

# **Letter Health Consultation**

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APF INDUSTRIES/4800 SITE

ST. PETERSBURG, FLORIDA

**Prepared by the  
Florida Department of Health**

JUNE 10, 2010

Prepared under a Cooperative Agreement with the  
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Agency for Toxic Substances and Disease Registry  
Division of Health Assessment and Consultation  
Atlanta, Georgia 30333

## **Health Consultation: A Note of Explanation**

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners 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 or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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LETTER HEALTH CONSULTATION

APF INDUSTRIES/4800 SITE

ST. PETERSBURG, FLORIDA

Prepared By:

Florida Department of Health  
Bureau of Environmental Public Health Medicine  
Under Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry



Charlie Crist  
Governor

Ana M. Viamonte Ros, M.D., M.P.H.  
State Surgeon General

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June 8, 2010

Gayle Guidash  
Environmental Health Director  
Pinellas County Health Department  
4175 East Bay Drive  
Clearwater, FL 33764

**RE: APF Industries/4800 site**

Dear Ms. Guidash:

The Florida Department of Health (DOH) examined possible health risks associated with use of irrigation wells near the APF/4800 hazardous waste site in St. Petersburg. Florida DOH evaluates the public health significance of Florida hazardous waste sites through a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR).

Nearby residents are concerned about chemicals in their irrigation wells. In this health consultation, Florida DOH examined the health risk from lawn irrigation and eating fruits and vegetables watered from these wells.

**Background and Statement of Issues**

The APF/4800 site is at 4800 95<sup>th</sup> Street North in St. Petersburg, Florida (Attachment B, Figure 1). APF Industries was a metal plating business that operated from 1964 until bankruptcy in 1990. In 1992, a private environmental inspector found abandoned, unsecured chemicals in a defunct on-site laboratory. Subsequent Florida Department of Environmental Protection (DEP) and Pinellas County Health Department (PCHD) investigations found groundwater and soil contamination.

Florida DEP, with the assistance of Professional Environmental Solutions, Inc., found volatile organic chemicals (VOCs) in the shallow aquifer below the site. VOCs included tetrachloroethylene (PCE) and its natural breakdown products.

Florida DEP conducted a well survey in 2005 and confirmed that this area is serviced with municipal drinking water. Due to the potential for exposure via irrigation wells, Florida DEP requested Florida DOH conduct a comprehensive well survey (CWS) within a one-half mile radius of the site.

In November 2009, Pinellas CHD sampled 15 private irrigation wells within a 500-foot radius of the site (Attachment C, Figure 2). One well was contaminated with 1,4-dioxane at a concentration of 0.34 micrograms per liter (ug/l). No other VOCs were reported. In a January 2010 press release, Florida DOH announced that the nearby irrigation wells may be safely used for typical irrigation purposes: watering lawns, growing fruits and vegetables and washing cars (Attachment A). It is safe for the water to contact skin and to breathe water vapors [DOH 2010].



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## Discussion

Incidental ingestion (swallowing), inhalation (breathing vapors), and dermal absorption (skin contact) are three possible exposure pathways from use of contaminated irrigation well water. In order to determine the risk of illness from use of irrigation wells, Florida DOH used an exposure model developed by toxicologists at the University of Florida. This model uses conservative assumptions that are protective of the most sensitive individuals: children and the elderly. The model calculates exposure for non-potable (non-drinking) uses of contaminated irrigation well water. The model considers the potential intake of contaminants in groundwater through inhalation, dermal contact, and incidental ingestion. The model also considers exposures resulting from eating fruits and vegetables grown with water from these wells. Inhalation rates for children and adults were combined with exposure frequency, exposure duration, and air concentration values to estimate inhalation exposures [Roberts 2008]. The risk of cancer and non-cancer illness associated with the levels of chemicals found in the irrigation wells was also determined.

DOH used the irrigation well exposure model for the following two scenarios: lawn irrigation and ingestion of homegrown vegetables (Attachment D). Only one irrigation well had detectable levels of the 1,4-dioxane at 0.34 (ug/l). No other VOCs were detected. At the maximum level of 1,4-dioxane detected, there is almost no increased risk of cancer or non-cancer illness (Attachment E, Table 1). The additional cancer risk is only about one in a billion (1 in 1,000,000,000).

## Conclusions

Coming in contact with or breathing vapors from nearby irrigation well water is not likely to harm people's health.

- Breathing low levels of 1,4-dioxane and other chemical vapors resulting from lawn irrigation from private irrigation wells is unlikely to cause cancer or other illnesses.
- Having skin contact with or accidentally drinking small amounts of water from private irrigation wells is unlikely to cause cancer or other illnesses.
- Eating vegetables from gardens irrigated from private irrigation wells in this area is unlikely to cause cancer or other illnesses.

## Recommendations

- Private irrigation wells should not be used as a drinking water source.
- The responsible party should continue to monitor groundwater quality near the APF/4800 site.

## Public Health Action Plan

Florida DOH will evaluate any future irrigation well test data.



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Please call me if you have any questions about this health consultation.

Sincerely,

Joseph Mark Higginbotham  
Health Assessor  
Florida Department of Health  
Bureau of Environmental Public Health Medicine

Cc: John Sego, Florida DEP Southwest District Office  
Brian Dougherty, Florida DEP Tallahassee Office

References

[DOH 2010] Florida Department of Health Issues Well Survey Report for Former Plating Industry Property. Publicly released through the Pinellas County Health Department. January 5, 2010.

[Roberts 2008] Roberts, S. (University of Florida). Irrigation well dosing model for Florida Department of Health.



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## **Attachment A**

January 5, 2010

### **FOR IMMEDIATE RELEASE**

Contact: Maggie Hall, Public Information Director  
Pinellas County Health Department  
727-824-6908 (media only)

### **FLORIDA DEPARTMENT OF HEALTH ISSUES WELL SURVEY REPORT FOR FORMER PLATING INDUSTRY PROPERTY**

The Florida Department of Health (DOH) today released findings from a November 2009 irrigation well sampling project in the vicinity of the APF/4800 site, a former metal plating business in St. Petersburg. Residents whose irrigation wells were sampled were notified of the results through letters and phone calls.

All residences are connected to the public drinking water system. The wells were determined to be safe for use for irrigation. Coming in contact with the well water or breathing its vapors was determined to not be a public health threat.

It is safe to use the wells for lawn watering, skin contact, breathing water vapors, eating fruits and vegetables grown with the water and similar purposes.

The sampling was conducted by the Pinellas County Health Department under contract with the Florida Department of Environmental Protection. Wells within a 500-foot radius of the former APF plating business at 4800 95<sup>th</sup> Street North in St. Petersburg were sampled. The DEP's Southwest District Office is working with the Florida Department of Health to continue to analyze the data.

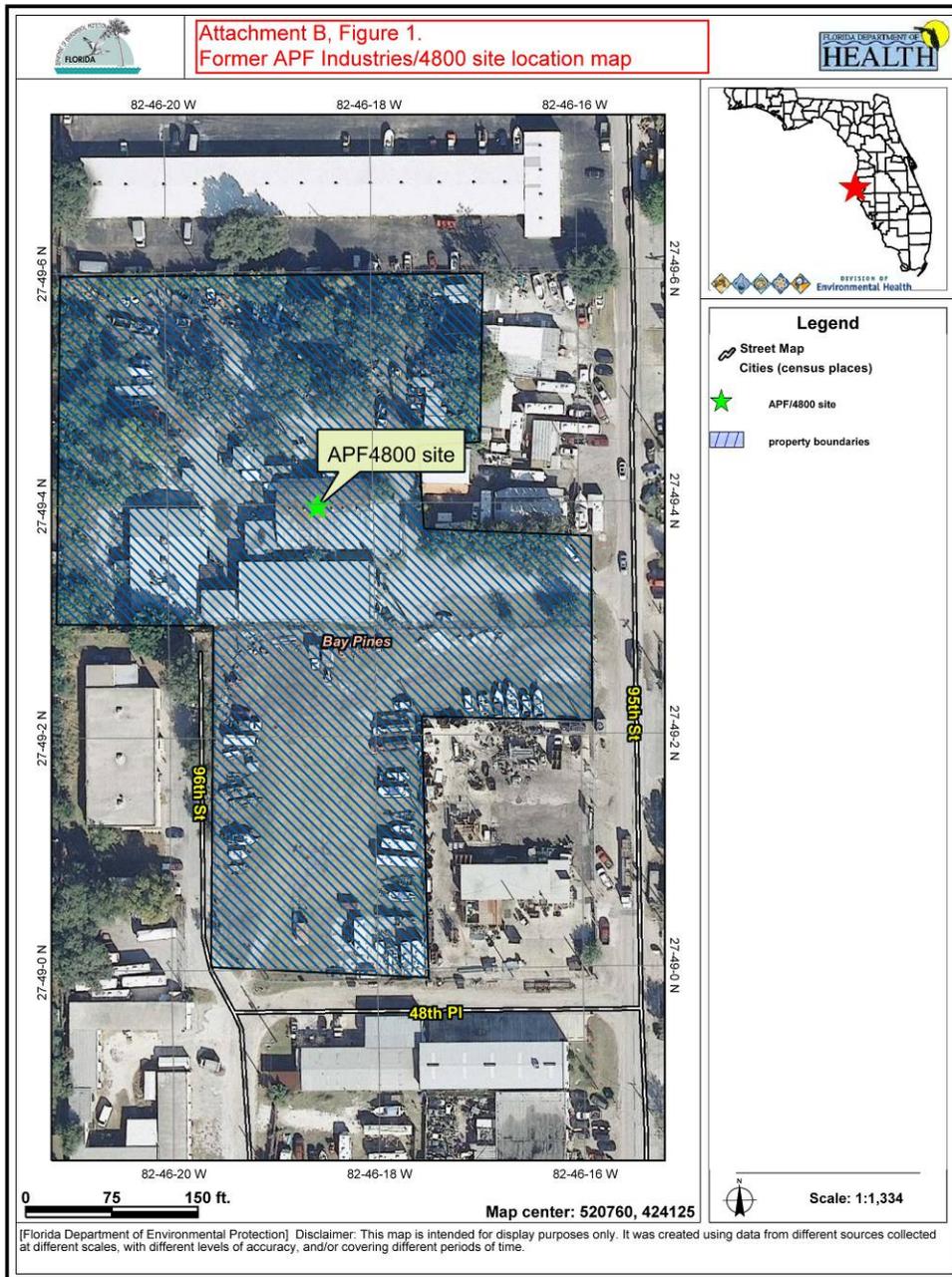
For any health information regarding the use of the wells, call the Pinellas County Health Department's Well Surveillance Information Line, (727) 538-7277, extension 1157.

For information about DEP's cleanup and report, call Ana Gibbs, Department of Environmental Protection, (813) 632-7600, extension 475.

-end-

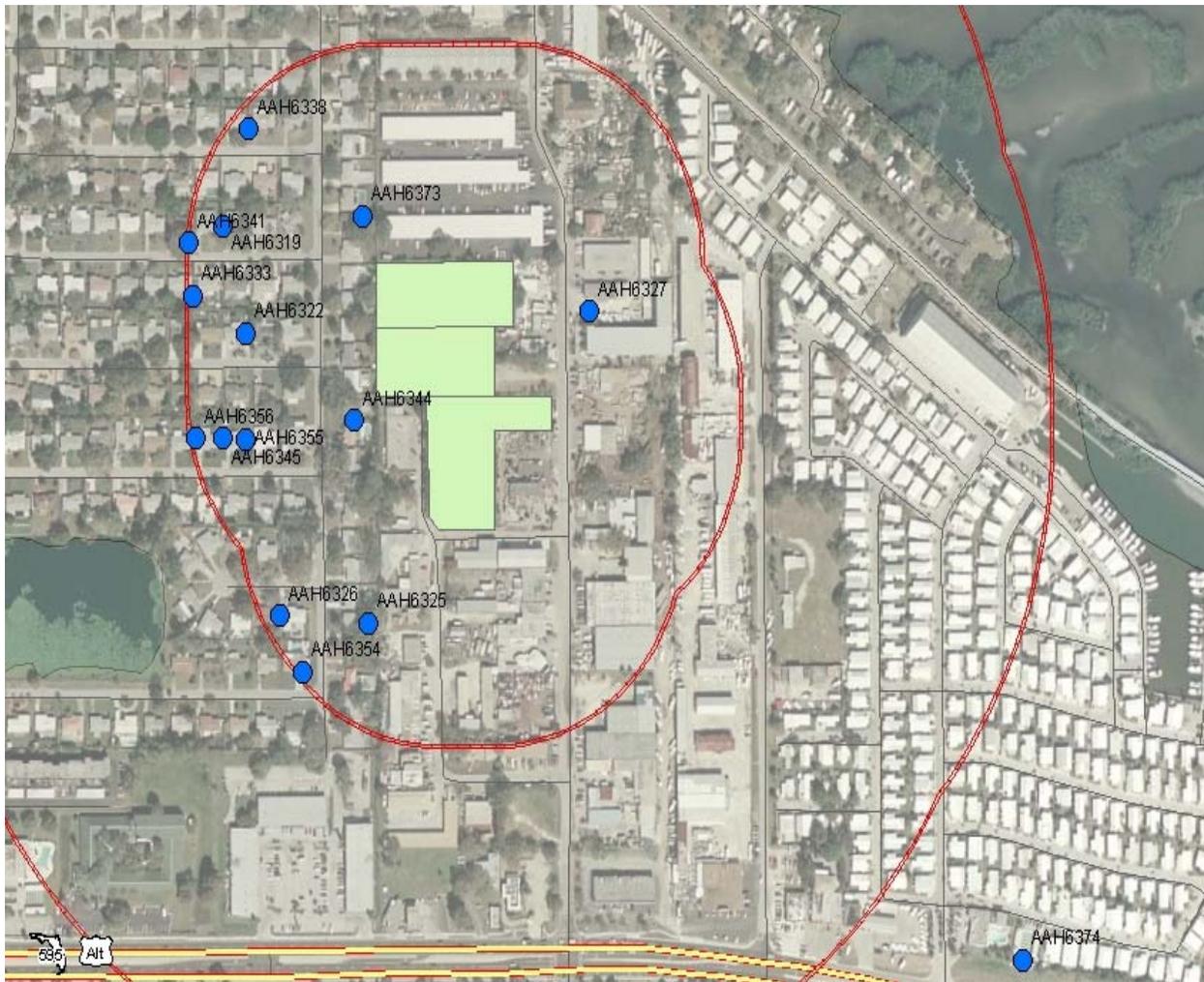
**Attachment B**

**Figure 1. APF/4800 Property Boundaries**



**Attachment C**

**Figure 2. Irrigation and industrial Supply Wells Sampled**





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**Attachment D**

**Table 1. University of Florida Irrigation Well Model Parameters**

University of Florida Irrigation Model  
Parameters

	<b>Child</b>	<b>Adult</b>	<b>Agg. Res.</b>	<b>Worker</b>
<b>Body Weight (kg)</b>	16.8	76.1	51.9	70.0
<b>Exposure Duration (y)</b>	6	24	30	25
<b>Vegetable Ingestion Rate (kg/d)</b>	0.0104	0.0285		
<b>Fruit Ingestion Rate (kg/d)</b>	0.0148	0.0562		
<b>Surface Area (cm<sup>2</sup>)</b>	7023	19680	15158	
<b>Inhalation Rate (m<sup>3</sup>/h)</b>		1	1.04	1.5
	<b>Value</b>			
<b>Contaminated Plant Fraction</b>	0.17	(residential)		
<b>Veg. Exposure Frequency (d/y)</b>	350			
<b>Irrig. Exposure Frequency (d/y)</b>	52			
<b>Averaging Time (d)</b>	2190	10950		
<b>Irrigation Rate (L/m<sup>2</sup>-d)</b>	3.62			
<b>Irrigation Period</b>	0.25	(3 months/yr)		
<b>Long Term Deposition and Buildup (d)</b>	10950			
<b>Area Density for Root Zone (kg/m<sup>2</sup>)</b>	240			
<b>Plant Mass Loading Factor</b>	0.26			
<b>Interception Fraction</b>	0.25			
<b>Translocation Factor</b>	1			
<b>Above Ground Exposure Time (d)</b>	60			
<b>Wet Plant Yield (kg/m<sup>2</sup>)</b>	2			
<b>Incidental Water Inges. Rate (L/d)</b>	0.01			
<b>Irrigation Time (h/d)</b>	0.483			
<b>Volume of Water Used (L)</b>	1450			
<b>Volume of Air (m<sup>3</sup>)</b>	31320			

[Roberts 2008]



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**Attachment E**

**Table 1. Predicted 1,4-Dioxane Doses and Estimated Additional Cancer Risk from Use of Irrigation Wells Near the APF/4800 Hazardous Waste Site**

Contaminant of concern	Highest measured concentration (ug/L)	Health Based CTL (ug/L)	Lawn Irrigation Dose for Aggregate Resident: Total Dose (mg/kg/day)	Dose for Aggregate Resident Consumption of Homegrown Produce: Total Dose (mg/kg/day)	EPA Oral Slope Factor* (mg/kg/day) <sup>-1</sup>	Calculated Resident Cancer risk from lawn irrigation (unitless)	Calculated Consumption of Homegrown Produce Cancer risk (unitless)
1,4-dioxane	0.34	3.2	4E-09	8E-08	1.10E-02	5E-11	9E-10

ug/L = micrograms per liter

CTL = Clean-up target level

mg/kg/day = milligrams per kilograms per day

(mg/kg/day)<sup>-1</sup> = per milligrams per kilograms per day

\*oral slope factor is used in the absence of irrigation slope factors



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## Certification

The Florida Department of Health, Bureau of Environmental Public Health Medicine prepared this health consultation report under a cooperative agreement with the US Agency for Toxic Substances and Disease Registry. Florida DOH followed approved methodologies and procedures existing at the time it began its assessment. Florida DOH completed an editorial review of this document.

A handwritten signature in blue ink that reads "Jennifer Freed".

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Jennifer Freed  
Technical Project Officer  
CAT, CAPEB, DHAC, ATSDR

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

A handwritten signature in black ink that reads "Alan Yarbrough".

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Alan Yarbrough  
Team Lead  
CAT, CAPEB, DHAC, ATSDR