

USATHAMA

U.S. Army Toxic and Hazardous Materials Agency



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Enhanced Preliminary Assessment Report:

Irwin Army Housing Units
Irwin, Pennsylvania

October 1989

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prepared for

Commander
U.S. Army Toxic and Hazardous Materials Agency
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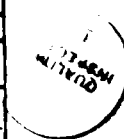
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SUMMARY

The Irwin, Pennsylvania, housing area, located near Pittsburgh, does not present an imminent or substantial threat to human health or the environment. There is no evidence to suggest that hazardous or toxic constituents have ever been released from this property.

The property was originally developed in conjunction with a Nike missile battery located in Irwin, Pa. However, no wastes associated with the operation and maintenance of the missile-launch or tracking operations have ever been delivered to or managed at this housing property. Furthermore, since the housing property remained independent of the launch and fire control portions of the battery with respect to water, sewer, and electrical utilities, there is no possibility of Nike-related wastes migrating to the area along buried utility lines.

The shake sidings of the units contain asbestos, and the floor tiles inside the units may also contain asbestos. The siding is in good condition and does not constitute an environmental hazard problem at this time. Floor tiles, which may contain asbestos, are all in good condition.

No actions are recommended to be conducted prior to the release of this property.

1 INTRODUCTION

In October 1988, Congress passed the Defense Authorization Amendments and Base Closure and Realignment Act, Public Law 100-526. This legislation provided the framework for making decisions about military base closures and realignments. The overall objective of the legislation is to close and realign bases so as to maximize savings without impairing the Army's overall military mission. In December 1988, the Defense Secretary's ad hoc Commission on Base Realignment and Closure issued its final report nominating candidate installations. The Commission's recommendations, subsequently approved by Congress, affect 111 Army installations, of which 81 are to be closed. Among the affected installations are 53 military housing areas, including the Irwin housing area addressed in this preliminary assessment.¹

Legislative directives require that all base closures and realignments be performed in accordance with applicable provisions of the National Environmental Policy Act (NEPA). As a result, NEPA documentation is being prepared for all properties scheduled to be closed or realigned. The newly formed Base Closure Division of the U.S. Army Toxic and Hazardous Materials Agency is responsible for supervising the preliminary assessment effort for all affected properties. These USATHAMA assessments will subsequently be incorporated into the NEPA documentation being prepared for the properties.

This document is a report of the enhanced preliminary assessment (PA) conducted by Argonne National Laboratory (ANL) at the Army stand-alone housing area in Irwin, Pa.

1.1 AUTHORITY FOR THE PA

The USATHAMA has engaged ANL to support the Base Closure Program and assess the environmental quality of the installations proposed for closure or realignment. Preliminary assessments are being conducted under the authority of the Defense Department's Installation Restoration Program (IRP); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 91-510, also known as Superfund; the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499; and the Defense Authorization Amendments and Base Closure and Realignment Act of 1988, Public Law 100-526.

In conducting preliminary assessments, ANL has followed the methodologies and procedures outlined in Phase I of the IRP. Consequently, this PA addresses all documented or suspected incidents of actual or potential release of hazardous or toxic constituents to the environment.

In addition, this PA is "enhanced" to cover topics not normally addressed in a Phase I preliminary assessment. Specifically, this assessment considers and evaluates the following topical areas and issues:

- Status with respect to regulatory compliance,
- Asbestos,
- Polychlorinated biphenyls (PCBs),
- Radon hazards (to be assessed and reported on independently),
- Underground storage tanks,
- Current or potential restraints on facility utilization,
- Environmental issues requiring resolution,
- Health-risk perspectives associated with continued residential land use, and
- Other environmental concerns that might present impediments to the expeditious "excessing," or transfer and/or release, of federally owned property.

1.2 OBJECTIVES

This enhanced PA is based on existing information from Army housing records of initial property acquisition, initial construction, and major renovations and remodeling performed by local contractors or by the Army Corps of Engineers. The PA effort does not include the generation of new data. The objectives of the PA include:

- Identifying and characterizing all environmentally significant operations (ESOs),
- Identifying property areas or ESOs that may require a site investigation,
- Identifying ESOs or areas of environmental contamination that may require immediate remedial action,
- Identifying other actions that may be necessary to address and resolve all identified environmental problems, and
- Identifying other environmental concerns that may present impediments to the expeditious transfer of this property.

1.3 PROCEDURES

The PA began with a review of Army Housing records located at the Charles E. Kelly Support Facility, DEH Office Building No. S-630052, approximately 13 miles west of Pittsburgh during the week of July 17, 1989. A site visit at the Irwin housing area was conducted on July 17 to obtain additional information through direct observation and interviews with personnel familiar with the property and its operations and history. Photographs were taken of the housing units and surrounding properties as a means of documenting the condition of the housing units and immediate land uses. Site photographs are appended.

All available information was evaluated with respect to actual or potential releases to air, soil, and surface and ground waters.

Attempts to gain access to the housing units through involvement of the senior occupant were unsuccessful. Therefore, the interiors of the units could not be inspected during the site visit. However, ANL inspectors revisited the property on September 13, 1989, at which time the interiors of all the houses were inspected.

2 PROPERTY CHARACTERIZATION

2.1 GENERAL PROPERTY INFORMATION

The Irwin housing area is located 14 miles southeast of Pittsburgh and 2 miles northeast of the city of Irwin in Westmoreland County.²

The housing units were constructed by the Army in 1958. No additional major construction has taken place on the property since that time. The Charles E. Kelly Support Facility, DEH, located in Oakdale, Pa., is responsible for major renovations of upgrading within the facility.

Figures 1 and 2 show the general location of the area.

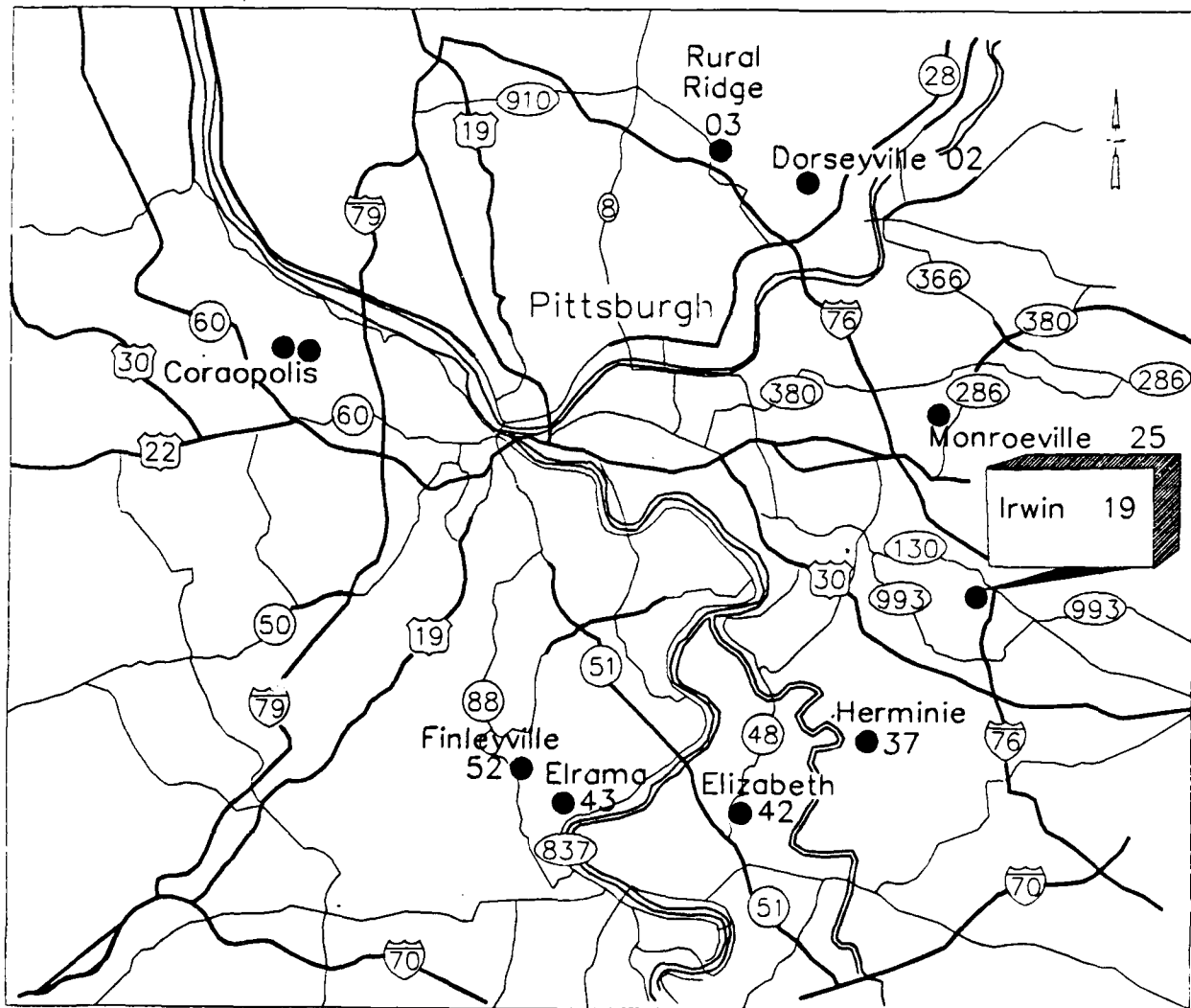


FIGURE 1 Location Map of Pennsylvania Army Housing Facilities

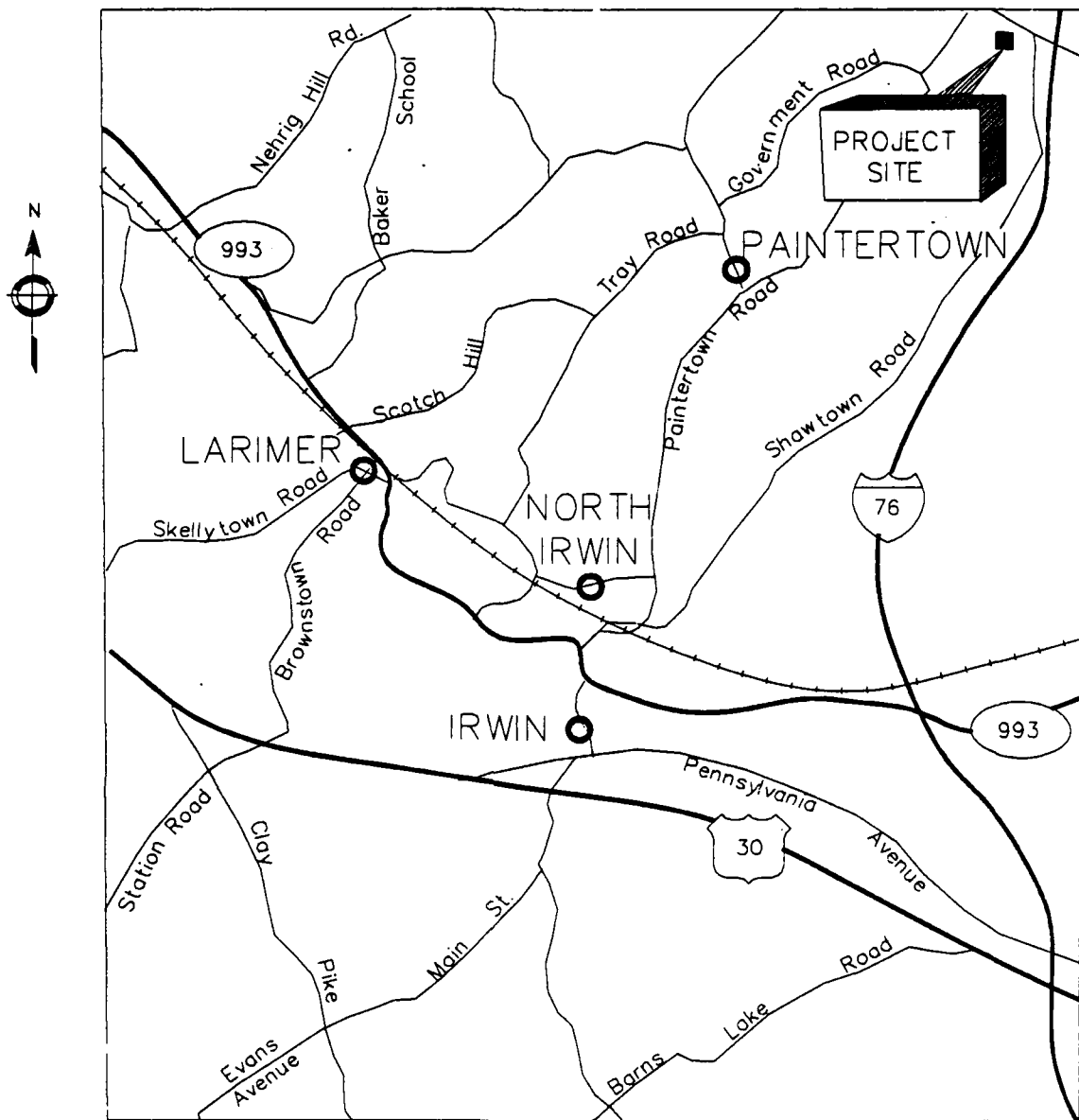


FIGURE 2 Vicinity Map of Irwin Army Housing Units

2.2 DESCRIPTION OF FACILITY

Figure 3 presents the site plan of the housing area.

Housing Units

The area occupies 12.63 acres and consists of 16 housing units used by officers and enlisted personnel and their dependents.

The units are built on concrete and masonry block foundations with asphalt floor tile overlaying the foundation. Outside construction is wood-frame covered by asbestos

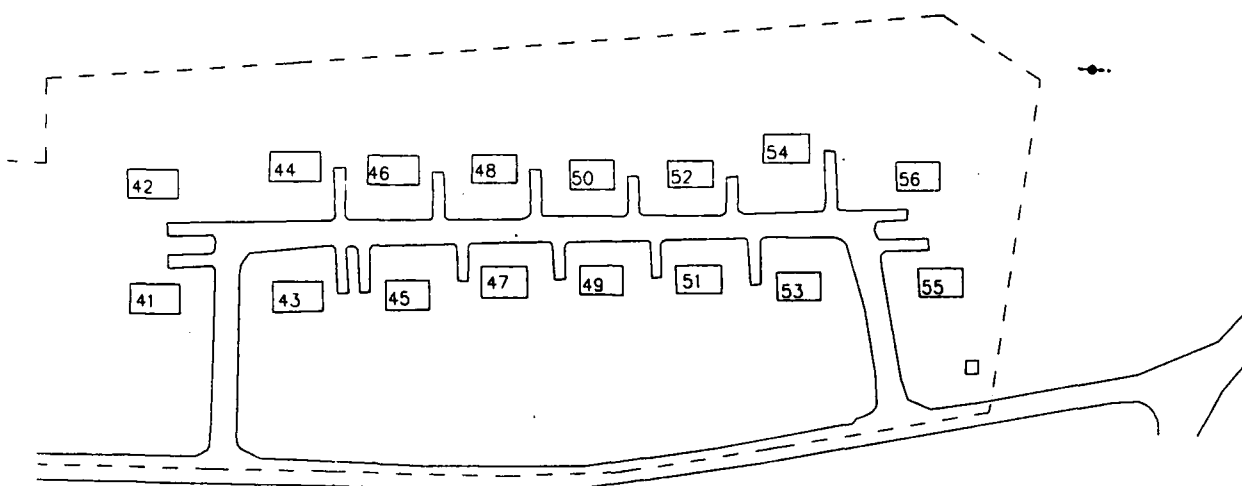


FIGURE 3 Site Plan Map of Irwin Army Housing Units

shake siding. The roofs consist of asphalt shingles. Each unit has an exterior storage building, two garbage receptacles (no longer in use), and a paved terrace. All 16 units have three bedrooms. Five units each contain 1,287 square feet. The other 11 units each contain 1,171 square feet.³ The houses are heated separately with natural gas and forced-air systems.

A children's playground in the area occupies approximately 5,900 square feet and is well-equipped. A bus-stop waiting shelter is located on New Texas Road and Lindsey Lane.

Building siding is asbestos shake; asphalt tile floors inside the units may also contain asbestos. A pole-mounted transformer that services the site has not been tested for the presence of PCBs; however, the transformer is the property of the utility. No evidence of spills or leaks from this transformer was identified.

The general public does have access to the property, however, security measures are enforced at the sewage treatment facility, with a chain link fence surrounding the area with a locked gate at the entrance.

Utilities

Electricity for the Irwin housing area is furnished by the West Pennsylvania Power Company. Water has always been supplied by the Municipal Authority of Westmoreland County. Natural gas is provided by Peoples Gas Company of Pittsburgh.⁴ Refuse is collected and disposed of off-site by Tri-Valley Waste Systems, a private contractor.⁵

Sewage

The Irwin housing area has its own sanitary sewage treatment facility, a trickle rock-bed system located immediately south of the property line. The facility is operated

and maintained by a private contractor. No problems have been identified for this treatment system.

Storm Drainage System

Storm drainage for the housing units is of the common type of open-ground ditches and surface runoff.

Other Permanent Structures or Property Improvements

There have been no permanent structures added since initial development in 1958, and there have been no major improvements.

2.3 PROPERTY HISTORY

2.3.1 Nike Defense Program and Typical Battery-Level Practices

Generic information on the national Nike antiaircraft defense program has been compiled in two studies, one commissioned by the Army Corps of Engineers⁶ and the other by the U.S. Army Toxic and Hazardous Materials Agency.⁷ In both studies, independent contractors relied on information contained in unclassified documents related to the Nike surface-to-air missile program, including engineering drawings and specifications (for the facilities and the missiles themselves), interviews with Army personnel participating in the Nike program, and operations manuals and directives relating to the operations and maintenance of Nike facilities. Taken together, these two reports represent the most complete assemblage of generic information on the Nike missile program from an environmental perspective. Salient points from both reports are condensed below.

At its zenith in the early 1960s, the Nike program included 291 batteries located throughout the continental United States. The program was completely phased out by 1976, with many of the properties sold to private concerns or excessed to state or local governments for nominal fees.

Nike Ajax missiles were first deployed in 1954 at installations throughout the continental United States, replacing, or in some cases augmenting, conventional artillery batteries and providing protection from aerial attack for strategic resources and population centers. Typically, Nike batteries were located in rural areas encircling the protected area. The Ajax was a two-stage missile using a solid-fuel booster rocket and a liquid-fuel sustainer motor to deliver a warhead to airborne targets.

The Ajax missile was gradually replaced by the Nike Hercules missile, introduced in 1958. Like the Ajax, the Hercules was a two-stage missile, but it differed from the Ajax in that its second stage was a solid-fuel rather than liquid-fuel power source and its payload often was a nuclear rather than conventional warhead. Ajax-to-Hercules

conversions occurred between 1958 and 1961 and required little change in existing Nike battery facilities. A third-generation missile, the Zeus, was phased out during development and consequently was never deployed.

A typical Nike missile battery consisted of two distinct and separate operating units, the launch operations and the integrated fire control (IFC) operations. The two operating areas were separated by distances of less than two miles, with lines of sight between them for communications purposes. A third separate area was also sometimes part of the battery. This area was typically equidistant from the two battery operating sites and contained housing for married personnel assigned to the battery. Occasionally, these housing areas also contained battalion headquarters, which were responsible for a number of Nike batteries.

Depending on area characteristics and convenience, the housing areas were often reliant on the launch or IFC sites for utilities such as potable water, electrical power, and sewage treatment. In those instances, buried utility lines connected the housing area to one or both of the other battery properties. It is also possible, however, that housing areas were completely independent of the missile launcher and tracking operations. In those instances, the necessary utilities were either maintained on the housing site or purchased from the local community. In many localities, as the character of the land area around the housing units changed from rural to suburban or urban, communities extended utility services to the housing unit locations, in which case conversions from independent systems to community systems were made.

A large variety of wastes was associated with the operation and maintenance of Nike missile batteries. Normally encountered wastes included benzene, carbon tetrachloride, chromium and lead (contained in paints and protective coatings), petroleum hydrocarbons, perchloroethylene, toluene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, and trichloroethylene. Because of the rural locations of these batteries, and also because very few regulatory controls existed at that time, most of these wastes were managed "on-site." (Unused rocket propellants and explosives, however, would always have been returned to central supply depots and not disposed of on-site.) It is further conceivable that wastes generated at one of the Nike properties may have been transferred to its companion property for management or disposal.

Wastes related to missile operation and maintenance would not have been purposely transferred from a battery operating area to a housing area with no facilities for waste management or disposal. In some instances, however, the sewage treatment facilities for all Nike battery properties were located at the housing area; that possibility cannot be automatically ignored. Finally, where housing areas received various utilities from either of the operating areas, it is also possible that wastes disposed of on those other properties may have migrated to the housing area via the buried utility lines. And since decommissioning of the Nike batteries did not normally involve removal of buried utility or communication lines, any such contaminant migration is likely to have gone unnoticed.

2.3.2 Irwin Housing Units

The Irwin housing area was developed in 1958 as a stand-alone family housing facility for Army personnel assigned to the Irwin Nike battery. Sixteen single-family housing units were constructed on the the 12.63-acre land parcel.

The missile battery was deactivated in the early 1970s. Since then, the site has been used for housing active duty military families stationed in the greater Pittsburgh area.

2.4 ENVIRONMENTAL SETTING AND SURROUNDING LAND USE

The population of Irwin is 4,995, that of Pennsylvania is 11,864,751, and that of Westmoreland County is 392,294 (1980 census).

The western Pennsylvania land surrounding Irwin is characterized by rolling hills and occasional steep escarpments along areas of gullies and streams. The Irwin housing-area terrain also contains gently rolling and steeper slopes. Irwin is a sparsely populated suburban residential community with wooded areas.

The Monongahela River Basin occupies 7,384 square miles, lies in the eastern portion of the Ohio River Basin, and includes parts of the states of Maryland, West Virginia, and Pennsylvania. Roughly 36% of the land area of the Monongahela River Basin lies within Pennsylvania. The terrain is rugged, and valleys are deep and narrow. Flat areas are limited to narrow floodplains and some terraces and flat-topped hills.

The land-use patterns within the Monongahela River Basin reflect the major topographic characteristics of the area. In 1974, land use within Westmoreland County was as follows: 12.6% urban, 23.2% agriculture, 47.6% forest, and 16.7% other (including mining).⁸ Most of the agriculture, manufacturing, mining, and urban and industrial centers are located in the less rugged western half of the basin. Forrested lands predominate in the eastern half. Hay and livestock are the chief agricultural products. Surface and underground coal mining operations have been prominent in the basin. Most of the coal mining has occurred in the western third, especially along the main stem of the Monongahela River. Industrial activities are also concentrated along the Monongahela, especially in the Pittsburgh metropolitan area.

2.5 GEOLOGIC AND HYDROLOGIC SETTINGS

The Irwin housing area lies within the Appalachian Plateaus Physiographic Province.⁸ Rock types are primarily sandstones and shales that contain thin beds of coal. The rocks are divided into 10 stratigraphic units. From youngest to oldest, these units are the Dunkard Group of Permian and Pennsylvanian age; the Monongahela, Conemaugh, and Allegheny groups, and the Kanawha Formation of Pennsylvanian age; the Greenbrier Limestone and Pocono Group of Mississippian age; and the Hampshire, Chemung, and Brallier formations of Devonian age. Coal beds are numerous in the Pennsylvanian system. The Allegheny and Monongahela groups are characterized by

12 feet and 3 feet, respectively, of workable coal. The Conemaugh Group has only thin beds of coal, which are generally not workable. The Pennsylvanian system accounts for approximately 75% of the rock units present in the Irwin geographic area.

Soils in the Monongahela River Basin are grouped into 35 associations composed of combinations of 31 major soils. Soils in the Irwin area are composed mainly of the Guernesey-Culleoka Association and are formed in unconsolidated water-sorted alluvial materials. Soil pH values range from highly acidic to neutral. Terrain slopes are between 3% and 35%. Distances to bedrock on hillsides near Irwin are expected to average 4 to 5 feet. (These conclusions are extrapolated from general soil characteristics and not the result of site-specific studies or information.)

Quaternary deposits of alluvium usually overly bedrock along stream valleys. The alluvium is generally permeable and, when saturated, yields moderate to large supplies of water. Groundwater in bedrock occurs largely in secondary openings of the rock. The Conemaugh Group crops out in the extreme northern part of the county and along some stream valleys; this group contributes moderate supplies of groundwater.

The Monongahela River and its tributaries cut valleys below the water table of the interstream areas. Under this condition, the aquifers discharge on the slopes of the valleys in the form of hillside springs and seeps. Conversely, during high stream-flow conditions, surface streams will recharge aquifers.

The flow characteristics of surface water within the Monongahela Basin largely depend on topographic features. Average annual runoff in Subbasin 19 ranges from 14 to 28 inches and is primarily influenced by precipitation distribution; however, land use, land cover, and geologic factors also exert some influence.⁹ Flows in most valley streams are seasonably variable. Most streams are found in the valley floors, although, under certain hydrologic conditions, groundwater will discharge to the surface by means of hillside streams and seeps.

3 ENVIRONMENTALLY SIGNIFICANT OPERATIONS

The housing units contain asbestos shake siding. However, the siding is presently in good condition and does not constitute an environmental hazard. The asphalt floor tiles inside the housing units may also contain asbestos, but these tiles are all in good condition. The inspections of the interiors of the houses on September 13, 1989, revealed that there was no insulation whatsoever on the water pipes.

4 KNOWN AND SUSPECTED RELEASES

There are no known or suspected releases to surface water, groundwater, or air that would negatively affect the environment at the Irwin housing area. There is no known danger or threat from toxic or hazardous wastes, military ordnance or explosives, or general debris.

5 PRELIMINARY ASSESSMENT CONCLUSIONS

Although these housing units were originally developed in support of a Nike missile battery, all available documentation and circumstantial evidence support the fully independent operation of this housing property relative to the battery's operational activities. No Nike-related wastes were delivered to this property for management or disposal. Furthermore, since this property was independent of the Nike missile operations with respect to all necessary utilities, there is no possibility of migration of Nike-related wastes along buried utility conduits.

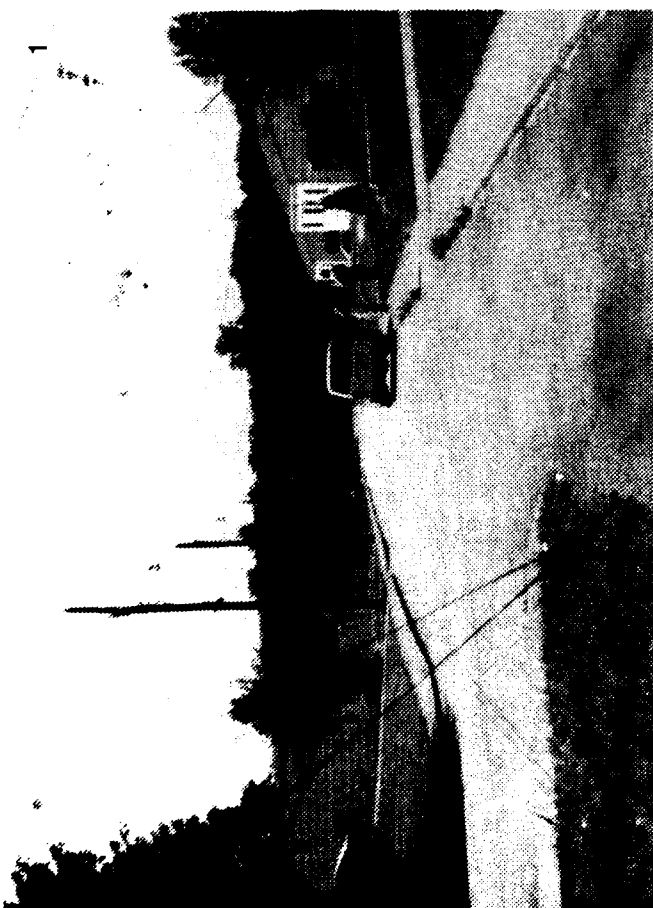
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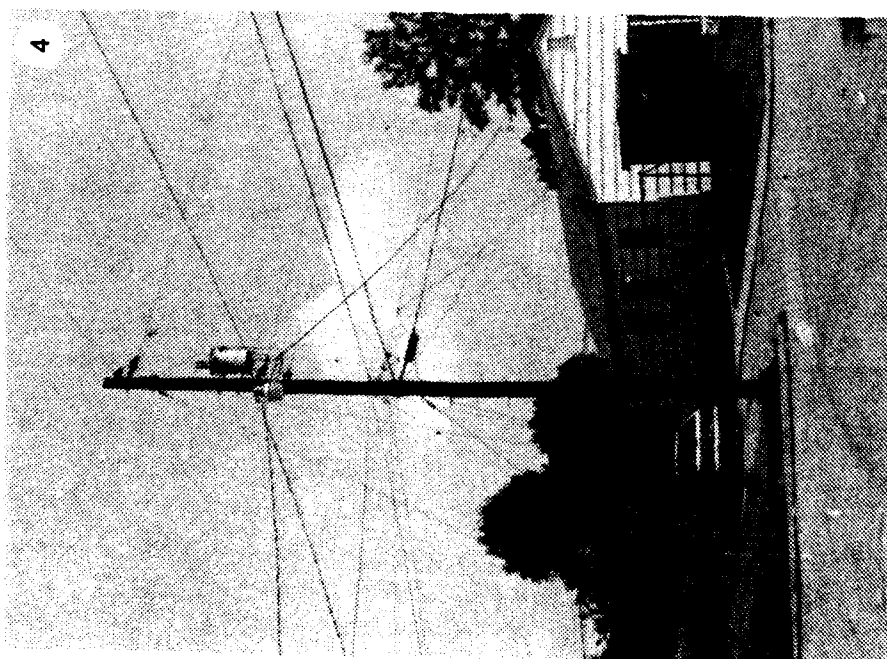
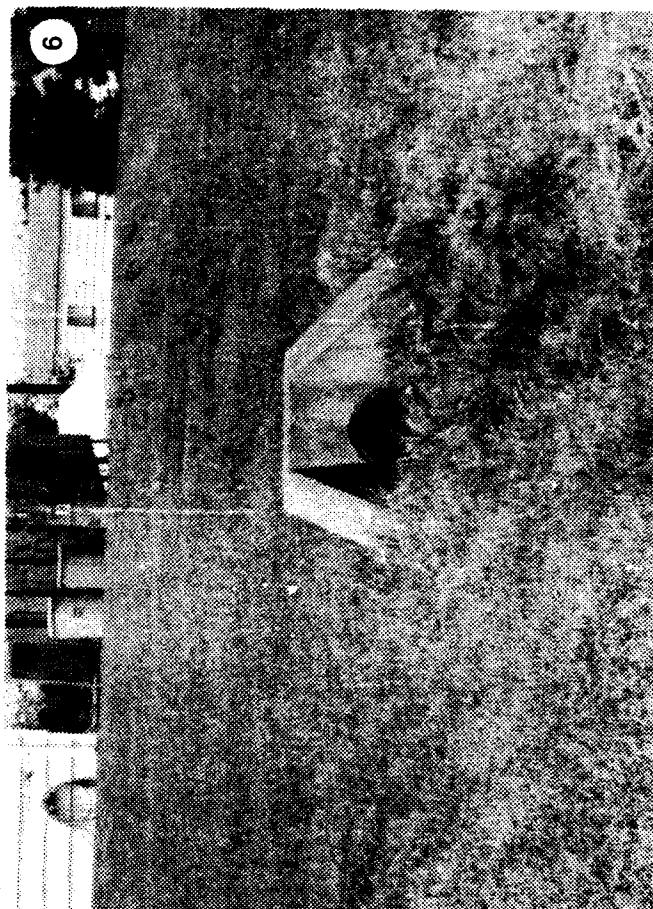
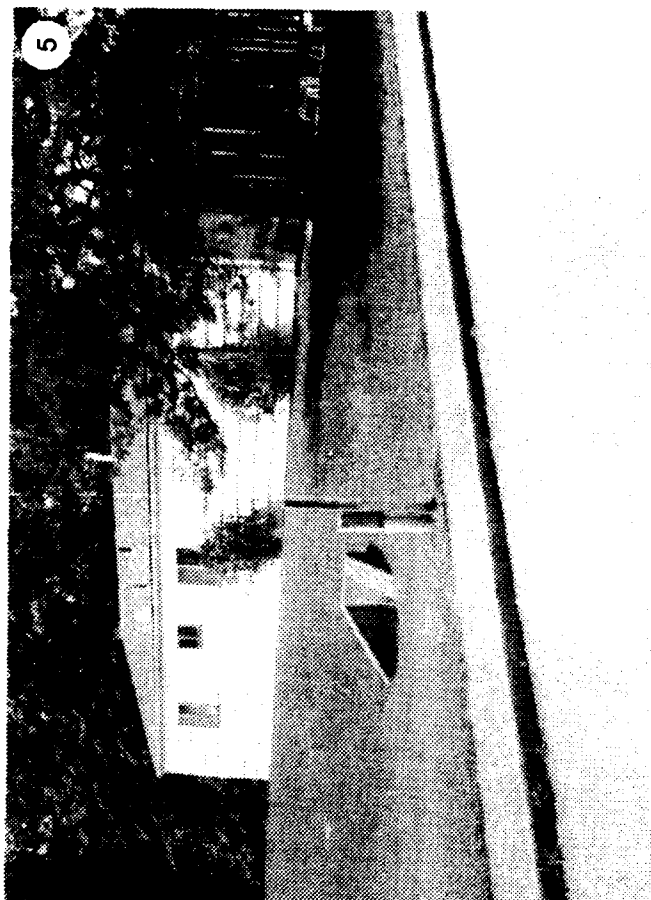
The Irwin housing area presents no imminent or substantial threat to human health or the environment. No actions are necessary prior to the release of this property.

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APPENDIX:
PHOTOGRAPHS OF IRWIN HOUSING FACILITY
AND SURROUNDING LAND







IDENTIFICATIONS OF PHOTOGRAPHS

1. A view of the housing area.
2. Grounds at the rear of the housing units.
3. Playground at the housing area.
4. Electrical transformer mounted near the top of the utility pole; the transformers are the responsibility of the Plainville Power Company.
5. A side view of a housing unit; in the foreground are a gas pipeline marker and a storm drain; the housing area uses natural gas for fuel, thus requiring no oil-storage tanks.
6. The opening of a storm drain.
7. The sewage-treatment system, with separators located behind the fenced gate.
8. The trickle rock-bed of the sewage-treatment system.

