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# Site Decommissioning Management Plan

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**Division of Low-Level Waste Management and Decommissioning  
Office of Nuclear Material Safety and Safeguards  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001**



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**RTI, INC.**  
**(Formerly Process Technology of North Jersey, Inc.)**

**1. Site Identification**

RTI, Inc.  
Rockaway, NJ

License No.: 29-13613-02  
Docket No.: 030-07022  
License Status: Active  
Project Manager: E. Ullrich, Region I  
LWM Monitor: W. Lahs

**2. Site and Operations**

RTI, Inc., is licensed by NRC to perform service irradiations on a variety of items using up to 1.1E5 TBq (3 million Ci) of Co-60 in-air irradiator. The sealed Co-60 sources are stored in a pool of water for shielding when not in use.

Leakage from the sources in the 1970's resulted in Co-60 contamination of the irradiator storage pool. Contamination of soil in restricted areas resulted from burials of waste materials and discharge of the effluent produced by regeneration of the licensee's demineralizers used to remove Co-60 from the storage pool. Specific actions to characterize and remediate the site have been submitted by RTI and approved by NRC, and progress in remediating the site has been made (removal of contamination and waste from unrestricted areas).

The site is located in a suburban location on approximately 6 hectares (15 acres). Facility buildings (an office building, irradiator facility, and various warehouses) and work areas occupy 2 hectares (5 acres) of a restricted access portion of the site on the north side of Lake Denmark Road about 90 meters (300 feet) south of Lake Denmark. RTI also owns about 81 hectares (201 acres) of unrestricted land on the south side of the road.

**3. Radioactive Wastes**

In 1975 and 1976, leaking Co-60 sources contaminated the water in the irradiator storage pool. This contamination was not immediately identified and flocculent and other cleaning agents used in cleaning the pool of dirt and algae, apparently at the time thought to be free of radioactive contamination, were swept onto the ground south of the irradiator building. Also, water used to backwash and regenerate the demineralizers was released in this area. While the licensee states the discharge met the limits in 10 CFR Part 20 for a release to unrestricted areas, this practice apparently resulted in buildup of Co-60 in the soil. This area has been designated as Area D in the licensee's most recent correspondence. It covers about 140 m<sup>2</sup> (1,500 ft<sup>2</sup>).

During 1976 and 1977, the licensee disposed of solid radioactive waste by burial on site. These burials were intended to be made pursuant to 10 CFR 20.304. The only documented burials were located in the northern corner of the 2-hectare (5-acre) fenced area of the site. These burials resulted in soil contamination with Co-60 in the areas around the burials. The documents describing these burials were discovered in 1986 by recently hired managers at RTI. The areas where the burials were made are designated areas A and B in the licensee's correspondence.

There is also a surface water runoff path leading toward Lake Denmark (Area C) that has elevated Co-60 concentrations (composite sample of soil contained 0.6 Bq (17 pCi)/g).

**4. Description of Radiological Hazard**

There is no immediate threat to public and safety. Previously discovered buried drums of radioactive waste material and most of the contaminated soil have been removed, leaving only contaminated soil in the restricted area. External exposure rates within the 2-hectare (5-acre) area are less than 6 nC/kg (22 μR)/hr above background. In the unrestricted areas, radiation levels from Co-60 contaminated soil are less than 3 nC/kg (11 μR)/hr above background.

## 5. Financial Assurance/Viable Responsible Organization

On the basis of possession limits for Co-60 contamination in the license, the licensee is required to provide financial assurance in the amount of \$750,000 to satisfy the decommissioning rule requirements. RTI has provided adequate financial assurance for the sealed sources in the irradiator (\$75,000) and argues that the possession limit for Co-60 contamination in its license should be reduced based on surveys and decontamination accomplished to date. This request to amend the license is under review.

## 6. Status of Decommissioning Activities

In 1987, in response to Confirmatory Action Letter 87-92, the licensee agreed to characterize the radioactive waste burial site by (1) performing a radiation level survey of the entire 2-hectare (5-acre) fenced site, (2) having a magnetometry scan of the site performed by a qualified contractor, and (3) developing a remediation action plan for any contamination identified. The results of the magnetometry scan of the north corner were submitted to NRC in April 1987. The radiation level survey results were submitted in May 1987. A remediation action plan for removal of buried material identified as a result of these surveys was submitted in May 1987.

Drums and waste from the north corner burial site were removed between June and September 1987 and sent for disposal as radioactive waste.

In July 1989 the licensee proposed to remediate the areas inside the 2-hectare (5-acre) fenced site to 0.55 Bq (15 pCi)/g of Co-60 per gram of soil and maintain the area as a restricted area for at least 5 years (one half-life for Co-60). In May 1990 NRC agreed providing the licensee committed to further remediation if the areas were to be released for unrestricted use. The NRC also requested that the licensee provide evidence to demonstrate that no additional buried radioactive material or soil contamination in excess of 0.3 Bq (8 pCi)/g of Co-60 per gram of soil remained on site, provide plans to monitor migration of Co-60 contamination remaining, and provide the results of surveys performed to show that remediation activities had been completed as proposed.

In July 1990 the licensee proposed to take a core sample to determine if there was additional radioactive material buried and to perform quarterly monitoring of water from existing wells to detect any migration of Co-60 in the ground water. The licensee removed several areas of contaminated soil and sent the material for disposal as radioactive waste.

In January 1991 the licensee submitted results of surveys performed after these remediation activities. No soil samples were taken. One bore sample was taken in Area A to determine the depth of contamination and to attempt to determine if additional buried material existed in that area. Water samples were not taken from wells because the licensee found that Co-60 contamination only on the surface soil.

Available information is being evaluated to determine if NRC can approve the licensee's request that the NRC accept the remediation and surveys and reduce the possession limits in the license or if additional sampling is required before those changes. NRC visited the site in December 1991 to view the remediated areas and assist with the evaluation. NRC requested additional information on the site's radiological status on September 11, 1992. RTI submitted a partial response on October 18, 1992.

## 7. Other Involved Parties

The New Jersey Department of Environmental Protection and Energy has been studying ground water contamination from activities involving hazardous materials on the property south of Lake Denmark Road and plastic monomers in the restricted area.

## 8. NRC Actions and Schedule

- NRC evaluates the need for additional surveys by licensee March 1993
- NRC requests additional information from or work by licensee September 1993
- NRC performs confirmatory survey September 1994
- NRC reduces license limits authorizing storage of contaminated materials June 1995

## 9. Problems/Issues

There is some concern about the licensee's ability to fund the decommissioning of the site.