



## Memorandum

Date January 21, 1994

From Senior Toxicologist, TSS, ERCB, DHAC (E-57)

Subject Health Consultation: Stauffer Chemical Company (406G)  
Tarpon Springs, Florida

To Carl Blair  
ATSDR Regional Representative  
U.S. EPA Region IV  
Through: Director, DHAC (E32)  
Acting Chief, ERCB, DHAC (E57) *[Signature]*

## BACKGROUND AND STATEMENT OF ISSUES

The U.S. Environmental Protection Agency (EPA), Region IV, asked ATSDR to review the Final Site Remedial Investigation Report for the Stauffer Chemical Company and determine if contamination at the site poses an imminent and substantial endangerment [1].

The site is an inactive facility that previously processed phosphate ore to produce elemental phosphorus. The plant operated from 1947 until it closed in 1981. Residual wastes from the recovery operation were disposed of in on-site disposal ponds and in the slag processing area. The facility is currently fenced and patrolled 24 hours a day by security guards. The Gulf View Elementary School is located directly north of the facility along Anclote Boulevard.

On-site surface soils (0-3 inches) are contaminated with inorganic and organic chemicals and radionuclides. In a 1993 study, the following maximum concentrations of contaminants were detected in on-site surface soils: arsenic - 127 milligrams/kilogram (mg/kg), lead - 324 mg/kg, fluoride - 2,810 mg/kg, and phosphorus - 27,600 mg/kg [2]. Several polyaromatic hydrocarbons were detected at concentrations of  $\leq 4.3$  mg/kg. On-site soil is also contaminated with elevated concentrations of radionuclides. The following maximum concentrations of radionuclides were reported for on-site surface soils: radium-226 (73.8 picocuries/gram [pCi/g]), polonium-210 (203.3 pCi/g), and radon-222 (3 pCi/g) [2]. In a 1989 survey, external gamma radiation readings as high as 140 microRoentgen/hour ( $\mu$ R/hr) were detected on-site.

Surface soils from the Gulf View Elementary School did not contain any organic or inorganic chemicals at concentrations of health concern. The low concentrations of radionuclides detected in surface soil samples from the school property (radium-226 [1.6 pCi/g], radon-222 [1.6 pCi/g], and polonium-210 [2.9 pCi/g]) were not at levels of health concern.

On-site groundwater from the surficial aquifer contained arsenic, lead, cadmium, fluoride, and chromium at concentrations in excess of the EPA's drinking water Maximum Contaminant Levels (MCLs). Radon-222 concentrations in water from the surficial aquifer also exceeded the proposed MCL, but the concentrations were less than the average radon concentration reported for groundwater in central Florida [2].

None of the chemical parameters measured in the deeper Floridan aquifer exceeded drinking water MCLs except for radon-222. The concentration of radon-222 was highest in an upgradient, background monitoring well, which suggests that the elevated radon levels are not site-related [2].

No potable wells are located on-site or down-gradient of the facility. The surficial and Floridan aquifers flow to the southwest and discharge to the Anclote River, which borders the site on the southwest. Surface water samples from the river did not contain contaminants at levels of human health concern.

#### DISCUSSION

On-site surface soil contained arsenic concentrations as high as 127 mg/kg. Short-term exposure to soil containing this concentration of arsenic would not pose a health hazard. However, chronic and frequent exposure to soil containing the maximal arsenic concentration could pose a public health hazard. The concentrations of the other inorganic and organic chemical contaminants in surface soil do not pose a public health hazard.

On-site surface soil also contained radium-226 at concentrations as high as 74 pCi/g. There are no regulatory standards that specifically apply to phosphate ore wastes. However, for uranium mill tailings, the EPA has promulgated a standard of 5 pCi/g for radium-226 in the top 15 centimeters of soil [3]. At the Stauffer site, the maximum radium concentrations in the slag processing and main production areas exceeded this value. In addition, on-site, gamma radiation readings ( $\leq 140 \mu\text{R/hr}$ ) exceeded the EPA's standard

of 20  $\mu\text{R/hr}$  above background for inactive uranium processing sites [3].

The site is currently inactive, fenced, and patrolled by security guards. Therefore, public contact with on-site contamination is unlikely. However, if the site were to be reoccupied, long-term contact with the areas containing maximal concentrations of radionuclides could result in exposures in excess of acceptable health-based levels.

The concentrations of inorganic and radioactive chemicals in surface soil samples from the school property do not pose a public health hazard.

Water from on-site monitoring wells in the surficial aquifer contained chemical contaminants at concentrations above drinking water MCLs. However, the surficial aquifer is not being used as a potable water source in the area. The nearest public water supply wells (which are in the Floridan aquifer) are located about 1.5 miles southwest of the site on the opposite side of the Anclote River. There is no evidence of human exposure to contaminated groundwater from the surficial aquifer.

#### CONCLUSIONS

Based on the information reviewed, ATSDR concludes the following:

1. Surface soil samples from the Gulf View Elementary School did not contain chemical or radionuclide contaminants at levels that would pose a public health hazard.
2. Surface soil samples from the Stauffer Chemical site contained elevated concentrations of arsenic and radionuclide contaminants. These contaminant levels do not pose an imminent and substantial endangerment to human health. However, long-term exposures to the contamination could pose a public health hazard.

#### RECOMMENDATIONS

1. Continue to restrict access to on-site contamination until appropriate remedial actions have been implemented.

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**REFERENCES**

1. Maxwell J. Kimpson, EPA Remedial Project Manager; memorandum to Carl Blair, ATSDR; January 7, 1994.
2. Roy F. Weston, Inc.; Final Site Remedial Investigation Report - Stauffer Management Company, Tarpon Springs, Florida; December 1993.
3. 40 Code of Federal Regulations; Part 192; Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (7-1-92).