

ATTACHMENT 4

**NRC TERMINATION OF LICENSE, TRANSMITTAL AND
EXPLANATION OF AMENDMENT TO LICENSE LETTERS
AND INSPECTION REPORT**



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-3415

October 19, 1998

Commandant
ATTN: AZTM-CM-AHP
U.S. Army Chemical School
Ft. McClellan, Alabama 36205

SUBJECT: TERMINATION OF LICENSE NO. 01-02861-0401-02861-04 (REFERENCE:
CONTROL NO. 257737; DOCKET NO. 030-14759030-14759)

Dear Commandant:

On December 1, 1997, you contacted the U. S. Nuclear Regulatory Commission and indicated that you wished to terminate your NRC radioactive materials license. The NRC staff has reviewed your Allied Technology Group remediation and closeout survey report dated December 1996, Industrial Radiation Survey No. 27-MH-6999-97, Facility Close-out Verification Survey, Fort McClellan, AL, 17-22 August 1997 report dated February 6, 1998, July 16, 1998 memorandum providing additional sample analysis results, and NRC Form 314, Certificate of Disposition of Materials dated December 5, 1997. The NRC performed confirmatory surveys and observed decommissioning work in progress as documented in NRC Inspection Report Nos. 01-02861-04/97-01, 98-01, and 98-02, dated October 7, 1997, April 21, 1998, and May 22, 1998, respectively. Sample analysis results of soil, water, and clay samples obtained during these inspections are contained in the enclosure to this letter.

Based on its review, the staff has concluded that Buildings 3182 and 3192 and the surrounding fenced area at Fort McClellan, Alabama is suitable for unrestricted use in that residual radioactive material attributable to licensed activity does not exceed current NRC criteria.

If there are any errors or questions, please notify this office (ATTN: Ms. Diane Heim at (404) 562-4723) so that we can provide appropriate corrections and answers.

Sincerely,

A handwritten signature in black ink, reading "Orysia Masnyk Bailey".

Orysia Masnyk Bailey, License Reviewer
Division of Nuclear Materials Safety

Enclosures: 1. NRC Materials License Termination
2. Sample Analysis Results

cc w/encls: (See page 2)

cc w/encls:
Richard G. Button, Jr.
Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, GA 30365

James T. Williams
Division of Radiation Control
State of Alabama
Department of Public Health
201 Monroe Street, Suite 700
Montgomery, AL 36104

Lisa Kingsberry
Directorate of Environment
Bldg. 141A 13th Ave.
ATTN: ATZN-EM
Fort McClellan, AL 36205

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License No.
01-02861-04Docket or Reference No.
030-14759

Amendment No. 17

Commandant
U.S. Army Chemical School
ATTN: AZTM-CM-AHP
Ft. McClellan, Alabama 36205

In accordance with Certification of Disposition of Materials, dated December 5, 1997, License No. 01-02861-04, is hereby terminated.



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

ORYSIA MASNYK BAILEY

Date OCT 19 1998

By

Orysia Masnyk Bailey
Region II, Division of Nuclear Materials Safety
61 Forsyth Street, SW, Suite 23T85
Atlanta, GA 30303

SAMPLE ANALYSIS RESULTS
DEPARTMENT OF THE ARMY - FORT MCCLELLAN
MARCH 9-12, 1997

SOIL AND WATER GAMMA ANALYSIS FOR Co-60 AND Cs-137

LOCATION	Cs-137 picocuries per gram)	Co-60 (picocuries per gram)
Grid M-18 (soil)	0.15 ± 0.02	0.10 ± 0.02
Grid M-28 (soil)	0.46 ± 0.02	<0.03
Grid P-20 (soil)	0.169 ± 0.013	0.025 ± 0.008
Grid K-21 (soil)	0.51 ± 0.02	0.18 ± 0.02
Grid H-17 (soil)	0.235 ± 0.015	0.62 ± 0.02
Grid K-26 (soil)	0.208 ± 0.015	0.029 ± 0.013
left side museum door (soil)	5.17 ± 0.05	0.19 ± 0.02
middle museum door (soil)	1.90 ± 0.04	0.30 ± 0.02
Grid Z-18 (soil)	0.044 ± 0.010	0.03 ± 0.02
Well #2 depth 13 feet (water)	< 0.05	<0.04
Well #6 depth 17 feet (water)	<0.04	< 0.05
Well #11 depth 2 feet (water)	<0.03	<0.04
Well #7 depth 2 feet (water)	<0.04	<0.04
hot cell trench (clay)	0.035 ± 0.02	0.15 ± 0.02
Summerall Gate (dirt)	<0.02	0.094 ± 0.010

Two soil samples were obtained on April 15, 1998, for analysis for Sr-90 contamination. These were taken from the area where Building 3180 stood. Sample #1 contained 0.02 ± 0.51 picocuries per gram of soil of Sr-90, and sample #2 contained 0.08 ± 0.46 picocuries per gram.



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

July 27, 2000

Department of the Army
ATTN: Colonel Patricia L. Nilo
Commandant
U. S. Army Chemical School
Fort Leonard Wood, Missouri 65473-8926

SUBJECT: TRANSMITTAL AND EXPLANATION OF AMENDMENT TO LICENSE NO. 01-02861-05 (REFERENCE CONTROL NO. 258979; DOCKET NO. 030-17584)

Dear Colonel Nilo:

Enclosed please find Amendment No. 15 to your NRC materials license. This action was taken in response to your letter dated June 12, 2000, providing additional survey data obtained at the former Chemical School (Building 1081) at Fort McClellan, Alabama. This information, and the information provided in your March, 2000 Final Survey Report, was compared to the NRC's data obtained during an inspection completed on October 1, 1999. The inspection results were documented in Inspection Report No. 01-02861-05/99-01 issued on March 1, 2000. Additional survey results from the survey conducted in Building 1081 are contained in Enclosure 2 to this letter. The results of this review confirm that Building 1081 meets the criteria for unrestricted release delineated in 10 CFR 20.1402. Accordingly it has been removed from your license. A survey of Alpha Field was not required since the only licensed materials used there were plated U-233 sources and your report indicated that there was no contamination found when the plates were tested.

The following is an update of the remaining issues concerning the burial mound at Pelham Range.

1. The Environmental Assessment for the Decommissioning Plan for the contaminated soil in the burial mound at Pelham Range is under final review and will be published in the Federal Register for public review and comment shortly.
2. We are awaiting your response to our letter dated May 4, 1999. In it we asked what assurance you can provide that contamination is limited to the area of the burial mound. We understand that you plan to address this concern by performing an aerial fly over of the area and have received your fax dated July 12, 2000, which delineates the areas to be considered. Please ensure that the area to be surveyed contains the areas used for radiological exercises at the Pelham Range.
3. We have received your letter dated July 6, 2000, containing information regarding the hydro geologic conditions at the Pelham Range. It will be used to help determine whether the groundwater in the area has been affected by the burial mound.
4. We are also awaiting your response to our letter dated March 1, 2000, asking you to discuss your method of securing any licensed material that may be removed from the mound or accumulated as the work continues.

We have reviewed your November, 1999, Radiological Historical Assessments of the Pelham Range and Main Post as well as your March, 2000, Commodity Site Survey Report. Based on the information provided in these documents and previous NRC inspection activities at Fort McClellan we have determined that the following areas identified in the Commodity Site Survey Report do not require additional attention from the NRC; Buildings 337, 338, 339, 341, 3181, 345, 335, 228, 303-A, 812-1/2, 257, 4416, 256, 3182, and 350, Bromine Field, and Alpha Field. We have no further radiological concerns regarding the use or control of these areas.

No further action is required based on the adequacy and thoroughness of your final surveys, your conservative assessment of the appropriate MARSSIM Class of the areas to be surveyed, your findings that no residual contamination remained, and for the following reasons.

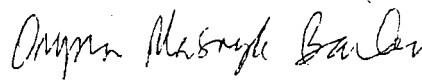
1. Inspectors from the Alabama Department of Radiological Safety and the Federal Environmental Protection Agency were present during the final survey of Building 3181, and based on discussions with them, and review of your report, we have determined that the survey was appropriate and adequate.
2. The materials used in Buildings 228, 256, 257, 303A, 335, 337, 338, 339, 341, 345, 350, 812-1/2, and 4416 were in sealed source form with no history of leaking or contamination or were material not regulated by the NRC.
3. The material used at Bromine Field, Br-82, has a half life of 2.4 days, no contamination can remain, and no survey is required.

We have received your Sampling Plan dated July 20, 2000 for the remaining areas to be surveyed as follows: Buildings T-810, 811, 812, 836 and 837 which housed the original Chemical School in the 1950s; three additional burial or use sites in the Rattlesnake Gulch area, two near the Summerall Gate area and one in the northeast corner of the Anniston Community Center Property; a room in Building 3182, and a location at Range 25 which was used for the testing of prototype actuators.

We will observe the decommissioning and survey activities as time and work load permit. Please advise us if you deviate from the schedule provided in the Sampling Plan.

If you have any questions please call me at (404) 562-4739.

Sincerely,



Orysia Masnyk Bailey, License Reviewer
Division of Nuclear Materials Safety

Enclosures: 1. Amendment No. 15
License No. 01-02861-05
2. Building 1081 Survey Results

cc w/encls: (See page 3)

cc w/encls:

Richard G. Button, Jr.
Environmental Protection Agency
345 Courtland Street, N.E.
Atlanta, GA 30365

James T. Williams
Division of Radiation Control
State of Alabama
Department of Public Health
201 Monroe Street, Suite 700
Montgomery, AL 36104

Lisa Kingsberry
Directorate of Environment
Bldg. 141A 13th Ave.
ATTN: ATZN-EM
Fort McClellan, AL 36205

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee		In accordance with the letter dated March 20, 2000	
1. Department of the Army		3. License No. 01-02861-05 is amended in its entirety to read as follows:	
2. U. S. Army Chemical School Fort Leonard Wood, Missouri 65473-8926		4. Expiration date February 28, 2002	
		5. Docket No. 030-17584	
6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license	
A. Cobalt 60	A. Residual contamination in soil	A. 296 megabequerels (MBq) (8 millicuries)	
B. Cesium 137	B. Residual contamination in soil	B. 18.5 MBq (0.5 millicuries)	
9. Authorized use:			
A. and B. For possession of residual contamination and to perform decontamination and decommissioning activities.			

CONDITIONS

10. Licensed material shall be used only at the U. S. Army Chemical School, Building 1081, Fort McClellan, Alabama.
11. The Radiation Protection Officer for the activities authorized by this license is John W. May, and in his absence, John E. Aperans, Ronald DeGumbia, Robert L. Stephens, and Thomas Robinson, Jr.
12. Licensed material shall be used by, or under the supervision of individuals designated by the licensee's Radiation Safety Committee and trained in accordance with the application dated November 29, 1990 and the letter with attachments dated February 6, 1992. The licensee shall maintain records of the training and experience of individuals designated as authorized users.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License No.
01-02861-05Docket No.
030-17584

Amendment No. 15

13. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- A. Application dated November 29, 1990
 - B. Letter dated August 29, 1991
 - C. Letter with attachments dated February 6, 1992
 - D. Letter dated May 18, 1998 (changes alternate Radiation Protection Officers)
 - E. Letter dated May 28, 1998 (adds Cobalt and Cesium contamination possession)
 - F. Letter dated July 16, 1998 (additional information)
 - G. Letter dated March 20, 2000 [Final survey for Building 1081 and Alpha Field]
 - H. Letter dated June 12, 2000 [Additional information, deletes Building 1081 and Alpha Field from license, deletes "Broad Scope" use of licensed material, license for possession and decontamination only]

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

ORYSIA MASNYK BAILEY

JUL 27 2000

Date _____

By

Region II, Division of Nuclear Materials Safety
61 Forsyth Street, SW, Suite 23T85
Atlanta, GA 30303

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
Building 1081 Room 0				
4N	79	0	-0.1	-1.3
6M	150	0	-0.1	0.7
7L	32	0	-0.1	0.7
6N	150	-1	0.9	-1.3
5N	339	0	-0.1	-0.3
9H	336	-1	-0.1	-0.3
9I	107	0	-0.1	-1.3
8G	382	0	-0.1	0.7
9E	161	-1	-0.1	1.7
8D	7	0	-0.1	-1.3
10F	232	0	0.9	1.7
7G	68	-1	0.9	-0.3
5B	50	-1	-0.1	-0.3
4C	89	-1	-0.1	-0.3
4A	107	0	-0.1	1.7
6B	196	0	-0.1	-0.3
2D	207	-1	-0.1	-0.3
2E	139	-1	-0.1	2.7
3G	286	-1	-0.1	3.7
3I	218	-1	0.9	-1.3
1I	171	-1	-0.1	-1.3
4D	14	0	-0.1	1.7
5E	57	-1	-0.1	-1.3
6F	-46	-1	-0.1	-0.3
7G	79	-1	0.9	-0.3

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
6I	1282	-1	-0.1	2.7
5K	32	-1	-0.1	-0.3
5I	657	-1	-0.1	-0.3
6H	-57	-1	-0.1	-0.3
6D	504	0	-0.1	-0.3
BUILDING 1081 PREP LAB				
Inside Fume Hood	-50	0	-0.1	17.70
Floor Surrounding Fume Hood	scan only	--	-0.1	1.7
6B	118	0	-0.1	3.7
4C	175	0	-0.1	-0.3
9C	257	-2	-0.1	2.7
13F	268	2	-0.1	-0.3
12H	361	-1	-0.1	-0.3
14I	307	0	0.9	-1.3
9M	221	3	-0.1	1.7
10L	61	2	0.9	-0.3
6M	314	3	-0.1	0.7
2I	211	2	-0.1	-1.3
4I	14	1	-0.1	-0.3
1G	100	0	-0.1	-1.3
5F	0	0	-0.1	2.7
2D	239	-1	-0.1	0.7
5E	-57	0	-0.1	-1.3
8F	-21	-1	-0.1	-1.3
9I	79	-1	-0.1	1.7
6K	-14	-1	-0.1	0.7

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
10D	-50	-1	-0.1	0.7
8E	557	-1	-0.1	-1.3
8I	579	-1	-0.1	-0.3
6K	575	0	-0.1	0.7
BUILDING 1081 AREA V -VAULT				
9G	1411	-1	-0.1	2.7
9J	-96	0	0.9	-0.3
6I	-21	0	-0.1	-0.3
4D	-4	0	-0.1	0.7
6E	18	1	-0.1	-0.3
11I	7	-1	0.9	-0.3
13G	179	0	-0.1	-1.3
9F	182	0	-0.1	-1.3
9I	146	0	-0.1	-1.3
8M	29	0	-0.1	0.7
5L	36	0	-0.1	-0.3
2I	221	0	0.9	-0.3
3F	61	1	-0.1	1.7
4B	154	1	-0.1	-1.3
7F	643	0	-0.1	2.7
9G	-61	0	-0.1	-0.3
8I	557	0	-0.1	0.7
BUILDING 1081 - AREA P - LAB 1				
16D	43	0	0.9	3.7
15G	68	-1	-0.1	0.7
14F	18	-1	-0.1	1.7
11H	7	-1	-0.1	0.7

Enclosure 2

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
12E	39	-1	-0.1	-1.3
10G	57	-1	-0.1	-1.3
7H	57	-1	-0.1	0.7
6J	75	-1	-0.1	-0.3
6F	100	-1	-0.1	-0.3
4G	107	-1	-0.1	-1.3
10A	246	-1	-0.1	1.7
12B	246	0	-0.1	1.7
14C	232	1	-0.1	-0.3
15B	293	1	-0.1	2.7
6L	114	-1	0.9	-0.3
7K	296	-1	-0.1	-0.3
13L	296	0	-0.1	-1.3
16M	271	0	-0.1	-1.3
19H	418	0	-0.1	0.7
18D	243	0	-0.1	0.7
2I	296	-1	-0.1	-1.3
3D	250	-1	-0.1	0.7
4F	571	-1	-0.1	0.7
8H	579	-1	-0.1	1.7
12D	425	0	-0.1	5.7
15F	650	0	-0.1	-0.3
14I	582	0	-0.1	-0.3
BUILDING 1081 - AREA Q - LAB HALLWAY				
5E	-14	0	-0.1	0.7
8D	61	-1	-0.1	-0.3
11D	-143	0	-0.1	1.7

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
15E	-46	-1	-0.1	1.7
17B	171	0	-0.1	1.7
7F	50	-1	-0.1	-1.3
7B	207	-1	-0.1	-0.3
10C	121	-1	-0.1	-1.3
BUILDING 1081 - AREA I - JANITOR'S CLOSET				
3C	96	0	-0.1	0.7
3D	-14	-1	-0.1	-0.3
4G	311	0	-0.1	-1.3
5C	161	0	0.9	-0.3
3D	146	0	-0.1	-0.3
2D	-232	-1	-0.1	0.7
BUILDING 1081 - LAB #4				
7E	46	-1	-0.1	0.7
3D	4	-1	-0.1	-1.3
5A	150	0	-0.1	-0.3
3B	129	0	-0.1	0.7
2F	157	3	-0.1	-0.3
3I	304	0	-0.1	-0.3
7H	157	-1	-0.1	0.7
10E	214	-1	0.9	0.7
14B	111	-1	-0.1	-1.3
7C	207	-2	-0.1	-1.3
2G	264	3	-0.1	-0.3
6L	164	-1	-0.1	0.7
13M	393	-1	-0.1	1.7
18H	286	-1	0.9	-0.3

Enclosure 2

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
14H	61	-2	-0.1	-1.3
10J	-18	-1	-0.1	-0.3
7E	-86	-1	-0.1	-1.3
13E	-36	-2	-0.1	-0.3
BUILDING 1081 - LAB #2				
13F	157	-1	-0.1	-0.3
12Q	196	-1	.09	.07
10Q	-82	-2	-0.1	-0.3
8W	243	-1	-0.1	-1.3
7S	100	-1	-0.1	-0.3
3R	129	-1	-0.1	-0.3
5R	-32	-2	-0.1	-1.3
6O	-71	-1	-0.1	-1.3
2G	264	0	-0.1	0.7
6F	-118	-1	-0.1	2.7
8C	264	-1	0.9	3.7
9F	7	-1	0.9	1.7
7H	-21	-1	-0.1	-1.3
BUILDING 1081 - LAB #7				
7E	-14	-2	-0.1	0.7
1E	161	-1	-0.1	-1.3
4F	-18	-1	-0.1	-0.3
9L	200	-1	0.9	-0.3
10I	-54	-1	-0.1	-0.3
11F	43	-2	-0.1	0.7
BUILDING 1081 VAULT				
9G	429			

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
9G	364			
LSC SMEARS FOR H-3				
WATER BACKGROUND			138	
9G			13	
9J			-4	
6I			-51	
4D			42	
6E			-5	
9F			5	
5L			7	
9G			27	
8H			4	
BUILDING 1081 - TANK ROOM				
5D	96	-3	-0.1	4.7
7E	293	-3	-0.1	2.7
7C	75	-3	-0.1	4.7
BUILDING 2281- LAB #1				
NORTH WALL - 1 LOW	-136	-3	-0.1	2.7
NORTH WALL - 5 LOW	339	-1	-0.1	2.7
NORTH WALL - 8 LOW	-30	-4	-0.1	8.7
WEST WALL - A LOW	-171	-6	-0.1	2.7
WEST WALL - C LOW	-150	-5	-0.1	2.7
WEST WALL - F LOW	-86	-5	-0.1	5.7
SOUTH WALL - 8 LOW	500	1	0.9	4.7
SOUTH WALL - 5 LOW	532	-1	-0.1	1.7
SOUTH WALL - 2	707	0	-0.1	1.7
EAST WALL - G	671	2	-0.1	0.7

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
EAST WALL - D	729	3	-0.1	3.7
EAST WALL - A	764	-1	-0.1	5.7
BUILDING 22 81 - HP LAB				
NORTH - RIGHT OF LIGHT SWITCH	-243	-3	-0.1	-1.3
WEST WALL - 8 FT SOUTH - LOW	-239	-5	-0.1	0.7
WEST WALL - 14 FT SOUTH	-96	-6	-0.1	0.7
WEST WALL - 22 FT SOUTH	-286	-8	1.9	1.7
SOUTH WALL - BETWEEN WINDOWS	-343	-8	-0.1	-0.3
EAST WALL - 20 FT SOUTH	575	-1	-0.1	-0.3
EAST WALL - 14 FT SOUTH	-46	-1	-0.1	-0.3
EAST WALL - 6 FT SOUTH	464	0	-0.1	0.7
FLOOR - 6 FT NORTH - 3 FT EAST	-164	7	-0.1	-0.3
FLOOR - 10 FT NORTH - 4 FT EAST	-211	-5	-0.1	-1.3
FLOOR - 18 FT NORTH - 1 FT EAST	-136	-4	-0.1	1.7
FLOOR - 22 FT NORTH - 4 FT EAST	-114	-6	-0.1	-0.3
FLOOR - 20 FT NORTH - 8 FT EAST	-246	-5	0.9	2.7
FLOOR - 12 FT NORTH - 6 FT EAST	-239	-6	-0.1	2.7
BUILDING 2281 - DECON ROOM A				
WEST WALL - 4 FT SOUTH	246	-6	-0.1	-0.3
WEST WALL - 22 FT NORTH	-143	-7	-0.1	5.7

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
SOUTH WALL - 5 FT EAST - HIGH	-93	-7	-0.1	-0.3
SOUTH WALL - 16 FT EAST - LOW	161	-4	-0.1	-0.3
SOUTH WALL - 22 FT EAST - LOW	161	-6	-0.1	1.7
EAST WALL - 6 FT NORTH	-179	-5	-0.1	-0.3
EAST WALL - 16 FT NORTH	-293	-5	-0.1	-0.3
EAST WALL - 22 FT NORTH	-246	-4	-0.1	-0.3
EAST WALL - XX FT NORTH	-239	-3	-0.1	-0.3
NORTH WALL - 3 FT EAST	489	-3	-0.1	-0.3
NORTH WALL - 8 FT WEST	621	-3	-0.1	0.7
BUILDING 2281 - DECON ROOM B				
WEST WALL - 2 FT SOUTH	-161	-4	-0.1	-0.3
WEST WALL - 12 FT SOUTH	-407	-4	1.9	5.7
WEST WALL - 20 FT SOUTH	-225	-4	-0.1	-0.3
WEST WALL - 24 FT SOUTH	-279	-4	-0.1	1.7
SOUTH WALL - 4FT WEST	-186	06	-0.1	-0.3
SOUTH WALL - 4 FT NORTH	-425	-4	-0.1	-0.3
EAST WALL - 10 FT NORTH	-171	-6	-0.1	0.7
EAST WALL - 20 FT NORTH	-68	-4	0.9	2.7
EAST WALL - 24 FT NORTH	-161	-4	-0.1	0.7

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
EAST WALL - 28 FT NORTH	-207	-4	-0.1	-0.3
NORTH WALL - 4 FT EAST	489	-2	-0.1	2.7
NORTH WALL - 16 FT EAST	189	-2	-0.1	-0.3
BUILDING 2281 - PREP LAB				
NORTH WALL - 3 FT EAST	832	-4	-0.1	0.7
NORTH WALL - 15 FT EAST	432	-5	-0.1	1.7
WEST WALL - 7 FT SOUTH	-132	-4	-0.1	-0.3
WEST WALL - 14 FT SOUTH	-296	-5	-0.1	-0.3
WEST WALL - 23 FT SOUTH	-239	-5	-0.1	2.7
SOUTH WALL - 6 FT EAST	118	-5	-0.1	-0.3
SOUTH WALL - 15 FT EAST	-82	-5	-0.1	-0.3
EAST WALL - 2 FT NORTH	757	-4	-0.1	0.7
EAST WALL - 7 FT NORTH	800	-4	-0.1	-0.3
EAST WALL - 13 FT NORTH	-61	-3	0.9	-0.3
EAST WALL - 23 FT NORTH	564	2	-0.1	-0.3
BUILDING 2281 - LAB 2				
T1	-332	-5	-0.1	-1.3
S1	-75	-5	-0.1	-1.3
M2	-396	-4	-0.1	-1.3
L6	-407	-3	-0.1	-1.3
R9	-143	-3	-0.1	-0.3
R11	39	-3	-0.1	0.7
O1	-46	-6	-0.1	-0.3

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
L11	-300	-4	-0.1	-1.3
N9	-261	-4	-0.1	0.7
BUILDING 2281 - HALLWAY OUTSIDE LAB 2				
X11	-307	-3	-0.1	-1.3
V9	-229	-4	-0.1	0.7
BB11	493	-3	-0.1	-0.3
FF10	-64	-3	-0.1	0.7
BUILDING 2281 - LAB 2 OFFICE				
V5	-289	-5	-0.1	-0.3
U4	-282	-4	-0.1	-0.3
V1	-71	-4	0.9	0.7
U8	-179	-6	-0.1	2.7
X7	421	-3	-0.1	2.7
X6	564	-4	0.9	-1.3
X3	400	-4	-0.1	0.7
U1	-257	-4	-0.1	-0.3
U4	-336	-6	-0.1	1.7
V1	-139	-5	-0.1	0.7
BUILDING 2281 - VAULT				
JJ5 TOP	150	-3	-0.1	-1.3
JJ7 BOTTOM	754	-3	-0.1	1.7
JJ5 BOTTOM	-79	4	0.9	0.7
LL6 BOTTOM	-29	-2	-0.1	-1.3
LL8 BOTTOM	-314	-2	-0.1	0.7
LL8 TOP	-139	-2	-0.1	-1.3
LL8 FLOOR	-164	-3	-0.1	0.7
JJ5 FLOOR	-64	-2	-0.1	-1.3

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
DD1	582	-4	-0.1	2.7
1AA BOTTOM	704	3	0.9	-0.3
1AA TOP	457	3	0.9	-0.3
3Y BOTTOM	486	3	-0.1	2.7
4Y BOTTOM	436	-4		-1.3
5Y TOP	-207	2	-0.1	0.7
BB8 TOP	132	-4	-0.1	-0.3
CC8 BOTTOM	-354	-4	-0.1	-0.3
Y8 BOTTOM	471	3	0.9	1.7
GG8 BOTTOM	582	3	-0.1	-1.3
II5 BOTTOM	-221	2	-0.1	-0.3
II2 BOTTOM	-286	4	-0.1	-0.3
II1	-136	5	-0.1	-0.3
BUILDING 2281 - LAB 2				
A8	136	0	-0.1	2.7
A2	-7	-2	-0.1	-1.3
D1	-189	-2	0.9	0.7
J1	-318	-4	-0.1	0.3
H1	57	-1	-0.1	-0.3
K-6	-504	-4	0.9	1.7
G-11	-64	-2	-0.1	0.7
J-11	-236	-2	-0.1	-0.3
J-7	-296	-4	-0.1	-1.3
I-3	-111	-1	-0.1	0.7
F-1	-32	-2	-0.1	0.7
G-5	-107	-3	-0.1	0.7
C-9	-32	-2	-0.1	-1.3

Enclosure 2

Location/Grid	Fixed Point Measurement (dpm/100 cm ²)	uRem/Hr at one meter	Wipe Test Alpha (dpm/100 cm ²)	Wipe Test Beta (dpm/100 cm ²)
A-3 TOP	-136	-2	-0.1	0.7
A-3 BOTTOM	-196	-2	-0.1	0.7
A-9	218	-2	-0.1	1.7
C-11	-86	-1	-0.1	0.7

Enclosure 2



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW. SUITE 23T85
ATLANTA, GEORGIA 30303-8931

March 9, 2001

Department of the Army
ATTN: Colonel Patricia L. Nilo
Commandant
U.S. Army Chemical School
Fort Leonard Wood, Missouri 65473-8926

SUBJECT: NRC INSPECTION REPORT 01-02861-05/01-01

Dear Colonel Nilo:

On February 20-22, 2001, the NRC completed an inspection and confirmatory survey at several locations at the former site of the Army Chemical School in Fort McClellan, Alabama. These locations are those areas where NRC licensed material was used as described in your report, HQ, OSC Project Number USA 99-100, dated October 2000. These areas included Buildings 3182, 3185, T-810, T-811, T-812, and T-837, the foundation of the demolished Building T-836, and areas identified by you as the original Rattlesnake Gulch area and Chemical School Radiological Burial Grounds.

During the inspection records were reviewed, procedures were discussed with personnel, and direct confirmatory measurements were taken. The inspectors also obtained smears for removable contamination assessment. Based on these reviews, discussions, and measurements, no violations were identified. Survey and smear results are contained in the enclosed report.

Based on its review, the staff has concluded that the areas delineated above meet the criteria for unrestricted use described in 10 CFR 20.1402. The remaining area of concern at Fort McClellan is the Pelham Range Burial Mound and the need to ensure that no residual contamination remains in other areas of the Range, including any impact on the ground water.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records, (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Should you have any questions concerning this letter or report, please contact us.

Sincerely,



Anne T. Boland, Acting Chief
Materials Licensing and Inspection Branch 1
Division of Nuclear Materials Safety

Docket No. 030-17584
License No. 01-02861-05

Enclosure: NRC Inspection Report
No. 01-02861-05/01-01

cc w/encl:
Lloyd Generette
Environmental Protection Agency
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James T. Williams
Division of Radiation Control
State of Alabama
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Fort McClellan, AL 36205-5000

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 030-17584

License No.: 01-02861-05

Report No.: 01-02861-05/21-01

Licensee: Department of the Army

Location: Fort McClellan, Alabama

Date: February 20-22, 2001

Inspectors: Orysia Masnyk Bailey, Health Physicist

Accompanying Personnel: Jeff Griffis, Co-op Student
Andy Miller, CHP, Health Physicist
Anita Turner, Ph.D., Health Physicist

Approved by: Anne T. Boland, Acting Chief
Materials Licensing and Inspection Branch 1
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

DEPARTMENT OF THE ARMY
FORT MCCLELLAN, ALABAMA
NRC INSPECTION REPORT NO. 01-02861-05/21-01

This special, announced inspection was conducted to evaluate the licensee's closeout surveys in support of releasing Buildings 3182, 3185, T-810, T-811, T-812, and T-837, the foundation of the demolished Building T-836, and areas identified by the licensee as the original Rattlesnake Gulch area and Chemical School Radiological Burial Grounds as described in the Army's report, HQ, OSC Project Number USA 99-100, dated October 2000. The release criteria were those contained in 10 CFR 20.1402.

The confirmatory fixed point measurements and smears for removable contamination were at or near background levels and were well below release limits. The NRC survey results were comparable with the results documented in the Army's survey report. The staff has concluded that the areas described in this report are acceptable for release for unrestricted use.

Attachments:

List of Persons Contacted
Inspection Procedures Used
Survey Instruments Used
Confirmatory Survey Results

REPORT DETAILS

1. Scope

This special, announced inspection was conducted to evaluate the licensee's closeout surveys in support of releasing Buildings 3182, 3185, T-810, T-811, T-812, and T-836, and areas identified by the licensee as the original Rattlesnake Gulch area and Chemical School Radiological Burial Grounds as described in the Army's report, HQ, OSC Project Number USA 99-100, dated October 2000. The method used for the NRC confirmatory survey was that described in NUREG/CR-5849, "Manual for Conducting Radiological Surveys in Support of License Termination," published in June 1992.

The release criteria were those contained in 10 CFR 20.1402. A site is considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a Total Effective Dose Equivalent (TEDE) to an average member of the critical group that does not exceed 25 mrem per year, including that from groundwater sources of drinking water, and that residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA). The critical group means the group of individuals reasonably expected to receive the greatest exposure to residual radioactivity for any applicable set of circumstances. The surface contamination levels used were those published in the Federal Register, Volume 63, No. 222, on November 18, 1998 - Table 1- "Acceptable License Termination Screening Values of Common Radionuclides for Building Surface Contamination."

2. Observations and Findings

The Army performed a Historical Records Search as a part of its Base Realignment and Closure (BRAC) process. This records search identified several areas as having radiological issues (the storage and/or routine maintenance of Army radioactive commodities). A contractor, Allied Technology Group (ATG), was hired to survey, and remediate as necessary, any areas that had not been previously addressed. This work was detailed in a report, HQ, OSC Project Number USA 99-100, Select Commodity Site Areas, dated October 2000. The work was performed from August 1 through the 18, 2000. During the conduct of the survey, an NRC inspection was performed, this is documented in Report No. 01-12861-05/00-01. The surveys and remediation were performed in accordance with the approved decommissioning plan. The final report was reviewed and found to be complete and accurate. It demonstrated that the facility could be released for unrestricted use.

Nine potentially impacted areas were identified; Buildings 3182, 3185, T-810, T-811, T-812, and T-837, and three outdoor areas; the foundation for T-836, the original Rattlesnake Gulch area, and the Chemical School Radiological Burial Grounds. Although these last two areas were previously identified by records review and survey activity to be located elsewhere, the Army chose to be conservative and perform additional surveys in these new areas. Three additional areas were identified to be non-impacted areas,

based on records investigation, and no surveys were performed. These areas were the Radiological Survey Area, the Field Hot Cell area, and Range 25. These first two areas are included in a portion of the base that was previously surveyed and released, it was called the Rattlesnake Gulch Area in earlier Army and NRC reports. This is not to be confused with the "original Rattlesnake Gulch" area discussed in this report.

Although Building 3182, the site of an earlier Chemical School classroom and the Military Police Museum, was previously surveyed and released, elevated areas of activity were found in two rooms after the building was emptied as part of the BRAC process. The contractor remediated these areas and performed a final close out survey. The remediation consisted of some scabbling of the concrete floors in these rooms.

The "T" Buildings were the original Chemical School buildings used in the early 1950s. NRC review of records associated with this building indicate that isotope use in this building consisted of Co-60, short lived radionuclides, and sealed sources.

Building 3185 was historically used as a personnel decontamination center for training purposes. Earlier NRC review of records showed that the isotope used in this building was Bromine 82 with a half life of 35 hours.

The Army, conservatively, surveyed all buildings for Cesium 137, Radium 226, Cobalt 60 and Strontium 90.

The inspector performed confirmatory surveys and took smears for removable contamination. The inspectors selected approximately 10 percent of the licensee's fixed point measurements for verification and approximately 10 percent of the floor area was surveyed for "hot spots." The two rooms where elevated readings were found by the licensee were subjected to a 100 percent scan of the floor and one meter up the wall. In addition, the inspectors surveyed the sink surface and removed the trap. A sodium iodide (NaI) probe was lowered into the drain, no elevated readings were seen. Approximately 50 percent of the outdoor areas were scanned for elevated activity. The fixed point measurements were performed using either an Eberline ESP-2 or E-600 with a pancake probe. The scans were performed with an Eberline ESP-2 with a pancake or SPA-6 probes, or the E-600 with pancake probe. Fixed point contamination smears were counted on a Gamma 5000 Alpha/Beta counter.

The results of the measurements and smear analysis are given in the attachment to this report. Average background levels were 51 counts per minute (cpm) for the pancake probes for inside surfaces, and 1,700 cpm for the SPA-6 probe for outdoor areas. Average background smears were 5 cpm for beta.

3. Conclusions

The confirmatory fixed point measurements and smears for fixed and removable contamination were at or near background levels and were well below release limits. The NRC survey results were comparable with the licensee's results. Buildings 3182, 3185, T-810, T-811, T-812, and T-837, the foundation for Building T-836, and areas identified by the licensee as the original Rattlesnake Gulch area and Chemical School

Radiological Burial Grounds as described in the Army's report, HQ, OSC Project Number USA 99-100, dated October 2000 may be released for unrestricted use.

EXIT MEETING SUMMARY

The inspectors discussed the inspection results with the BRAC manager on February 22, 2001. The licensee was advised that there were no further radiological concerns with Buildings 3182, 3185, T-810, T-811, T-812, and T-837, the foundation for Building T-836, and areas identified by the licensee as the original Rattlesnake Gulch area and Chemical School Radiological Burial Grounds as described in the Army's report, HQ, OSC Project Number USA 99-100, dated October 2000, and that these areas could be released for unrestricted use. The inspectors advised that the remaining area of concern at Fort McClellan was the Pelham Range Burial Mound and the need to ensure that no residual contamination remained in other areas of the Range, including any impact on the ground water.

ATTACHMENT

LIST OF PERSONS CONTACTED

Department of the Army, Fort McClellan:

*Lisa Kingsberry, Base Relocation and Closure Coordinator
Ron Levy, Environmental Manager

Environmental Protection Agency:

Lloyd Generette

State of Alabama:

*James T. Williams, Radiation Physicist, Division of Radiation Control

*Attended exit interview.

INSPECTION PROCEDURES USED

IP 83890	Closeout Inspection and Summary
IP 87104	Decommissioning Inspection Procedure for Materials Licenses

SURVEY INSTRUMENTS USED FOR CONFIRMATORY SURVEY

1. Eberline ESP-2 with Eberline "pancake" HP-260 probe
NRC Tag: 026730 Calibrated: 09-23-00
Background: 36 cpm Efficiency: 15% Tc-99**
 70% Cs-137

MDA* 4,800 dpm/100cm² (scanning)
 1,360 dpm/100cm² (scaler) for Tc-99
 986 dpm/100cm² (scanning)
 280 dpm/100cm² (scaler) for Cs-137

With SPA-6 probe, Serial No. 286: 8% efficiency for Cs-137. MDA is 9000 dpm/100cm² (scanning mode)
2. Eberline ESP-2 with Eberline "pancake" HP-260 probe
NRC Tag: 026729 Calibrated: 05-26-00
Background: 34 cpm Efficiency: 14% Tc-99
 72 % Cs-137

MDA: 4,857 dpm/100cm² (scanning)
 1,420 dpm/100cm² (scaler) for Tc-99
 944 dpm/100cm² (scanning)
 369 dpm/100cm² (scaler) for Cs-137
3. Eberline ESP-2 with Eberline "pancake" HP-260 probe
NRC Tag: 026418 Calibrated: 05-27-00
Background: 36 cpm Efficiency: 18% Tc-99
 74 % Cs-137

MDA: 4,000 dpm/100cm² (scanning)
 1,134 dpm/100cm² (scaler) for Tc-99
 973dpm/100cm² (scanning)
 276 dpm/100cm² (scaler) for Cs-137
4. Eberline E-600 with Eberline HP-360 pancake probe
NRC Tag: 073470 Calibrated: 09-23-00
Background: 45 cpm Efficiency: 48% Tc-99
 71 % Cs-137

MDA: 1,875 dpm/100cm² (scanning)
 471 dpm/100cm² (scaler) for Tc-99
 1,268 dpm/100cm² (scanning)
 318 dpm/100cm² (scaler) for Cs-137
5. The removable contamination smears were counted on a Gamma 5000 gas flow proportional counter. The efficiency for Tc-99 was 29% with an MDA of 25 dpm/100cm².

* Minimum detectable activity

** A Tc-99 standard was used in lieu of a Co-60 standard to determine efficiencies and MDAs. Its beta energy of 292 Kev is comparable to that of Co-60's beta energy of 314 Kev.

CONFIRMATORY SURVEY RESULTS
DEPARTMENT OF THE ARMY - FORT MCCLELLAN
FEBRUARY 20-22, 2001

ALL READINGS EXCEPT WHERE INDICATED ARE NET READINGS ABOVE
BACKGROUND

LOCATION/GRID	FIXED POINT MEASUREMENT (dpm/100cm ²)	WIPE TEST BETA (dpm/100cm ²)
Building 3182, Room 6, J-2	762	2.7
Building 3182, Room 6, I-2	24	-1.3
Building 3182, Room 6, J-3	24	-0.3
Building 3182, Room 6, J-4	714	10.7
Building 3182, Room 6, J-5	24	-1.3
Building 3182, Room 6, I-4	143	-1.3
Building 3182, Room 6, scabbled hole	1286	5.7
Building 3182, Hallway, C-21	238	2
Building 3182, Hallway, C-13	190	8.7
Building 3182, Hallway, B-9	-190	-0.3
Building 3182, Hallway, D-3	286	10.7
Building 3182, Room 16, D-3	428	0.7
Building 3182, Room 16, C-4	-333	-0.3
Building 3182, Room 16, B-6	-95	2.7
Building 3182, Room 16, H-6	-238	2.7
Building 3182, Room 16, G-4	-143	-0.3
Building 3182, Room 16, H-3	333	4.7
Building 3182, Room 2, center floor	524	9.7
Building 3182, Room 3, center floor	238	3.7
Building 3182, Room 1, B-1	-428	-1.3
Building 3182, Rom 1, C-3	95	-0.3

LOCATION/GRID	FIXED POINT MEASUREMENT (dpm/100cm ²)	WIPE TEST BETA (dpm/100cm ²)
Building T837, downstairs bathroom, under sink	125	0.7
Building T837, F-2	97	1.7
Building T837, B-2	0	1.7
Building T837, upstairs bathroom, under sink	-111	-0.3
Building T837, upstairs laundry room, center floor	-111	0.7
Building T812, middle floor in storage room	306	2.7
Building T812, C-2	306	0.7
Building T812, XE-1	458	-1.3
Building T812, F-2 wall	153	1.7
Building T812, C-2	208	2.7
Building T812, E-1	236	3.7
Building T812, E-2	53	1.7
Building T812, storage room, middle floor	194	1.7
Building T812 ½, middle floor	97	-0.3
Building T810, C-1	389	0.7
Building T810, B-2	292	-0.3
Building T810, A-2 wall	-14	1.7
Building T810, E-1	-83	0.7
Building 3180, Room 11, B-3	514	0.7
Building 3180, Room 11, C-1	347	-0.3
Building 3180, Room 15, under sinks, center floor	667	3.7
Building 3180, Room 13, under sinks, center floor	1236	-0.3
Building 3180, Room 12, center floor	167	1.7

LOCATION/GRID	FIXED POINT MEASUREMENT (dpm/100cm ²)	WIPE TEST BETA (dpm/100cm ²)
Building 3180, Room 14, center floor	472	0.7
Building 3180, Room 14, N-1	69	2.7
Building 3182, Room 10, C-2	167	-1.3
Building 3182, Room 10, B-2	83	-0.3
Building 3182, Room 5, B-2	444	3.7
Building 3182, Room 5, A-4	583	9.7
Building 3182, Room 4, B-2	-222	8.7
Building 3182, Room 4, D-5	-111	-0.3
Building 3182, Room 4, E-3	-111	5.7
Building 3182, Room 4, G-5	-56	5.7
Building 3182, Room 4, H-3	-103	-0.3
Building 3182, Room 4, D-2	-250	2.7
Building 3185, ladies room, under sink	1911	3.7
Building 3185, under sink, outside ladies' room	89	10.7
Building 3185, Room 5, center floor	-311	2.7
Building 3185, men room, under sink	3067	-0.3
Building 3185, Room 15, center floor	400	-1.3
Building 3185, mop closet, center floor	222	2.7
Building 3185, sink outside ladies' room, drain	311	0.7