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UPDATE OF THE INITIAL INSTALLATION ASSESSMENT OF FORT STORY VA

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U.S. ARMY TOXIC AND HAZARDOUS MATERIALS AGENCY

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UPDATE OF THE INITIAL INSTALLATION ASSESSMENT OF FT. STORY

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March 1988

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Prepared for:

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An onsite installation assessment was performed on 22-23 January, 1987, to determine if any environmental/hazardous waste disposal conditions had changed since the Initial Installation Assessment (IIA) conducted in 1980 and if such changes, coupled with interim changes in environmental regulations or mission, had altered the contaminant migration/hazard situation and would change the previous recommendation to not conduct a site investigation. Based on information obtained during the assessment, the IIA was updated. Ground water contamination has occurred due to leachage from one of the landfills located on Ft. Story. At the time of the reassessment site visit, the installation was planning a follow-up study of this landfill to determine the impact of the leachate on the ground water. It was recommened that U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) not conduct a site investigation at this time.

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EXECUTIVE SUMMARY

An onsite installation assessment was conducted January 22, and 23, 1987, at Headquarters, U.S. Army Transportation Center and Fort Story (FTS) Virginia Beach, VA, to determine if previous nonsurvey conditions had changed and if such changes, coupled with interim changes in environmental regulations or mission, had altered the contaminant migration/hazard situation. Ft. Story operates as a subinstallation of Ft. Eustis, Newport News, VA.

Problem areas identified during the onsite assessment include the following:

Three closed landfills were identified at FTS. Ground water monitoring investigations have been conducted by USAEHA at one of the closed landfills (No. 3). Some degradation of ground water quality at this landfill has been documented by these studies. Since the shallow aquifer is not utilized as a drinking water source, this contamination does not present an imminent human health risk. Geohydrological characteristics indicate a potential for contaminant migration to an adjacent pond; however, sampling of the pond water has not indicated that migration of contaminants is occurring.

Ground water contamination has been identified associated with one of the closed landfills (No.3) at FT. Story. At the time of the site visit, FTS personnel were taking action to delineate the extent of the contamination and determine if the contaminants are adversely affecting an adjacent downgradient pond. No site investigation by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), therefore, is recommended at this time. It is recommended, however, that FTS should:

Implement the water quality monitoring program to determine the impact of landfill (No. 3) on the groundwater and in the surface water of the adjacent downgradient pond. The water quality monitoring program should include analysis of the ground water for priority pollutant organics (including halogenated hydrocarbons). Develop and implement ground water quality monitoring plans for the other closed landfills (Nos. 1 and 2), as required by RCRA regulations. Submit the results of this program to USATHAMA for review.

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LIST OF ACRONYMS

APAP	U.S. Army Pollution Abatement Program
BLS	below land surface
$CaCO_3$	calcium carbonate
CSL	Chemical Systems Laboratory
DARCOM	U.S. Army Materiel Development and Readiness Command
DRMO	Defense Reutilization and Marketing Office
EOR	Environmental Operations Review
EPA	U.S. Environmental Protection Agency
EPIC	Environmental Photographic Interpretation Center
ESE	Environmental Science and Engineering, Inc.
FORSCOM	U.S. Army Forces Command
ft	feet
FTS	Fort Story
ha	hectares
IIA	Initial Installation Assessment
ISCP	installation spill contingency plan
MCLs	maximum contaminant levels
mg/L	milligrams per liter
NIPDWR	National Interim Primary Drinking Water Regulations
NPDES	National Pollutant Discharge Elimination Systems
NSDWR	National Secondary Drinking Water Regulations
NTU	nephelometric turbidity units
PCBs	polychlorinated biphenyls
POL	petroleum, oil, and lubricants

LIST OF ACRONYMS
(Continuted, Page 2 of 2)

RCRA	Resource Conservation and Recovery Act
SI	site investigation
SPCCP	Spill Prevention Control and Countermeasure Plan
TRADOC	U.S. Army Training and Doctrine Command
µmhos/cm	micromhos per centimeter
USAEHA	U.S. Army Environmental Hygiene Agency
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
USEP	Used Solvent Elimination Program
WWII	World War II

1.0 GENERAL

1.1 PURPOSE OF THE EVALUATION

An onsite records search [Initial Installation Assessment (IIA)] was conducted at Fort Story (FTS), Virginia Beach, VA, in 1980 to assess past and current use of toxic and hazardous materials, as well as the potential for these substances to migrate off the installation [Chemical Systems Laboratory (CSL), 1980].

An evaluation of the 1980 Records Search (IIA) report for FTS was conducted in January 1987 to determine if previous nonsurvey [non site investigation (SI)] conditions had changed and if such changes, coupled with interim changes in environmental regulations or mission, had altered the contaminant migration/hazard situation.

All information concerning operations existing at the time of the 1980 original assessment was reviewed and incorporated into this report, along with new information made available to the team upon assignment of the update and by the installation at the time of the revisit.

1.2 AUTHORITY

U.S. Army Materiel Development and Readiness Command (DARCOM) Regulation 10-30, Mission and Major Functions of the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), 13 July 1984.

1.3 INTRODUCTION

1. In reviewing earlier published records search assessment reports, the USATHAMA Installation Restoration Division determined some installations would require additional evaluations due to changes in environmental laws, changes in mission, and environmental problems discovered after the onsite visit.
2. Subsequent to the 1980 IIA, USATHAMA has determined a report update would be required for FTS.

3. Fort Story was contacted to outline the scope of the evaluation, provide guidelines to FTS personnel, and obtain advance information for review by the evaluation team.
4. Installation personnel were briefed on the evaluation program on 22 January 1987 by Dr. Charles D. Hendry from Environmental Science and Engineering, Inc. (ESE), a USATHAMA contractor.
5. Various Government agencies were contacted for documents pertinent to the evaluation effort. Agencies contacted include:
   a. U.S. Army Environmental Hygiene Agency (USAEHA) (Aberdeen Proving Ground, MD); and
   b. U.S. Environmental Protection Agency (EPA), Environmental Photographic Interpretation Center (EPIC) (Vint Hill Farms Station, Warrenton, VA).
6. The onsite phase of the evaluation was conducted on January 22 and 23, 1987. The information presented in this report is current, as of the date of the evaluation. The following personnel from ESE, under Contract No. DAAA15-85-D-0017, were assigned to the evaluation team:
   - Dr. Charles Hendry, Team Leader;
   - Ms. Karen Newman, Document Coordinator; and
   - Ms. Kathleen Becker, Librarian.
7. In addition to the records review, several FTS and Fort Eustis employees (FTS is a subinstallation of Ft. Eustis) were contacted to obtain information on various sites (see App. A). During the current visit, a ground tour of FTS was made, and former disposal areas listed in the 1970 IIA, and the areas identified from the EPIC aerial imagery were examined.
8. The installation update focused primarily on those areas identified as potential problems in the original assessment and environmental studies performed subsequent to the original IIA visit.

1.4 INSTALLATION HISTORY

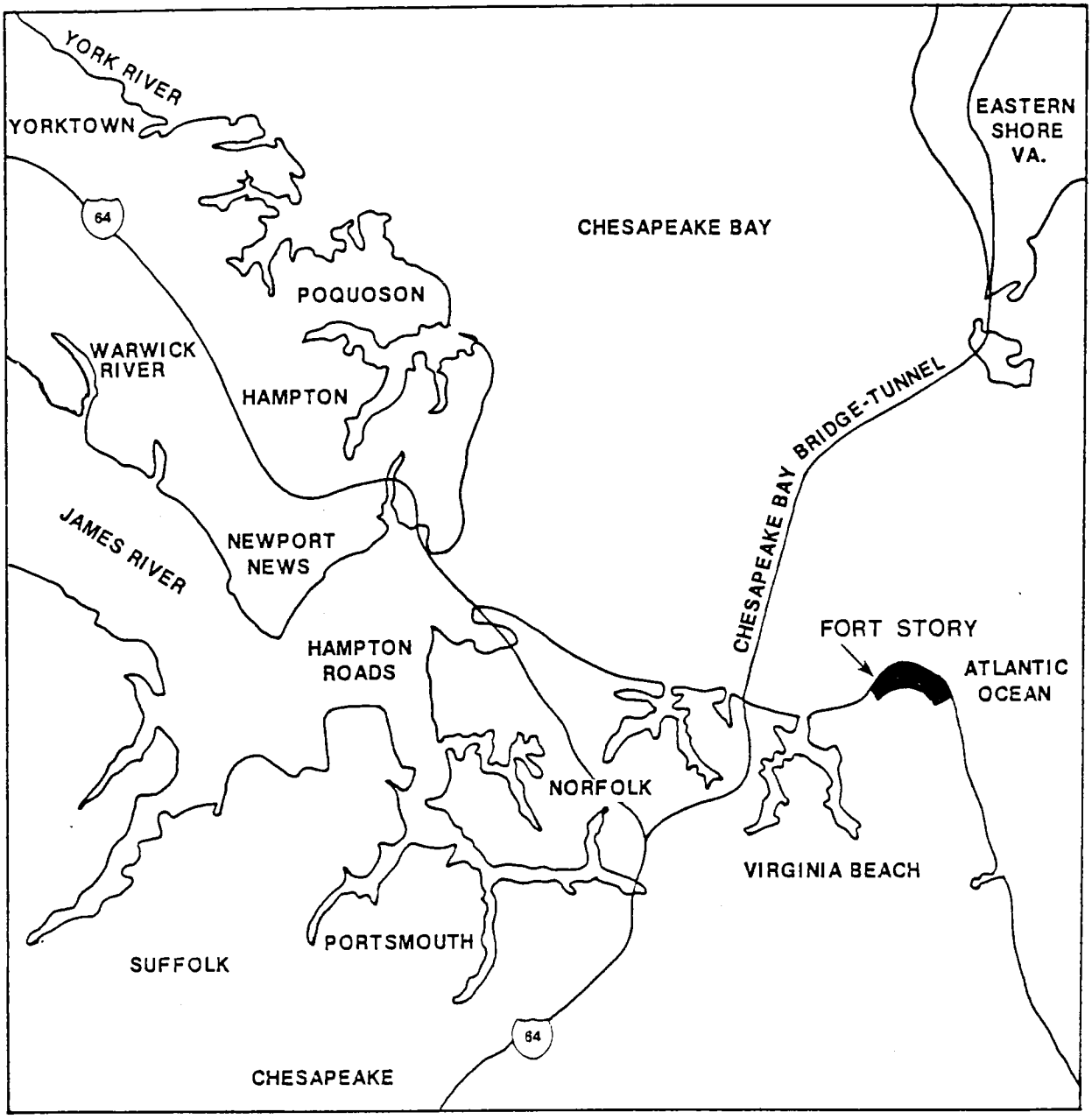
Fort Story is located (see Figure 1.4-1) on Cape Henry within the corporate city limits of Virginia Beach, VA. As shown in Figure 1.4-2, the installation is bounded on the north by the Chesapeake Bay, on the east by the Atlantic Ocean, and on the south and west by Virginia Seashore State Park.

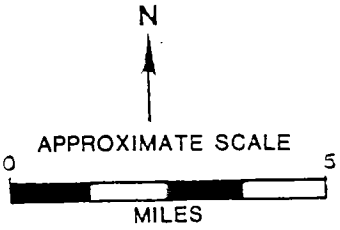
The original reservation consisting of 133 hectares (ha) was acquired in 1914 by condemnation from private owners. An additional 39 ha were presented as a gift from the Commonwealth of Virginia and 11 ha from the Norfolk and Southern Railroad Company in exchange for a right-of-way. During the period 1938 to 1944, additional tracts were acquired by condemnation from the Commonwealth of Virginia and other agencies comprising a total of 587 ha (CSL, 1980).

The name of the Fort was established by War Department General Order 31, dated 24 July 1916, in honor of Major General John Patton Story. After construction of Coast Artillery fortifications, the 2nd and 5th Coast Artillery Companies established the militiary garrison of FTS in February 1917. From 1917 to 1925, the installation continued to be developed as a small harbor defense garrison consisting of four 16-inch howitzers.

As World War II (WWII) approached, FTS began an extensive period of development. More than 50 percent of the existing facilities were constructed during 1940-1945.

It was also during this period, December 1941, that the headquarters of the Harbor Defense Command was moved from Fort Monroe to FTS, controlling extensive heavy coastal defense positions at Fort Monroe, Fort Wool, Fort Curtis (Smith Point and Fishermans Island on the north side and the mouth of Chesapeake Bay), FTS and others in the area (CSL, 1980).





SOURCE: ESE, 1987

Figure 1.4-1
LOCATION MAP OF FORT STORY

Prepared for:
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland

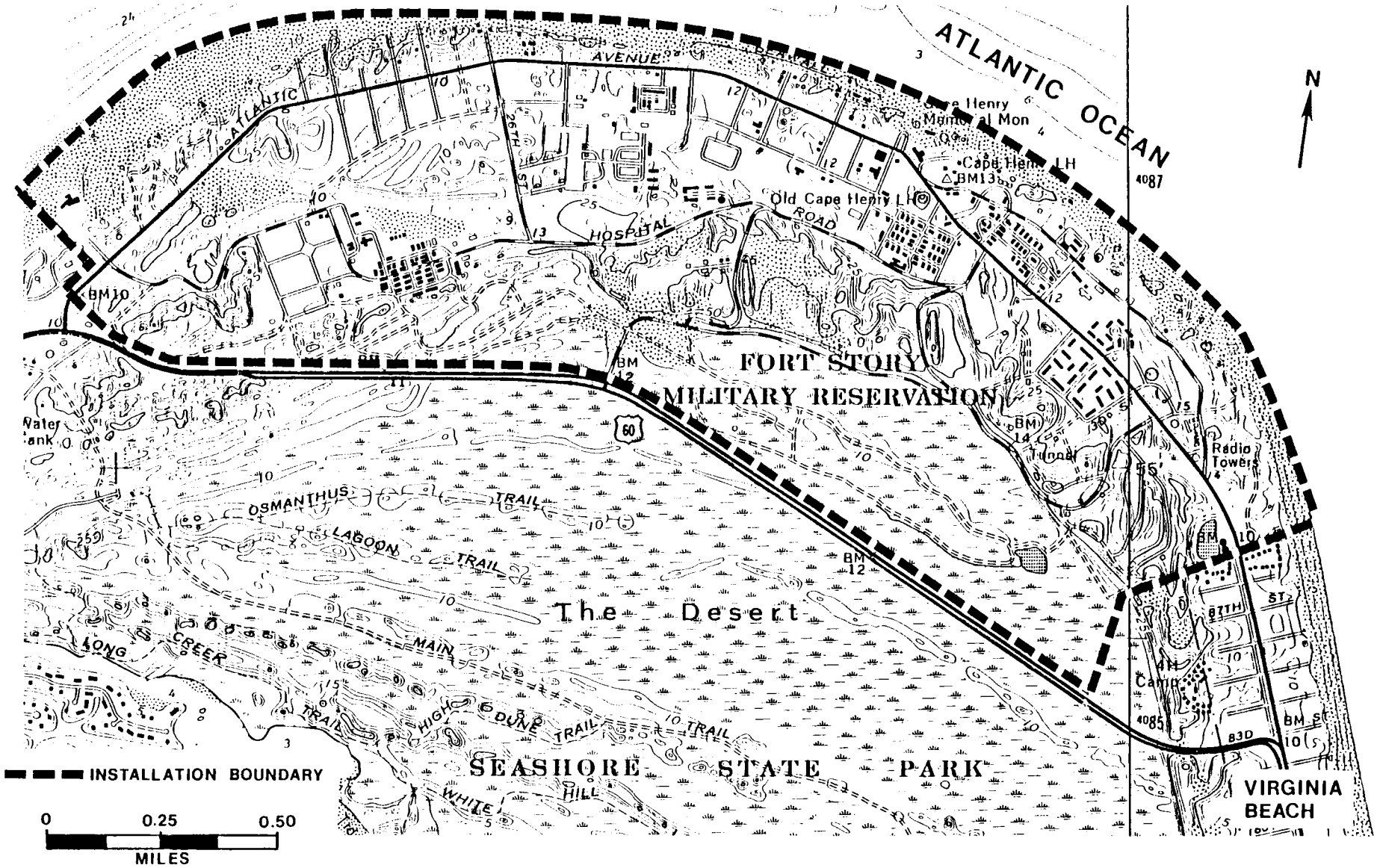


Figure 1.4-2
AREA MAP OF FORT STORY

Prepared for:
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland

In 1944, the mission of FTS changed from a heavily fortified coast artillery garrison to a convalescent hospital with 1,800 beds for returning WWII veterans. The hospital accommodated 13,472 patients before it was closed in March 1946. The installation again transitioned to a new role of training individuals and units in amphibious operations at the end of WWII.

In July 1948, the installation was transferred to the Transportation Corps as a subpost of the Transportation Training Command, Fort Eustis. On 5 Dec 1961, FTS was established as a permanent installation and in July 1962 as a Class II installation under Fort Eustis. The 11th Transportation Battalion became the resident battalion to command U.S. Army Forces Command (FORSCOM) units stationed at FTS. In July 1979, the Headquarters, Fort Story (Provisional) was established for operation and control of the subinstallation under the command of Headquarters, U.S. Army Transportation Center and Fort Eustis. Ft. Story currently operates as a subinstallation of Ft. Eustis and is under the command of the U.S. Army Training and Doctrine Command (TRADOC).

Due to its beach fronts, FTS currently is used extensively for various amphibious training operations. These training areas are used throughout the year by all branches of the armed forces and their reserve components. The U.S. Navy is a major tenant on FTS and Navy Public Works engineering personnel are responsible for a majority of the on-post facilities.

2.0 CONCLUSIONS, RECOMMENDATIONS, AND CURRENT STATUS OF RECOMMENDATIONS RESULTING FROM THE 1980 INITIAL INSTALLATION ASSESSMENT OF FORT STORY.

2.1 CONCLUSIONS (AS STATED IN THE IIA PUBLISHED BY USATHAMA IN 1980)

1. The combination of available geological evidence and information on contaminant sources does not indicate the migration of significant quantities of contaminated material by surface or subsurface means.
2. Leachate from one of the sanitary landfills has been analyzed and concentrations of arsenic, lead, and chromium were found to slightly exceed drinking water standards in one of three wells. However, it has been concluded that the concentrations of arsenic, lead, and chromium did not constitute a significant health or environmental hazard to surrounding communities.
3. The washrack area of FTS is contributing petroleum, oil, and lubricants (POL) wastes to the storm drainage network; however, this situation is being adequately addressed by FTS under the U.S. Army Pollution Abatement Program (APAP).

2.2 RECOMMENDATIONS (AS STATED IN THE IIA PUBLISHED BY USATHAMA IN 1980)

That no survey be performed by USATHAMA at this time.

2.3 CURRENT STATUS OF RECOMMENDATIONS RESULTING FROM THE 1980 INITIAL INSTALLATION ASSESSMENT

2.3.1 Landfill Monitoring

Three former landfill locations, dating from the 1940's to early 1970's have been identified on FTS (CSL, 1980). The locations of these landfills are shown in Figure 2.3-1. Since 1974, all installation trash, garbage, etc. has been transported by the Navy Public Works to the Naval Base (Norfolk, VA) for incineration. No sanitary landfills are currently active on FTS. A construction debris (concrete rubble, asphate, brick, etc.) fill area is located just south of the Cargo Area in the western portion of FTS.

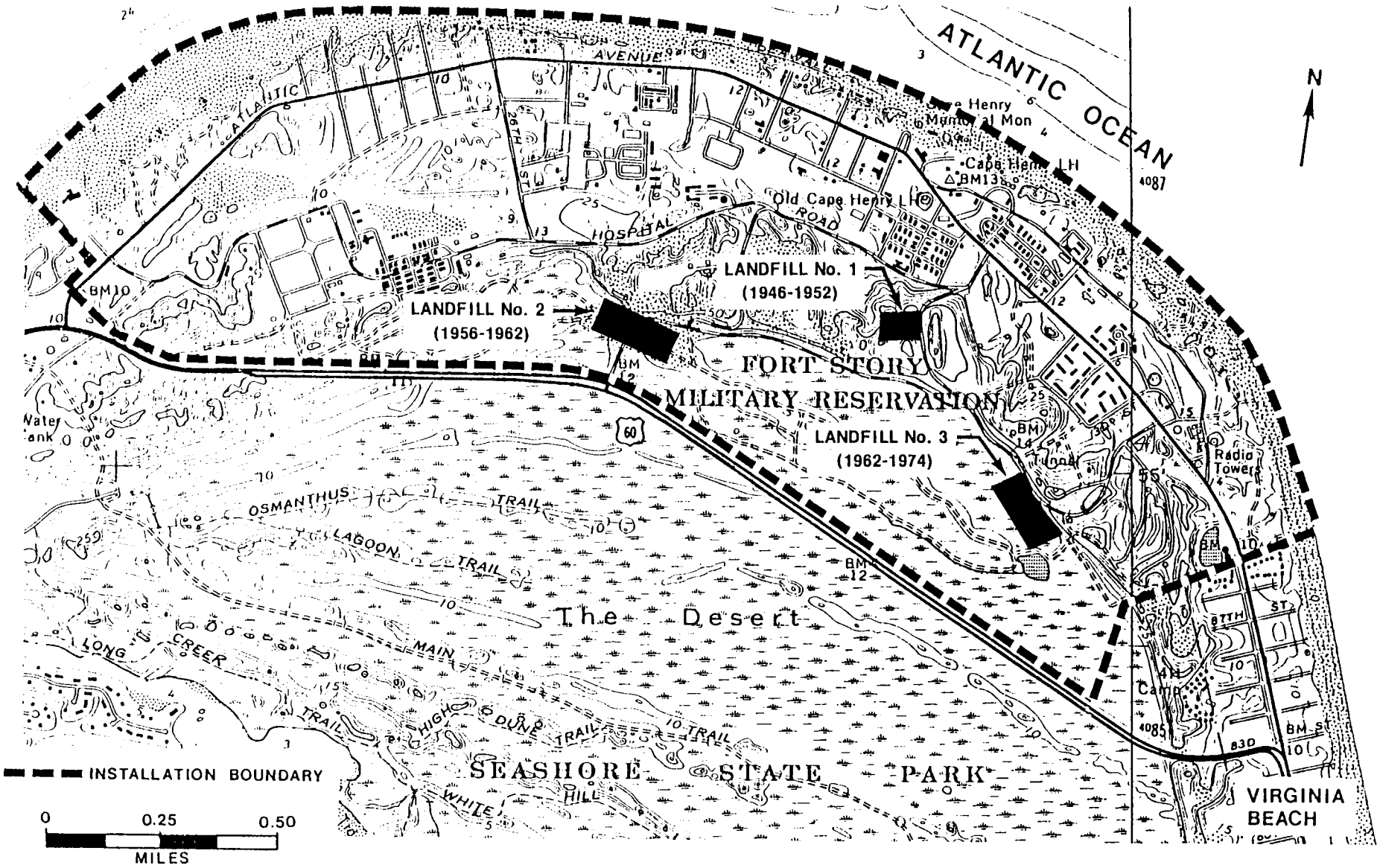


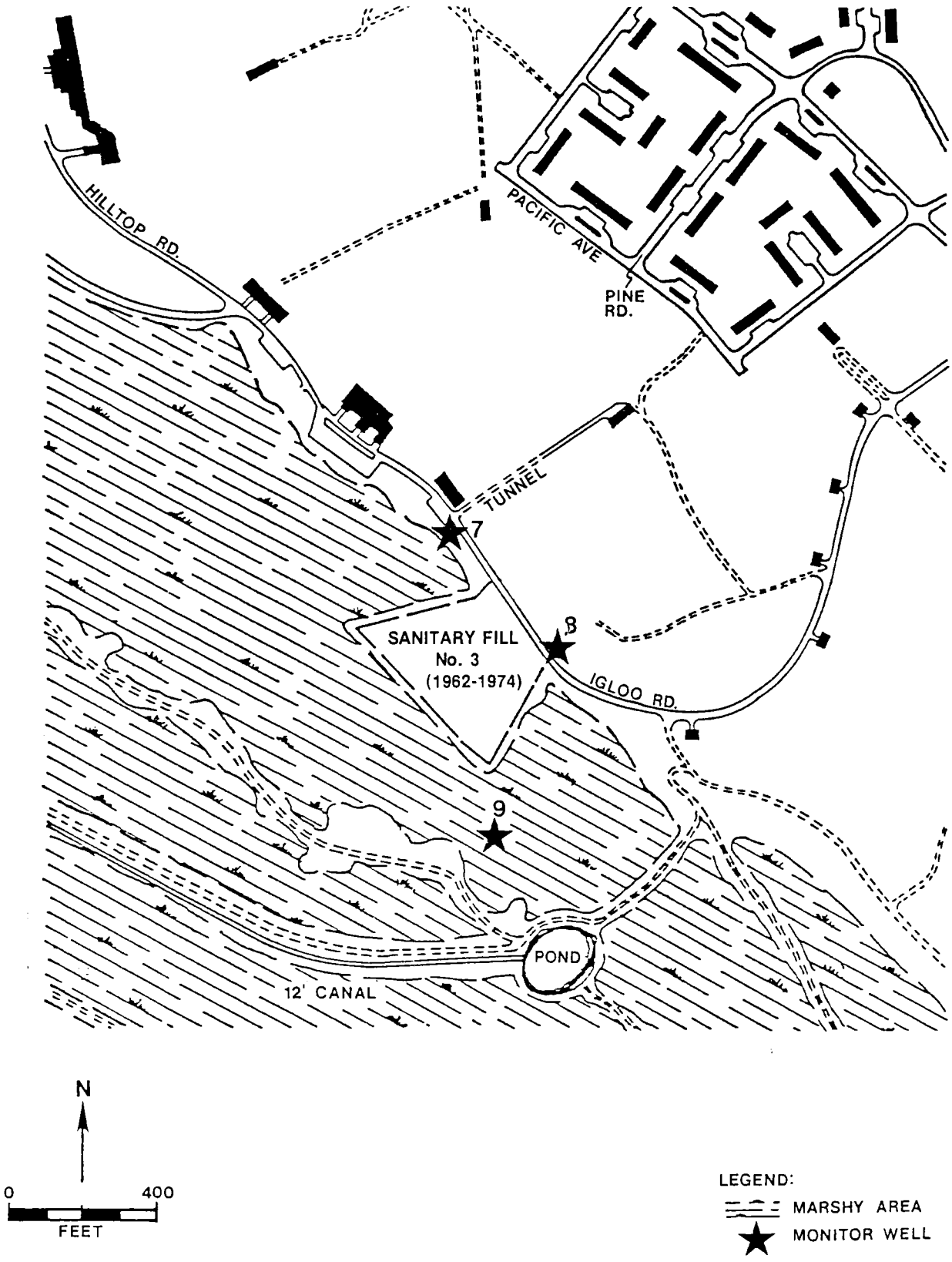
Figure 2.3-1
LOCATIONS OF LANDFILLS ON FT. STORY

SOURCE: ESE, 1987

Prepared for:
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland

In 1977, USAEHA conducted a ground water contamination investigation at the most recently closed sanitary landfill (Landfill No. 3 - operated 1962 to 1974; see Figure 2.3-1). The investigation at this landfill included the installation of three monitor wells. As shown in Figure 2.3-2, monitor well Nos. 7 and 8 were installed topographically upgradient of the former landfill while monitor well No. 9 was installed in a downgradient direction (USAEHA, 1977). According to the USAEHA report, the substratum at this site consists of highly-permeable sands to a depth of at least 50 feet (ft). The water table was encountered at a depth of approximately 8 ft below land surface (BLS) (USAEHA, 1977). No water level elevations were reported by the USAEHA study. Based on the highly permeable nature of the sandy deposits and the local topography, the ground water gradient is assumed to be southeasterly toward the marsh area, pond, and drainage canal shown in Figure 2.3-2.

Ground water samples collected from the three monitoring wells were analyzed for pH, specific conductance, dissolved solids, nutrients (nitrogen and phosphorus), total organic carbon, chemical oxygen demand, and trace metals. The results of these analyses are given in Table 2.3-1. The maximum contaminant levels (MCLs) established by the National Interim Primary Drinking Water Regulations (NIPDWR) and National Secondary Drinking Water Regulations (NSDWR) (EPA, 1986a; 1986b) are shown for comparison. As shown by the data in Table 2.3-1, the ground water downgradient of the landfill area (monitor well No. 9 on the south edge of the landfill) exhibited elevated levels of total organic carbon, chemical oxygen demand, arsenic, chromium, zinc, and lead as compared to the upgradient monitor wells (Nos. 7 and 8). The levels of arsenic, chromium, and lead measured in the sample from monitor well No. 9 slightly exceeded the NIPDWR MCLs for those metals (see Table 2.3-1). Since the concentrations of these metals only slightly exceeded the MCLs, and the shallow ground water is not utilized as a potable source, their presence in the ground water likely does not constitute an imminent human health risk.



SOURCES: USAEHA, 1977; ESE, 1987

Figure 2.3-2
LOCATION OF MONITOR WELLS AT FORMER LANDFILL No. 3, FT. STORY

Prepared for:
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland

Table 2.3-1. Results of Chemical Analysis of Ground Water at Closed Landfill No. 3

Parameter	Monitor Well No. (See Fig. 2.3-2) Well No. 7	Well No. 8	Well No. 9	Maximum Contaminant Level *
pH (Std. units)	6.5	6.3	6.0	6.5 - 8.5
Conductivity (µmhos/cm)	260	632	93	—
Turbidity (NTU)	90	165	185	—
Total Solids (mg/L)	348	648	377	—
Total Dissolved Solids (mg/L)	207	370	103	500.0
Hardness (mg/L as $CaCo_3$)	105	162	44	—
Total Organic Carbon (mg-c/L)	123	83	235	—
Total Phosphate (mg/L)	0.20	0.29	0.24	—
Ammonia (mg-n/L)	1.2	11.0	0.7	—
Nitrate + Nitrate (mg-n/L)	0.17	0.26	0.26	10.0
Chloride (mg/L)	25.7	48.2	14.4	250.0
Chemical Oxygen Demand (mg/L)	197	167	386	—
Arsenic (mg/L)	0.037	0.048	0.058	0.05
Cadmium (mg/L)	0.009	0.009	0.009	0.01
Chromium (mg/L)	0.025	0.026	0.066	0.05
Copper (mg/L)	ND	ND	ND	1.0
Mercury (mg/L)	ND	ND	ND	0.002
Zinc(mg/L)	0.046	0.026	0.057	5.0
Lead (mg/L)	0.036	0.047	0.055	0.05
Iron (mg/L)	13.8	30.3	15.2	0.3

ND = not detected
NTU = nephelometric turbidity units
mg/L = milligrams per liter
µmhos/cm = micromhos per centimeter
$CaCO_3$ = calcium carbonate
* = Maximum contaminant levels for drinking water; National Interim Primary Drinking Water Regulations (EPA, 1986a) and National Secondary Drinking Water Regulations (EPA, 1986b)

Source: USAEHA, 1977

As described previously, the shallow ground water in the vicinity of the landfill may flow toward the low-lying marshy area and small man-made pond south of the landfill (Figure 2.3-2). USAEHA (1977) collected surface water and sediment samples from this pond at three locations (S-1, S-2, and S-3) along a transect across the center of the pond. The results of these analyses are given in Tables 2.3-2 (water) and 2.3-3 (sediments).

As shown in Table 2.3-2, the pond water is slightly acidic (pH = 6.7) and contains low levels of dissolved solids (140 to 147 mg/L) and turbidity (8 to 9 NTU). The water is very soft (21 mg/L as $CaCO_3$) and contains moderate levels of nutrients (nitrogen and phosphorus). With the exception of iron and zinc, none of the trace metal concentrations exceeded ambient water quality aquatic life criteria. As shown, iron and zinc concentrations only slighly exceeded aquatic life criteria. Iron and zinc are natural components of soils and are not acutely toxic metals. Low levels of trace metals were observed in the pond sediments and, with the exception of DDD and DDE, no pesticides were detected (see Table 2.3-3). The low levels of DDD and DDE in the sediments likely result from degradation of DDT which historically was commonly used for mosquito control, particularly in marsh areas.

Based on these data, leachate from the landfill does not appear to be impacting the water quality of the pond. A recent Environmental Operations Review (EOR) conducted by USAEHA (1987), recommended that the former monitor well at the landfill be resampled and analyzed for trace organic priority pollutants. This would include polychlorinated biphenyls (PCBs), pesticides and chlorinated hydrocarbons typical of degreasing solvents. At the time of the site visit, it had been determined that the old existing wells were no longer useable and that USAEHA had been requested to install new monitoring wells. Once the new wells are installed, the ground water would be analyzed for priority

Table 2.3-2. Results of Chemical Analysis of Surface Water from the Pond on Ft. Story

Parameter	Sampling Location S-1	S-2	2-3	Ambient Water Quality* Criteria
pH (Std. units)	6.70	6.70	6.70	6.5 - 9.0
Dissolved oxygen (mg/L)				
Top	8.4	7.7	9.0	5.0 (minimum)
Bottom	6.8	7.8	7.6	5.0 (minimum)
Conductivity (μmho/cm)	179	178	179	—
Turbidity (NTU)	8	8	9	—
Total Solids (mg/L)	158	148	151	—
Dissolved Solids (mg/L)	140	147	141	—
Hardness (mg/L as $CaCo_3$)	21	21	21	—
Total Organic Carbon (mg-C/L)	16.7	15.6	15.9	—
Total Phosphate (mg-P/L)	0.16	0.05	0.04	—
Ammonia (mg-N/L)	0.08	0.07	0.08	5.0
Nitrate + Nitrate (mg-N/L)	0.13	<0.04	0.04	10.0
Arsenic (mg/L)	ND	ND	ND	0.440
Cadmium (mg/L)	ND	ND	ND	0.0006
Chromium (mg/L)	ND	ND	ND	0.865
Copper (mg/L)	ND	ND	ND	0.005
Iron (mg/L)	2.87	3.15	3.11	1.0
Lead (mg/L)	0.007	0.006	0.007	0.025
Mercury (mg/L)	0.0002	ND	ND	0.004
Manganese (mg/L)	0.044	0.036	0.036	—
Zinc (mg/l)	0.198	0.093	0.307	0.088

* = EPA (1976), EPA (1980), EPA (1981), EPA (1985b). Criteria for cadmium, chromium, copper, lead, and zinc are logarithmic functions of total hardness of the water. Water quality data for the pond indicates an average total hardness of 21 mg/L as $CaCO_3$; therefore, the aquatic life criteria shown are based on a total hardness of 21 mg/L as $CaCO_3$.

ND = Not detected
NTU = nephelometric turbidity units
mg/L = milligrams per liter
μmhos/cm = micromhos per centimeter
$CaCO_3$ = calcium carbonate

Sources: USAEHA, 1977; ESE, 1987

Table 2.3-3 Chemical Results for Sediment Samples Collected from the Pond at Ft. Story (November, 1977)

Parameter	Sampling Location		
	S-1	S-2	2-3
Arsenic (µg/g)	5.4	10.9	11.4
Cadmium (µg/g)	ND	0.75	0.93
Chromium (µg/g)	5.8	10.6	15.7
Copper (µg/g)	19.8	16.5	23.0
Iron (µg/g)	7,900	14,200	17,800
Lead (µg/g)	27	48	50
Zinc (µg/g)	36	78	110
Mercury (µg/g)	ND	ND	ND
Manganese (µg/g)	52	127	143
Aldrin (µg/g)	ND	ND	ND
Chlordane (µg/g)	ND	ND	ND
P,P-DDD (µg/g)	0.19	0.095	0.27
O,P-DDD (µg/g)	0.029	0.035	ND
P,P-DDE (µg/g)	0.034	0.056	0.054
O,P-DDE (µg/g)	ND	ND	ND
P,P-DDT (µg/g)	ND	ND	ND
O,P-DDT (µg/g)	ND	ND	ND
Dieldrin (µg/g)	ND	ND	ND
Endrin (µg/g)	ND	ND	ND
Heptachlor (µg/g)	ND	ND	ND
Heptachlor epoxide (µg/g)	ND	ND	ND
Kepone (µg/g)	ND	ND	ND
Lindane (µg/g)	ND	ND	ND
Methoxychlor (µg/g)	ND	ND	ND
Mirex (µg/g)	ND	ND	ND
Toxaphene (µg/g)	ND	ND	ND
Chlorpyrifos (µg/g)	ND	ND	ND
Ronnel (µg/g)	ND	ND	ND
Diazinon (µg/g)	ND	ND	ND
Malathion (µg/g)	ND	ND	ND
Methyl parathion (µg/g)	ND	ND	ND
Parathion (µg/g)	ND	ND	ND
Cis-chlordane (µg/g)	ND	ND	ND
Trans-chlordane (µg/g)	ND	ND	ND
Oxychlordane (µg/g)	ND	ND	ND
2,4-D (µg/g)	ND	ND	ND
2,4,5-T (µg/g)	ND	ND	ND
Silvex (µg/g)	ND	ND	ND
PCBs (Arochlor 1260) (µg/g)	ND	ND	ND

ND = Not detected

Source: USAEHA, 1977

pollutant organic compounds. Based on the results of these analyses, a decision would be made regarding installing monitor wells and sampling the ground water at the other (older) landfill sites on FTS. It should be noted that current RCRA rgulations require ground water monitoring at all former disposal sites.

2.3.2 Washrack Discharges

The 1980 IIA reported that washracks on FTS were contributing POL wastes to the storm drainage system. Subsequent to the IIA, the washracks were upgraded under the APAP to include oil/water separators. The EOR recently conducted at FTS by USAEHA reported that FTS had five National Pollutant Discharge Elimination Systems (NPDES) point source outfalls. Four of these had met all permit conditions for the past 12 months. Outfall No. 001 violated the NPDES permit discharge requirements for oil and grease in August 1986. The violation occurred due to improper disposal of waste/oil and corrective action in the form of a letter to personnel at FTS had been taken.

At the time of the assessment site visit, the number of NPDES permitted outfalls had been reduced from five to two. These discharges reportedly were being operated within the permit discharge limitations.

3.0 ENVIRONMENTAL PROBLEMS IDENTIFIED AND OTHER CHANGES SUBSEQUENT TO THE 1980 INITIAL ASSESSMENT

An EOR was conducted at FTS by USAEHA (1987), in conjunction with headquarters, TRADOC. The EOR was performed to ensure compliance with applicable Federal, state, local, and Army environmental regulations and to assist in the identification of existing and/or potential environmental hazards. The technical aspects of the FTS air pollution, water quality, solid/hazardous waste management, and pest management programs and the potential for ground water contamination were elevated during the EOR (USAEHA, 1987). The following paragraphs describe the significant findings of the EOR evaluation and describe subsequent actions taken by FTS to the EOR.

3.1 WASTE POL MANAGEMENT

Used oil from the lighter, air cushion vehicle (LACV-30) maintenance facility was being mixed with engine cleaning solvents (methylethyl ketone and trichloroethylene) and stored onsite in a 400-gallon fuel pod. When full (approximately once per month) these waste materials were given to either the city of Norfolk, Fire Training School or the Fort Story Fire Department for use in firefighter training exercises.

The Auto Craft Shop (Bldg 606) had three solvent dip tanks for degreasing operations. One tank was serviced by a contractor to include recycling of solvent. However, the waste solvent (PD-680-Type II) in the other two tanks was disposed of by pouring on the ground around the fence to control weeds.

At the time of the assessment site visit, FTS engineering personnel were implementing a Used Solvent Elimination Program (USEP). This program was developed to eliminate use of solvents that are defined as Resource Conservation and Recovery Act (RCRA) hazardous wastes when these solvents are wasted. The program includes the use of self-contained degreasing

units that are serviced by contract and which contain non-hazardous solvents. Waste solvents or other maintenance fluids that are segregated from the waste motor oils are containerized and turned into the Defense Reutilization and Marketing Office (DRMO).

3.2 SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCCP)

The EOR determined that the SPCCP and installation spill contingency plan (ISCP) for FTS were inadequate. At the time of the site visit, the USAEHA was rewriting both the SPCCP and ISCP. The revised plans and accompanying requirements, when implemented, will place FTS in compliance with applicable regulations. The Navy Public Works engineering personnel are responsible for implementing spill control measures at FTS. At the time of the assessment site visit, a program to leak test all underground storage tanks on FTS was being instituted.

3.3 FIREFIGHTER TRAINING AREA

The EOR identified a gravel-base firefighter training pit located in the cargo area on FTS. Figure 3.3-1 shows the location of the firefighter training area. The EOR reported that small volumes of unburned JP-4 were draining from this pit and into the surrounding soils. Subsequent to the EOR, the former firefighter training pit was replaced with a permanent, engineered facility.

3.4 POTENTIAL CONTAMINATION AREAS IDENTIFIED FROM AERIAL PHOTOGRAPHIC IMAGERY

The EPA's EPIC, under contract to USATHAMA, prepared a report in which potential contamination areas on FTS were identified. These areas were identified based on ground staining, ground scarring, open trenches, aboveground tanks, sludge beds, equipment storage areas, and other signatures that are readily recognizable to photographic imagery experts.

The EPIC analysis of the historical photography covering FTS indicates no major environmental problems (EPIC, 1985). Possible ground stains were identified in the cargo area which may be associated with firefighter

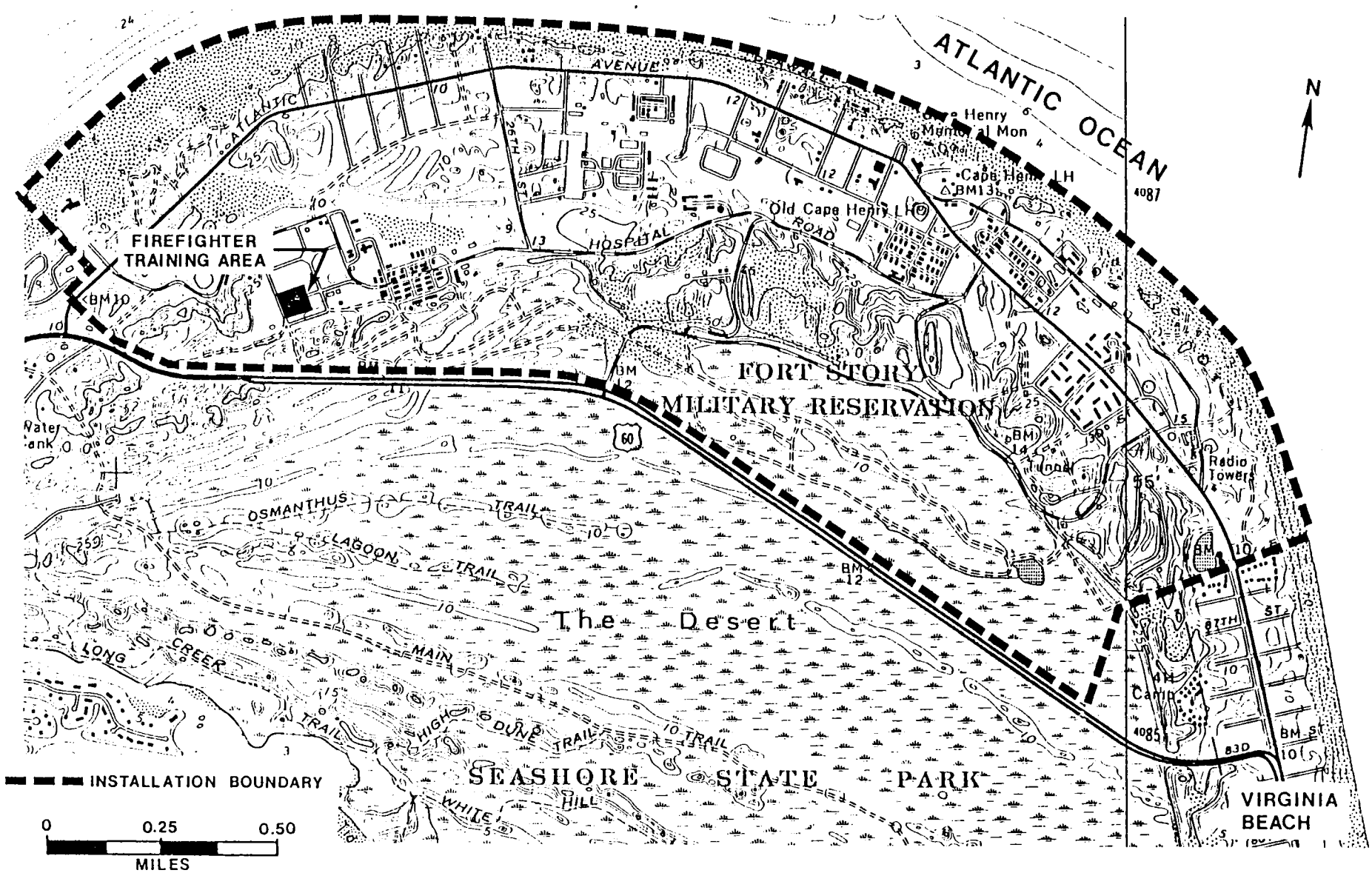


Figure 3.3-1
LOCATION OF FIREFIGHTER TRAINING AREA ON FT. STORY

Prepared for:
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland

training exercises conducted in that area. Although the historical imagery did not identify any new disposal areas, the analysis did provide a more accurate definition of the boundaries of the three former landfill areas.

4.0 1987 ASSESSMENT OF FORT STORY

4.1 FINDINGS

4.1.1 Landfill Areas

Three closed landfills were identified at FTS. Ground water monitoring investigations have been conducted by USAEHA at one of the closed landfills. Some degradation of ground water quality at this landfill has been documented by these studies. Since the shallow aquifer is not utilized as a drinking water source, this contamination does not present an imminent human health risk. Geohydrological characteristics indicate a potential for contaminant migration to an adjacent pond; however, sampling of the pond water has not indicated that migration of contaminants is occurring.

At the time of the assessment the installation was preparing a ground water monitoring plan to include resampling of the ground water at this landfill and the adjacent downgradient pond.

4.2 CONCLUSIONS

1. Ground water contamination has occurred in the vicinity of one of the closed landfills (Landfill No. 3). The installation has developed a water quality monitoring plan to determine the impact of the leachate from this landfill on the ground water and on the water quality of an adjacent downgradient pond.

4.3 RECOMMENDATIONS

It is recommended that USATHAMA should:

1. Not conduct a remedial investigation at this time;
2. The results of the water quality monitoring at the closed landfill should be reviewed to determine if any further actions may be required.

It is recommended that FTS should:

1. Implement the water quality monitoring program to determine the impact of landfill No. 3 on the groundwater and the adjacent downgradient pond; the water quality monitoring program should include analysis of the ground water for priority pollutant organics (including halogenated hydrocarbons);
2. Develop and implement ground water quality monitoring plans for the other closed landfills (Nos. 1 and 2) as required by RCRA regulations; and
3. Submit the results of this program to USATHAMA for review.

FORT STORY, VA
REFERENCE LIST

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APPENDIX A

FORT STORY PERSONNEL CONTACTED

PERSON	ORGANIZATION
Mr. David Shifflett	DEH; Environmental Coordinator
Mr. Bill Bourque	DEH; Chief, Roads and Land Management Branch
Mr. Jerry Pollis	TRADOC: Environmental Coordinator (Ft. Monroe)
Captain Todd Brown	Engineer, Waste Disposal Engineering Division, U.S. Army Environmental Hygiene Agency