

HEALTH CONSULTATION

ALPHA RESINS CORPORATION

KATHLEEN, POLK COUNTY, FLORIDA

CERCLIS NO. FLD041495441

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Prepared by

The Florida Department of Health and Rehabilitative Services
Under Cooperative Agreement With the
Agency for Toxic Substances and Disease Registry

Background and Statement of Issues

The purpose of this health consultation is to evaluate the potable water quality of four private wells near the Alpha Resins Corporation Superfund site. The Florida Department of Health and Rehabilitative Services (FHRS) recommended Polk County Public Health Unit (CPHU) test these wells in the department's October 1994 Site Review and Update report. Polk CPHU tested these wells in July 1995.

The Alpha Resins Corporation (ARC), formerly known as Alpha Chemical Corporation, is near Kathleen, Polk County, Florida (Figures 1 and 2). ARC has produced unsaturated polyester resins for manufacturers of fiberglass products at this 32-acre site since 1967. The process yields wastewater containing small amounts of volatile organic compounds (VOCs). Under a Florida Department of Environmental Regulation (FDER, now known as the Florida Department of Environmental Protection or FDEP) permit, ARC disposed of this wastewater in two unlined percolation ponds (Ponds #4 and #3-2; Figure 3). When ARC sought to line pond #3 with concrete for caustic wash water evaporation in 1982, FDER requested ground water monitoring information. New monitoring wells revealed contamination in the surficial aquifer, which flows southeast from the site. In 1983, EPA added this site to the Superfund National Priorities List. Subsequent investigation found contaminants in on-site soil and sediment (1, 2, 3). To clean up the site, the U.S. Environmental Protection Agency (EPA) had ARC fill and cap the percolation pond area, and continue environmental monitoring. This cleanup remedy became operational in October 1989 (4). Today, only pond #1 remains active. It contains noncontact cooling water and drains into the swamp south of the old pond area (1).

The area surrounding ARC is residential and commercial. In 1992, approximately 650 people lived within ½ mile of the site, and area residents use private wells for potable water (3). FDER's 1983 groundwater assessment report indicated most residents draw their water from the uncontaminated, deep Floridan aquifer rather than the contaminated surficial aquifer. Nevertheless, FDER identified three residences with drinking water wells in the surficial aquifer. Investigators found contamination in one of these shallow wells in 1974. FDER's report stated private wells in the surficial aquifer could be expected to create a large cone of depression because of the very thin permeable layer in that aquifer (5). Although a confining layer of clay separates the surficial and Floridan aquifers, FDER and EPA differ in their assessments of the degree to which this clay protects the Floridan aquifer from contamination by the surficial aquifer. FDER's ground water assessment concluded the hydrogeologic setting could allow leakage between the two aquifers, posing a substantial threat to the water quality of the Floridan aquifer (5). In contrast, EPA has concluded there is no threat of inter-aquifer contamination (1, 6).

EPA's 1986 draft Remedial Investigation (RI) report positively identified 23 organic compounds present on site in the surficial aquifer, as well as in soils and sediments in or south of the old pond area. Of these compounds, ethylbenzene occurred the most often and in the highest concentrations. The contaminated surficial aquifer discharges into the on-site

swamp (Figure 3), and investigators found both ethylbenzene and xylene in dry swamp sediments. Site investigators also sampled seven private wells near the site; none had detectable levels of organic compounds. However, the RI report did not identify which aquifer the private wells drew water from (1).

The final draft 1986 Endangerment Assessment selected benzoic acid, 1,2-dichloropropane, ethylbenzene, styrene, and xylene as indicator chemicals. The indicator chemicals did not include other suspected or known carcinogens found at the site. The Endangerment Assessment concluded the potential for adverse health effects was remote, in part based upon the deduction that nearby residents drew potable water from the uncontaminated Floridan aquifer. Nevertheless, the Endangerment Assessment indicated small numbers of area residents may obtain their drinking water from the surficial aquifer, and the report identified the presence of an active drinking water well, located 390 feet south of the site, in the surficial aquifer (6).

In a 1986 letter commenting on the draft Endangerment Assessment, FHRS explained the significance of finding the known or suspected carcinogens benzene, methylene chloride, and bis(2-ethylhexyl)phthalate in the surficial aquifer, as well as finding many other contaminant concentrations exceeding drinking water health guidelines. The letter also pointed out the Endangerment Assessment did not identify the aquifer from which the private wells sampled drew water. Based on this review, FHRS recommended adding the three identified carcinogens to the indicator list, and monitoring down gradient private wells near the site in the future (7). Neither FDER or EPA accepted these recommendations, and the indicator chemical list remained unchanged.

In January 1989, the Agency for Toxic Substances and Disease Registry (ATSDR) wrote a Preliminary Public Health Assessment for the site. This public health assessment concluded the site was of no public health concern because of the absence of human exposure to significant levels of hazardous substances. The assessment recommended re-evaluation of ground water exposure if wells were installed in the surficial aquifer in the future. ATSDR's public health assessment did not identify any health concerns of nearby residents (8).

Contaminant concentrations for the indicator chemicals have decreased over time, and all indicator contaminants have been below the applicable maximum contaminant levels (MCLs) since December 1991 (4, 9). During their 1993 field investigation for the five-year site review, EPA sampled nine on-site wells, including one well in the Floridan aquifer. Although the sample results showed the concentrations of indicator chemicals were below established MCLs, the analyses detected the human carcinogen benzene in one on-site well in the surficial aquifer at an estimated concentration of 3.2 $\mu\text{g}/\text{L}$ (micrograms per liter). This concentration exceeded Florida's drinking water MCL of 1 $\mu\text{g}/\text{L}$ for benzene. Although the analyses did not detect bis(2-ethylhexyl)-phthalate (4), the detection limit (20 $\mu\text{g}/\text{L}$) was greater than Florida's drinking water standard of 6 $\mu\text{g}/\text{L}$ for this compound; consequently, it was not possible to completely assess water quality in the wells. In the quarterly samples collected for the beginning of 1994, ARC continued to find benzene in concentrations

ranging between 2-3 $\mu\text{g/L}$ (Dick, pers. comm.). One sample set from late summer 1994 did not detect benzene at 1.0 $\mu\text{g/L}$ (10). ARC did not test for bis(2-ethyl-hexyl)phthalate in the 1994 samples (Dick, pers. comm.).

On May 26, 1994, FHRS staff performed a windshield survey at the site. From the road, staff could see the grass-covered surface of the cap over the old pond area, as well as several monitoring wells. Water from pond #1 drained into the on-site swamp area. The fence around the site appeared well maintained, and all gates were closed and locked except for the access to the parking lot on the northern portion of the site (11).

In October 1994, FHRS completed a Site Review and Update report for the ARC site. FHRS' conclusions differed from those in ATSDR's 1989 Public Health Assessment on three issues. First, FHRS found it was likely some residents had been exposed in the past to site-related contaminants through contact with ambient air or water in the shallow aquifer. FHRS could not find any environmental data from the 1970s, and it was uncertain such data existed. Because of the lack of data, FHRS could not determine if past exposures were significant or related to the identified health concerns of nearby residents. Second, FHRS found benzene concentrations exceeding the MCL in the surficial aquifer had the potential to affect drinking water wells in the shallow aquifer. Third, because inappropriate detection limits were used for bis(2-ethylhexyl)-phthalate, FHRS could not determine if this substance was present in the surficial aquifer at concentrations exceeding the MCL. Based on the last two findings, FHRS concluded the Alpha Resins site was an indeterminate public health hazard. FHRS recommended EPA ask ARC to analyze for bis(2-ethylhexyl)phthalate in the next round of samples to determine if ground water under the site contained this compound in concentrations exceeding the MCL. In addition, FHRS recommended Polk CPHU sample down gradient private wells near the site, if they drew water from the surficial aquifer or had an unknown depth. FHRS also recommended Polk CPHU periodically monitor the private well of the residence 390 feet south of the swamp. FHRS recommended all Polk CPHU water samples be analyzed for purgeables (including benzene) and possibly base neutrals (including bis(2-ethylhexyl)phthalate) (12).

In response to the FHRS recommendations, EPA asked ARC to analyze for bis(2-ethyl-hexyl)phthalate in the next sampling round. However, ARC samplers forgot to request analysis for this contaminant in the later samples (10). To resolve the issue of possible shallow private well contamination, FHRS asked Polk CPHU to sample nearby private wells with unknown water quality for benzene and bis(2-ethylhexyl)phthalate. Because Polk CPHU could not pay for the analyses from their budget, ATSDR approved the spending of grant funds on purgeable and base neutral analyses from four private wells with unknown water quality (13) identified in EPA's remedial investigation (14).

Based on the indicator chemical concentrations, EPA's draft amended close out report for the site concluded the site no longer poses a threat to human health or the environment (15). In June 1995, EPA delisted the ARC site from the Superfund National Priorities List.

Methodology

From old site reports, FHRS identified four nearby private wells with unknown water quality. These included the well 390 feet south of the swamp known to draw water from the surficial aquifer and three other wells of unknown depth (1). Because the reports FHRS used to identify the four wells were old, Polk CPHU staff first investigated well use and found residents still used each of the four wells for potable water (16). In July 1995, Polk CPHU staff collected samples from the four wells and sent them to the FHRS laboratory in Jacksonville, FL. The laboratory analyzed the samples for purgeables (including benzene), base neutrals (including bis(2-ethylhexyl)phthalate), and acid extractables.

Discussion

The trip blank for the purgeables did not have detectable levels of VOCs. None of the purgeable analyses detected benzene at the detection limit of 0.08 $\mu\text{g/L}$. One sample had an approximate value for chloromethane (0.12 $\mu\text{g/L}$) that was below the method detection limit (17). This approximate value for chloromethane is below the ATSDR screening value for this compound (18). This suggests ingestion of this compound, if it were to occur, would not be likely to make a person ill. The laboratory did not detect any other purgeable compounds in the four private well samples.

The laboratory detected phthalates in each of the four well samples. The phthalates found and their estimated maximum values were: di-n-butylphthalate at 0.50 $\mu\text{g/L}$, butyl benzyl phthalate at 0.32 $\mu\text{g/L}$, and bis(2-ethylhexyl)phthalate at 0.27 $\mu\text{g/L}$. However, the laboratory also found each of these compounds in the laboratory reagent blank (17), making it unclear if the compounds were actually present in the water samples. Still, the estimated value for each of these compounds is below its ATSDR screening value (18). Therefore, if ingestion of any of these compounds were to occur, it would not be likely to make a person ill. The laboratory did not detect any other base neutral or acid extractable compounds in the four private well samples.

As concluded in our 1994 Site Review and Update report, we could not evaluate health issues in this consultation concerning past exposure to site-related contaminants in water or air because of the lack of environmental data.

Conclusions

We currently classify this site as a no apparent public health hazard. We conclude:

- o Based on one water sample from each of four private wells, there do not appear to be any problems with potable water quality for residents using these wells.
- o EPA has determined the ARC site is not a public health threat and has delisted the site from the National Priorities List. ARC remains an active facility.

- Exposures to toxic substances from the ARC site may have taken place in the past. It is not known if past exposures were significant or related to health concerns of nearby residents. Appropriate environmental data are not available to evaluate the extent of past exposure.

Recommendations

Based on our conclusions, we recommend:

- No further actions are needed at this time.

If there are questions or comments about this document, please call Carolyn Voyles in FHRS' Environmental Toxicology Section at (904) 488-3385. If requested, FHRS will evaluate any new information to determine if follow-up public health actions are necessary.

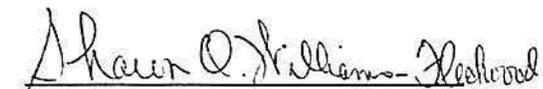
CERTIFICATION

This Alpha Resins Corporation Health Consultation was prepared by the Florida Department of Health and Rehabilitative Services under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.



Richard R. Kauffman, M.S.
Technical Project Officer
Superfund Site Assessment Branch (SSAB)
Division of Health Assessment and Consultation (DHAC)
ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this health consultation, and concurs with its findings.



Sharon Williams-Fleetwood, Ph.D.
Chief, SSAB, DHAC, ATSDR

Documents Reviewed

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2. EPA. 1990. Fact Sheet (January) for Alpha Chemical Site, Kathleen, Florida. Atlanta, GA: U.S. Environmental Protection Agency, Region IV.
3. EPA. 1992. Site Status Summary (March) for Alpha Chemical Corporation, Kathleen, Florida. Atlanta, GA: U.S. Environmental Protection Agency, Region IV.
4. EPA. 1994. Five-year Review Report (Revision 2; February); Alpha Chemical Site; Kathleen, Florida. Norcross, GA: Roy F. Weston, Inc.
5. FDER. 1983. Environmental Groundwater Assessment of the Alpha Chemical Company [in] Kathleen, Florida (June) by Stephen R. Boyes and Geoffrey B. Watts. Florida Department of Environmental Regulation, Tallahassee, FL.
6. EPA. 1986. Final Draft Endangerment Assessment (September 9), Alpha Resins Corporation, Lakeland, Florida. Knoxville, TN: IT Corporation, in conjunction with Stottler Stagg and Associates, Atlanta, GA.
7. FHRS. 1986. Letter (May 22) from Andrew Reich to Ron Leins (FDER) concerning public health risk and the potential for carcinogenic activity at Alpha Resins Corporation. Florida Department of Health and Rehabilitative Services, Environmental Hazards Epidemiology Section, Tallahassee, FL.
8. ATSDR. 1989. Preliminary Health Assessment (January 31); Alpha Resins Corporation (a.k.a. Alpha Chemical), Polk County, Lakeland, Florida. Atlanta, GA: U.S. Public Health Service, Agency for Toxic Substances and Disease Registry.
9. EPA. 1990. Interim Close Out Report for Long-term Response Action; Alpha Chemical Corporation Superfund Site; Kathleen, Polk County, Florida. Atlanta, GA: U.S. Environmental Protection Agency, Region IV.
10. FHRS. 1994. Phone conversation record (October 19) with Barbara Dick, EPA, concerning compliance sampling results at Alpha Chemical. Florida Department of Health and Rehabilitative Services, Environmental Toxicology Section, Tallahassee, FL.
11. FHRS. 1994. Site Visit Notes (May 26) [for] Alpha Chemical Corp. Florida Department of Health and Rehabilitative Services, Environmental Toxicology Section, Tallahassee, FL.

12. FHRS. 1994. Site Review and Update (October 19), Alpha Chemical Corporation, Lakeland, Polk County, FL. Florida Department of Health and Rehabilitative Services, Environmental Toxicology Section, Tallahassee, FL.
13. FHRS. 1995. Memo (May 25) from Carolyn E. Voyles to Richard Kauffman, ATSDR, concerning approval to spend grant monies on samples related to the Alpha Chemical and Wingate Road NPL sites. Florida Department of Health and Rehabilitative Services, Environmental Toxicology Section, Tallahassee, FL.
14. FHRS. 1995. Phone conversation record (May 31) with Ken Orloff, ATSDR, concerning ATSDR permission to spend sampling monies at Alpha Chemical. Florida Department of Health and Rehabilitative Services, Environmental Toxicology Section, Tallahassee, FL.
15. EPA. 1994. Amended Close Out Report (May 11); Alpha Chemical Corporation Superfund Site; Kathleen, Polk County, Florida. Atlanta, GA: U.S. Environmental Protection Agency, Region IV.
16. FHRS. 1995. Phone conversation record (August 8) with Diane Ross, Polk CPHU, concerning private well sampling around Alpha Chemical. Florida Department of Health and Rehabilitative Services, Polk County Public Health Unit, Bartow, FL.
17. FHRS. 1995. Private well sample data (July 25). Florida Department of Health and Rehabilitative Services, Polk County Public Health Unit, Bartow, FL.
18. ATSDR. 1995. Comparison Value Tables for Drinking Water, Expiring 09/30/95. Atlanta, GA: U.S. Public Health Service, Agency for Toxic Substances and Disease Registry.

Location of Polk County, FL



Figure 1. Location of Alpha Resins Corporation in Polk County, FL.

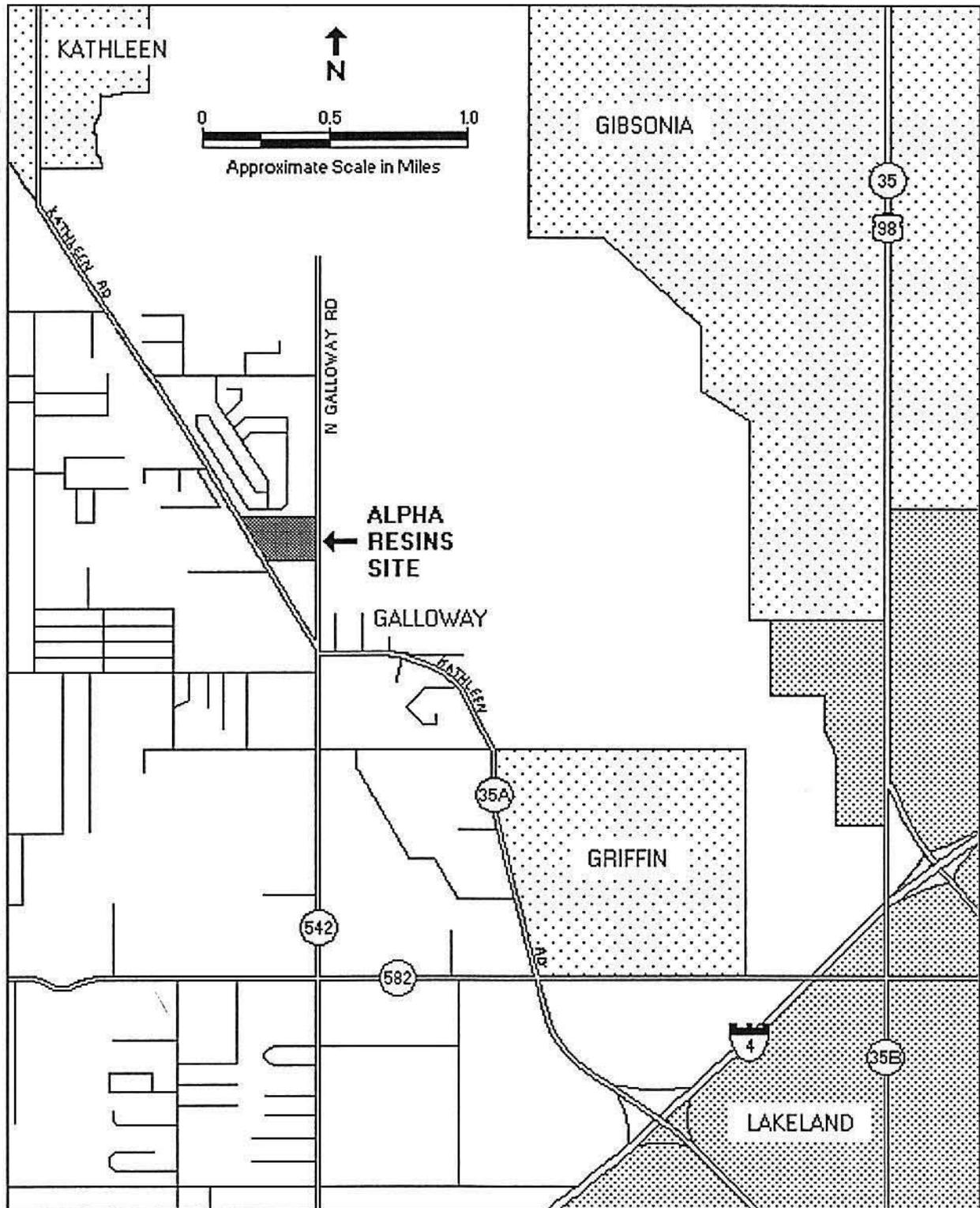


Figure 2. Alpha Resins Site Location near Kathleen, FL.

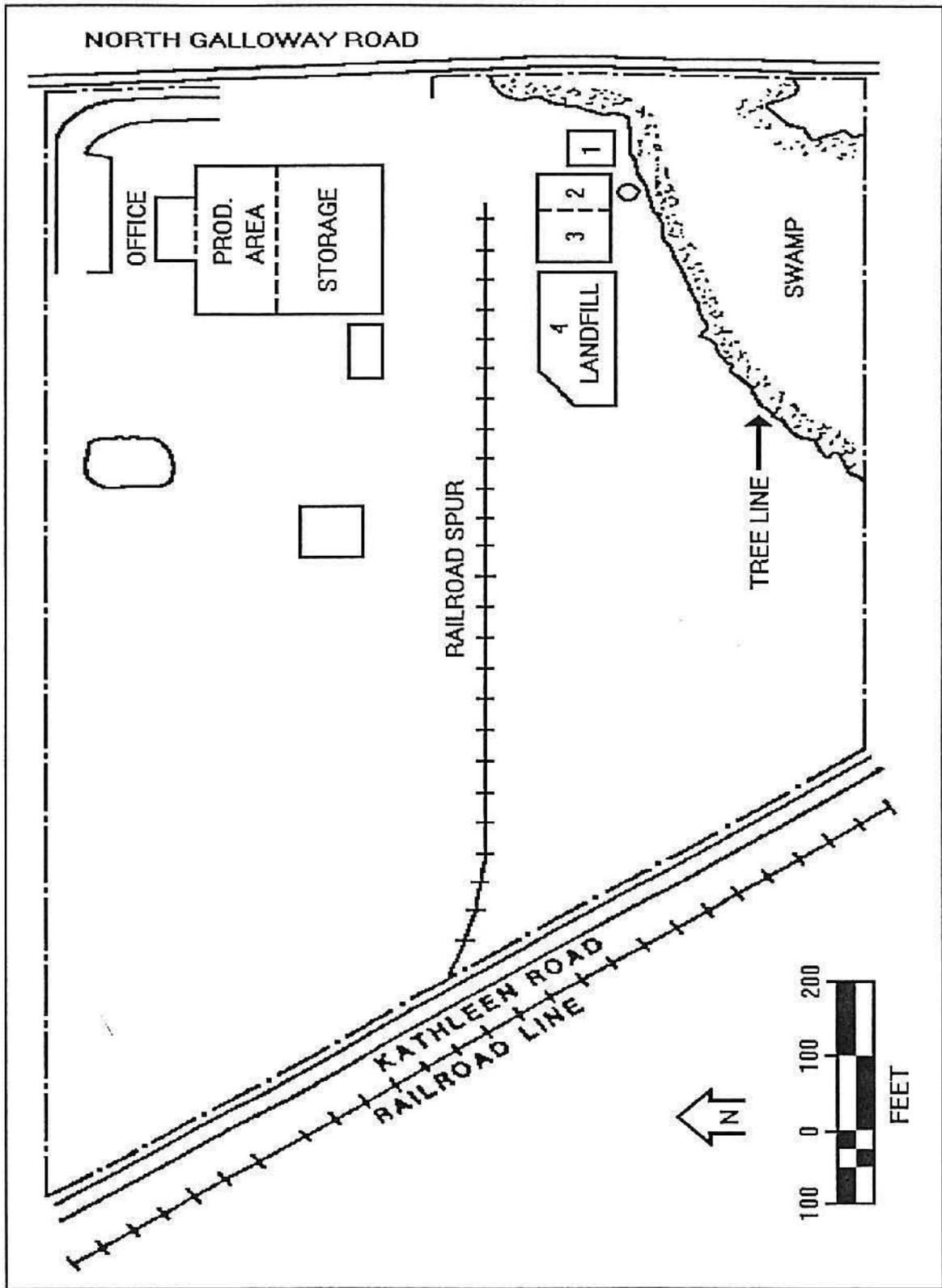


Figure 3. Site Map of Alpha Resins Showing Pond Location (adapted from the 1986 RI).