

Health Consultation

(EXPOSURE INVESTIGATION)

UNITED METALS, INCORPORATED
MARIANNA, JACKSON COUNTY, FLORIDA
EPA FACILITY ID: FLD098924038

AUGUST 12, 2002

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

(EXPOSURE INVESTIGATION)

UNITED METALS, INCORPORATED

MARIANNA, JACKSON COUNTY, FLORIDA

EPA FACILITY ID: FLD098924038

Prepared by:

**Florida Department of Health
Bureau of Environmental Epidemiology
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry**

Summary and Statement of Issues

This health consultation determines whether the blood lead levels of five children living near the United Metals Incorporated (UMI) hazardous waste site in Marianna, Florida, represent a public health threat. In December 2001, the Jackson County Health Department (CHD) tested water samples from drinking water wells from two homes near the UMI site and found lead levels above guidance concentrations. Children between the ages of 2 and 12 years reside in the two homes. The children drink water from the wells, and their age group is susceptible to lead poisoning. Therefore, the Jackson CHD, in cooperation with the Florida Department of Health, tested the children's blood for lead. The measured blood lead levels in these children were neither elevated nor likely to cause illness. Florida DOH so notified the children's parents by telephone and by mail.

Site Description and History

The United Metals Incorporated (UMI) site is on the east side of state Highway 71 near Simsville, in rural Jackson County, Florida (Figure 1 and 2). Simsville is approximately 10 miles southeast of Marianna, Florida. Most of this 180-acre site is wooded. Battery recycling operations took place within a 24-acre area which was surrounded by a chain-link fence. The site includes five structures: an office/storage building, a concrete-block health center, a vehicle maintenance shop, a battery recycling building, and a plastic-pellet processing and storage building (Figure 3).

Farmland, pasture, and undeveloped wetlands surround the site. Single-family residences are within ½ mile to the northeast and southwest. The site slopes slightly south-southwest, toward the Chipola River. Patches of bare ground exist around the battery recycling building. Leftover equipment and materials, including plastic chips from the plastic recycling operation, are scattered around the site.

UMI began operations in 1979. From 1979 to 1991, UMI recycled copper, brass, tin, and aluminum. UMI also recycled lead and plastic from auto batteries. The lead and plastic was sold to smelting and extruding facilities. Through the use of precipitation and neutralization, UMI treated 5,000 gallons of acidic wastewater each day.

The Florida Department of Environmental Protection (DEP), formerly the Florida Department of Environmental Regulation, first investigated the site in 1980—in conjunction with its investigation of the nearby Sapp Battery site. In March 1980 DEP traced metal contamination in Dry Creek to UMI.

Shallow groundwater under the UMI site moves toward the southeast, southwest, and northwest, discharging to Dry Creek and eventually into the Chipola River system.

In March 1981 Florida DEP found levels of zinc and lead in higher-than-background levels in the groundwater and holding pond water on the UMI site. The pond water was highly acidic (pH =

1.5). Florida DEP estimated that from recycling 10,000 to 12,000 car batteries per week, UMI generated 2,500 to 5,000 gallons of metal-containing acid waste per week. Florida DEP also found elevated levels of lead, zinc, nickel and manganese in the Dry Creek–Chipola River water and sediments immediately downgradient of the site.

In May 1982 EPA found elevated levels of cadmium in on-site groundwater. The EPA also found levels of arsenic, cadmium, chromium, iron, lead, nickel and zinc higher than the background levels in the processed waste water. In July 1982, the Florida DEP found elevated levels of cadmium and lead in the holding pond water and in the groundwater. In 1983 UMI dredged and filled the holding pond.

In July 1986 EPA discovered between 8,330 to 13,000 milligrams per kilogram (mg/kg) of lead in the on-site soil. UMI ceased operations in 1989.

From 1993 to 1994 EPA’s contractor found elevated levels of aluminum, arsenic, cadmium, chromium, iron, lead, manganese, nickel and vanadium in on-site soil and groundwater. They found lead in both on-site and off-site surface soil ranging from 119 to 10,900 mg/kg. Holding pond sediment contained elevated levels of arsenic (61 mg/kg), antimony (556 mg/kg) and lead (106,000 mg/kg). Also, soil from the drainage area west of the site contained elevated lead levels. Storm water runoff from UMI drains into Dry Creek and eventually into the Chipola River.

In the mid 1990s Florida DEP noted holes in the fence surrounding the UMI site and other signs of trespass. By October 2001, however, Florida DOH and the Jackson CHD again visited the site, and noted the facility’s gate was locked, and saw no signs of recent trespass.

Discussion

General Lead Background Information

“In residential settings, lead intoxication has been observed in children, but rarely in adults. CDC considers children to have an elevated blood lead level if the amount is at least 10 [milligrams per deciliter] $\mu\text{g/dL}$. Medical evaluation and environmental investigation/remediation should be done for all children with blood lead levels equal to or greater than $20\mu\text{g/dL}$. Medical treatment may be necessary for children if the blood lead levels are higher than $45\mu\text{g/dL}$.” (ATSDR 1999).

Lead levels in drinking water are likely to be highest if:

a home has faucets or brass fittings containing lead, or
a home has copper pipes with solder and the house is less than 5 years old, or
a home has naturally soft water, or
water often sits in a home’s pipes for several hours (EPA 1993).

EPA recommends flushing cold water pipes by running the water until it becomes as cold as it will get. This could take as little as 5 to 30 seconds if there has been recent heavy water use such as showering or toilet flushing. Otherwise, it could take 2 minutes or longer. The more time water has been sitting in a home's pipes, the more lead it can contain.

One source of lead in most homes is, lead pipe or lead solder in the home's plumbing. The most common cause is corrosion, a reaction between the water and the lead pipes or solder. Dissolved oxygen, low pH (acidity) and low mineral content in water are also common causes of corrosion. Any electric current traveling through a ground wire will accelerate corrosion of lead in pipes (EPA 1993).

Blood Lead Testing

In October and November 2001, the Jackson CHD tested three nearby residents' drinking water wells for metals. In two wells, both within 2,000 feet of the site—they found lead levels above the drinking water guidance concentration of 15 micrograms per liter ($\mu\text{g/L}$); they found 170 $\mu\text{g/L}$ of lead in one well, and 16 $\mu\text{g/L}$ in the other (Figure 4). The Jackson CHD advised both households to use bottled water. Jackson CHD also requested assistance from Florida DEP.

In December 2001, Florida DOH, with assistance from the Jackson CHD, coordinated blood lead testing for the five children aged 2 to 12 who resided in these two homes. With parental consent, the Jackson CHD collected venous blood samples from two girls and three boys within that age group.

The Florida DOH Laboratory in Jacksonville analyzed the blood samples for lead. The Jackson CHD paid for the laboratory analysis. Florida DOH informed the children's parents of the blood lead test results by telephone and mail. As authorized by the children's parents, the Florida DOH notified the family physicians, EPA, and Florida DEP.

In January 2002, the Jackson CHD resampled the well that previously tested at 170 $\mu\text{g/L}$ lead, and found instead 3 $\mu\text{g/L}$ lead. The Jackson CHD concluded the October-November 2001 lead result was a sampling error.

Blood Lead Test Results and Interpretation

The December 2001 blood lead level samples from all five children living near the United Metals site were below levels associated with harmful health effects.

All five children living near the UMI site had blood lead levels less than 3 $\mu\text{g/dL}$. The Centers for Disease Control (CDC) considers children to have an elevated level of lead if the amount of lead in the blood is at least 10 $\mu\text{g/dL}$ (ATSDR 1999). The geometric mean blood lead concentrations for the entire U.S. population (NHANES 1999) are:

1-5 years old	2.0 $\mu\text{g/dL}$ (1.7-2.3)
6-11 years old	1.3 $\mu\text{g/dL}$ (1.0-1.6)
12-19 years old	1.0 $\mu\text{g/dL}$ (.8-1.2)

The National Report on Human Exposure to Environmental Chemicals (NHANES) is a survey of the general U.S. population (CDC 2001). Although two of the children living near this site had blood lead levels slightly higher than the national geometric mean for their age group, those levels are still below levels associated with harmful health effects.

Child Health Initiative

Because this health consultation addresses children who both drink water containing some lead and play outdoors, children are its main concern. Children are not small adults; a child's exposure to hazardous substances can differ from an adult's exposure in many ways. Children drink more fluids, eat more food, and breathe more air per kilogram of body weight than do adults. They also have a larger skin surface in proportion to their body volume. A child's diet often differs from that of an adult's. A child's behavior and lifestyle also influence exposure. Children—especially very young children—crawl on the floor, put things in their mouths and can ingest inappropriate objects such as dirt or paint chips. Children also spend more time outdoors than do adults. But perhaps most importantly, children do not have the judgment of adults insofar as avoiding hazards is concerned. Also, specifically with regard to lead, children are more sensitive to the effects of lead than are adults (ATSDR 1999).

That said, however, the measured blood lead levels in the children living near the United Metals Incorporated site are not likely to cause harmful health effects.

Conclusion

The measured blood lead levels of the five children living near the United Metals site are not likely to cause harmful health effects. Based on the blood lead levels found in the children, the United Metals site is categorized as a no apparent public health hazard.

Recommendations/Public Health Action Plan

At this time, the Florida DOH does not offer any recommendations for this site.

References

[ATSDR] Agency for Toxic Substances and Disease Registry. 1997. Special initiatives/children living near hazardous waste sites. Available at: URL: www.atsdr.cdc.gov/child. (Last accessed June, 2002).

[ATSDR] Agency for Toxic Substances and Disease Registry. 1999. Toxicological profile for lead. Atlanta: US Department of Health and Human Services.

[CDC] Centers for Disease Control and Prevention. 2001. National report on human exposure to environmental chemicals (NHANES survey 1999). Atlanta: National Center for Environmental Health, Division of Laboratory Sciences.

[EPA] US Environmental Protection Agency. 1993. Lead in your drinking water. EPA/810-F-93-001. Washington, DC: EPA Office of Water. Available at: URL: www.epa.gov/safewater/Pubs/lead1.html (Last accessed June, 2002).

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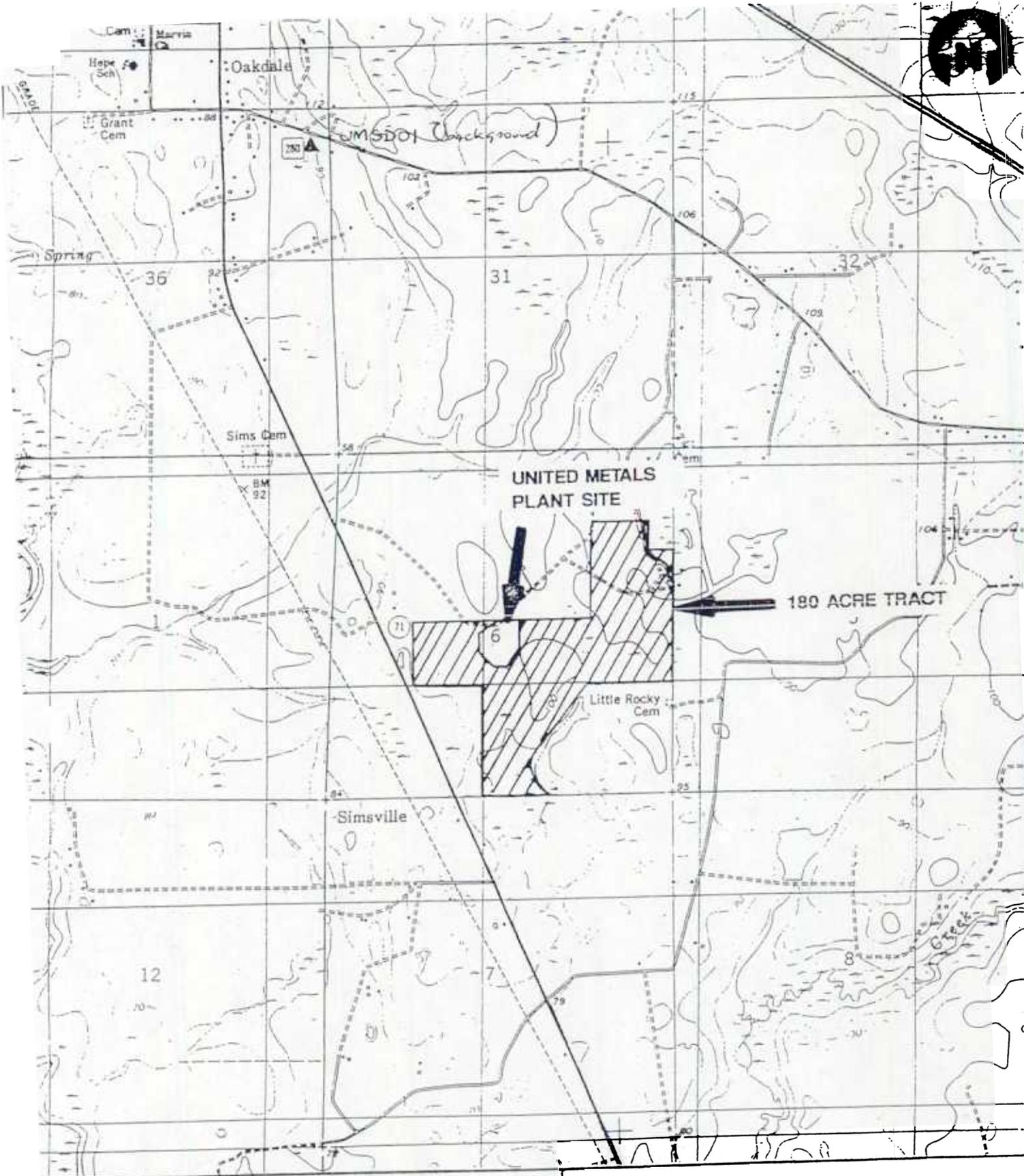
Map of Florida



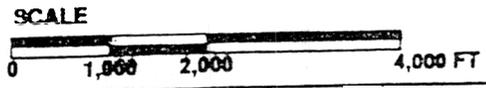
UNITED METALS INCORPORATED
COUNTY MAP

FIGURE 1

SOURCE: FLORIDA DOH FILES



SOURCE: USGS QUADRANGLE OAKDALE, FL., 1962.



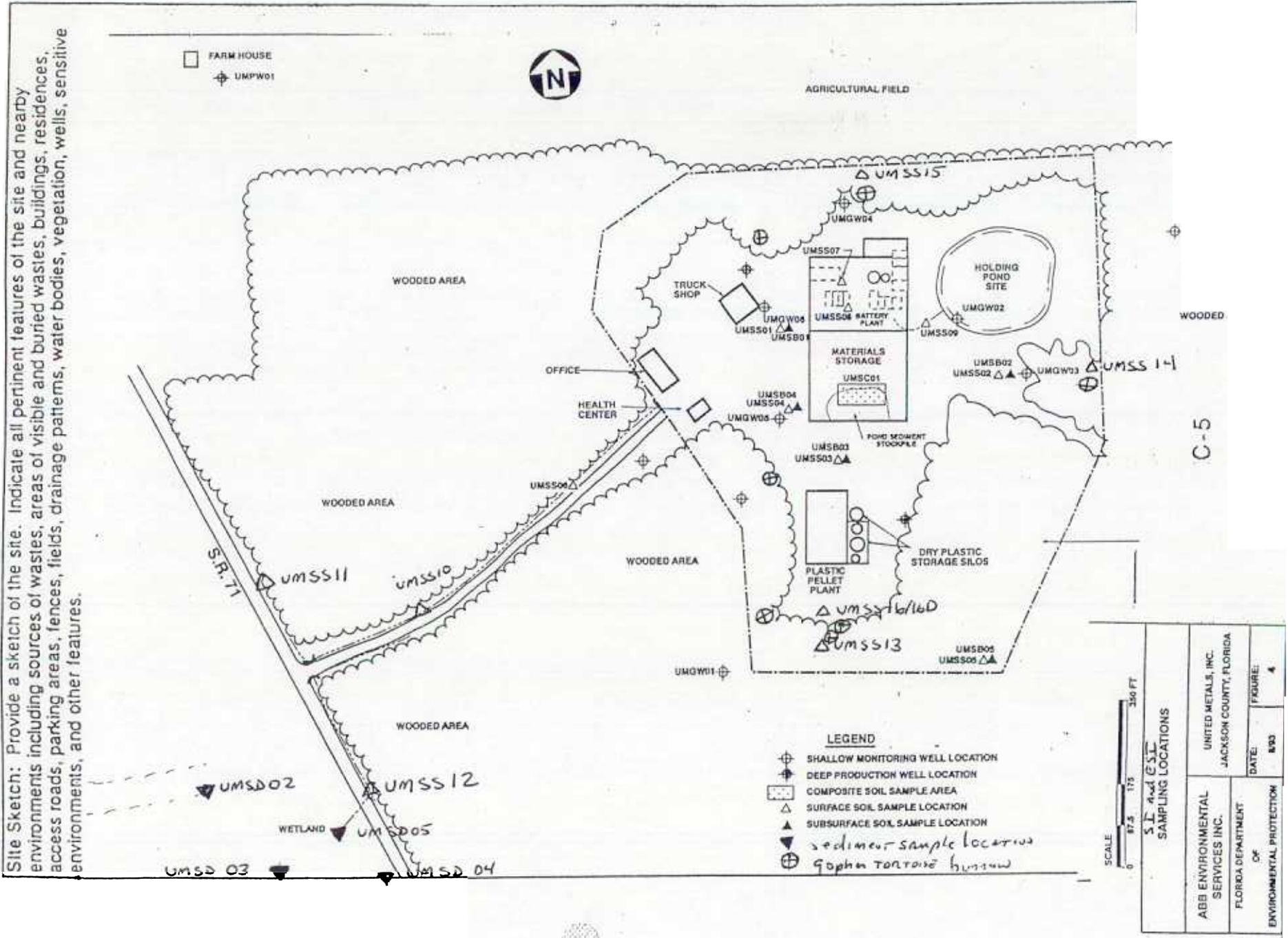
FLORIDA DEPARTMENT
OF
ENVIRONMENTAL PROTECTION

SITE MAP

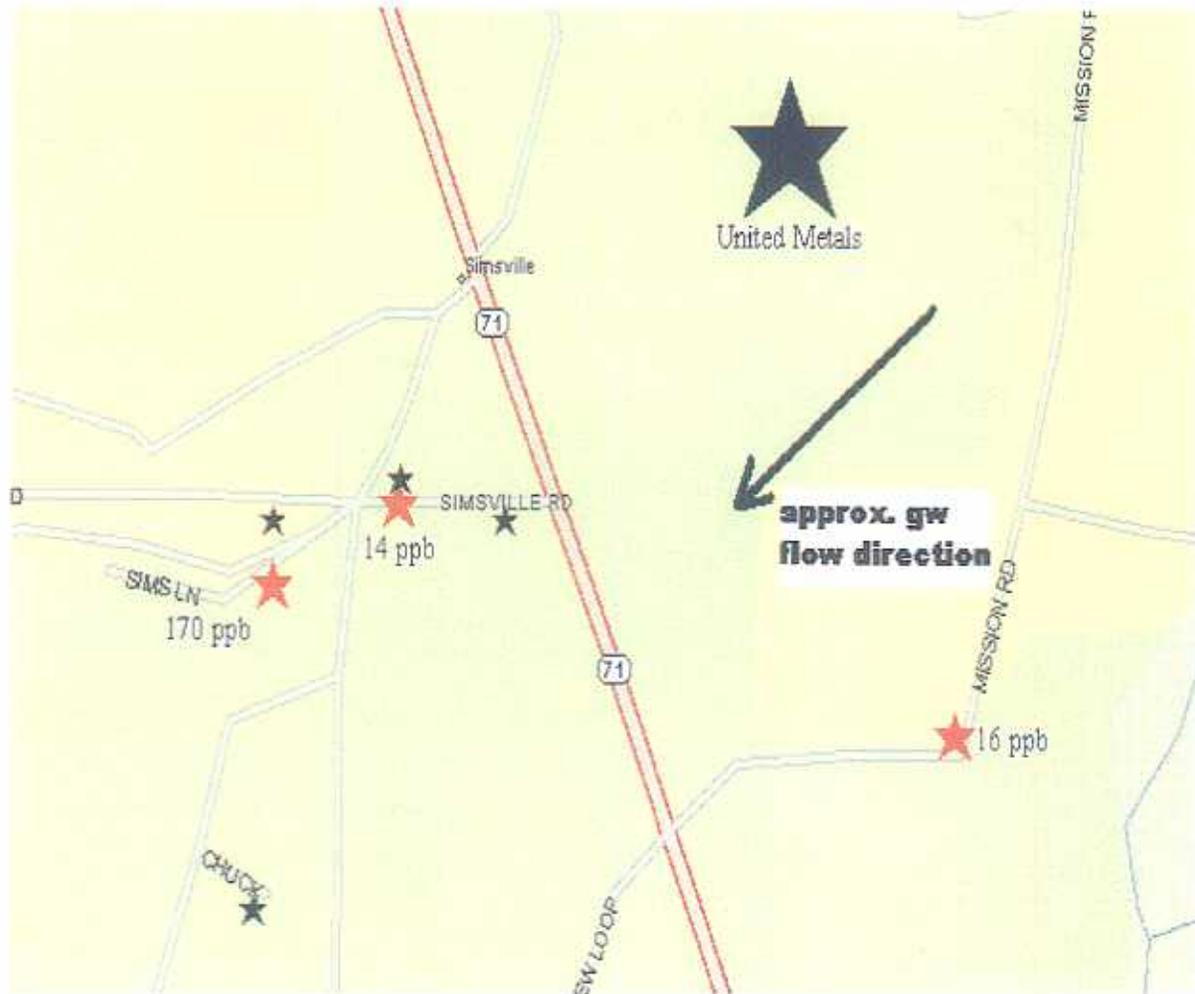
FIGURE 3

GENERAL INFORMATION (continued)

Site Sketch: Provide a sketch of the site. Indicate all pertinent features of the site and nearby environments including sources of wastes, areas of visible and buried wastes, buildings, residences, access roads, parking areas, fences, fields, drainage patterns, water bodies, vegetation, wells, sensitive environments, and other features.



UNITED METALS
Jackson County, Marianna, Florida
Location of Potable Wells Sampled and Lead Results in parts per million (ppm)
October / November 2001

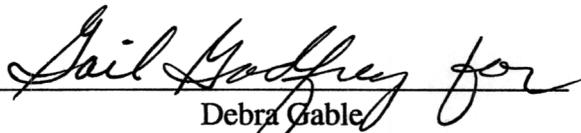


Source: DeLorme Street Atlas 1999

UNITED METALS INCORPORATED
LOCATION OF POTABLE WELL SAMPLING
FIGURE 4

Certification

The United Metals Incorporated Health Consultation was prepared by the Florida Department of Health, Bureau of Environmental Epidemiology, under a cooperative agreement with the Agency for Toxic Substances and Disease Registry. It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.


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


for Roberta Erlwein
Chief, SPS, SSAB, DHAC, ATSDR