HEALTH CONSULTATION

AGRICO CHEMICAL COMPANY/NEIGHBORHOOD SOIL SAMPLES

PENSACOLA, ESCAMBIA COUNTY, FLORIDA

CERCLIS NO. FLD010596013

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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), through a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR) in Atlanta, Georgia, evaluates the public health significance of Superfund hazardous waste sites in Florida. The U.S. Environmental Protection Agency (EPA) has petitioned Florida HRS to evaluate the health effects of exposure to contaminants detected in soil samples collected in the neighborhood near the Agrico Chemical Company site. Some of these samples were collected on the Brown-Barge Middle School property near the site and there is community concern that exposure to contaminants in the soil may adversely affect the health of children and adults at the school. EPA has provided Florida HRS with the analysis results of these soil samples (1). We have determined that a health consultation to evaluate the soil sampling 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 Agrico Chemical Co. (Agrico) site occupies about 35 acres at the intersection of Fairfield Dr. and Interstate 110, in Pensacola, Escambia County, Florida (Figures 1-4). The site is bounded by Interstate 110 to the east, Fairfield Dr. to the south, the CSX railroad yard to the west, and CSX property containing two baseball fields to the north.

Production of sulfuric acid from pyrite (iron sulfide) began in 1889 by an unidentified company. From 1920-1963, sulfuric acid and superphosphate fertilizer were produced at the site by the American Agricultural Chemical Company. Continental Oil Company purchased the property and operated the facility from 1963 to 1972. Agrico purchased the facility and operated it until 1975, producing superphosphate and monoammonium phosphate. Fertilizer production ceased in mid-1975 and the facility was purchased by a Florida partnership and a private individual in 1977. In 1979, all buildings and process equipment were removed from the site (2).

In 1983, the EPA conducted a hazardous waste site investigation at the site. They found fluoride, lead, sulfate, and chromium in soil and wastewater pond samples. In 1988 and 1989, the Florida Department of Environmental Regulation (FDER) (now ,the Florida Department of Environmental Protection (FDEP)) investigated groundwater contamination at the site. They found elevated fluoride and sulfate levels in both shallow and deep groundwater on and downgradient from the site. In 1989, EPA added this site to the National Priorities List (NPL) of Superfund sites. In 1991 and 1992, contractors for the Agrico Potentially Responsible Parties (PRPs) conducted remedial investigations which indicated that the site was contaminated with arsenic, chromium, fluoride, lead, manganese, sulfate, and vanadium. Surface and subsurface soils both on and off of the site were also contaminated with polycyclic aromatic hydrocarbons (PAHs).

According to 1990 census data (5), about 150 people live within a one-quarter mile radius of the site and about 6,400 people live within one mile. The population within one-quarter mile

is about 96% African-American. The neighborhood west of the site is low to lower-middle income. There are eight daycare centers, six public schools, two hospitals, one private school, and a children's home within one mile of the site.

The area within one mile of the site is mixed residential/light industrial/commercial. There are commercial businesses and a school complex south of the site across Fairfield Dr., and the CSX railroad yard and a residential neighborhood west of the site. North of the site is a borrow pit operation and a sand-and-gravel supply business. Interstate 110 borders the site on the east. The Escambia Treating Company hazardous waste site is about two-thirds of a mile northwest of the Agrico site.

In July, 1995, contractors for EPA collected and analyzed eight surface soil (0 - 1 foot) and two subsurface soil (2 - 3 feet) samples from locations in the neighborhood near the Agrico Chemical Company site. Two of the surface soil samples and one of the subsurface soil samples were taken from the Brown-Barge Middle School south of the site across Fairfield Drive (Fig. 4). Samples were analyzed for polycyclic aromatic hydrocarbons (PAHs), pesticides, cyanide, and fluoride. The concentrations of six contaminants exceeded their respective comparison values and were selected for further evaluation. Table 1, below, presents the highest level of each contaminant found in the soil samples. Since all the contaminants of concern are potential human carcinogens, they were evaluated for both carcinogenic and non-carcinogenic adverse health effects.

Table 1. Maximum Concentrations in Soil Samples

Contaminants of Concern	Maximum Concentration (mg/kg)
Benzo(a)pyrene	0.92
Chlordane	0.84
Dieldrin	0.084
Heptachlor	0.32
Heptachlor epoxide	0.46
Polychlorinated biphenyls (PCBs)	0.66

mg/kg - milligrams per kilogram
Source: (1)

DISCUSSION

To evaluate health effects, ATSDR has developed Minimal Risk Levels (MRLs) for contaminants commonly found at hazardous waste sites. The MRL is an estimate of daily human exposure to a contaminant below which non-cancer, adverse health effects are unlikely to occur. ATSDR developed MRLs for each route of exposure, such as ingestion, inhalation, and dermal contact, and for the length of exposure, such as acute (less than 14 days), intermediate (15 to 364 days), and chronic (greater than 365 days). ATSDR presents these MRLs in Toxicological Profiles. These chemical-specific profiles provide information on health effects, environmental transport, human exposure, and regulatory status.

ATSDR has developed MRLs for benzo(a)pyrene, chlordane, dieldrin, and PCBs (6, 7, 8, 9). There is no ATSDR MRL for heptachlor or heptachlor epoxide (10). However, EPA has developed an oral Reference Dose (RfD) for heptachlor and heptachlor epoxide which we have used to evaluate the likely health effects from exposure to these two chemicals.

Using a standard incidental soil ingestion rate of 200 mg/day for children and 100 mg/day for adults, and a standard body weight of 15 kg for children and 70 kg for adults, we estimate that the likely maximum daily dose of each of the chemicals listed in Table 1 does not exceed the MRL or RfD for that chemical. Therefore, exposure to these chemicals at the concentrations found in the soil samples collected is unlikely to cause any adverse non-carcinogenic health effects.

Each of the contaminants of concern is a potential human carcinogen. However, at the concentrations found in the soil samples collected, lifetime incidental ingestion of this soil would result in an insignificant increase in the risk of cancer.

CONCLUSIONS

Based upon the information reviewed, Florida HRS concludes that adverse health effects from exposure to contaminants in the neighborhood soil samples collected near the Agrico Chemical Company site are unlikely. None of the contaminants detected in the soil are at levels that could result in either carcinogenic or non-carcinogenic adverse health effects in children or adults. 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 no further action regarding the results of soil analysis data reviewed in this report.

REFERENCES

1. U.S. Environmental Protection Agency. FAX Transmittal to Bruce Tuovila from Mark Fite regarding analytical data for soil samples collected in the neighborhood near the Agrico Chemical Company site. Dec 19, 1995.

2. Geraghty & Miller. Final Phase II Remedial Investigation, Agrico Chemical Site, Pensacola, Florida. Sep 18, 1992.

3. Geraghty & Miller. Final Feasibility Study, Agrico Chemical Site, Pensacola, Florida. Sep 23, 1992.

4. U.S. Environmental Protection Agency. Record of Decision, Operable Unit 1, Agrico Chemical NPL Site, Pensacola, Escambia County, Florida. Atlanta. Sep 29, 1992.

5. Bureau of the Census, U.S. Department of Commerce, Washington, DC, 1990 Census Data Files.

6. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Benzo(a)pyrene. ATSDR: Atlanta. May 1990.

7. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Chlordane (Update). ATSDR: Atlanta. May 1994.

8. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Aldrin/Dieldrin. ATSDR: Atlanta. April 1993.

9. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Polychlorinated Biphenyls, Draft Update. ATSDR: Atlanta. August 1995.

10. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Heptachlor/Heptachlor Epoxide. ATSDR: Atlanta. April 1993.

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CERTIFICATION

This Agrico Chemical Company/Community Samples 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.

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

for Sharon Williams-Fleetwood, Ph.D.
Chief, RPB, DHAC, ATSDR

Figure 1. State Map Showing Location of Escambia County

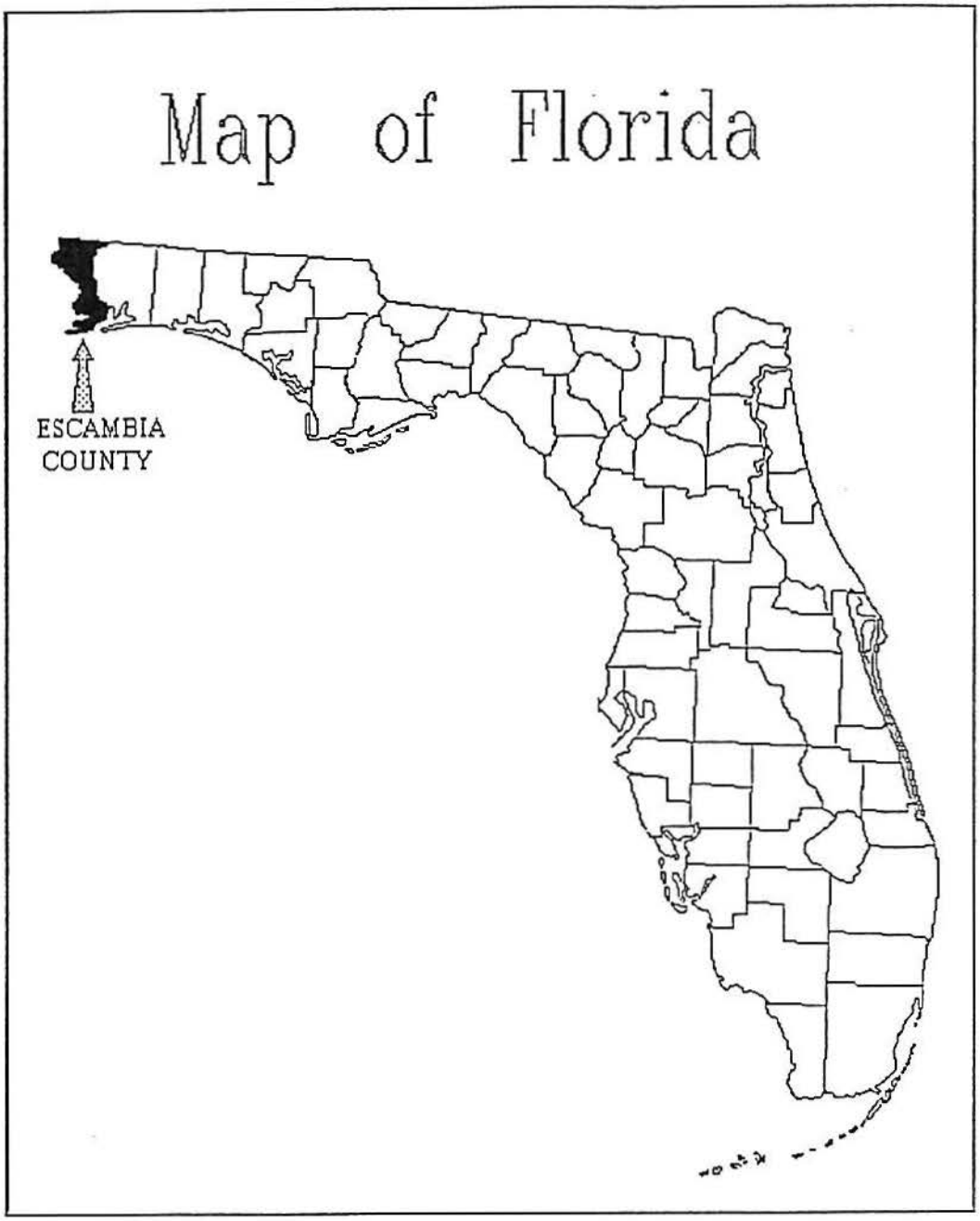

Figure 2. Location of Pensacola in Escambia County

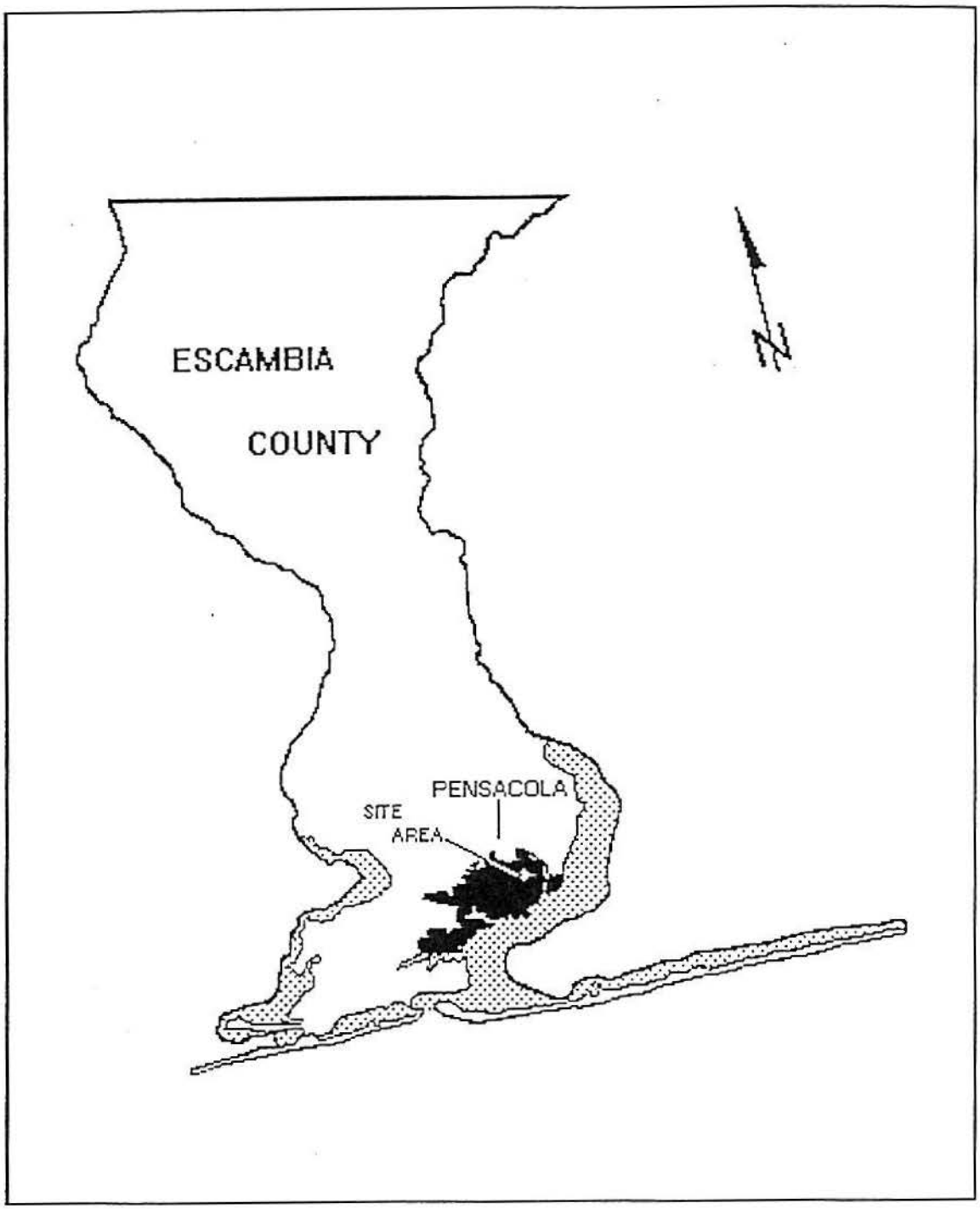

Figure 3. Location of Agrico Chemical Co. in Pensacola

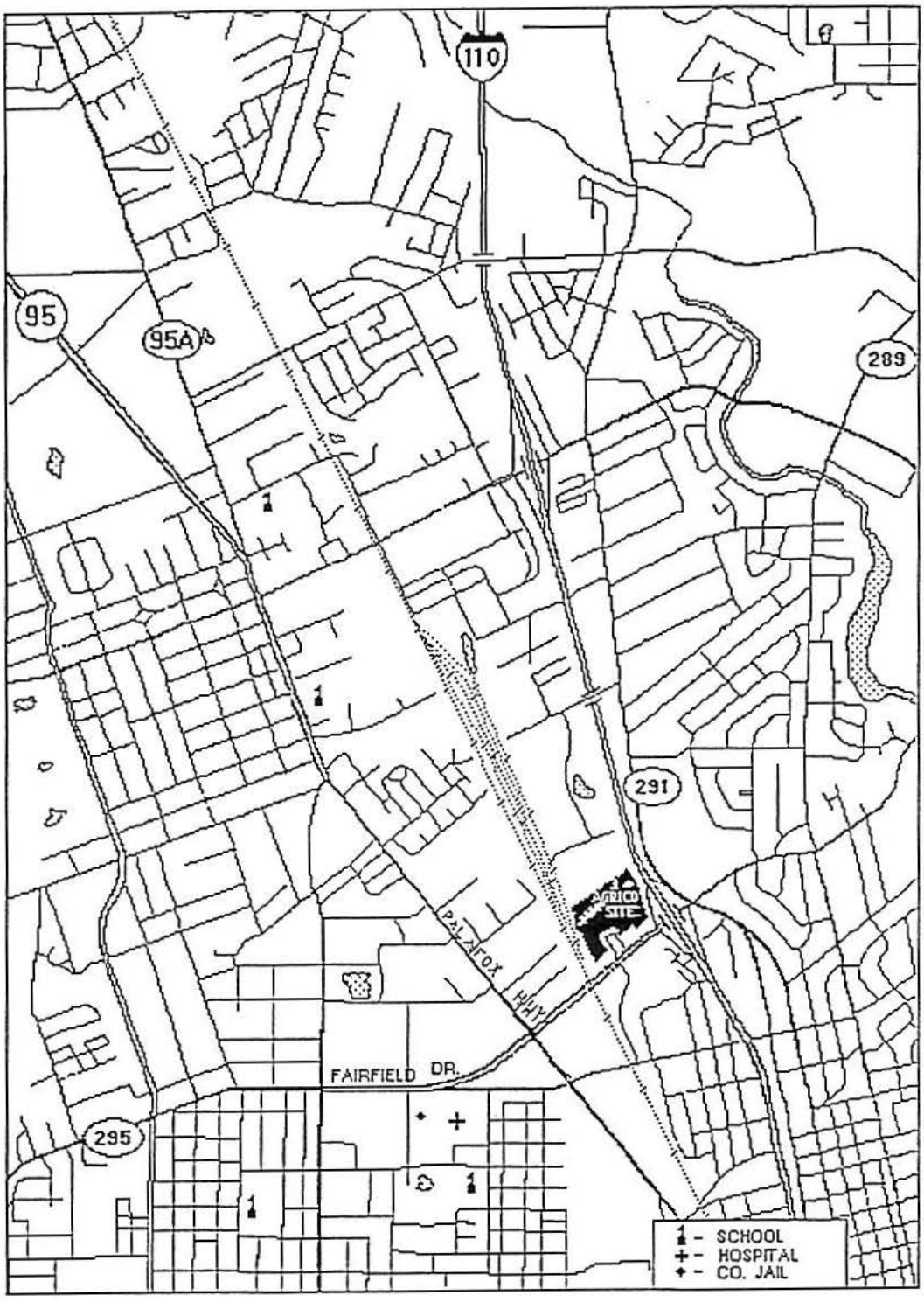

Figure 4. Detail of Agrico Chemical Co. Site