EXPOSURE INVESTIGATION REPORT

BARKER CHEMICAL SITE

INGLIS, LEVY COUNTY, FLORIDA

CERCLIS # FL0001275627

August 13, 1996

Prepared by

The Florida Department of Health and Rehabilitative Services
Under Cooperative Agreement With the
Agency for Toxic Substances and Disease Registry

Summary

In March, 1995, the Florida Department of Environmental Protection (FDEP) discovered elevated levels of arsenic and lead in the soil on and near the site of the former Barker Chemical plant in Inglis, Florida. In April, 1995, because of concern about exposure of residents to lead, the Levy County Public Health Unit (Levy CPHU) measured the blood lead levels of 30 adults and children living on or near the site. All test results were within the normal reference range. In February, 1996, the Florida Department of Health and Rehabilitative Services (Florida HRS) collected hair and urine samples from 25 residents of Inglis to test for arsenic. The amount of arsenic in their hair and urine was within the normal reference range.

Site Description and History

The Barker Chemical site is in the Garden Mall subdivision of the City of Inglis, Levy County, Florida (Figs. 1 - 3). The site is bounded by the Withlacoochee River on the south and west, by Inglis Avenue on the north, and by a wooded area on the east. A separate area is on Florida Power Company (FPC) property about one-quarter mile west of the main site (Fig. 3). Except for the FPC property, the area on and around the site is residential. About a dozen homes are on the site.

The contamination was discovered in March 1995 when a local resident had a soil sample analyzed to determine why plants would not grow in areas with an unusual reddish-colored soil. The results of the analysis indicated high levels of lead and arsenic (1). Investigation by the Florida Department of Environmental Protection (FDEP) revealed an extensive area containing high levels of lead and arsenic (2, 3, 4). As a result of the finding of elevated lead in surface soil, the Levy CPHU tested the blood lead levels of eight children and twenty-two adults. All were below 10 micrograms per deciliter (ug/dL) (1).

The site is in the location of the former Barker Chemical plant. The plant operated from about 1904 to about 1924 producing superphosphate by sulfuric acid reaction with phosphate rock. To produce sulfuric acid, Barker roasted pyrite imported from Spain to release sulfur which was then burned and reacted with water in lead-lined chambers. The sulfuric acid was then mixed with phosphate ore to produce superphosphate. All chambers and pipes containing sulfuric acid or for producing superphosphate were lined with lead. FDEP has determined that the imported pyrite had a high arsenic content. The pyrite slag was used for roadbed material in and around Inglis, indicating there may be lead and arsenic contamination in places other than just at the plant site. In December 1995, the U.S. Environmental Protection Agency (EPA) collected and analyzed 251 surface soil samples and 16 private well samples throughout Inglis. EPA used the test results to determine which residential yards required clean-up to remove high levels of lead and arsenic.

The plant closed about 1925 and FPC purchased the portion of the property containing the phosphate drying plant for the construction and operation of an electric power plant. FPC closed this plant in 1993 and demolished all power plant buildings. This portion of the site is now a training center for power utility linemen. The property containing the main

phosphate processing plant was developed for residential use. The homes appear to have been built in the mid 1970's.

On October 19, 1995, the mayor of Inglis held a public meeting to inform local residents about ongoing activities at the site. Representatives from ATSDR, FDEP and its contractor, the Florida Department of Health and Rehabilitative Services (Florida HRS), the Levy CPHU, the city council, and about 80 members of the community attended the meeting. Agency personnel provided the community with information about the results of environmental sampling and the potential health effects from exposure to the contaminants found. Community members expressed concerns about the impacts of the warning signs posted by FDEP, the effects on their property values, and the health of their children.

Current Environmental Concerns

The primary contaminants of concern are lead and arsenic (5, 6). FDEP found lead at a maximum level of 12,500 milligrams per kilogram (mg/kg) in surface soil and arsenic at 3,000 mg/kg. The Levy CPHU found lead and arsenic in locally grown vegetables, although the level of arsenic was within the normal range (7). FDEP also found elevated levels of lead (608 mg/kg) and arsenic (68.3 mg/kg) in river sediments near the former plant site (4). Groundwater in private wells used for consumption did not have elevated levels of any contaminants of concern (7).

Current Community Health Concerns

From contact with community members at public meetings on October 19 and November 28, 1995, and February 8, 1996, we determined that the community was most concerned about the effects of lead and arsenic on neighborhood children. Several people had developed skin cancer and were concerned that exposure to arsenic may have been the cause. Many long-time residents who lived on or near the site, however, insisted that the health concerns were being exaggerated. Many had lived there all their lives and had never experienced any site-related illness.

Public Health Issues

Florida HRS and FDEP have provided information to local residents describing the potential hazards of the site and suggesting actions that they they could take to minimize exposure to contaminated soil (see press release, Appendix A). However, the effectiveness of this public health information was uncertain. Children and adults could currently be exposed to contaminants by ingestion of soil or inhalation of dust. Such exposures could exceed acceptable health-based values for arsenic. To address these public health issues, Florida HRS offered biological testing to the community to evaluate the potential for current exposures to arsenic.

Rationale and Objective

The Site Work Plan for the Barker Chemical site (8) identified the lack of human exposure data for arsenic as a data gap that needed to be addressed. The objective of this exposure investigation was to determine if selected residents were exposed to environmental arsenic.

Agency Roles in the Exposure Investigation

Florida HRS had the lead role for conducting this exposure investigation, developing the protocol, and obtaining all necessary clearances and approvals. Florida HRS interpreted the analytical results and made appropriate recommendations to the community. The Levy CPHU played a supportive role in terms of field support and community involvement. ATSDR provided scientific consultation and funding for the laboratory analysis of the biologic specimens.

Methods

Site Visit

On October 19, 1995, members of the health assessment team toured the site and met with representatives from FDEP, Levy CPHU, ATSDR, and contractors for FDEP. Following this meeting, the agency personnel met with the community and provided information about soil sampling and health effects of exposure to site-related contaminants. We recorded the health concerns of the community members attending the meeting. Additional health concerns were gathered at a subsequent meeting on November 28, 1995.

With this information, the health assessment team determined that hair and urine arsenic samples should be collected. Since the highest soil arsenic concentrations were found on residential lots located on property of the former chemical plant, they identified residents of about 20 homes on and near the site as the target population.

Demographic Census and Population Selection

We did not have access to block-level census data for this site. Since the available tract-level data may not have been representative of the population living near the Barker Chemical site, we did not include census data in this report.

The target area included 20 houses of which 12 were located on the former chemical plant site. Eligible participants for the exposure investigation included children residing at or recently visiting these residences. Children have the greatest potential for contact with soil and may exhibit behaviors (hand-to-mouth contact and insufficient hand washing) that increase their potential for ingesting contaminated soil. A second eligible group were adults who regularly garden, dig or engage in other activities that increase their contact with soil. Because pyrite slag from the site was used as roadbed fill throughout the town, a third

eligible group were residents whose yards may have contained fill from the plant site.

Exposure Investigation Protocol

Biologic specimen testing and collection

In order to satisfactorily evaluate recent (2-3 days) and past (up to several months) exposure to arsenic, we tested urine samples for total inorganic arsenic and hair samples for total arsenic. Urine analysis is indicative of exposure within the previous 48-72 hours while hair analysis, depending upon the length submitted, is indicative of exposure over the previous several months. The sample collection procedures were simple enough to allow adult participants, after receiving written instructions, to collect their own specimens and specimens from family members. Participants collected urine samples as first morning voids on a Monday or Tuesday. About 5 milliliters (ml) of sample was required. They also collected hair samples as close to the scalp as possible. A minimum sample of 0.5 grams (g) was required.

Solicitation of participants

Solicitation of eligible participants within the target area proceeded in two phases. First, we distributed a fact sheet at a public meeting, which described the exposure investigation and defined the target area from which people were eligible to participate. We also provided a registration form for persons to turn in indicating their willingness to participate. Second, a volunteer member of the community distributed these documents door-to-door in the target area to notify anyone who did not attend the meeting.

Field collection

We requested that eligible participants pick up their specimen kits and sample collection instructions at the local county health clinic (all participants lived within one mile of the clinic) on a Thursday or Friday prior to the test (all samples were collected on a Monday or Tuesday). We required that each adult member sign an informed consent form and that a parent or guardian sign a consent form covering their children. The specimen kits (one for each participant) contained written directions for collecting hair and urine specimens, containers for the specimens, and a household record form to be completed at the time the samples were taken. The household record form included the names of the participants, whether they were active in their yards or consumed seafood 48-72 hours before the specimens were collected, and whether they wanted the test results sent to their physician.

On February 26 and 27, 1996, participants returned their specimens together with the consent form, household record form, and lab sheet to a volunteer community member at the county public health unit clinic. Staff from the county public health unit picked up the specimens, verified the paperwork and sample labels, and shipped the specimens to the laboratory. Twenty-four community members participated the first week and one the second week.

Laboratory analysis and reporting of results

The laboratory reported the results within two weeks after they received the specimens. The lab sent all individual results to Florida HRS for verification and interpretation of the results. On March 29, 1996, Florida HRS mailed each participant a letter with a copy of the results of their urine and hair arsenic testing. The letter explained the results and indicated whether they were within the normal range.

On April 9, 1996, Florida HRS met with the participants and other concerned community members at a town meeting in Inglis. Florida HRS provided a physician-toxicologist to give a brief presentation on arsenic and lead toxicity and answer questions from the community.

Results

Participation

Approximately 20 households in the target area were eligible to participate in the exposure investigation. However, because contaminated fill from the site had been distributed to other places in the town, other concerned residents were also accepted as participants. Seven of the twenty households in the target area participated in the study. These households comprised 14 of the 25 participants (56%).

Urine analysis

Results of the analysis of urine samples for total inorganic arsenic are shown in Table 1. Of the 25 participants, only one either did not provide a urine sample or provided an insufficient volume for analysis. The majority of the samples (83.3%) had levels of inorganic arsenic that were below the level of detection. The reference value for background levels of inorganic arsenic in urine used by the laboratory was <50 micrograms of arsenic per gram of creatinine (ug As/g creatinine). Of the four persons with measurable levels of inorganic arsenic in their urine, none had a value that exceeded the normal reference range.

Hair analysis

Results of the analysis of hair samples for total arsenic are also shown in Table 1. We used a normal reference range of <1 part per million (ppm), based upon the ATSDR Toxicological Profile for Arsenic (6). This reference value is supported by other sources (9, 10). We assumed that the vast majority of arsenic in hair is inorganic rather than organic. Of the 25 participants, 4 (16%) either did not provide a hair sample or provided a sample with an insufficient weight for analysis. The majority of hair samples (90%) had levels of total arsenic that were below the level of detection. None of the hair samples with detectable levels of arsenic exceeded the 1 ppm reference value.

Conclusions

a. None of the participants had recent exposure to environmental arsenic that was higher than expected background levels.

b. By design, this exposure investigation focused on recent exposures to environmental arsenic. No conclusions can be reached concerning past or future exposures of these participants or their community to environmental arsenic.

c. To evaluate exposure to environmental arsenic, we used both urine and hair samples. Urine test results depend on exposures occurring within the previous 48-72 hours. Factors such as inclement weather, sickness, vacations, or the beginning of school may decrease exposure to contaminated soil.

d. To minimize the potential contribution of arsenic from seafood (organic) to total urinary arsenic levels, we used speciated (inorganic) arsenic testing of urine specimens.

e. The field collection procedures, which utilized participant self-collection of urine and hair samples were successful in terms of adequate quantities of specimens.

Recommendations

a. Since none of the participants had test results indicating excessive exposure to environmental arsenic, no follow-up testing or other activities are warranted at this time.

b. Future exposure investigations for recent exposure to environmental arsenic should use both hair testing for total arsenic and urine testing for speciated (inorganic) arsenic.

c. Provided there is sufficient community support and motivation, future investigations should use self-collection of urine and hair samples.

d. Should additional information regarding the potential for exposure of community members to environmental contamination become available, Florida HRS should evaluate that information and take appropriate action to ensure the protection of public health.

Study Investigators and Authors

Bruce J. Tuovila
HRS Environmental Toxicology

Dr. S. Sarntinoranont
Director, Levy County Public Health Unit

References

1 PSI Environmental. Site Investigation Work Plan, Garden Mall Subdivision and FPC Plant Site. June 15, 1995.

2. FDEP. Chemical Analysis Report, Inglis. April 6, 1995.

3. FDEP. Chemical Analysis Report, Inglis. May 3, 1995.

4. PSI Environmental. Summary Chemical Analysis Report. September 25, 1995.

5. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Lead. Atlanta. ATSDR, April 1993.

6. Agency for Toxic Substances and Disease Registry. Toxicological Profile for Arsenic. Atlanta. ATSDR, April 1993.

7 HRS Levy County Public Health Unit. Summary Analysis Report. May 2, 1995.

8. Florida HRS. Site Work Plan, Barker Chemical Site, Inglis, Levy, Florida. December 14, 1995.

9. Gosselin, RE, RP Smith and HC Hodge. Clinical Toxicology of Commercial Products, Fifth Ed. Williams & Wilkins, 1984.

10. Hayes, WJ, Jr. Pesticides Studied in Man. Williams & Wilkins, Baltimore, MD, 1982.

CERTIFICATION

This Barker Chemical Exposure Investigation Report 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 report was begun.

Richard R. Kauffman, M.S.
Technical Project Officer
Superfund Site Assessment Branch (SSAB)
Division of Health Assessment and Consultation (DHAC)
ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this exposure investigation report, and concurs with its findings.

Richard E. Gillig, M.C.P.
Chief, SPS, SSAB, DHAC, ATSDR

Appendix A
Maps

Figure 1 Map of Florida Showing Location of Levy County

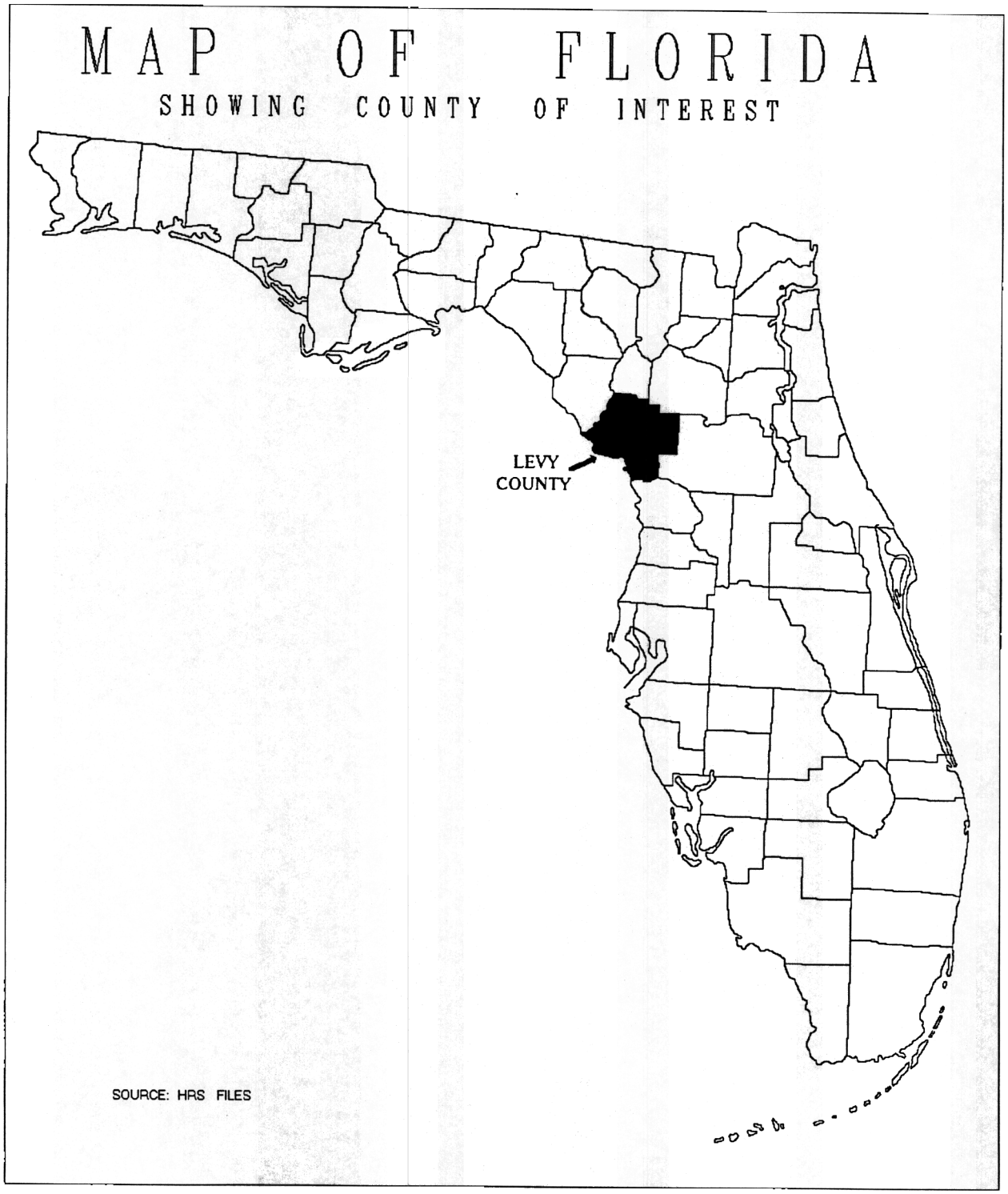


Figure 2. Location of Inglis in Levy County

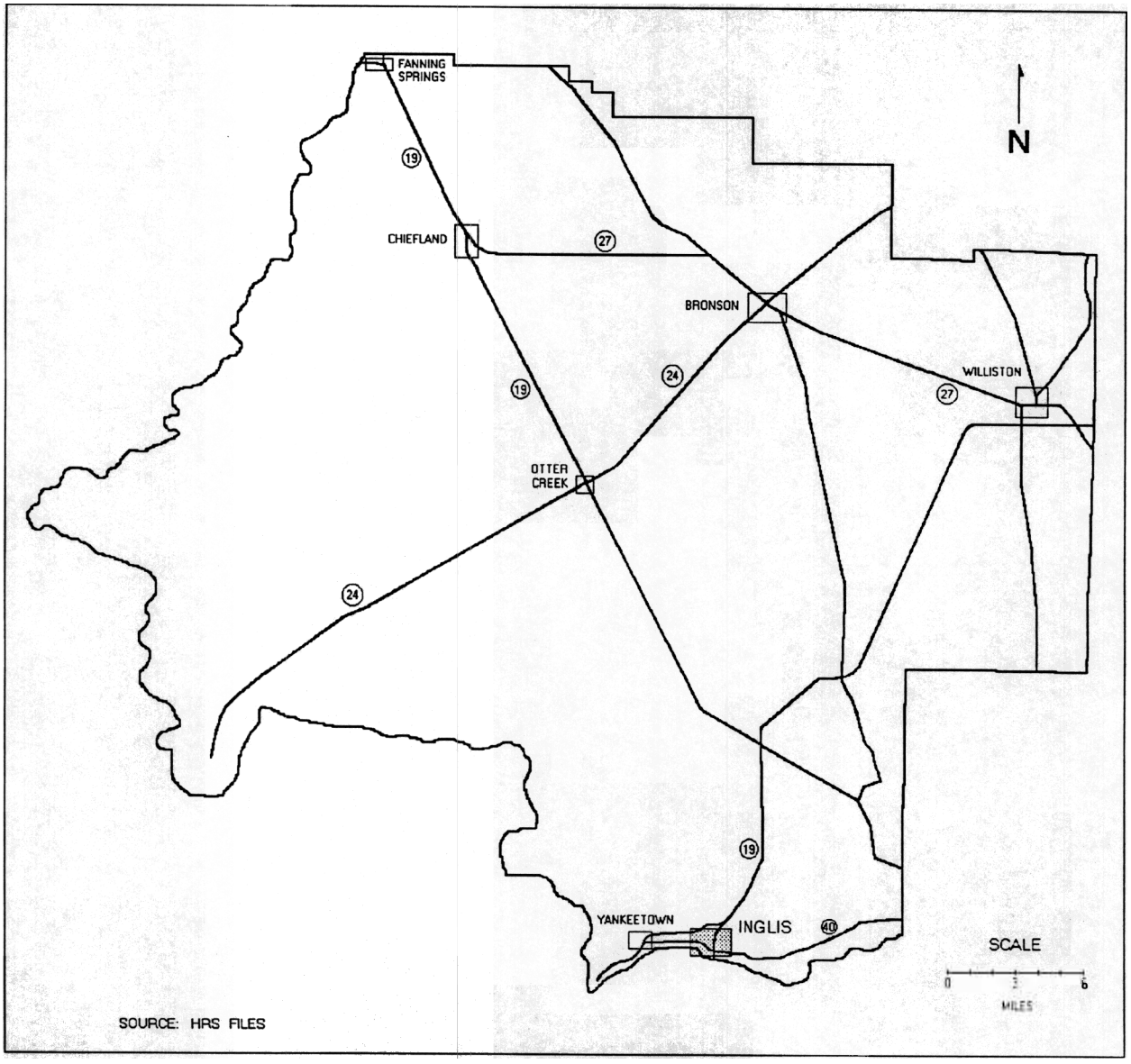
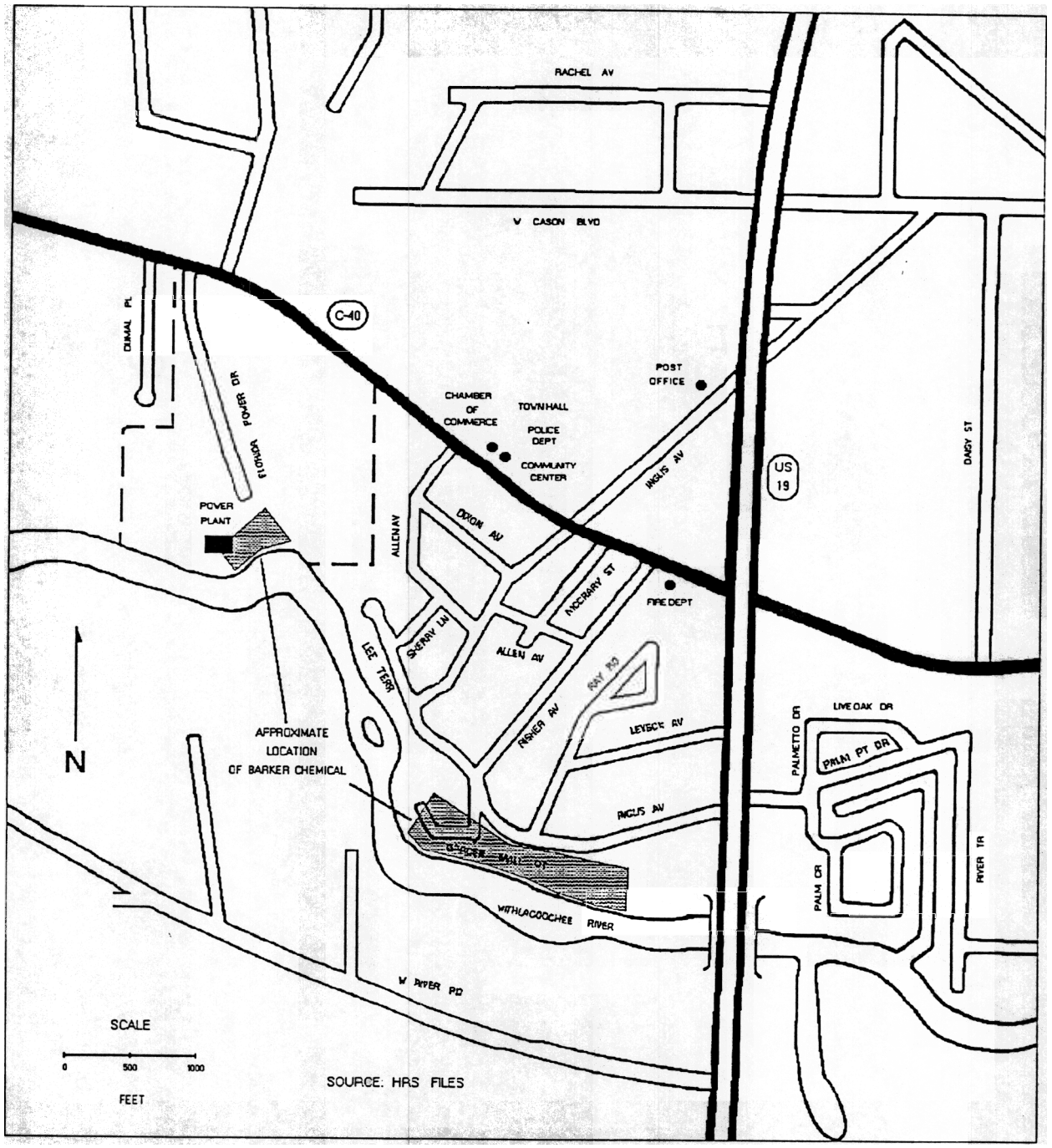


Figure 3 Location of the Barker Chemical Plant in Inglis



Appendix B
Table 1

RESULTS
BARKER CHEMICAL ARSENIC TESTING

Urine(ug/g Crea)	Arsenic Hair(ug/g)
ND	NA
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	ND
ND	NA
ND	NA
ND	ND
ND	ND
14	ND
25	ND
ND	0.51
NA	ND
ND	ND
ND	ND
ND	0.51
ND	ND
ND	ND
ND	NA
12	ND
9	ND
ND	ND
ND	ND

LEAD TESTING RESULTS

Blood lead levels were measured in 22 adults and 8 children. All were below 10 micrograms per deciliter (μg/dL).

Appendix C
Health Advisory

FOR IMMEDIATE RELEASE
April 18, 1995

Contact: Tony Welch
(904) 488-4855

Lea Crusberg
(904) 488-1073

STATE INVESTIGATES POSSIBLE
SOIL CONTAMINATION IN LEVY COUNTY

TALLAHASSEE -- The Florida Department of Health and Rehabilitative Services (HRS) and the Florida Department of Environmental Protection (DEP) are investigating a possible soil contamination problem in the Inglis area of Levy county.

Two soil samples were found with high levels of lead and arsenic. One sample contained 3660 parts per million (ppm) of lead and 1220 ppm of arsenic. The second sample was about 1/3 less. Values over 400 ppm of lead and 0.7 ppm of arsenic in the soil are considered elevated. DEP is investigating historical records to determine what the source of the actual soil contamination might be. State investigators believe that the lead and arsenic might be associated with a red colored layer of material found in the soil. The extent or severity of contamination is not known at this time, but more extensive sampling of soil and water by DEP and HRS is in progress so that residents in the area can be advised of the situation.

The area of concern is the Garden Mall subdivision area and is bounded by US 19 on the east, County Road 40 on the north, Florida Power's plant on the west and the Withlacoochee River to the south. The single surface soil sample that triggered the investigation contained levels of lead and arsenic high enough to generate health concerns, especially for young children that might accidentally consume some of the soil over a period of time. Risk assessment data indicate that a child consuming soil from the area for some time could possibly experience chronic toxicity problems.

Until additional test results are available, families wishing to take additional precautions should consider limiting exposure to soil and dust in the area. Some ways to reduce exposure are listed below.

1. Limit playing in the soil within 1/4 mile of this subdivision area.
2. Remove shoes prior to entering the house.
3. Wash hands thoroughly after playing or working outside.
4. Wear a dust mask if mowing lawns in the area.

In addition to the soil testing by DEP and HRS, private wells in the area will be sampled for lead and arsenic. These tests will be conducted during the week of April 17th. Further information will be released as the new data becomes available after laboratory analyses are completed.

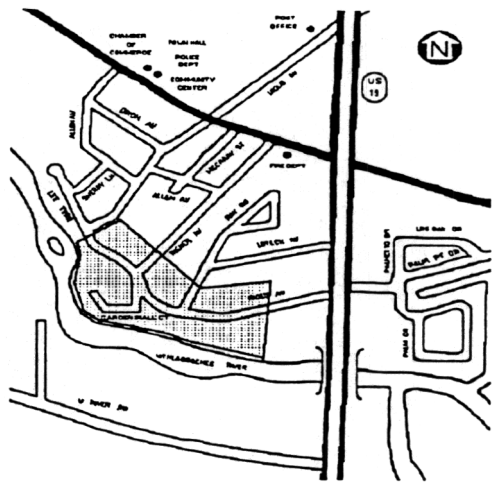
Persons wishing more information should contact DEP at 813-744-6100 x. 379 (Mary Yeargan), or HRS at 904-488-3385 (Dr. Sekerke).

Fact Sheet

Arsenic Monitoring: Barker Chemical Company Site

History

The Barker Chemical Company was located in the town of Inglis in Levy County, Florida. It operated from about 1904 until 1924, making fertilizer from phosphate rock. In 1925, the plant was torn down. The Garden Mall Subdivision is now on the main plant property. In March 1995, the Florida Department of Environmental Protection (DEP) found high levels of lead and arsenic in Garden Mall soil. Lead and arsenic are linked to the Barker Chemical Company.



Since then, the Levy County Public Health Unit tested for lead in the blood of eight children and 22 adults in the Garden Mall area. All of the blood tests were within normal limits. HRS tested private water wells for lead and arsenic. All of the water samples were within normal limits.

This fact sheet describes the planned arsenic testing for people living in the Garden Mall area. The testing will be done through your HRS county public health clinic in Inglis *Garden Mall area of Inglis*

Who can be tested?

Anyone who has high levels of arsenic in their soil can get tested. This includes people who live in the Garden Mall area of Inglis (see map above). Your children or their friends who play in yards with high arsenic levels should also be tested.

Please fill out the attached *sign-up form* for you and your family to be tested. You will need to sign a *consent form* when you pick up your test kit. A sample consent form to review is in this packet.

What are the tests?

There will be two kinds of tests offered. Both will test for arsenic, but measure it in different ways. The first test will be a urine test. This test will tell whether you have been exposed to arsenic during the past few ***days***. The second is a hair test. This test will tell whether you have been exposed to arsenic during the past few ***months or years***, depending on your hair length.

How will the tests be done?

Test kits will be available at the HRS county public health clinic in Inglis. You will need to sign up for the tests in advance. You can collect urine and cut a small hair sample in your home and bring them back to the clinic.

Urine samples should be taken when you first wake up on a Monday or Tuesday morning. This is because you are usually out in your yard and in contact with the soil more over the weekend than during the work week. Test results from Monday or Tuesday will have the highest levels of arsenic. Detailed instructions will be included in the test kit.

Why get tested?
If you have high arsenic levels in your soil, you may have arsenic above normal levels in your body. You may have accidentally swallowed some dirt or dust with arsenic in it. These tests will tell you whether you have high levels of arsenic in your body.

What will the test results mean?
These tests will tell you whether you have high levels of arsenic in your body. The results will ***not*** tell whether you have had or will have any long-term illness from the arsenic. These test results are useful to find out whether there is an *immediate* health threat from the arsenic in your soil.

Health concerns
Low levels of arsenic in your body are normal. The levels we normally get from food or water are not of health concern. Higher levels of arsenic can affect your health. Your skin could be affected. You could have stomach problems. Over your lifetime, higher levels could increase your risk of skin cancer.

If your test results show high arsenic levels, you can reduce your exposure and risk of illness. After a few weeks, you may want to be re-tested to see if your arsenic levels are within normal limits.

What will happen next?
Your test results will be mailed to you. The packet you receive will contain the results and an explanation of what they mean. A few weeks after you receive your results, HRS will hold a public meeting. At that meeting, a doctor will discuss illness caused by lead and arsenic. She will try to answer any of your health questions.

Who is paying for the tests?
This arsenic testing is a combined effort of the federal Agency for Toxic Substances and Disease Registry (ATSDR), the HRS Levy County Public Health Unit, and the HRS Office of Environmental Toxicology.

Where can I get more information?
If you want more information about arsenic, the tests which will be done, or test procedures, please call:

Bruce J. Tuovila
HRS Office of Environmental Toxicology
1317 Winewood Boulevard
Tallahassee, Florida 32399-0700
Phone: (904) 488-3385

Dr. S. Sarntinoranont
Levy County Public Health Unit Director
66 South Main Street
Bronson, Florida 32621
Phone: (904) 486-5300

ARSENIC TESTING SIGN-UP FORM FOR ELIGIBLE HOUSEHOLDS

If members of your household want to participate in the free urine and hair arsenic testing, please fill out this form and drop it in the box on the table. You may also mail this form to the address below. Please read the information on the back of this form to determine if you are eligible to participate at this time.

LAST NAME _____
ADDRESS _____
_____
PHONE _____

FIRST NAME AGE

_____

_____

_____

_____

_____

_____

_____

_____

Bruce J. Tuovila
HRS Environmental Toxicology (HSET)
1317 Winewood Blvd.
Tallahassee, FL 32399-0700
Phone: (904) 488-3385

Consent Form

PARTICIPANT CONSENT

for Interview, Urine and Hair Testing

The Florida Department of Health and Rehabilitative Services, with assistance from the Agency for Toxic Substances and Disease Registry, is offering free tests to selected residents living near the former Barker Chemical Company site in Inglis, Fl to determine possible recent exposure to arsenic.

The test has three parts: a brief record form, a urine test for arsenic, and a hair test for arsenic. My part in the survey will include:

Answering two questions about the recent activities of each adult and child in my home to be tested.

2. Allowing urine and hair testing (described below) on:

( ) Myself
( ) My child/ward, _____
( ) My child/ward, _____
( ) My child/ward, _____
( ) My child/ward, _____

a. A first morning urine sample collected in a specimen cup on a Monday or Tuesday will be provided by the participant(s). Instructions will be provided to help me/my child/ward use the specimen cup correctly. The sample should be brought to the county public health clinic in Inglis.

b. A hair sample will be collected by the participant(s). Instructions will be provided to help me/my child/ward collect the hair. The sample should be brought to the county public health clinic in Inglis.

Participant: I understand that there will be no physical examination. There is no provision for compensation or medical treatment in the event of injury as a result of my participation. I understand that I can stop my or my children's participation at any time. If I choose not to participate or to stop at any time there will be no penalty. Any benefits that I now receive or to which I am entitled will not be affected by this decision.

Results: As a result of my/my child/ward's participation in this test, I/my child/ward will receive a hair and urine test for arsenic free of charge. The Florida Department of Health and Rehabilitative Services will send me a letter within six to eight weeks with my/my child/ward's test results.

Confidentiality: I understand that the Florida Department of Health and Rehabilitative Services will take every reasonable precaution to keep my records confidential. Any information shared with the Agency for Toxic Substances and Disease Registry will be kept in accordance with the federal Privacy Act of 1974. Any reports of the test results will not identify specific individuals or households, and will only give group information.

Participant Consent: I have read the description of this testing program. All of my questions have been satisfactorily answered. I voluntarily request that I (my child/ward, named above) be tested. I understand that I may be contacted by the Florida Department of Health and Rehabilitative Services to discuss my test results.

Participant/guardian name (print) _____

Participant/guardian signature _____

Date _____ Witness _____

If you have any questions, please contact:

Dr. S. Sarntinoranont, MD, Director or
Levy County Public Health Unit
66 S. Main St.
Bronson, FL 32621
Telephone: (904) 486-5300

Bruce J. Tuovila
Environmental Toxicology (HSET)
Dept. of Health and Rehabil. Serv.
1317 Winewood Blvd.
Tallahassee, FL 32399-0700
Telephone: (904) 488-3385

Arsenic Monitoring: Barker Chemical Company Site
Using your test kit

Use one sample collection kit per person

What should be in my test kit?

You will get one test kit for each person tested. Each kit should contain:

- a clear plastic bag,
- a small white bottle for urine collection,
- a square of aluminum foil for hair samples,
- a white DriMop pad (leave this in the bag to soak up any moisture), and
- *If* you have a child in diapers who will be tested, you will *also* receive a special urine collection bag.

How do I collect a urine sample?

Your urine sample should be taken on a Monday or Tuesday morning. This is because you will have the highest arsenic levels early in the week from being in your yard over the weekend. The sample must also be from your first urination of the morning. First urinations will be more concentrated and will have better test results.

The night before (Sunday night):

Remind yourself

- The night before, place the white urine collection bottle near or on the toilet. Use a note to remind yourself to take the sample in the morning.

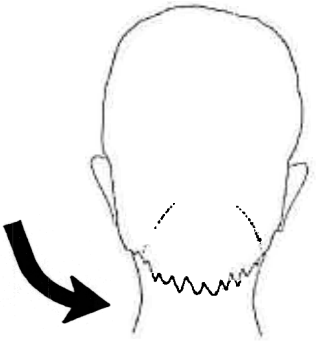
The next morning (Monday morning):

Take the sample

- Urinate into the urine collection bottle. Make sure the bottle is at least 1/4 filled with urine. If you can't produce enough urine, clean out the collection bottle and use it again the next morning. Replace the bottle's cap tightly.
- Place the bottle in the clear plastic bag with the white DriMop pad and reseal it. You do not need to refrigerate the sample.
- Complete the blue and white lab form (see directions included in this packet).
- Make sure the urine bottle has a control number sticker (from your lab form) on it.

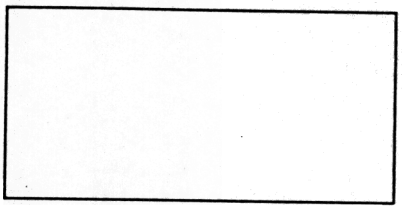
How do I collect a hair sample?

You may cut a hair sample any time after you get your testing kit. Hair samples should be collected from the back of the neck (see picture):



If your hair is less than two inches long:

- Wash your hands with soap and water.
- From the test kit, remove the aluminum foil.
- Clean your scissor blades with rubbing alcohol.
- Carefully snip your hair as close to your scalp as possible.
  Try to collect enough hair to cover a 1" x 2" area (see picture).



Hair should cover this size area

- Seal the hair sample by folding the foil into a packet with the hair in it.
- Place the foil packet in the plastic bag and seal it. You do not need to put it in the refrigerator.
- Complete the blue and white lab form (see directions included in this packet).
- Make sure the foil packet has a control number sticker (from your lab form) on it.

If you hair is two or more inches long:

- Wash your hands with soap and water.
- From your test kit, remove the aluminum foil.
- Clean your scissor blades with rubbing alcohol.
- Tightly twist a pencil-thick bundle of hair from the back of your neck.
- Carefully snip off your hair as close to your scalp as possible. Place the hair bundle in the aluminum foil.
- Seal the hair sample by folding the foil into a packet with the hair in it.
- Place the foil packet in the plastic bag and seal it. You do not need to put it in the refrigerator.
- Complete the blue and white lab form (see directions included in this packet).
- Make sure the foil packet has a control number sticker (from your lab form) on it.

Where do I bring my urine and hair samples?

Turn in the sample kit and your lab forms at the Levy County Public Health Unit clinic in Inglis. If you have any questions, please call

Bruce J. Tuovila
HRS Office of Environmental Toxicology
Phone: (904) 488-3385

Dr. S. Samtinoranont
Levy County Public Health Unit Director
Phone: (904) 486-5300

Household Record Form

ARSENIC TESTING HOUSEHOLD RECORD

Address: _____

_____

Phone: _____

INSTRUCTIONS: Collect a urine and hair sample from each person to be tested. After the samples are collected, answer the questions below by filling in the requested information or by circling the appropriate response.

First Name, Last Name /Age	Occupation, if any.	Did this person eat seafood during the last three days? If yes, indicate the type and amount of seafood eaten.	Did this person work or play outside in the yard during the last three days? If yes, indicate the type and duration of outdoor activity.
_____		YES/NO _____	YES/NO _____
_____/___		_____	_____
_____/___		YES/NO _____	YES/NO _____
_____		_____	_____
_____/___		YES/NO _____	YES/NO _____
_____/___		_____	_____
_____/___		YES/NO _____	YES/NO _____
_____/___		_____	_____
_____/___		YES/NO _____	YES/NO _____
_____/___	_____	_____	_____

If you would like us to send the test results to your physician, please write the physician's name and telephone number below:

_____

_____

_____

_____

Additional comments:

_____

_____

_____