

PRELIMINARY

**Health
Assessment
for**

ALPHA RESINS CORPORATION (AKA ALPHA CHEMICAL)

LAKELAND, POLK COUNTY, FLORIDA

JANUARY 31, 1989

U.S. Environmental Protection Agency
Toxic Substances and Disease Registry
U.S. Health Service

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THE ATSDR HEALTH ASSESSMENT: A NOTE OF EXPLANATION

Section 104(i)(7)(A) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, states "...the term 'health assessment' shall include preliminary assessments of potential risks to human health posed by individual sites and facilities, based on such factors as the nature and extent of contamination, the existence of potential pathways of human exposure (including ground or surface water contamination, air emissions, and food chain contamination), the size and potential susceptibility of the community within the likely pathways of exposure, the comparison of expected human exposure levels to the short-term and long-term health effects associated with identified hazardous substances and any available recommended exposure or tolerance limits for such hazardous substances, and the comparison of existing morbidity and mortality data on diseases that may be associated with the observed levels of exposure. The Administrator of ATSDR shall use appropriate data, risk assessments, risk evaluations and studies available from the Administrator of EPA."

In accordance with the CERCLA section cited, ATSDR has conducted this preliminary health assessment on the data in the site summary form. Additional health assessments may be conducted for this site as more information becomes available to ATSDR.

PRELIMINARY HEALTH ASSESSMENT
ALPHA RESINS CORPORATION (AKA ALPHA CHEMICAL)
Polk County
Lakeland, Florida
January 31, 1989

Prepared by:
Office of Health Assessment
Agency for Toxic Substances and Disease Registry

Background

The Alpha Resins Corporation Site is a National Priorities List (NPL) Site located three miles north of Lakeland, Florida. The Alpha Resins Corporation facility has produced unsaturated polyester resins in northern Polk County since 1967. Polyester resins are produced by an esterification reaction of various difunctional organic alcohols and acids which yield an ester salt and water. As a result of the reactions, a waste stream containing water and small quantities of organics is produced. Alpha Resins Corporation obtained a permit from the Florida Department of Environmental Regulation (FDER) to discharge this waste stream to unlined surface impoundments on site. The ponds were permitted and served as percolation basins from 1967 to 1976.

In 1976 a thermal oxidizer was installed at the facility to incinerate the waste water. The oxidizer was also supposed to help eliminate the smell produced by the wastewater stream. The oxidizer eliminated the need for the unlined ponds, and after its installation Pond 4 started to dry up. For one year (1977) Pond 4 was used as a solid waste landfill for Alpha Resins Corporation and its employees. In 1977, the landfill was filled in and covered with soil as part of its closure.

A dam was constructed through another on-site pond to form Ponds 2 and 3. Pond 2 was lined with concrete and was used exclusively for storing the caustic floor wash waste from the plant. Use of Pond 3 was discontinued.

In October 1981, Alpha Resins was recommended for placement on the NPL, primarily because of air and groundwater pollution complaints by local residents. In May 1988 a Record of Decision (ROD) was signed for the site. The ROD calls for capping of the unlined on-site pond (Pond 3) and long-term monitoring at the site.

Environmental Contamination and Physical Hazards

A. Area Contamination

Nineteen soil/waste samples from the landfill, one soil/sludge sample from the unlined on-site pond, three soil samples from the swamp, 18 groundwater samples, and seven off-site private well samples were taken during the Remedial Investigation (RI). No inorganic constituents of health concern were detected at the site. Also, no contaminants of health concern were found in any of the off-site private drinking water wells sampled. No site-related contamination of the Floridian aquifer was detected on or off site. Table 1 lists the contaminants of concern at the site, the media in which the contaminants were identified, and the range of concentrations.

TABLE 1. Area Contamination

| CONTAMINANT | MEDIA | RANGE OF CONCENTRATIONS |
|---------------|--------------------|-------------------------|
| Ethylbenzene | Landfill Soils | ND-461 |
| | Unlined Pond Soils | 0.729 ¹ . |
| | Swamp Sediment | ND-1.04 |
| | Surficial Aquifer | ND-22.6 |
| Total Xylenes | Swamp Sediment | ND-1.96 |
| | Surficial Aquifer | ND-0.692 |
| o-Xylene | Landfill Soils | ND-14.5 |
| Benzoic Acid | Surficial Aquifer | ND-17 |
| Styrene | Subsurface Soils | ND-1480 |

Notes:

1. Only one sample was taken from the pond area.
2. All units = parts per million (ppm; mg/kg; mg/l)
3. ND = not detected; concentration below instrument detection limits.

B. Physical Hazards

There are no known physical hazards present at the Alpha Resins Site.

Potential Environmental and Exposure Pathways

A. Environmental Pathways

1. Groundwater

The hydrogeologic investigation defined two primary aquifers underlying the site: the surficial aquifer and the deeper Floridian aquifer. The surficial aquifer is comprised of two separate water-bearing zones separated by a layer of clayey sand. However, these two zones are hydraulically connected in some areas because of the discontinuity of the clayey sand layer. Groundwater in the surficial aquifer discharges to the swamp. Groundwater flow in the surficial aquifer is to the southeast. Ethylbenzene, xylene, and benzoic acid were detected at elevated levels in the surficial aquifer.

The Floridian aquifer is separated from the surficial aquifer by approximately 20 feet of impermeable clay. Monitoring wells in the vicinity of the site indicate that the Floridian aquifer is confined and artesian. The Floridian aquifer is the primary drinking water source for private residential wells in the area. This aquifer was sampled and no site-related contamination was found.

2. Surface Water

The site is part of the Hillsborough River drainage basin; however, the site is located on a ridge which has restricted, internal drainage. Surface water from the site drains into a swampy, low-lying wetland at the southeastern corner of the property. The wetland area is not a part of any designated wildlife or wetland sanctuary.

The landfill and waste ponds are outside of the 100-year flood plain. The flood plain does include the wetland on the southeastern corner of the property.

The ROD states that a cap will be placed over the entire surface of Pond 3. This should prevent the further vertical migration of contaminants from the unlined pond into the groundwater. Capping the pond should also reduce leachate generation.

3. Soil

Concentrations of constituents found in the soil/sediment and soil/waste samples ranged from ND to 1480 ppm. The contaminant with the highest concentration in the soil was styrene, found in the landfill waste. The landfill, which is a suspected source of contamination, has remained undisturbed since it was filled in and covered with soil during its closure in 1977.

4. Air

An air investigation was not conducted as part of the RI; however, there is no indication that the air pathway has been affected by site contamination.

B. Human Exposure Pathways

Based on the environmental media that have been contaminated at the site, the concentrations of contaminants that were found in these media, and the potentially exposed population near the site, the only human exposure pathway of potential concern at the Alpha Resins Corporation Site would be the ingestion of groundwater found in the surficial aquifer. Nevertheless, the surficial aquifer is not used for potable purposes in the vicinity of the site, therefore, there is no human exposure pathway of significance at the site.

Land Use and Demographics

The approximately 32-acre Alpha Resins Corporation Site is located three miles north of Lakeland, Florida. The area within one-half mile of the site is used for residential, commercial, wetlands, and agricultural purposes. Polk County Planning Department reported a human population of approximately 651 within one-half mile of the site in 1980.

Evaluation and Discussion

The potential for human exposure to significant levels of site-related contaminants at the Alpha Resins Site is remote. No exposure pathways at the site were indicated; therefore, the site is considered no threat to the human population living in the vicinity of the site. Contaminated groundwater was detected in the surficial aquifer on site. However, the surficial aquifer is not used for drinking water or for other functions in the vicinity of the Alpha Resins Site. Contamination was also detected in on-site soils, but, the concentrations were low and are not believed to be at levels of concern with respect to health effects.

Conclusions and Recommendations

Based on the available information, this site is considered to be of no public health concern because of the absence of human exposure to significant levels of hazardous substances. If wells are installed in the surficial aquifer in the future, exposure via ingestion of contaminated groundwater may need to be reevaluated.

If further environmental characterization, sampling from on-site areas, or sampling from impacted off-site areas become available because of subsequent investigations at the site, the Agency for Toxic Substances and Disease Registry (ATSDR) should be forwarded a copy of this information/data for review. When additional information is received by ATSDR, such material will form the basis for further assessment as warranted by site-specific public health issues.

References

1. Final Draft Endangerment Assessment for the Alpha Resins Corporation Site, Lakeland, Florida, October 16, 1986.
2. Feasibility Study Report for the Alpha Resins Corporation Site, Lakeland, Florida, January 16, 1987.
3. Remedial Design/Remedial Action Work Plan for Capping of Unlined Pond, Alpha Resins Corporation, Lakeland, Florida, August 1, 1988.
4. Remedial Investigation Report, Alpha Resins Corporation, Lakeland, Florida, August 29, 1986.