U.S. NUCLEAR REGULATORY COMMISSION
REGION II

INSPECTION REPORT

Report No.	030-33261/99-001
Docket No.	030-33261
License No.	37-30062-01
Licensee:	Defense Logistics Agency
Address:	Memphis, Tennessee
Inspection Date:	March 11, 1999

Inspectors:

for Donna S. Moser — Date 4/13/99
Radiation Specialist

for Michael L. Fuller — Date 4/13/99
Radiation Specialist

Approved by:

Elizabeth Ullrich, Acting Chief — Date 4/15/99
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

Defense Logistics Agency
NRC Inspection Report No. 030-33261/99-001

An announced inspection, limited to confirmatory surveys of the Defense Logistics Agency - Defense Distribution Center located in Memphis, Tennessee was conducted on March 11, 1999 in Buildings 319, 359, 629, and 835. The inspector performed exposure rate and removable contamination surveys at select locations in each building. The results of the inspector's surveys were indistinguishable from background and meet the NRC guideline for release for unrestricted use.

REPORT DETAILS

I. Background

License No. 37-30062-01 authorizes the receipt, storage, packaging, and distribution of defense commodity items containing various types and activities of by-product radioactive material. According to the Environmental Baseline Study and Radiological Survey report conducted for the Defense Distribution Depot Memphis, TN (DDMT), the primary radioactive material stored at the DDMT were lantern mantles contain naturally occurring Thorium-232 (Th-232) which are exempt from NRC regulation. Other radioactive commodities identified as having been stored at DDMT are:

1. Smoke detectors containing generally licensed amounts of americium-241;
2. Electron tubes containing non-licensed amounts of Th-232, tritium (H-3), and radium-226(Ra-226);
3. Wrist watches containing generally licensed amounts of H-3 and Ra-226;
4. Indicator and toggle switches containing Ra-226; and
5. Compasses containing H-3.

A historical review of DDMT operations and interviews conducted with cognizant DDMT employees indicated that buildings 319 (Bay 6), 359 (Section 3), 629 (Bay 2), and 835 (Section 6) were the only areas where radioactive material was stored.

DDMT is targeted for closure under the Base Realignment and Closure Act. In a letter dated March 6, 1997, the licensee notified the NRC of its intent to conduct a termination radiological survey at the DDMT. The NRC received the results of this survey on August 3, 1998 in the reports titled, Environmental Baseline Study Radiological Survey for Defense Distribution Depot Memphis and Termination Radiological Survey for Defense Distribution Depot Memphis Building 319, Bay 9. These reports indicated that all radiological activities have ceased, no radioactive material is on the premises and the site may be released for unrestricted use. This inspection report documents the results of an independent confirmatory survey that was conducted on March 11, 1999, and supports the licensee's conclusion that the site can be released for unrestricted use.

II. Exposure Rate Surveys

a. Inspection Scope

The inspector used a Ludlum Micro R survey meter (NRC Serial No. 043980), which was last calibrated on July 23, 1998, to perform exposure rate measurements in buildings 319, 359, 629, and 835.

b. Observation and Findings

Within buildings 319, 359, 629, and 835, background exposure rate measurements were 3-4 micro roentgen per hour (μR/hr). Surveys of the facility did not exceed background levels.

c. Conclusions

The results of the inspector's surface contamination surveys indicate that all areas surveyed meet the NRC guideline for unrestricted release.

III. Removable Contamination Surveys

a. Inspection Scope

The inspector performed surveys for removable contamination by obtaining a total of twenty wipe sample for gross alpha and gross beta contamination analysis by gas proportional counting and twenty swipe samples for H-3 analysis by liquid scintillation counting (LSC). Each gross alpha and gross beta sample was obtained by wiping a dry filter paper over an area of approximately 100 square centimeters (cm^2). Each LSC sample was collected in the same manner and then placed in a small plastic vial containing approximately 10 ml of distilled water. For details regarding survey locations, refer to the table below under Section b. Observation and Findings.

The NRC Region I laboratory counted each wipe for 20 minutes for gross alpha and beta using a Tennelec LB5100 - Series II Gas Flow Proportional Counter. The approximate efficiency of the counter is 21% for alpha and 27% for beta. The lower limit of detection (LLD) of the system for gross alpha is 2.2 disintegrations per minute (dpm). The LLD of the system for gross beta is 5.7 dpm.

The NRC Region I laboratory counted each wipe for 10 minutes for H-3 using a Packard Model 2250 CA Liquid Scintillation Counter. The background and efficiency for H-3 are determined for each sample using external standard and a quench curve. Background is automatically figured into the result.

b. Observation and Findings

Wipe Number	Location Description		Gross Alpha	Gross Beta	H-3
	Building	Grid	dpm/wipe	dpm/wipe	dpm/wipe
1	629	F1	1.9 ± 1.3	0 ± 3	20 ± 40
2	629	F3	0.5 ± 1.0	6 ± 4	130 ± 60
3	629	F8	1.9 ± 1.3	6 ± 3	30 ± 40
4	629	F10	1.4 ± 1.2	4 ± 3	70 ± 30
5	629	F12	1.4 ± 1.2	2 ± 3	4 ± 13
6	319	F3	2.3 ± 1.4	4 ± 3	12 ± 13
7	319	F6	0.0 ± 0.9	4 ± 3	9 ± 9
8	319	W11	0.9 ± 1.1	-3 ± 3	10 ± 6
9	319	F5	1.4 ± 1.2	4 ± 3	30 ± 16
10	319	F7	1.4 ± 1.2	11 ± 4	8 ± 8
11	835	F2	0.9 ± 1.1	1 ± 3	15 ± 11
12	835	F3	0.0 ± 0.9	5 ± 3	-4 ± 11
13	359	V22R	0.9 ± 1.1	6 ± 3	9 ± 8
14	359	V26R	2.8 ± 1.5	7 ± 4	38 ± 15
15	359	V32	1.4 ± 1.2	8 ± 4	-4 ± 7
16	359	V33	2.8 ± 1.5	3 ± 3	0 ± 6
17	359	V37	6 ± 2	11 ± 4	50 ± 20
18	359	V39	3.3 ± 1.5	4 ± 3	8 ± 8
19	359	V43	0.0 ± 0.9	9 ± 4	17 ± 7
20	359	V45	7 ± 2	14 ± 4	100 ± 20
Background Alpha			2		
Background Beta			35		

Conclusions

The results of the inspector's removable contamination surveys indicate that all areas surveyed meet the NRC guidelines for unrestricted release.

IV. Management Meetings

Preliminary results of the surveys were discussed with Allen Hilsmeier, the licensee's Radiation Safety Officer, at the conclusion of the inspection.

PERSONS CONTACTED

Licensee

Allen Hilsmeier, Radiation Safety Officer