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# PRELIMINARY SURVEY OF
# W. R. GRACE COMPANY
# Ridgewood, Florida

Work performed
by the
Health and Safety Research Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37830

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Formerly Utilized Sites--
Remedial Action Program

# W. R. GRACE COMPANY
Ridgewood, Florida

At the request of the Department of Energy (DOE, then ERDA), a preliminary survey was performed at the W. R. Grace and Company, Agricultural Chemicals Division plant in Ridgewood, Florida, on April 6, 1977, to assess the radiological status of those facilities utilized under an Atomic Energy Commission (AEC) raw materials contract during the period 1954 through 1955. Gene Terry, General Manager, Agricultural Chemicals Division, and John Merriman, Vice President, Industrial Chemicals, provided information pertaining to the location of the facility (see Fig. 1) and details of the work performed at the site under contract. Contract No. AT(49-6)-920 between the AEC and Davison Chemical Division of W. R. Grace and Company concerned process development studies and possible pilot plant testing of $U_3O_8$ recovery from phosphoric acid during 1954 and 1955. Some of the work associated with this contract may have been done at Davison's Baltimore laboratory as well as at the Ridgewood, Florida, site.

Information obtained during the visit indicated that the pilot plant at Ridgewood, Florida, only operated between Thanksgiving and Christmas in 1954.

## Present Use of Facilities

The old facility utilized in this project has been completely dismantled, and new tanks and other equipment are now in operation at the site to produce phosphoric acid (see Fig. 2). No information was available as to the location or disposition of equipment associated with the project. Also, no information pertaining to the radiological status of the facility at the time the project was discontinued was available.

## Results of Preliminary Survey

The preliminary survey was conducted by H. W. Dickson of the Oak Ridge National Laboratory and W. T. Thornton of the Department of Energy-Oak Ridge Operations Office (then ERDA). Exploratory measurements of radiation levels were made in the area where the facility was believed to have been located. These measurements, made at randomly selected

points, consisted of gamma-ray exposure rates measured at a height of 1 m above the surface and beta-gamma dose-rate measurements made with an open-window Geiger-Mueller survey meter at 1 cm from the surface at the same locations. Additionally, a soil sample was collected from the site where the building was believed to have been located.

Maximum gamma-ray exposure rates found were 200 μR/hr at 1 m above the surface of an open drain found behind some tanks and 100 μR/hr at 1 m above the floor inside the existing building (see Fig. 3). The corresponding beta-gamma dose rates at 1 cm from the surfaces were 0.4 mrad/hr and 0.2 mrad/hr, respectively. The radionuclide analysis of a single soil sample yielded 47 pCi/g of $^{226}Ra$ and 8.1 pCi/g of $^{238}U$. All other radionuclides present were below detection limits.

Results of this survey indicate that radioactivity in the one soil sample collected may exceed current guidelines for radionuclides in soil. In some isolated spots, elevated gamma-ray exposure rates were observed. Based on measurements at other facilities associated with the phosphate industry, it cannot be concluded that these results are attributed to former AEC contract operations. A phosphoric acid production process currently exists on the site and probably accounts for the observed elevated radiation levels.[1-3] For this reason, it does not appear that additional radiological measurements are required at this site. It would, however, be desirable to ascertain the location of those areas at Grace's Curtis Bay, Maryland, plant where contract operations were carried out.

## References

1. W. Davis, Jr., F. F. Haywood, J. L. Danek, R. E. Moore, E. B. Wagner, E. M. Rupp, and P. J. Walsh, *Potential Radiological Impacts of Recovery of Uranium from Wet Process Acid*, Oak Ridge National Laboratory Report ORNL/EPA-2, January 1979.
2. F. F. Haywood, D. J. Crawford, R. W. Doane, W. F. Fox, W. A. Goldsmith, R. W. Leggett, W. H. Shinpaugh, and D. R. Stone, *Radiological Survey of the Former Virginia-Carolina Chemical Corporation Uranium Recovery Pilot Plant, Nichols, Florida*, Final Report, U.S. Department of Energy, DOE/EV-0005/18, January 1980.
3. F. F. Haywood, W. A. Goldsmith, R. W. Leggett, R. W. Doane, W. F. Fox, W. H. Shinpaugh, D. R. Stone, and D. J. Crawford, *Radiological Survey of the Former Uranium Recovery Pilot and Process Sites, Gardinier, Incorporated, Tampa, Florida*, Final Report, U.S. Department of Energy, DOE/EV-0005/-- (to be published).

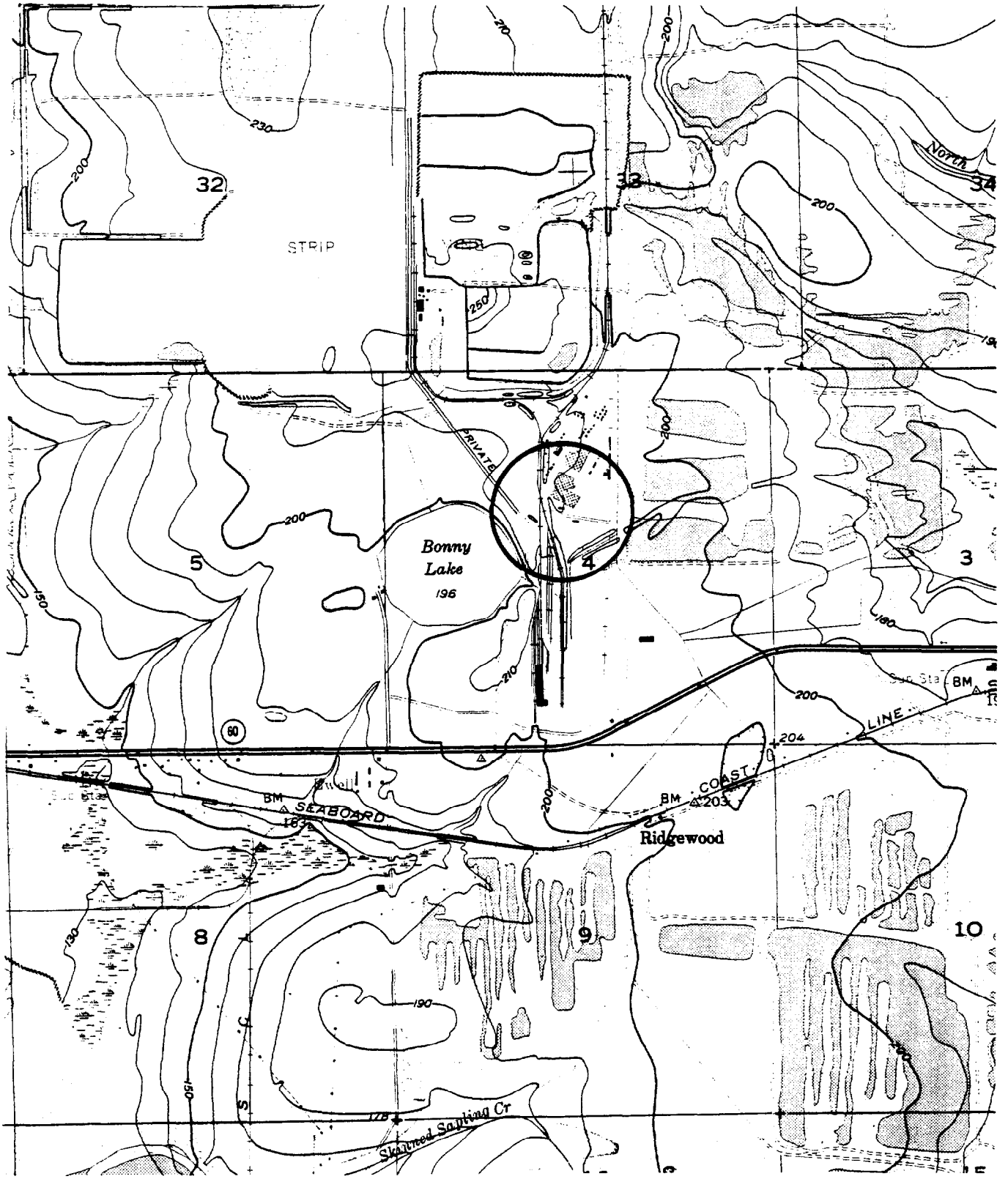


Fig. 1. Location of the W. R. Grace Company in Ridgewood, Florida.

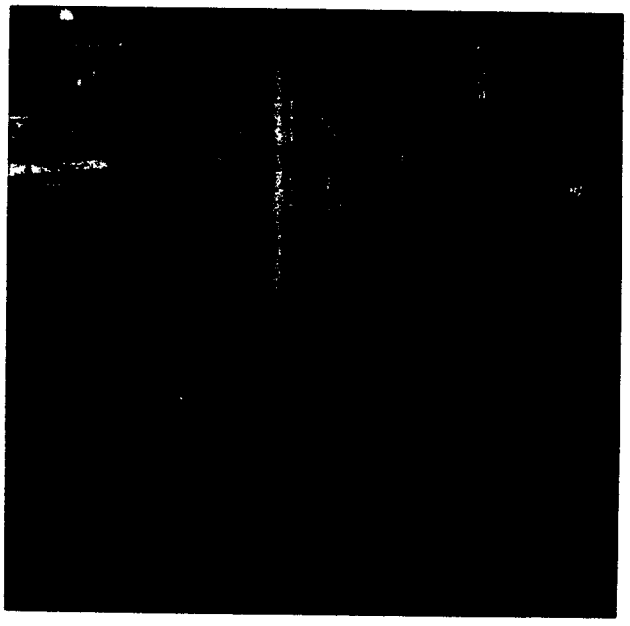

Fig. 2. Photographs of former pilot plant site.

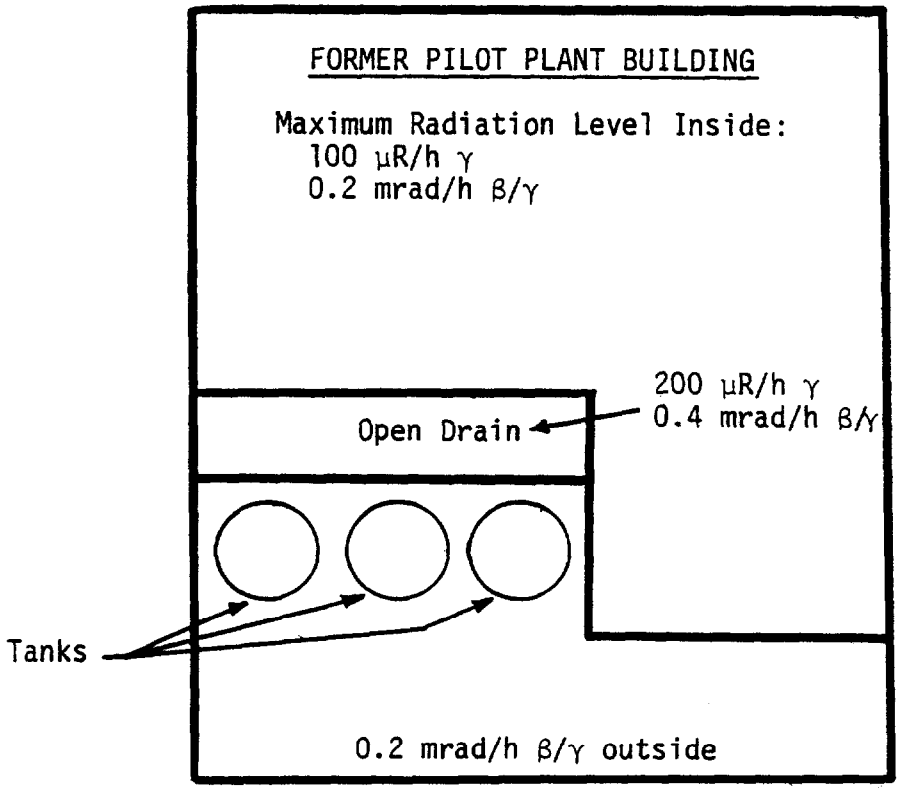


Fig. 3. Diagram of area surveyed at the W. R. Grace Company in Ridgewood, Florida.