



Department of Energy
Washington, D.C. 20545

APR 9 1986

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Mr. A. F. Vondrasek
Vice President and General Manager
Agricultural Chemicals Division
W. R. Grace and Company
P.O. Box 471
Bartow, Florida 33830

Dear Mr. Vondrasek:

The Department of Energy is evaluating the radiological condition of sites that were utilized by the Manhattan Engineer District and the Atomic Energy Commission (AEC) during the early years of nuclear energy development to determine whether they need remedial action and whether the Department has authority to perform such action. As you may be aware through previous correspondence, the W. R. Grace, Agricultural Division site in Ridgewood, Florida, was identified as one such site, as a result of some research, development, and pilot plant work conducted at the site during the early 1950's. The purpose of this effort was to develop a process to extract uranium compounds from phosphoric acid.

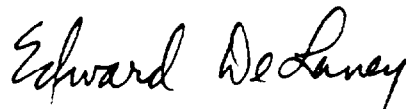
This letter along with the enclosed elimination report and preliminary survey report represent the results of the Department's review to determine if the site contains residual radioactive contamination traceable to the activities conducted on behalf of the AEC. The reports are being provided to you, as the representative of the site owner, for your information. While the preliminary survey, conducted in 1977, did identify concentrations of radium in soil in excess of the guidelines used by the Department of Energy for properties which have no restrictions on their use, the contamination was attributed to commercial operations at the site and not to work conducted for the AEC. It is noted that the concentrations measured are in a range typical of those found at operations processing Florida phosphate ore.

Therefore, on the basis of this review and because the radioactivity identified cannot be attributed to the AEC work, the Department has determined that it does not have authority under the Atomic Energy Act of 1954, as amended, to conduct remedial action at this site if needed. As a result, the site is being eliminated from further consideration under the Formerly Utilized Sites Remedial Action Program. We are notifying the Environmental Protection Agency and the State of Florida by copy of this letter, of this action and associated findings.

Documentation supporting the Department's decision is available for public review at the Department's Public Reading Room located in Room 1E-190 of

the Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. If you have any questions regarding this decision or the availability of the material at the reading room, please contact me at 301-353-4716.

Sincerely,



Edward G. DeLaney, Director
Division of Facility and Site
Decommissioning Projects
Office of Nuclear Energy

2 Enclosures

cc:

- A. Smith, Superfund Coordinator
EPA Region IV, Atlanta, Georgia
- H. Snyder, EPA, Washington, D.C.
- L. Jerrett, Director, Off. of
Health and Rehabilitative Service
Tallahassee, Florida

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM

ELIMINATION REPORT

FOR

W.R. GRACE AND COMPANY
AGRICULTURAL CHEMICALS DIVISION
RIDGEWOOD, FLORIDA

NOV 26 1985

Department of Energy
Office of Nuclear Energy
Office of Remedial Action and Waste Technology
Division of Facility and Site Decommissioning Projects

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ELIMINATION REPORT
W.R. GRACE AND COMPANY
AGRICULTURAL CHEMICAL DIVISION
RIDGEWOOD, FLORIDA

INTRODUCTION

The Department of Energy (DOE), Office of Nuclear Energy, Office of Remedial Action and Waste Technology, Division of Facility and Site Decommissioning Projects (and/or predecessor agencies, offices, and divisions), has reviewed the past activities conducted on behalf of the Atomic Energy Commission (AEC) at the Agricultural Chemicals Division of W.R. Grace and Company, Ridgewood, Florida. A preliminary radiological survey revealed that the radium-in-soil concentration and gamma radiation levels exceed current DOE radiological guidelines.¹ However, on the basis of a review of available historical and radiological information, DOE has determined that the contamination is not attributable to the AEC-sponsored operations. Therefore, DOE does not have legal authority to conduct remedial actions at this site and will not include it in the Formerly Utilized Sites Remedial Action Program (FUSRAP).

This report presents information on the radiological status of the site and summarizes the results of DOE's authority investigation. Although the contamination exceeds guidelines, it does not pose a significant radiological hazard to site occupants or the general public

¹ U.S. Department of Energy Guidelines for Residual Radioactivity at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program (Rev. 1 July 1985).

under current conditions of site usage.

This elimination report will be archived by DOE through the Assistant Secretary for Management and Administration. A copy of this package will be available for public review between 8:00 a.m. and 4:00 p.m., Monday through Friday (except Federal holidays), at the DOE Public Reading Room located in Room 1E-190 of the Forrestal Building, 1000 Independence Avenue, SW., Washington, D.C.

BACKGROUND

Site Function

This facility was under Atomic Energy Commission (AEC) contract AT(49-6)-920 from 1954 to 1955. W.R. Grace operated a pilot plant to obtain research and development information on the removal of uranium from phosphoric acid that contained approximately 0.05 percent uranium. According to W.R. Grace and Company personnel, the plant was only operated from late November to late December 1954. Other equipment for phosphoric acid production is now in operation at the site.

Site Description

Only one building on the W.R. Grace and Company property was involved in the research. It has since been completely dismantled. No information is available regarding the location or disposition of equipment and building remains. Figure 1 shows the location of the site in relation to the town of Ridgewood.

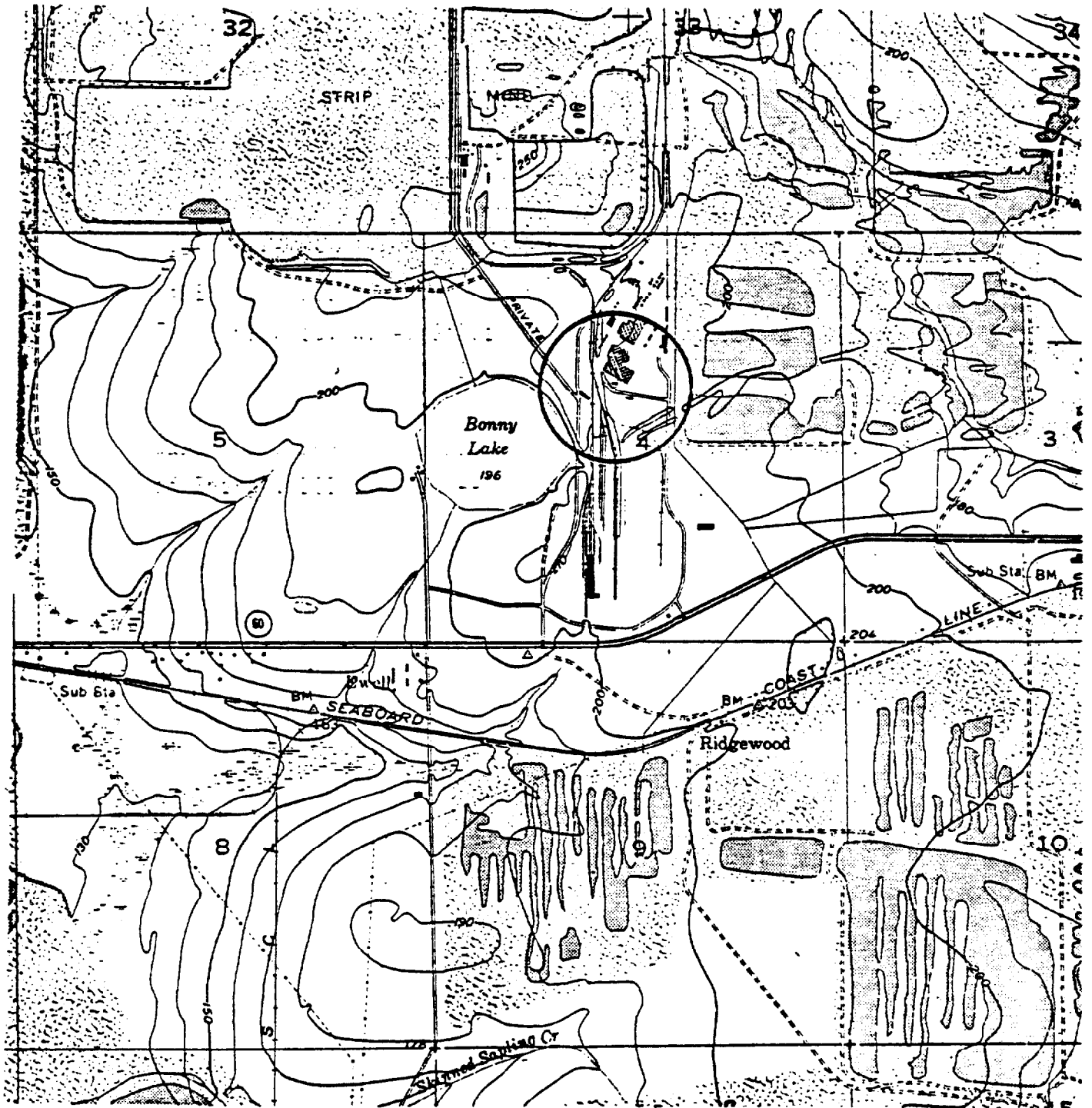


Figure 1. Location of the W.R. Grace Company, Ridgewood, Florida

Radiological History and Status

Department of Energy (DOE) (then the Energy Research and Development Administration) Oak Ridge Operations Office and Oak Ridge National Laboratory personnel conducted a screening survey of the site on April 6, 1977, and found radiation levels above background. However, the radiation levels observed at this site are similar to those at other phosphate product plants currently operating without uranium recovery processes. Any contamination remaining from the AEC-related work would be insignificant in magnitude and indistinguishable from radioactive material produced incidental to the phosphate operation.

ELIMINATION ANALYSIS

An investigation of AEC-related operations at the W.R. Grace and Company site in Ridgewood, Florida, was conducted to determine if the site was eligible for remedial action under FUSRAP. Records of the AEC Feed Materials Division stored in Oak Ridge, Tennessee, and in Suitland, Maryland, were reviewed along with contract files. No information has been found that would provide DOE with authority to conduct remedial action at this site. The contract has apparently been destroyed in accordance with standard records management procedures. cursory review of other records groups indicates that it is not likely that duplicates of the contract or any other supportive materials will be found in future records searches.

Some conclusions may be reached based on information and contracts relating to phosphate operations at other sites which are available. In general, the phosphate contracts were intended to support industrial research. The contractor usually owned the facilities. There was no direct AEC involvement other than review of the data. AEC had an obligation to purchase any uranium produced, but had no responsibility for the operation of the sites or their final condition. The contractors were handling the same materials they

normally handled in their everyday operations and AEC provided no special guidance (other than that pertaining to uranium accountability if any was to be produced). For the same reason, AEC did not specify any requirements for cleanup.

The results of the radiological survey also suggest that the radioactive material on the site is the result of the commercial phosphate operations rather than the AEC-sponsored uranium recovery work. Gamma radiation levels are comparable to those at other phosphate product plants operating without uranium recovery processes. The soil sample obtained near the original building location indicated a ^{226}Ra concentration elevated well above the ^{238}U concentration, the reverse of what would be expected if the material had originated from the uranium recovery operations. Radium was separated out of the phosphoric acid stream prior to the uranium recovery step. Any residue from the AEC-sponsored work would likely be normal uranium (i.e., uranium separated from its daughter products).

Based on the information summarized in this report, DOE's Division of Facility and Site Decommissioning Projects has determined that it does not have authority to conduct remedial action at the W.R. Grace and Company site in Ridgewood, Florida if it were determined to be necessary and has eliminated the site from further consideration under FUSRAP. DOE will notify the property owner, the Environmental Protection Agency, and the State of Florida of its findings at this site, so that they may take appropriate action.

REFERENCES

- o Oak Ridge National Laboratory. March 1980. Preliminary Survey of W.R. Grace Company, Ridgewood, Florida.

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

March 1980

OAK RIDGE NATIONAL LABORATORY
operated by
UNION CARBIDE CORPORATION
for the
DEPARTMENT OF ENERGY
as part of the
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 $\mu\text{R/hr}$ at 1 m above the surface of an open drain found behind some tanks and 100 $\mu\text{R/hr}$ 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).

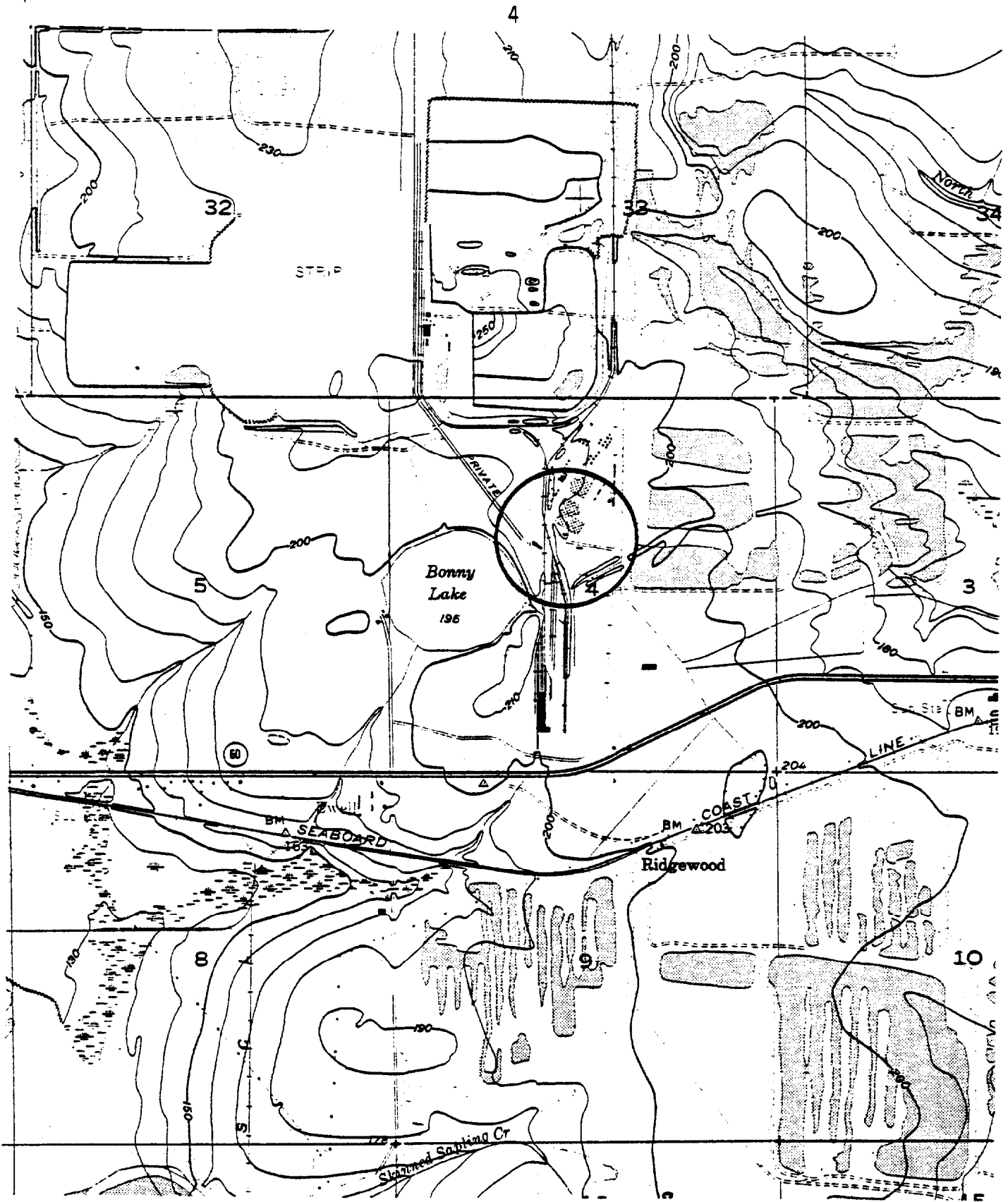


Fig. 1. Location of the W. R. Grace Company in Ridgewood, Florida.

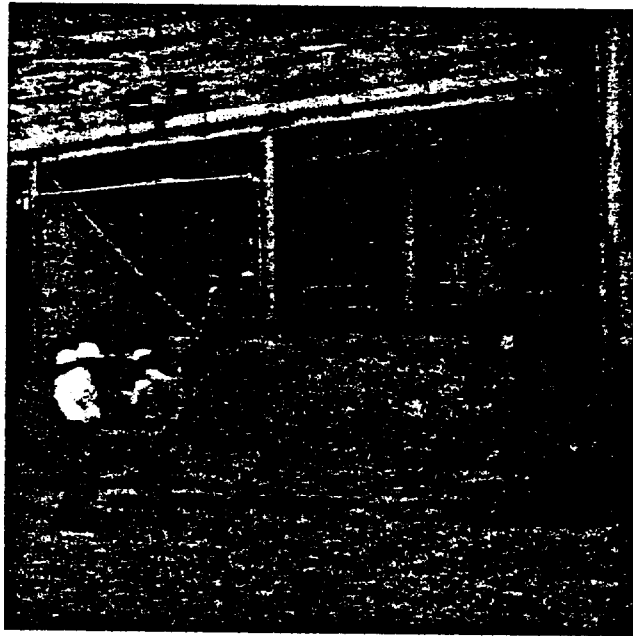
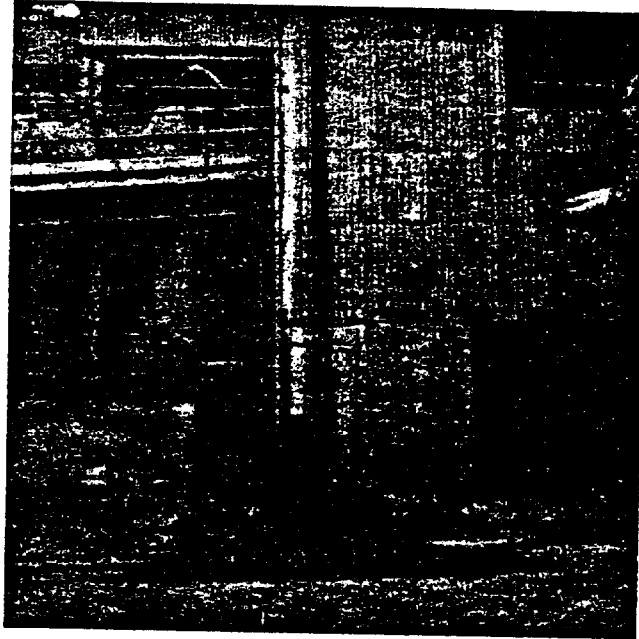


Fig. 2. Photographs of former pilot plant site.

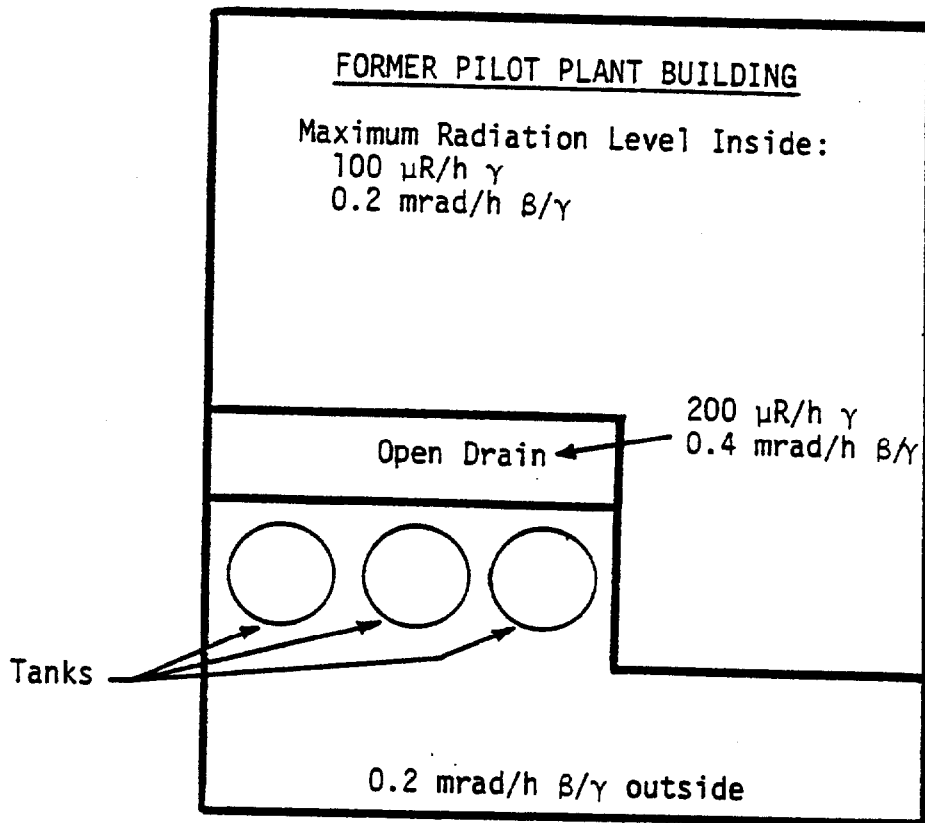


Fig. 3. Diagram of area surveyed at the W. R. Grace Company in Ridgewood, Florida.