Report No. CETHA-BC-CR-89049

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USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

Task Order 2
Enhanced Preliminary Assessment

DEFENSE MAPPING AGENCY (DMA)
HERNDON, VIRGINIA

Contract Number DAAA15-88-D-0007

December 1989

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Prepared for

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

Prepared by

WESTON

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Report No. CETHA-BC-CR-89049

USATHAMA Task Order 2

ENHANCED PRELIMINARY ASSESSMENT

DEFENSE MAPPING AGENCY
HERNDON, VIRGINIA

Contract No. DAAA15-88-D-0007

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December 1989

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ABSTRACT

An enhanced Preliminary Assessment was conducted at the Defense Mapping Agency (DMA) site in Herndon, Virginia which is planned for inclusion in the Base Closure Program. The facility is located on approximately 12 acres of land in northern Virginia. Initially constructed as a NIKE missile Integrated Fire Control Area, the site is now administered by the U.S. Army Corps of Engineers and permitted to DMA. At the site DMA maintains activities that support field personnel performing geodetic mapping operations.

A site visit was performed on 2 October, 1989. During the survey no conditions requiring immediate action were discovered. Six environmentally significant operations (ESO's) were identified:

- o Underground storage tanks
- o Hazardous materials storage at both existing facilities and a paint/oil shed no longer on-site
- o Asbestos-containing materials in buildings
- o Transformers
- o Septic filter bed
- o Pesticide and herbicide use.

Recommendations are made for sampling at four of the ESO's. The specific items to be evaluated include:

- o Collecting groundwater samples in the wells at each of the underground storage tanks to an analyzing for total petroleum hydrocarbons (TPH)
- o Collecting 3-6 soil samples at the location of the former paint/oil storage shed and analyzing for TPH and metals
- o Obtaining air samples at 4 locations in the facility and analyzing for asbestos fibers
- o Obtaining 2 soil borings in the area of the septic field and installing a monitoring well in one of the boring holes, and analyzing the soil collected and a sample from the bottom of the well for volatile organic compounds.

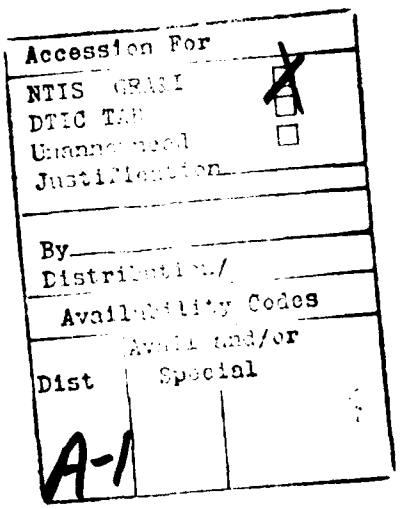
The recommendations for sampling are based on information gathered concerning past spills and material storage and handling procedures. Observations made during the site visit indicate the present operations have minimal impact on human and environmental receptors.

DISCLAIMER

This Enhanced Preliminary Assessment report is based primarily on the environmental conditions observed at the Defense Mapping Agency, Herndon, Virginia, on 2 October 1989. Past site conditions and management practices were evaluated, based on readily available records and the recollections of people interviewed. Every effort was made, within the scope of the task, to interview all identified site personnel, especially those personnel with a historical perspective of site operations.

No environmental sampling was conducted as part of the assessment. The findings and recommendations for further action are based on WESTON's experience and technical judgment, as well as current regulatory agency requirements. Future regulations as well as any modifications to current statutes may affect the compliance status of this site.

WESTON does not warrant or guarantee that the property is suitable for any particular purpose or certify any areas of the property as "clean." A more thorough investigation, including intrusive sampling and analysis for specific hazardous materials, is recommended prior to reporting this property as excess.



WESTON

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EXECUTIVE SUMMARY

BACKGROUND AND OBJECTIVES

This Enhanced Preliminary Assessment (PA) report has been prepared by Roy F. Weston, Inc. (WESTON) at the request of the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) pursuant to Contract DAAA15-88-D-0007, Task Order 2. The purpose of the PA report is to present WESTON's findings concerning the environmental conditions at the Defense Mapping Agency (DMA) site, Herndon, Virginia, and to provide recommendations for further action.

The objectives of the PA were to:

- Identify and characterize environmentally significant operations (ESOs) associated with the historical and current use of the DMA property.
- Identify and characterize possible impacts of the ESOs on the surrounding environment.
- Identify additional environmental actions, if any, that should be implemented for the ESOs identified.

Information contained in this PA report was obtained through:

- Visual inspection of the facility.
- Review of available Army documentation.
- Review of related regulatory agency files at the state and federal levels.
- Interviews with current and former employees at DMA.

GENERAL PROPERTY DESCRIPTION

The DMA property was purchased by the U.S. Government in 1953. It was constructed as an Integrated Fire Control Area for a Nike missile launch site located approximately one mile west of the property. Primary activities were probably electronics maintenance and repair. The Nike facility was closed in 1961, at which time the Army Corps of Engineers (COE) acquired the property. From 1963 to the present, the property, under several titles, has been used for mapping activities and related electronics maintenance and repair. The site is currently administered by the COE and permitted to DMA through the Military District of Washington (MDW).

The primary hazardous materials associated with facility activities were solvents used in electronics equipment repair. No motor pool activities were conducted on the property.

ESOs identified on the property include:

- Underground Storage Tanks: Seven tanks, three active (used for storing gasoline and fuel oil) and four inactive (pumped out and filled with concrete). Two of the inactive tanks could not be successfully leak tested prior to being closed and may have released fuel oil to the surrounding soils and/or groundwater. Monitor wells have been installed near all tanks. No sampling has been conducted to date.

- Hazardous Materials Storage:

  Current areas include:

  - Two flammable materials storage lockers.

  - One locked storage room containing one drum of 1,1,1-trichloroethane (TCA) and one drum of waste TCA. The room has a concrete floor and no drains.

  - Temporary storage of loose batteries outside Building 3. Batteries were in good condition at the time of the site visit.

  Former areas include:

  - Possible former tractor and equipment shed. No significant wastes are believed to be associated with the shed.

  - Former paint/oil storage shed in use prior to 1961. The shed is now removed from the site. No information is available on past spills.

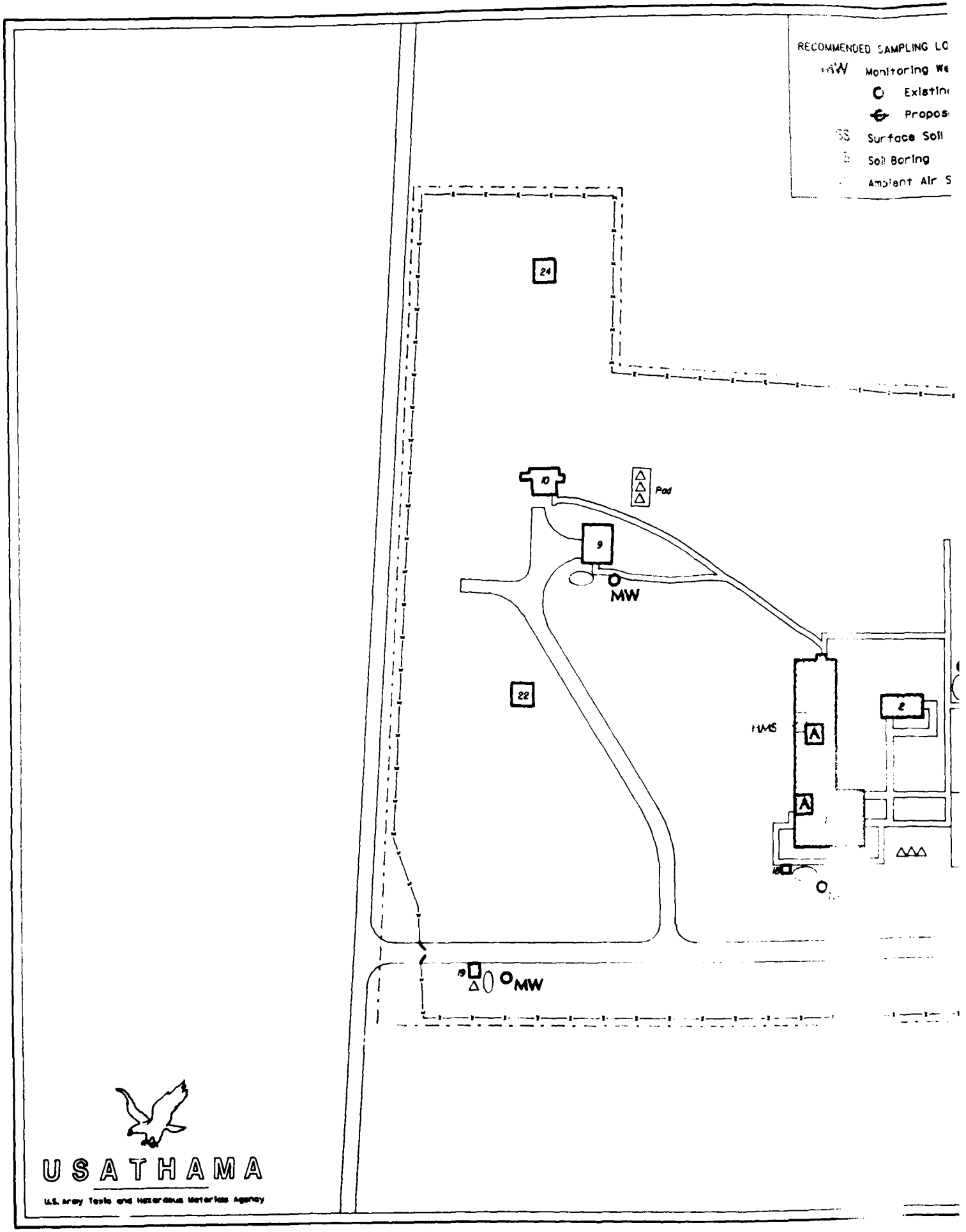
- Asbestos in Structures: Pipe insulation, floor tiles, and other materials in the four main buildings onsite have been tested and found to contain asbestos. Asbestos materials appear in good condition.

- Electrical Transformers: The 13 onsite transformers have been tested for polychlorinated biphenyls (PCBs). All transformers contained <50 ppm PCBs.

- Septic System: Sanitary wastes onsite flow to a septic tank and filter bed. Although current practices do not permit disposal of waste solvents down building drains, it remains possible that in the past some waste solvents have been disposed of in the system.

- Pesticides/Herbicides: Pesticides and herbicides are applied to the property by an Army-certified applicator based offsite. There has been no known storage of pesticides on the property.

A composite property information map is presented in Figure ES-1.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USATHAMA
U.S. Army Toxic and Hazardous Materials Agency

NS MMENDED SAMPLING LOCATIONS

MW Monitoring Wells

O Existing

Propose..

SS Surface Soil

SB Soil Boring

ng A Ambient Air S... ...g

ENVIRONMENTALLY SIGNIFICANT OPERATIONS

Underground Storage Tanks

Septic System

Building With Asbestos-containing Material

Transformer

HMS Hazardous Materials Storage

U. S. Army

Base Closure Preliminary Assessment

Defense Mapping Agency

Herndon, VA - November 1989

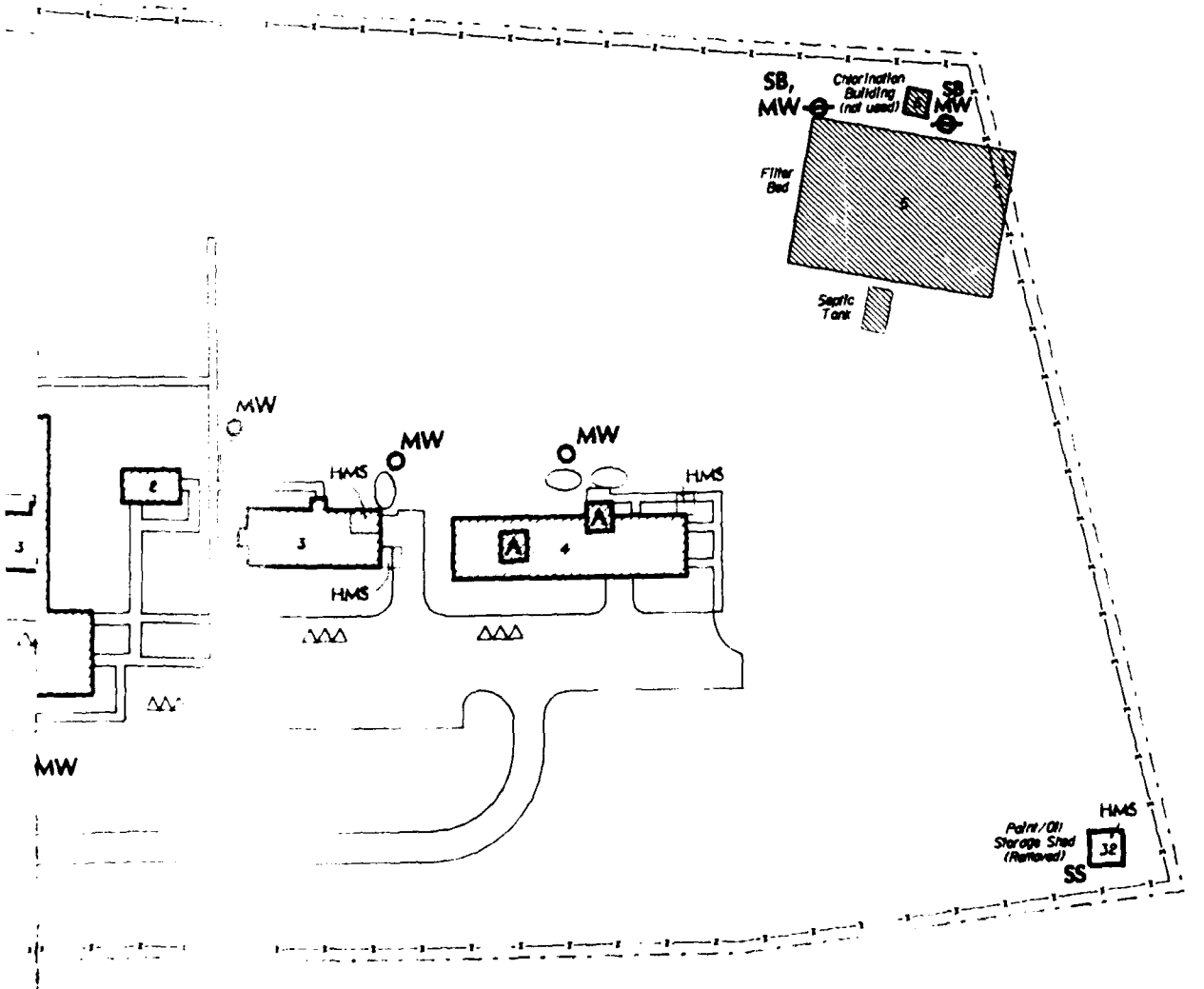
Figure ES-1
Property Information Composite

Compiled in 1989 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency

N

0 meters 50

0 feet 150



HUMAN AND ENVIRONMENTAL RECEPTORS

DMA is located in a relatively affluent suburb west of Washington, DC. The approximately 12-acre facility consists of four main buildings, several small outbuildings, and mowed lawn with occasional shrubs and trees. The facility is at the top of a small rise, with drainage to the northeast and to the south.

Groundwater is relatively shallow on the property (<20 feet). Private wells in the area serve as many as 5,000 homes. Municipal wells supply water to about 200 homes.

Surface water from the Potomac River, 3 to 4 miles to the north, is used for municipal drinking water in the area. The water intake is upstream of the point where site drainage would enter the river. Surface water in the vicinity of the property is used for recreation.

The county has defined wetlands 0.5 to 1 mile from DMA. One state endangered species and one candidate federal endangered species may be present in the area of the site.

CONCLUSIONS AND RECOMMENDATIONS

No environmental conditions were observed on the DMA property that appear to present an immediate substantial threat to human health or the environment. However, the ESOs discussed in Section 3 have the potential to affect human health or the environment. The recommendations concerning each item follow and are summarized in Table ES-1. Recommended sampling locations are shown in Figure ES-1.

UNDERGROUND STORAGE TANKS

Groundwater samples should be taken from the existing monitor wells adjacent to underground tanks.

HAZARDOUS MATERIALS STORAGE

There are no significant hazards currently generated by the storage of hazardous materials.

The former paint/oil storage shed could have been a source for a release of hazardous materials to the environment. Surface soil samples should be taken in the area after the location of the shed has been determined.

ASBESTOS IN STRUCTURES

Indoor ambient air monitoring should be conducted in the Building 1 boiler room and work area and the Building 4 boiler room and work area to confirm that no asbestos material is being released.

Table ES-1

ESOs Identified at DMA and Recommendations for Further Action

ESOs	Concern	Recommended Activity	Number of Samples Recommended	Location	Analysis
Underground Storage Tanks	TPH[a]	Sample existing monitor wells adjacent to tanks	1 per well, 6 wells	Existing monitor wells	TPH
Hazardous Materials Storage					
Other areas	VOCs[c]	No further action	—	—	—
Former paint/oil storage shed	TPH, RCRA metals[b]	Surface soil samples (0–6 in.)	3–6	Area of former shed	TPH, RCRA metals
Asbestos in Structures	Asbestos	Indoor ambient air sampling	4 locations	2 boiler rooms and 2 work areas Buildings 1 and 4	Asbestos
Electrical Transformers	PCB	No further action (no significant PCB content)	—	—	—
Septic System	VOCs	Soil borings - soil sample outside bed at a level of 2 ft below bottom of bed	1 per boring, 2 borings	Beside and downgradient of filter bed	VOCs
		Install a monitor well in one of the soil boring locations.	1	Beside and downgradient of filter bed	VOCs
Pesticide/Herbicide Use	Pesticides	No further action required	—	—	—

[a]Total petroleum hydrocarbons.
[b]Eight metals defined in 40 CFR 261 pursuant to the Resource Conservation and Recovery Act (RCRA).
[c]Volatile organic compounds.
— = Not applicable.

ELECTRICAL TRANSFORMERS

The condition of electrical transformers should be monitored to ensure their continued integrity. However, the condition of the transformers is not a major concern due to their low PCB content.

SEPTIC SYSTEM

If the septic system continues to be used, every effort should be made to comply with the permitting requirements of the county and the state. Compliance may require plugging the overflow pipe to prevent a discharge or the obtaining of a discharge permit.

Two soil borings should be dug adjacent to and downgradient of the sewage filter bed. One soil sample from each boring, at a level approximately 2 ft below the bottom of the filter bed, should be collected and analyzed for VOCs. A monitor well should be installed in one of the soil borings and a groundwater sample taken and analyzed for VOCs. This work will confirm whether past practices involved the disposal of hazardous materials via the septic system.

PESTICIDE/HERBICIDE USE

No further action is required. Pesticides and herbicides were handled by a certified applicator and were not disposed or stored onsite. Accordingly, the impact on the environment and human receptors should be minimal.

Section 1
Introduction

WESTON

SECTION 1

INTRODUCTION

1.1 BACKGROUND

Roy F. Weston, Inc. (WESTON) has been retained by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) to conduct waste site characterizations of specific Department of Army properties under the authority of Contract DAAA15-88-D-0007, Task Order 2. This work is being performed within the scope of the U.S. Army Installation Restoration Program (IRP). As part of this contract, WESTON has also been asked to prepare enhanced preliminary assessment (PA) reports for those selected properties destined to be included as part of the Base Closure Program. The purpose of the reports is to present WESTON's findings concerning the environmental conditions at the properties and to provide recommendations for further action. These recommendations will serve as a guide to the U.S. Army in prioritizing the activities necessary to report the properties as excess.

This report discusses the enhanced preliminary assessment of the property known as the Defense Mapping Agency (DMA), Herndon, Virginia. The site was acquired in 1953 as a part of the Nike Defense System. In 1961 the Army Corps of Engineers (COE) took over administration of the site, and the mission of the facility was changed to support mapping operations. A site visit was performed on 2 October 1989.

1.2 OBJECTIVES

This PA report was prepared using existing information obtained from property records and from current and former employees of this property. No sampling activities were completed as part of the assessment.

The objectives of this PA were as follows:

- Identify and characterize environmentally significant operations (ESOs) associated with the historical and current use of the DMA property.
- Identify and characterize possible impacts of the ESOs on the surrounding environment.
- Identify additional environmental actions, if any, that should be implemented for the ESOs identified.

Certain issues have been excluded from consideration as ESOs for the purposes of this report. First, painted surfaces will not be identified as ESOs solely because there is a potential for their containing lead. Second, drinking water will not be designated as an ESO solely because there is a potential for lead contamination due to piping solder or piping materials. Third, the presence of radon gas in buildings will not be considered as an ESO. A radon survey of all buildings will be performed utilizing the guidelines set forth in the Army Radon Program.

1.3 PROCEDURES

The information contained in this preliminary assessment is based on the following data-gathering activities:

- Visual inspection of the facility.
- Review of available Army information.
- Review of U.S. Environmental Protection Agency (EPA) Region III files.
- Communication with the Virginia Department of Waste Management, the Virginia Water Control Board, and the Virginia Air Pollution Control Board.
- Communication with county government offices in Fairfax County, Virginia.
- Interviews with knowledgeable personnel.

No sampling or analyses were conducted as part of the investigation.

1.4 REPORT FORMAT

This enhanced PA report presents an evaluation of relevant data for the DMA property.

Section 2 describes the property and the surrounding environment and land uses. Section 3 identifies and characterizes all environmentally significant operations related to known and suspected releases to the environment. The potential impact of these operations on the local environment and human receptors is discussed in Section 4. Section 5 summarizes the findings and conclusions, discusses the quality and reliability of the supporting information, identifies areas requiring further action, and suggests how such actions may be accomplished. Section 6 lists pertinent materials reviewed and the agencies that were contacted. Supporting documentation is provided in Appendices A through E.

References are presented throughout this report, where appropriate, by means of a letter and number designation in brackets, as follows: I refers to direct interviews; T refers to telephone conversations; and R refers to reports or other written documents. The number following the letter refers to the specific item in the respective lists provided in Section 6.

Section 2
Property Characterization

SECTION 2

PROPERTY CHARACTERIZATION

2.1 GENERAL PROPERTY DESCRIPTION AND HISTORY

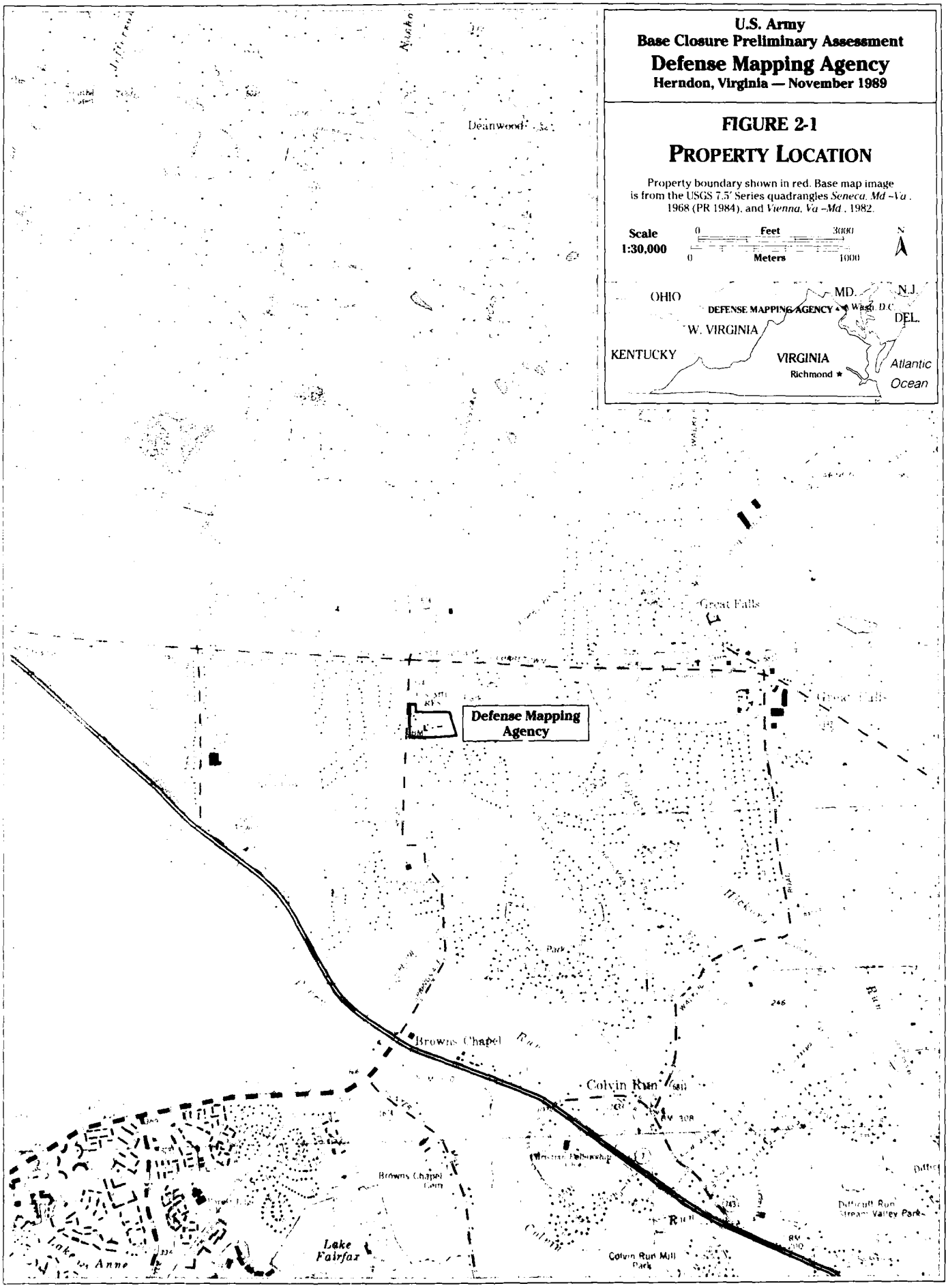
The DMA facility is located in northern Virginia, 7 miles from the Washington Dulles International Airport. At the time the government acquired the property, the area was largely rural with an agricultural base. The rural character of the area changed with the opening of Washington Dulles International Airport in 1962. Development in the area is evidenced by the tripling of the population during the period 1970 to 1987. Figure 2-1 is a site location map. Table 2-1 presents a property information summary for DMA.

Figure 2-2 shows a site plan of the DMA property. Of the 11.96 acres on the site, 8 acres are open land, with the remainder under roof. The open land consists of mowed lawn with occasional shrubs and trees and paved areas. Roadways and walkways in the compound are in good repair.

There are 11 buildings on the site. The location, usage, and building identification numbers are provided in Table 2-2. The four buildings cover approximately 13,234 sq ft. At the time of the visit, the buildings on the compound used for offices appeared to be well maintained. Pipe insulation, walls, ceilings, and floors were in good condition and free of water and physical damage. Two buildings, #22 and #24, were former missile tracking stations. These buildings were not surveyed because they are not used and were not accessible at the time of the visit. These structures are reportedly empty.

The history of the DMA site can be divided into two periods. The first period covers the years 1953 to 1961 when the site was an Integrated Fire Control (IFC) Area. The site provided electronic support for the main operations at a Nike launch facility, which was less then one mile to the west. Operations performed during this time were general facility maintenance and maintenance of fire control equipment. No vehicle or missile maintenance or motor pool activities were performed on the property.

The second period dates from 1963 when the mapping operations and satellite tracking were initiated. The waste stream generated by these operations was probably similar to that generated by the Nike operations and consists of solvents (for example 1,1,1-trichloroethane (TCA)) and alcohol used to clean and prepare surfaces of electronic equipment before repair work. These activities use only small quantities of solvents, most of which evaporate. As a result, very little waste is generated.


U.S. Army
Base Closure Preliminary Assessment
Defense Mapping Agency
Herndon, Virginia — November 1989
FIGURE 2-1
PROPERTY LOCATION
Property boundary shown in red. Base map image is from the USGS 7.5' Series quadrangles Seneca, Md.-Va., 1968 (PR 1984), and Vienna, Va.-Md., 1982.
Scale 1:30,000
0 Feet 3000
0 Meters 1000
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MD.
N.J.
DEFENSE MAPPING AGENCY
Wash. D.C.
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W. VIRGINIA
KENTUCKY
VIRGINIA
Richmond
Atlantic Ocean
Defense Mapping Agency
Great Falls
Browns Chapel Run
Colvin Run
Browns Chapel
Lake Fairfax
Lake of Anne
Difficult Run Stream Valley Park
Colvin Run Mill Park

Table 2-1

Property Information Summary

Name: Defense Mapping Agency (DMA)

Property Number: 51075

FFIS: VA-210821354

Facility Address: 925 Springvale Road, Herndon, Virginia

Commanding Officer:

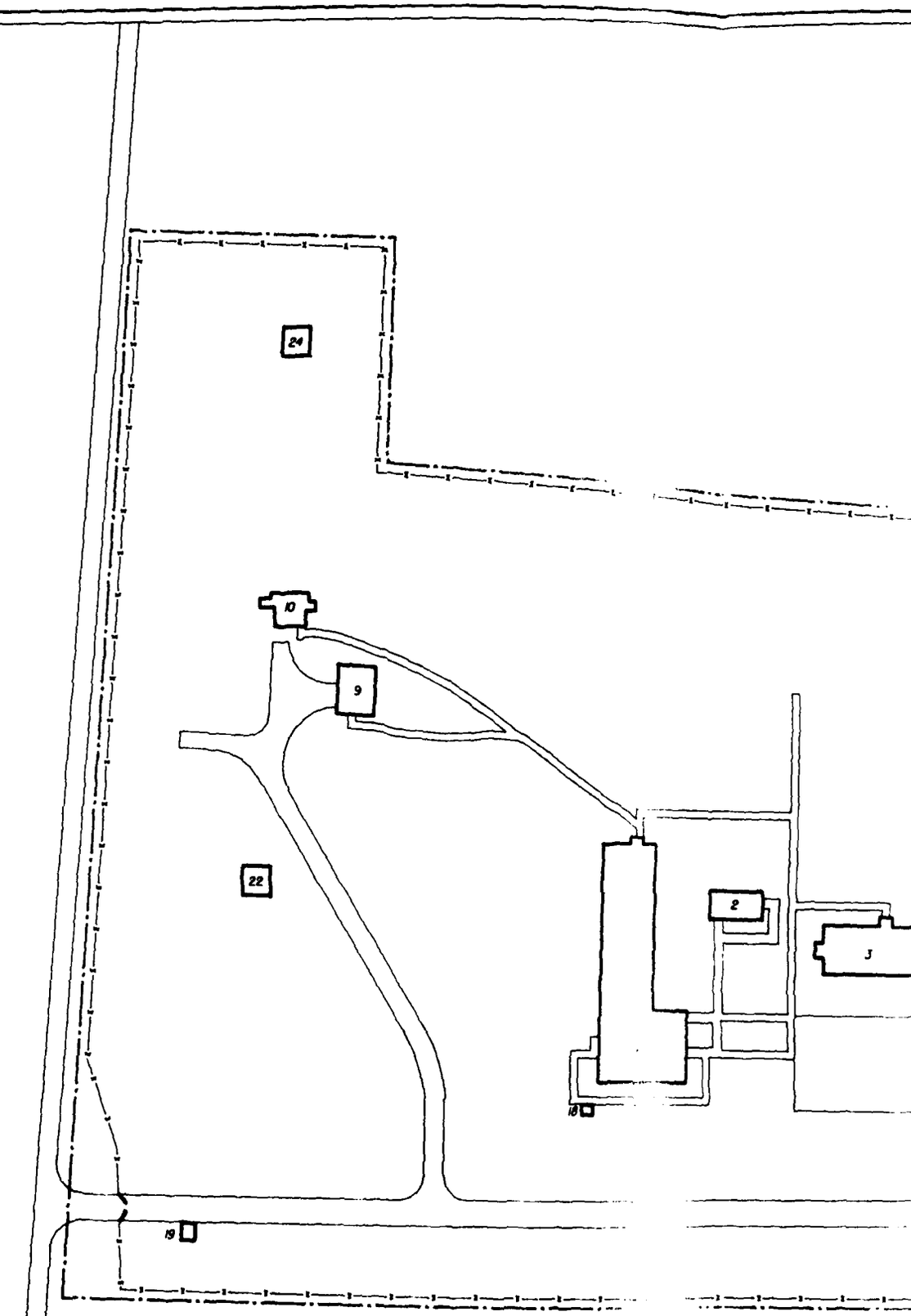
Location: Fairfax County, Virginia, adjacent to the towns of Herndon and Reston. The site is located on the east side of State Route 674 (Springvale Road), which intersects State Route 193 (Georgetown Pike) north of the site and State Route 7 (Leesburg Pike) southwest of the site.

Installation Coordinates: 38° 59' 45" N
77° 18' 45" W

Size: The parcel covers an area of 11.96 acres that includes 11.69 acres of land held by the Army in fee simple title and 0.27 acres of easement interests.

Mission: The site is adminstered by the U.S. Army Corps of Engineers and permitted to DMA, which uses the facility to support geodetic mapping operations. Specific processes include the maintenance and repair of electronic equipment.

Operations: Current operations are limited to offices and electronics repair and testing.



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U.S. Army Toxic and Hazardous Materials Agency

U. S. Army
Base Closure Preliminary Assessment
Defense Mapping Agency
Herndon, VA – November 1989

Figure 2–2
Site Plan

Compiled in 1989 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency

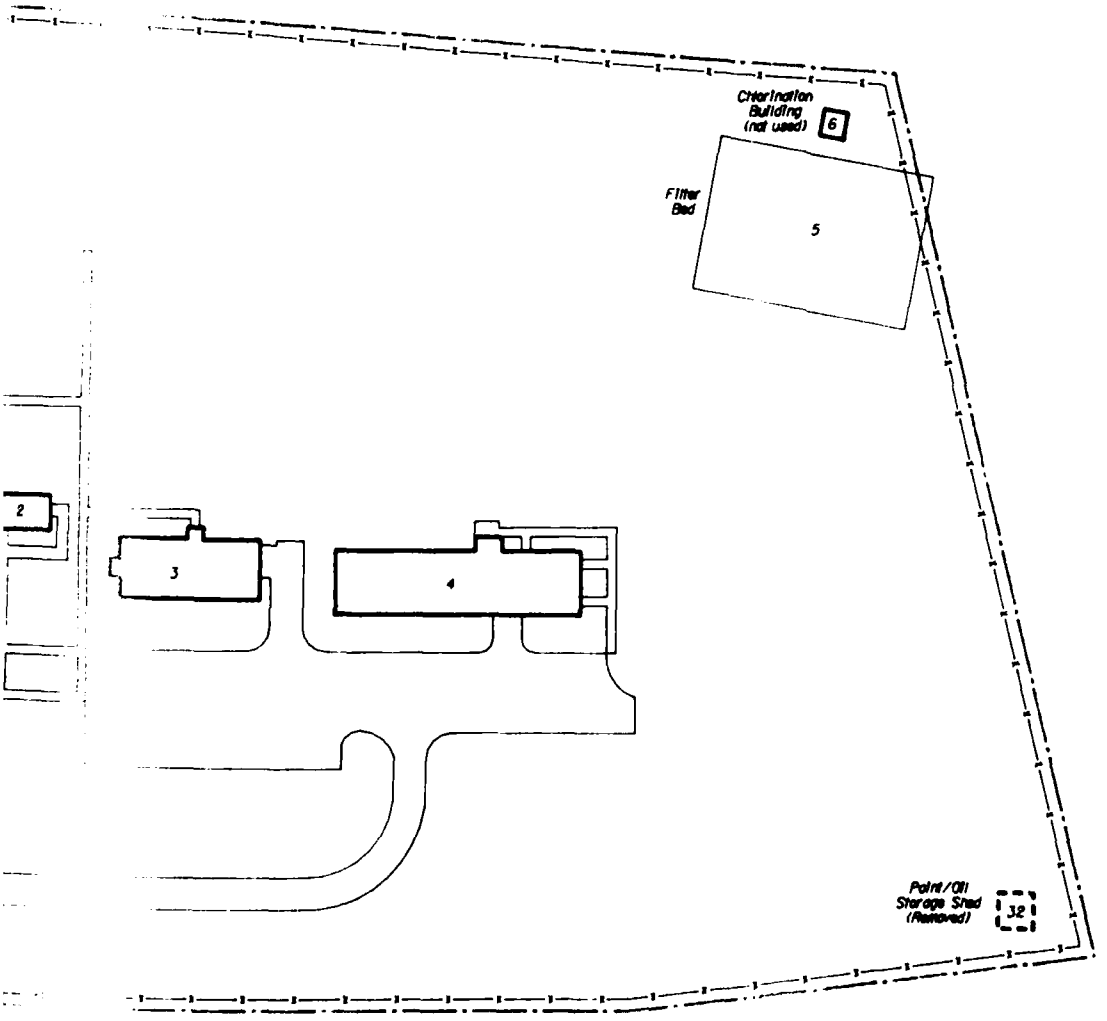


Table 2-2

Locations and Usage of
Buildings and Structures at the DMA Site

Number	Nike Use	Army Map Service and Current Use
1	Barracks	Offices and electronics repair
2	Latrine	Latrine
3	Mess hall	Formerly administrative, currently storage
4	Administration	Engineer instrument and exhibit maintenance
5	Filter bed	Filter bed
6	Chlorinator house (not used)	Chlorinator house (not used)
9	Generator shed	Formerly tractor and implement shed, currently storage
10	Communications	Not used
18	Sentry post by Building 1	Security guard
19	Sentry post at gate	Security guard
22	Observatory tower	Not used
24	Missile tracking radar tower	Not used
32	Former paint/oil storage shed	Not used, removed from property

Table 2-3 presents a summary of the facility history. Based on information provided by DMA, the changes in operations (SECOR, BC-4, and logistics/ supply) and the transfer of equipment maintenance to system control were administrative issues that did not significantly change the operations performed and the materials handled onsite. The operations performed onsite were consistently related to mapping and tracking.

2.1.1 GENERATION AND DISPOSAL OF WASTES

Solid wastes generated on the property consist of general refuse such as paper, cardboard, and empty containers. These wastes were incinerated prior to 1963 in an onsite 0.5-ton incinerator located behind Building 3. The incinerator was removed in 1974. From 1963 to 1986, solid wastes were collected by private contractors and since 1986 by Browning-Ferris Industries.

Small quantities of hazardous waste are generated onsite from electronic cleaning and repair operations. The only such waste currently generated is spent TCA. TCA is applied with small brushes to equipment circuit boards. Most of the TCA evaporates, but some is collected and stored in a 55-gallon drum for disposal (see Subsection 3.2, Hazardous Materials Storage). While DMA personnel know of no other solvents used in the past on the site, prior use of other solvents in similar electronics cleaning and repair operations remains a possibility.

2.2 PERMITTING STATUS

The following agencies were contacted regarding the status of permits for DMA:

- U.S. Environmental Protection Agency (EPA) Region III - no permits
- Virginia State Water Control Board - no permits
- Virginia Air Pollution Control Board - no permits
- Virginia Department of Waste Management - no permits
- Fairfax County Department of Environmental Quality - no permits
- Fairfax County Air Pollution Control Board - no permits

A possible overflow pipe from the septic filter bed may discharge to a small intermittent creek off of the property. This could raise a state NPDES permitting question for ongoing operations.

2.3 GENERAL ENVIRONMENTAL INFORMATION

The following subsections provide general information concerning the area in which the facility is located.

2.3.1 DEMOGRAPHICS AND LAND USE

In March 1989, Fairfax County published a demographic profile using 1988 data [R-5]. This report identifies the DMA site as being in the Great Falls area located in the Upper Potomac Planning District. According to the report, land use surrounding the site is primarily single-family dwellings, with the median housing value in excess of $160,000. In a 1988 publication by the

Table 2-3

History of the DMA Site

1953	U.S. Government purchased land from local residents
1954 - 1957	Integrated Fire Control Area for Nike missile site constructed
1961	Integrated Fire Control Area for Nike missile site closed
1961	Army Corps of Engineers took over site
1963	Army Map Service "SECOR" operations began
1964	Army Map Service "BC-4" operations began
1970	Logistics/supply operations established
1971	Doppler satellite tracking operations began
1973	Special mission tracking program started
1976	Related NIKE launch facility turned over to Fairfax County. Some geodetic and electronic activities moved to Warren Air Force Base, Cheyenne, Wyoming
1987	All equipment maintenance transferred to systems control

Fairfax County Economic Development Authority, the types of industry within 5 miles of the site are largely retail businesses, corporate offices, and service organizations [R-4].

2.3.2 CLIMATE

The climate of this area is determined by its proximity to the following features:

- Atlantic Ocean
- Latitude (prevailing westerly wind)
- Appalachian Mountains

Temperatures generally remain between 0°F and 100°F, and the normal average annual temperature is 53.9°F. Temperatures vary (moderately) from season to season. The coldest month is January with a normal average temperature of 31.4°F, and the warmest month is July with a normal average temperature of 75.5°F. Temperatures of 90°F or more average 28 days per year, although there have been occurrences of 40 days or more. During the summer months moist air masses from the southwest Atlantic or Gulf of Mexico can raise the humidity, increasing discomfort associated with the normally warm conditions. Because of the moderating effect of the Atlantic Ocean and the blocking effect of the Appalachian Mountains, periods of very high or very low temperatures seldom last longer than three or four days.

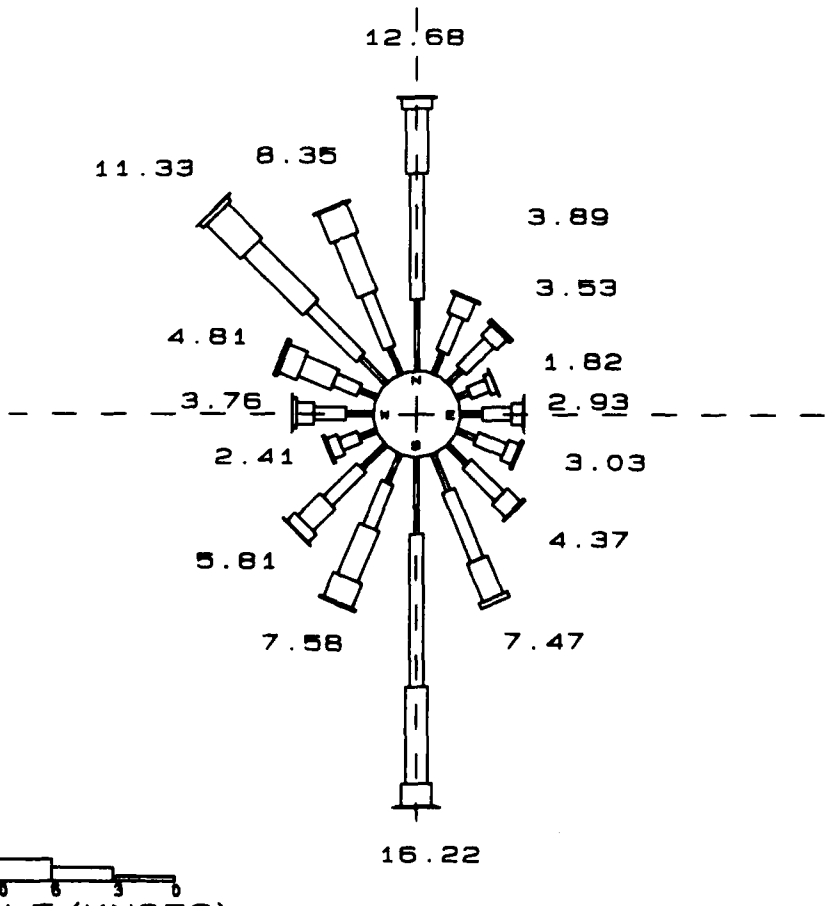
The "prevailing westerly" winds carry weather systems from the interior of the continent over the area. The Washington Dulles area is also located in or near the mean path of winter storm tracks and the mean path of tropical moist air from the Atlantic Ocean and the Gulf of Mexico. All statisical meteorological parameters discussed in this subsection pertain to the Washington Dulles International Airport.

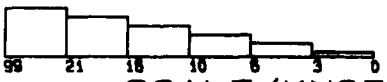
Figure 2-3 is a wind rose for the Washington Dulles International Airport for the year 1988. The prevailing winds are from the south except during the winter months when they are from the northwest. During 1988, south winds occurred most frequently with a secondary maximum of north winds.

Precipitation is evenly distributed throughout the year. Normal yearly precipitation is 40.35 in. June is the wettest month with normal precipitation of 4.23 in., and February is the driest month with normal precipitation of 2.64 in. The majority of summer rainfall occurs as showers and thundershowers. Coastal storms and storms from the interior of the continent account for the precipitation during the rest of the year. Average yearly snowfall is 23.4 in. The maximum amount of snowfall in one 24-hour period was 22.8 in., which occurred in February 1983. The maximum monthly snowfall recorded was 28.8 in. in January 1987.

Tornadoes are not a common occurrence in the Washington Dulles area. A small percentage of thunderstorms can produce severe lightning, high winds, heavy rain, and hail. Hurricanes or low pressure systems of tropical origin can affect the area. Damage from tropical storms is most severe near the

DULLES/STERLING, VIRGINIA
YEAR: 1988
CALMS INCLUDED





SCALE (KNOTS)

	WIND SPEED (KNOTS) PERCENT OCCURRENCE					
	0-3	3-6	6-10	10-16	16-21	>21
N	3.31	6.86	2.98	0.60	0.03	0.00
NNE	1.09	1.79	0.93	0.08	0.00	0.00
NE	0.87	1.81	0.56	0.19	0.00	0.00
ENE	0.58	0.91	0.30	0.03	0.00	0.00
E	1.02	1.32	0.55	0.03	0.01	0.00
ESE	0.95	1.45	0.54	0.10	0.00	0.00
SE	1.27	2.15	0.86	0.09	0.00	0.00
SSE	1.86	3.46	1.90	0.27	0.00	0.00

	WIND SPEED (KNOTS) PERCENT OCCURRENCE					
	0-3	3-6	6-10	10-16	16-21	>21
S	3.58	7.06	4.61	1.04	0.06	0.01
SSW	1.46	2.26	2.54	1.24	0.09	0.00
SW	1.56	2.21	1.48	0.52	0.06	0.00
WSW	0.84	0.93	0.52	0.11	0.00	0.00
W	1.24	1.50	0.80	0.19	0.02	0.00
WNW	0.86	1.24	1.69	0.90	0.18	0.00
NW	1.87	3.28	3.87	2.24	0.26	0.02
NNW	1.31	2.71	2.78	1.48	0.08	0.00

coast, but inland damage does occur from high winds and heavy rains. The majority of the damage results from flooding associated with high rainfall. Rainfall measurements of 10 in. or more have been noted during the passage of tropical storms.

2.3.3 SURFACE WATER AND PHYSIOGRAPHY

The DMA site lies among rolling hills. A number of unnamed ponds, small waterways (Dog Run, Piney Run, Captain Hickory Run, Mine Run) and lakes (Newport, Anne, Fairfax, Thoreau, and Audubon) are located within 5 miles of the site. The drainage in the area is defined, in part, by a high area west of the site. This barrier causes waterways in the vicinity of the site to flow to the east in the direction of Great Falls Park.

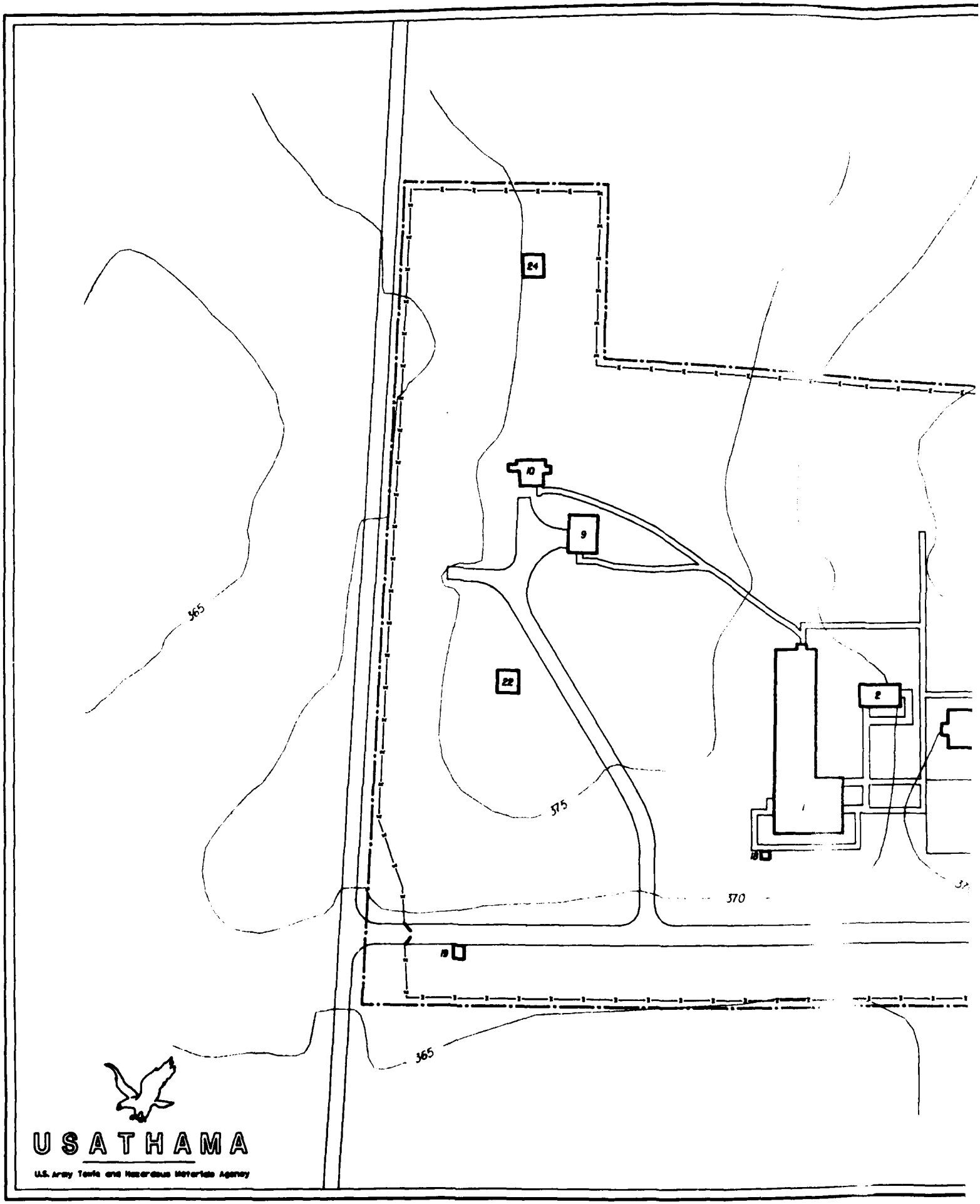
The major waterway in the area is the Potomac River. The river passes within 3 miles east and 4 miles north of the site. The Potomac River is the only surface water source for municipal water service in the area. Water taken from the river is distributed by the Fairfax County Water Authority which provides water to the DMA site. The surface water intake in the Potomac River is located 9 miles upstream at the Loudon County/Fairfax County line. The location at which water is removed from the river is upstream of the point where drainage from the DMA facility enters the river. Surface water in the area of the site is used for recreational activities.

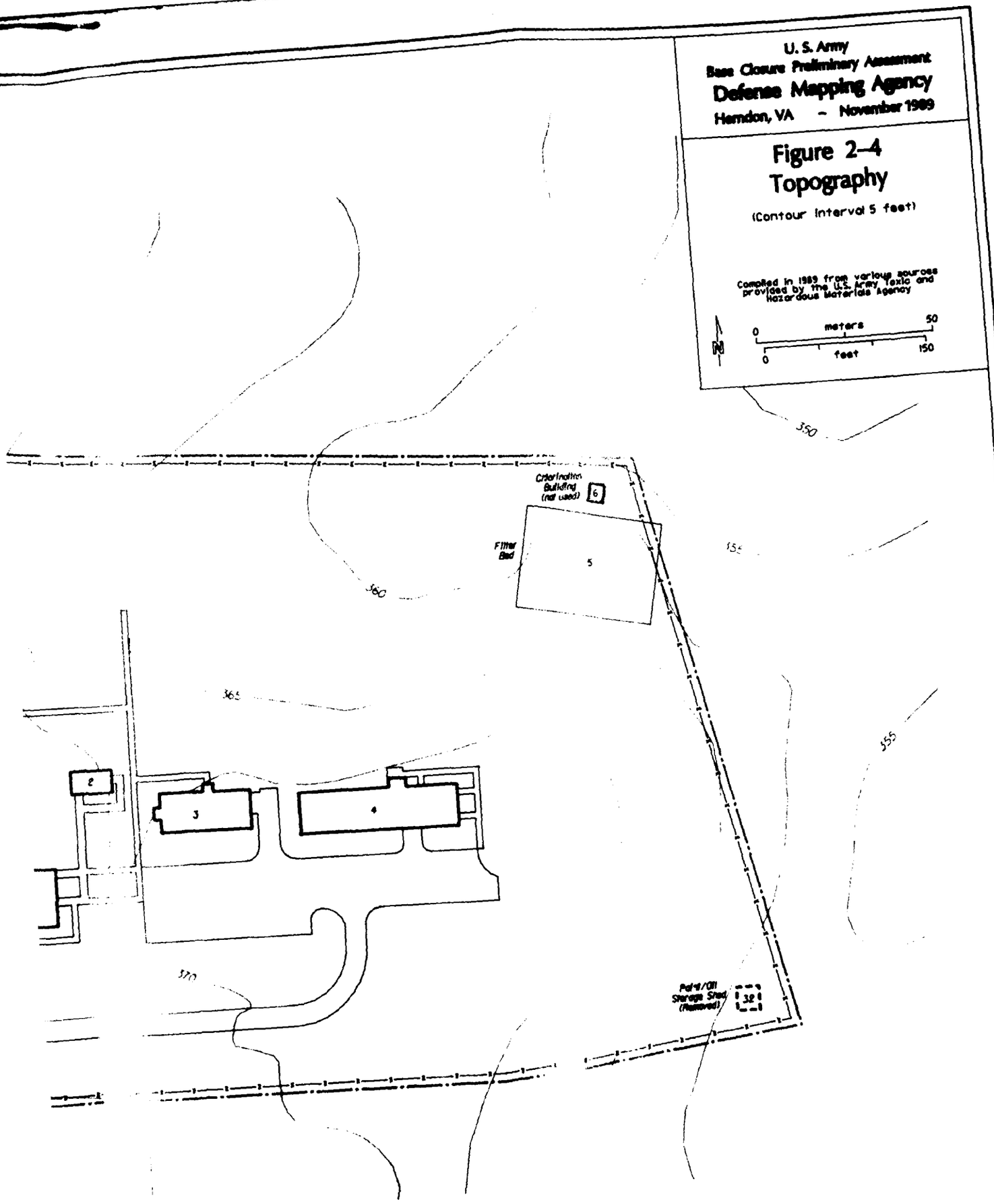
The DMA facility is located on a small rise. Within the compound there are two major drainage paths which transport stormwater runoff. The first course flows toward the north, with the accumulated water traveling by sheet flow toward the northeast corner. The second course drains toward the south. The path follows along the drives in the compound with the accumulated water draining into grass-lined ditches. The ditches lead to a culvert under the main access road and direct accumulated water toward the southern boundary of the property. Once outside the facility, the water drains to the southwest toward an unnamed pond. Figure 2-4 shows a topographic map of the site.

2.3.4 SOILS

The DMA site is located in the Piedmont Region of Fairfax County. This area is underlain by metamorphic rock and covered by a layer of silty, clay-rich soil. Area soils may be as thick as 50 meters. A 1963 report prepared by the U.S. Soil Conservation Service identified the soils in the vicinity of the site. The soil types found on the crystalline rock of the Piedmont Upland in this area were the Glenelg, Elioak and Manor soils [R-12]. These soils are well drained. The Elioak and the Glenelg soils have deeper profiles, whereas the Manor soil is shallow. The permeability and water-holding capacity of the soils are listed below:

Manor - high permeability -- low water holding capacity


24
10
9
22
2
1
365
375
370
365
USATHAMA
U.S. Army Toxic and Hazardous Materials Agency


U. S. Army
Base Closure Preliminary Assessment
Defense Mapping Agency
Herndon, VA - November 1989
Figure 2-4
Topography
(Contour Interval 5 feet)
Compiled in 1989 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency
N
0 meters 50
0 feet 150
Chlorination Building (not used) 6
Filter Bed
5
4
3
2
Fuel/Oil Storage Shed (Removed) 32
350
355
360
365
370

Glenelg - rapid permeability -- moderate water holding capacity

Elioak - moderate permeability -- high water holding capacity

2.3.5 GROUNDWATER AND HYDROLOGY

The groundwater traveling in the area of the DMA site is unconfined, moving through fractures in the bedrock, and is connected to the surface water. Well logs for the DMA site indicated that the water table was encountered between 12 and 20 ft below the surface of the site [R-8].

Drinking water on the site is provided by the Fairfax County Water Authority and is taken from the Potomac River, 9 miles upstream of the site. The water is unaffected by any runoff from the site. There are municipal wells located within 5 miles and residential wells located within 3 miles of the site. The municipal wells are located to the west and serve approximately 200 homes in that area. The private wells are located primarily north and around the site and provide water to approximately 5,000 homes. As related by the Fairfax County Water Authority, the municipal wells are 150 to 250 ft deep and the private wells are 50 ft deep [T-13].

2.3.6 SENSITIVE ENVIRONMENTS

Information from the Fairfax County Department of Environmental Quality indicated, based on habitats at the site, that field or grassland with transition to woodlands, the pigmy shrew (candidate for listing as endangered species by the federal government) and the loggerhead shrike (listed on the state endangered species list) may be present [T-12].

The County also identified wetlands within one mile of the site, with some as close as 1/2 mile of the facility. These wetlands experience temporary or seasonal flooding and consist of both open areas and areas covered by broad leaf vegetation. At a distance of 5 miles from the site there are more forested wetlands, especially along drainage channels. No nearby wetland areas were noted on USGS topographic maps.

Section 3
Environmentally Significant Operations

SECTION 3

ENVIRONMENTALLY SIGNIFICANT OPERATIONS

The history of the DMA site indicates that the types of operations performed at the site have been "clean," with a minimum of waste generated. Operations were limited to the maintenance of electronic equipment and personnel support activities (storage of heating oil and gasoline, electrical service transformers, and the septic system). Evidence of the small volume of waste generated was obtained during onsite interviews with personnel and observation of the DMA operations [I-1, I-2; T-3].

Additional support concerning operations of an IFC site was found in a 1986 report by Environmental Law Services [R-13]. Many Nike IFC areas apparently contained activities that generated wastes such as vehicle maintenance and onsite dumping of waste. However, based on interviews, there was no history of motor pool operations or dumping of waste material at the facility. In addition, no garages, racks, pits, or other vehicle maintenance areas were visible on the site visit. Two possible areas with former minor maintenance and paint/oil storage are discussed under Hazardous Materials Storage in Subsection 3.2. No likely dumping or disposal areas were observed on the site.

Current and former ESOs, illustrated in Figure 3-1, include:

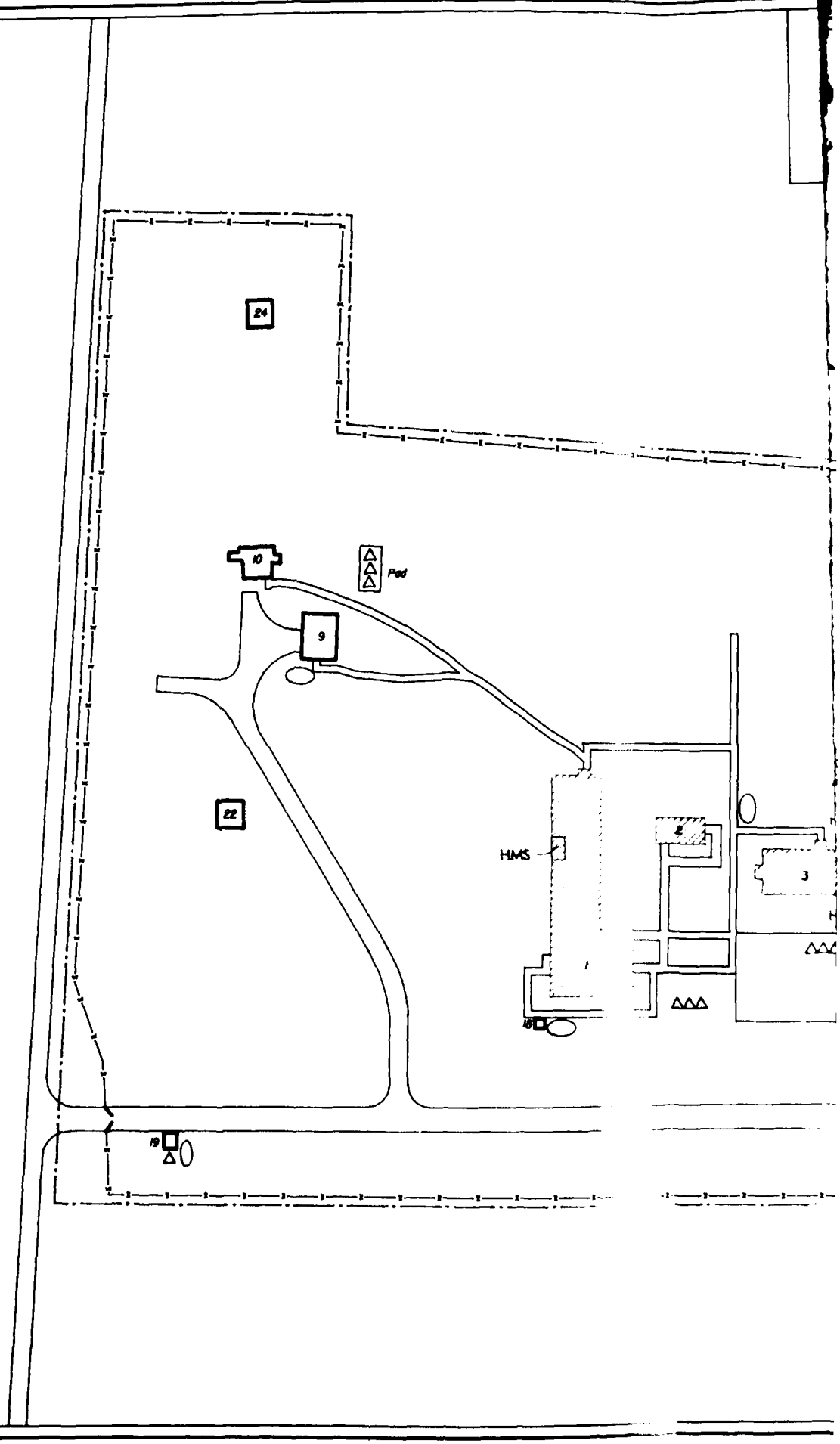
- Underground storage tanks.
- Hazardous materials storage and solvent handling and use.
- Asbestos in structures.
- Electrical transformers.
- The septic system.
- Use of pesticides and herbicides.

One additional item of concern is the possibility that an underground water supply line was installed between the Great Falls Nike Park and the DMA site [T-13]. However, the existence of this pipeline could not be confirmed with the Fairfax County Water Authority. The bedding material for an underground line can serve as a conduit for contaminant flow, which raises the possibility that contaminants on the launch site may have spread to the DMA. However, this transport pathway is precluded by the site topography. Both the launch site and the DMA are located on rises, each at an elevation of approximately 375 ft. The connecting pipeline, if it exists, would be at an elevation of less than 325 ft at its lowest point. Any groundwater infiltrating the pipe trench would not be under hydrogeologically confined conditions; therefore, there is no possibility of direct migration to the DMA site.

3.1 UNDERGROUND STORAGE TANKS

3.1.1 DESCRIPTION

At present, there are seven underground storage tanks located in the facility, three of which are active. The active tanks contain gasoline (tank by Building



USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

ENVIRONMENTALLY SIGNIFICANT OPERATIONS

- Underground Storage Tanks
- Septic System
- Building With Asbestos-containing Material
- Transformer
- HMS Hazardous Materials Storage

U. S. Army
Base Closure Preliminary Assessment
Defense Mapping Agency
Herndon, VA – November 1989

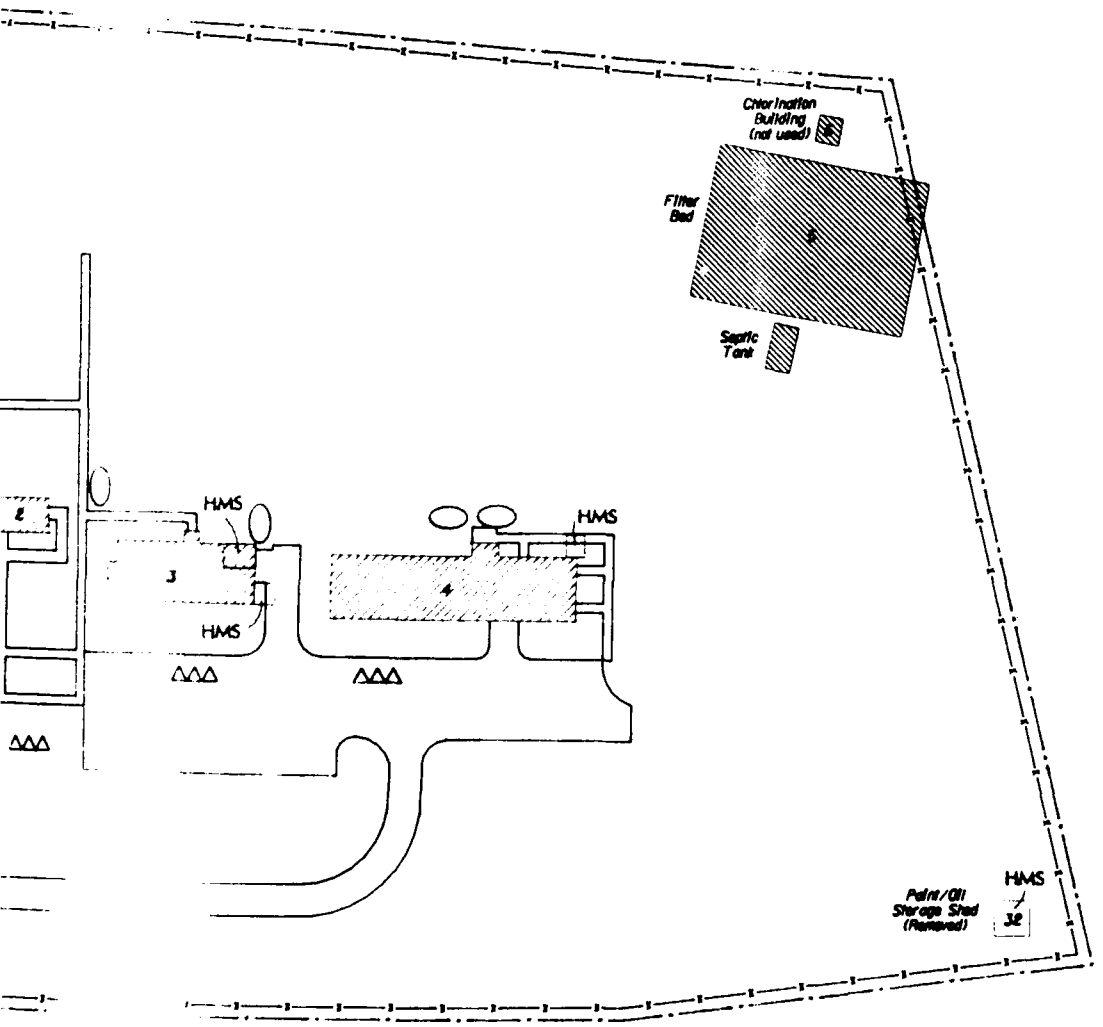
Figure 3–1
Environmentally Significant Operations

Compiled in 1989 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency

N

0 meters 50

0 feet 150



19) and fuel oil (tanks by Buildings 1 and 4). The tanks are of steel construction except for the active gasoline tank, which is fiberglass. All tanks except the gasoline tank were reportedly maintained aboveground until about 1965, when the facility was given the option of burying the tanks or constructing spill berms. Tank usage is shown in Table 3-1.

Two of the current tanks (the active fiberglass gasoline tank and the active fuel oil tank near Building 4) were installed since 1965. The gasoline tank was installed in about 1974, and the fuel oil tank was installed in about 1979.

A survey of the tank contents reported that five of the tanks were used to store No. 2 fuel oil; one tank stored unleaded gasoline; and one tank stored diesel fuel.

The condition of each underground tank was assessed during a contractor survey conducted in 1986 [R-10]. The inspection involved the Petro-Tite Tank System Tightness Test. In the test, the product is brought to a uniform temperature and a low hydrostatic pressure is exerted. The temperature change that occurs in the material is used to calculate the change in the liquid volume in the tank. The temperature measuring equipment is accurate to 1/300th of a degree Farenheit and has a tolerance of plus or minus 0.050 gal per hour. The results of the inspection are presented in Table 3-1 and show that five of the seven tanks were tight and apparently in good condition, and that the remaining two tanks could not be tested so their condition could not be determined. Fill pipes were degraded in one case and detached in the other. In addition, there was water in one tank. Results of the testing are provided in Appendix A.

As reported during the onsite survey, three of the tanks are active. The remaining tanks have been pumped out and are filled with concrete. Contractor documentation associated with these operations is provided in Appendix B. Monitor wells were installed at the time the tanks were filled with concrete. The wells were installed for future use, if necessary; no groundwater samples have been analyzed to date. Well log information from the well installations is provided in Appendix C.

3.1.2 KNOWN AND SUSPECTED RELEASES

The two tanks at Buildings 3 and 4 could not be effectively leak tested and there was some breakage or corrosion associated with the fill pipes. Accordingly, there is a possibility that underground storage tanks on the facility may have released some of their contents to soils.

3.2 HAZARDOUS MATERIALS

3.2.1 DESCRIPTION

Hazardous materials were identified at four locations:

- A flammable materials locker located outside Building 4 on the northeast corner.

Table 3-1

Locations and Use of Fuel Tanks at the DMA Site

Tank Location (Building)[a]	Contents	Capacity (gals)	Leak Testing Results	Current Status
1	No. 2 fuel oil	1,000	Tight; net change rate of -0.032 gal/hour.	Active
2	No. 2 fuel oil	500	Tight; net change rate of -0.023 gal/hour.	Inactive; filled with concrete
3	No. 2 fuel oil	1,000	Not tested.[b]	Inactive; filled with concrete
4	No. 2 fuel oil	1,000	Tight; net change rate of -0.047 gal/hour.	Active
9	Diesel fuel	6,000	Tight; net change rate of -0.034 gal/hour.	Inactive; filled with concrete
19	Unleaded gasoline	1,000	Tight; net change rate of +0.021 gal/hour.	Active
4	No. 2 fuel oil	1,000	Not tested.[c]	Inactive; filled with concrete

[a]Tank number is actually the number of the building where the tank is located.
[b]Not tested due to 15 in. of water in the vessel. Report noted degraded condition of the tank fill pipe. In a site plan of the facility, the tank volume of 1,000 gal was identified.
[c]This is a second tank located approximately 21 ft west of the active tank behind Building 4. The tank was in poor condition at the time of the survey, and the fill pipe had separated from the tank. In a site plan of the facility, the tank volume of 1,000 gal was identified.

- A flammable materials locker inside Building 1.
- An interior storage room on the northeast corner of Building 3 (containing TCA used in repair operations).
- A pile of batteries outside the east side of Building 3.

The flammable storage lockers were made of metal and equipped with sills to prevent the release of materials. They held materials in containers of one quart size and smaller.

An in-depth survey of the interior storage room in Building 3 was not possible during the onsite visit because the access was locked and the person responsible for the key was not available. However, two 55-gallon containers were visible through a window. The containers sat on a concrete floor. The label on one of the containers was visible and indicated that it contained TCA. This drum was equipped with a manual pump mechanism for the transfer of solvents to small containers. No additional containment could be seen around the drums through the window.

In a followup conversation with the facility manager, confirmation was obtained that: 1) the drums sit on a concrete floor; 2) one of the two drums contains TCA and the other contains the waste TCA; 3) the waste TCA is removed from the site for disposal by the Safety Department; 4) there is no floor drain in the space; 5) there are no gaps between the floors and the walls; and 6) there are no reports of TCA spills [T-3].

The 15 batteries found outside Building 3 were planned for disposal. The batteries were lying on a concrete pad that had a sill at the periphery. A drain was located in the pad. The batteries appeared to be in good condition with no obvious physical damage that would lead to leaking of the contents.

In addition, historical maps indicated two locations with possible former hazardous materials storage. Current Building 9 was used by the Army Map Service as a tractor and implement shed. Minor lawn equipment maintenance may have been associated with this area, but no significant wastes would be expected from the operations. A paint/oil shed was referenced on the southeast corner of the site during the Nike period. The shed is no longer located on the property. Paint and oils may have been stored in the shed during the Nike period. Potential hazards associated with the paint/oil shed include metals used as pigments or driers in the paints (including cadmium and chromium) and petroleum hydrocarbons.

No information was available regarding the materials of construction of the former paint/oil shed. The shed was removed from the property sometime after 1963. No staining was obvious in the area where the shed apparently was located.

3.2.2 KNOWN AND SUSPECTED RELEASES

No releases are likely from the flammable storage lockers and interior storage room. Materials in these areas are well-contained. The pile of batteries was

located only temporarily in the reported area; they appeared to be in good condition and no releases would be expected prior to their disposal offsite. In the past, a possibility exists that solvents used in electronic repair operations could have been poured down building drains. Any such releases would have flowed to the onsite filter bed (see Subsection 3.5). No information is available concerning possible spills from the paint/oil shed. Any spills could potentially have escaped the building.

3.3 ASBESTOS MATERIALS IN STRUCTURES

3.3.1 DESCRIPTION

Asbestos materials were used in pipe insulation and other structures on the property.

Bulk sampling has been performed at the facility by the DMA to identify asbestos-containing materials. The samples were collected by DMA personnel at the locations identified in Table 3-2. Samples were taken inside the buildings, except for one sample of pipe insulation taken outside (No. H-11). The 15 bulk samples were submitted to a private contract laboratory for analysis. The results showed 2 to 65 percent asbestos in 11 of the samples, a trace quantity (less than 1 percent) in one of the samples, and nondetectable amounts in three of the samples [R-1]. The report containing these results is provided in Appendix D. No air monitoring has been conducted on the property.

3.3.2 KNOWN AND SUSPECTED RELEASES

No releases are known or suspected. Asbestos materials visible in pipe insulation at the time of the inspection appeared to be in good condition. However, no testing has been conducted to confirm ambient air quality.

3.4 ELECTRICAL EQUIPMENT

3.4.1 DESCRIPTION

The DMA facility has 10 pole-mounted transformers and three transformers that are mounted on a pad. As related, these transformers are owned by the local electric utility. The locations of the transformers are shown in Figure 3-1.

Testing of the 13 transformers was performed on 27 January 1988. The results show that the transformers contained less than 50 parts per million (ppm) of polychlorinated biphenyls (PCBs) and that only five of the transformers contained concentrations of PCBs equal to or greater than 5 ppm [R-11]. Test results are provided in Appendix E.

3.4.2 KNOWN AND SUSPECTED RELEASES

There have been no known releases from the transformers, and there is no evidence of any leaks. Because the PCB content of the transformers is very low, even if a leak were to occur, it would not likely release significant amounts or concentrations of PCBs.

Table 3-2

Asbestos Sampling Locations and Results at the DMA Site

Sample No.	Location	Asbestos Contents (%)
	Building 2 (Latrine)	
H-1	Men's restroom, pipe elbow	15-20
H-2	Ladies' restroom, pipe covering	None
	Building 3	
H-3	Floor tile	02-05
H-4	Ceiling transite	05-10
H-5	Pipe joint	20-25
H-6	Pipe covering	05-10
	Building 4	
H-7	Pipe insulation, east end	20-25
H-8	Boiler stack lagging	50-55
H-9	Boiler room pipe joints	15-20
H-10	Men's room pipe covering	05-10
	Building 1	
H-11	Pipes between Buildings 1 and 2	None
H-12	Pipe covering, break room	15-20
H-13	Boiler room, stack insulation	55-60
H-14	Boiler room, pipe elbow	15-20
H-15	Boiler room, pipe cover	Trace

3.5 SEPTIC SYSTEM

3.5.1 DESCRIPTION

Building sanitary wastes are piped to a septic tank where they are distributed to a sewage filter bed. A chlorinator house is located downgradient from the filter bed and reportedly was never used. There is an underground pipe between the filter bed and an offsite termination point approximately 100 yds away in an adjacent field. The discharge location was not accessible. It is unknown whether any discharge from the pipe has ever occurred. Information from the U.S. Geologic Survey indicates that no creek or stream is located at the discharge point. However, county zoning maps indicate the possible presence of an intermitted creek in the area of the discharge point. The septic system has not been examined or tested by the state.

3.5.2 KNOWN AND SUSPECTED RELEASES

Personnel reported no knowledge of any wastes other than sanitary wastes being disposed of in the septic system. However, sinks in the buildings drain to the system; therefore, disposal of wastes through the system would be possible.

3.6 PESTICIDE/HERBICIDE USE

3.6.1 DESCRIPTION

Pesticide and herbicide use at the facility for the past 5 years has been limited to work done by an Army trained and certified applicator. The applicator would perform a site survey and, based on the findings, treat the area. The materials were neither stored nor disposed of onsite.

To evaluate the use of pesticides and herbicides at the facility, a portion of the records kept by the applicator were reviewed. The review covered the period from May 1987 to May 1988. The materials applied and the volumes used are presented in Table 3-3. Records are available for pesticide and herbicide application over the last 5 years.

No information is available as to pesticide or herbicide usage prior to 1984. No pesticides are known to have been stored on the DMA site at any time.

3.6.2 KNOWN AND SUSPECTED RELEASES

There have been no known releases of pesticides or herbicides onsite, other than the small quantities applied to the site for normal pest and weed control.

Table 3-3

Concentrations and Amounts of Herbicides and Pesticides
Used at DMA from May 1987 to May 1988

Material	Concentration (% Solution)	Amount
Diazinon (P)	1	7.5 gal
d-Phenothin	2	24 ozs
Dursban (P)	0.05	25 gal
	0.5	78 gal
	0.25	102.5 gal
DDVP (P)	---	---
Qunitox (Cholecalciferol) (P)	0.75	25 gal
		2.5 lbs
2,4-D (H)	1.0	125 gal
	1.5	2.5 gal
Malathion (P)	0.05	12 gal
Roundup (Glyphosate) (H)	2.0	2 gal
Octagon	1.0	1 gal

(P) Indicates material is a herbicide.
(H) Indicates material is a pesticide.

--- = Not reported.

Note: Classification of Octagon and d-Phenothin not found. This may reflect incorrect information given on material applied.

Section 4
Human and Environmental Receptors

SECTION 4

HUMAN AND ENVIRONMENTAL RECEPTORS

The pathways by which human and environmental receptors may be exposed to site-related chemicals are discussed in this section.

4.1 GROUNDWATER

Because a large percentage of the land in the facility is undeveloped, there is infiltration of water into the soil. The properties of the soils, generally rapid permeability and moderate water-holding capacity, and the shallow depth to the water table, less than 20 ft, indicate that the entry of soluble pollutants into the groundwater is possible. Given the use of groundwater by residences in the area, the possibility exists that humans may be exposed to some of those pollutants. The primary risk would be from possible past leaks from the two abandoned tanks that could not be adequately leak tested. Depending on the constituents and mobility of the effluent, the sewage filter and overflow pipe may have an impact on groundwater. The possibility exists that solvents were disposed of through the septic system at some point in the facility's history. Based on the low volumes of hazardous materials used and the lack of evidence of spills, the probability of exposure from other site-related chemicals via groundwater is low.

4.2 SURFACE WATER

There are no surface water bodies (streams, ponds, etc.) onsite. Storm water runoff travels above the ground via sheet flow and drainage ditches adjacent to pavement and exits the facility based on topography. It is not known whether surface runoff at the site is hydraulically connected to county-identified wetlands 0.5 mile or more from the site. Any runoff exiting the facility travels to the northeast or to the south, and enters small waterways in the area. The general flow of water in these tributaries is toward the east and the Potomac River. The waterways in the area are used for recreation; local drinking water intakes from the Potomac River are upstream of the entry point of site drainage. Along the routes followed by the waterways, recharge to the groundwater occurs.

The potential exists for surface discharge from the outflow pipe at the filter bed; however, there is no evidence that this has occurred. It is also possible that solvents were disposed of through the septic system at some point in the facility's history.

Based on the lack of evidence of spills and the low volume of hazardous materials used, runoff or surface discharge from the facility is not likely to create a significant impact on human and environmental receptors.

4.3 SOIL

The open space in the site is largely covered with grass. There is no evidence of dumping or of operations that would contribute to the contamination of the soil. Leaks or spills from materials stored in the former paint/oil shed could have affected soils in the area, but no such effects were visible. Pesticides applied to soil may be a direct contact concern to humans and wildlife if significant concentrations remain. Overall, however, exposure to facility soils are not likely to significantly impact human or environmental receptors.

4.4 AIR

No permanent sources of air contaminants are known to be present onsite.

The potential does exist for exposure of employees and other persons to asbestos in materials used in the construction of the buildings. Given the sound conditions of the structures, this exposure would be expected only if the material were damaged; for instance, during maintenance operations or demolition.

Section 5
Conclusions and Recommendations

SECTION 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF FINDINGS

The DMA site is a small facility in an area that is being rapidly developed. Most of the land contained in the site has not been built upon. Buildings on the property were constructed in the early 1950s when asbestos-containing building materials were used. The results of testing confirm that asbestos building materials were used in the structures.

Drinking water in the facility and in the new residences in the area is supplied by the local water utility from surface water and municipal wells 3 to 5 miles away from the site, but wells supply water to approximately 5,000 residences within 3 miles of the site. Surface runoff flows to areas that are sparsely populated.

There are few operations that would adversely impact local human and environmental receptors. These operations are discussed in the following subsections.

5.1.1 UNDERGROUND STORAGE TANKS

Seven underground storage tanks remain on the property. Three are active; four have been abandoned in place and filled with concrete. The tanks were leak tested and found to be tight in 1986, except for one tank near Building 3 and one tank near Building 4 which could not be tested due to the poor condition of fill pipes in each tank, and water in the tank by Building 3. Monitor wells have been installed near the tanks for future use; no sampling has been conducted to date.

5.1.2 HAZARDOUS MATERIALS STORAGE

Current materials storage areas include two flammable storage lockers and one storage room which contains one full drum of TCA and one partially filled drum of waste TCA. These areas are well contained. Batteries stored temporarily outside were in good condition. Minor lawn equipment maintenance may have been associated with the former onsite tractor shed (Building 9). The current storage areas, including the battery storage area and the former tractor shed, do not present a significant hazard based on available information.

A former paint/oil shed has been removed from the property. The shed was in use prior to 1961. No information is available about the construction of the shed or any associated spills.

5.1.3 ASBESTOS IN STRUCTURES

Asbestos-containing materials in buildings on the property appeared in good condition during the site inspection. Releases of asbestos appeared unlikely. However, no ambient air monitoring has been conducted.

5.1.4 ELECTRICAL TRANSFORMERS

The 13 transformers onsite have been tested for PCBs. Test results showed low concentrations of PCBs (all <50 ppm, eight <5 ppm). No known leaks or spills are associated with the transformers.

5.1.5 SEPTIC SYSTEM

The septic system consists of a septic tank and a filter bed. An underground pipe extends from the filter bed to an offsite discharge point. It is unknown whether any discharge from this pipe ever occurred. A chlorination house was installed, but was never used.

Sanitary wastes are currently disposed of through the septic system. There has been no known disposal of process solvents through the system; however, the possibility exists that at some point in the facility's history, solvents could have been disposed of through the septic system.

5.1.6 PESTICIDE/HERBICIDE USE

For the past 5 years, pesticides and herbicides have been applied by a certified applicator. Prior to that time records of pesticide application are not available. There has been no known storage of pesticides or herbicides on the property.

5.2 RECOMMENDATIONS FOR FURTHER ACTION

No conditions were observed on the property that appear to present an immediate substantial threat to human health or the environment. However, the ESOs discussed in Section 3 have the potential to affect human health or the environment. The recommendations concerning each ESO follow and are summarized in Table 5-1. Recommended sampling locations are shown in Figure 5-1.

5.2.1 UNDERGROUND STORAGE TANKS

Groundwater samples should be taken from the existing monitor wells adjacent to underground tanks.

5.2.2 HAZARDOUS MATERIALS STORAGE

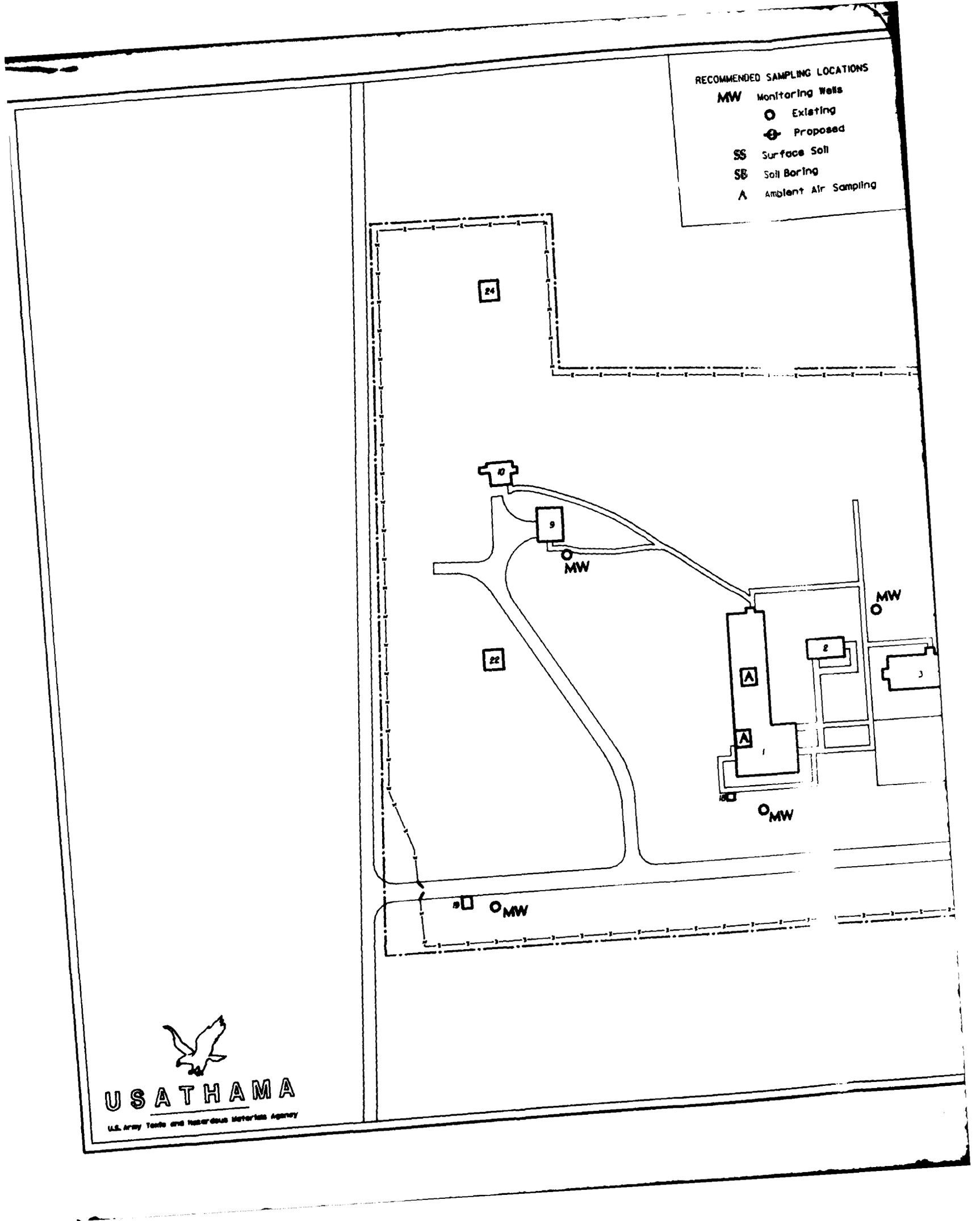
There are no significant hazards currently generated by the storage of hazardous materials. However, the unknown status of storage conditions and the potential for releases at the former paint/oil shed raises the possibility of soil contamination. Analysis of soil samples should be performed for metals (including lead, chromium and cadmium) and for petroleum hydrocarbons.

Table 5-1

ESOs Identified at DMA and Recommendations for Further Action

ESOs	Concern	Recommended Activity	Number of Samples Recommended	Location	Analysis
Underground Storage Tanks	TPH[a]	Sample existing monitor wells adjacent to tanks	1 per well, 6 wells	Existing monitor wells	TPH
Hazardous Materials Storage					
Other areas	VOCs[c]	No further action	—	—	—
Former paint/oil storage shed	TPH, RCRA metals[b]	Surface soil samples (0–6 in.)	3–6	Area of former shed	TPH, RCRA metals
Asbestos in Structures	Asbestos	Indoor ambient air sampling	4 locations	2 boiler rooms and 2 work areas Buildings 1 and 4	Asbestos
Electrical Transformers	PCB	No further action (no significant PCB content)	—	—	—
Septic System	VOCs	Soil borings – soil sample outside bed at a level of 2 ft below bottom of bed	1 per boring, 2 borings	Beside and downgradient of filter bed	VOCs
		Install a monitor well in one of the soil boring locations.	1	Beside and downgradient of filter bed	VOCs
Pesticide/Herbicide Use	Pesticides	No further action required	—	—	—

[a]Total petroleum hydrocarbons.
[b]Eight metals defined in 40 CFR 261 pursuant to the Resource Conservation and Recovery Act (RCRA).
[c]Volatile organic compounds.
— = Not applicable.


RECOMMENDED SAMPLING LOCATIONS
MW Monitoring Wells
Existing
Proposed
SS Surface Soil
SB Soil Boring
A Ambient Air Sampling
24
10
9
MW
MW
22
2
A
A
1
3
MW
MW
USATHAMA
U.S. Army Toxic and Hazardous Materials Agency

NDED SAMPLING LOCATIONS

Monitoring Wells

- Existing
- Proposed

Surface Soil

Soil Bo[illegible]

Ambient Air Sampling

U. S. Army
Base Closure Preliminary Assessment
Defense Mapping Agency
Herndon, VA – November 1989

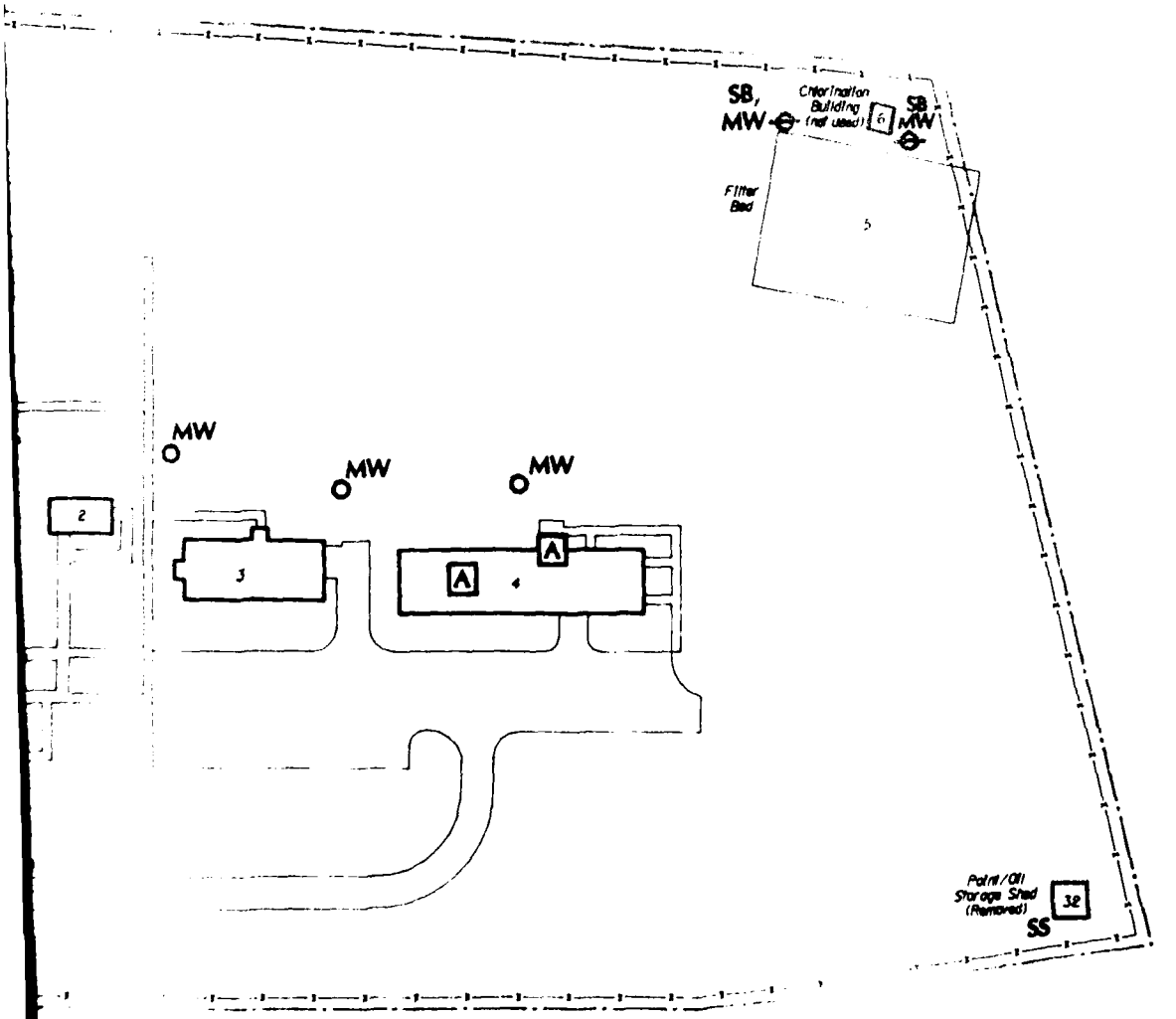
Figure 5–1
Recommended Sampling Locations

Compiled in 1989 from various sources provided by the U.S. Army Toxic and Hazardous Materials Agency

N

0 meters 50

0 feet 150



The former paint/oil storage shed could have been a source for a release of materials to the environment. Surface soil samples should be taken in the area after its former location has been determined in the field.

5.2.3 ASBESTOS IN STRUCTURES

Asbestos materials should be maintained in good condition. Indoor ambient air monitoring should be conducted in the Building 1 boiler room and work area and the Building 4 boiler room and work area to confirm that no asbestos material is being released.

5.2.4 ELECTRICAL TRANSFORMERS

The condition of electrical transformers should be monitored to ensure their continued integrity. However, the condition of the transformers is not a major concern because of their low PCB content.

5.2.5 SEPTIC SYSTEM

If the septic system continues to be used, every effort should be made to comply with the permitting requirements of the county and the state. Compliance may require plugging the overflow pipe to prevent a discharge or the obtaining of a discharge permit.

Two soil borings should be dug adjacent to and downgradient of the sewage filter bed. One soil sample from each boring, at a level approximately 2 ft below the bottom of the filter bed, should be collected and analyzed for VOCs. A monitor well should be installed in one of the soil borings and one groundwater sample taken and analyzed for VOCs. This work will confirm whether past practices involved the disposal of hazardous materials via the septic system.

5.2.6 PESTICIDE/HERBICIDE USE

No further action is required. Pesticides and herbicides were handled by a certified applicator and were not disposed or stored onsite. Accordingly, the impact on the environment and human receptors should be minimal.

Section 6
References

SECTION 6

REFERENCES

6.1 DIRECT INTERVIEWS

I-1 Defense Mapping Agency
Hydrographic/Topographic Center
2 October 1989

I-2 Defense Mapping Agency
Hydrographic/Topographic Center
2 October 1989

I-3 Fairfax County
Office of Comprehensive Planning
7 November 1989

6.2 TELEPHONE INTERVIEWS

T-1 Commonwealth of Virginia
Department of Waste Management
19 September 1989

T-2 Commonwealth of Virginia
State Water Control Board
20 September 1989

T-3 Defense Mapping Agency
Hydrographic/Topographic Center
11 October 1989

T-4 Defense Mapping Agency
Hydrographic/Topographic Center
11, 20, 23, 25 October 1989; 2, 7 November 1989

T-5 Defense Mapping Agency
Hydrographic/Topographic Center
11 October 1989; 2 November 1989

T-6 Commonwealth of Virginia
Air Pollution Control Board
11 October 1989

T-7 Office of Economic Development for Fairfax County
12 October 1989

T-8 United States Geological Survey
18 October 1989

T-9 Fairfax County
Air Pollution Control Board
17 October 1989

T-10 Fairfax County
Office of Comprehensive Planning
20 October 1989

T-11 Fairfax County
Office of Comprehensive Planning,
23 October 1989

T-12 Fairfax County
Department of Environmental Quality
26 October 1989; 11 November 1989

T-13 Fairfax County Water Authority
26 October 1989; 12 December 1989

6.3 REPORTS AND OTHER DOCUMENTS

R-1 Biospheres, Inc. Results of Bulk Sample Analysis for Asbestos, 22 May 1989 (see Appendix D).

R-2 Drake, Avery Ala, Jr., and Lee, K.Y. Geologic Map of the Vienna Quadrangle, Fairfax County, Virginia and Montgomery County, Maryland, Department of the Interior, U.S. Geological Survey, Map GQ-1670, 1989.

R-3 Commonwealth of Virginia, State Water Control Board. Letter of 22 September 1989.

R-4 Fairfax County Office of Research and Statistics. 1988 Fairfax County Profile, Fairfax, Virginia, 1988.

R-5 Fairfax County, Office of Research and Statistics. Demographic Profiles of Selected Communities in Fairfax County, Virginia, March 1989.

R-6 Commonwealth of Virginia, Department of Waste Management. Letter of 25 September 1989.

R-7 Froelich, A.J., and Zenne, Chester. The Relation of Water Quality to Geology and Land Use Changes in Fairfax County and Vicinity, Virginia, Department of the Interior, U.S. Geological Survey, Map I-1561, 1985.

R-8 Hardin-Huber, Inc. Daily Reports of Drilling Operations, 13-19 December 1988 (see Appendix C).

R-9 James R. Roane Construction Company and Subcontractor. Miscellaneous Documentation with Respect to Underground Storage Tank Closure, December 1987 - March 1988 (see Appendix B).

R-10 Petro-Chemical Associates, Inc. Inspections of Underground Storage Tanks at the Defense Mapping Agency Hydrographic/Topographic Center, 8 September 1986 (see Appendix A).

R-11 Substation Text Co. Report on Analyses of Transformer Oil Samples, 2 February 1988 (see Appendix E).

R-12 U.S. Department of Agriculture Soil Conservation Service in Cooperation with Virginia Agricultural Experiment Station and Fairfax County, Virginia. Soil Survey: Fairfax County, Virginia, Series 1955, No. 11, May 1963.

R-13 Law Environmental Services. Final Report, Investigation of Former Nike Missile Sites, Phase I, Contract No. DACA87-85-C-0104, March 1986.

Appendices

APPENDIX A

INSPECTIONS OF UNDERGROUND STORAGE TANKS

(as received)

INSPECTIONS
OF
UNDERGROUND STORAGE TANKS
AT THE
DEFENSE MAPPING AGENCY
HYDROGRAPHIC/TOPOGRAPHIC CENTER
WASHINGTON, DC
ON
JULY 1 THROUGH 15, 1986

PREPARED FOR:

DEFENSE MAPPING AGENCY
HYDROGRAPHIC/TOPOGRAPHIC CENTER
WASHINGTON, DC 20315-0030

PREPARED BY:

PETRO-CHEMICAL ASSOCIATES, INC.
177 ROYAL AVENUE
P.O. BOX 227
HAWTHORNE, NEW JERSEY 07507
TEL. NO. (201) 427-8540

P.C.A. JOB NO. 0934

SEPTEMBER 8, 1986

I. INTRODUCTION

On July 1 through 15, 1986, Petro-Chemical Associates, Inc. personnel conducted inspections on underground storage tanks at the Defense Mapping Agency Hydrographic/Topographic Center in Washington, DC and Great Falls, VA. The purpose of this survey was to determine the integrity, tightness, and conditions of these tank systems, per Order No. DMA800-86-M-2168.

II. TEST PROCEDURES

To perform the inspections, two methods of testing were used, Petro-Tite Precision Tank System Tightness Testing and Ultrasonic Thickness Gauging.

The Petro-Tite Tank System Tightness Test exerts a low hydrostatic pressure on the underground tank system. The product temperature is made to be uniform throughout the tank by circulation. The average temperature changes are measured to an accuracy of approximately 1/300th of a degree farenheit. These measured temperature changes are calculated, based on tank volume, to give the temperature induced volume change, which in turn is used to compensate the actual measured liquid volume change.

The tolerance of the Petro-Tite System is ±.050 gallon per hour. The criteria of ±.050 gallon per hour is a mathematical calculation based on actual liquid volume change and temperature change, and is not intended as permission of a leak.

The Ultrasonic Thickness Inspection of the two tanks in the basement of the Ruth Building was performed using a Nortec Model 129 Digital Ultrasonic Thickness Gauge in conjunction with a dual crystal, 2.25 mhz transducer with SAE 30 weight motor oil as a couplant. A Thorpe Pit Gauge was used to measure the depth of any surface pits.

III. TEST RESULTS AND RECOMMENDATIONS (Cont'd)

C) Abert Hall: 285-Gallon Diesel Fuel

This tank system was Petro-Tite Tested and found to be not tight, with a net change rate of -.581 gallon per hour.

D) Motor Pool Building: 4,000-Gallon Unleaded Gasoline

This tank system was Petro-Tite Tested and found to be tight, with a net change rate of +.047 gallon per hour.

Great Falls, VA

A) Building P00001: 1,000-Gallon No. 2 Fuel Oil

This tank system was Petro-Tite Tested and found to be tight, with a net change rate of -.032 gallon per hour. Prior to testing, a small leak was noted at the boiler fuel pump.

B) Building P00002: 550-Gallon No. 2 Fuel Oil

This tank system was Petro-Tite Tested and found to be tight, with a net change rate of -.023 gallon per hour.

C) Building P00003: 1,000-Gallon No. 2 Fuel Oil

This tank was not tested with the Petro-Tite System due to an excessive amount of water, over 15", at the bottom of the tank, with the remainder of the tank filled with No. 2 Fuel Oil. In order to perform a precision leak test the water or oil must be removed to provide a uniform test media. Additional repairs of the tank fill piping will be required due to degraded conditions.

III. TEST RESULTS AND RECOMMENDATIONS (Cont'd)

D) Building P00004: 1,000-Gallon No. 2 Fuel Oil

This tank system was Petro-Tite Tested and found to be tight, with a net change rate of -.047 gallon per hour.

E) Building P00009: 6,000-Gallon Diesel Fuel

This tank system was Petro-Tite Tested, using water as the test media, and found to be tight with a net change rate of -.034 gallon per hour.

F) Building P00019: 1,000-Gallon Unleaded Gasoline

This tank system was Petro-Tite Tested and found to be tight, with a net change rate of +.021 gallon per hour. The size of this tank was found to be 1,000 gallons rather than the 6,000 gallon as originally thought.

The following tanks were inspected, but not found on the original contract.

A) Warren Building: 5,000-Gallon No. 4 Fuel Oil

This tank contained approximately 14" of No. 4 Fuel Oil and 12" of water. In order to perform a precision leak test on this tank, it must be emptied and cleaned. After cleaning, it must be filled with a uniform testing media (No. 2 Fuel Oil or water). This tank system does not appear to be in service.

B) Erskine Hall: Loading Dock Area

Two (2) 10,000-gallon tanks and one (1) 15,000-gallon tank were visually inspected; all appear to be in service. Visual inspection has shown these tanks and their associated piping to be in extremely poor condition, including corrosion holes and general disrepair. A large amount of product had

III. TEST RESULTS AND RECOMMENDATIONS (Cont'd)

B) [redacted] spilled into the manway areas of all three tanks. These tanks should be emptied and removed from service as soon as possible to prevent further spillage and contamination.

C) Erskine Hall: Rear of Building - 550-Gallon Diesel Fuel
This tank system was Petro-Tite Tested and found to be tight, with a net change rate of -.016 gallon per hour.

D) **Building P00004:** Rear of Building - Size Unknown
The tank is approximately 21 feet west of Tank P00004 Fuel Oil No. 2. Examination of this tank disclosed corrosion separation of the tank fill from the tank. It is recommended that the tank top be exposed, any product removed, the tank cleaned, and then appropriately decommission the tank.

JOHN R. RUECKEL
PETRO-CHEMICAL ASSOCIATES, INC.

JRR:jaz

Tri County Industries

7407 Farmcrest Drive
New Carrollton, MD 20784
(301) 441-8157

INVOICE 548

Invoice Date	Your Order No.	Our Order No.
12/21/87		548

SOLD TO

James R. Roane Construction
4856 Stamp Road
Temple Hills, MD 20748

SHIPPED TO: (if other than SOLD TO)

Defense Mapping Agency

Date Shipped	Salesman	Terms	Shipped Via	F.O.B.
12/87		15 Days	T.C.I.	

Date	Truck#	Ticket#	Location	Hrs.	Unit Price	Amount
12/14/87	Bethesda:		Truck Time - 5 + 1 (travel)	6.0		
		1200	Gal. water/sludge disposal			
		550	Gal. good product **CREDIT**			
12/15/87	HERNDON:		Truck Time - 6 + 1 (travel)	7.0		
		2600	Gal. water/sludge disposal			
		700	Gal. good product **CREDIT**			
12/16/87	Herndon:		Truck Time - Minimum 4 Hrs.	4.0		
		1300	Gal. water/sludge disposal			

White - Customer Copy BILLING COPY • Yellow - Billing Copy A/R COPY • Pink - File Copy

Collection Receipt
Used Oil

No 14380

Date 12/10/87

To: James R. Rodaine

Street 4856 Stamp Rd.

City Temple Hills State MD. Zip 20748

Telephone # (301) 423-9205

From: Eastern Oil Company
5501 Courtney Avenue
Alexandria, VA 22304
703-370-8205

Agreement Type N

Quantity/Gals. 180

Payment

Cash		
Check		
P.O. #		

Comments: Used oil

Generator [illegible]

EPA #

Transporter [illegible]

EPA # VAD 980537302

APPENDIX B

CONTRACTOR INFORMATION ASSOCIATED WITH UNDERGROUND STORAGE TANK CLOSURE

(as received)

James R. Roane Construction Company, Inc.

Serving DC/MD/VA

4856 Stamp Road, Temple Hill, Md. 20748
Telephone: (301) 423-9205

March 25, 1988

Mr. Reni Singletary
Defense Mapping Agency
Hydrographic/Topographic Center
Acquisition Directorate
ATTN: AQF, Washington, DC 20315-0030

RE: Contract No. DMA300-87-C0067

Dear Mr. Singletary:

Under the general requirements the Contractor shall furnish the following information:

3.1 Tank Size - (2) 10,000 gallon fuel tanks
(1) 15,000 gallon " "
(1) 550 gallon " "
(1) 6,000 gallon " "
(2) 1,000 gallon " "

3.2 Location of tank on the property - (2) 10,000 gallon
(1) 15,000 gallon
These tanks are located at Erskine Hall at the SE corner of the Administration and Operations Building.

(1) 6,000 gallon tank is in the NE corner of the project site.
(1) 550 gallon, (1) 6,000 gallon, and (2) 1,000 gallon are west of the electronic facility approximately 20-30 feet apart along the same line. (see attachment)

3.3 Date of abandonment -

12/15/87 Pumped oil at Erskine Hall
12/16/87 Pumped oil at Herndon and cleaned tanks at Herndon and Erskine Hall
12/17/87 Filled tanks at Erskine Hall with slurry cement
12/21/87 Filled tanks with slurry cement at Herndon

3.4 Methods Used - First capped the vent pipes. Pumped and cleaned the tanks then filled them with slurry cement.

3.5 Contractors Used - James R. Roane Construction Co.
Tri-County Industries - subcontractor
Eastern Oil Company a recycling company - subcontractor
Opportunity Concrete - subcontractor
Falcon Materials - subcontractor

Please call me at 423-9208 if you have any further questions.

Thank you for this opportunity to serve your agency.

Sincerely yours,

Cheryl Phillips
Project Manager

enclosure

JAMES R. ROANE CONSTRUCTION COMPANY, INC.

DAILY CONSTRUCTION QUALITY CONTROL REPORT

Date 12-14-87 Report No. 5

Contract No. DMA800-87-C-0067

Description and location of work: HERNDON, VA + ERSKINE HALL ABANDON FUEL OIL TANKS

WEATHER: (Clear) (P. Cloudy) (Cloudy); Temp: 39 Min, ~~45~~ Max:

Rainfall ____ in.

Contractor/Subcontractors and Area of Responsibility

a. Prime Contractor - cutting, capping and pumping of tanks

b.

c.

d.

e.

1. Classification and number of work force:
   a. Supervisory: RONNIE ROWES
   b. Operators:
   c. Truck Drivers:
   d. Laborers: (DEMOLITION) DENNIS GALLAGER

2. Equipment used on Project:

a. SERVICE TRUCK	Working	✓	Down	
b. HAND TOOLS	Working	✓	Down	
c. OIL TRUCK	Working	✓	Down	
d.	Working		Down	
e.	Working		Down	
f.	Working		Down	

3. Remarks on down equipment. Refer to equipment by letter table above.

NONE

4. Work Performed Today: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in table above.)

AT HERNDON SITE
Prime dug down to (2) tanks one by building #9 + one by Bldg #5. Cut lines and cut excess hole in tanks to pump out

5. Results of Surveillance: (Includesatisfactory work completed, or deficiencies with action to be taken.)

NONE

6. Tests Required by Plans and/or Specifications Performed and Results of Tests:

NONE

7. Safety Deficiencies Noted and Action Taken:

NONE

8. Verbal Instruction Received. (List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

NONE

9. Remarks: (Cover any conflicts in plans, specifications, or instructions.)

NONE

Cheryl Phillips
Inspector

CONTRACTOR'S VERIFICATION: The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Cheryl Phillips
Contractor's Approved Authorized Respresentative

JAMES R. ROAN CONSTRUCTION COMPANY, INC.

DAILY CONSTRUCTION QUALITY CONTROL REPORT

Date 12-15-87 Report No. 6

Contract No. DMA800-87-C-0067

Description and location of work: FERGUSON + HARRISON ABANDON FUEL TANKS

WEATHER: (Clear) (P. Cloudy) (Cloudy); Temp: 30 Min, 40 Max:

Rainfall 3 in

Contractor/Subcontractors and Area of Responsibility

a. PRIME CONTRACTOR - ABANDON FUEL OIL TANKS AND CAPPOFF PIPES

b.

c.

d.

e.

1. Classification and number of work force:
   a. Supervisory: CONNIE FOWLES
   b. Operators:
   c. Truck Drivers:
   d. Laborers: (DEMOLITION) BRENNER, TORLEY

2. Equipment used on Project:

a.	DIL TRUCK	Working ✓	Down	
b.	SHOVEL ETC.	Working ✓	Down	
c.	SERVICE TRUCK	Working ✓	Down	
d.		Working	Down	
e.		Working	Down	
f.		Working	Down	

3. Remarks on down equipment. Refer to equipment by letter table above.

NONE

4. Work Performed Today: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in table above.)

FERGUSON CLEANED TANKS ; HARRISON PUMPED 2½ TANKS & COVERED THE HOLES WITH PLYWOOD AND BARRICADED

5. Results of Surveillance: (Includesatisfactory work completed, or deficiencies with action to be taken.)

NONE

6. Tests Required by Plans and/or Specifications Performed and Results of Tests:

7. Safety Deficiencies Noted and Action Taken:

8. Verbal Instruction Received. (List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

CONTRACTOR should put ORANGE TAPE around the hole dug AT HERNDON VA site.

9. Remarks: (Cover any conflicts in plans, specifications, or instructions.)

Cheryl L. Phillips
Inspector

CONTRACTOR'S VERIFICATION: The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Cheryl L. Phillips
Contractor's Approved Authorized Respresentative

JAMES R. ROAN CONSTRUCTION COMPANY, INC.

DAILY CONSTRUCTION QUALITY CONTROL REPORT

Date 12/16/87 Report No. 6

Contract No. DNA800-87-C-0067

Description and location of work: HERNDON VA ABANDON FUEL TANKS

WEATHER: (Clear) (P. Cloudy) (Cloudy); Temp: 30 Min, 38 Max:

Rainfall 0 in.

Contractor/Subcontractors and Area of Responsibility

a. Prime Contractor - Abandon fuel oil tanks and capp off pipes

b.

c.

d.

e.

1. Classification and number of work force:
   a. Supervisory:
   b. Operators:
   c. Truck Drivers:
   d. Laborers: Brenard Marshall, Norman McCall

2. Equipment used on Project:

a.	Oil truck	Working ✓	Down	
b.	Submersible pump	Working ✓	Down	
c.		Working	Down	
d.		Working	Down	
e.		Working	Down	
f.		Working	Down	

3. Remarks on down equipment. Refer to equipment by letter table above.

None

4. Work Performed Today: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in table above.)

Pumped water out of the 5,000 gal tank ; 250 gallon of oil and 300 gallons of water and oil. Capped 5 - 1" pipes and 2 - 1½" pipes

5. Results of Surveillance: (Includesatisfactory work completed, or deficiencies with action to be taken.)

NONE

6. **Tests Required by Plans and/or Specifications Performed and Results of Tests:**

NONE

7. Safety Deficiencies Noted and Action Taken:

NONE

8. Verbal Instruction Received. (List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

NONE

9. Remarks: (Cover any conflicts in plans, specifications, or instructions.)

NONE

Cheryl L. Phillips
Inspector

CONTRACTOR'S VERIFICATION: The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Cheryl L. Phillips
Contractor's Approved Authorized Respresentative

JAMES R. ROANE CONSTRUCTION COMPANY, INC.

DAILY CONSTRUCTION QUALITY CONTROL REPORT

Date 12/21/87 Report No. 10

Contract No. DMA ECC-87-C-CC607

Description and location of work: Harrison + Receive Hall Abandon Fuel Tanks

WEATHER: (Clear) (P. Cloudy) (Cloudy); Temp: 30 Min, 50 Max:

Rainfall 0 in.

Contractor/Subcontractors and Area of Responsibility

a. Prime Contractor - Abandon Fuel Tanks

b.

c.

d.

e.

1. Classification and number of work force:
   a. Supervisory: Ronnie Poles
   b. Operators:
   c. Truck Drivers:
   d. Laborers: (Demolition) Broderick Marshall + Norman McCall

2. Equipment used on Project:

a.	2 shovels	Working ✓	Down	
b.	1 service truck	Working ✓	Down	
c.		Working	Down	
d.		Working	Down	
e.		Working	Down	
f.		Working	Down	

3. Remarks on down equipment. Refer to equipment by letter table above.

None

4. Work Performed Today: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in table above.)

Filled the tanks at Harrison with 41 yards of slurry cement.

5. Results of Surveillance: (Includesatisfactory work completed, or deficiencies with action to be taken.)

Ground needs alittle landscape work,

6. **Tests Required by Plans and/or Specifications Performed and Results of Tests:**

NONE

7. **Safety Deficiencies Noted and Action Taken:**

NONE

8. **Verbal Instruction Received. (List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)**

NONE

9. Remarks: (Cover any conflicts in plans, specifications, or instructions.)

NONE

Cheryl L. Phillips
Inspector

CONTRACTOR'S VERIFICATION: The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Cheryl L. Phillips
Contractor's Approved Authorized Respresentative

JAMES R. ROAN CONSTRUCTION COMPANY, INC.

DAILY CONSTRUCTION QUALITY CONTROL REPORT

LAST DAY

Date 12/22/87 Report No. 11

Contract No. DMAECO-87-C-0067

Description and location of work: HERNDON VA. ABANDON Fuel Oil TANKS

WEATHER: (Clear) (P. Cloudy) (Cloudy); Temp: 30 Min, 40 Max:

Rainfall 0 in.

Contractor/Subcontractors and Area of Responsibility

a. Prime Contractor - ABANDON Fuel Oil TANKS

b.

c.

d.

e.

1. Classification and number of work force:
   a. Supervisory: Ronnie Fones
   b. Operators: Richard Marshall, Norman McCall
   c. Truck Drivers:
   d. Laborers: Demolition

2. Equipment used on Project:

a.	Service Truck	Working	✓	Down
b.	Hand Tools	Working	✓	Down
c.		Working		Down
d.		Working		Down
e.		Working		Down
f.		Working		Down

3. Remarks on down equipment. Refer to equipment by letter table above.

NONE DOWN

4. Work Performed Today: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in table above.)

At HERNDON, VA. SITE BACKFILLED THE holes AND completed THE landscaping work AROUND THE

5. Results of Surveillance: (Includesatisfactory work completed, or deficiencies with action to be taken.)

NONE

6. [illegible] Required by Plans and/or Specifications Performed and Results of Tests:

NONE

7. Safety Deficiencies Noted and Action Taken:

NONE

8. Verbal Instruction Received. (List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

NONE

9. Remarks: (Cover any conflicts in plans, specifications, or instructions.)

NONE

Cheryl L. Phillips
Inspector

CONTRACTOR'S VERIFICATION: The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Cheryl L. Phillips
Contractor's Approved Authorized Respresentative

James R. Roane Construction Company, Inc.

Serving DC/MD/VA

4856 Stamp Road, Temple Hill, Md. 20748
Telephone: (301) 423-9205

December 14, 1987

Mr. Reni Singletary
Defense Mapping Agency
Hydrographic/Topographic Center
Acquisition Directorate
ATTN: AQF, Washington, DC 20315-0030

Re: Contract No. DMA800-87-C0067

Dear Mr. Singletary:

Because we have been experiencing difficulties with our present waste oil subcontractor, Clean America, we have decided to change to another subcontractor. The new subcontractor will be:

Tri-County Industries
7407 Farm Crest Dr.
New Carrollton, MD 20748
Contact Person: Glen Selzer (301) 937-8611

EPA# MDD981104151
Disposal site: Bumgander Waste Oil Co.
Fayettville, PA

Own their trucks.

The subcontract's name who was at the Erskine Hall site on 12/10/87 was:

Eastern Oil Company
5501 Courtney Avenue
Alexandria, VA 22304
Contact Person: Val Milstein (703) 370-8205

EPA# VAD980537302
Own their trucks.
Pumped 180 gal.

JOHN M. ROBERTS
Contract Specialist
12/16/87

Please note this change.

Sincerely,

Cheryl Phillips
Project Engineer

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE
(Read instructions on the reverse side prior to initiating this form)

DATE: 12/14/87

☑ NEW SUBMITTAL ☐ RESUBMITTAL

Section I — REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS (This section will be initiated by the contractor)

TO: John Roberts
Defense Mapping Agency
Hydrographic/Topographic Center
Acquistion Directorate

FROM: James R. Roane Constr.
4856 Stamp Rd.
Temple Hills, MD 20748

CONTRACT NO.: DMA800-87-C0067

TRANSMITTAL NO.: 2

PREVIOUS TRANS. NO. (If any):

SPECIFICATION SEC. NO. (Cover only one section with each transmittal): 0-01070

PROJECT TITLE AND LOCATION: Abandon Fuel oil at Eskine Hall

a. ITEM NO.	b. DESCRIPTION OF ITEM SUBMITTED (Type, size, model number, etc.)	c. MFG. OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. (See instruction No. 8)	d. NO OF COPIES	CONTRACT REFERENCE DOCUMENT e. SPEC. PARA. NO.	CONTRACT REFERENCE DOCUMENT f. DRAWING SHEET NO.	g. VARIATION (See instruction No. 6)	h. FOR C E USE CODE
5.	SLURRY CEMENT		1	01070			A
	CONCRETE 3000psi		1	01070			

REMARKS

I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.

Cheryl R. Phillips
NAME AND SIGNATURE OF CONTRACTOR

Section II — APPROVAL ACTION

INCLOSURES RETURNED (List by Item No.)

NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY: G. O. Tarn C/FEDD

DATE: 12/16/87

ENG FORM 4025, Jul 81 (ER 415-1-10) EDITION OF 1 JAN 79 IS OBSOLETE. (Proponent: DAEN-MPC) SHEET ___ OF ___

OPPORTUNITY CONCRETE

A MINORITY ENTERPRISE

202-269-3300

P.O. Box 70579, Washington, D.C. 20024
1 Potomac Avenue, S.E., Washington, D.C. 20003

202-554-3963

December 10, 1987

James R. Roane Construction Co., Inc.
4356 Stump Road
Temple Hill, MD 20748

Re: Defense Mapping
Fuel Oil Tank Repairs

Gentlemen,

We submit for approval the following slurry mix and 3000 PSI w/air mix.

Mix Class	2 bag fill	3 bag fill	3000PSI
Sand - Local Concrete Sand	3000 lbs	2906 lbs	1200lbs
Coarse Aggregate - Local Wash Gravel	----	----	1850lbs
Cement - ASTM C-150	188 lbs	282 lbs	564lbs
Water - Potable City Tap	60 gal	60 gal	32gal
Air Entrainment - Daravair	----	----	4oz=
Slump	5"	5"	4"=

Please review GMTI Report number 87-L-2037 TM014 for Compressive Strength results on the 3000 PSI mix. There are no reports on the 2 bag or 3 bag fill mix. These mixes are not intended for use as structural concrete. Two (2) bag and Three (3) bag fill is only usefull as a flowable backfill material.

If you have any questions please call.

Respectfully,

Monte E. Newman
President

Geotechnical & Material Testing, Inc.

- Geotechnical Engineering
- Construction Quality Control
- Construction Material Testing
- Pavement Design & Recycling

LABORATORY TRIAL BATCH OF MIX

GMTI PROJECT NO: 87-L-2037 TM009 thru TM015 November 6, 1987

CLIENT: Opportunity Concrete Company
No. 1 Potomac Avenue, SE
Washington, DC 20011

MADE FOR: General Use

SOURCE OF MATERIALS

NEWCEM CEMENT	:	Atlantic TM009-TM012 Capital Type I/II
FINE AGGREGATE	:	7 Star Aggregate
COARSE AGGREGATE	:	Southern Md
MAXIMUM SIZE OF COARSE AGGREGATE	:	#67 Gravel
ADMIXTURE	:	W.R. Grace and Company Incorporated
DATE SAMPLED	:	October 9, 1987

[1]

703—631-2050
13944 B Willard Road • Chantilly, Virginia 22021

QUANTITIES FOR 1 CUBIC YARD - DRY WEIGHTS, S.S.D.

COMPONENT	TM009
NEWCEM	188
CEMENT POUNDS	188
SAND POUNDS	1345
STONE POUNDS	1850
WATER POUNDS	275
ADMIXTURE	WRDA w/Hycol 3 oz/100 lbs cement Daravair .4 oz/100 lbs cement
SLUMP INCHES	4
AIR CONTENT [%]	3.9
UNIT WEIGHT [P.C.F.]	142.0
TEMP. F AIR/CONCRETE	75/63
COMPRESSIVE STRENGTH [PSI]	
AT 7 DAYS	1590 1730 1590
AVERAGE	1640
AT 28 DAYS	3420 3470 3680
AVERAGE	3520

QUANTITIES FOR 1 CUBIC YARD - DRY WEIGHTS, S.S.D.

COMPONENT		TM010
NEWCEM	:	235
CEMENT POUNDS	:	235
SAND POUNDS	:	1265
STONE POUNDS	:	1850
WATER POUNDS	:	275
ADMIXTURE	:	WRDA w/Hycol 3 oz/100 lbs cement Daravair .4 oz/100 lbs cement
SLUMP INCHES	:	4
AIR CONTENT [%]	:	4.5
UNIT WEIGHT [P.C.F.]	:	142.0
TEMP. F AIR/CONCRETE	:	75/61
COMPRESSIVE STRENGTH [PSI]		
AT 7 DAYS	:	2420 2480 2280 ----
AVERAGE	:	2390 ----
AT 28 DAYS	:	4450 4530 4720 ----
AVERAGE	:	4570 ----

QUANTITIES FOR 1 CUBIC YARD - DRY WEIGHTS, S.S.D.

COMPONENT		TM011
NEWCEM	:	284
CEMENT POUNDS	:	284
SAND POUNDS	:	1190
STONE POUNDS	:	1850
WATER POUNDS	:	275
ADMIXTURE	:	WRDA w/Hycol 3 oz/100 lbs cement Daravair 45 oz/100 lbs cement
SLUMP INCHES	:	4
AIR CONTENT [%]	:	4.0
UNIT WEIGHT [P.C.F.]	:	142.4
TEMP. F AIR/CONCRETE	:	75/69
COMPRESSIVE STRENGTH [PSI]		
AT 7 DAYS	:	2990 2910 3060
AVERAGE	:	2990
AT 28 DAYS	:	5170 5230 5190
AVERAGE	:	5200

QUANTITIES FOR 1 CUBIC YARD - DRY WEIGHTS, S.S.D.

COMPONENT		TM012
NEWCEM	:	329
CEMENT POUNDS	:	329
SAND POUNDS	:	1100
STONE POUNDS	:	1850
WATER POUNDS	:	278
ADMIXTURE	:	WRDA w/Hycol 3 oz/100 lbs cement Daravair .4 oz/100 lbs cement
SLUMP INCHES	:	4.50
AIR CONTENT [%]	:	4.3
UNIT WEIGHT [P.C.F.]	:	143.0
TEMP. F AIR/CONCRETE	:	75/67
COMPRESSIVE STRENGTH [PSI]		
AT 7 DAYS	:	3590 3610 3520
AVERAGE	:	3570
AT 28 DAYS	:	6200 6320 6130
AVERAGE	:	6220

QUANTITIES FOR 1 CUBIC YARD = DRY WEIGHTS, S.S.D.

COMPONENT		TRIAL BATCH NO. TM013
CEMENT (lbs)	:	470
SAND (lbs)	:	1285
STONE (lbs)	:	1850
WATER (lbs)	:	270
ADMIXTURE	:	WRDA w/Hycol 3 oz/100 lbs cement Daravair .3 oz/100 lbs cement
SLUMP (in.)	:	3.75
AIR CONTENT [%]	:	4.5
UNIT WEIGHT [pcf]	:	142.4
TEMP. F (AIR/CONCRETE)	:	75/68

COMPRESSIVE STRENGTH [psi]

AT 7 DAYS	:	3200 3050 3090
AVERAGE	:	3110
AT 28 DAYS	:	4440 4200 4270
AVERAGE	:	4300

QUANTITIES FOR 1 CUBIC YARD - DRY WEIGHTS, S.S.D.

COMPONENT		TRIAL BATCH NO. TM014
CEMENT (lbs)	:	564
SAND (lbs)	:	1200
STONE (lbs)	:	1850
WATER (lbs)	:	270
ADMIXTURE	:	WRDA w/Hycol 3 oz/100 lbs cement Daravair .3 oz/100 lbs cement
SLUMP (in.)	:	4.50
AIR CONTENT [%]	:	4.5
UNIT WEIGHT [pcf]	:	143.0
TEMP. F (AIR/CONCRETE)	:	75/68

COMPRESSIVE STRENGTH [psi]

AT 7 DAYS	:	3600 3480 3390
AVERAGE	:	3490
AT 28 DAYS	:	4470 4630 4800
AVERAGE	:	4630

QUANTITIES FOR 1 CUBIC YARD - DRY WEIGHTS, S.S.D.

COMPONENT		TRIAL BATCH NO. TM015
CEMENT (lbs)	:	658
SAND (lbs)	:	1140
STONE (lbs)	:	1850
WATER (lbs)	:	270
ADMIXTURE	:	WRDA w/Hycol 3 oz/ 100 lbs cement Daravair .35 oz/100 lbs cement
SLUMP (in.)	:	4
AIR CONTENT [%]	:	4.5
UNIT WEIGHT [pcf]	:	143.8
TEMP. F (AIR/CONCRETE)	:	75/68

COMPRESSIVE STRENGTH [psi]

AT 7 DAYS	:	4230 4120 4240
AVERAGE	:	4200
AT 28 DAYS	:	5360 5480 5340
AVERAGE	:	5390

Thank you for your confidence in our services. Please feel free to contact us if you have any questions regarding the contents of this report.

Respectfully submitted,

G.M.T., Incorporated

Eugene M. Davis
Laboratory Supervisor

Ahmed [illegible], P.E.
Chief Engineer

/dd

APPENDIX C

DRILLING REPORTS FOR MONITOR WELLS

(as received)

HARDIN-HUBER, INC. 755

DAILY REPORT

Report No. 1 of 5 Job No. 88-933 Date 12-14-88 By: Dave Keenan

Project Name: Defense Mapping Agency Client HTC / DMA

PRODUCTION

BORING #	DRILLING DEPTH	TOTAL SOIL	TOTAL ROCK	NUMBER SPOONS	NUMBER TUBES	WELL DEPTH	RIG NO: 20
MW-9	35 ft	30 ft		8		30 ft	STARTING TIME 6:30
MW-10	30 ft	26 ft		7		26 ft	FINISHING TIME 6:30
							LUNCH FROM 12:00
							LUNCH TO 12:30
							TRAVEL HRS. 2 1/2 hrs
TOTAL	65 ft	56 ft		15 ft		56 ft	ON SITE HRS. 7 1/2 hrs

NOTES. Arrived at Shop 6:30 loaded + fueled
8:15 Arrived at site at Erskin Hall + picked up cement
8:45 Arrived at Herndon site filled H_2O tank
9:15 Set up on MW-9 and sampled down to 20 ft
h.t water drilled to 35 ft + pulled augers
caved at 30
10:30 Installed 4" well at 30 ft sand packed
to 15 ft w/ 2 ft of pellets.
11:00 - Grouted to surface
11:30 - Moved augers to Decon
12:00 - 12:30 Lunch
12:30 - 1:15 Decon'd
1:30 - Set up on MW-10 and sampled to 15 ft
h.t water overdrilled to 30 ft
2:00 - Pulled augers with cave to 26 ft
2:15 - Insert 4" well and sand packed to 14 ft
w/ 2 ft of pellets
3:30 - 3:30 Grouted well to surface Moved rig and
augers to decon 4:30 left site 5:30 Arrived at Shop
6:30 Knocked off / Supplies on back →

DRILLERS SIGNATURE David E. Keenan CLIENTS ACKNOWLEDGEMENT

NAME	LEVEL D	LEVEL C	MODIFIED LEVEL C	OTHER	TOTAL
Dave Keenan	11.5 hrs	V.			
Henry Carter	11.5 hrs				

HARDIN-HUBER, INC. 955

DAILY REPORT

Report No. 1 of 5 Job No. 55-930 Date 12-12-88 By: Dave Keenan

Project Name: Defense Mapping Agency Client HTC/DMA

PRODUCTION

BORING #	DRILLING DEPTH	TOTAL SOIL	TOTAL ROCK	NUMBER SPOONS	NUMBER TUBES	WELL DEPTH	RIG NO: 26
MW-11	30 ft	27 ft		6		27 ft	STARTING TIME 6:30
MW-12	25 ft	20 ft		6		20 ft	FINISHING TIME 4:00
							LUNCH FROM 12:00
							LUNCH TO 12:30
							TRAVEL HRS. 3 hrs
TOTAL	55 ft	47 ft		12		47 ft	ON SITE HRS 8½ hrs.

NOTES: Arrived at shop at 6:30 fueled + loaded
8:30 Arrived at site
9:33 - 9:00 Decon'd augers + rig
9:15 - Set up on MW-11 and augered down to 11 ft and hit H_2O
16:00 Bill came by and informed us there was another well back at Eskin Hall / we informed Shop.
10:30 Set well at 27 ft w/ 15 ft of sand pack w/ 2 ft of pellets
11:00 - 11:45 Grouted well moved augers to decon
12:00 - 12:30 Lunch
12:30 Set up on MW-12 sample down to 10 ft and hit water so over drilled to 25 ft
1:30 Pulled augers w/ cave to 20 ft and installed 4' well and sand packed
2:00 - 3:00 Grouted well to surface
3:00 - 4:00 Decon rig + Augers
4:00 - 4:45 Set rig on MW 12 left site 5:15 at shop
Knocked off 6:00 Materials on back

DRILLERS SIGNATURE David A Keenan CLIENT'S ACKNOWLEDGEMENT

NAME	LEVEL D	/LEVEL C	MODIFIED LEVEL C	OTHER	TOTAL
Dave Keenan	11 hrs	11			
Henry Carter	11 hrs	1			

HARDIN-HUBER, INC.

DAILY REPORT

Report No. 1 of 5 Job No. 95-930 Date 12-11-95 By: Dave Keenan

Project Name: Defense Mapping Agency Client HTC / DMA

PRODUCTION

BORING #	DRILLING DEPTH	TOTAL SOIL	TOTAL ROCK	NUMBER SPOONS	NUMBER TUBES	WELL DEPTH	RIG NO: 2C
MW-13	35 Ft	30 Ft		7		30 Ft	STARTING TIME 6:00
							FINISHING TIME 5:00
							LUNCH FROM 11:30
							LUNCH TO 12:00
							TRAVEL HRS. 2 hrs
TOTAL	35 Ft	30 Ft		7		30 Ft	ON SITE HRS. 10 hrs.

NOTES: Arrived at Shop at 6:00 Fueled + loaded
8:30 on site Drilled down on MW-13 hit H₂O at 12-17 over drilled to 35 Ft
9:00 Drilled augers w/ a cave at 30 Ft
9:30 Set 30 Ft of 4" PVC and sand packed to 18 Ft 1 1/2 Ft of pellets
10:45 Grouted well to surface
11:30 Installed cover
11:30 - 12:00 Lunch
12:00 - 4:00 Installed flush mount 12" covers w/ Metal locking cap assemblies on all wells and topped off grout
4:15 - 5:45 Consolidated cuttings at designated area packed up supplies
5:45 Making way back to Enslen Hall Arr. 6:30 p.m.
Left rig on site
6:30 Left site
7:30 Arrived home
9:00 Knocked off * Materials on truck

DRILLERS SIGNATURE David A Keenan CLIENTS ACKNOWLEDGEMENT

NAME	LEVEL D	LEVEL C	MODIFIED LEVEL C	OTHER	TOTAL
Dave Keenan	13.5				
Anthony Carter	13.5				
Henry Seals	13.5				

HARDIN-HUBER, INC.

DAILY REPORT

Report No. 1 of 5 Job No. 88-933 Date 12/19/08 By: Dave Keenan

Project Name: Defense Mapping Agency Client DMA/HTC

PRODUCTION

BORING #	DRILLING DEPTH	TOTAL SOIL	TOTAL ROCK	NUMBER SPOONS	NUMBER TUBES	WELL DEPTH	RIG NO: 21
MW-14	35 ft	30 ft		7		30 ft	STARTING TIME 6:00
							FINISHING TIME 7:00
							LUNCH FROM 15:00
							LUNCH TO 12:30
							TRAVEL HRS. 2 1/2 hr
TOTAL	35 ft	30 ft		7		30 ft	ON SITE HRS. 8 hrs

NOTES: Arrived at shop at 6:00 loaded + fueled
Arrived at Herndon 8:15 dropped off keys for wells
9:00 Arrived at Erskin Hall call 13.11 M. talked to Mr. Robinson.
10:30 Jackhammered hole
11:30 Set up rig on MW-14
12:00 - 12:30 Lunch
12:30 - 2:00 Drilled + Sampled to 35 ft
2:15 Installed 4' well at 30 ft W/ sand pack to 18 ft
3:00 - 3:30 Grouted
3:30 - 4:30 Installed mon hole cement W/ cuttings and cleaned up pad
5:15 left site
6:30 Arrived at shop
7:00 Knocked off

DRILLERS SIGNATURE: David J Keenan

CLIENT'S ACKNOWLEDGEMENT

NAME	LEVEL D	LEVEL C	MODIFIED LEVEL C	OTHER	TOTAL
Dave Keenan	12.5				
Anthony Carter	12.5				
Mike Conran	12.5				

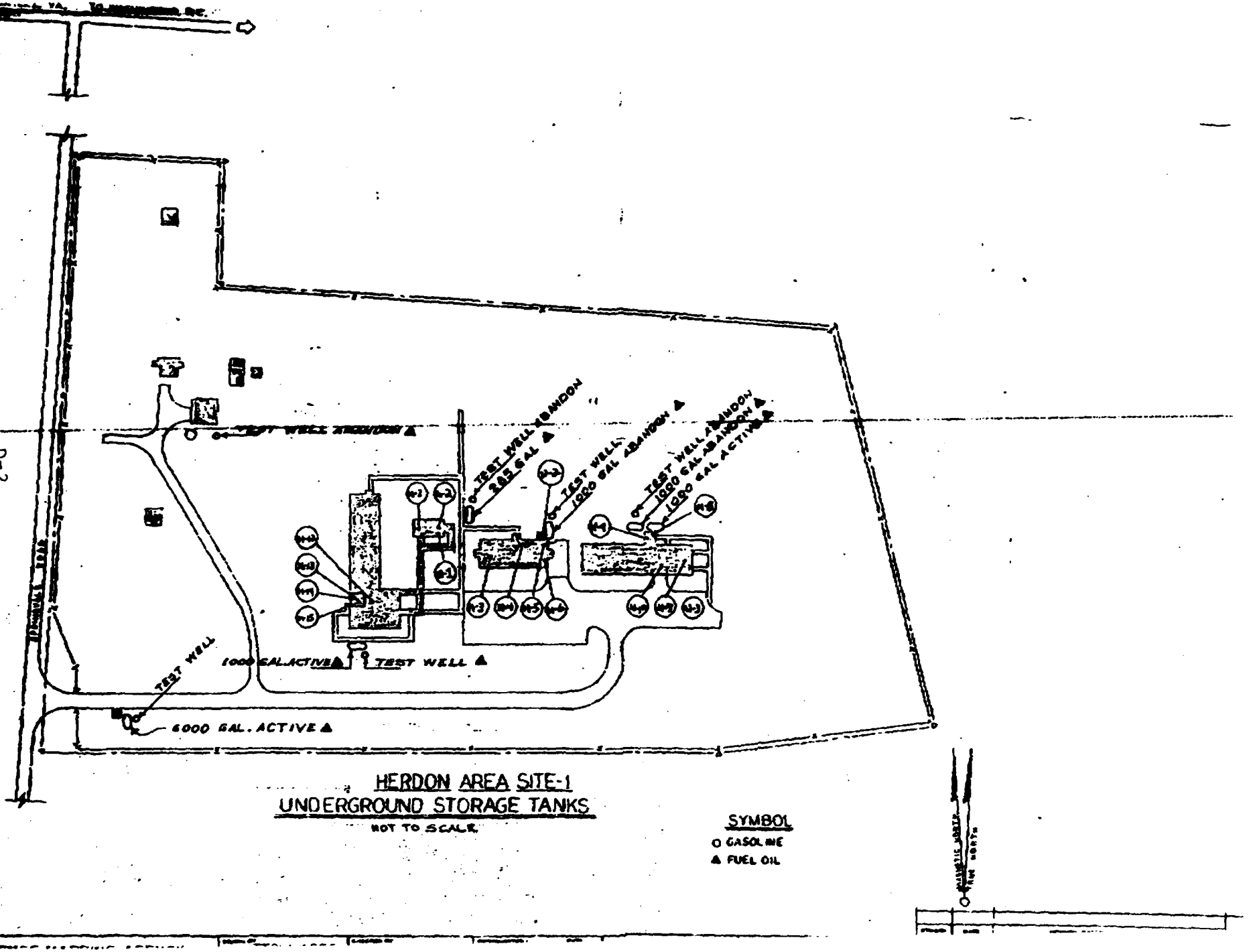
APPENDIX D

RESULTS OF ASBESTOS ANALYSIS
BIOSPHERICS, INC.

(as received)

SAMPLE NUMBER	LOCATION
H-1	MENS RESTROOM, PIPE ELBOW BY SINK
H-2	LADIES RESTROOM, PIPE COVERING, 3", 12'
H-3	FLOOR TILE, BLDG #3 NOTE: FLOOR TILE IN BLDG 1, 2, 3 & 4 SUSPECT ACM (SAMPLE H-3)
H-4	CEILING TRANSITE
H-5	PIPE JOINT (CAGE AREA), 1", 7 ELBOWS, 45 LF
H-6	PIPE COVERING, (CAGE AREA)
H-7	PIPE INSULATION, EAST END BLDG #4
H-8	BOILER STACK LAGGING, BLDG #4
H-9	BOILER ROOM PIPE JOINTS, BLDG #4
H-10	MENS ROOM PIPE COVERING
H-11	MOLDED JOINTS ON PIPES BETWEEN BLDGS 1 & 2
H-12	PIPE COVERING BREAK ROOM
H-13	BOILER ROOM, BLDG #1, STACK INSUL
H-14	BOILER ROOM, BLDG #1, 2" ELBOW
H-15	BOILER ROOM, BLDG #2, 3/4" PIPE COVER
N-1 (X)	TRANSITE, CEILING (120 SF), WALLS (400 SF)
N-2 (X)	TRANSITE
N-3 (X)	BOX OF ASBESTOS ROPE, 200 FT BLDG #4 BOILER ROOM

(X) = NO SAMPLE TAKEN



HERDON AREA SITE-1
UNDERGROUND STORAGE TANKS
NOT TO SCALE

SYMBOL
○ GASOLINE
▲ FUEL OIL

Received: 05/22/89

BIOSPHERICS INC REPORT Work Order # 89-05-317
Results by Sample

SAMPLE ID SAMPLE# H-1 FRACTION 01A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT
% Chrysotile	15-20%
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	1-2%
FIBROUS GLASS	20-25%
NANF	50-55%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

D-3

SAMPLE ID SAMPLE# H-2 FRACTION 02A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	80-85%
SYNTHETIC FIBER	1-2%
NANF	10-15%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

Page 2 BIOSPHERICS INC REPORT Work Order # 89-05-317
Received: 05/22/89 Results by Sample

SAMPLE ID SAMPLE# H-3 FRACTION 03A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT	NON-ASBESTOS	RESULT
% Chrysotile	2-5%	CELLULOSE FIBER	TRACE
% Amosite		NANF	90-95%
% Crocidolite			
% Tremolite			

Definitions of Reporting Terms.
NAD = No Asbestos Detected. + = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

D-4

SAMPLE ID SAMPLE# H-4 FRACTION 04A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT	NON-ASBESTOS	RESULT
% Chrysotile	5-10%	CELLULOSE FIBER	TRACE
% Amosite		NANF	85-90%
% Crocidolite			
% Tremolite			

Definitions of Reporting Terms.
NAD = No Asbestos Detected. + = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted: less than 1%
Sample Information:

Received: 05/22/89

BIOSPHERICS INC REPORT Work Order # 89-05-317
Results by Sample

SAMPLE ID SAMPLE# H-5 FRACTION 05A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT
% Chrysotile	20-25%
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	35-40%
SYNTHETIC FIBER	TRACE
NANF	30-35%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

SAMPLE ID SAMPLE# H-6 FRACTION 06A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT *
% Chrysotile	5-10%
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	75-80%
NANF	5-10%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

SAMPLE ID SAMPLE# H-7 FRACTION 07A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT	NON-ASBESTOS	RESULT
% Chrysotile	20-25%	CELLULOSE FIBER	50-55%
% Amosite		NANF	15-20%
% Crocidolite			
% Tremolite			

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

SAMPLE ID SAMPLE# H-8 FRACTION 08A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT	NON-ASBESTOS	RESULT
% Chrysotile	50-55%	CELLULOSE FIBER	1-2%
% Amosite		NANF	40-45%
% Crocidolite			
% Tremolite			

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

SAMPLE ID SAMPLE# H-9 FRACTION 09A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT
% Chrysotile	15-20%
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	1-2%
FIBROUS GLASS	20-25%
NANF	50-55%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

SAMPLE ID SAMPLE# H-10 FRACTION 10A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT
% Chrysotile	5-10%
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	1-2%
FIBROUS GLASS	25-30%
NANF	55-60%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

BIOSPHERICS INC REPORT
Results by Sample

Work Order # 89-05-317

SAMPLE ID SAMPLE# H-11 FRACTION 11A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	TRACE
FIBROUS GLASS	5-10%
NANF	85-90%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

D-8

SAMPLE ID SAMPLE# H-12 FRACTION 12A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT
% Chrysotile	15-20%
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	55-60%
SYNTHETIC FIBER	TRACE
NANF	15-20%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

BIOSPHERICS INC REPORT Work Order # 89-05-317
Received: 05/22/89 Results by Sample

SAMPLE ID SAMPLE# H-13 FRACTION 13A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT	NON-ASBESTOS	RESULT
% Chrysotile	55-60%	CELLULOSE FIBER	TRACE
% Amosite		NANF	35-40%
% Crocidolite			
% Tremolite			

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

SAMPLE ID SAMPLE# H-14 FRACTION 14A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT	NON-ASBESTOS	RESULT
% Chrysotile	15-20%	CELLULOSE FIBER	2-5%
% Amosite		FIBROUS GLASS	30-35%
% Crocidolite		NANF	35-40%
% Tremolite			

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:

Received: 05/22/89

BIOSPHERICS INC [redacted] REPORT [redacted] Work Order # 89-05041-4

Results by Sample [redacted]

SAMPLE ID SAMPLE# H-15 FRACTION 15A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS

Date & Time Collected not specified Category BULK

DATE ANALYZED 06/01/89 ANALYST WATSON VERIFIED BY RMH

ASBESTOS	RESULT	NON-ASBESTOS	RESULT
% Chrysotile	TR,<1%	CELLULOSE FIBER	85-90%
% Amosite		NANF	5-10%
% Crocidolite			
% Tremolite			

Definitions of Reporting Terms.

NAD = No Asbestos Detected. + = Presence Noted.

NANF = Non-asbestos Non-fibrous.

Trace = Trace Amounts Noted; less than 1%

Sample Information:

APPENDIX E

RESULTS OF TRANSFORMER TESTING

(as received)

Substation Test Co.

8005B Cryden Way • Forestville, Maryland 20747 • (301) 967-3500

Independent Experienced Approved

ELECTRICAL TESTING • ENGINEERING • MAINTENANCE • CALIBRATION • INSPECTION • FAULT LOCATING • CABLE SPLICING • EMERGENCY REPAIR

REPORT

Issued to: DMA/HTC
6500 Brookes Lane
Washington, DC 20315-0030

Attn: Harvey Watkins

Date of Work: 2/2/88

STCo. Number: 2588CM

Project: Purchase Order No. DMA80088MQ074
Defense Mapping Test Site No. 1
Herndon, VA

Service Performed:

Obtained 13 field oil samples from ten (10) pole-mounted transformers and three (3) pad-mounted transformers. Performed lab analysis of each sample to determine PCB content.

Remarks: The test results are shown on the attached test record sheet. All samples proved to be non-PCB contaminated (ie: they contain less than 50PPM).

This report consists of two pages.

RECEIVED 8 MARCH 88 N.C.

We certify that this report is true and accurate to the best of our knowledge and ability, as field conditions permitted. The above service was performed in accordance with the applicable standards of the American National Standards Institute, the Insulated Power Cable Engineers Association, the National Electric Manufacturers Association, the American Society of Testing Materials, and the local code authorities.

SUBSTATION E S T CO. E TR

By Jean-Pierre Martinez

Jean-Pierre Martinez, P.E.

SUBSTATION TEST CO.

Substation Test Co.

8005B Cryden Way • Forestville, Maryland 20747 • (301) 967-3500

Independent
Experienced
Approved

ELECTRICAL TESTING • ENGINEERING • MAINTENANCE • CALIBRATION • INSPECTION • FAULT LOCATING • CABLE SPLICING • EMERGENCY REPAIR

PCB OIL ANALYSIS

Defense Mapping Agency

Job No. 2588CM

TRANSFORMER LOCATION	SERIAL NUMBER	PARTS PER MILLION
Building No. 4	1477564	<5.0
Building No. 4	2588-8	5.0
Building No. 4	1477565	<5.0
Padmount	2349-6	<5.0
Padmount	2349-2	<5.0
Padmount	2349-5	<5.0
Building No. 3	2542-10	10.0
Building No. 3	2588-22	24.0
Building No. 3	2588-7	11.0
Building No. 1	1455474	<5.0
Building No. 1	2592-20	18.0
Building No. 1	1455478	<5.0
Guard Shack	1784153	<5.0

CLIENT OR PROJECT NAME: Defense Mapping Agency | SSN (OPTIONAL):

ADDRESS/FACILITY | CITY | STATE | ZIP

PHONE | DATE AND TIME OF COLLECTION | DATE RECEIVED

LAB NOTES/COMMENTS/SPECIAL CONDITIONS | JOB I.D. 2588 | NUMBER OF SAMPLES 10

REQUIRES REVIEW BY IH DIRECTOR PRIOR TO LOGGING IN ☐ | IF NECESSARY CIRCLE ONE: (STAT) CALL

PLEASE NOTE:
CHAIN OF CUSTODY FORMS AVAILABLE UPON REQUEST.

Results per Ken Petrie
2-4-88

PEEL OFF LABEL FROM INSIDE CORNER AND PLACE LABEL ON SAMPLE(S)

SAMPLE I.D.	SAMPLE DESCRIPTION/SOURCE	SAMPLE DATA (e.g. AIR VOLUME)	ANALYSES REQUESTED	TEST CODE	LAB NUMBER (AML USE)
3330	Bldg. 4	1477564	PCB Oil Analyses	1510N	<5
3331	"	2588-8	"	"	5.0
3332	"	1477565	"	"	<5
3333	Padmount	2349-6	"	"	<5
3334	"	2349-2	"	"	<5
3335	"	2349-5	"	"	<5
3336	Bldg. 3	2542-10	"	"	10.0
3337	"	2588-22	"	"	24.0
3338	"	2588-7	"	"	11.0
3339	Bldg. 1	1455474	"	"	<5

E-3

F127 8/85

WORK ORDER (Facilities Engineering)

TRADES & CRAFTS DIV 28600

[X] INDIVIDUAL JOB ORDER [ ] STANDING OPERATION ORDER

BUILDING OR FACILITY NO.: Herndon Site

SERIAL NUMBER: 3220-88

DATE: 27 January 1988

REQUESTED BY (Name): H.C. Watkins

ORGANIZATIONAL SYMBOL: C/FET

TELEPHONE NO.: 72347

APPROVED BY

SOO EFFECTIVE DATE — FROM: TO:

BRIEF DESCRIPTION AND LOCATION

Contractor services to take field oil samples from pole-mounted and pad-mounted transformers, Herndon Site

COMPLETED
8 MAR 88
H. C. Watkins
FE 88-21

PRIORITY

SUMMARY OF ESTIMATE

SHOP	LABOR HOURS	LABOR COST	MAT COST	EQUIP COST	TOTAL COST
600	---	Contract	---	---	$2,100.00
TOTAL	---	Contract	---	---	$2,100

MAN HOUR WORKING ESTIMATE (For continuation use plain white paper)

SHOP	ACTIVITY CODE	JOB PHASE DESCRIPTION	EST HRS
600	K11200	a. PREPARE PURCHASE REQUEST, DRAWING, AND SPECIFICATIONS, AS NECESSARY, FOR SUBMISSION TO AQF OFFICE, THROUGH - WORK CONTROL DIVISION, 28300. b. UPON COMPLETION OF CONTRACT, TURN IN THIS I.J.O. TO WORK CONTROL DIVISION WITH (1) COPY OF THE SIGNED RECEIVAL DOCUMENT ATTACHED. SAMPLES TAKEN 2 FEB 88. HERNDON TEST SITE.	

CERTIFICATION OF COMPLETION (Signature) _____ DATE _____

★U.S.GPO:1985-0-470-772/2494

REQUEST FOR PURCHASE

NO. D628668826 0441

INSTALLATION: [illegible]

DATE: 26 January 1988

TO: CONTRACTING OFFICER: AC

CLASS:

THROUGH: E + C

CONTRACT, PURCHASE ORDER OR DELIVERY ORDER NO.:

FROM: (Insert RC/CC, if applicable) FEO

IT IS REQUESTED THAT THE SUPPLIES AND SERVICES ENUMERATED BELOW AND IN THE ATTACHED LIST, BE

PURCHASED FOR:

FOR DELIVERY TO:

NOT LATER THAN: PRI-08, RDD-029

ITEM	DESCRIPTION OF MATERIAL OR SERVICES TO BE PURCHASED	QUANTITY	UNIT	ESTIMATED UNIT PRICE	ESTIMATED TOTAL COST
0441	Z11119 Contractor services requested to take (13) field oil samples from (10) pole-mounted transformers and (3) pad-mounted transformers. All transformers are located at Herndon Site #1. Conduct lab test for possible P.C.B. content and issue report to COTR. All power outages must be coordinated with the COTR. Suggested Vendor: Substation Test Company 20385 Cryder Way Forestville, Maryland 20747 Phone: (301) 967-3500 Attn: Mr. Bob Kerns 8220-88, K11260 FE 86-21	1	JOB		$2100.00
				TOTAL	$2100.00

PURPOSE: NASA

Test for possible P.C.B. content

DATE	TYPED NAME AND GRADE OF REQUESTING OFFICIAL	SIGNATURE / TELEPHONE NO.
26 January 1988	Harvey C. Watkins C/Trades & Crafts Division	H. C. Watkins 72347
DATE	TYPED NAME AND GRADE OF APPROVING OFFICIAL	SIGNATURE
26 January 1988	KEVIN L. DORR, LTC, EN Chief, Facilities Engineering Office	[signature]

I certify that the supplies and services listed above and in the attached list are properly chargeable to the following allotments, the available balances of which are sufficient to cover the cost thereof, and funds have been committed.

ACCOUNTING CLASSIFICATION	AMOUNT
9780100.4802 8A8 8520 280000 1283.12 661700	$2100.00

DATE	TYPED NAME AND GRADE OF CERTIFYING OFFICIAL	SIGNATURE
27 Jan 88	[illegible]	[signature]