

## ORNL SITES - SUMMARY

License No.: 29-03686-02 (Terminated) ORNL Score: 4566  
Docket No.: 030-05294  
Licensee: Industrial Reactor Laboratories Inc. Review Status: **Complete**  
Site Address(es): Shalks Road  
Plainsboro, NJ 08536  
Site Contact: David Leigh (last contact) / David Jacobus (principle current tenant)  
Telephone No.: (609) 799-1800 / (609) 921-7447  
SDMP Site: no  
Related License(s): 29-00651-02, 29-12944-01, SUB-00503; [50-17(Reactor): NOT ON LIST]  
NRC Reviewer: Richard Barkley  
Review Abstract: Industrial Reactor Laboratories, Inc. a subsidiary of N.L. Industries, operated an isotope production and research reactor located in Plainsboro, NJ from 1958 until 1975. The facility underwent extensive decommissioning in 1976-1977 during which time almost all of the radioactive materials and components were removed. Minor radioactive contamination, at levels then acceptable to the NRC and buried well underground, were left in specific areas of the plant property. In light of the extensive decommissioning and final survey of the IRL facility as well as the confirmatory NRC survey and review and inspection of that decommissioning project, no further actions are warranted.

Recommendations: None.

Summary: Industrial Reactor Laboratories (IRL), Inc. was chartered in New York State to complete construction and operate a 5 MW research reactor and isotope production laboratory in Plainsboro, New Jersey. The reactor produced a wide variety of isotopes for sale as well as conducted research in the laboratory hot cells. The ownership and/or operator of this facility changed on a number of occasions during the life of the plant. The original owner was AMF Atomics, Inc. who transferred the construction permit for the facility to Industrial Reactor Laboratories in 1957. In 1960, Columbia University was contracted by IRL to operate the facility. In 1967, Rutgers assumed control of IRL and operated the facility until 1971. In 1971, Cambridge Nuclear Inc. purchased IRL. In 1973, N.L. Industries purchased Cambridge Nuclear Inc. after the company went bankrupt.

The facility was licensed to possess very large quantities of radioactive isotopes, most in loose form, and on several occasions experienced spills of water contaminated with radioactive materials. This water was released into the ground near and under the facility and into a sewage leach field on the facility property. As a result, this facility required extensive decontamination as well as the excavation of large quantities of soil in areas adjacent to and underneath the plant buildings to permit the release of the property for unrestricted use.

In 1976-1977, IRL conducted an extensive remediation and decommissioning effort at the IRL facility. While the decommissioning effort, which was conducted by ATCOR of New York, was extensive and resulted in the disposal of large amounts of construction material, reactor components and soil, there were several areas of the plant property

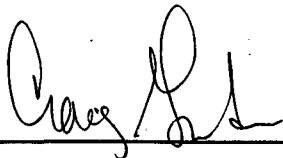
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which were not fully remediated due to the cost involved and the minimal public safety risk posed. These areas included excavated areas near the former waste evaporator building and the east and south corridors (where large spills occurred) as well as several other areas which were more mildly contaminated. The licensee requested that the materials license for the facility be terminated by the NRC on December 7, 1976. After considerable review and questioning by the NRC, including inspections and confirmatory surveys of the site, the NRC concluded in a January 30, 1978, safety evaluation that the facility had been adequately remediated to allow release of the property for unrestricted use. The NRC agreed to release the property for unrestricted use with the remaining radioactive materials left in-place and did so with the termination of the license on January 30, 1978.

The radioactive release specifications used by the licensee during the decommissioning of the facility were consistent with NRC guidelines in existence at that time. The release specifications are consistent with current standards with the exception of the average and maximum radiation levels associated with surface contamination which are slightly more restrictive than current standards. While the licensee did use existing values in 10 CFR 20.105 regarding the release of the contaminated areas noted above for unrestricted use, it appears quite likely that the areas noted would have met the new 10 CFR Part 20 limits. Furthermore, 17 years of radioactive decay have substantially reduced the contamination levels in these areas in any event. Thus no follow-on surveys of this property, nor any other actions, appear warranted.

The current acceptability of the in-place disposal of the radioactive material noted above is under review by NMSS. In addition, the site was visited in August 1994 at which time the NRC confirmed that the facility and the surrounding property had not been significantly altered or disturbed such that the buried radioactive material would have been exhumed.

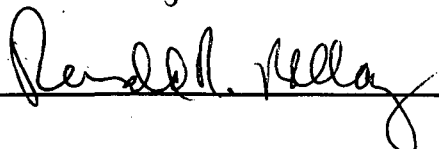
Reviewed by:



Date

3/9/98

Approved by:



Date

3/9/98