental Hygiene Agency (AEHA). Its mission expanded to support worldwide preventive medicine programs of the Army, DOD, and other Federal agencies as directed by the Army Medical Command or the Office of The Surgeon General, through consultations, support services, investigations, on-site visits, and training.

On 1 August 1994, AEHA was redesignated the U.S. Army Center for Health Promotion and Preventive Medicine with a provisional status and a commanding general officer. On 1 October 1995, the nonprovisional status was approved with a mission of providing preventive medicine and health promotion leadership, direction, and services for America's Army.

The organization's quest has always been one of excellence and the provision of quality service. Today, its goal is to be an established world-class center of excellence for achieving and maintaining a fit, healthy, and ready force. To achieve that end, the CHPPM holds firmly to its values which are steeped in rich military heritage:

- ★ *Integrity is the foundation*
- ★ *Excellence is the standard*
- ★ *Customer satisfaction is the focus*
- ★ *Its people are the most valued resource*
- ★ *Continuous quality improvement is the pathway*

This organization stands on the threshold of even greater challenges and responsibilities. It has been reorganized and reengineered to support the Army of the future. The CHPPM now has three direct support activities located in Fort Meade, Maryland; Fort McPherson, Georgia; and Fitzsimons Army Medical Center, Aurora, Colorado; to provide responsive regional health promotion and preventive medicine support across the U.S. There are also two CHPPM overseas commands in Landstuhl, Germany and Camp Zama, Japan who contribute to the success of CHPPM's increasing global mission. As CHPPM moves into the 21st Century, new programs relating to fitness, health promotion, wellness, and disease surveillance are being added. As always, CHPPM stands firm in its commitment to Army readiness. It is an organization proud of its fine history, yet equally excited about its challenging future.

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APPENDIX D
1994 FORT MCCLELLAN SURVEYS

1. General. The USAEHA 1994 survey team consisted of Mr. Allen E. Hilsmeier, DAC, Health Physicist; SGT James S. Bradley, USA, Health Physics Specialist; and Ms. Frances Szrom, DAC, Health Physicist. Mr. Hilsmeier and SGT Bradley departed USAEHA in 1995.

2. Survey and Sample Locations. Instrument readings and samples were collected from the four areas described below. Background soil samples were collected at the locations indicated below. A brief historical review is included below for each area. Additional historical details can be found in Reference 20.

a. Background Soil Samples. Seven background soil samples were collected from six different locations. Gamma exposure rate measurements were taken at the six locations. The exposure rate measurements were taken at 1 meter from the surface. Specific features from the various sampling locations are described below.

(1) Background soil sample location 1 is situated midway between Buildings 812 and 813, up-gradient toward 20th street. The background soil sample Bkg-1 was collected from the surface to a depth of 1 foot. The soil core sample was approximately 1" in diameter.

(2) Background soil sample location 2 is situated in the field near the T intersection of 2nd and 13th streets. Two background soil samples were collected. One was collected from the surface to a depth of 1 foot (Bkg 2-1) and the other was collected from a depth of 1 foot to 2 feet (Bkg 2-2). The soil core samples were approximately 1" in diameter.

(3) Background soil sample location 3 is situated between 6th avenue and the Child Development Center. The background soil sample (Bkg 3) was collected from the surface to a depth of 1 foot. The soil core sample was approximately 1" in diameter.

(4) Background soil sample location 4 is situated on the south side of Avery Drive near the T intersection of Baker Road and Avery Drive. The background soil sample (Bkg 4) was collected from the surface to a depth of 1 foot. The soil core sample was approximately 1" in diameter.

(5) Background soil sample location 5 is situated in front of the elementary school. The background soil sample (Bkg 5) was collected from the surface to a depth of 1 foot. The soil core sample was approximately 1" in diameter.

(6) Background soil sample location 6 is situated in front of Building 3137 (Visiting Officers Quarters). The background soil sample (Bkg 6) was collected from the surface to a depth of 1 foot. The soil core sample was approximately 1" in diameter.

b. Building No. 812½.

(1) History. The structure referred to as Building No. 812½ was formerly used (prior to 1973) as a radium storage vault (Reference 20). The structure is located between Building No. 812 and Building No. 813, but is not marked with a specific building number.

(2) Description. The building is a small block structure, approximately 5 feet wide, 5 feet long and 4 feet high with a wire mesh door. The structure has vents through the north wall, east wall, west wall and roof. At the time of the 1994 surveys this building was being used as a flammable paint storage shed. During the USAEHA 1995 radiological surveys of Iron Mountain and Rattlesnake Gulch (Reference 21), Mr. Barthel F. Truffa and Mr. George W. Pryor, who were members of the 1971 USACMLCS Health Physics Division, positively identified this structure as the former radium storage vault.

c. Building No. 3181.

(1) History. Historical documents (Reference 20) indicated that sealed and unsealed radioactive sources were used in Room 35 and sealed sources were used in Room 36 for training purposes. Room 35 was a radioisotope laboratory that contained a radioisotope hood up until 1973. According to Mr. John May, Fort McClellan RPO, the radioisotope hood was removed from Room 35 in the 1973 time frame. The location of the radioisotope hood is indicated in Figure D-1.

(2) Description.

(a) At the time of the 1994 surveys, Building No. 3181 was being used by the Military Police School. Administrative offices were located in Room 35. Room 36 and the adjacent vault

were used as administrative storage areas. Room 36 is adjacent to Room 35. Entrance into and exit from Room 36 is only through Room 35. Adjacent to Room 36 is a Vault Area. Entrance into and exit from the vault area is only through Room 36. A general layout of these areas are provided in Figure D-1. Radiological surveys were also performed in the vault area, since this area may have been a storage area for the radioactive materials that were used in Rooms 35 and 36.

(b) At the time of the 1994 surveys, duct work from the radioisotope hood was still present above the drop ceiling of Room 35. Approximately 3 feet of duct work was visible above the drop ceiling above grid FBB1 (See Figure D-2). The lower end of the duct work was sealed with tape. The upper end of the duct work visible from Room 35 went through the firewall. According to Fort McClellan Health Physics Office personnel the duct work terminates on the roof of the building.

d. Area of Building 3180 and Area Behind Building 3182.

(1) History. Building 3180 was used as a Radioactive Material Storage Area Vault prior to and during 1973. A source well adjacent to Building 3180 was suspected to have a radioactive source buried in it. The source well and suspected radioactive source were removed in approximately 1989. Building 3180 was demolished in August 1989 and the floor of the Building was removed in November 1989 (Reference 20).

(2) Description. At the time of the 1994 surveys, an open ground area approximately 15 feet by 10 feet was located behind Building 3182 (MP Museum) and within the fenced area of the Hot Cell Facility (Building 3192). The location of the survey area in relation to Building 3182 (Military Police Museum) is depicted in Figure D-5.

e. Area of Alpha Field.

(1) History. The Alpha Field area was used to train survey teams to perform alpha contamination surveys prior to 1973. The U-233 plate sources used in the field were transferred from Fort McClellan, AL, to Edgewood Arsenal, MD, in May 1973 (Reference 22). In 1985, the Alpha Field area was still enclosed by a chain-link fence and 243 pedestals, on which the sources had been mounted, remained (Reference 23).

(2) Description. At the time of the 1994 surveys, soil samples were collected from the open grass areas in the vicinity of Building 3195 and its parking lot. The survey area locations are depicted in Figure D-6. During the USAEHA 1995 radiological surveys of Iron Mountain and Rattlesnake Gulch (Reference 22), Mr. Barthel F. Truffa and Mr. George W. Pryor, who were members of the 1971 USACMLCS Health Physics Division, indicated that Alpha Field was adjacent to Bromine Field and the current parking lot adjacent to the north side of Building 3195 was mostly the Bromine Pad Area. Located in the woods line on the east side of Building 3195 were old fence posts and electrical outlet conduits that formed the perimeter of Alpha Field. According to Mr. Truffa and Mr. Pryor, the Alpha Field was located primarily where Building 3195 currently stands.

3. Radiation Surveys and Results. The radiological surveys performed at the various sites are discussed below. In some instances the results of the field surveys are not presented since all field data collected could not be located. All data presented is laboratory data or field data from the field logbook of the remaining survey team member. The instruments used during the surveys are listed in Table D-1. Instrumentation checks, with the National Institute of Standards and Technology traceable sources, were performed before and after use of each instrument.

Table D-1: Instrumentation		
Meter/Probe Combination	Serial Numbers Meter/Probe	Calibration Date / Calibration Due Date
Eberline PAC-1SAGA w/ AC-3 (ZnS(Ag)) probe	#174 / #174-1	10 May 94 08 Aug 94
Eberline PAC-1SAGA w/ AC-3 (ZnS(Ag)) probe	#2362 / E3335	10 May 94 08 Aug 94
Eberline E-520 w/ HP-260 (Pancake GM) probe	#5618 / #5618-1	04 May 94 02 Aug 94
Eberline E-520 w/ HP-260 (Pancake GM) probe	#406 / #406-1	15 Jun 94 13 Sep 94

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Table D-1: Instrumentation		
Meter/Probe Combination	Serial Numbers	Calibration Date /
	Meter/Probe	Calibration Due Date
Eberline PRM-7 w/ internal 1" x 1" NaI(Tl) probe	#272	15 Jun 94
		13 Sep 94
Eberline PRM-7 w/ internal 1" x 1" NaI(Tl) probe	#434	17 May 94
		17 Aug 94
Eberline PRM-7 w/ external PG-2 probe	#398 / A1035	29 Jun 94
		27 Sep 94
Victoreen 190 w/ 489-120 probe	#304 / #239	18 May 94
		18 Aug 94
Victoreen 190 w/ 489-120 probe	#920 / #259	15 Jun 94
		13 Sep 94

a. Background Surveys. Background exposure rate measurements were made and soil samples were collected from the 6 background areas described in paragraph 2.a above.

(1) Exposure Rate Survey Results. Exposure rate measurements were taken approximately 1 meter above the ground surface. The results of this survey are presented in Table D-2 below.

Table D-2: Background Exposure Rate Survey		
Background Location	$\mu\text{R/hr}$	Survey Instrument
BKG 1	7	Victoreen #304
BKG 2	9	Victoreen #304
BKG 3	10	Victoreen #304
BKG 4	8	Victoreen #304

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Table D-2: Background Exposure Rate Survey		
Background Location	$\mu\text{R/hr}$	Survey Instrument
BKG 5	12	PRM-7 #398
BKG 6	11	PRM-7 #398

(2) Soil Sample Survey Results. Background soil samples were collected as described in paragraph 2.a above. The soil samples were analyzed by the USAEHA Radiochemistry Analysis Branch. Analyses for gross alpha, gross beta, and gamma emitting radionuclides were performed. The MDA for the gross alpha analysis was 4 picocuries per gram (pCi/g) and the MDA for the gross beta analysis was 3 pCi/g. Gamma spectral analysis results were reported for Co-60, Cs-137 and thorium-234 (Th-234), the progeny of U-238. All background soil sample results are presented in Table D-3 below.

Table D-3: Background Soil Sample Results						
Sample ID	Lab Number	Picocuries per Gram \pm 2 Standard Deviations				
		Gross Alpha	Gross Beta	Co-60	Cs-137	Th-234
BKG 1	T0509	24 \pm 6	16 \pm 3	< 0.2	< 0.2	1.1 \pm 1.3
BKG 2-1	T0510	25 \pm 7	31 \pm 4	< 0.1	< 0.1	< 4
BKG 2-2	T0511	21 \pm 6	42 \pm 5	< 0.2	< 0.1	2.0 \pm 1.5
BKG 3	T0512	22 \pm 6	43 \pm 5	< 0.1	< 0.1	< 5
BKG 4	T0513	14 \pm 5	12 \pm 3	< 0.2	< 0.2	0.4 \pm 1.3
BKG 5	T0514	21 \pm 6	20 \pm 4	< 0.1	< 0.1	< 4
BKG 6	T0515	20 \pm 6	19 \pm 3	< 0.2	< 0.2	1.0 \pm 1.8

b. Building No. 812½. Instrumentation surveys to determine gamma exposure rate, total alpha activity, and total beta-gamma activity were performed. In addition to the instrumentation surveys, wipe test samples were collected to determine if

removable gross alpha activity and/or removable gross beta-gamma activity were present. The entire interior (each wall, the floor and the ceiling) of the structure was gridded in 1 meter by 1 meter grids. Each wall, the floor and the ceiling consisted of two grids each. Wipe test samples were collected from the center of each grid. Wipe test samples were also collected from each vent.

(1) Instrumentation Surveys. The field instrumentation survey data was recorded on data sheets at the time of the surveys. The data sheets could not be located when writing this report. Therefore, no quantitative results are presented for these surveys.

(2) Wipe Test Sample Results. The wipe tests were collected by wiping a surface area of approximately 100 cm² with moderate pressure. The wipe test samples were analyzed by the USAEHA Radiochemistry Analysis Branch for gross alpha activity and gross beta-gamma activity. The MDA for the gross alpha analysis was 1 disintegration per minute per 100 centimeters squared (cm²) (dpm/cm²) and the MDA for the gross beta-gamma analysis was 2 dpm/cm². All wipe test sample results are presented in Table D-4 below. All wipe test results are less than the respective MDA.

Table D-4: Building 812½ Wipe Test Sample Results			
Sample Identification	Lab Number	DPM /100 CM ²	
		Gross Alpha	Gross Beta-Gamma
201 - 812.5 W1 A1	T0471	< 1	< 2
202 - 812.5 W1 A2	T0472	< 1	< 2
203 - 812.5 W2 A1	T0473	< 1	< 2
204 - 812.5 W2 A2	T0474	< 1	< 2
205 - 812.5 W3 A1	T0475	< 1	< 2
206 - 812.5 W3 A2	T0476	< 1	< 2
207 - 812.5 W4 A1	T0477	< 1	< 2

Table D-4: Building 812½ Wipe Test Sample Results			
Sample Identification	Lab Number	DPM /100 CM ²	
		Gross Alpha	Gross Beta-Gamma
208 - 812.5 W4 A2	T0478	< 1	< 2
209 - 812.5 F1 A1	T0479	< 1	< 2
210 - 812.5 F1 A2	T0480	< 1	< 2
211 - 812.5 C1 A1	T0481	< 1	< 2
212 - 812.5 C1 A2	T0482	< 1	< 2
213 - 812.5 V1	T0483	< 1	< 2
214 - 812.5 V2	T0484	< 1	< 2
215 - 812.5 V3	T0485	< 1	< 2
216 - 812.5 V4	T0486	< 1	< 2

c. Building No. 3181. Instrumentation surveys to determine gamma exposure rate, total alpha activity, and total beta-gamma activity were performed in Room 35, Room 36 and the Vault Area. In addition to the instrumentation surveys, wipe test samples were collected in these areas to determine if removable gross alpha activity and/or removable gross beta-gamma activity were present. The entire floor and each wall, from the floor up to a height of 2 meters, was gridded in 1 meter by 1 meter grids. Wipe test samples were collected from the center of each grid. Wipe test samples were also collected from the external area of the ductwork that was located above the drop ceiling in Room 35 (Grid FBB1).

(1) Instrumentation Surveys. The field instrumentation survey data was recorded on data sheets at the time of the surveys. The data sheets could not be located when writing this report. Therefore, no quantitative results are presented for these surveys.

(2) Wipe Test Sample Results. The wipe tests were collected by wiping a surface area of approximately 100 cm² with moderate pressure. The wipe test samples were analyzed by the USAEHA Radiochemistry Analysis Branch for gross alpha activity and gross beta-gamma activity. The MDA for the gross alpha analysis was 1 dpm/cm² and the MDA for the gross beta-gamma was 2 dpm/cm². All results were less than the respective MDA.

(a) Room 35. The survey area consisted of 114 grids. Forty-eight grids were on the floor and the remaining 66 grids were on wall areas. A grid map of Room 35 is located in Figure D-2.

(b) Ductwork in Room 35. Measurements and wipe test surveys were performed on six exterior locations of the duct work from the old radioisotope hood.

(c) Room 36. The survey area consisted of 38 grids. Ten grids were on the floor and the remaining 28 grids were on wall areas. A grid map of Room 36 is located in Figure D-3.

(d) Vault Area. The survey area consisted of 42 grids. Ten grids were on the floor and the remaining 32 grids were on wall areas. A grid map of the Vault Area is located in Figure D-4.

d. Area of Building 3180 and Area Behind Building 3182. Exposure rate measurements were made and soil samples were collected as described below. The footprint area where Building 3180 previously stood was approximately 15 feet by 10 feet. This area was gridded into 6 grids approximately, 5 feet by 5 feet. The location of the sampling area and the grid numbering scheme is displayed in Figure D-5. Elevated exposure rate measurements were noted near the faucet on the back of Building 3182; therefore, soil samples and a sample of joint material was collected from this area. These locations are also indicated on the area map in Figure D-5.

(1) Exposure Rate Survey Results. Exposure rate measurements were taken approximately 1 meter above the ground surface. The results of this survey is presented in Table D-5.

Table D-5: Area of Building 3180 Exposure Rate Survey		
Location	$\mu\text{R/hr}$	Survey Instrument
3180 A1	9	Victoreen #304
3180 A2	9	Victoreen #304
3180 A3	9	Victoreen #304
3180 B1	9	Victoreen #304
3180 B2	9	Victoreen #304
3180 B3	9	Victoreen #304
Joint Material	16	Victoreen #304
Faucet Area	16	Victoreen #304

(2) Soil Sample Survey Results. One soil sample was collected from each grid. The depth below the surface from which the samples were collected varied from 1.5 feet to 3 feet. All samples were planned to be collected at a depth of 3 feet below the surface, however, hard objects, perhaps large rocks, were encountered through which the survey team could not sample with the available hand tools. The depth from which the sample was collected is indicated with the sample identification in Table D-6 below. The soil samples were analyzed by the USAEHA Radiochemistry Analysis Branch. Analyses for gross alpha, gross beta, and gamma emitting radionuclides were performed. The MDA for the gross alpha analysis was 4 picocuries per gram (pCi/g) and the MDA for the gross beta analysis was 3 pCi/g. Gamma spectral analysis results were reported for Co-60, Cs-137 and Th-234, the progeny of U-238. All Building 3180 area soil sample results are presented in Table D-6 below. Duplicate analyses performed by the laboratory are also reported.

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Table D-6: Building 3180 Area Soil Sample Results						
Sample ID (Depth)	Lab Number	Picocuries per Gram \pm 2 Standard Deviations				
		Gross Alpha	Gross Beta	Co-60	Cs-137	Th-234
3180 A1 (3')	T0487	31 \pm 7	36 \pm 4	< 0.1	0.2 \pm 0.1	< 5
3180 A2 (3')	T0488	26 \pm 7	36 \pm 4	< 0.3	1.4 \pm 0.2	0.3 \pm 1.5
3180 A2 (3') - duplicate	T0488	--	--	< 0.1	1.3 \pm 0.2	< 5
3180 A3 (2.5')	T0489	18 \pm 6	34 \pm 4	0.4 \pm 0.1	1.3 \pm 0.2	< 4
3180 A3 (2.5') - duplicate	T0489	25 \pm 7 =	34 \pm 4	< 0.3	1.3 \pm 0.2	2.5 \pm 1.5
3180 B1 (2.5')	T0490	27 \pm 7	32 \pm 4	< 0.2	< 0.2	2.0 \pm 1.6
3180 B2 (1.5')	T0491	19 \pm 6	36 \pm 4	< 0.1	0.2 \pm 0.1	< 5
3180 B3 (2')	T0492	28 \pm 7	42 \pm 5	< 0.2	< 0.2	2.1 \pm 1.9
Faucet #1	T0493	13 \pm 5	10 \pm 3	< 0.2	0.4 \pm 0.1	< 2
Faucet #2	T0494	10 \pm 4	8 \pm 3	< 0.2	0.6 \pm 0.1	0.4 \pm 1.3

(3) Joint Material Sample. The joint material sample was analyzed by gamma spectrometry. The results of the gamma spectral analysis are presented in Table D-7.

Table D-7: Joint Material Sample Results				
Sample ID	Lab Number	Picocuries per Gram \pm 2 Standard Deviations		
		Co-60	Cs-137	Th-234
Joint Material	T0495	7.2 \pm 0.4	0.6 \pm 0.1	< 4
Joint Material-duplicate	T0495	6.4 \pm 0.5	0.5 \pm 0.2	< 2

e. Area of Alpha Field. Exposure rate measurements were made and soil samples were collected as described below. The eastern end of the parking lot area was gridded into 1 meter by 1 meter grids. Soil samples were collected from the open grass areas. The location of the grids and the sampling locations are displayed in Figure D-6.

(1) Instrumentation Surveys. The field instrumentation survey data was recorded on data sheets at the time of the surveys. The data sheets could not be located when writing this report. Therefore, no quantitative results are presented for these surveys.

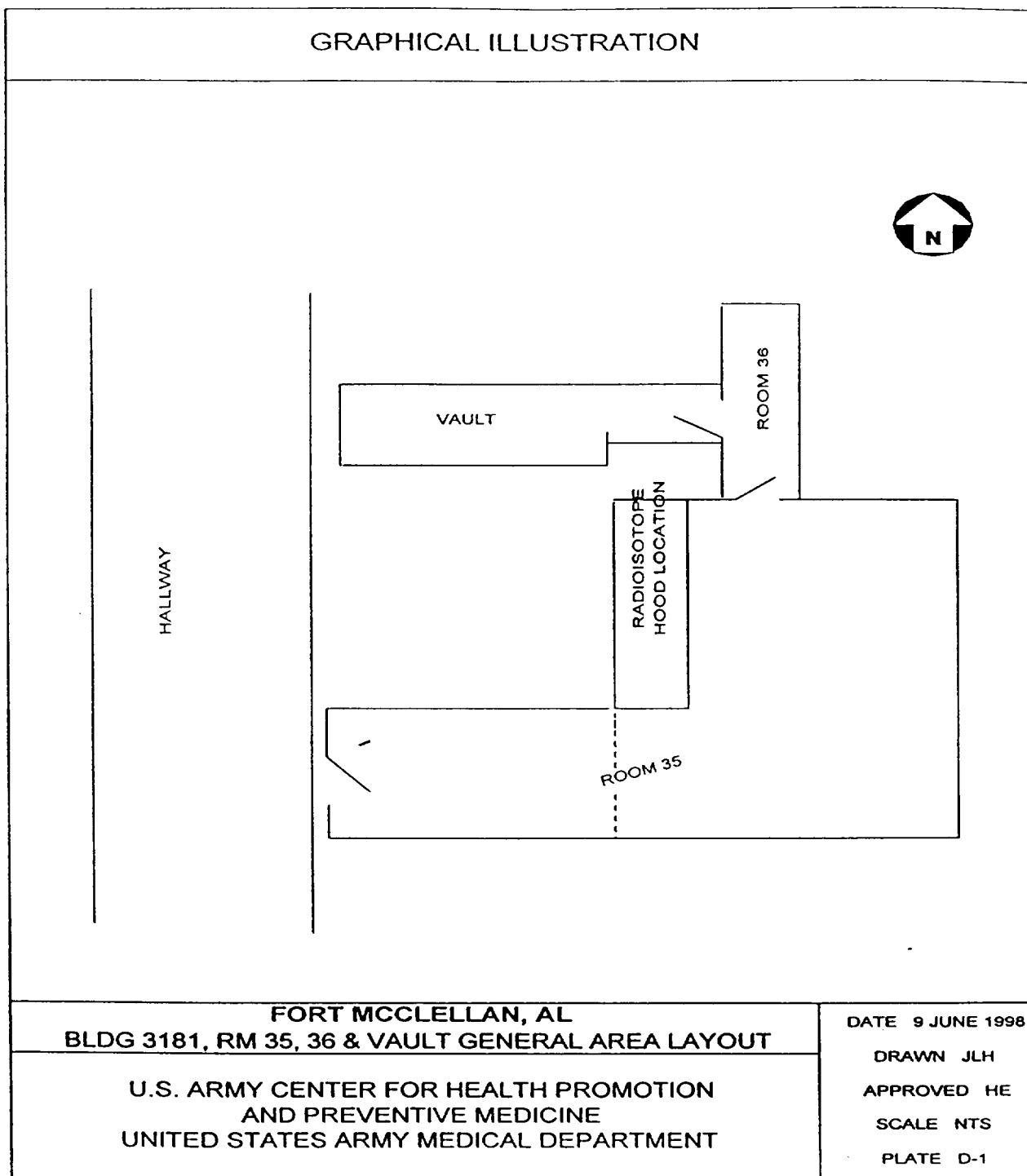
(2) Soil Sample Survey Results. Thirteen soil samples were collected from the two open grass areas. The soil core samples were collected from the surface to a depth of 1 foot. The soil core samples were approximately 1" in diameter. The soil samples were analyzed by the USAEHA Radiochemistry Analysis Branch. Analyses for gross alpha, gross beta, and gamma emitting radionuclides were performed. The MDA for the gross alpha analysis was 4 pCi/g and the MDA for the gross beta analysis was 3 pCi/g. Gamma spectral analysis results were reported for

Co-60, Cs-137 and Th-234, the progeny of U-238. All Alpha Field area soil sample results are presented in Table D-8 below. Duplicate analyses performed by the laboratory are also reported.

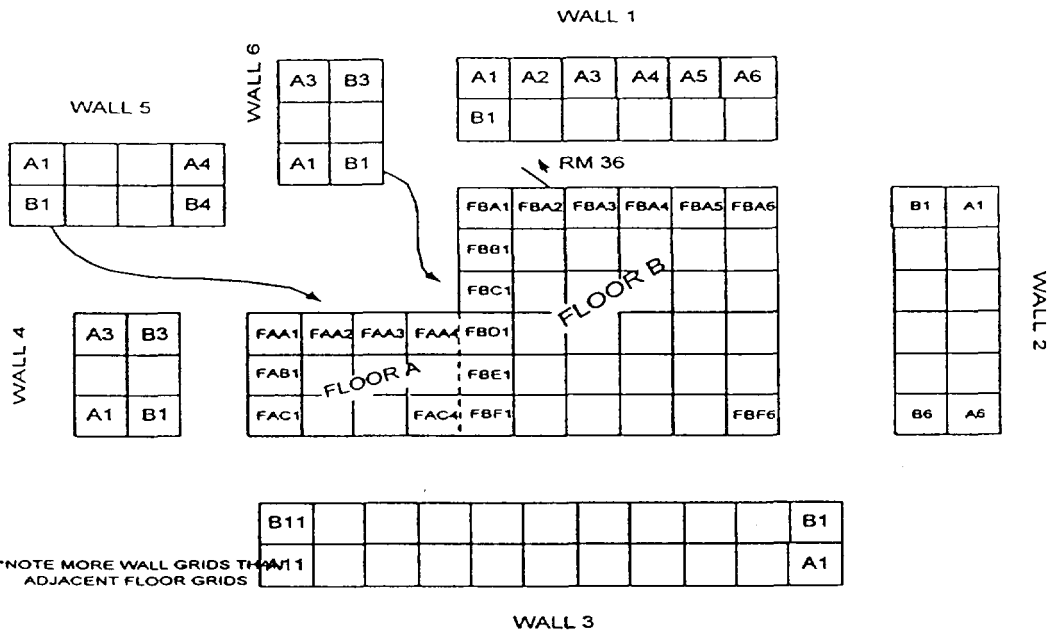
Table D-8: Alpha Field Area Soil Sample Results						
Sample ID	Lab Number	Picocuries per Gram \pm 2 Standard Deviations				
		Gross Alpha	Gross Beta	Co-60	Cs-137	Th-234
GA1 N1	T0496	30 \pm 7	35 \pm 4	< 0.1	< 0.1	< 5
GA1 N1 - duplicate	T0496	23 \pm 6	37 \pm 4	--	--	--
GA1 N2	T0497	27 \pm 7	34 \pm 4	< 0.2	< 0.2	3.7 \pm 1.6
GA1 N2 - duplicate	T0497	27 \pm 7	36 \pm 4	--	--	--
GA1 N3	T0498	27 \pm 7	27 \pm 4	< 0.1	< 0.1	< 5
GA1 N3 - duplicate	T0498	21 \pm 6	28 \pm 4	--	--	--
GA1 O1	T0499	24 \pm 6	38 \pm 4	< 0.2	< 0.2	2.5 \pm 1.8
GA1 O1 - duplicate	T0499	35 \pm 8	40 \pm 5	--	--	--
GA1 O2	T0500	27 \pm 7	33 \pm 4	< 0.1	< 0.1	< 4
GA1 O2 - duplicate	T0500	29 \pm 7	34 \pm 4	--	--	--
GA1 O3	T0501	34 \pm 8	31 \pm 4	< 0.2	< 0.2	1.7 \pm 1.5
GA1 O3 - duplicate	T0501	27 \pm 7	32 \pm 4	--	--	--
GA1 P1	T0502	30 \pm 7	27 \pm 4	< 0.1	< 0.1	< 5
GA1 P1 - duplicate	T0502	23 \pm 6	29 \pm 4	--	--	--
GA1 P2	T0503	21 \pm 6	19 \pm 3	< 0.2	< 0.1	1.2 \pm 1.5

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Table D-8: Alpha Field Area Soil Sample Results						
Sample ID	Lab Number	Picocuries per Gram \pm 2 Standard Deviations				
		Gross Alpha	Gross Beta	Co-60	Cs-137	Th-234
GA1 P2 - duplicate	T0503	24 \pm 6	22 \pm 4	--	--	--
GA1 P3	T0504	23 \pm 6	32 \pm 4	< 0.1	< 0.1	< 5
GA1 P3 - duplicate	T0504	25 \pm 6	30 \pm 4	--	--	--
GA2 A17	T0505	17 \pm 6	20 \pm 3	< 0.2	< 0.2	2.1 \pm 1.4
GA2 A18	T0506	26 \pm 7	20 \pm 3	< 0.1	< 0.1	< 4
GA2 A19	T0507	17 \pm 6	24 \pm 4	< 0.2	< 0.2	1.5 \pm 1.3
GA2 A20	T0508	23 \pm 6	23 \pm 4	< 0.1	< 0.1	< 4



GRAPHICAL ILLUSTRATION

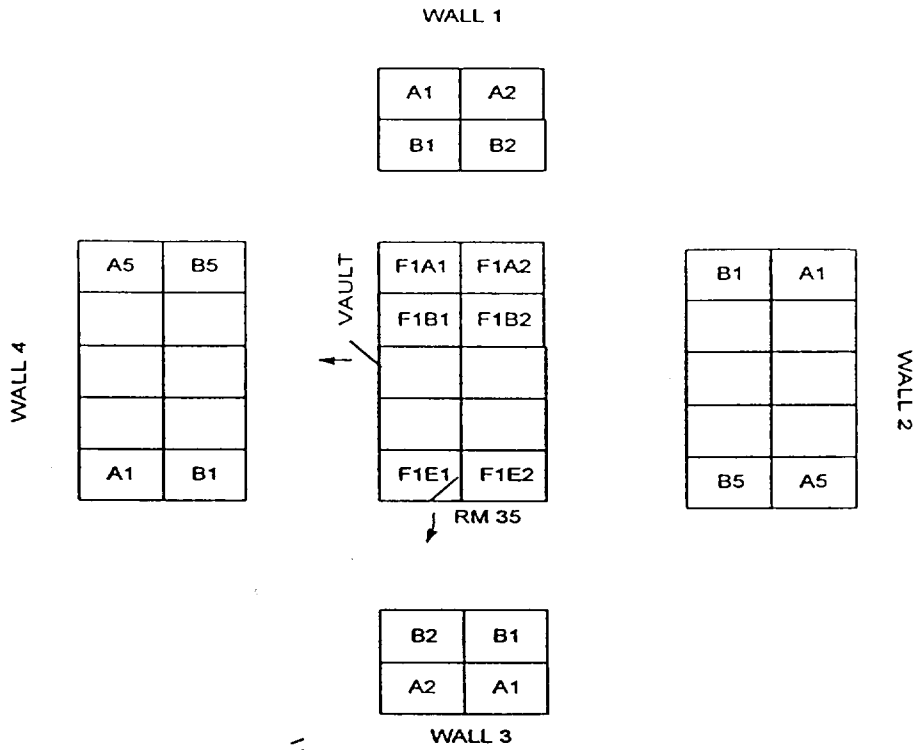


FORT MCCLELLAN, AL
 BLDG 3181, RM 35

U.S. ARMY CENTER FOR HEALTH PROMOTION
 AND PREVENTIVE MEDICINE
 UNITED STATES ARMY MEDICAL DEPARTMENT

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GRAPHICAL ILLUSTRATION



FORT MCCLELLAN, AL
 BLDG 3181, ROOM 36 LAYOUT

U.S. ARMY CENTER FOR HEALTH PROMOTION
 AND PREVENTIVE MEDICINE
 UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 10 JUNE 1998

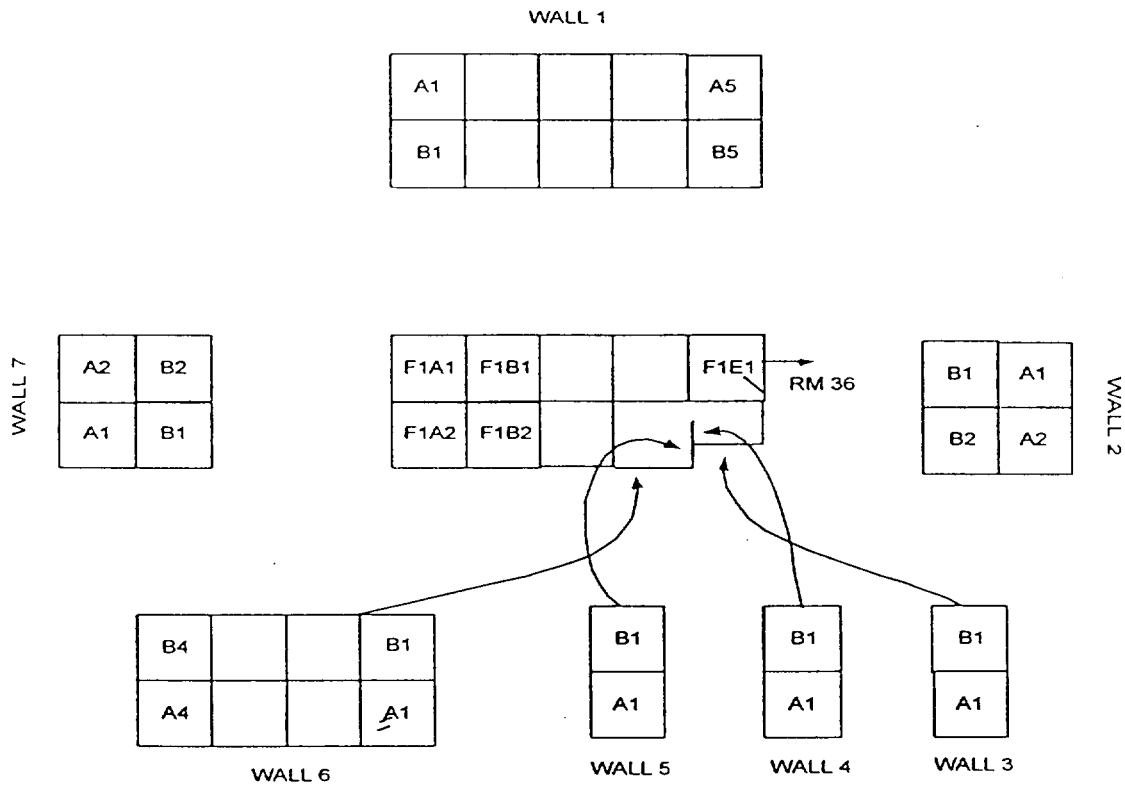
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PLATE D-3

GRAPHICAL ILLUSTRATION



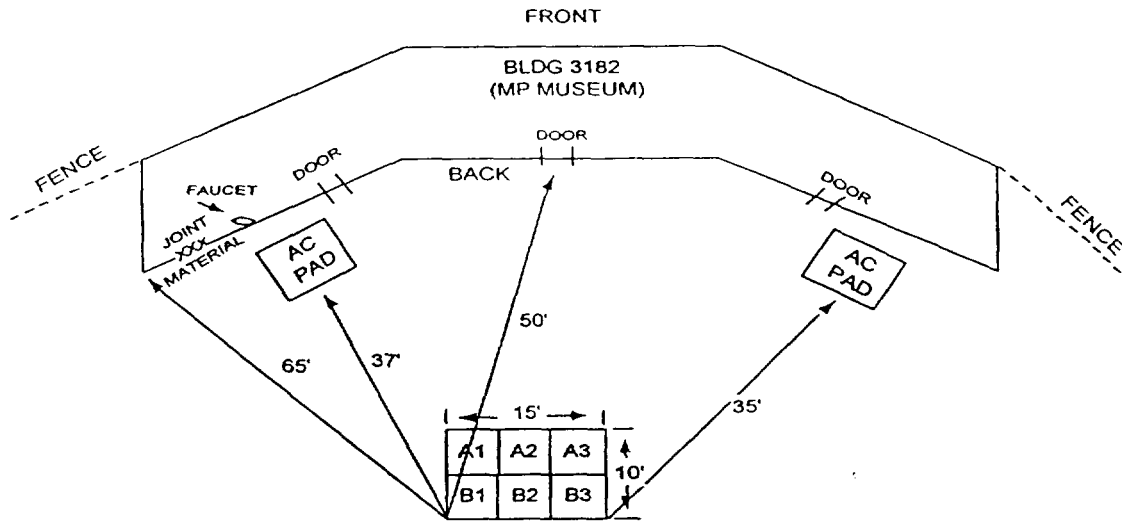
FORT MCCLELLAN, AL
 BLDG 3181, VAULT LAYOUT

U.S. ARMY CENTER FOR HEALTH PROMOTION
 AND PREVENTIVE MEDICINE
 UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 10 JUNE 1998

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GRAPHICAL ILLUSTRATION

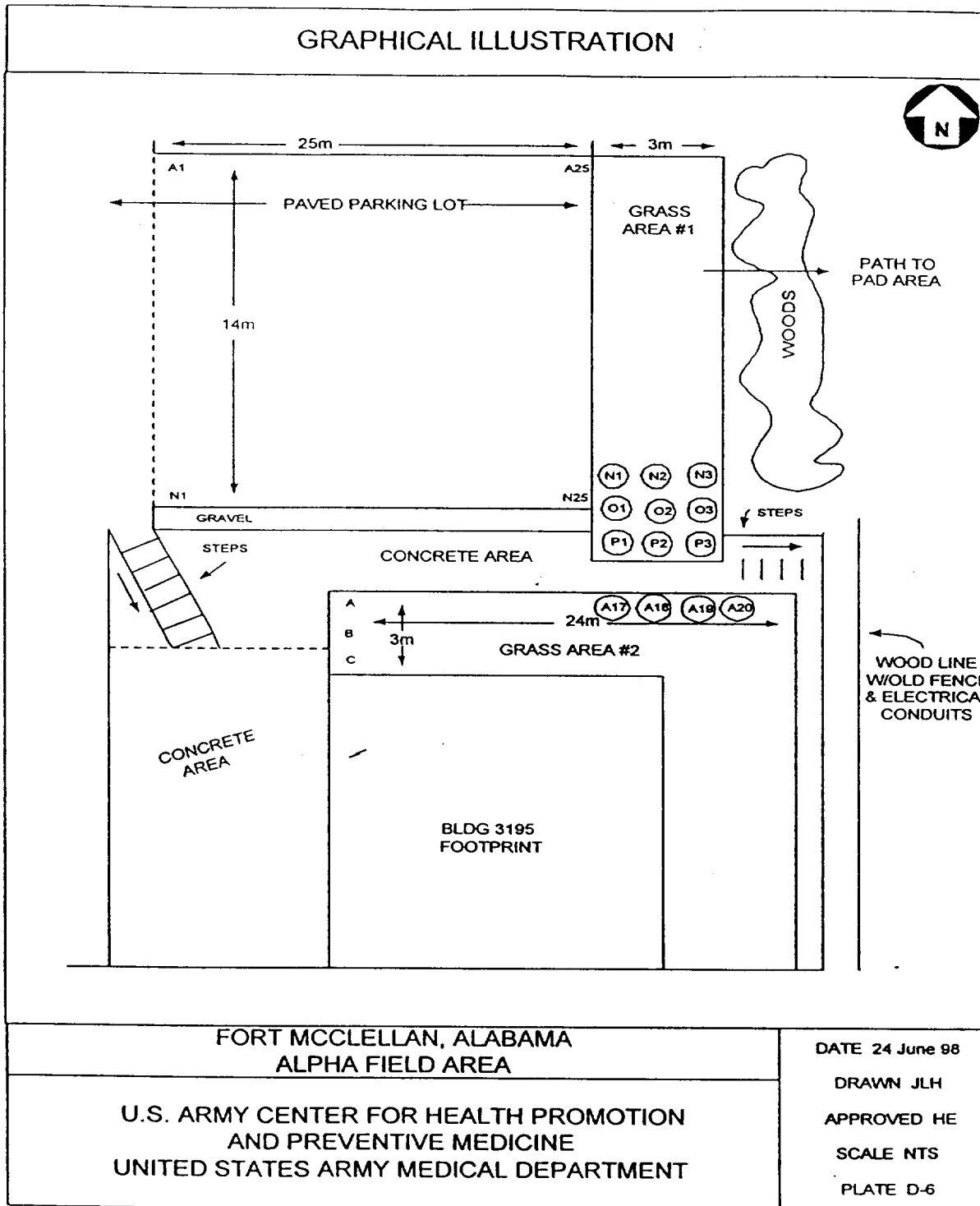


FORT MCCLELLAN, AL
 AREA OF BLDG 3180 SURVEYS

U.S. ARMY CENTER FOR HEALTH PROMOTION
 AND PREVENTIVE MEDICINE
 UNITED STATES ARMY MEDICAL DEPARTMENT

DATE 22 JUNE 1998

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Indust Radn Surv No. 27-MH-7748-98, USACMLS & Fort McClellan,
Fort McClellan, AL, 6-10 Apr 98