

# Health Consultation

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WRYALS PIT  
(GWEN CHERRY PARK)

MIAMI, DADE COUNTY, FLORIDA

CERCLIS NO. FLD981015712

FEBRUARY 9, 1998

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

HEALTH CONSULTATION

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Prepared by:

Bureau of Environmental Toxicology  
Division of Environmental Health  
Florida Department of Health  
under Cooperative Agreement with the  
Agency for Toxic Substances and Disease Registry

## Background and Statement of Issues

On December 4, 1997, the Florida Department of Environmental Protection (DEP) requested that the Florida Department of Health (DOH) review the levels of metals, pesticides, and polychlorinated biphenyls (PCBs) in fish from the lake at the Wryals Pit site (DEP 1997). The purpose of this health consultation report is to determine if a public health threat exists from eating these fish. This report does not review soil, ground water, or sediment data.

The Wryals Pit site is on the west side of NW 71st Street at NW 24th Avenue in Miami, Florida (Figures 1). The site is owned by Dade County and is operated as Gwen Cherry Park. This 38-acre park includes football fields, baseball fields, a pool, a gymnasium/recreation center, and a lake for fishing. More than 14,000 people live within one mile of this urban site. The Poinciana Park Elementary School and a large public housing facility are nearby.

Before the early 1950s, the site was a quarry operated by the Carter Rock and Sand Company. Between the early 1950s and 1963, the site owners filled the 20-acre quarry with construction debris, garbage, and assorted trash (1).

In 1985, the U.S. Environmental Protection Agency (EPA) collected and analyzed soil, ground water, surface water, and sediment samples from the site. They found elevated levels of metals and organic chemicals. EPA concluded that the contamination was potentially serious and recommended confirmation sampling (1). In 1986 the Dade County Department of Environmental Resource Management (DERM) collected and analyzed soil and surface water samples. They concluded that the levels of contamination were not a public health threat, but as a precaution, fenced the lake and ceased use of the on-site irrigation well (2).

In January 1997, on the advice of the Dade County Health Department (CHD), the county re-fenced the lake and posted no fishing or swimming signs (3). In February 1997, both the CHD and DERM tested the soil, the lake, and the irrigation well. The chemical concentrations in the soil, lake, and the irrigation well were not a public health threat (4). In September 1997, DERM collected and analyzed soil samples from the football fields. They found that exposure to the arsenic in the soil during the football season was not a public health threat (5).

On October 9, 1997, Randy Merchant, Florida Department of Health (DOH), Bureau of Environmental Toxicology, visited the site. He was accompanied by representatives of the Florida Department of Environmental Protection (DEP) and the EPA. They observed a fence around the on-site lake and signs warning of no swimming or fishing. They observed breaches in the fence and three 10 to 12 year old children playing by the lake inside the fence. That evening, DEP and EPA sponsored a public meeting at the site to detail plans for additional sampling, including fish. Representatives of the Mahogany Sports Fishing Club expressed dismay that the lake had been closed for almost a year. DEP and EPA agreed to give top priority to the analysis of the fish from the lake.

On October 20, 1997, staff from the Florida Fresh Water Game and Fish Commission collected fish from the on-site lake using electroshock equipment. They collected three samples each: bluegill, red-eared sunfish, and largemouth bass. They shipped them on-ice to the Florida DEP laboratory in Tallahassee. The laboratory prepared fillets (meat) from each fish and then blended filets of the sample species. This produced one representative fillet (meat) sample from each species. The laboratory then analyzed each species for metals, pesticides, and PCBs (6). Table 1 contains a summary of the fish data.

## Discussion

We assessed the public health threat from concentrations of mercury, barium, and zinc in the fish collected from the on-site lake. The other metals analyzed were not detected or were not of public health significance. We also assessed the public health threat from concentrations of DDT/DDD/DDE, chlordane, polychlorinated biphenyls (PCBs), and hexachlorobenzene in the fish. The other pesticides analyzed were not detected.

In Table 1, we compare the concentrations of metals, pesticides, and PCBs measured in the fish to national standards and guidelines. We also estimated a likely maximum dose of each contaminant for children eating fish from this lake. In estimating this dose, we assumed that children weigh 10 kilograms (22 pounds) and eat an average of 30 grams (1 ounce) of fish per day. Thirty grams of fish per day are approximately one half pound of fish per week.

To estimate the dose (exposure) to chemicals from the fish, we made assumptions that err on the side of protecting public health. It is unlikely we have underestimated the dose. First, we assumed that on the average, children eat 30 grams of fish per day from this lake. It is likely that children eat less than an average of 30 grams of fish per day from this lake. Assuming children eat 30 grams of fish per day from this lake, however, errs on the side of protecting public health. Second, children who eat fish from this lake likely weigh more than 10 kilograms (22 pounds). Assuming children weigh an average of 10 kilograms also errs on the side of protecting public health. Third, we assumed children eat the kind of fish with the highest contaminant concentration. For example, in estimating a dose for mercury, we assumed children only ate the kind of fish with the highest mercury concentration (Largemouth Bass). In estimating a dose for barium, we assumed children ate only the kind of fish with the highest barium concentration (Bluegill). It is likely, however, that children eat some of each kind of fish and do not get the maximum concentration of each contaminant.

If sediments in this lake are contaminated, disturbing them will likely increase the levels of contaminants in the fish. If, in the future, contaminated lake sediments are disturbed (dredged), fishing should cease until contaminant levels in the fish return to normal.

Mercury - The concentration of mercury in the fish from this lake is not a public health threat. Concentrations of mercury in all three fish species are less than both the U.S. Food and Drug Administration standard and the Florida Department of Health guideline.

The maximum dose of mercury we estimated for children eating fish from this lake is also less than the World Health Organization's guideline (7).

Barium - The concentration of barium in the fish from this lake is not a public health threat. The maximum dose of barium we estimated for children eating fish from this lake is less than the EPA reference dose guideline (8).

Zinc - The concentration of zinc in the fish from this lake is not a public health threat. The maximum dose of zinc we estimated for children eating fish from this lake is less than the Agency for Toxic Substances and Disease Registry chronic minimum risk level (9).

DDT, DDD, DDE - The concentration of DDT, DDD, and DDE in the fish from this lake is not a public health threat. The concentrations of the pesticides DDT, DDD, and DDE in all three fish species are less than EPA guidelines for meat. The maximum dose of DDT, DDD, and DDE we estimated for children eating fish from this lake is also less than the Agency for Toxic Substances and Disease Registry intermediate minimum risk level (MRL). Studies in workers exposed to DDT have not established an association with cancer. Animal studies suggest that DDT, DDE, and DDD are probable or possible human carcinogens (10). Based on extrapolation from animal studies, we estimate that the increased cancer risk from DDT, DDD, and DDE in fish from this lake is low.

Chlordane - The concentration of chlordane in the fish from this lake is not a public health threat. The concentrations of the pesticide chlordane in all three fish species are less than both the Food and Agriculture Organization/ World Health Organization standard for food. The maximum dose of chlordane we estimated for children eating fish from this lake is also less than the Agency for Toxic Substances and Disease Registry (ATSDR) chronic oral MRL. Retrospective human mortality studies do not provide convincing evidence of a link between exposure to chlordane, during its manufacture or during its application as a pesticide, and increased risk of death due to cancer. Chlordane has been shown, however, to cause cancer in mice but not rats (11). Based on extrapolation from studies in mice, we estimate that there is no apparent increased cancer risk from chlordane in fish from this lake.

Polychlorinated Biphenyls (PCBs) - The concentration of PCBs in the fish from this lake is not a public health threat. The maximum dose of PCBs estimated for children eating fish from this lake is greater than the ATSDR chronic oral MRL. This ATSDR minimum risk level is based on decreased immune system function in monkeys after long-term exposure to PCBs. This minimum risk level, however, includes a built-in safety factor of 300 to account for various uncertainties (12). The highest level we estimated in children eating fish from the on-site lake is still 25 times less than the level causing immune system depression in monkeys.

The weight of evidence does not support a causal association for PCBs and human cancer. PCBs have, however, been shown to cause cancer in rats and mice (12). Based on extrapolation from these studies with rats and mice, we estimate the increased cancer risk from PCBs in fish from this lake is low.

The concentrations of polychlorinated biphenyls (PCBs) in all three fish species are less than the U.S. Food and Drug Administration tolerance level in fish.

Hexachlorobenzene - The concentration of hexachlorobenzene in the fish from this lake is not a public health threat. The maximum dose of hexachlorobenzene we estimated for children eating fish from this lake is less than the ATSDR chronic MRL. The evidence for the carcinogenicity of hexachlorobenzene in humans is inadequate. The evidence for the carcinogenicity of hexachlorobenzene in animals, however, is sufficient to determine that hexachlorobenzene may reasonably be anticipated to be a human carcinogen (13). Based on extrapolation from animal studies, we estimate no apparent increased cancer risk from hexachlorobenzene in fish from this lake.

## Conclusions

1. The concentrations of contaminants measured in fish from the lake at the Wryals Pit site (Gwen Cherry Park) are not a public health threat.
2. The nine fish collected and analyzed were adequate to characterize the fish quality in the on-site lake.
3. The concentrations of metals, pesticides, and polychlorinated biphenyls (PCBs) in the fish from the on-site lake are below state, national, and international standards. Although the dose we estimated for PCBs is above the ATSDR guidelines, this level of PCBs is unlikely to cause illness.
4. If sediments in this lake are contaminated, disturbing (dredging) them will likely increase the levels of contaminants in the fish.

## Recommendation

In the future, if contaminated lake sediments are disturbed (dredged), fishing should cease until contaminant levels in the fish return to normal.

The conclusions and recommendations in this report are based on the results of the 1997 Florida Department of Environmental Protection fish sampling and analysis. If additional information becomes available, we will evaluate it to decide what, if any, additional actions are necessary. The conclusions and recommendations in this report are site-specific and are not necessarily applicable to other sites.

Health Consultation Author

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4. Florida Department of Health. February 17 and March 19, 1997 letters from E. Randall Merchant, Environmental Toxicology, Department of Health to Samir Elmir, Environmental Health Director, Dade County Health Department.
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6. Florida Department of Environmental Protection. December 4, 1997 personal communication from Jesus Diaz, Florida Department of Environmental Protection, Bureau of Waste Cleanup to Randy Merchant Florida Department of Health, Bureau of Environmental Toxicology.
7. Toxicological Profile for Mercury (Draft Update). Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, Atlanta, GA. August 1997.

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12. Toxicological Profile for Selected PCBs (Update). Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, Atlanta, GA. April 1993.
13. Toxicological Profile for Hexachlorobenzene (Update). Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, Atlanta, GA. August 1996.



## CERTIFICATION

This health consultation for the Wryals pit (Gwen Cherry Park) Site was prepared by the Florida Department of Health 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 initiated.

*Bobbi Eleri*

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Technical Project Officer, SPS, SSAB, DHAC

The Superfund Site Assessment Branch of the Division of Health Assessment and Consultation, ATSDR, has reviewed this health consultation and concurs with its findings.

*Richard Kilbig*

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Chief, SPS, SSAB, DHAC

Table 1. Contaminant Concentrations (mg/kg) in Fish Filets From the Lake at the Wryals Pit Site (Gwen Cherry Park)

Contaminant	Bluegill (mg/kg)	Red Eared Sunfish (mg/kg)	Largemouth Bass (mg/kg)	Health-based Standard or Guideline (mg/kg)	Estimated max. dose for children eating lake fish* (mg/kg/day)	Dose guideline (mg/kg/day)
Mercury	0.073	0.047	0.19	0.5-1.5 (Florida DOH) 1 (US FDA)	0.0006	0.0007 (WHO permissible tolerable daily intake)
Barium	4.83	1.8	<0.2	----	0.01	0.07 (EPA RfD)
Zinc	43.1	38.9	10	----	0.1	0.3 (ATSDR chronic MRL)
DDT, DDD, & DDE	0.0598	0.0231	0.1344	5 (EPA OPP for meat)	0.0004	0.0005 (ATSDR intermediate oral MRL)
Chlordane	0.0069	0.0013	0.0157	0.02-0.5 (FAO/WHO for food)	0.00005	0.0006 (ATSDR chronic oral MRL)
PCBs (total)	0.0377	0.008	0.0607	0.2 - 3.0 (FDA tolerance in fish)	0.0002	0.00002 (ATSDR chronic oral MRL)
Hexachloro-benzene	0.00058	<0.0005	0.0022	---	7X10 <sup>-6</sup>	2X10 <sup>-5</sup> (ATSDR chronic MRL)

\* Dose assumes 10 kilogram children eat an average of 30 grams of filet (meat) of fish from this lake per day.

mg/kg - milligrams of contaminant per kilogram of fish

mg/kg/day - milligrams of contaminant per kilogram human body weight per day

DDT - 1,1,1-trichloro-2,2-bis(p-chlorophenyl)ethane

PCBs - polychlorinated biphenyls: sum of all PCBs

DOH - Florida Department of Health

FDA - United States Food and Drug Administration

FAO/WHO - Food and Agriculture Organization/ World Health Organization

EPA OPP - United States Environmental Protection Agency, Office of Pesticides Program

ATSDR MRL - Agency for Toxic Substances and Disease Registry, Minimum Risk Level

# MAP OF FLORIDA

SHOWING COUNTY OF INTEREST

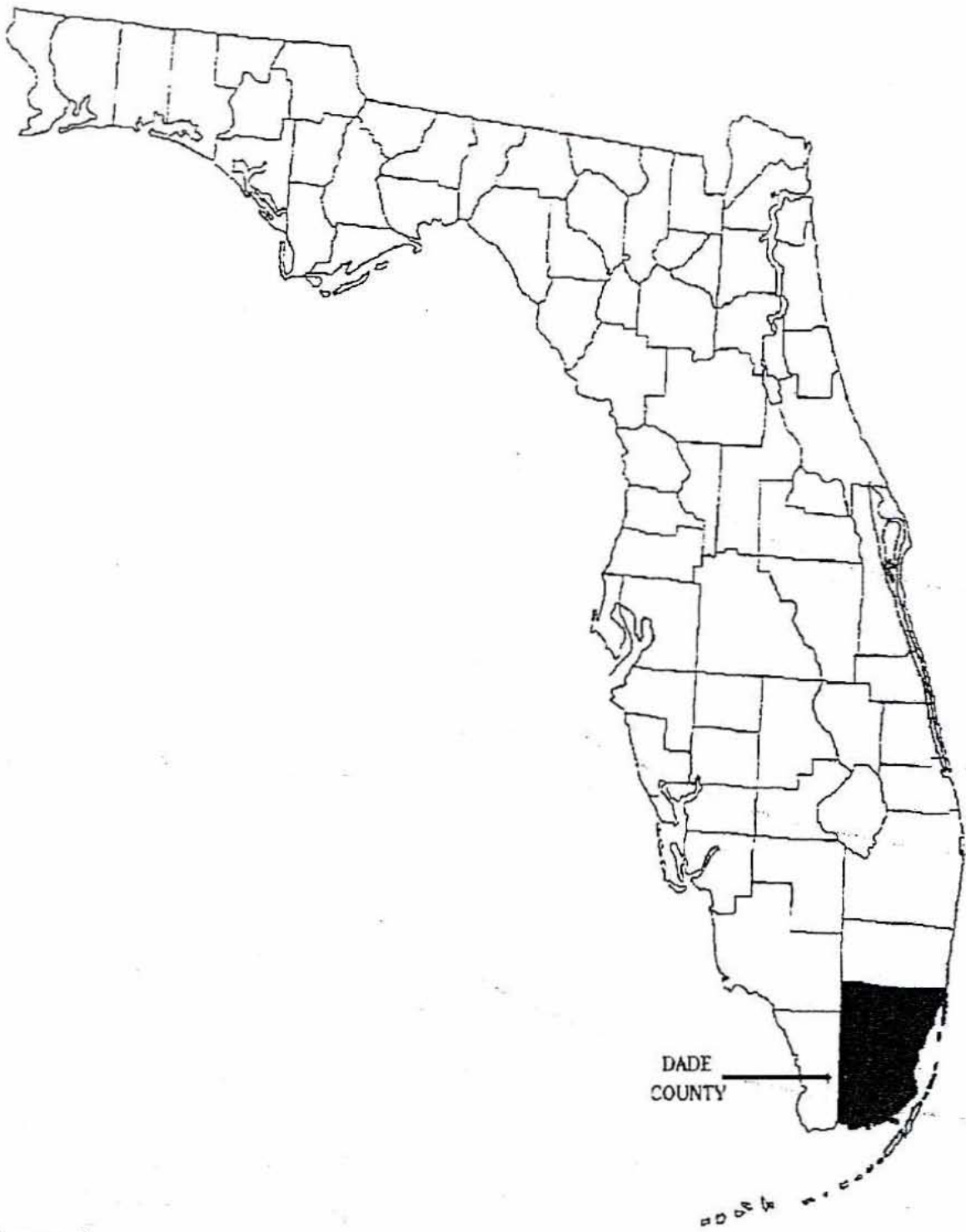
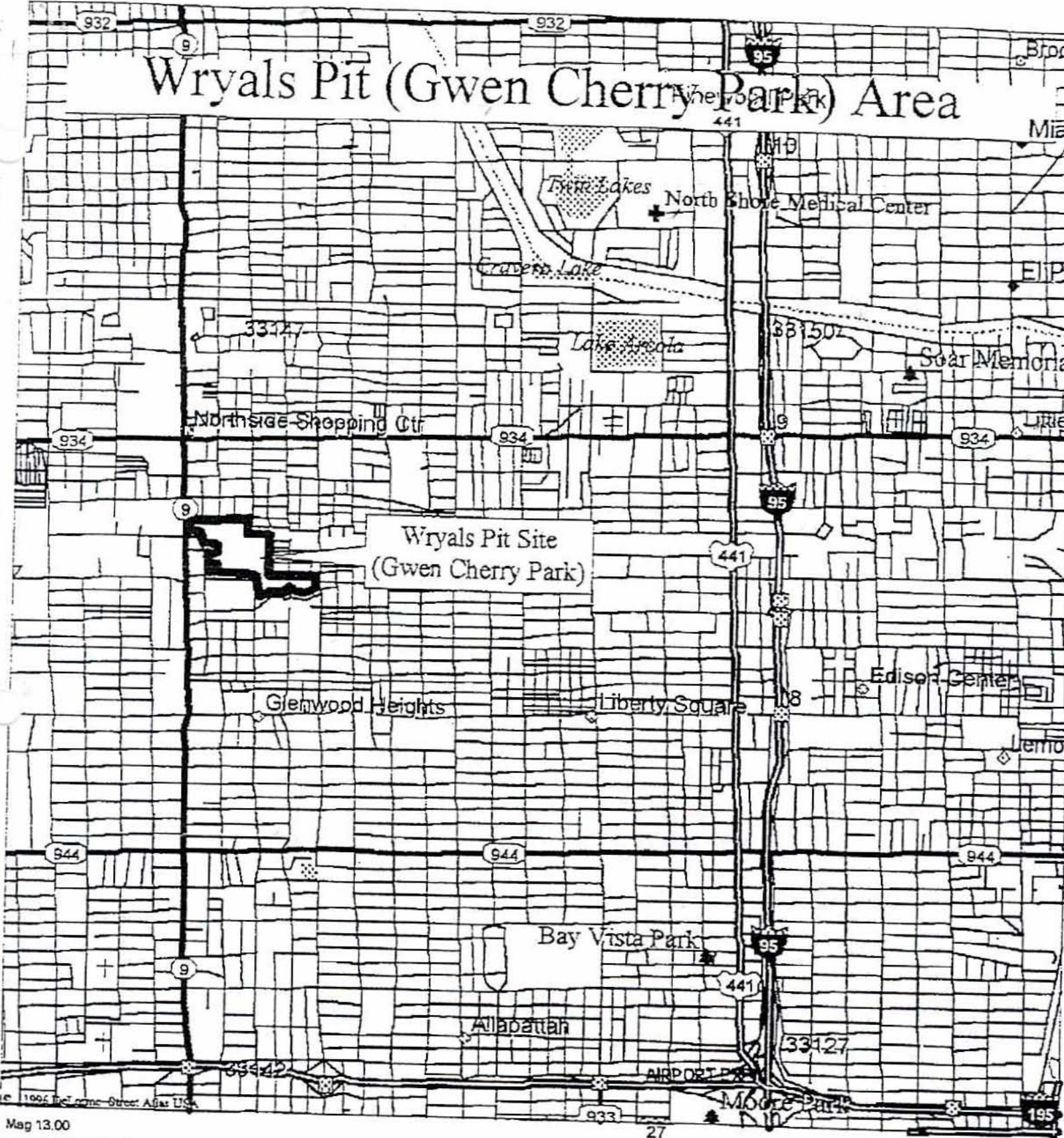


Figure 1.

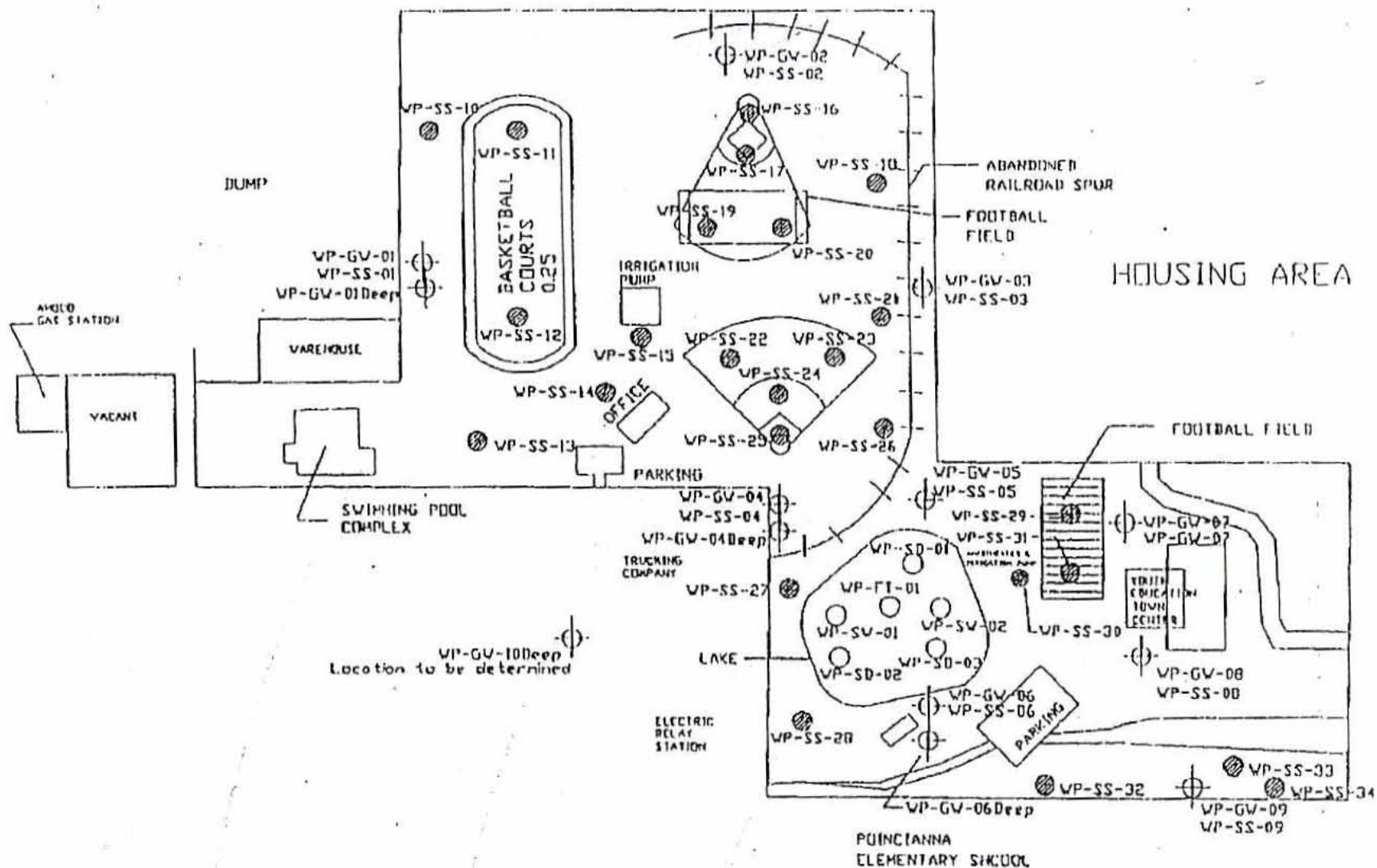
# Wryals Pit (Gwen Cherry Park) Area



Mag 13.00  
 Tue Jan 05 14:33 1998  
 Scale 1:31,250 (at center)  
 2000 Feet  
 1000 Meters

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|----------------------------|------------------|
| Secondary SR/Road/Hwy Ramp | Small Town       |
| Major Connector            | Hospital         |
| State Route                | Park/Reservation |
| Primary State Route        | Local            |
| Interstate/Limited Access  | Ext              |
| US Highway                 | Cemetery         |
| Railroad                   | Water            |
| Point of Interest          | River/Canal      |

Figure 2.



LEGEND

- ⊕ SOIL BORING AND MONITORING WELL LOCATION
- SOIL BORING LOCATION
- LAKE SAMPLE APPROXIMATE LOCATION



SITE MAP - WRYALS PIT/GWEN CHERRY PARK  
Figure 3.