

JUNE 17, 1996

FOR: The Commissioners
 FROM: James M. Taylor /s/
 Executive Director for Operations
 SUBJECT: REMOVAL OF FROME INVESTMENT COMPANY (BROOKS & PERKINS CORPORATION) SITE FROM THE
 SITE DECOMMISSIONING MANAGEMENT PLAN

- PURPOSE:
- SUMMARY:
- DISCUSSION:
- CONCLUSIONS:
- COORDINATION:
- RECOMMENDATION:

PURPOSE:

To inform the Commission that remedial action has been completed at the Frome Investment Company (Brooks & Perkins Corporation (BP)) site located at 1950 West Fort Street, Detroit, Michigan, and that the U.S. Nuclear Regulatory Commission staff plans to release the site for unrestricted use and remove the site from the Site Decommissioning Management Plan (SDMP).

SUMMARY:

In SECY-90-121, the original SDMP, and in subsequent revisions to the SDMP (SECY-91-096, SECY-92-200, SECY-93-179, SECY-94-213, and SECY-95-209), the staff identified approximately 50 problematic sites where remedial action was warranted because of the presence of residual radioactive material in excess of NRC's current unrestricted use criteria. One of these sites is the Frome Investment Company facility. BP received a license for source material in 1957. In 1961, this license was superseded by a license authorizing 6804 kg (15,000 lbs) of thorium, contained in 40 percent master alloy, and thorium magnesium alloy containing not more than 3 percent thorium. Authorized activities included rolling, melting, casting, forming, cutting, sanding, and welding manufactured products containing source material.

BP requested termination of the license in February 1971 and the license was terminated in May 1971. Frome Investment Company purchased the building from BP sometime in the late 1960s or early 1970s. Currently, the building is leased to Eaton Company.

Frome Investment Company was added to the SDMP after an Oak Ridge National Laboratories (ORNL) (an NRC contractor) review of the terminated BP license file. ORNL concluded that this facility had the potential for residual radioactive contamination.

Based on the results of NRC's inspections, and Frome Investment Company's proper transfer and disposal of the radioactive waste, the staff concludes that decommissioning activities are complete and the site is suitable to be released for unrestricted use.

DISCUSSION:

The Atomic Energy Commission issued License No. D-547 to BP on January 17, 1957. This license was superseded by license STB-0362 on August 10, 1961. The license authorized BP use of 6804 kg (15,000 lbs) of thorium, as contained in 40 percent thorium master alloy, and thorium magnesium alloy containing not more than 3 percent thorium, at sites in Detroit and Livonia, Michigan. This report covers activities at the Detroit, Michigan, site only.

Authorized activities included rolling, melting, casting, forming, cutting, sanding, and welding manufactured products containing licensed source material. BP requested termination of the license in February 1971 and the license was terminated in May 1971. Radiation survey records indicate that the site met the release criteria, but the survey results did not include all areas where licensed materials were used.

Frome Investment Company purchased the building from BP sometime in the late 1960s or early 1970s. Currently, the building is leased to Eaton Company, which uses the building as a warehouse for air filters.

Frome Investment Company was added to the SDMP after an ORNL review of the terminated BP license file. Based on the type and quantity of materials authorized in the license, and the lack of adequate decontamination documentation in the retired license file, ORNL concluded that this facility had the potential for residual radioactive contamination.

On February 1, 1994, an NRC Region III inspector conducted a special inspection of the former BP site, to determine if the facility was adequately decontaminated, before terminating the license. Radiation surveys were conducted in the former licensee's manufacturing, processing, and storage areas. Region III's radiation surveys of the building -- including the restrooms, hallways, offices, former manufacturing areas, parking lots, downspouts, and loading docks did not identify any radiation levels above background. However, in an open area behind the building, facing West Fort Street, gamma radiation levels were approximately eight times background. The inspector measured 0.47 coulomb per kilogram-hour (C/Kg-hr) (120 microroentgen per hour (μ R/h)) on the ground surface and 0.06 C/Kg-hr (15 μ R/h) at 0.9 meters (m) (3 feet (ft)) above ground surface, with the Ludlum Model 19 survey instrument. Analysis of a soil sample from this area showed that the radioactive material was thorium with a concentration of 500 picocuries per gram (pCi/g) (185 becquerel (Bq)) which exceeds NRC release criteria of 10 pCi/g (0.37 Bq). This initial investigation led the staff to suspect that the area may have been used for disposal of radioactive waste. It is believed that the elevated thorium concentration in the soil sample resulted from the presence of a small metal fragment in the soil. The soil sample was collected from the surface above a sheetmetal fragment discovered on June 20, 1995. As described below, additional soil samples taken from the same area during follow-up Region III inspections showed thorium concentrations approaching or below the NRC unrestricted release limit of 10 pCi/g (0.37 Bq).

On June 20, 1995, NRC Region III conducted a special follow-up inspection in and around the 167.2-square-meter (m²) (1800-square-foot (ft²)) garage/storage warehouse located on the southeastern portion of the property. Although no residual contamination was found in the garage/warehouse, the inspectors did identify thorium contamination, approximately ten times background, on the pavement surface outside the building along the north

wall. Readings ranged from 0.06 to 0.31 C/Kg-hr (15 to 80 µR/hr). This finding was consistent with the contamination identified during the February 1, 1994, inspection conducted by Region III. A soil sample collected in the area of the elevated readings showed thorium concentrations of 9.8 pCi/g (0.363 Bq) ± 1.0 pCi/g (0.037 Bq). This concentration approaches the NRC unrestricted release limit of 10 pCi/g (0.37 Bq). The inspectors planned to do additional soil sampling to determine the extent and amount of the thorium contamination.

In the area of elevated exposure rates, the inspectors also located a fragment of magnesium thorium metal in the shape of a box with dimensions of approximately 15 by 15 by 15 centimeters (cm) (6 by 6 by 6 inches). After isolating the fragment, surface exposure rates of 0.31 C/Kg-hr (80 µR/hr) were identified.

From September 18-22, 1995, Region III inspectors conducted a special follow-up inspection to perform independent radiation surveys and collect numerous soil samples. Gamma scan surveys were conducted on 100 percent of the parking lot surface, using 2 by 2 inch sodium-iodide detectors coupled with Ludlum Model 12 ratemeters. Scan survey results ranged from background (6000 counts per minute (CPM)) to 18,000 CPM. The higher-than-background readings were attributed to surrounding masonry brick and cinder block walls. Gamma exposure rates were also measured on contact and 1 m (3.28 ft) above the parking lot surface, using a Ludlum Model 19 MicroR meter. Measurements exceeding twice the background count of 0.02 C/Kg-hr (6 µR/hr) were attributed to radioactive materials found in the adjacent masonry brick and cinder block wall.

Surface and subsurface soil samples were collected at numerous locations in and adjacent to the parking lot. Seven surface and two subsurface soil samples were collected from locations in the grid block containing the magnesium-thorium sheet metal fragment. Additional surface samples were collected from the remaining grid blocks. Sampling indicated that a natural rock layer exists approximately 60 to 75 cm (24 to 30 inches) below the surface of the parking lot. This rock layer is an adequate indication that burial of licensed materials did not take place in the parking lot area as was suspected after the February 1, 1994, inspection. The results of soil sample analyses identified no samples containing thorium concentrations greater than 1 pCi/g (0.037 Bq), and thus well below the 10 pCi/g (0.37 Bq) unrestricted release limit.

The magnesium-thorium sheet metal fragment was placed on a concrete pad near the area where it was discovered during the June 20, 1995, inspection. The inspectors informed Frome Investment Company that the fragment required proper transfer and disposal.

On December 14, 1995, Frome Investment Company notified NRC that Bionomics Inc. had contracted to transfer the fragment to the low-level radioactive waste disposal site at Barnwell, South Carolina, for proper disposal. Bionomics removed the fragment from Frome Investment Company property on February 16, 1996. Bionomics transported the fragment to Scientific Ecology Group for consolidation with other waste for shipment to Barnwell, South Carolina.

Region III transmitted copies of its inspection reports and the final survey reports of the Frome Investment Company facility to the Michigan Department of Health.

CONCLUSIONS:

Based on: (1) remedial actions by Frome Investment Company, and (2) results of NRC's inspections, the staff concludes that decommissioning has been satisfactorily completed. The staff intends to inform the U.S. Environmental Protection Agency (EPA) of NRC's intent to release the Frome Investment Company site. Unless EPA objects to this action, the staff will proceed to formally notify Frome Investment Company that remediation of the site is complete and that the site is suitable for unrestricted use. Draft letters to be sent to Frome Investment Company and to EPA are attached (Attachments 1 and 2, respectively).

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection.

RECOMMENDATION:

That the Commission note that the staff will initiate these actions with the letter to EPA within ten business days, unless otherwise directed by the Commission.

James M. Taylor
Executive Director for Operations

Docket No.: 040-00235 (Terminated)

License No.: STB-0362 (Terminated)

CONTACTS: G. M. McCann, RIII
(708) 829-9856

J. Buckley, NMSS/DWM
(301) 415-6607

Attachments: 1. [Draft letter to Frome Investment Company](#)
2. [Draft letter to U.S. EPA, Region V](#)

ATTACHMENT 1

Frome Investment Company
ATTN: Mr. and Mrs. William M. Ellman
28000 Weymouth Court
Farmington Hills, MI 48334

Dear Mr. and Mrs. Ellman:

Results of radiological surveys and analyses performed at the Frome Investment Company facility located at 1950 West Fort St., Detroit, Michigan, indicate that the residual radioactive material, on building and land surfaces and in the soil, is

less than the criteria found in the U.S. Nuclear Regulatory Commission's "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination for Byproduct, Source, or Special Nuclear Material," August 1987, and "Disposal or Onsite Storage of Thorium and Uranium Wastes from Past Operations," October 1981.

After reviewing radiological surveys by inspectors from NRC Region III and your waste disposal manifests, NRC concludes that remedial action is complete, and that the Frome Investment Company site is suitable for unrestricted use. Therefore, NRC no longer has any regulatory interest with regard to this facility.

As noted in the Action Plan (57 **FR** 13389), this is the final action regarding the Frome Investment Company site. NRC will not require any additional decommissioning, in response to future NRC criteria or standards, unless additional contamination or noncompliance with remediation commitments is found, indicating a significant threat to public health and safety.

If you have any questions, please contact me, at 301-415-7297, or John T. Buckley, at 302-415-6607.

Sincerely,

Robert A. Nelson, Acting Chief
Low-Level Waste and Decommissioning Projects Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards

Docket No: 040-00235 (Terminated)
License No: STB-0362 (Terminated)

ATTACHMENT 2

Mr. Stephen D. Luftig, Director
Office of Emergency and Remediation Response
U.S. Environmental Protection Agency
401 M Street, SW
Washington, DC 20460

Dear Mr. Luftig:

This letter is to inform the U.S. Environmental Protection Agency (EPA) that the U.S. Nuclear Regulatory Commission is preparing to release land and buildings at the Frome Investment Company (Brooks & Perkins Corporation (BP)) facility located at 1950 West Fort Street, Detroit, Michigan, for unrestricted use. Frome Investment Company purchased the property in the late 1960s or early 1970s (the exact date cannot be determined).

The staff is providing this information to EPA in accordance with NRC policy published in its "Action Plan to Ensure Timely Cleanup of Site Decommissioning Management Plan Sites" (57 **FR** 13389), which states that NRC will inform EPA about specific decommissioning actions at Site Decommissioning Management Plan sites.

Atomic Energy Commission license STB-0362 authorized BP use of 6804 kilograms (15,000 lbs) of thorium, as contained in 40 percent thorium master alloy, and thorium magnesium alloy containing not more than 3 percent thorium at sites in Detroit and Livonia, Michigan. The Livonia site is being addressed in a separate action. Authorized activities included rolling, melting, casting, forming, cutting, sanding, and welding manufactured products containing licensed source material.

Radiation surveys determined that thorium was present at the site in an open area outside the garage/warehouse facing West Fort Street. Radiation levels in this area were measured to be eight to ten times background. Soil samples collected in the area of elevated readings showed thorium concentrations of 9.8 picocuries per gram (0.363 Becquerel), which is less than NRC's limit for unrestricted use. Thus, no remediation in this area was required. However, a magnesium thorium sheet metal fragment, in the form of a box, with dimensions of approximately 15 by 15 by 15 centimeters (6 by 6 by 6 inches) with surface exposure rates of 0.31 coulomb per kilogram-hour (80 microrentgen per hour) was identified. Frome Investment Company contracted with Bionomics, Inc., to properly transfer and dispose of the fragment at the Barnwell, South Carolina, low-level radioactive waste disposal site. Bionomics removed the fragment from Frome Investment Company property on February 16, 1996. This site now meets NRC criteria for unrestricted use.

The NRC project manager for this site is Mr. John T. Buckley. If you have any questions on this matter, please contact Mr. Buckley at 301-415-6607.

Sincerely,

Carl J. Paperiello, Director
Office of Nuclear Material Safety and Safeguards

Docket No.: 040-00235 (Terminated)
License No.: STB-0362 (Terminated)

cc: Mr. Valdas Adamkus
Administrator
U.S. EPA, Region V
77 West Jackson Boulevard
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Mr. James Elder, Director
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