


U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No. 040-03471 (Terminated)
License No. C-04373 (Terminated)
Inspection Report No. 040-03471/97001(DNMS)
Former Licensee: Progressive Industries Company
Facility: Vacant Property, Now Owned by the
City of Detroit
Location: 8770 Linwood Avenue
Detroit, MI
Date: December 27, 1996
Inspectors: E. L. Kulzer, Radiation Specialist
P. Lee, Radiation Specialist
Approved By: B. L. Jorgensen, Chief 
Decommissioning Branch

EXECUTIVE SUMMARY

Former Progressive Industries Company; Currently City of Detroit
NRC Inspection Report No. 040-03471/97001(DNMS)

This was a special inspection to conduct a scoping survey at the former site of the Progressive Industries Company. Progressive Industries Company was authorized by the U. S. Atomic Energy Commission (AEC) to handle a total of 12,000 pounds of magnesium-thorium alloy from October 20, 1958 through October 31, 1959. The City of Detroit currently owns this property. An ongoing project of the Nuclear Regulatory Commission, to re-evaluate thousands of retired licenses, identified that there was no documentation to indicate that this facility received a closeout survey when the AEC license was terminated.

The scoping survey that was conducted on December 27, 1996, by the Nuclear Regulatory Commission (NRC) did not identify any radiation levels above background. Thus, thorium contamination was not present in the surveyed areas in excess of the NRC's unrestricted use guidelines.

The NRC has no further regulatory concerns regarding this facility.

DETAILS

1. Background

The Progressive Industries Company had a license from the U. S. Atomic Energy Commission (License No. C-04373) to handle 1,000 pounds monthly of 4 % magnesium-thorium alloy. These activities were authorized at a facility located at 8770 Linwood Avenue, Detroit, Michigan, from October 20, 1958, to October 31, 1959.

The U. S. Nuclear Regulatory Commission (NRC) is the successor Federal Agency to the Atomic Energy Commission. The NRC, during an ongoing project to re-evaluate thousands of retired AEC licenses, identified that there was no documentation to indicate that this facility received a closeout survey when the license was retired. Further, there was little indication in the file as to the extent of the activities which actually took place at this location. The property is now a vacant lot owned by the City of Detroit.

2. Independent Measurements

On December 27, 1996, two NRC inspectors conducted independent measurements in and around the areas indicated in the files as the former licensed materials processing areas. The processing area was divided into 10 meter grids for the surveys. In addition, general area surveys were conducted around the open areas of the site. These direct survey measurements were conducted to determine whether residual levels of thorium contamination existed in excess of the NRC's acceptable soil contamination level.

Instrumentation used to conduct the surveys is identified in Table 1.

Figure 1 provides a diagram of the site area and the survey pattern.

3. Survey Results

The surveys of the area found no readings above background.

The acceptable soil contamination level for thorium is 10 picocuries per gram of soil. This is taken from NRC's "Branch Technical Position, Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations," 46 FR 52061, October 23, 1981.

Although thorium is primarily an alpha emitter, it has daughter products that emit betas and gammas. Due to the potential surface attenuation of alpha particles, which can make them difficult to detect with the instruments used, beta measurements were used. This method can be used to determine the alpha surface activities by using the known ratio of alpha to beta for thorium.

Based on the capabilities of the instrumentation used, the finding of no readings above background confirmed that there were no surveyed areas with residual thorium contamination in excess of the NRC guidelines.

4. Exit Meeting

At the conclusion of the onsite inspection, the preliminary results of the inspection were reported by telephone on December 30, 1996, and were further discussed by phone on January 7, 1997.

Persons Contacted

L. Burks, Supervisor Property Management

Attachments:

Table 1 - Survey Instruments

Figure 1 - site diagram & survey map

TABLE 1

Survey Instruments

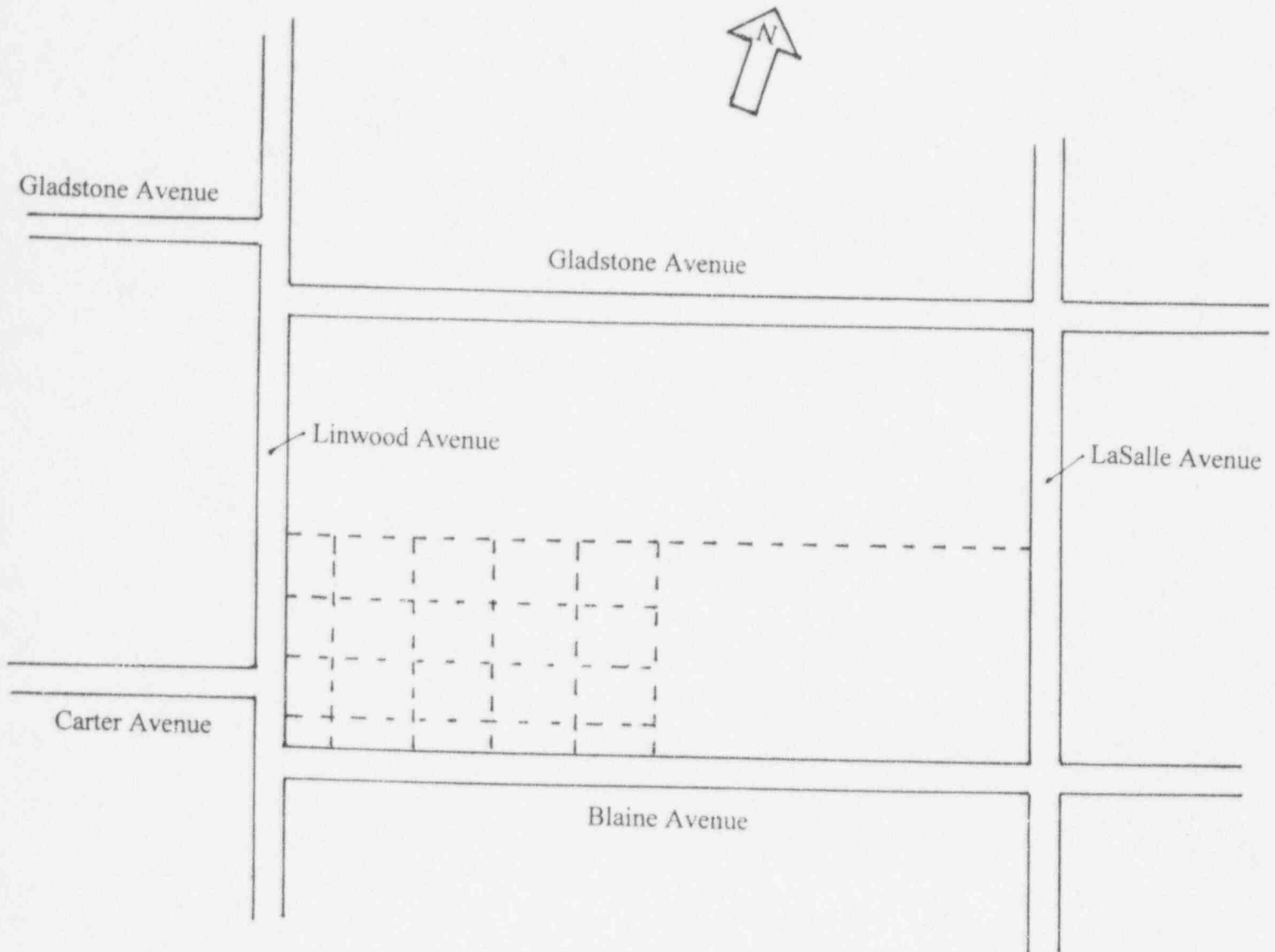
Instrument	Model No.	Serial No.	Probe	Last Calibration
Ludlum	2241-2	130052	Ludlum 44-9	06/14/96
Ludlum	19	011021	n/a	04/11/96

The meters and probes were serviced and calibrated on an annual basis. Calibrations were performed with National Bureau of Standards (NBS) traceable sources. Background checks were performed during the inspection to verify detector constancy and determine efficiencies. Source checks were performed using a strontium-90/yttrium-90 check source, Serial Number S-2134 (NRC Tag No. 013251). The average beta efficiency for the Ludlum count rate meters (Model 2241-2) with the Model 44-9 probes was about 25 percent. Average background for the GM pancake probes (Ludlum 44-9) was 40 to 50 counts per minute (cpm). The Model 19 meters varied from 9 to 10 microroentgens per hour background radiation ($\mu\text{R/h}$) (2.5 to 2.6 nanocoulombs per kilogram per hour (nC/kg/h)).

Figure 1

Progressive Industries Company

8870 North Linwood Avenue
Detroit, Michigan



----- Indicates Where Surveys Were Walked Off