

HEALTH CONSULTATION
STAUFFER CHEMICAL COMPANY (TARPON SPRINGS PLANT)
TARPON SPRINGS, PINELLAS, FLORIDA
CERCLIS NO. FLD010596013

December 20, 1995

Prepared by

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 Florida Department of Health and Rehabilitative Services (Florida HRS) has been petitioned by a community member for an evaluation of the health effects of exposure to sulfur dioxide from the Stauffer Chemical plant in Tarpon Springs, Florida. The petitioner expressed concern that an inadequate evaluation of this contaminant had been conducted in the preliminary public health assessment for the site because air monitoring data had not been provided to Florida HRS.

We evaluated sulfur dioxide as a contaminant of concern in the health assessment based on the data that was available at the time the assessment was written (1). The petitioner and the Florida Department of Environmental Protection have provided Florida HRS with additional air monitoring data (2, 3). We have determined that a health consultation to evaluate the air monitoring data is an appropriate response to the request. The interpretation, advice, and recommendations presented in this report are situation-specific and should not be considered applicable to any other situations.

The Stauffer Chemical Company/Tarpon Springs site (Stauffer) is between Anclote Boulevard and the Anclote River, about one mile east of the Gulf of Mexico, in Tarpon Springs, Pinellas County, Florida (Figures 1 and 2). The plant, which extracted elemental phosphorus from phosphate ore, is currently inactive and many buildings and other structures have been dismantled and removed from the site. A skeleton crew, consisting of a manager, four operators and three security guards, is providing 24-hour security and maintenance of the grounds and remaining equipment.

The 160-acre facility was operated by Victor Chemical Works from 1947 to 1960 when it was purchased by Stauffer Chemical Co. Stauffer operated the plant until it closed in 1981 (4, 5). The facility's ownership has changed several times since then and is currently the Stauffer Management Co., a subsidiary of Zeneca, Inc. (formerly ICI Americas) (6).

The main plant site, as shown in Figure 3, is south and west of Anclote Road. This area originally included the phosphate ore processing and phosphorus production facilities, waste disposal facilities, office and administration buildings, and several railroad spurs used for receipt of raw materials and shipment of products. The area to the north, between Anclote Road and Anclote Boulevard, contains production wells for process water and was also used for storage of crushed slag and other waste materials. The railroad lines, many of the buildings, and much of the waste slag were removed after the plant closed.

According to 1990 census data (7), approximately 14,000 people live within a one mile radius of the site north of the Anclote River and about 4,700 people live within one mile south of the river. The neighborhoods north of the site are lower-middle income while the ones south of the site across the river are middle income. About 100 feet north of the site across Anclote Boulevard are an elementary school and daycare center, and three-quarters of a mile southwest of the site across the Anclote River are a hospital and another daycare

center.

Between 1975 and 1979, the Pinellas County Department of Environmental Management (DEM) received numerous complaints from local citizens about air pollution from the Stauffer plant (8). Residents near the plant complained of choking fumes (probably sulfur dioxide) from the plant. One news article and several citizen complaints described white clouds (probably phosphorus pentoxide) emanating from the plant.

In July 1977, an air monitoring station was installed near the southeast corner of the Stauffer plant (Fig. 4). Air samples for sulfur dioxide were collected by 24-hour bubbler and 3-hour continuous monitoring (3). Table 1 below presents the highest sulfur dioxide level measured for each year between 1977 and 1981. Sulfur dioxide levels near Stauffer exceeded the state of Florida standard (8) until 1980 when they began a dramatic decline. It was at about this same time that the Stauffer plant began to close down. Because the air monitoring station is very close to the Stauffer plant (see Figure 4), we believe that the sulfur dioxide levels are representative of those to which people living or working near the plant may have been exposed.

Table 1. Maximum Annual Sulfur Dioxide Level

YEAR	SULFUR DIOXIDE, 24-HOUR BUBBLER. STD: 260 mg/m ³		SULFUR DIOXIDE, 3-HOUR CONTINUOUS. STD: 1300 mg/m ³	
	mg/m ³	ppm	mg/m ³	ppm
1977	715	0.28	1877	0.72
1978	907	0.35	1550	0.60
1979	592	0.23	2026	0.78
1980	201	0.08	568	0.22
1981	149	0.06	463	0.18

mg/m³ - micrograms per cubic meter of air

ppm - parts per million

Source: (3, 6)

DISCUSSION

There is no ATSDR Toxicological Profile for sulfur dioxide. Therefore, no Minimal Risk Level (MRL) is available. For 1977-1979, sulfur dioxide levels measured at the air monitoring station exceeded the Florida standard and the NIOSH short term exposure limit

(STEL) (9). For sulfur dioxide, the threshold for smell is about 0.3 - 1 ppm. At a level of about 0.5 ppm, sensitive individuals, such as asthmatics, may experience tightness of the chest and wheezing from exposure to sulfur dioxide (9). Some individuals may also become sensitized to sulfur dioxide on repeated exposure (10). Most individuals, however, should not experience any adverse health effects from exposure to sulfur dioxide at the levels that have been measured. No air monitoring data is available prior to 1977. Therefore, we cannot evaluate the likely health effects that may have occurred from exposure to sulfur dioxide up to that time.

CONCLUSIONS

Based upon the information reviewed, we conclude that adverse health effects from exposure to sulfur dioxide from the Stauffer Chemical Company site between 1977 and 1981 are unlikely except in especially sensitive individuals. As noted above, we do not have sufficient information to evaluate the likely health effects from exposure to sulfur dioxide prior to the establishment of the air monitoring station in 1977. If additional information becomes available indicating exposure at levels of concern, Florida HRS will evaluate that information to determine what actions, if any, are necessary.

RECOMMENDATIONS

Florida HRS recommends that individuals, such as asthmatics, or anyone who may have become sensitive to the effects of sulfur dioxide avoid exposure in the future.

REFERENCES

1. Agency for Toxic Substances and Disease Registry. Preliminary Public Health Assessment for Stauffer Chemical Company/Tarpon Springs, Pinellas County, Tarpon Springs, Florida. Atlanta: ATSDR, August 4, 1993.
2. Coalition Against the United States Exporting Dolphins (C.A. U.S.E.D). Letter to Bruce Tuovila, Florida HRS, from Mary Mosley concerning air monitoring results at the Stauffer Chemical Company/Tarpon Springs plant. September 30, 1995.
3. Florida Department of Environmental Protection. Personal communication to Bruce Tuovila, Florida HRS, from Brian Kerckhoff concerning air monitoring data collected at Stauffer Chemical Company/Tarpon Springs. Nov 9, 1995.
4. NUS Corporation. Final Expanded Site Investigation Report, Stauffer Chemical Company, Tarpon Springs, Pinellas County, Florida. 1989.
5. NUS Corporation. Interim Final Listing Site Inspection Report, Stauffer Chemical Company Site, Tarpon Springs, Pinellas County, Florida. 1991.

6. Zeneca, Inc. Fact sheet describing site history, investigations, and current status of Stauffer Chemical Co., Wilmington, DE. March 12, 1993.
7. Bureau of the Census, U.S. Department of Commerce, Washington, DC, 1990 Census Data Files.
8. Pinellas County Department of Environmental Management. Memorandum to Jacob Stowers from Joyce Gibbs regarding complaints filed against Stauffer Chemical Co., EPA Air & Water Quality Division, Atlanta, GA. March 4, 1980.
9. Beliles, RP and Beliles, EM. Phosphorus, Selenium, Tellurium, and Sulfur. In: Patty's Industrial Hygiene and Toxicology, Vol. II, Part A, Toxicology, 4th ed. John Wiley & Sons, Inc., 1993: 807-811.
10. Sittig M. Sulfur Dioxide. In: Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd ed. Noyes Publications, 1985: 812-814.

Health Consultation Authors

Bruce J. Tuovila

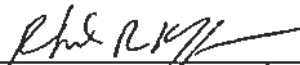
Bruce J. Tuovila
Biological Scientist
HSET
(904) 488-3385

E. Randall Merchant

E. Randall Merchant
Biological Administrator
HSET
(904) 488-3385

CERTIFICATION

This Stauffer Chemical Co. (Tarpon Springs Plant) 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.

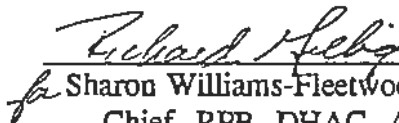
Technical Project Officer

Remedial Programs Branch (RPB)

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, RPB, DHAC, ATSDR

Figure 1. State Map Showing Location of Pinellas County

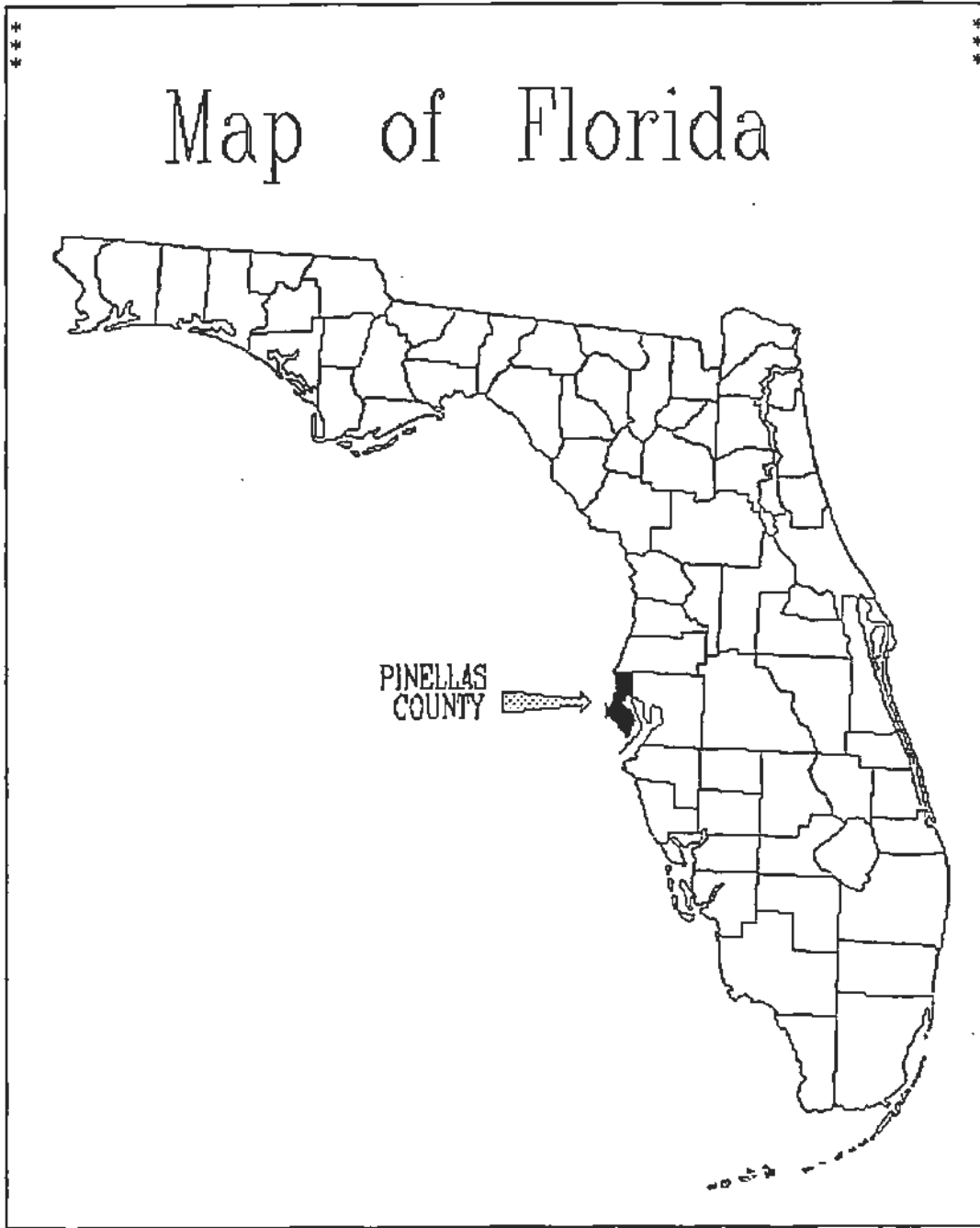


Figure 2. Location of Stauffer Chemical Co. in Tarpon Springs

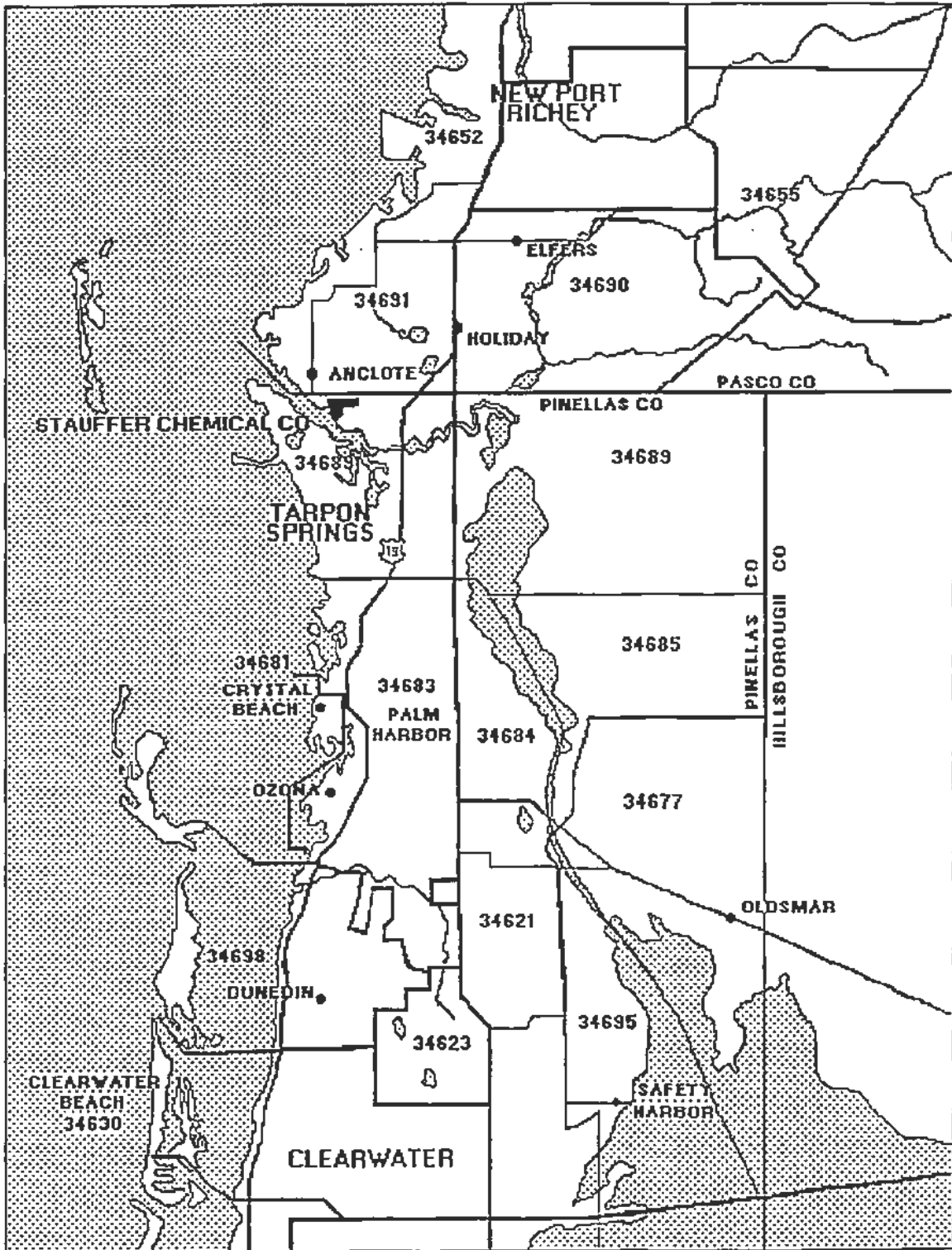


Figure 3. Layout of Stauffer Chemical Co. Site

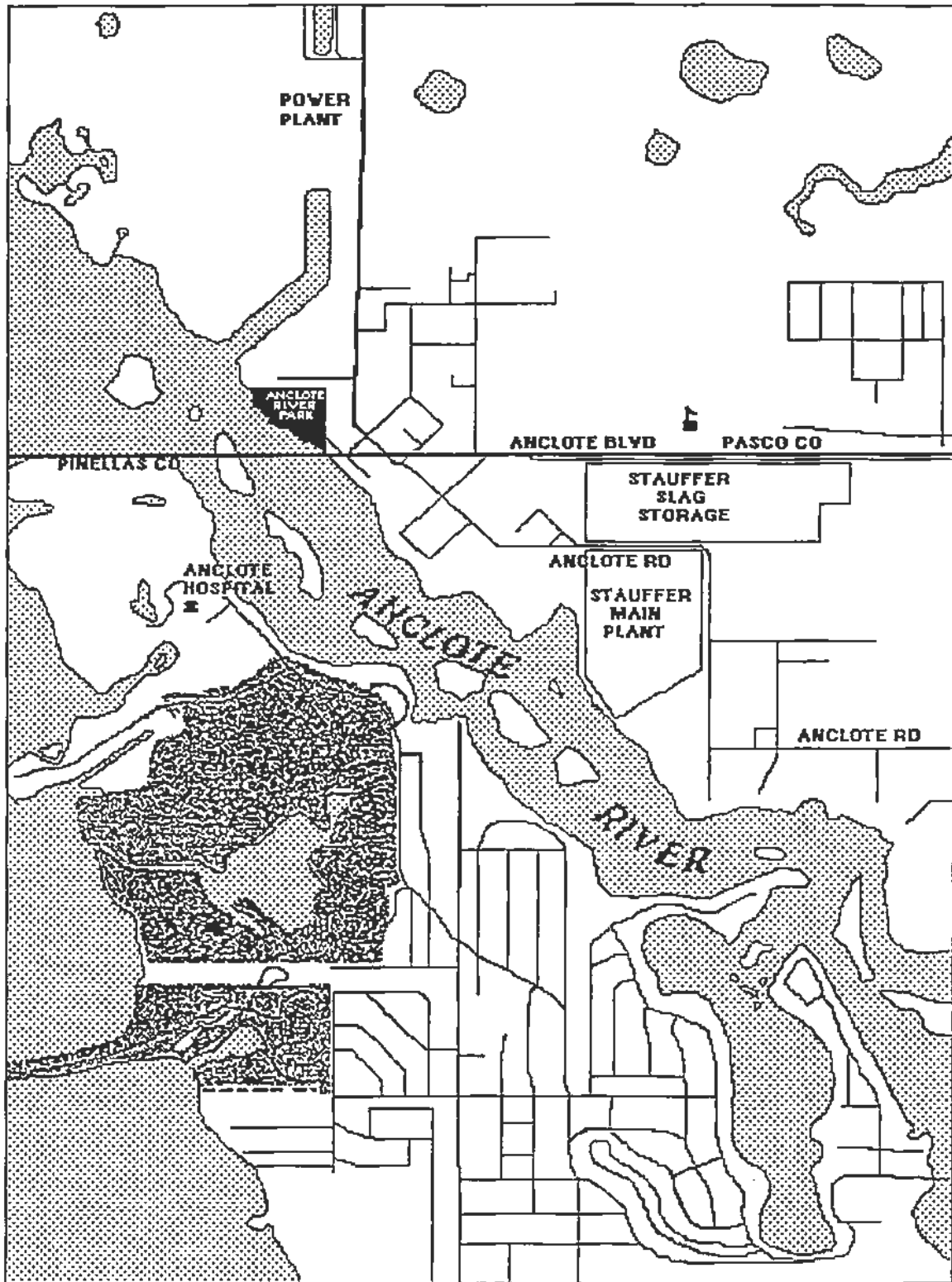


Figure 4. Detail--Stauffer Chemical Co. Main Plant Area

