



Public Health Assessment for

**ARMCO INCORPORATED - HAMILTON PLANT
NEW MIAMI, BUTLER COUNTY, OHIO
EPA FACILITY ID: OHD074705930
JUNE 27, 2005**

**U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE**
Agency for Toxic Substances and Disease Registry

THE ATSDR PUBLIC HEALTH ASSESSMENT: A NOTE OF EXPLANATION

This Public Health Assessment was prepared by ATSDR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) section 104 (i)(6) (42 U.S.C. 9604 (i)(6)), and in accordance with our implementing regulations (42 C.F.R. Part 90). In preparing this document, ATSDR has collected relevant health data, environmental data, and community health concerns from the Environmental Protection Agency (EPA), state and local health and environmental agencies, the community, and potentially responsible parties, where appropriate.

In addition, this document has previously been provided to EPA and the affected states in an initial release, as required by CERCLA section 104 (i)(6)(H) for their information and review. The revised document was released for a 30-day public comment period. Subsequent to the public comment period, ATSDR addressed all public comments and revised or appended the document as appropriate. The public health assessment has now been reissued. This concludes the public health assessment 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.

Agency for Toxic Substances & Disease Registry Julie L. Gerberding, M.D., M.P.H., Administrator
Thomas Sinks, Ph.D., M.S., Acting Director

Division of Health Assessment and Consultation..... William Cibulas, Jr., Ph.D., Director
Sharon Williams-Fleetwood, Ph.D., Deputy Director

Community Involvement Branch Germano E. Pereira, M.P.A., Chief

Exposure Investigations and Consultation Branch..... Susan M. Moore, Ph.D., Chief

Federal Facilities Assessment Branch Sandra G. Isaacs, B.S., Chief

Superfund and Program Assessment Branch Richard E. Gillig, M.C.P., Chief

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PUBLIC HEALTH ASSESSMENT

ARMCO INCORPORATED – HAMILTON PLANT
NEW MIAMI, BUTLER COUNTY, OHIO
EPA FACILITY ID: OHD074705930

Prepared by:

Health Assessment Section
of the Ohio Department of Health
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

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SUMMARY

The ARMCO site is located in New Miami, Butler County, Ohio. The ARMCO facility began operations as a steel mill around the turn of the century and ceased operations in 1982. Most of the on-site buildings were demolished by 1989. In 2003, the former ARMCO facility was proposed for inclusion on the National Priorities List (NPL) for Uncontrolled Hazardous Waste Sites. The Agency for Toxic Substances and Disease Registry (ATSDR) is required by Congress to complete a public health assessment for sites proposed for listing on the NPL. Since 1990, the Health Assessment Section (HAS) of the Ohio Department of Health has had a cooperative agreement with ATSDR. As part of this agreement, HAS agreed to conduct the public health assessment for the ARMCO site.

Initial environmental investigations began at the site in 1988 and continued through 1993. Samples collected at the site include on-site soil and sediment samples, in addition to groundwater samples from on-site production wells and nearby municipal drinking water supply wells. Analytical results from the various sampling events indicate that soils and sediment on the site were contaminated with elevated levels of polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs). In addition, several metals were detected in on-site scrubber sludge piles above expected background levels. None of the groundwater samples collected contained site-related chemicals at levels of health concern. However, there is a landfill located on the northeast portion of the site, and groundwater conditions around the landfill have not been fully characterized.

The primary concern for exposure at the site is the possibility that chemicals from the site may have migrated through the soil and impacted the groundwater supply in the area. Two municipal drinking water supply wells and several residential drinking water wells are in the vicinity of the site. Although groundwater on the site has not been found to contain chemicals at levels of health concern, the potential for exposure can not be determined until the extent of the contamination at the site has been fully characterized.

Another pathway of concern is the potential for contaminated leachate and surface water runoff to enter the Great Miami River which borders the entire eastern edge of the site. This runoff could potentially contaminate river surface water or sediment and could possibly be ingested by aquatic life and pose a threat to fishermen or others who eat fish caught in the Great Miami River.

Currently the ARMCO site poses an *Indeterminate Public Health Hazard* to the residents in the vicinity of the site. To determine whether residents living near the site or visitors to the site may possibly be exposed to hazardous chemicals at levels of health concern, environmental conditions at the site must be fully characterized.

PURPOSE AND STATEMENT OF ISSUES

In 2001, the Health Assessment Section of the Ohio Department of Health completed a health consultation for the Environmental Protection Agency (U.S. EPA) evaluating the public health threat posed by the former ARMCO-Hamilton Steel (ARMCO) facility located in New Miami, Ohio (HAS, 2002). In 2003, the former ARMCO site was proposed for inclusion on the National Priorities List (NPL) for uncontrolled hazardous waste sites. The Agency for Toxic Substances and Disease Registry (ATSDR) is required by Congress to conduct a public health consultation for sites proposed for listing on the NPL. Since 1990, the Ohio Department of Health's Health Assessment Section has had a cooperative agreement with ATSDR. As part of this agreement, the Health Assessment Section agreed to conduct the public health assessment for the ARMCO site.

BACKGROUND

Site Description

The ARMCO site consists of two parcels north and south of Augspurgen Road in the village of New Miami, about 1.5 miles northeast of downtown Hamilton, Butler County, Ohio (Figure 1). The 125-acre site was formerly used to produce molten iron for steel making. The site is bordered to the south and east by the Great Miami River (GMR) and to the north and west by the Baltimore and Ohio (B&O) Railroad tracks. The portion of the site that was used for manufacturing is a fenced 92-acre parcel located south of Augspurgen Road. The northern portion of the site includes an unfenced, 27-acre rail yard where air pollution scrubber sludge was stored. This area is now partially covered with piles of slag. A 4.5-acre, closed landfill, which is covered with grass and fenced, is located north of the rail yard. A small unnamed tributary borders the landfill to the east and flows east and south to the river. The entire site is bordered on the east by the Great Miami River, and surface water drains from the site to the east and south to the river. When the facility was in operation, process water and waste water were discharged to the river through four outfalls distributed approximately 1,000 feet to 1,500 feet apart along the length of the southern parcel (Figure 2).

The area surrounding the site is mixed industrial and residential. The village of New Miami (population 3,045) is located approximately 500 feet west and northwest of the site, just beyond railroad tracks (Figure 2). The residential community of Williamsdale is directly north of the former coke production area and approximately 1,500 feet west of the on-site landfill. The nearest school is one-half miles northwest of the ARMCO site. The nearest residences are approximately 500 feet to the west along Riverside Drive and 500 feet to the east of the site on Augspurgen Road. An operating sand and gravel pit is to the west across Augspurgen Road and the railroad tracks from the former coke production area. A light commercial area abuts the site, west of the railroad, along Riverside Drive. Areas south and east of the site, east of the Great Miami River, are largely agricultural.

Site Hydrogeology

The ARMCO site sits atop one of the more prolific sand and gravel aquifers in the central United States (Speiker, 1968). The water-bearing Great Miami River (GMR) aquifer system consists of roughly 200+ feet of interbedded sand and gravel outwash and clay till backfilling a deep, pre-glacial bedrock valley. ARMCO had four production wells at the south end of the site with an average depth of 200 feet, and producing up to 2,000 gallons per minute from the deeper sand and gravel beds (ODNR, well log records). The city of Hamilton and the village of New Miami have well fields located within a half mile of the site (Figure 2). The New Miami water system gets its water from three wells that are 86, 120, and 136 feet deep, respectively, each of which is producing 240 gallons per minute from the water-bearing sand and gravel. The city of Hamilton North Well field is located on the south side of the GMR from the former ARMCO site, 1,700 feet south and down gradient of the site. The five wells in the well field, 150-200 feet in depth, can produce as much as 6,930 gallons per minute, but are operated intermittently. In the summer months, these wells are used to provide water to approximately 30,000 residents in adjacent portions of Liberty and Union townships, outside of the Hamilton city limits.

Residential wells and small community wells are also present in the nearby community of Williamsdale, and in several nearby mobile home parks. Individual wells average 50 to 70 feet in depth and typically yield 10 to 30 gallons per minute from shallow sand and gravel beds (Ohio Dept. Natural Resources, well log records). Depth to the water table on-site is between 30 and 50 feet below the ground surface (ODNR Well logs). The closest residential wells appear to be roughly 1,000 feet north of the former coke production area in Williamsdale and 800 feet east of the unlined landfill along Augspurger Road (Figure 2).

Prior Site Operations

The ARMCO facility began operations as a steel mill around the turn of the century and has changed ownership several times. ARMCO (American Rolling Mills Company) purchased the site from the Hamilton Coke and Iron Company in 1937 (PRC, 1994). The following sections will outline the activities that took place at the site that may have contributed to contamination at the site.

Coke Plant and Landfill Operations

The coke plant covered about 50 acres in the north-central portion of the south parcel. Coal arrived by rail and was sent via conveyers to a battery of 120 coke ovens where the coal was heated in the absence of oxygen to produce coke (PRC, 1994). About 1,730 tons of coke was produced per day (Ohio EPA, 1988a). By-products of the operation included ammonium sulfate, coal tar, and various light hydrocarbon compounds that were passed through an exhauster and flushed into a large decanting tank. The by-products then were pumped or flushed into large (400,000 to 600,000-gallon) aboveground storage tanks and eventually sold as product. Tar decanter sludge was periodically drained from the bottom of the decanting tank and disposed of in the on-site landfill (E&E, 1989). Data detailing the constituents of the tar decanter sludge were not available; however, it was thought to contain PAHs and heavy metals.

The landfill was operational from the early 1960s to 1980 (PRC, 1993h). Although used primarily for the disposal of tar decanter sludge, the landfill also received an unknown amount of rubble, trash, and miscellaneous industrial waste (ARMCO, 1981). The depth of waste in the landfill and information about waste disposal practices for the landfill are unknown. However, the landfill is unlined and does not have a leachate control system (E&E, 1989). At closure the landfill was stabilized with slag and covered with 2 feet of compacted, low permeability clay (PRC, 1994). The clay cap was then seeded. Closing of the landfill was completed in 1980 (ARMCO, 1981).

Operations in the coke production area ceased in 1982 (PRC, 1994). Most of the buildings, aboveground tanks, and other structures in the coke production area were demolished in early 1989 (PRC, 1994). Demolished buildings were buried on-site and covered with local fill dirt (personal communication with ARMCO, 2001).

Blast Furnace Operations

The blast furnace operation consisted of two furnaces, each producing about 1,000 tons of iron per day. The operation occupied about 10 acres at the south end of the southern parcel. Byproducts of the blast furnace operation included slag and large volumes of dust. The dust was collected by wet scrubbers and electrostatic precipitators. Contact wastewater from the blast furnace off gas and wet scrubbers contained pollutants, such as, ammonia, cyanide, and phenol, as well as, lead and zinc-bearing dust (ARMCO, 1987). The wastewater entered one of two unlined settling ponds where the particulate matter settled. Most of the water then flowed over a weir and was re-circulated into the system (ARMCO, 1987).

Beginning in the early 1980s, sludge was periodically dredged from the two settling ponds and stored in unlined piles in the rail yard area (PRC 1993). Because this scrubber sludge had high iron content, it was eventually reused in iron production. ARMCO also sold some of the excess scrubber sludge to other steel companies (E&E, 1989). The maximum amount of sludge stored in this area is not known precisely. Size of the piles varied depending on the number of furnace operating at the plant and the demand for the sludge as recycled material. Between 1989 and 1990, about 18,000 cubic yards of the dried sludge were transported to the main ARMCO facility in Middletown, Ohio, where it was reused to make steel. Taking this amount as a yearly average over a 10-year period, ARMCO estimated that as much as 180,000 cubic yards of scrubber sludge may have been stored at the rail yard (PRC, 1993h). An aerial photograph from 1990 shows the piles covering an area of approximately 100,000 square feet (PRC, 1994).

Outfalls

Before September 1987, an unknown volume of blast furnace wastewater was regularly released from the settling ponds and discharged to the Great Miami River under a National Pollution Discharge Elimination System (NPDES) permit (E&E, 1989). In 1987, ARMCO began recirculating all blast furnace wastewater rather than build a wastewater treatment plant to remove lead and zinc, as required for an NPDES permit renewal (ARMCO, 1991b, Ohio EPA 1987).

In total, ARMCO operated four outfalls that discharged to the Great Miami River. Outfall 001 consisted of effluent from the blast furnace operation, as well as noncontact cooling water and storm water runoff (PRC, 1994). More than 85% of the noncontact cooling water came from condensers used to quench the exhaust steam from turbines (PRC, 1994). Outfall 002 discharged condenser cooling water and sanitary effluent from the wastewater treatment plant; the discharge rate was about 2.88 million gallons per day (Ohio EPA, 1988a). Outfalls 003 and 004 were for storm water runoff only (ARMCO, 1991a).

DISCUSSION

Previous Site Investigations

The Ohio Environmental Protection Agency conducted a Preliminary Assessment of the ARMCO site in June 1983. The report focused primarily on the on-site landfill. The report did not include a detailed investigation of the entire site and therefore was insufficient to determine the full extent of the contamination at the site (Ohio EPA, 1984).

In 1988, Ecology and Environment, Inc. (E&E) conducted a screening site inspection (SSI) of the ARMCO-Hamilton plant. Ten soil/sediment samples were collected along with seven groundwater samples from drinking water wells in the area. Samples were collected from two nearby municipal supply wells, several on-site production wells, and one nearby residential well. Elevated levels of polynuclear aromatic hydrocarbons (PAHs) were detected in on-site sediments. Samples from the scrubber sludge piles and settling ponds contained several metals with concentrations above natural background levels. No contaminants were detected at levels of health concern in any of the drinking water wells sampled in 1988 (E&E, 1989). The on-site production wells were last sampled in 1988, and they have since been abandoned.

In 1993, PRC, Inc. collected four soil samples, five waste samples, and nine sediment samples from the ARMCO site (Figure 3). All samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides, PCBs, metals, and cyanide.

All soil samples collected from the rail yard contained elevated levels of PAHs. PAH concentrations ranged from 390 to 1,900 micrograms per kilogram (ug/kg). The PCB compound Aroclor 1254 was also significantly elevated in every soil sample with the highest concentration being 7,600 ug/kg in SS-03. Soil samples from the rail yard also contained elevated levels of several metals including arsenic (80.5 milligrams/kilogram (mg/kg)) and lead (514 mg/kg) (PRC, 1994).

Sediment samples collected contained several PAHs. Compounds detected included phenanthrene (2,000 and 1,500 ug/kg); flouranthene (2,800 and 3,200 ug/kg); pyrene (2,000 and 2,500 ug/kg); benzo(a)anthracene (710 and 1,900 ug/kg); and chrysene (920 and 1,800 ug/kg). No pesticides or PCBs were significantly elevated above background in any of the sediment samples (PRC, 1994).

Three monitoring wells were installed in the southern portion of the site in 1999. The wells were sampled three times between January 2000 and March 2001. No site-related contaminants were detected at levels of health concern. However, the wells, all clustered at the south end of the site, were drilled to a depth of approximately 100 feet below ground surface and may not capture contaminants located at shallower depths, especially those in the more northerly portions of the site.

Site Visit

On December 14, 2001, staff members of the Health Assessment Section of the Ohio Department of Health, representatives of the Ohio Environmental Protection Agency, and representatives of AK Steel (current owners of the property), visited the ARMCO site. At that time, all aboveground structures had been removed from the site. The southern portion of the site that previously housed the coke plant and blast furnaces was completely fenced. According to representatives of AK Steel, the former on-site buildings were demolished and buried on-site. Pieces of slag were present across the entire southern portion of the site. At the time of the visit, standing water partially filled a broad, deep swale at the west edge of the property adjacent to the railroad tracks. The visitors noted what appeared to be all-terrain vehicle tracks in this area. All former production and monitoring wells that were located on-site prior to the installation of three monitoring wells in 1999 have been abandoned. Well logs show that the production wells were 18 inches in diameter and extended down to depths of more than 200 feet. The three new monitoring wells are all located at the southern part of the property in the general vicinity of the former blast furnace area. These wells are set at a depth of approximately 100 feet.

The northern portion of the site has a fenced gate, but pedestrian traffic is not restricted from any area with the exception of the landfill. The landfill area is currently graded, and grass-covered, and fenced with a locking gate. Large piles of slag remain on the site in the former rail yard area. A small unnamed stream is present within fifteen feet of the eastern edge of the landfill. Prior sampling events have shown PCB and PAH contamination in the sediments of the stream. Several residences are located in the area near the stream and access to the stream is not restricted.

Pathways of Concern

The primary exposure concern is the possibility that the chemicals that have been detected on the site might migrate from the site and contaminate the drinking water supply used by area residents. Private drinking water wells and municipal drinking water wells are located in close proximity to the site, and they obtain their water from the same sand and gravel aquifer that underlies the Armco site, including the unlined landfill and the former coke and blast furnace production areas. The most recent on-site groundwater samples were taken from the three deep monitoring wells located at the southern end of the site that were installed in 1993. To determine whether the site poses a realistic threat to residents who use municipal water supplies or who use private wells to supply their drinking water, it is necessary to better characterize groundwater at the site and conduct additional sampling.

Another pathway of concern is the potential, both past and present, for contaminated leachate and surface water runoff to enter the unnamed tributary at the east edge of the landfill or to flow directly into the Great Miami River. This runoff or leachate could potentially contaminate surface water or sediment in the river and pose a possible health threat to people who come into physical contact with the river via wading, swimming, or boating. Environmentally persistent contaminants (PCBs, PAHs) emanating from the site could also be taken up by aquatic life in the river and pose a threat to persons who consume fish caught in the Great Miami River. It is necessary to better characterize the extent and nature of the contamination on the site. The results of this characterization will aid in determining whether or not contaminants from the site are impacting the river and the unnamed stream. With all of this information gathered, we can better evaluate whether the river's surface water, sediment, and fish have the potential to pose a health threat to persons who come into contact with the water or sediment or eat fish from the river. It may also be necessary to collect tissue samples of fish in the river to analyze for contaminants that are of concern at the site.

PUBLIC COMMENTS

The Health Assessment Section of the Ohio Department of Health released the Public Comment Draft of the Public Health Assessment for the ARMCO Incorporated, Hamilton plant for public comment on June 8, 2004. The report was available at the Hamilton Lane Public Library, 300 North Third Street, in Hamilton, Ohio. The comment period was from June 8, 2004 until July 7, 2004. The name and location of the repository, the comment period, and the address that the comments could be sent to were all in a press release from the Ohio Department of Health issued on June 8, 2004, (Appendix A). No comments were received either by the Health Assessment Section or by ATSDR in Atlanta.

CHILDREN'S HEALTH CONSIDERATIONS

ATSDR and the Health Assessment Section of the Ohio Department of Health recognize the unique vulnerabilities of children exposed to environmental contamination and hazards. As part of this health assessment, the Health Assessment Section considered the greater sensitivity of children in the Augspurgen Road area when drawing conclusions and making recommendations regarding health effects from exposure to chemicals associated with the ARMCO site.

CONCLUSIONS

1. Previous investigations at the site have revealed that the site has impacted on-site surface soil as well as sediments of the Great Miami River and an unnamed tributary to the Great Miami River. This contamination poses an *Indeterminate Public Health Hazard* to residents and visitors in the area due to the insufficient amount of environmental data collected from the site and the surrounding area and the fact that the most recent environmental sampling data from the river was collected in 1993.

2. The site was proposed for inclusion on the NPL due to the possibility of groundwater contamination at the site along with the proximity of the site to nearby municipal drinking water supply wells. Because adequate groundwater monitoring data is not available for evaluation, the drinking water pathway poses an *Indeterminate Public Health Hazard* to residents in the area who use groundwater as a drinking water source. No contamination has been detected in either of the municipal well fields in the area. However, on the basis of the kinds of industrial activities that took place at the ARMCO site in the past, the contamination found in soil on the site, and the area's hydrogeology, the potential is present for contaminants to migrate into the underlying groundwater aquifer and move off the site and impact community drinking water supplies.

RECOMMENDATIONS

1. A thorough environmental investigation of the site, including on-site soils, on-site and off-site groundwater, off-site sediment, and on-site and off-site surface water, should be completed by the site owners to better characterize the levels of hazardous materials in the former production areas and in the landfill and determine the impact of this contamination (if any) on the surrounding environment.
2. Because contamination is present in river sediment, it is advisable to sample tissue of fish from the Great Miami River. Analysis of the samples will show whether contaminants of concern at the site, especially environmentally persistent chemicals such as PCBs, have been taken up by aquatic life in nearby portions of the Great Miami River and whether the levels of contaminants found would have the potential to pose a health threat to residents who regularly consume fish taken from the river.

PUBLIC HEALTH ACTION PLAN

On April 29, 2002 the United States Environmental Protection Agency, the Ohio Environmental Protection Agency, and AK Steel entered into an Administrative Order on Consent for a Remedial Investigation/ Feasibility Study at the Armco site. On August 27, 2002 AK Steel submitted a draft Remedial Investigation/Feasibility Study work plan to Ohio EPA and U.S. EPA for review (E-mail from Nita Nordstrom, Ohio EPA, 5/4/04). It is currently uncertain when environmental sampling will begin at the site because the work plan is undergoing a second review by the environmental agencies. The Health Assessment Section will review and evaluate any additional environmental sampling data collected at the ARMCO site as it becomes available to evaluate whether contaminants of concern at the site are impacting the health of area residents.

PREPARED BY

Eric Yates - Environmental Specialist
Robert Frey, PhD. - Principal Investigator/Geologist

REFERENCES

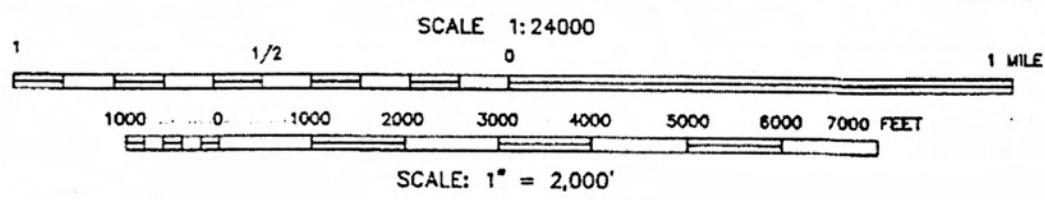
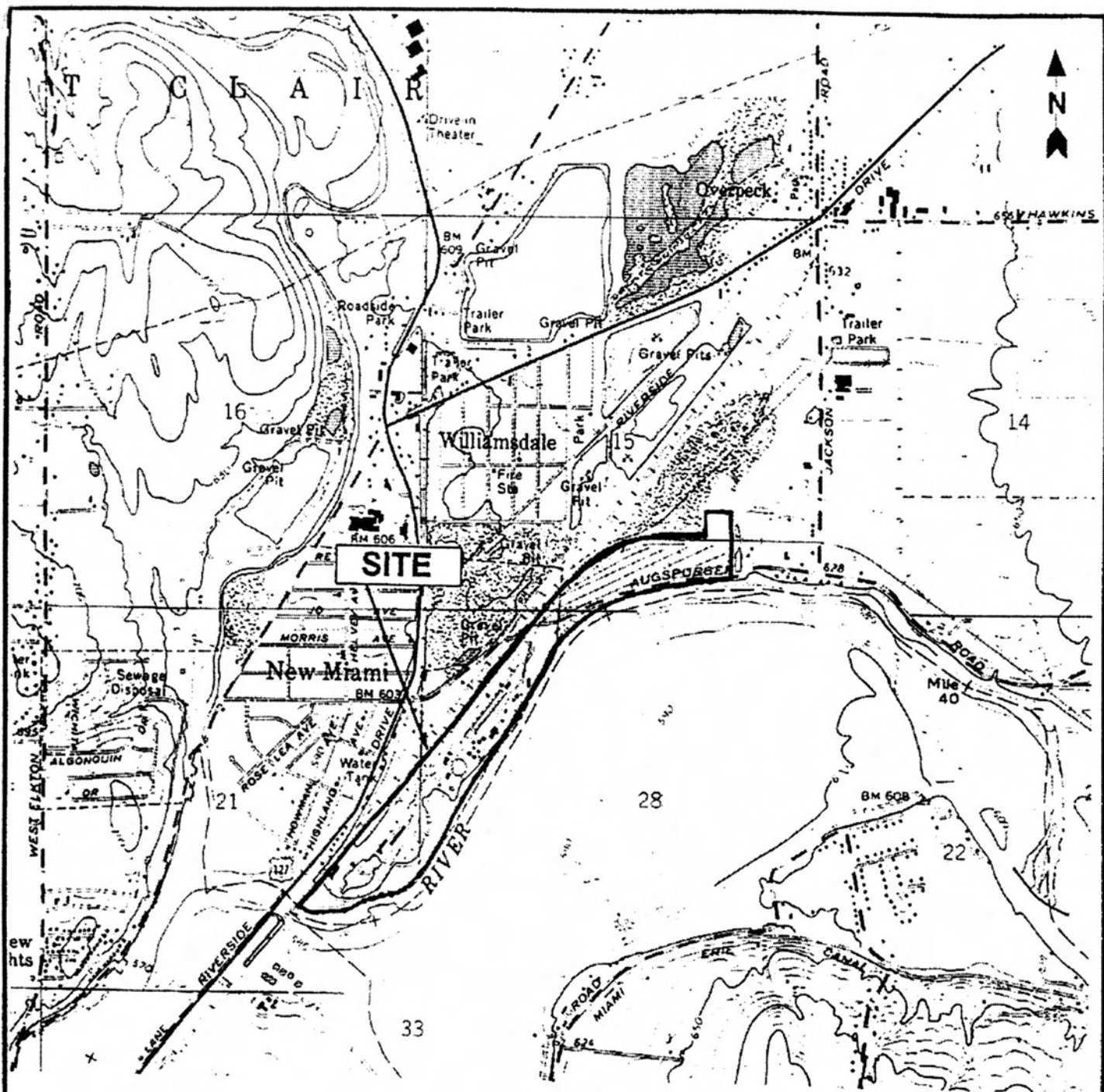
- ARMCO. 1981. Letter regarding CERCLA 103(c) Notification Form. From L.M. McAdams, Civil Engineer. To EPA, Region 5. August 10, 1981.
- ARMCO. 1987. Best Practice Program conducted at ARMCO's New Miami Plant. August 6, 1987.
- ARMCO. 1991a. National Pollution Discharge Elimination System (NPDES) Permit Application (Form 3510-1). Completed by L.A. Warren, Director of Manufacturing. To EPA Consolidated Permits Program. February 12, 1991.
- ARMCO. 1991b. Letter Regarding Ohio Environmental Protection Agency (Ohio EPA) Inquiry on Whether Sludge Ponds Could Overflow into River. From Patrick A. Gallo, Associate Civil Engineer. To Sandy Raju, Southwest District Office, Ohio EPA. May 29, 1991.
- ECOLOGY AND ENVIRONMENT. (E&E). 1989. Screening Site Inspection Report for ARMCO Inc.-Hamilton Plant, New Miami, Ohio. December 20, 1989.
- HEALTH ASSESSMENT SECTION. 2002. Public Health Consultation for the ARMCO Hamilton Plant, Hamilton, Butler County, Ohio. March 26, 2002. U.S. Dept. of Health and Human Services, Public Health Service. 12 p.
- OHIO ENVIRONMENTAL PROTECTION AGENCY (Ohio EPA). 1984. Preliminary Assessment Narrative: ARMCO Inc., Hamilton Plant. May 11, 1984.
- OHIO EPA. 1987. Interoffice Communication Regarding ARMCO's Elimination of Blast Furnace Blowdown in Outfall 001. From Mike Zimmerman, Southwest District Office. To Bob Phelps and John Kirwin, Industrial Waste Water, Central Office. August 21, 1987.
- OHIO EPA. 1988. Letter Containing Information Regarding ARMCO's NPDES discharges. From Michael W. Zimmerman, Division of Water Pollution Control, SWDO. To Dan Welch, E&E. August 24, 1988.
- PRC. 1993. Record of Telephone Conversation Regarding Fish Production in Great Miami River. Between Tom Schaffner, Geologist, and Debra Walters, Fishery Biologist, ODW, District 5. April 29, 1993.

PRC. 1994. Expanded Site Inspection Final Report for ARMCO Inc. - Hamilton Plant, New Miami, Ohio. April 6, 1994.

UNITED STATES GEOLOGICAL SURVEY (USGS). 1965. Topographic Map of Hamilton Quadrangle, Ohio. Photo revised 1988.

SPEIKER, A.M. 1968. Groundwater Hydrology and Geology of the Lower Great Miami River Valley, Ohio. U.S. Geological Survey Professional Paper 605-A. Washington, D.C. Pages A1-A37.

FIGURES



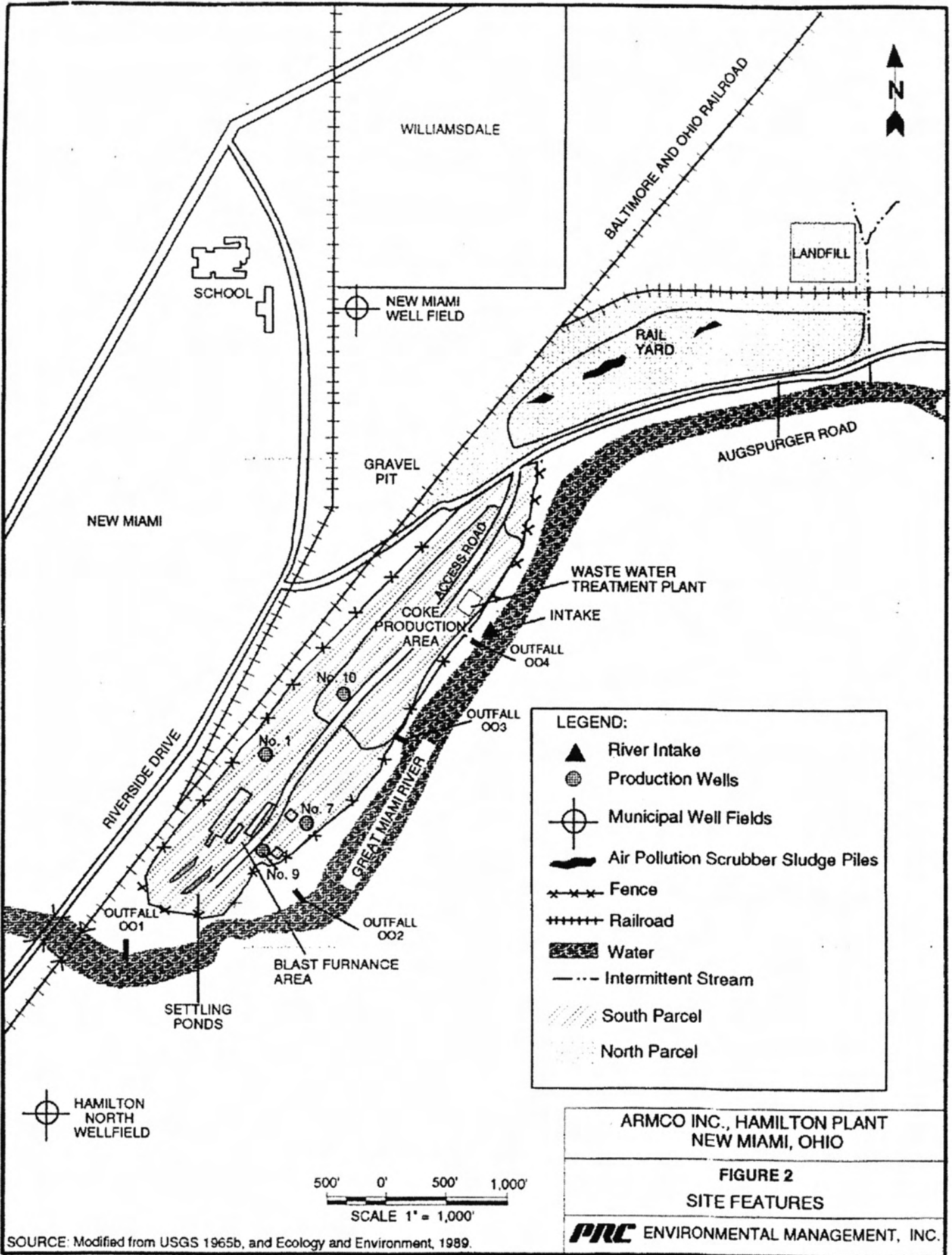
OHIO
 QUADRANGLE LOCATION

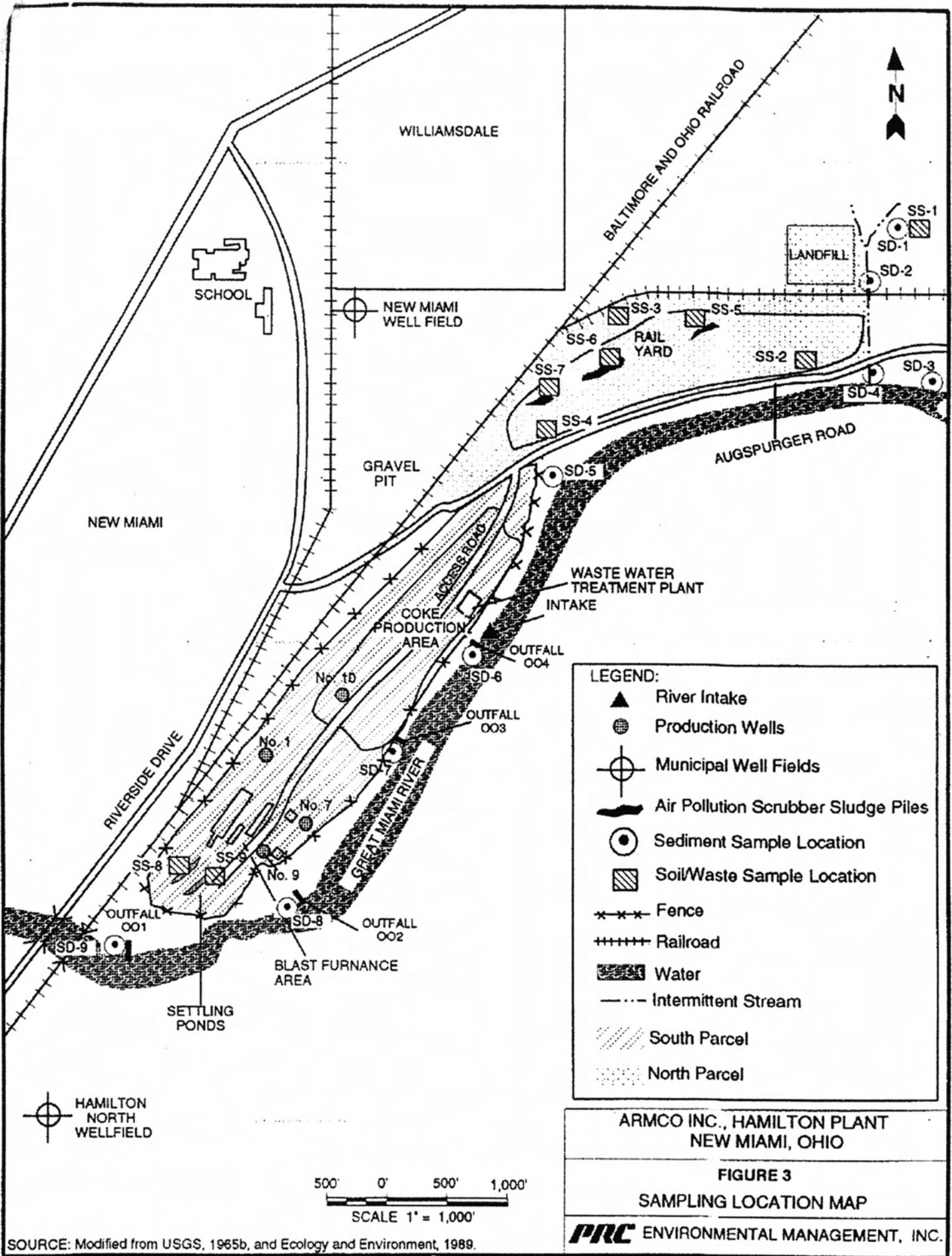
ARMCO INC., HAMILTON PLANT
 NEW MIAMI, OHIO

FIGURE 1
 SITE LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC.

SOURCE: Modified from USGS 1965b.





SOURCE: Modified from USGS, 1965b, and Ecology and Environment, 1989.

APPENDIX A



Ohio Department of Health
246 North High Street
P.O. Box 118
Columbus, Ohio 43216-0118
www.odh.state.oh.us

Bob Taft, Governor
J. Nick Baird M.D., Director

A D V I S O R Y

Office of Public Affairs • (614) 644-8562
Jay Carey, Director

For immediate release
June 8, 2004

ODH RELEASES DRAFT REPORT ON FORMER ARMCO SITE

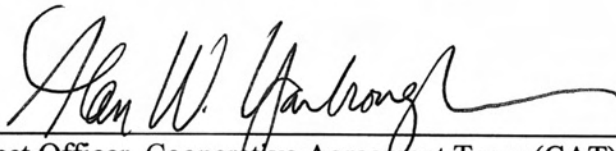
The Health Assessment Section of the Ohio Department of Health released a public comment draft of the public health assessment for the former ARMCO Inc. steel plant located in Hamilton, Ohio. The report reviews available environmental data and makes conclusions and recommendations about potential public health implications of the site. The report will be available at the Hamilton Lane Public Library, 300 N. Third St., Hamilton. Comments can be submitted until July 7, 2004. Comments can be sent to:

Ohio Department of Health
Bureau of Environmental Health
Health Assessment Section
246 North High Street
Columbus, Ohio 43216

Contact: Ohio Department of Health, Office of Public Affairs, 614-644-8562.

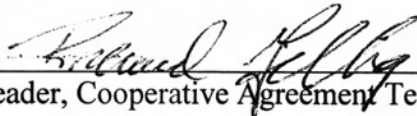
CERTIFICATION

This Armco Hamilton Public Health Assessment was prepared by the Ohio 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 assessment was begun. Editorial review was completed by the cooperative agreement partner.



Technical Project Officer, Cooperative Agreement Team (CAT), Superfund and Program Assessment Branch (SPAB), DHAC, ATSDR

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



Team Leader, Cooperative Agreement Team, SPAB, DHAC, ATSDR