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U.S. Army Toxic and Hazardous Materials Agency

Enhanced Preliminary Assessment Report:

Ansonia Army Housing Units Ansonia, Connecticut

October 1989

prepared for

Commander
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland 21010-5401

prepared by

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Argonne National Laboratory has conducted an enhanced preliminary assessment of the Army housing property located in Ansonia, CT. The objectives of this assessment include identifying and characterizing all environmentally significant operations, identifying areas of environmental contamination that may require immediate remedial actions, identifying other actions which may be necessary to resolve all identified environmental problems, and identifying other environmental concerns that may present impediments to the expeditious sale of this property.

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SUMMARY

The Ansonia housing area presents no 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. No immediate remedial actions, therefore, are warranted for the site.

Although these housing units were originally developed in conjunction with a Nike missile battery, available documentation and circumstantial evidence suggest that the housing property remained wholly independent of the battery's operational activities. No missile-related wastes were delivered to this property for management or disposal. Furthermore, since this property remained independent of the Nike missile operations with respect to all necessary utilities, there is no possibility of missile-related wastes migrating to the area along buried utility lines. Nevertheless, potential environmental impacts from this property have been identified, and these might ultimately warrant remedial action.

One potential impact involves the fuel-oil storage tanks. One of the above-ground tanks at the housing facility ruptured shortly before the site visit, spilling oil onto the ground. The exteriors of many of these tanks showed signs of corrosion (rust). An adverse environmental impact can be anticipated should these tanks remain in service in their present condition. Adding to this concern is the possibility that the effectiveness of the concrete containment box beneath each tank would be compromised if the drainage tap on the box were to remain in the open position for an extended period of time.

The underground tank originally installed behind unit #9 is suspected of having leaked in 1988. This tank and all other underground tanks were drained and abandoned in place in 1988.

A second concern involves the presence and condition of possible asbestos-containing materials in the housing units. Insulation on the water pipes was found to be deteriorated.

The following actions are recommended prior to the release of this property:

- Assure the integrity of the above-ground fuel-oil storage tanks, treat for rust, and apply a proper protective coat.
- Develop and implement a solution to the possibility of containment-box drainage taps being consciously or inadvertently left in the open position.
- Sample subsurface soils in the vicinity of the old underground fuel-storage tank behind unit #9 for petroleum contamination.
- Remediate possibly deteriorated water pipe insulation that may contain asbestos.

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 Ansonia 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 Ansonia, Conn.

1.1 AUTHORITY FOR THE PA

The USATHAMA has engaged ANL to support the Base Closure Program by assessing 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 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

Connecticut military housing records located at Fort Devens, Mass. were reviewed during the week of May 15-19, 1989. Additional information was obtained on July 17, 1989, from the Family Housing Office located at the Navy and Marine Corps Reserve Center, New Haven, Conn., and from an interview on July 20, 1989, with the Area Facilities Engineer at his office in Windsor Locks, Conn. A site visit was conducted at Ansonia, Conn., on July 17, 1989, at which time additional information was obtained through personal observations of ANL investigators and discussions with a site occupant. 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.

Access to individual housing units was obtained through the senior occupant at the facility. In addition, ANL investigators revisited the property on September 7, 1989, at which time the interiors of all but two of the housing units (units #6 and 11, Hughes Circle) were inspected.

2 PROPERTY CHARACTERIZATION

2.1 GENERAL PROPERTY INFORMATION

The Ansonia housing property, 4.46 acres in area, is located in the Hilltop area of the city of Ansonia, New Haven County, in southwestern Connecticut.[2] The town of Ansonia has an estimated 1986 population of 18,000.[3] Figures 1 and 2 show the general location of the facility.

The housing units were developed in 1958[4] and recently renovated. No additional major construction has taken place on the property since it was developed.

2.2 DESCRIPTION OF FACILITY

Figure 3 shows the site plan of the housing property.

Housing Units

The Ansonia housing area contains 16 wood-frame, one-story, three-bedroom, houses built on concrete slabs. "Capehart" is the model name assigned to these single-family houses by the builder, National Homes. Five of the units have carports attached.[4]

Utilities

Since development of the property, the housing units have been connected to the Ansonia water department's distribution system; no drinking water wells exist on the property. Likewise, the electrical distribution system for the property is connected to the local power company's distribution system. According to the Area Facilities Engineer, however, all water and electrical lines, utility poles, and electrical transformers on the property are owned by the federal government, which is responsible for maintaining them. Therefore, the cost of repairs made to the property's utility distribution systems by public utility personnel is borne by the government. A road easement has been granted to the City of Ansonia in perpetuity (DACA 51-2-81-431).[2] Solid waste (garbage) is collected by a private contractor.

Sewage

Originally, the housing units were serviced by two subsurface sanitary waste-disposal systems (leach fields). One leach field was located on high ground west of units #10 and 11, the other south of Ford Street opposite units #1 and 2 (Fig. 3).[5] In 1975, the Connecticut Department of Environmental Protection inspected the sanitary facilities at the Ansonia site and found that one of the leach fields was flooded. The department concluded that it might eventually be necessary to remove the problem system and install a new one.[5] In that same year, construction of a public sewer line on Ford Street was started under the Ansonia Sewer Authority's Hilltop Sewer Program;

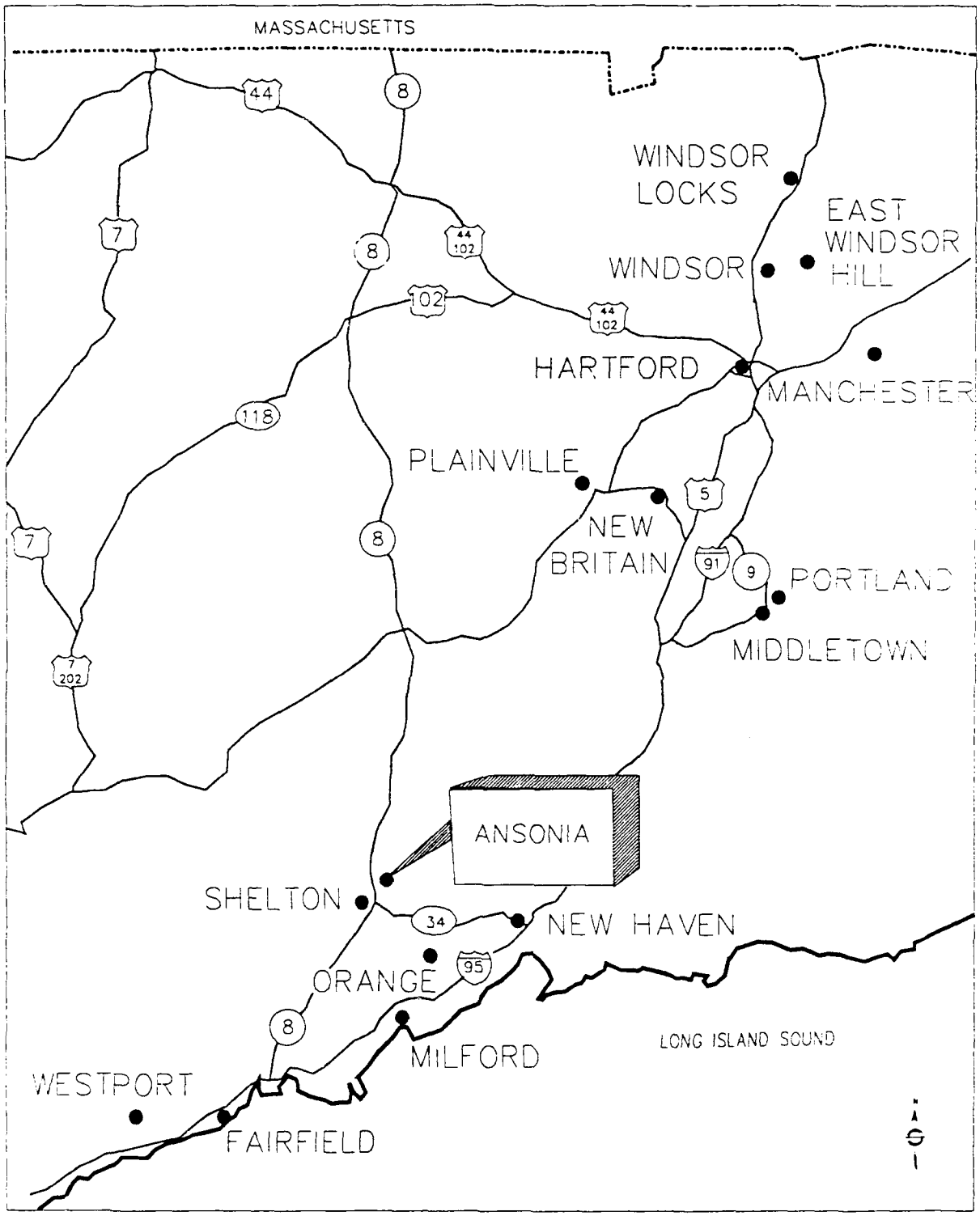

FIGURE 1 Location Map of Connecticut Army Housing Facilities

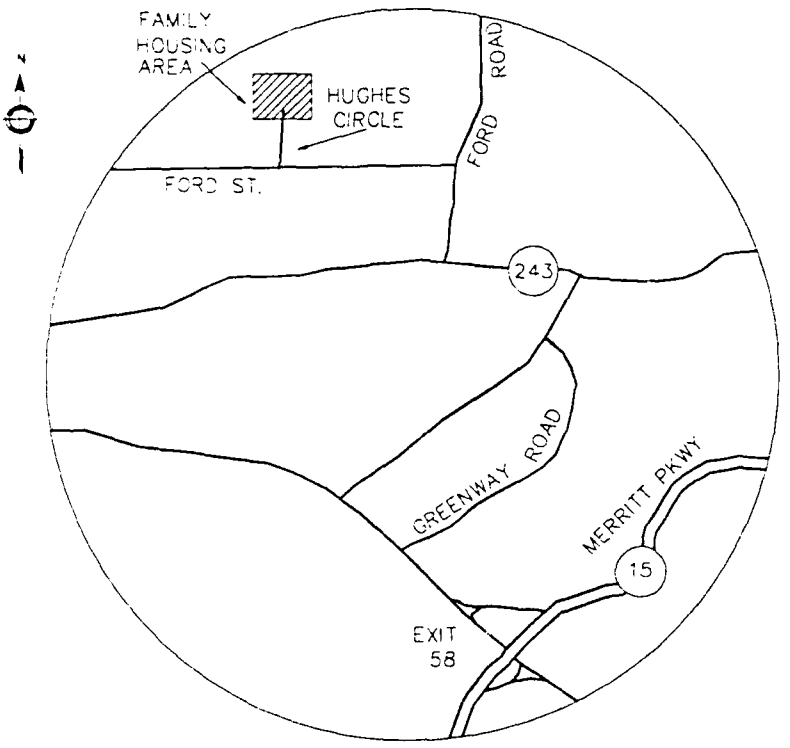

FIGURE 2 Vicinity Map of Ansonia Army Housing Units

sometime between 1977 and 1981, the Sewer Authority's contractor connected the housing property's sewer line to the new public sewer system, with the approval of the Directorate of Facilities Engineering at Fort Devens, Mass.[5,6] The two leach fields were abandoned at that time. In recent years, new private residences have been built along the south side of Ford Street at the location of one of the abandoned leach fields.

Fuel Storage

Each unit has an above-ground, 275-gallon fuel-oil storage tank located behind the house. Concrete containment boxes underlie the tanks. The containment boxes are at ground level above the old original underground storage tanks. The underground tanks were drained of oil, filled with sand or fine gravel, and left in place. This tank replacement was contracted approximately two years ago through the New York District Army Corps of Engineers. With the exception of the underground tank behind unit #9, no leaks of petroleum products from the underground tanks have been documented or suspected, however.

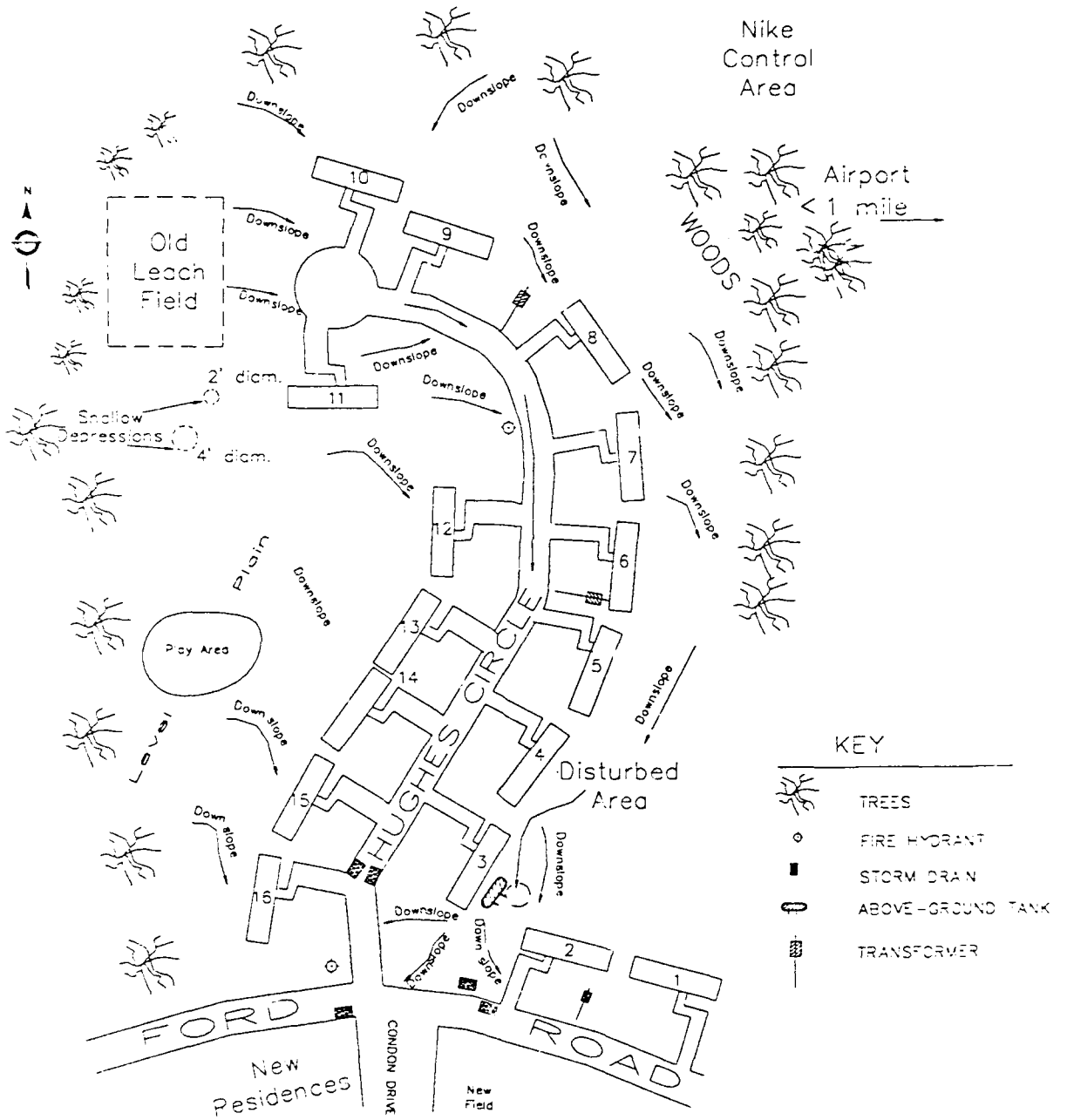

FIGURE 3 Site Plan Map of Ansonia Army Housing Units

Storm Drainage Systems

The property is drained by surface runoff to storm drains through two catch basins located near the southern end of Hughes Circle, and through five catch basins located on Ford Street at the southern end of the housing property. In addition, there are two small drain inlets in the front yard of unit #1 on the north side of Ford Street.

Other Permanent Structures or Property Improvements

Other than recent cosmetic renovations to the housing units, there are no other permanent structures or property 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 Engineers[7] and the other by the U.S. Army Toxic and Hazardous Materials Agency.[8] 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 so'd 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 Ansonia Housing Units

The Ansonia housing area was developed in 1958 to provide stand-alone housing for personnel assigned to the Nike missile battery then located in Ansonia. The housing facility remained completely independent of the battery's missile-launch and fire-control operations with respect to water, sewer, and electrical utilities. Sixteen single-family

houses were erected on the property. Each is supplied with a 15-gallon in-ground garbage container located behind the unit. These containers are no longer in service.

Since the initial property development in 1958, no other permanent structures have been added and none of the original structures has been razed. Renovations include the installation of smoke and heat detectors in each unit in 1979; more recently, new vinyl siding (installed over the original cedar shakes); new roofs, gutters, and downspouts; new above-ground fuel-storage tanks to replace the original underground tanks; and new heating systems, windows, kitchens, and bathrooms. Plans for removal of the original in-ground garbage containers were in the design stage in 1989.

2.4 ENVIRONMENTAL SETTING AND SURROUNDING LAND USE

The housing property contains 4.46 acres, bordered by a residential area to the south, a line of trees and meadowland to the west and northwest, and woodland to the east and northeast. U.S. Forest Service holdings, including the former fire-control area less than one mile away, abut the northeast portion of the property. The Ansonia Airport is adjacent to the old Nike control area.

2.5 GEOLOGIC AND HYDROLOGIC SETTINGS

Ansonia is located in the Lower Housatonic River Basin of the New England section of the New England Physiographic Province. The 557 square miles of the lower Housatonic River Basin in western Connecticut include the basins of two major tributaries, the Pomperaug and Naugatuck rivers. Nearly all water is derived from precipitation, which averaged 47 inches per year during the period 1931 to 1960. In this period, an additional 570 billion gallons of water per year entered the basin in the main stem of the Housatonic River at Lake Lillinonah; some water was imported by water-supply systems from outside the basin. Almost half the precipitation -- 21.6 inches -- was lost from the basin by evapotranspiration. Except for small amounts exported, the remainder is discharged as runoff into Long Island Sound.[9]

Of the 37 principal lakes, ponds, and reservoirs in the basin, six have usable storage capacities of more than 1 billion gallons each. The "maximum safe draft rate" of the largest of these, Thomaston Reservoir near Thomaston, is 75.6 million gallons per day for the 10-year and 20-year recurrence intervals of annual lowest mean flow.

Floods have occurred each month of the year. The two greatest floods on the Naugatuck River occurred two months apart in 1955. The larger, in August, had a peak of 106,000 cubic feet per second at Beacon Falls. Since then, the likelihood of major floods has been considerably reduced by a program of flood control in the basin.

Water can be obtained from three types of aquifers underlying the basin -- stratified drift, till, and bedrock. Stratified drift covers about 16% of the basin, mostly in valleys and lowlands, and its saturated part generally ranges in thickness from 10 feet in small valleys to 200 feet in the Housatonic River Valley. Transmissivity of the drift ranges from 0 to 47,000 square feet per day. Till deposited directly by glacial ice, forms

a widespread but discontinuous mantle over bedrock in most upland areas and extends beneath stratified drift in lowlands; it ranges in thickness from 0 to 200 feet. Crystalline bedrock underlies most of the basin and is composed principally of granite, gneiss, and schist. Sedimentary-volcanic bedrock underlies only the Pomperaug River Basin. Regardless of rock type, water is obtained mostly from fractures.

Stream bed deposits are significant features of the hydrogeologic system because they affect the amount of water from streams and lakes that can be induced to infiltrate aquifers. Based on field tests, characteristic values of vertical hydraulic conductivity of streambed deposits are 0.40 feet per day (ft/day) for fine-grained deposits and 14 ft/day for gravelly deposits.

Groundwater supplies generally range in yield from several million gallons per day for large well fields to 1 gallon per minute (gal/min) for single wells. Large supplies, with yields of 100 gal/min or more for individual wells, are most commonly obtained from stratified drift. Yields to be expected from screened wells tapping this aquifer can be calculated by use of a series of graphs in conjunction with estimates of transmissivity and aquifer thickness.

Small to moderate water supplies can be obtained from any of the aquifers under suitable conditions. For example, data from 294 wells in the basin indicate that yields of a few gallons per minute can be obtained from bedrock at most sites. The likelihood of obtaining an adequate domestic supply is slightly greater in granite than in schist, and it also is greater where the overburden is stratified drift rather than till.

Where unaffected by man's activities, water in the basin (of the calcium-magnesium-bicarbonate type) is generally low in dissolved-solids concentration and soft to moderately hard. In general, stream flow is less mineralized than groundwater, particularly when it consists largely of direct runoff. However, stream flow becomes more highly mineralized during low-flow conditions, when most of it consists of more highly mineralized water discharged from aquifers. Iron and manganese occur naturally in objectionable concentrations in parts of the basin, particularly in streams that drain swamps and in water from bedrock containing iron and manganese-bearing minerals.

Man's activities have degraded the quality of water in streams in much of the basin, except in the Pomperaug subbasin. In the Naugatuck River Basin, the degradation in quality is shown by wide and erratic changes in dissolved-solids concentration, excessive amounts of certain trace elements, low dissolved-oxygen content, and abnormally high temperatures. Groundwater is degraded principally by induced infiltration of stream water containing chemical wastes, by wastes stored on the ground, and by effluents from septic tanks.[9]

Below its confluence with the Naugatuck River, much of the Housatonic River and adjoining marshes, wetlands, and aquifers contains salt water. Measurements of specific conductance during low-flow conditions in 1969 indicate that the dissolved-solids concentration of water in the estuary ranges from 219 milligrams per liter (mg/L) near Two Mile Island to 20,000 mg/L near Long Island Sound.

The quantity and quality of water in the basin are satisfactory for a wide variety of uses, and, with suitable treatment, the water may be used for most purposes. In 1967, the total amount of water used in the basin was about 194 billion gallons. About 90% of this was used for industrial purposes, and 95% of the industrial water was obtained from surface-water sources. In the same year, 17 municipal and private water-supply systems supplied water of satisfactory quality to about three-fourths of the region's population.

3 ENVIRONMENTALLY SIGNIFICANT OPERATIONS

3.1 FUEL-OIL STORAGE TANKS

According to a housing area occupant, the original underground fuel-oil storage tank in the rear of unit #9 leaked oil into the surrounding ground surface and subsurface about one year ago. It was reported that the Environmental Protection Agency took samples of earth for analysis and drained the tank of oil. However, documentation of these events could not be located. There is also no documentation that the failed tank was removed. New above-ground tanks were installed at all of the housing units about one month later; all original underground tanks were drained, filled with sand or gravel, and abandoned in place. Only the underground tank behind unit #9 is suspected of having leaked. The other tanks were replaced as a matter of good engineering practice.

A canopy affixed to the house a few feet above the new above-ground 275-gallon fuel-storage tank located in the rear of each unit provides marginal protection from the elements. The tanks appear to have been coated with primer only and not to have been coated with an adequate protective finish. Small areas of rust on the tanks were frequently observed. About one week before the site visit of July 17, 1989, the new above-ground fuel storage tank in the rear of unit #3 ruptured. Oil was spilled onto the ground. This spill was reported promptly and successfully cleaned up. Continued use of these tanks in their present condition would seem to entail a significant environmental risk.

Potential risk to health might also attach to the collection of rainwater in the containment box beneath each storage tank if the water is allowed to stagnate. On the other hand, if the occupant of a housing unit opens the containment-box drainage tap to release rainwater but forgets to close it, the effectiveness of the box in containing an oil leak would be compromised should a tank rupture occur. It was not determined whether this practice would have been a factor in the unit #3 tank-rupture spillage onto the soil.

3.2 ASBESTOS-CONTAINING MATERIALS

Vinyl asbestos floor tiles were used in the original construction of the housing units. These tiles were all observed to be in good condition. The Area Facilities Engineer stated that asbestos insulation generally is present on water pipes in the utility rooms of the units. Inspection of the interior of one of the housing units (unit #9) during the site visit revealed that this insulation was moderately deteriorated. Water-pipe insulation in other units showed lesser degrees of deterioration.

3.3 ABANDONED TREATMENT FACILITY

The two leach fields originally located on the property were abandoned in place when the housing units were connected to the municipal sewer system sometime between 1977 and 1981. Since that time, private residences have been constructed adjacent to

one of the fields. No problems were documented in connection with this construction activity. From existing military housing records,[4-6] the inference can be drawn that this old leach field, located across Ford Street from the housing area, was constructed on property that was not government-owned. However, no documentation was found that explicitly states this to have been the case.

No sampling of the second leach field (behind units #10 and 11) for contamination has been documented, despite a finding by the state environmental agency in 1975 that the field was flooded. It is possible that both fields were operating improperly when they were abandoned.

4 KNOWN AND SUSPECTED RELEASES

There have been no known major releases or impacts to the environment from the Ansonia housing facility. No hazardous wastes or hazardous materials are stored on site. However, there was a recent release of fuel oil from a ruptured above-ground storage tank servicing one of the housing units. There was also a leakage of oil from an underground fuel-storage tank at another of the housing units while the tank was still in service about one year ago. All above-ground tanks show signs of deterioration (rust). The potentially unsafe condition of the 275-gallon storage tanks poses a constant risk of soil contamination.

No releases of oil from the underground tanks after being decommissioned were documented during the site visit. However, the underground tank behind unit #9 is believed to have released petroleum products to the subsurface. No remediation has occurred, and no estimate of gallonage lost is available.

The water-pipe insulation in the one utility room inspected poses a health hazard because the covering of the asbestos insulation is in disrepair. Water pipe insulation in the remaining units also show some deterioration. Floor tiles, which also may contain asbestos, were all found to be in satisfactory condition.

5 PRELIMINARY ASSESSMENT CONCLUSIONS

Although these housing units were originally developed in support of a Nike missile battery located in Ansonia, no wastes associated with the operation or maintenance of the battery were delivered to or managed at this property. Furthermore, the housing facility remained completely independent of the battery's missile-launch and fire-control operations with respect to water, sewer, and electrical utilities. No documentary evidence was found of utility connections between the housing site and the other battery properties.

Despite its independence from Nike battery operations, this property could adversely affect the environment if the above-ground fuel-oil storage tanks that service the housing units were to remain in their present potentially unsafe condition. The concrete containment box that underlies each storage tank would be rendered ineffective if the drainage tap of the box were to remain open for an extended period of time.

Leakage of oil from the old underground fuel-storage tank behind unit #9 is suspected to have occurred. No investigation or remediation steps were taken to deal with this suspected event.

There is no documentation of airborne asbestos in the housing units, but the unsatisfactory condition of the covering of the water-pipe insulation poses a potential health hazard.

6 RECOMMENDATIONS

The Ansonia housing facility presents no 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. No immediate remedial actions, therefore, are warranted for the site. Nevertheless, potential environmental impacts from this property have been identified, and these ultimately could warrant remedial action.

One potential environmental impact derives from the continued use of the inadequately protected above-ground fuel-oil storage tanks and their associated concrete containment troughs. The integrity of these relatively new storage tanks should be assured and, following treatment for existing rust, protective coats should be applied to the exteriors of the tanks. With respect to containment-box drainage taps, some method should be devised to ensure that they do not remain in the open position for extended periods of time.

The area immediate to the old underground fuel-storage tank behind unit #9 should be further investigated. Samples of soil should be taken from this area and analyzed for oil contamination.

The problem of deteriorating asbestos-containing insulation on water pipes should be remediated.

These recommendations assume that this property will most likely continue to be used for residential housing.

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8. U.S. Army Toxic and Hazardous Materials Agency, *Historical Overview of the Nike Missile System*, prepared by B.N. McMaster et al., Environmental Science and Engineering, Inc., for USATHAMA Assessments Div., Aberdeen Proving Ground, Md. (Dec. 1984).

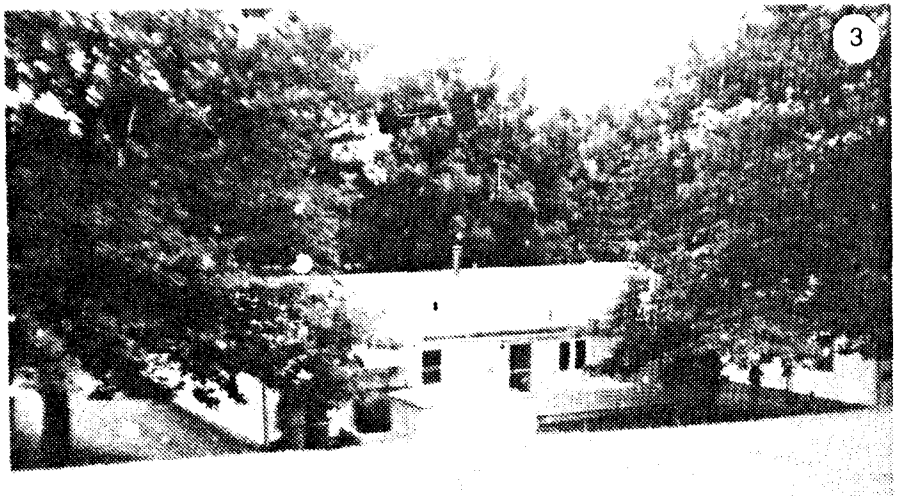
9. Wilson, W.E., E.L. Burke, and C.E. Thomas, *Water Resources Inventory of Connecticut, Part 5, Lower Housatonic River Basin*, U.S. Geol. Survey, Connecticut Water Resources Bulletin No. 19 (1974).

APPENDIX:

PHOTOGRAPHS OF ANSONIA HOUSING FACILITY AND SURROUNDING LAND


1


2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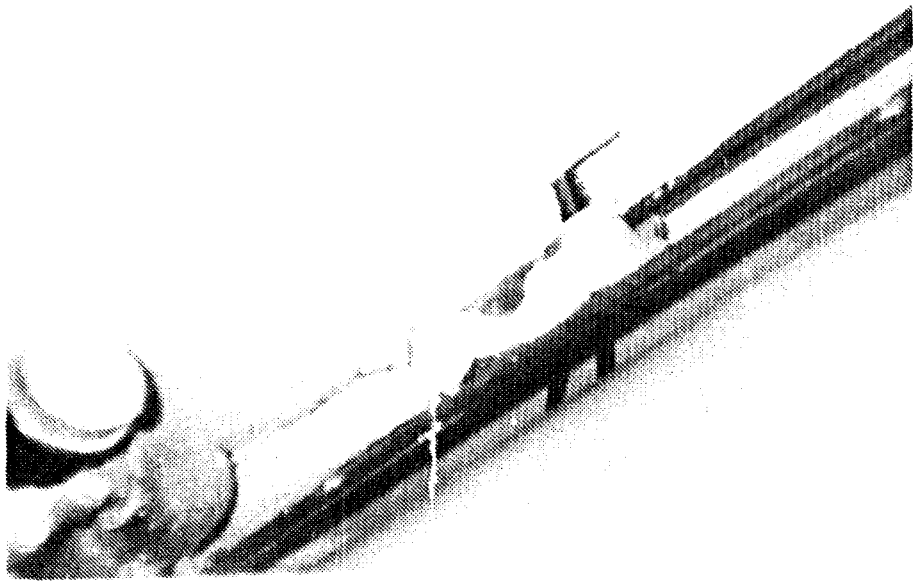

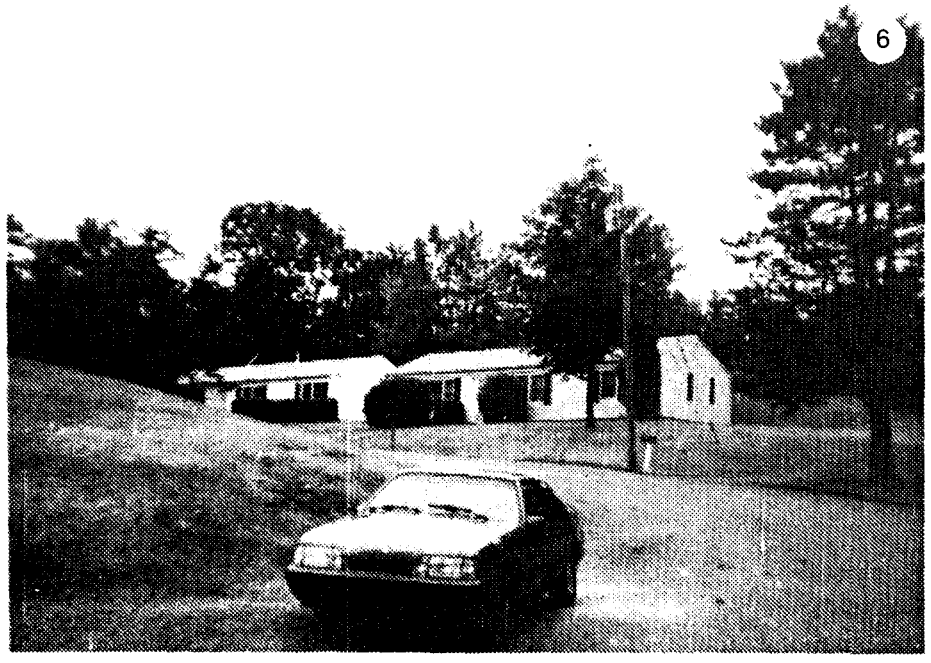


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IDENTIFICATIONS OF PHOTOGRAPHS

1. A view (from Ford Street) of unit #16, located on the west side of Hughes Circle; this unit, like 10 others of the 16 units, has no carport.

2. Housing unit #2, facing Ford Street, has an attached carport.

3. The rear of a housing unit on the west side of Hughes Circle; the above-ground fuel tank, the concrete containment box, and the canopy to protect the tank can be seen onto the left side of the house, just behind the shed.

4. The area's playground, in a high section that runs along the western boundary of the site; play area lies to the rear of units #13, 14, and 15.

5. Insulation in disrepair on a hot water pipe in the utility room of one of the housing units.

6. An electrical transformer atop a utility pole just north of the driveway of unit #8. Units #9 and 10 are in background; transformers on this property are maintained by the federal government.

7. Another electrical transformer atop a utility pole in front of unit #6.

8. A manhole cover left of the mailbox in front of unit #5.

9. One of two old leach fields that formerly served the site; this field is located in an area of new private residences just across Ford Street from unit #2, near Condon Drive; currently, the site is served by Ansonia Sewer Authority.

10. The second leach field that formerly served the site, on high ground between the end of the cul-de-sac and the tree line in the background; unit #11 at the left.