

HEALTH CONSULTATION

PEOPLE'S GAS/FLORIDA SUNCOAST DOME
ST. PETERSBURG, PINELLAS COUNTY, FLORIDA

CERCLIS NO. FLD981930340

Prepared by:

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

Summary

The People's Gas / Florida Suncoast Dome site in St. Petersburg Florida was a municipal gas plant and is currently a stadium for sporting and other events. Though soil and groundwater are contaminated, the site poses no apparent public health hazard because completed exposure pathways are not currently present.

In this health consultation, the Florida Department of Health (FDOH) evaluates the potential for health effects from exposure to soil, groundwater, surface water, and sediment. Polycyclic aromatic hydrocarbons (PAH's) were detected in the soil at elevated levels, however, the area has been paved and any potential exposure has been minimized. The groundwater is contaminated with coal tar (free product), PAH's, arsenic, lead and benzene, all above screening values. The surface water was not found to be contaminated. PAH's were detected in the sediments, however, they were not at levels of health concern.

Currently the site poses no apparent public health hazard, because no one is coming into contact with the contaminated soil or drinking contaminated groundwater. FDOH recommends maintenance of the parking lot over contaminated soil and ground cover over contaminated soil so that any potential exposure is minimized and the soil stays intact. FDOH recommends that no one use the contaminated groundwater as a source of drinking water. Should site conditions change or additional information become available FDOH will reevaluate the public health threat.

Background and Site History

On August 21, 1997, the Agency for Toxic Substances and Disease Registry (ATSDR) requested the Florida Department of Health (FDOH) determine if a health threat exists at the People's Gas/Florida Suncoast Dome site in St. Petersburg, Florida. The site is part of the Environmental Protection Agency's (EPA) Archive Pilot Program. Under this program, the EPA inspects sites on the National Priorities List (NPL) with low hazard rankings and proposes delisting if no health threat or community concerns exist. In this health consultation, FDOH will review the existing health and environmental data to determine if health threats or community concerns about soil, groundwater, surface water or sediments exist.

The 66 acre People's Gas/Florida Suncoast Dome site is in downtown St. Petersburg between 1st Avenue South and I-175 (See Figure 1). Sixteenth Street South and Ninth Street South border the western and eastern edge of the site, respectively. Single family homes, multi-family homes and retail business' surround the site. Booker Creek drains the area and runs from north to south through the center of the site (NUS Corporation 1989). Booker Creek supports recreational boating and fishing (Dynamic Corporation 1994).

Historically, the City of St. Petersburg owned most of the property. From 1914 to 1962, the City operated a municipal gas plant on this site. Spillage of tar residues from plant operations was common. In 1962, the City dismantled the plant and connected the gas distribution tanks to a commercial natural gas supplier, People's Gas Company. In 1984, People's Gas Company dismantled the two gas distribution tanks.

The City maintained other on-site municipal facilities such as an incinerator (1920-1950's), an asphalt plant (1947-1963), and sanitation and street maintenance facilities (1960's-1980's; NUS Corporation 1989). Several private businesses also operated in the area from about 1920 until the late 1980's. These included gasoline service stations, drycleaners, a lumber yard and paint warehouse, a meat packing plant, and a fabrication shop (See Figure 2). The Florida Suncoast Dome stadium, a parking lot and grass covered areas have occupied the site since 1990 (Dynamic Corporation 1994; NUS Corporation 1989).

The People's Gas/ Florida Suncoast Dome site is in an urban area of St. Petersburg. Approximately 17,000 people live within a mile of the site. Five schools are within one mile of the site, the nearest being Campbell Park School 300 feet south of the site. The stadium is regularly used for recreational events (NUS Corporation 1989).

Groundwater under the site flows in two directions: groundwater east of Booker Creek flows to the southwest while groundwater west of Booker Creek flows to the east (ESE 1988). The top of the Floridian aquifer is about 200 feet below land surface at this site.

The Floridian aquifer under the site is nonpotable (not drinkable) because of saltwater intrusion (Dynamic Corporation 1994). The City's municipal wells are more than four miles north of the site. Only one known potable well (domestic supply well) is near the site. It is between two and three miles northwest and hydraulically upgradient of the site. The closest nonpotable well is an irrigation well at the southwest corner of the site across Fifth Avenue. No potable water intakes from Booker Creek are located downstream of the site (NUS Corporation 1989).

Although we are unaware of any community health concerns at the present time, a construction worker at the site complained of health problems while surveying the parking lots in 1987. No other health concerns have been registered since that time.

Past Environmental Sampling. In 1984, during the construction of the Florida Suncoast Dome, contractors removed two underground storage tanks. During the removal, coal tar was accidentally spilled into Booker Creek and the City sewer system. In 1987, contractors analyzed soil and water from a drainage ditch northeast of Booker Creek and detected volatile organic chemicals (VOCs). They also observed petroleum-like materials migrating from the on-site soil into the drainage ditch and the on-site detention pond. Surface water from Booker Creek was not contaminated (NUS Corporation 1989).

In 1988, the City prepared a Contamination Assessment report to define the limits of contaminated material. They found contaminated soil in the former gas plant area and in detention pond #1 (See Figure 2). Groundwater near Booker Creek and 4th Avenue in the southern portion of the site was contaminated with PAH's, VOC's including tetrachloroethylene above state or federal standards. Since groundwater flows toward Booker Creek, investigators sampled surface water in Booker Creek but did not detect contamination. Sediments in Booker Creek near detention pond #1 were contaminated with PAH's, however, they were below levels of health concern (ESE 1988).

In 1989, the EPA prepared a Screening Site Inspection report. The report concluded Booker Creek and detention pond #1 on the south side of the site, represented the primary sources of human exposure by direct contact or inhalation. Groundwater was a concern due to one potable well two to three miles northwest of the site. Human consumption of fish that contained bioaccumulated contaminants from Booker Creek or Tampa Bay was also a concern. Compounds identified before soil remediation include PAH's, bis(2-ethyl hexyl)phthalate [possibly migrating from plastics in the former landfill], benzene, ethylbenzene, xylene, toluene, cyanide, arsenic, barium, lead and chromium. These compounds were all above state standards or health guidelines. In groundwater, benzene, toluene, tetrachloroethene, lead, chromium and cadmium were all identified as being above state or federal standards (NUS Corporation 1989).

Remedial Actions. In 1990, the City excavated 95,000 cubic yards of contaminated on-

site soil (See Figure 2). They constructed detention ponds, inlets and storm water lines for drainage, paved the area for a parking lot, and added landscaping, lighting and sidewalks.

Current Status. In 1995, the City prepared a Summary Report. The report confirmed that the 1990 remediation had reduced soil and groundwater contamination. One soil sample was identified along the east side of Booker Creek in the remediated area with elevated PAH's (chrysene, fluoranthene, fluorene, 1-methylnaphthalene, 2-methylnaphthalene, phenanthrene, and pyrene). Sediment from Booker Creek near the center of the site contained fluoranthene at levels below health concern (Post, Buckley, Schuh and Jernigan, Inc. 1995).

Groundwater: The City's 1995 Summary Report found contaminants in an on-site area not previously identified with contamination and not addressed in the 1990 soil remediation. This area is north (hydraulically upgradient) of the previously identified area (Post, Buckley, Schuh and Jernigan, Inc. 1995). They found four inches of free product (coal tar containing PAH's) in monitor well #7 just north of the remediation area (Letter from Mark Culbreth, June 14, 1996). Groundwater in this area (MW-7) is contaminated with PAH's, benzene, arsenic and lead (See Figure 2; Letter from Mark Culbreth, April 14, 1997). Table 1 summarizes the most recent groundwater sampling data.

Soils: Subsurface soils north of the remediation area are also contaminated with PAH's (See Table 2; Letter from Mark Culbreth, June 14, 1996). The City concludes that contaminants have not leached from the soil into the groundwater since down-gradient groundwater contamination was not detected (Post, Buckley, Schuh and Jernigan, Inc. 1995). Table 2 summarizes the most recent soil sampling data.

Table 1
Maximum Contaminant Concentration in
Groundwater Near Monitor Well #7 (ug/L)

Compound	Maximum Groundwater Concentration	Screening Value
benzo(a)anthracene	8.6	0.1 (MCL)
benzo(a)pyrene	7	0.005 (CREG)
benzo(b)fluoranthene	5.1	0.2 (MCL)
chrysene	8.9	0.2 (MCL)
naphthalene	3400	200 (EMEG)
benzene	32	1 (CREG)
arsenic	12	3 (CREG)
lead	36.9	15 (Action Level)
acenaphthylene	510	210 (FDEP)
benzo(ghi)perylene	5	210 (FDEP)
1-methylnaphthalene	470	20 (FDEP)
2-methylnaphthalene	630	20 (FDEP)
phenanthrene	44	210 (FDEP)
xylene	13	2000 (EMEG)

ug/l = microgram per liter

CREG = ATSDR's Cancer Risk Evaluation Guide for one in a million excess cancer risk

EMEG = ATSDR's Environmental Media Evaluation Guide

RMEG = ATSDR's Reference Dose Media Evaluation Guide

MCL = EPA's Maximum Contaminant Level

FDEP = Florida Department of Environmental Protection groundwater criteria

Action Level = EPA's Action Level for lead

Source: Letter from Mark Culbreth, April 14, 1997

Table 2
Maximum Contaminant Values from
Subsurface Soil Near Monitor Well #7(mg/kg)

Compound	Maximum Subsurface Soil Concentration	Screening Value
benzo(a)pyrene	0.21	0.1 (CREG)
benzo(a)anthracene	0.25	1.1 (FDEP)
benzo(b)fluoranthene	0.2	1.4 (FDEP)
benzo(k)fluoranthene	0.15	1.5 (FDEP)
benzo(ghi)perylene	0.37	2300 (FDEP)
chrysene	0.35	140 (FDEP)
dibenzo(ah)anthracene	0.34	0.1 (FDEP)

mg/kg = milligram per kilogram

CREG = Cancer Risk Evaluation Guide for one in a million excess cancer risk

FDEP = Florida Department of Environmental Protection soil cleanup target levels

Source: Letter from Mark Culbreth, June 14, 1996

In February 1997, the City proposed no further assessment or on-site remedial action because previous soil impacts on down-gradient groundwater quality were not significant (Letter from Mark Culbreth, February 14, 1997). The Florida Department of Environmental Protection did not concur because leachable soils may be present. The City did not test the soils in the area where the free product was identified (MW-7; Memorandum to Sandra Tippin, DEP. April 14, 1997).

Site Visit. On September 12, 1997, Julie Smith and Bruce Tuovila from the Department of Health, Bureau of Environmental Toxicology; David Hutchins and Ben Moore from the Agency for Toxic Substances and Disease Registry (ATSDR); and Michael Flannery from the Pinellas County Health Department visited the site. They observed the stadium undergoing construction. The stadium and parking areas occupy most of the site. They observed Booker Creek running between the parking area and the stadium. They observed two grass-covered detention ponds south of the stadium and parking areas east of the stadium. They did not observe any residential areas close to the site.

Discussion

In this health consultation, we evaluate the risk of illness from human exposure to contaminated soil, groundwater, surface water and sediment. Contaminants in the environment have the potential to cause illnesses in people, but only if people come into contact with those contaminants. Illness may occur only after the contaminant enters the body through ingesting, breathing, or touching the contaminated soil or drinking contaminated water. In this consultation, we identify exposure pathways that are of public health significance.

Surface Water and Sediment: Since the surface water in Booker Creek is not contaminated, no threat of exposure from surface water exists. The 1995 data show sediments from Booker Creek contain PAH's at levels below health concern (Post, Buckley, Schuh and Jernigan, Inc. 1995). Since past leaching of PAH's from the soil resulted in PAH levels in sediment below levels of health concern, we do not expect potential future leaching from soil to result in PAH levels above levels of health concern. It is unlikely that people would contact sediments from Booker Creek near the detention pond on a regular basis because of the land use in the area near the creek. The surrounding Interstate highway, busy roads, and the large parking lot surrounding the creek make this an unlikely exposure pathway. Since exposure to surface water do not exist and sediments are unlikely to be of any public health concern, we eliminate this pathway from further evaluation.

Soils: The primary contaminants in the soil are PAH's. The City covered the contaminated soil with a parking lot, thereby reducing the potential for human contact. Since the City paved the area and planted grass, the potential for people to contact the contaminated soil is minimal. Therefore, this is an incomplete exposure pathway and is eliminated from further consideration and evaluation.

Groundwater: The primary contaminants in the groundwater are PAH's, arsenic, lead, and benzene. A potential human exposure pathway exists through the ingestion of groundwater. However, the closest potable well is between the two and three miles northwest and hydraulically upgradient from the site. Municipal wells are more than four miles north of the site reducing the potential for contaminated groundwater to contaminate these wells. Since salt water intrudes into the Floridian aquifer under the site, future use of groundwater under the site is unlikely. Therefore, the use of contaminated groundwater is unlikely and we eliminate this pathway from consideration and further evaluation.

Based on information from the Pinellas County Health Department and FDEP, there does not appear to be any community health concerns at this site.

Conclusions

The People's Gas/Suncoast Dome site poses no apparent public health hazard because no one is currently being exposed to contaminated soil, groundwater, surface water or sediment. Specifically, FDOH concludes:

1. Currently no one is being exposed to the contaminated soil. If, in the future people come in contact with soil under the parking lot and grassy areas, we will reevaluate the public health threat.
2. Currently no one is being exposed to the contaminated groundwater. If, in the future people drink contaminated groundwater from under the site, we will re-evaluate the public health threat.
3. Sediment contamination was detected, but is below levels of health concern. Any exposure to sediments is unlikely to result in adverse health effects.
4. No contamination was found in the surface waters and no exposure pathway exists.

Recommendations

The recommendations and advice in this public health consultation are based upon the referenced data and information. Additional data could alter these recommendations. Based on the information available for this report, we recommend:

1. Insure that the parking lot and grass over contaminated soil stay intact and reevaluate the on-site soil exposure pathway if the site land use changes.
2. Insure that no one uses the contaminated groundwater under the site as a source of drinking water.
3. If land use changes and exposure to sediment is likely, resample sediment to ensure contamination is below levels of health concern.
4. No further action for surface water.

The conclusions and recommendations in this report are based on the information reviewed. If additional information becomes available, we will evaluate it to determine 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.

Preparer of Report

Julie Smith
Environmental Specialist III
Bureau of Environmental Toxicology
Florida Department of Health
(850) 488-3385

ATSDR Technical Project Officers:

David Hutchins
Division of Health Assessment and Consultation

Laurie Colombo
Division of Health Education and Promotion

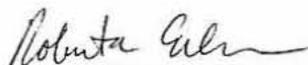
Paul Jones
Division of Health Studies

ATSDR Regional Representative

Bob Safay
Senior Regional Representative

Certification

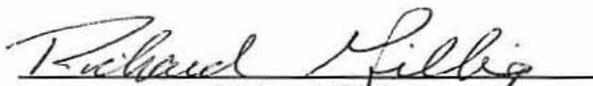
This People's Gas/Suncoast Dome Health Consultation was prepared by the Florida Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.



Roberta Erlwein

Technical Project Officer, SPS, SSAB, DHAC, ATSDR

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



Richard Gillig

Chief, SPS, SSAB, DHAC, ATSDR

References

NUS Corporation. Screening Site Inspection Report for People's Gas/Suncoast Dome site. Prepared for the Environmental Protection Agency, Waste Management Division. July 26, 1989.

Environmental Science and Engineering (ESE). Contamination Assessment Report. Prepared for the City of St. Petersburg. January 25, 1988.

Letter from Mr. Mark Culbreth, P.G., Environmental Consulting and Technology, Inc. To Ms. Sandra Tippin, Florida Department of Environmental Protection. June 14, 1996.

Letter from Mr. Mark Culbreth, P.G. and Dr. Charles D. Hendry, Environmental Consulting and Technology, Inc. To Ms. Sandra Tippin, Florida Department of Environmental Protection. February 14, 1997.

Letter from Dedra Johansen, Post, Buckley, Schuh and Jernigan, Inc. to Ms. Sandra Tippin, Florida Department of Environmental Protection. June 8, 1995.

Post, Buckley, Schuh and Jernigan, Inc. Summary Report: Implementation of Groundwater Investigation Plan, Old Gas Plant Site. Prepared for the City of St. Petersburg. April 1995.

Dynamic Corporation. TES VIII Work Assignment No. CO4119 Site Inspection Prioritization People's Gas/Suncoast Dome. Prepared for U.S. Environmental Protection Agency. September 9, 1994.

Memorandum to Sandra Tippin, Southwest District Office, Department of Environmental Protection from Zoe Kulakowski, Bureau of Waste Cleanup, Department of Environmental Protection. April 14, 1997.

Figure 1
People's Gas / Suncoast Dome Location

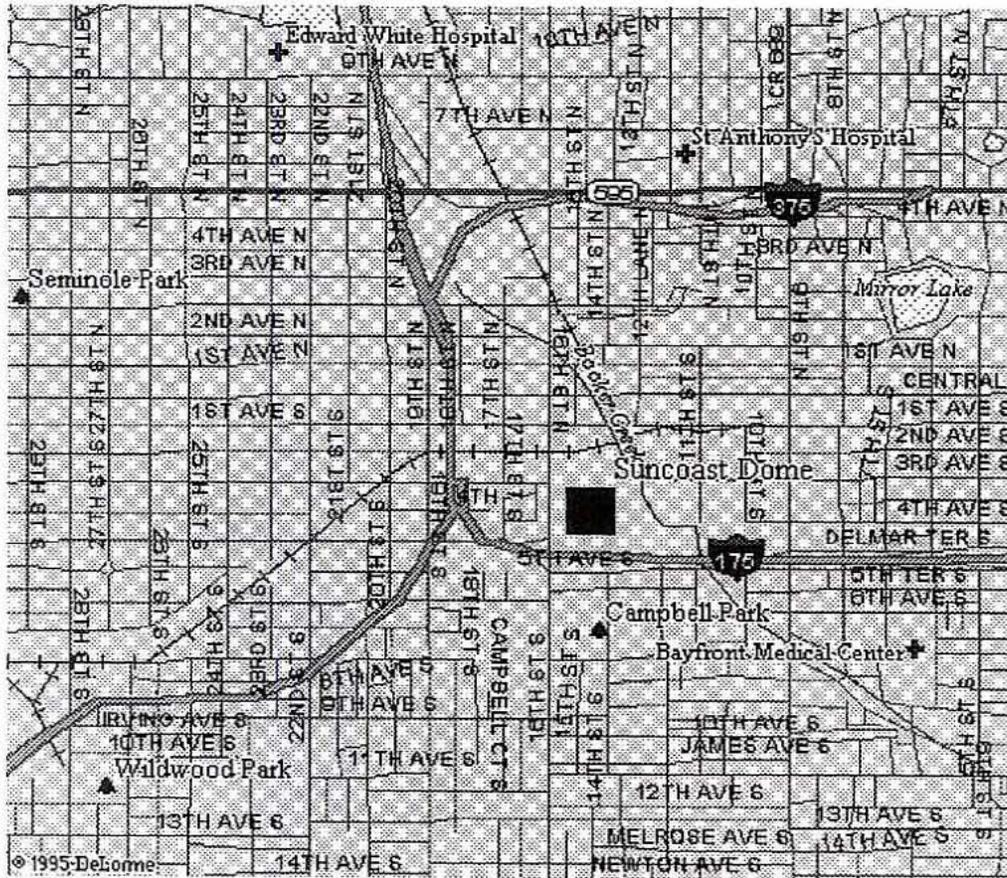
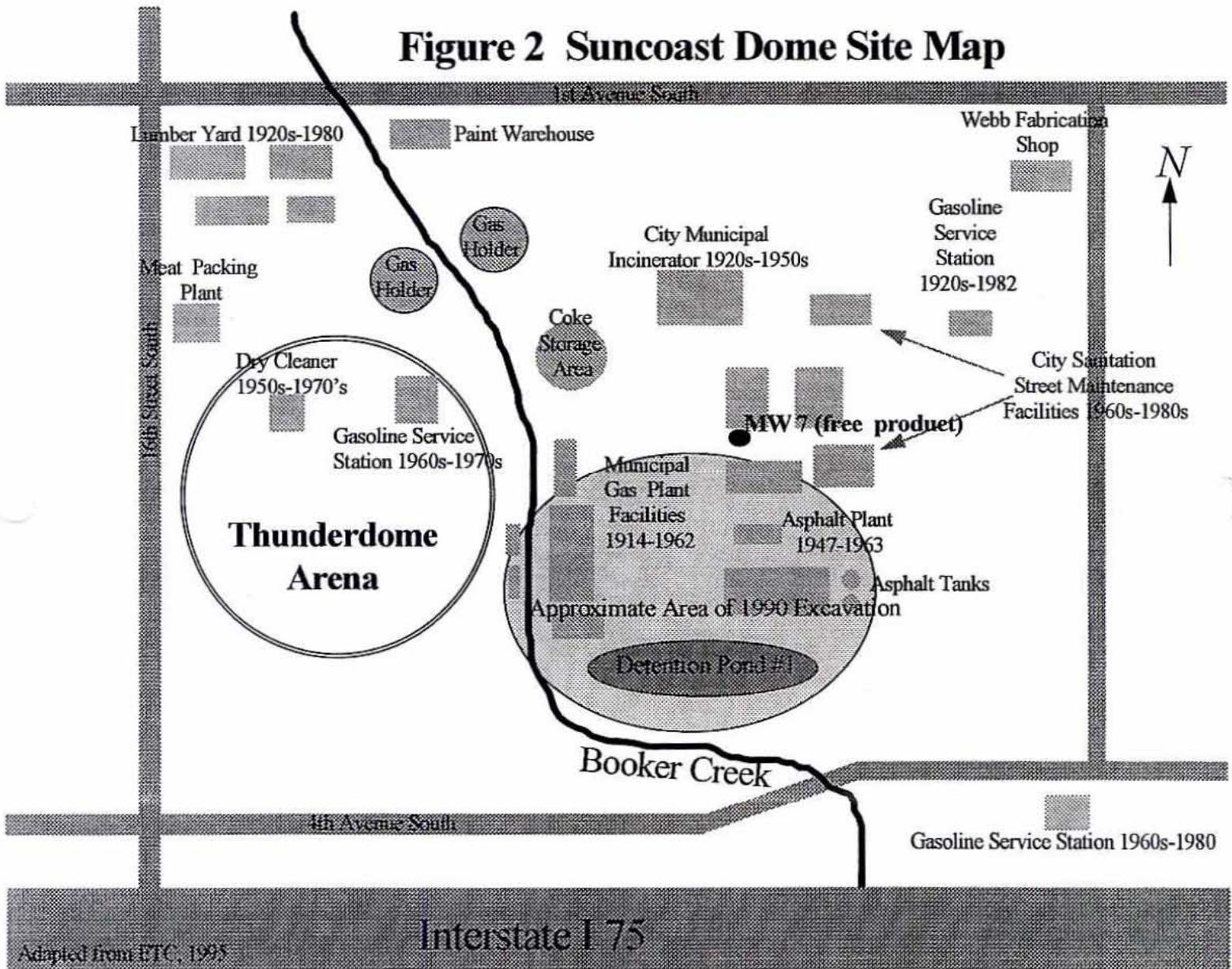


Figure 2 Suncoast Dome Site Map



Adapted from ETC, 1995