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JEB FORT STORY, VA
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PRELIMINARY ASSESSMENT REPORT ADDENDUM FOR FORT STORY VA

3/1/1992

ROY F. WESTON, INC.

0044

FINAL

CETHA-IR-CR-90159(A)

US Army Corps of Engineers

Toxic and Hazardous Materials Agency

Preliminary Assessment Report Addendum for Fort Story, VA

Contract Number DAAA15-90-D-0009
Delivery Order 10

March 1992

Prepared for:

U.S. ARMY TOXIC AND
HAZARDOUS MATERIALS AGENCY
Aberdeen Proving Ground
Maryland 21010-5401

C479R

Prepared by:

WESTON
MANAGERS DESIGNERS/CONSULTANTS

Roy F. Weston, Inc.
West Chester
Pennsylvania 19380

THAMA Form 45, 1 Jul 90

FINAL

USATHAMA DELIVERY ORDER 10

PRELIMINARY ASSESSMENT REPORT

ADDENDUM

for

FORT STORY, VA

Contract Number DAAA15-90-D-0009

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W.O. 2281-11-10-0004

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Headquarters
Fort Story
Virginia Beach, VA 23450

USATHAMA
ATTN: CETHA-IR-CR
Aberdeen Proving Ground
Maryland 21010-5401

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None

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U.S. Government Agency only. All other requests should be directed to the installation commander.

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

The U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) previously contracted WESTON to address EPA Region III Preliminary Assessment Deficiency notifications for Fort Story. All deficiencies were addressed in accordance with the latest EPA guidance and the information was provided to USATHAMA and Fort Story for forwarding to EPA Region III.

EPA then revised its guidance by finalizing the revised version of the Hazard Ranking System (HRS) in February, 1991. This revision required that more detailed information be provided by Fort Story for ranking and to determine if Fort Story is eligible for placement on the National Priority List (NPL).

This report addresses additional Preliminary Assessment deficiencies for Fort Story and provides the information necessary for revised HRS scoring.

This report covers: 1) Overview/Site History; 2) Waste/Source Information; 3) Groundwater Pathway Information; 4) Surface Water Pathway Information; 5) Air Pathway Information; and 6) Soil-Exposure Pathway Information.

14. SUBJECT TERMS

Fort Story, CERCLA, Hazardous Substances, Hazardous Waste

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Unlimited

INTRODUCTION

This Preliminary Assessment Report Addendum has been prepared to provide additional information for assisting US EPA in scoring the facility using the rHRS system to determine whether further action is required under CERCLA.

This Addendum contains the followings sections:

1. Overview/Site History
2. Waste/Source Information
3. Groundwater Pathway Information
4. Surface Water Pathway Information
5. Air Pathway Information
6. Soil-Exposure Pathway Information
7. References

EPA ID#	VA6210020875		
Federal Facility ID#	VA1213720875		
Facility Name	Fort Story		
City	Virginia Beach	State VA	Zip 23450

NOTE: Some information contained in the James Montgomery Reports has been referenced but not included because it is too lengthy to be attached.

1. OVERVIEW/SITE HISTORY

1A. Reports submitted to EPA are referenced and copies of each reference are provided.

References used in this Preliminary Assessment (PA) update are attached to these responses. Any available references from the previous PA have also been attached in response to this deficiency.

1B2. A topographic map with a 4-mile radius drawn around each source.

USGS 7.5 minute quadrangles with a 4-mile radius drawn around the center of the facility have been provided.[1]

1D. Describe any releases of hazardous substances, pollutants, or contaminants to groundwater, surface water, soil, or air and provide sampling results with detection limits, laboratory methods, and quality assurance procedures.

Refer to the USATHAMA Property Report for Fort Story for releases of hazardous substances. For sampling results with detection limits, laboratory methods, and quality assurance procedures, refer the Fort Story Final Analytical Results Document, August 1991, and the Fort Story Preliminary Assessment/Site Investigation, August 1991.[2][3]

1F. Describe any prior spills (e.g., quantity of the spill, hazardous substances) that occurred at the facility.

Leak testing of the JP4 tanks located at site 5 (underground fuel storage tank farm) detected evidence of vapor leaks in tanks 2, 4, and 6 in November of 1989. All three tanks were removed from service in Dec. 1989 and an unknown amount of fuel was removed in January, 1990.[4]

1G. Describe facility and source security and access (e.g., fences, patrols, gates, etc.).

Fort Story is completely encompassed by an 8 foot high chain link fence with two entrances guarded 24 hours. [3]

Facility Name Fort Story

2. WASTE/SOURCE INFORMATION (see Section 2 of the HRS Final Rule - December 1990 Federal Register)

2D. Describe as specifically as possible the constituents (concentrations of individual constituents) of each waste type disposed in each source.

Refer to the USATHAMA Property Report for Fort Story and the Fort Story Final Analytical Results Document, August 1991. [2][15]

2F. Determine the depth at which wastes were deposited in each source.

Sampling activities conducted at Fort Story have not been conclusive in determining depths at which wastes were deposited in the landfills. [4]

2H. Describe any secondary containment features/structures associated with each source (e.g., precipitation runon and runoff systems, leachate collection systems, gas collection systems).

Some above ground storage tanks are equipped with secondary containment features, while others are not. None of the landfills at Fort Story have been formally closed and as a result are not equipped with designed runon, runoff, leachate or gas collection systems. Refer to the USATHAMA Property Report for Fort Story and the Fort Story Preliminary Assessment/Site Investigation and Fort Story NIKE Preliminary Assessment/Site Investigation, August, 1991 and Fort Story Final Analytical Results Document, August, 1991. [2][3][4]

3. GROUNDWATER PATHWAY INFORMATION (see Section 3 of the HRS Final Rule - December 1990 Federal Register)

3A. Determine if the groundwater within a 4-mile radius of each source is used for any of the following purposes and locate the wells on a map.Each radius should begin at the center of each source if the source is small or at the outer edge if it is large. Provide the depth of each well.

There are not any municipal wells within 4 miles of Fort Story. [5]

3A2. Irrigation of commercial food or commercial forage crops (include acres).

No [5]

3A3. Commercial livestock watering.

There is a small dairy farm using groundwater located within 4 miles of Fort Story. [5]

Facility Name Fort Story

3A4. Commercial aquaculture.

No [5]

3A6. Standby wells used for drinking water at least once a year.

No [5]

3B. Outline the public water distribution system within a 4-mile radius of each source on a topographic map.

The entire 4-mile radius surrounding Fort Story is supplied by water from the City of Norfolk. The city of Norfolk obtains water from a series of reservoirs. [5]

3L. Provide results from groundwater sampling of aquifers underlying the sources and from domestic wells (drinking water) within 2 miles of each source.

Background groundwater sampling results from sampling conducted during the Fort Story Installation Assessment program are included. Additional groundwater sampling results are also included within a 2-mile radius from the point 36°55'19"N, 76°02'20"W. [6][7]

3N. Determine if any areas within a 4-mile radius of each source are located in a Wellhead Protection Area according to Section 1428 of the Safe Drinking Water Act.

None of the areas within a 4-mile radius of Fort Story are in a wellhead protection area. [8]

4. SURFACE-WATER PATHWAY INFORMATION (see Section 4 of the HRS Final Rule - December 1990 Federal Register)

4A. Describe surface-water bodies 0 to 15 miles downstream of each source and provide a map of surface water bodies receiving drainage from each source.

The two surface water bodies that receive drainage from Fort Story are the Atlantic Ocean to the north and east, and Cypress Swamp to the south. The longshore current in the Atlantic Ocean runs north to south along the east coast. The Cypress Swamp located to the south of Fort Story receives surface water from a storm sewer outfall originating at Fort Story. The Atlantic Ocean longshore current is designated by arrows on the map provided. Tides do cause fluctuations in current, but arrows show primary flow pattern. The Cypress Swamp area also is outlined. [1][7]

Facility Name Fort Story

4B. Discuss the probable surface runoff pattern from each source to surface waters, including the distance to the nearest surface-water body; provide a map.

Most precipitation falling on Fort Story is readily absorbed into the sandy soil. There are also two storm sewer outfalls which discharge surface water collected from parking areas and roads. Both outfalls are covered by an NPDES permit. One discharges to the north into the Atlantic Ocean, and the second discharges to the south into Cypress Swamp. [1][7]

4D. Identify if surface water drawn from intakes within 15 miles downstream of the probable point of entry is used for any of the following purposes:

4D1. Irrigation (5-acre minimum) of commercial food or commercial forage crops.

No [5]

4D2. Watering of commercial livestock.

No [5]

4D3. Ingredient in commercial food preparation.

No [5]

4D4. Major or designated water recreation area, excluding drinking water.

No [5]

4E. Identify the following targets associated with surface-water bodies 0 to 15 miles downstream of the probable point of entry.

4E1. Population (residents, workers, and students) served by intakes of drinking water.

None [5]

4E4. Any portion of the surface water designated by a state for drinking-water use under Section 305(a) of the Clean Water Act; or any portion of surface water usable for drinking water.

None [5]

Facility Name Fort Story

4G. Provide results from sampling of wetlands and/or sensitive environments 0 to 15 miles downstream of each source.

Sampling results of wetlands and/or sensitive environments 0-15 miles downstream have not been located and are believed not to exist for the area of concern. [3]

4H. Discuss any qualitative, quantitative, or circumstantial evidence of contamination of surface waters from sources.

There is no direct evidence that surface water has been contaminated by any of the sources at Fort Story. The only surface water sampling results available are associated with Landfill #3 and the adjacent pond. [3]

4I. Provide results from sediment and surface-water sampling for points 0 to 15 miles downstream of each source.

Analytical results of sediment and surface water sampling for areas within 15 miles downstream of Fort Story are included. Sediment sampling results are underlined with an asterisk adjacent. Bay areas to the southeast of the facility were included because tidal influences could potentially carry contaminants originating at Fort Story into these areas. In addition, Fort Story has surface water and a storm sewer outfall discharging into the Cypress Swamp to the southeast. [7][9]

4J. Provide results from background sediment and surface-water sampling.

Background surface water and sediment sampling results are provided for sampling points in the Chesapeake Bay immediately upstream from Fort Story. Sediment sampling results are underlined with an asterisk adjacent. [10]

4K. Provide results from sampling of surface-water intakes 0 to 15 miles downstream of each source.

There are no surface water intakes within 15 miles downstream of Fort Story. [5]

4M. Determine the 2-year, 24-hour rainfall for the site.

The 2-year, 24-hour rainfall at Fort Story is 4.0 inches. [11]

4N. Discuss the average annual stream flow associated with each surface-water body located 0 to 15 miles downstream of each source.

Question is not applicable to the two downstream surface-water bodies from Fort Story: the Atlantic Ocean to the north and east, and the Cypress Swamp to the south. These surface

water bodies are not streams and flow in these two surface water bodies is not measurable.

4Q. Discuss fisheries (recreational or commercial) in surface water bodies 0 to 15 miles downstream of each source:

There are both recreational and commercial fishing in the Atlantic Ocean, Chesapeake Bay, Lynnhaven Bay, and Broad Bay which are all within 15 miles of Fort Story. Tuna and Mackerel are the two main species harvested commercially. Recreational fisherman catch a large variety of fish including Bluefish, Flounder, Croaker, Trout, Stripped Bass, and Sea Bass. [12]

4Q1. Describe annual production (in pounds) of human food chain organisms (e.g., trout, shellfish, snapping turtles, crabs) per acre of streams and rivers 0 to 15 miles downstream of each source.

The annual production of human food chain organisms in streams and rivers 0 to 15 miles downstream of each source is included in the response to deficiency item 4Q2. [12]

4Q2. Describe annual production (in pounds) of human food chain organisms (e.g., trout, shellfish, snapping turtles, crabs) per acre of ponds, lakes, bays, or oceans 0 to 15 miles downstream of each source.

The annual production of human food chain organisms in ponds, lakes, bays, and oceans (based on 1989 harvest) within a 15-mile radius of Fort Story is approximately 2,628,368 pounds. Using estimated acreage, this amounts to an estimated 6.8lbs/acre. [12]

4R. Identify closed fisheries 0 to 15 miles downstream of each source.

There are not any closed fisheries within 15 miles of Fort Story. [12]

4S. Provide results from sampling of human food chain organism tissues in streams and rivers 0 to 15 miles downstream of each source and in ponds, lakes, and bays that receive drainage from the sources.

These results were extracted from the STORET database. These results are underlined with a bullet adjacent. [9]

Facility Name Fort Story

5. AIR PATHWAY INFORMATION (see Section 6 of the HRS Final Rule - December 1990 Federal Register)

5A. Describe if there has been an observed release (i.e., visual or analytical evidence) of a hazardous substance to the atmosphere.

There have not been any observed releases (visual or analytical) of hazardous substances to the atmosphere at Fort Story. [4]

5B. Determine the shortest distance to the closest residence or regularly occupied building or area from any on-site source.

Fort Story personnel regularly occupy two buildings at the Lighter Amphibious Resupply Cargo (LARC) vehicle maintenance facility (shown on map) which is a site with confirmed contamination. [1][2][4]

5C. Determine if any of the following resources are located within a 1/2-mile radius of each source.

5C1. Commercial agriculture.

No [4]

5C2. Commercial silviculture.

No [4]

5C3. Major or designated recreation area.

Yes. Major or designated recreational areas include Seashore State Park, the resort town of Virginia Beach, the Atlantic Ocean, Chesapeake Bay, Lynnhaven Bay, and Broad Bay.[4]

6. SOIL-EXPOSURE PATHWAY INFORMATION (see Section 5 of the HRS Final Rule - December 1990 Federal Register)

6A. Describe any areas of contamination that are within 2 feet of the ground surface; provide the areal extent of contamination.

Contamination was detected in samples collected from five locations: Landfill #2, Firefighter Training Area, Underground Fuel Storage Tanks, LARC Maintenance Area, and the Auto Craft Building. The areal extent of contamination can be determined from the sampling location maps. [2]

Facility Name Fort Story

6B. Provide locations and depths of soil samples and results.

One hundred forty-four analytical samples, including 11 composite samples, were collected in 48 soil borings at eight locations on Fort Story: Landfill #1, Landfill #2, Firefighter Training Area, Underground Fuel Storage Tanks, LARC Maintenance Area, Auto Craft Building, Drainage Outfall Line, and Former NIKE Facility. Soil contamination was detected at five of the locations, as summarized in Table 3-1. For more detailed information on specific sites, the reader is referred to the Fort Story Preliminary Assessment/Site Investigation and Fort Story NIKE Preliminary Assessment/Site Investigation.[3]

6C. Provide results of background soil sampling.

Seven analytical samples, including one field duplicate sample, were collected from three locations. The background samples were analyzed for pesticides/PCB's, VOC's, BNA's, total metals, and EP Toxicity metals. Only the following analytes in the maximum concentrations indicated were detected: DDT (0.005 mg/kg), arsenic (2.5 mg/kg), chromium (2.9 mg/kg), copper (1.8 mg/kg), lead (11 mg/kg), and zinc (8.9 mg/kg) were detected. [13][14]

6D. Describe the measures takes to limit access to areas with soil contamination within 2 feet of the surface (e.g., fences, security guards).

Aside from the 8 foot chain link fence surrounding Fort Story, there have not been any measures taken to limit access to areas with soil contamination within 2 feet of ground. [4]

6E. Determine if any of the following are located near or within an area of soil contamination (within 2 feet of the surface); provide the number of individuals for 6E1 and 6E2:

6E1. Within 200 feet of any residences, schools, or day care centers and within the property boundary.

No [4]

6E2. Within 200 feet of the work place area and within a work place property boundary.

Fort Story personnel regularly occupy two buildings at the LARC maintenance facility (shown on map) which is a site with confirmed contamination. Maximum population in the buildings at any given time is 100. [4]

Facility Name Fort Story

6E3. Within boundaries of commercial agriculture, silviculture, livestock production, or grazing area.

No [4]

6E4. Within boundaries of a terrestrial-sensitive environment (see Table 5-5, December 1990 Federal Register).

Yes. Landfill #2 on the southern portion of Fort Story lies within wetlands. This landfill lies only a few hundred feet north of Seashore State Park. Route 60 separates the two. [4]

6F. Determine the number of individuals who live, work, or attend school within the following distances of soil contamination (within 2 feet of the surface).

The following values are based upon the maximum number of people that would be on Fort Story at any given time (3,100). Center of radius is at the LARC maintenance facility. [1][4]

6F1. 0 - 1/4 mile radius.

Approximately 2500

6F2. 1/4 - 1/2 mile radius.

Approximately 500

6F3. 1/2 - 1 mile radius.

Approximately 100

LIST OF REFERENCES

1. United States Geological Survey Quadrangle Maps of: Princess Anne, Cape Henry, and Virginia Beach Virginia.

2. Fort Story Final Analytical Results Document, Prepared by James Montgomery Engineers, 1991.

3. Fort Story Preliminary Assessment/Site Investigation and Fort Story NIKE Preliminary Assessment/Site Investigation, Prepared by James Montgomery Engineers, 1991.

4. * Interview with Joan Vandervort, Environmental Coordinator, Fort Eustis, Virginia.

5. Letter from Ms. Virginia P. Newton, Geologist, Water Resources Division, Virginia State Water Control Board, 27 June, 1990.

6. U.S. Environmental Protection Agency (EPA) Storage and Retrieval (STORET) Water Quality Data, Dec. 1991. (Groundwater)

7. Installation Assessment of Fort Story, Virginia, Report No. 184. Prepared by the U.S. Army Toxic and Hazardous Materials Agency, 1980.

8. Phone Conversations with Virginia Newton and Terry Wagner, Virginia Water Control Board.

9. U.S. Environmental Protection Agency (EPA) Storage and Retrieval (STORET) Water Quality Data, Dec. 1991. (Surface Water)

10. U.S. Environmental Protection Agency (EPA) Storage and Retrieval (STORET) Water Quality Data, Dec. 1991. (Background)

11. Two-year, 24-hour rainfall chart from Technical Paper No. 40, Rainfall Frequency Atlas of the United States, U.S. Department of Commerce, January, 1963.

12. Virginia Marine Resource Commission, Newport News, Virginia.

13. Fort Story Preliminary Assessment/Site Investigation and Fort Story NIKE Preliminary Assessment/Site Investigation, Prepared by James Montgomery Engineers, 1991.

14. Fort Story Final Analytical Results Document, Prepared by James Montgomery Engineers, 1991.

15. * USATHAMA Property Report. November, 1990. U.S. Army Toxic and Hazardous Materials Agency, Contract No. DAAA15-88-D-007, Task Order 2.

* References not provided or not available.

REFERENCE 1

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF VIRGINIA
DIVISION OF MINERAL RESOURCES

PRINCESS ANNE QUADRANGLE
VIRGINIA–VIRGINIA BEACH CITY
7.5 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1963. Field checked 1965
Supersedes Army Map Service map dated 1955

Selected hydrographic data compiled from USC&GS Chart 562 (1964)
This information is not intended for navigational purposes

Polyconic projection. 1927 North American datum
10,000-foot grid based on Virginia coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 18, shown in blue

To place on the predicted North American Datum 1983 move the projection lines 11 meters south and 30 meters west as shown by dashed corner ticks

There may be private inholdings within the boundaries of the National or State reservations shown on this map

UTM GRID AND 1986 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Map photoinspected 1989
No major culture or drainage changes observed

SCALE 1:24 000

CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 2 FEET
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND VIRGINIA DIVISION OF MINERAL RESOURCES, CHARLOTTESVILLE, VIRGINIA 22903
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

Revisions shown in purple compiled in cooperation with Commonwealth of Virginia agencies from aerial photographs taken 1982 and other source data. This information not field checked. Map edited 1986

Purple tint indicates extensions of urban areas

ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U.S. Route — State Route

PRINCESS ANNE, VA.
36076-G1-TF-024
PHOTOINSPECTED 1989
1965
PHOTOREVISED 1986
DMA 5757 I SE–SERIES V834

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF VIRGINIA
DIVISION OF MINERAL RESOURCES

VIRGINIA BEACH QUADRANGLE
VIRGINIA–VIRGINIA BEACH CITY
7.5 MINUTE SERIES (TOPOGRAPHIC–BATHYMETRIC)

Mapped, edited, and published by the Geological Survey and the National Ocean Service in cooperation with Commonwealth of Virginia agencies

Control by USGS and NOS/NOAA

Topography by photogrammetric methods from aerial photographs taken 1963. Field checked 1965

Bathymetry compiled by the National Ocean Service from tide-coordinated hydrographic surveys. This information is not intended for navigational purposes
Mean low water (dotted) line and mean high water (heavy solid) line compiled by NOS from tide-coordinated aerial photographs
Apparent shoreline (outer edge of vegetation) shown by light solid line

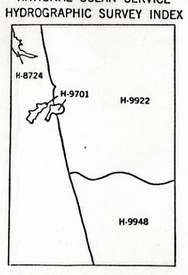
Polyconic projection. 1927 North American Datum
10,000-foot grid based on Virginia coordinate system, south zone
1000-meter Universal Transverse Mercator grid ticks, zone 18 shown in blue
To place on the predicted North American Datum 1983, move the projection lines 10 meters south and 30 meters west as shown by dashed corner ticks

There may be private inholdings within the boundaries of the National or State reservations shown on this map

Red tint indicates areas in which only landmark buildings are shown

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

NATIONAL OCEAN SERVICE
HYDROGRAPHIC SURVEY INDEX



HYDROGRAPHIC SURVEY INFORMATION

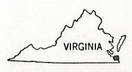
SURVEY NUMBER	SURVEY DATE	SURVEY SCALE	SURVEY LINE SPACING (NAUT. MILES)
H-8724	1963	1:10,000	.02-.06
H-9701	1977	1:5,000	.01-.03
H-9922	1980	1:20,000	.06-.12
H-9948	1981	1:20,000	.04-.12

SCALE 1:24 000

1 ½ 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

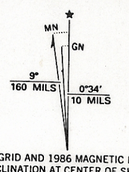
CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
BATHYMETRIC CONTOUR INTERVAL 1 METER WITH SUPPLEMENTARY 0.5 METER CONTOURS–DATUM IS MEAN LOW WATER
THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE

BASE MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
BATHYMETRIC SURVEY DATA COMPLIES WITH INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO) SPECIAL PUBLICATION 44 ACCURACY STANDARDS AND/OR STANDARDS USED AT THE DATE OF THE SURVEY
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
NATIONAL OCEAN SERVICE, ROCKVILLE, MARYLAND 20852
AND VIRGINIA DIVISION OF MINERAL RESOURCES, CHARLOTTESVILLE, VIRGINIA 22903
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



QUADRANGLE LOCATION

Revisions shown in purple compiled in cooperation with Commonwealth of Virginia agencies from aerial photographs taken 1981 and other source data. This information not field checked. Map edited 1986



UTM GRID AND 1986 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U. S. Route — State Route

VIRGINIA BEACH, VA.
36075-G8-TB-024

1965

BATHYMETRY ADDED 1986

DMA 5857 IV SW–SERIES V834

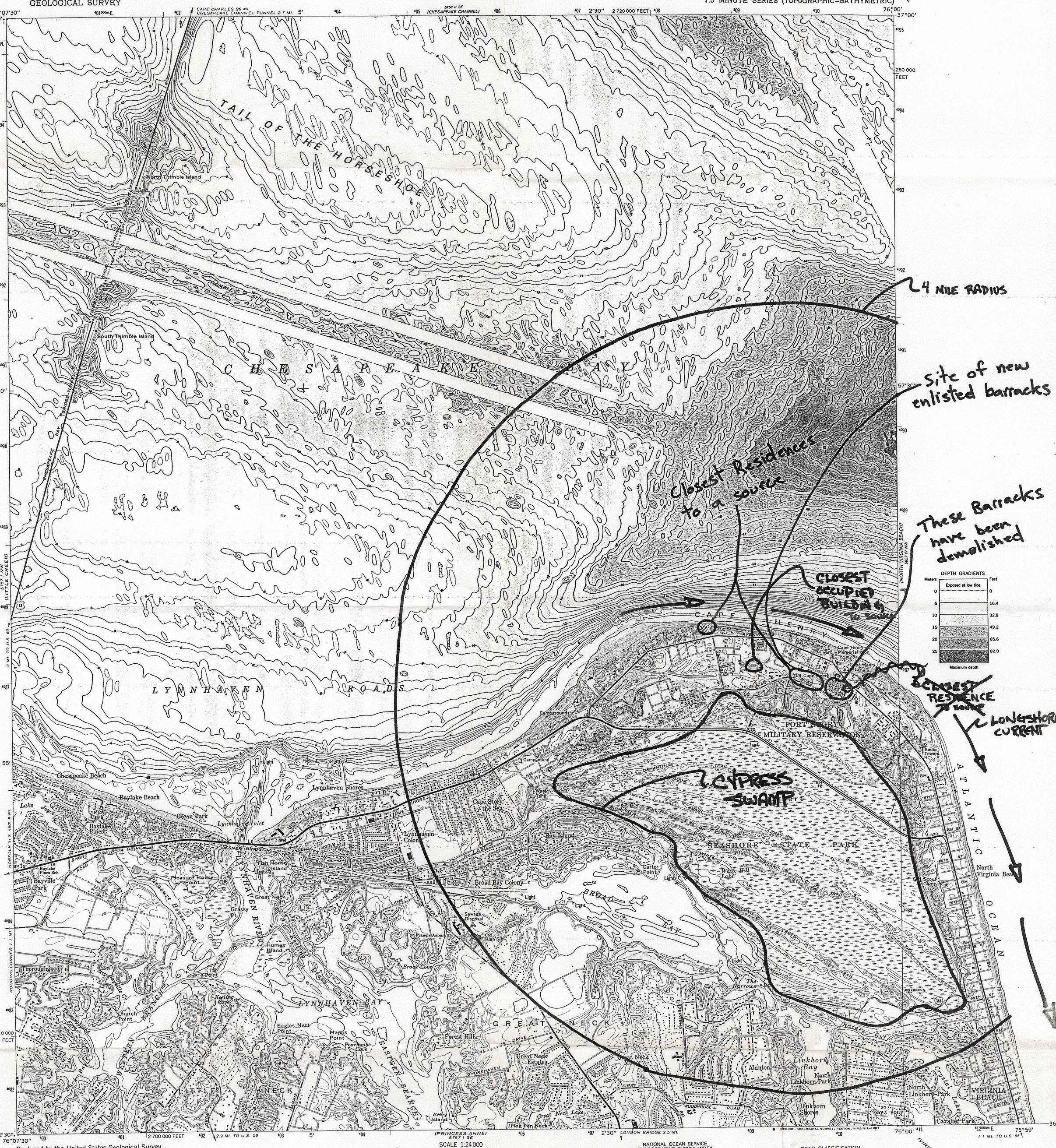
PHOTOREVISED 1986

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1987

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

COMMONWEALTH OF VIRGINIA
DIVISION OF MINERAL RESOURCES

CAPE HENRY QUADRANGLE
VIRGINIA–VIRGINIA BEACH CITY
7.5 MINUTE SERIES (TOPOGRAPHIC–BATHYMETRIC)



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To place on the predicted North American Datum 1983, move the projection lines 10 meters south and 30 meters west as shown by dashed corner ticks
There may be private inholdings within the boundaries of the National or State reservations shown on this map
Red tint indicates areas in which only landmark buildings are shown
Revisions shown in purple compiled in cooperation with Commonwealth of Virginia agencies from aerial photographs taken 1981 and other source data. This information not field checked. Map edited 1986

VIRGINIA
QUADRANGLE LOCATION

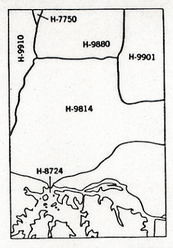
MN GN
9° 160 MILS
0°38' 11 MILS
UTM GRID AND 1986 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000
1 ½ 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
BATHYMETRIC CONTOUR INTERVAL 1 METER WITH SUPPLEMENTARY 0.5 METER CONTOURS-DATUM IS MEAN LOW WATER
THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE

BASE MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
BATHYMETRIC SURVEY DATA COMPLIES WITH INTERNATIONAL HYDROGRAHIC ORGANIZATION (IHO) SPECIAL PUBLICATION 44 ACCURACY STANDARDS AND/OR STANDARDS USED AT THE DATE OF THE SURVEY
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
NATIONAL OCEAN SERVICE, ROCKVILLE, MARYLAND 20852
AND VIRGINIA DIVISION OF MINERAL RESOURCES, CHARLOTTESVILLE, VIRGINIA 22903
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

NATIONAL OCEAN SERVICE
HYDROGRAPHIC SURVEY INDEX



HYDROGRAPHIC SURVEY INFORMATION

SURVEY NUMBER	SURVEY DATE	SURVEY SCALE	SURVEY LINE SPACING (NAUT. MILES)
H-7750	1950	1:40,000	.05-.25
H-8724	1963	1:10,000	.02-.06
H-9814	1980	1:10,000	.02-.06
H-9880	1980	1:10,000	.02-.06
H-9901	1980	1:10,000	.02-.06
H-9910	1980	1:10,000	.01-.08

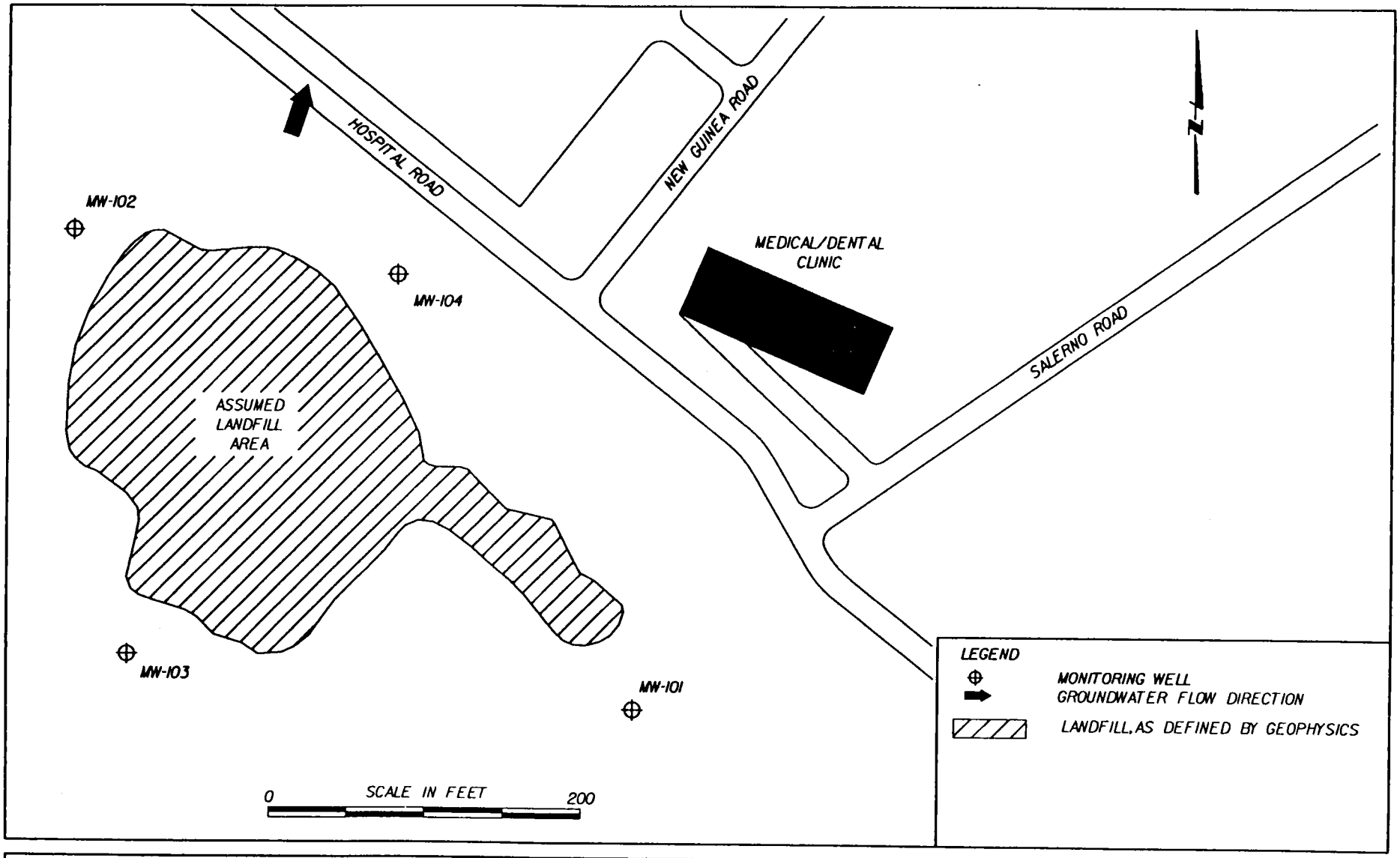
ROAD CLASSIFICATION
Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U.S. Route — State Route

CAPE HENRY, VA.
36076-H1-TB-024
1964
PHOTOREVISED 1986
BATHYMETRY ADDED 1986
DMA 5757 I NE–SERIES V834

REFERENCE 2

Site 1, Landfill 1

Fort Story, Virginia



JMM

Site 1, Landfill 1
Fort Story, VA

TABLE 1-SS

SOIL SAMPLES - FORT STORY, SITE 1

Parameters	MW-101				MW-102		
	0	0(R)[a]	4	12	0	1	2
Pesticides/PCBs (mg/kg)							
p,p' DDD	ND[b]	NA[c]	ND	ND	ND	ND	ND
p,p' DDE	ND	NA	ND	ND	ND	ND	ND
p,p' DDT	ND	NA	ND	ND	ND	ND	ND
VOCs (mg/kg)							
Methylene Chloride	ND	ND	ND[d]	ND[d]	ND	ND	ND
BNAs (mg/kg)	ND	NA	ND	ND	ND	ND	ND
TFH-L (mg/kg)	NA	NA	NA	NA	NA	NA	NA
Metals (mg/kg)							
Barium	ND	NA	ND	ND	ND	ND	ND
Chromium	1.9	NA	2.3	1.7	1.5	1.4	1.7
Copper	ND	NA	1.1	1.1	ND	ND	ND
Lead	ND	NA	1.0	1.0	5.0	1.5	3.0
Mercury	ND	NA	ND	ND	ND	ND	ND
Zinc	3.3	NA	2.8	2.7	3.0	2.6	2.8
EP Tox Metals (mg/l)							
Barium	ND	NA	ND	ND	ND	ND	ND
Cyanide (mg/kg)	ND	NA	ND	ND	ND	ND	ND
Total Solids (%)	96	NA	97	88	84	83	78

TABLE 1-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 1

Parameters	MW-103				
	0	0(R)	0-D	10	15
Pesticides/PCBs (mg/kg)					
p,p' DDD	ND	NA	ND	0.006	ND
p,p' DDE	ND	NA	ND	0.022	ND
p,p' DDT	ND	NA	ND	0.021	0.006
VOCs (mg/kg)					
Methylene Chloride	ND	NA	ND	ND	ND
BNAs (mg/kg)	ND	NA	ND	ND	ND
TFH-L (mg/kg)	NA	ND	NA	NA	NA
Metals (mg/kg)					
Barium	ND	NA	ND	ND	ND
Chromium	ND	NA	ND	ND	1.4
Copper	1.5	NA	1.2	ND	ND
Lead	1.8	NA	2.3	1.0	1.0
Mercury	ND	NA	ND	ND	ND
Zinc	2.8	NA	3.1	2.7	4.2
EP Tox Metals (mg/l)					
Barium	ND	NA	ND	ND	ND
Cyanide (mg/kg)	ND	NA	ND	ND	ND
Total Solids (%)	96	NA	96	98	96

TABLE 1-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 1

Parameters	MW-104			
	0	0(R)	4	10
Pesticides/PCBs (mg/kg)				
p,p' DDD	ND	NA	ND	ND
p,p' DDE	0.005	NA	ND	ND
p,p' DDT	ND	NA	ND	ND
VOCs (mg/kg)				
Methylene Chloride	ND	16	ND[d]	ND[d]
BNAs (mg/kg)	ND	NA	ND	ND
TFH-L (mg/kg)	NA	NA	NA	NA
Metals (mg/kg)				
Barium	ND	NA	29	ND
Chromium	ND	NA	3.7	1.0
Copper	2.7	NA	12	1.0
Lead	2.0	NA	39	ND
Mercury	ND	NA	0.05	ND
Zinc	4.1	NA	27	5.1
EP Tox Metals (mg/l)				
Barium	ND	NA	0.53	ND
Cyanide (mg/kg)	ND	NA	ND	ND
Total Solids (%)	98	NA	92	88

(a) Resampling.
(b) ND - Not detected.
(c) NA - Not analyzed.
(d) Analytical results considered estimated, but below the compound detection limit.

TABLE 1-GW

GROUNDWATER SAMPLES - FORT STORY, SITE 1

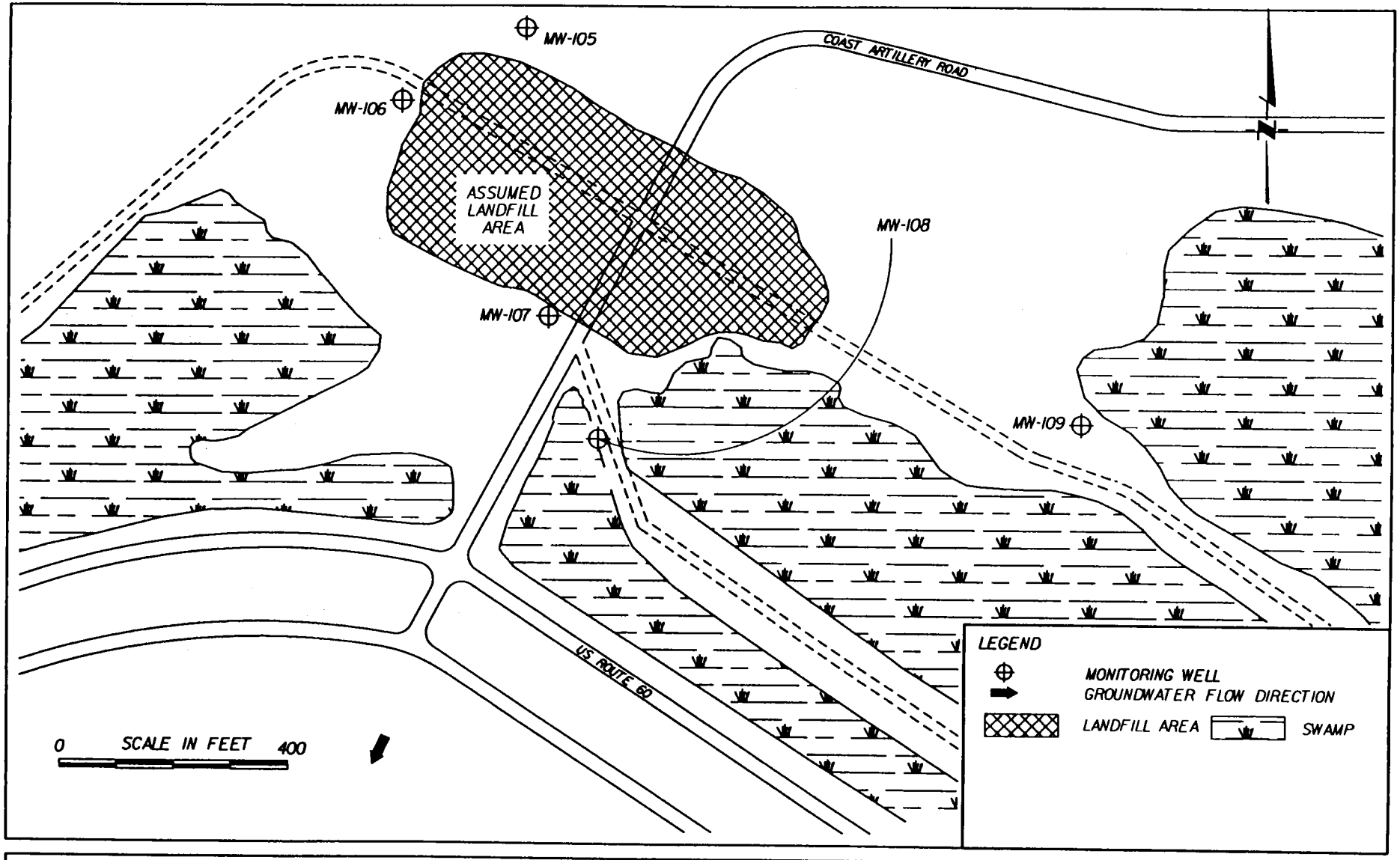
Parameters	GW-101	GW-101 D	GW-102	GW-103	GW-104
Pesticides/PCBs (µg/l)	ND[a]	ND	ND	ND	ND
VOCs (µg/l)					
Carbon Disulfide	25	10	15	5.7	0.6
BNAs (µg/l)					
Benzoic Acid	ND[b]	150	ND[b]	ND	120
Total Metals (mg/l)					
Chromium	0.046	0.033	0.012	ND	0.021
Copper	0.018[c]	0.022[c]	0.026[c]	0.013[c]	0.02[c]
Lead	0.020	0.020	0.05	0.002	0.040
Zinc	0.054	0.070	0.12	0.052	0.097
Dissolved Metals (mg/l)					
Lead	ND	ND	0.002	ND	ND
Zinc	ND	ND	0.045	0.041	0.021
Cyanide (mg/l)	ND	ND	ND	ND	ND
Inorganics (mg/l)					
Fluoride	ND	ND	ND	ND	0.13
Chloride	45.4	42.6	55.5	27.1	43.3
Sulfate	46.2	45.6	22.7	19.9	70.9
Field Parameters[d]					
Temperature (•C)	16.0	16.0	14.7	13.8	14.7
pH	6.6	6.6	5.9	5.5	6.7
Conductivity (µmho)	240	240	160	150	250
Turbidity (NTU)	326.7	326.7	149.6	66.0	801.6

(a) ND - Not detected.
(b) Sample dilution increased reported detection limits.
(c) Analytical results considered suspect due to detection of compound in associated blank sample.
(d) Field parameters measured after purging, and prior to sampling.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

Site 2, Landfill 2

Fort Story, Virginia



JMM

Site 2, Landfill 2
Fort Story, VA

TABLE 2-SS

SOIL SAMPLES - FORT STORY, SITE 2

Parameters	MW-105		MW-106		MW-107		
	0	8	0	2	0	0(R)[b]	2
Pesticides/PCBs (mg/kg)							
p,p'DDD	ND[a]	ND	ND	ND	ND	NA[c]	0.16
p,p'DDE	ND	ND	ND	ND	ND	NA	0.090
p,p'DDT	ND	0.13	ND	ND	ND	NA	0.024
Arochlor 1260	ND	0.43	ND	ND	ND	NA	ND
VOCs (mg/kg)							
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND[d]
BNAs (mg/kg)	ND	ND	ND	ND	ND	NA	ND
Metals (mg/kg)							
Chromium	1.9	2.0	ND	ND	2.6	NA	2.6
Copper	ND	ND	2.2	2.2	19(14)	NA	17(14)
Lead	2.0	2.0	1.5	ND	14	NA	2.0
Zinc	3.2	10	2.7	2.8	22	NA	20
Barium	ND	ND	ND	ND	0.19	NA	0.12
EP TOX Metals (mg/l)							
Barium							
Cyanide (mg/kg)	ND	ND	ND	ND	2.0	NA	ND
Total Solids (%)	98	84	88	84	88	NA	82

TABLE 2-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 2

Parameters	MW-108					MW-109	
	0	0(R)	0-D	0-D(R)	2	0	2
Pesticides/PCBs (mg/kg)							
p,p'DDD	0.14	NA	0.07	NA	0.16	ND	ND
p,p'DDE	0.10	NA	0.038	NA	0.11	ND	0.064
p,p'DDT	ND	NA	0.021	NA	0.022	ND	0.004
Arochlor 1260	ND	NA	ND	NA	ND	ND	ND
VOCs (mg/kg)	ND	ND	ND	ND	ND	ND	ND[d]
Methylene Chloride	ND	ND	ND	0.056[e]	ND	ND	ND
BNAs (mg/kg)	ND	NA	ND	NA	ND	ND	ND
Metals (mg/kg)							
Barium	ND[d]	NA	ND[d]	NA	ND	ND	ND
Chromium	2.2[e]	NA	1.8[e]	NA	2.0	ND	ND
Copper	7.8[e]	NA	2.9[e]	NA	ND	1.9	1.7
Lead	9.5[e]	NA	7.0[e]	NA	4.5	2.0	2.3
Zinc	2.9[e]	NA	2.4[e]	NA	26	7.4	3.8
EP TOX Metals (mg/l)							
Barium	ND	NA	ND	NA	ND	ND	ND
Cyanide (mg/kg)	ND	NA	ND	NA	ND	ND	ND
Total Solids (%)	86	NA	87	NA	87	86	83

(a) ND - Not detected.
(b) Resampling.
(c) NA - Not analyzed.
(d) Analytical results considered estimated, but below the compound detection limit.
(e) Analytical results considered estimated, but above the compound detection limit.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

TABLE 2-GW

GROUNDWATER SAMPLES - FORT STORY, SITE 2

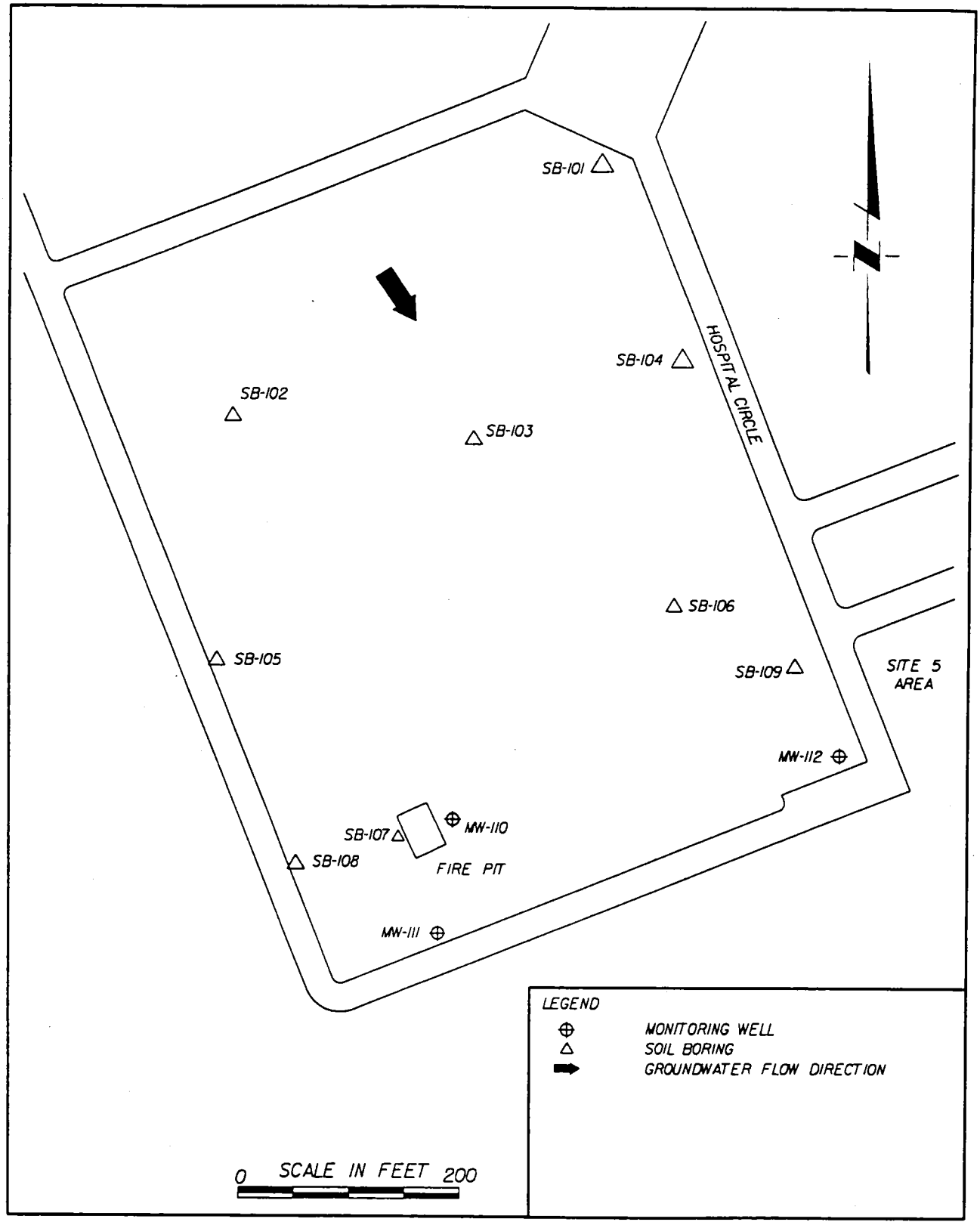
Parameters	GW-105	GW-105 D	GW-106	GW-107	GW-108	GW-109
Pesticides/PCBs (µg/l)	ND[a]	ND	ND	ND	ND	ND
VOCs (µg/l)						
Toluene	ND	NA[b]	ND	ND	ND	1.3
Carbon disulfide	2.8	NA	2.0	0.8	18	25
BNAs (µg/l)						
Benzoic Acid	ND[c,d]	ND[d]	ND[d]	ND	120	ND[d]
Total Metals (mg/l)						
Arsenic	ND	ND	ND	0.030	ND	0.03
Cadmium	ND	ND	0.17	ND	ND	0.14
Chromium	0.019	0.020	0.022	0.026	0.022	0.051
Copper	0.010[e]	0.011[e]	0.029[e]	0.097[e]	0.021[e]	0.036[e]
Mercury	ND	ND	ND	ND	ND	0.0002
Lead	0.010	ND	0.025	0.040	0.020	0.060
Zinc	ND	ND	0.13	0.16	0.097	0.10
Dissolved Metals (mg/l)						
Arsenic	ND	ND	ND	0.011	ND	0.008
Cadmium	ND	ND	ND	ND	ND	**0.087**(0.005)
Lead	ND	ND	0.003	ND	ND	0.005
Zinc	0.065	0.066	ND	0.029	0.066	0.066
Cyanide (mg/l)	ND	ND	ND	ND	ND	ND
Inorganics (mg/l)						
Barium	ND	ND	0.10	0.17	ND	0.14
Fluoride	ND	ND	ND	1.1	ND	ND
Chloride	13.7	13.6	3.4	7.8	31.9	17.4
Sulfate	15.0	15.0	5.4	3.2	ND	ND
Field Parameters[f]						
Temperature (°C)	12.8	12.8	12.3	11.8	6.4	7.8
pH	6.7	6.7	6.1	6.6	6.1	6.1
Conductivity (µmho)	200	200	40	260	300	190
Turbidity (NTU)	58.4	58.4	200.2	144.8	707.2	457.2

(a) ND - not detected.
(b) NA - not analyzed.
(c) Analytical results considered estimated, but below the compound detection limit.
(d) Sample dilution increased reported detection limits.
(e) Analytical results considered suspect due to detection of compound in associated blank sample.
(f) Field parameters measured after purging, and prior to sampling.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

Site 4, Firefighter Training Area

Fort Story, Virginia



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Site 4, Firefighter Training Area
Fort Story, VA

TABLE 4-SS

SOIL SAMPLES - FORT STORY, SITE 4

Parameters	MW-110		MW-111		MW-112	
	0	4	0	4	0	4
Pesticides/PCBs (mg/kg)						
Chlordane	ND[a]	ND	ND	ND	ND	ND
p,p' DDD	ND	ND	ND	ND	ND	0.011
p,p' DDE	ND	ND	ND	ND	ND	0.083
p,p' DDT	ND	ND	ND	0.008	ND	0.15
VOCs (mg/kg)						
m,p-Xylenes	ND	4.2	ND	ND	ND	ND
o-Xylene	ND	2.5	ND	ND	ND	ND
BNAs (mg/kg)						
Di-n-butylphthalate	ND	ND	ND	ND	ND	ND
Fluorene	ND	9.9	ND	ND	ND	ND
Naphthalene	ND	7.1	ND	ND	ND	ND
Phenanthrene	ND	24	ND	ND	ND	ND
Pyrene	ND	5.9	ND	ND	ND	ND
2-Methylnaphthalene	ND	53	ND	ND	ND	ND
TFH-L (mg/kg)	ND[b]	10,000(100)[c]	ND[b]	ND[b]	230(100)[c]	ND[b]
Metals (mg/kg)						
Barium	36	ND	ND	ND	12	ND
Chromium	4.5	1.2	2.9	2.3	2.8	4.0
Copper	7.5	2.3	6.2	3.2	10	5.1
Mercury	0.10	ND	ND	ND	ND	ND
Lead	7.5	1.0	27	1.0	12	1.0
Zinc	27	2.6	12	ND	12	ND
Total Solids (%)	95	87	96	86	95	85

TABLE 4-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 4

Parameters	SB-101		SB-102		SB-103	
	0	8	0	8	0	8
Pesticides/PCBs (mg/kg)						
Chlordane	ND	ND	ND	ND	0.06	ND
p,p' DDD	ND	ND	ND	ND	ND	ND
p,p' DDE	0.004	ND	0.008	ND	0.007	ND
p,p' DDT	ND	ND	0.013	ND	0.009	ND
VOCs (mg/kg)						
m,p-Xylenes	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND	ND
BNAs (mg/kg)						
Di-n-butylphthalate	2.3	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND
TFH-L (mg/kg)	ND	ND	ND	ND	ND	ND
Metals (mg/kg)						
Barium	ND	ND	ND	ND	ND	ND
Chromium	4.6	1.4	2.9	1.3	3.0	2.6
Copper	2.2	ND	1.6	ND	4.9	ND
Mercury	0.04	ND	ND	ND	ND	ND
Lead	93(71)	ND	17	2.0	9.0	1.0
Zinc	22	ND	2.3	2.2	6.2	2.1
Total Solids (%)	91	86	90	81	92	85

TABLE 4-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 4

Parameters	SB-104		SB-105		SB-106	
	0	4	0	4	0	4
Pesticides/PCBs (mg/kg)						
Chlordane	ND	ND	ND	ND	0.06	ND
p,p' DDD	ND	ND	ND	ND	ND	ND
p,p' DDE	0.005	ND	0.032	ND	0.03	ND
p,p' DDT	ND	ND	0.083	ND	0.04	ND
VOCs (mg/kg)						
m,p-Xylenes	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND	ND
BNAs (mg/kg)						
Di-n-butylphthalate	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND
TFH-L (mg/kg)	ND	ND	ND	ND	ND	ND
Metals (mg/kg)						
Barium	ND	ND	ND	ND	19	ND
Chromium	2.3	2.9	3.6	1.2	3.1	2.6
Copper	14(14)	ND	3.5	ND	5.0	ND
Mercury	ND	ND	ND	ND	0.099	ND
Lead	12	1.0	36	1.0	28	1.5
Zinc	13	5.5	14	3.2	32	2.0
Total Solids (%)	92	85	93	81	95	85

TABLE 4-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 4

Parameters	SB-107			SB-108		SB-109	
	0	4	0	0	4	0	15
Pesticides/PCBs (mg/kg)							
Chlordane	ND	ND	ND	ND	ND	ND	ND
p,p' DDD	ND	ND	ND	0.005	ND	ND	ND
p,p' DDE	ND	ND	ND	0.026	ND	ND	ND
p,p' DDT	0.005	ND	ND	ND	ND	ND	ND
VOCs (mg/kg)							
m,p-Xylenes	ND	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND	ND	ND
BNAs (mg/kg)							
Di-n-butylphthalate	ND	ND	ND	ND[b]	ND	ND	ND
Fluorene	ND	ND	ND	ND[b]	ND	ND	ND
Naphthalene	ND	ND	ND	ND[b]	ND	ND	ND
Phenanthrene	ND	ND	ND	ND[b]	ND	ND	ND
Pyrene	ND	ND	ND	ND[b]	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND[b]	ND	ND	ND
TFH-L (mg/kg)	ND	ND	ND	ND	ND	ND	ND
Metals (mg/kg)							
Barium	41	ND	ND	ND	ND	35	ND
Chromium	4.9	2.0	3.2	2.3	ND	4.0	ND
Copper	4.8	1.5	ND	ND	ND	5.0	ND
Mercury	ND	ND	ND	ND	ND	ND	ND
Lead	5.8	ND	ND	12	ND	12	1.0
Zinc	20	ND	ND	5.7	ND	45	2.0
Total Solids (%)	92	84	87	95	83	95	90

(a) ND - not detected.
(b) Analytical results considered estimated, but below the compound detection limit.
(c) Analytical results considered estimated, but above the compound detection limit.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

TABLE 4-GW

GROUNDWATER SAMPLES - FORT STORY, SITE 4

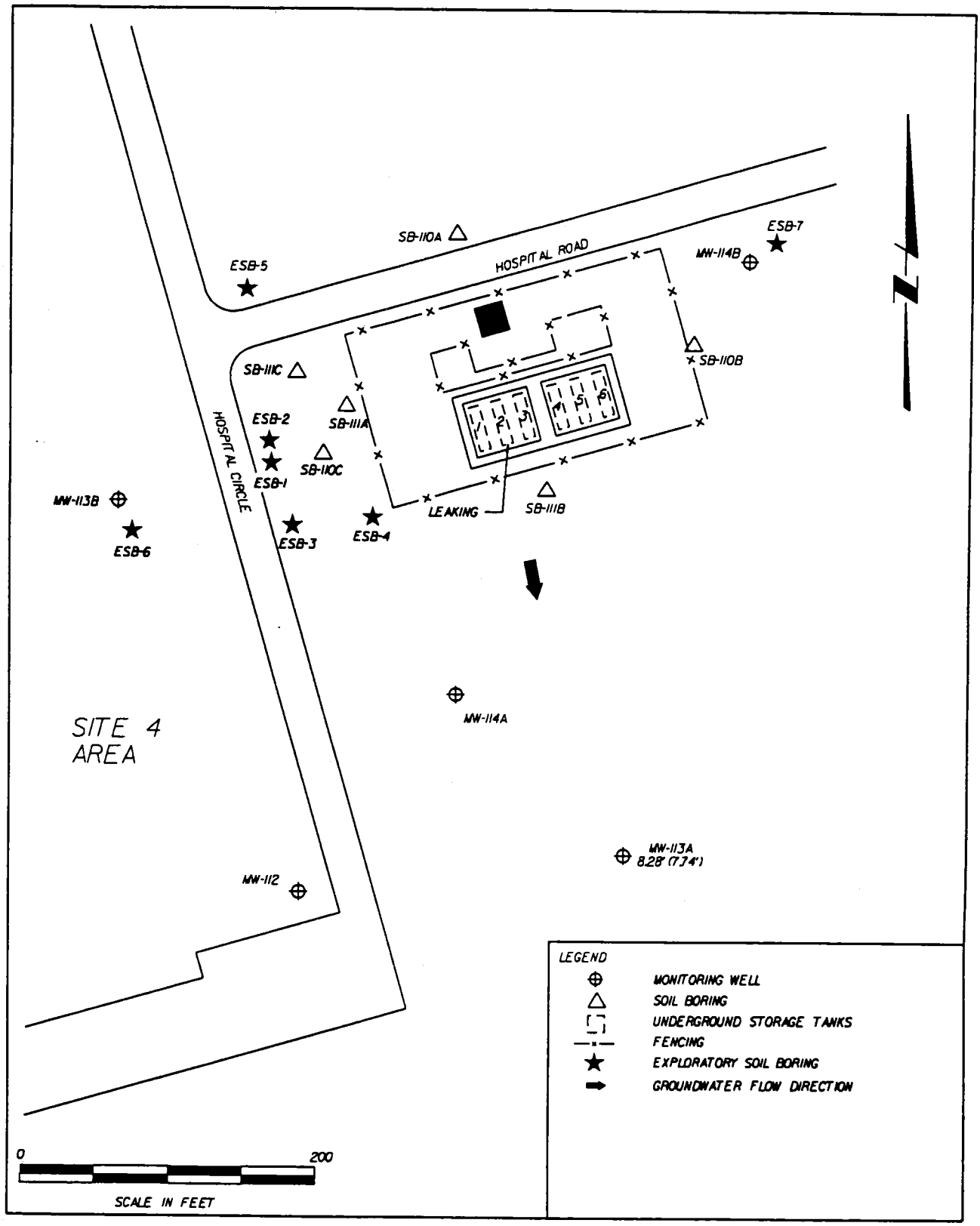
Parameters	GW-110	GW-110 D	GW-111	GW-112
Pesticides/PCBs (µg/l)	ND[a]	ND[b]	ND	ND
VOCs (µg/l)				
Benzene	**8.9**(5.0)	**9.2**(5.0)	ND[b]	ND[b]
Carbon disulfide	13	26	ND[b]	ND[b]
1,1-Dichloroethane	ND[b]	ND[b]	ND[b]	180
1,2-Dichloroethane	ND[b]	ND[b]	ND[b]	**69**(5)
1,1-Dichloroethene	ND[b]	ND[b]	ND[b]	**230**(7)
Toluene	16	13	ND[b]	ND[b]
1,1,1-Trichloroethane	ND[b]	ND[b]	ND[b]	**430**(200)
m,p-Xylenes	25	16	ND[b]	ND[b]
o-Xylene	29	19	ND[b]	ND[b]
BNAs (µg/l)				
Anthracene	140	45	ND	ND[b]
bis (2-Ethylhexyl) phthalate	15[c]	13[c]	ND	ND[b]
Naphthalene	160	160	ND	ND[b]
Phenanthrene	ND[b]	110	ND	ND[b]
Pyrene	36	ND[b]	ND	ND[b]
Phenol	**23**(1)	**23**(1)	ND	ND[b]
2-Methylnaphthalene	230	150	ND	ND[b]
Dibenzofuran	28	ND[b]	ND	ND[b]
TFH-L (mg/l)	**18**(1)	**13**(1)	ND	0.4
Total Metals (mg/l)				
Arsenic	0.040	0.040	ND	ND
Barium	0.26	0.20	ND	ND
Cadmium	0.016	0.008	0.018	0.008
Chromium	0.061	0.038	0.019	0.019
Copper	0.052[b]	0.034[b]	0.017[b]	0.023[b]
Lead	0.11	0.11	0.015	0.020
Zinc	0.56	0.30	0.033	0.088
Dissolved Metals (mg/l)				
Arsenic	0.020	0.021	ND	ND
Barium	0.10	0.10	ND	ND
Lead	0.003	0.002	ND	ND
Zinc	ND	0.025	ND	0.045
Field Parameters[d]				
Temperature (°C)	26.2	26.2	22.0	22.3
pH	6.6	6.6	6.8	6.3
Conductivity (µmho)	600	600	190	220
Turbidity (NTU)	693.6	693.6	118.2	120.4

(a) ND - not detected.
(b) Sample dilution increased reported detection limits.
(c) Analytical results considered suspect due to detection of compound in associated blank sample.
(d) Field parameters measured after purging, and prior to sampling.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

Site 5, Underground Storage Tank Farm

Fort Story, Virginia



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Site 5, Underground Fuel Storage Tank Farm
Fort Story, VA

TABLE 5-SS

SOIL SAMPLES - FORT STORY, SITE 5

Parameters	MW-113A				MW-113B		MW-114A	
	0	0(R)[a]	5	5(R)	0	4	0	6
BETX (mg/kg)								
m,p-Xylenes	ND[b]	NA[c]	ND	ND	ND	ND	ND	ND
o-Xylene	ND	NA	ND	NA	ND	ND	ND	ND
Toluene	ND	NA	ND	NA	ND	ND	ND	ND
TFH-L (mg/kg)	NA	NA	NA	NA	ND	ND	ND	ND
TFH-H (mg/kg)	NA	ND[d]	NA	ND[d]	NA	NA	NA	NA
Total Lead (mg/kg)	10	NA	ND	NA	14	1.0	ND	160(71)
Total Solids (%)	97	NA	96	NA	93	86	91	86

TABLE 5-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 5

Parameters	MW-114B				SB-110A		SB-110B	
	0	0(R)	8	8(R)	12	14	2	6
BETX (mg/kg)								
m,p-Xylenes	ND	NA	ND	NA	ND	ND	ND	ND
o-Xylene	ND	NA	ND	NA	ND	ND	ND	ND
Toluene	ND	NA	ND	NA	0.01	ND	0.02	0.01
TFH-L (mg/kg)	NA	NA	NA	NA	ND	ND	ND	ND
TFH-H (mg/kg)	NA	ND[d]	NA	ND[d]	NA	NA	NA	NA
Total Lead (mg/kg)	9.5	NA	1.0	NA	1.0	1.0	3.0	ND
Total Solids (%)	94	NA	86	NA	86	87	98	95

TABLE 5-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 5

Parameters	SB-110C		SB-111A		
	4	18	12	14	14-D
BETX (mg/kg)					
m,p-Xylenes	ND	ND	0.19	ND	ND
o-Xylene	ND	ND	0.06	ND	ND
Toluene	ND	ND	0.06	ND	ND
TFH-L (mg/kg)	ND	ND	880(100)	35	130(100)
TFH-H (mg/kg)	NA	NA	NA	NA	NA
Total Lead (mg/kg)	14	15	2.0	14	2.0
Total Solids (%)	98	79	84	85	85

TABLE 5-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 5

Parameters	SB-111B		SB-111C	
	0	2	0	18
BETX (mg/kg)				
m,p-Xylenes	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND
Toluene	0.06	0.12	ND	ND
TFH-L (mg/kg)	ND	ND	ND	ND
TFH-H (mg/kg)	NA	NA	NA	NA
Total Lead (mg/kg)	10	7.0	14	ND
Total Solids (%)	98	97	96	84

(a) Resampling.
(b) ND - not detected.
(c) NA - not analyzed.
(d) Analytical results considered estimated, but below the compound detection limit.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

TABLE 5-GW

GROUNDWATER SAMPLES - FORT STORY, SITE 5

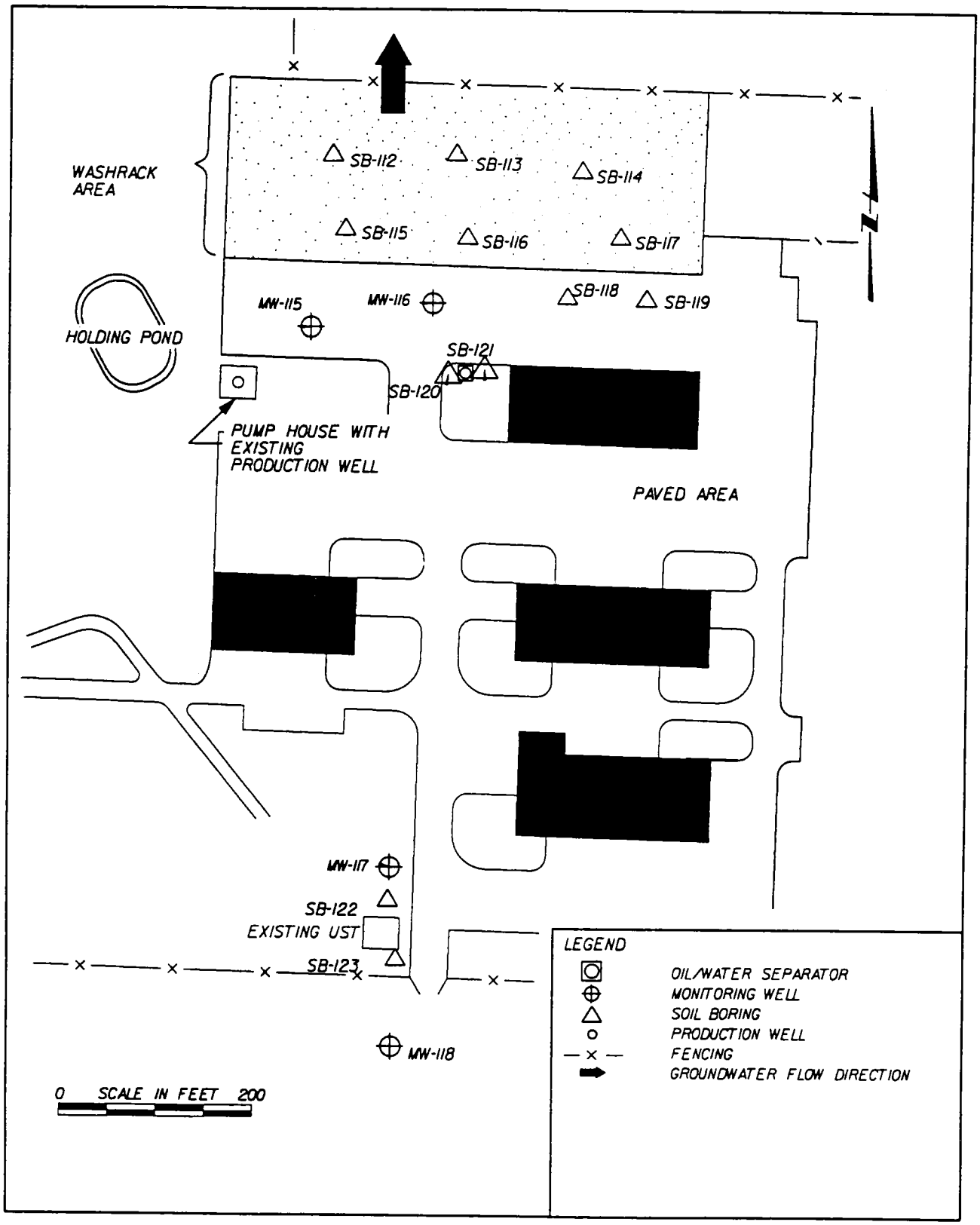
Parameters	GW-113A	GW-113A D	GW-113B	GW-114A	GW-114B
BETX (µg/l)					
Benzene	ND[a]	ND	ND	**8.5**(5)	ND
TFH-L (mg/l)	0.2	0.08	0.1	0.1	ND
Dissolved Metals (mg/l)	ND	ND	ND	ND	ND
Total Lead (mg/l)	0.025	0.030	0.055	0.010	0.045
Field Parameters[b]					
Temperature (°C)	15.0	15.0	16.0	18.0	16.0
pH	5.5	5.5	6.2	5.6	5.4
Conductivity (µmho)	120	120	100	185	50
Turbidity (NTU)	522.8	522.8	1190.4	488.8	470.4

(a) ND - not detected.
(b) Field parameters measured after purging, and prior to sampling.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

Site 6, LARC Maintenance Area

Fort Story, Virginia



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Site 6, LARC Maintenance Area
Fort Story, VA

TABLE 6-SS

SOIL SAMPLES - FORT STORY, SITE 6

Parameters	MW-115		MW-116		MW-117	
	1.5	3.5	1.5	3.5	0	5
Pesticides/PCBs (mg/kg)						
Chlordane	ND[a]	ND	ND	ND	ND	ND
p,p' DDD	0.011	ND	ND	ND	ND	ND
p,p' DDE	ND	ND	ND	ND	ND	ND
p,p' DDT	ND	ND	ND	ND	ND	ND
VOCs (mg/kg)						
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.02	ND	ND	ND	ND	ND
Tetrachloroethene	0.01	ND	ND	ND	ND	ND
m,p-Xylenes	0.07	ND	ND	ND	ND	ND
o-Xylene	0.05	ND	ND	ND	ND	ND
BNAs (mg/kg)						
Fluorene	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	3.3
Phenanthrene	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	3.1	ND	ND	ND	ND	4.7
TFH-H (mg/kg)	11,200(100)	ND	160(100)	35	ND	1,500(100)
Metals (mg/kg)						
Barium	18	ND	ND	12	12	ND
Cadmium	ND	ND	ND	ND	ND	ND
Chromium	8.2	1.7	4.1	14	6.2	5.5
Copper	5.0	ND	ND	ND	5.1	ND
Mercury	ND	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND
Lead	5.0	ND	1.5	1.5	6.5	ND
Zinc	13	ND	9.1	12	12	2.1
Total Solids (%)	95	85	96	95	98	72

TABLE 6-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 6

Parameters	MW-118		SB-112	
	1.5	8	0	8
Pesticides/PCBs (mg/kg)				
Chlordane	ND	ND	ND	ND
p,p' DDD	ND	ND	0.054	ND
p,p' DDE	ND	ND	0.017	ND
p,p' DDT	ND	ND	ND	ND
VOCs (mg/kg)				
1,2-Dichlorobenzene	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND
m,p-Xylenes	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND
BNAs (mg/kg)				
Fluorene	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND
TFH-H (mg/kg)	ND	ND	230(100)	28
Metals (mg/kg)				
Barium	ND	ND	ND	ND
Cadmium	ND	ND	ND	ND
Chromium	5.9	3.7	3.1	2.9
Copper	1.0	ND	9.4	ND
Mercury	ND	ND	ND	ND
Nickel	ND	ND	ND	ND
Lead	3.5	4.0	16	3.5
Zinc	5.9	2.9	16	3.2
Total Solids (%)	99	95	92	81

TABLE 6-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 6

Parameters	SB-113			SB-114	
	0	0-D	8	0	8
Pesticides/PCBs (mg/kg)					
Chlordane	ND	ND	ND	0.73	ND
p,p' DDD	0.047	0.023	ND	2.9	ND
p,p' DDE	0.006	0.005	ND	0.081	ND
p,p' DDT	0.094	0.051	ND	0.029	ND
VOCs (mg/kg)					
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
m,p-Xylenes	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND
BNAs (mg/kg)					
Fluorene	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND
TFH-H (mg/kg)	290(100)	610(100)	ND	340(100)	ND
Metals (mg/kg)					
Barium	ND	10	ND	ND	ND
Cadmium	ND	ND	ND	ND	ND
Chromium	4.3	5.0	1.4	6.7	1.0
Copper	12	15(14)	ND	25(14)	ND
Mercury	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND
Lead	28	33	1.0	40	ND
Zinc	17	47	4.3	20	ND
Total Solids (%)	96	96	83	92	81

TABLE 6-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 6

Parameters	SB-115 0	SB-115 0-D	SB-115 8	SB-116 0	SB-116 8
Pesticides/PCBs (mg/kg)					
Chlordane	ND	ND	ND	ND	ND
p,p' DDD	ND	0.018	ND	ND	ND
p,p' DDE	ND	ND	ND	ND	ND
p,p' DDT	ND	0.017	ND	ND	ND
VOCs (mg/kg)					
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	0.05	ND
Tetrachloroethene	ND	ND	ND	0.20	ND
m,p-Xylenes	ND	ND	ND	0.20	ND
o-Xylene	ND	ND	ND	0.10	ND
BNAs (mg/kg)					
Fluorene	ND	ND[b]	ND	ND[b]	ND
Naphthalene	ND	ND[b]	ND	ND[b]	ND
Phenanthrene	ND	ND[b]	ND	ND[b]	ND
2-Methylnaphthalene	ND	ND[b]	ND	ND[b]	ND
TFH-H (mg/kg)	960(100)	1,700(100)	19	3,700(100)	ND
Metals (mg/kg)					
Barium	ND[c]	ND[c]	ND	20	ND
Cadmium	ND[c]	ND[c]	ND	1.1	1.2
Chromium	11[d]	3.9[d]	1.5	9.7	ND
Copper	5.3[d]	8.1[d]	ND	1.4	ND
Mercury	0.04[d]	ND[c]	ND	ND	ND
Nickel	ND[c]	ND[c]	ND	ND	ND
Lead	72(71)[d]	20[d]	1.0	110(71)	1.3
Zinc	13[d]	14[d]	ND	85(57)	ND
Total Solids (%)	98	97	82	95	83

TABLE 6-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 6

Parameters	SB-117		SB-118		SB-119	
	0	8	1.5	8	0	8
Pesticides/PCBs (mg/kg)						
Chlordane	ND	ND	ND	ND	ND	ND
p,p' DDD	0.064	ND	ND	ND	ND	ND
p,p' DDE	0.009	ND	0.012	ND	ND	ND
p,p' DDT	ND	ND	ND	ND	ND	ND
VOCs (mg/kg)						
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND	ND
BNAs (mg/kg)						
Fluorene	ND[b]	ND	ND	ND	ND	ND
Naphthalene	ND[b]	ND	ND	ND	ND	ND
Phenanthrene	ND[b]	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND[b]	ND	ND	ND	ND	ND
TFH-H (mg/kg)	13,000(100)	ND	ND	ND	ND	ND
Metals (mg/kg)						
Barium	38	ND	ND	ND	ND	ND
Cadmium	6.4	ND	ND	ND	ND	ND
Chromium	22	1.7	2.6	2.0	1.7	1.3
Copper	94(14)	ND	1.8	ND	ND	ND
Mercury	ND	ND	ND	ND	ND	ND
Nickel	29	ND	ND	ND	ND	ND
Lead	160(71)	1.0	1.5	ND	1.5	1.0
Zinc	390(57)	ND	14	2.8	ND	ND
Total Solids (%)	94	83	98	83	95	83

TABLE 6-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 6

Parameters	SB-120		SB-121	
	0	9.5	0	9.5
Pesticides/PCBs (mg/kg)				
Chlordane	ND	ND	ND	ND
p,p' DDD	ND	ND	ND	ND
p,p' DDE	ND	ND	ND	ND
p,p' DDT	0.008	ND	ND	ND
VOCs (mg/kg)				
1,2-Dichlorobenzene	ND	0.02	ND	ND
Ethylbenzene	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND
m,p-Xylenes	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND
BNAs (mg/kg)				
Fluorene	ND	ND	2.4	ND
Naphthalene	ND	ND	ND[c]	ND
Phenanthrene	ND	ND	7.4	ND
2-Methylnaphthalene	ND	ND	ND[c]	ND
TFH-H (mg/kg)	520(100)	120(100)	7,800(100)	11
Metals (mg/kg)				
Barium	ND	ND	ND	ND
Cadmium	ND	ND	0.9	ND
Chromium	2.8	1.7	7.6	1.1
Copper	4.8	ND	16(14)	ND
Mercury	ND	ND	ND	ND
Nickel	ND	ND	ND	ND
Lead	12	6.0	44	1.5
Zinc	13	7.4	24	4.4
Total Solids (%)	95	84	94	84

TABLE 6-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 6

Parameters	SB-122			SB-123	
	0[c]	0-D[c]	10	0	12
Pesticides/PCBs (mg/kg)					
Chlordane	ND	ND	ND	ND	ND
p,p' DDD	ND	ND	ND	ND	ND
p,p' DDE	ND	ND	ND	ND	ND
p,p' DDT	ND	ND	ND	0.006	ND
VOCs (mg/kg)					
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	0.04	ND
m,p-Xylenes	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND
BNAs (mg/kg)					
Fluorene	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	1.3	ND	ND
TFH-H (mg/kg)	ND	ND	**370**(100)	**1,900**(100)	ND
Metals (mg/kg)					
Barium	22	21	ND	10	ND
Cadmium	ND	ND	ND	ND	ND
Chromium	8.7	7.2	2.1	5.4	2.2
Copper	2.3	2.0	ND	3.5	ND
Mercury	ND	0.02	ND	ND	ND
Nickel	ND	ND	ND	ND	ND
Lead	8.0	4.5	ND	15	ND
Zinc	9.5	10	2.1	25	2.9
Total Solids (%)	92	91	84	97	83

(a) ND - not detected.
(b) Sample dilution increased reported detection limits.
(c) Analytical results considered estimated, but below the compound detection limit.
(d) Analytical results considered estimated, but above the compound detection limit.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

TABLE 6-GW

GROUNDWATER SAMPLES - FORT STORY, SITE 6

Parameters	GW-115	GW-115 (R)[a]	GW-115-D	GW-115-D (R)
Pesticides/PCBs (µg/l)	ND[b]	NA[c]	ND	NA
VOCs (µg/l)				
Benzene	ND[d]	NA	ND[d]	NA
1,1-Dichloroethane	ND[d]	NA	5.9[d]	NA
1,1-Dichloroethene	ND[d]	NA	ND[d]	NA
Ethylbenzene	ND[d]	NA	ND[d]	NA
Methylene Chloride	ND[d]	NA	11[d]	NA
Tetrachloroethene	ND[d]	NA	ND[d]	NA
Toluene	ND[d]	NA	ND[d]	NA
Vinyl Chloride	ND[d]	NA	ND[d]	NA
Total Xylenes	ND[d]	NA	ND[d]	NA
Carbon Disulfide	24[d]	NA	75[d]	NA
BNAs (µg/l)				
Naphthalene	7.2	NA	8.3	NA
2-Methylnaphthalene	7.6	NA	12	NA
TFH-H (mg/l)	ND[e]	1.2(1)	2.6(1)[e]	1.5 (1)
Total Metals (mg/l)				
Cadmium	0.009	NA	ND	NA
Chromium	0.030	NA	0.022	NA
Copper	0.023[e]	NA	0.021[e]	NA
Mercury	ND	NA	ND	NA
Lead	0.050	NA	0.040	NA
Zinc	0.096	NA	0.065	NA
Dissolved Metals (mg/l)				
Arsenic	0.012	NA	0.011	NA
Lead	0.004	NA	0.003	NA
Zinc	0.032	NA	0.026	NA
Inorganics (mg/l)	ND	NA	ND	NA
Field Parameters[f]				
Temperature (°C)	22.3	NA	22.3	NA
pH	6.4	NA	6.4	NA
Conductivity (µmho)	290	NA	290	NA
Turbidity (NTU)	239.6	NA	239.6	NA

TABLE 6-GW
(Continued)

GROUNDWATER SAMPLES - FORT STORY, SITE 6

Parameters	GW-116	GW-116 (R)	GW-117	GW-117 (R)	GW-118
Pesticides/PCBs (µg/l)	ND	NA	ND	NA	ND
VOCs (µg/l)					
Benzene	ND[d]	NA	8.2(5)[e]	NA	ND[d,g]
1,1-Dichloroethane	ND[d]	NA	7.0	NA	ND[d,g]
1,1-Dichloroethene	ND[d]	NA	12(7)	NA	ND[d,g]
Ethylbenzene	ND[d]	NA	160	NA	ND[d,g]
Methylene Chloride	ND[d]	NA	18	NA	ND[d,g]
Tetrachloroethene	ND[d]	NA	2.9	NA	ND[d,g]
Toluene	ND[d]	NA	190	NA	ND[d,g]
Vinyl Chloride	6.4(2)[d]	NA	ND[d]	NA	ND[d,g]
Total Xylenes	ND[d]	NA	970	NA	ND[d,g]
Carbon Disulfide	12[d]	NA	16	NA	ND[d,g]
BNAs (µg/l)					
Naphthalene	ND	NA	ND	NA	ND
2-Methylnaphthalene	ND	NA	ND	NA	ND
TFH-H (mg/l)	0.7[e,h]	1.0(1)	4.0(1)[e,h]	NP[i]	ND[e]
Total Metals (mg/l)					
Cadmium	0.012	NA	ND	NA	ND
Chromium	0.027	NA	0.016	NA	0.040
Copper	0.020[e]	NA	ND	NA	0.032[e]
Mercury	ND	NA	ND	NA	0.0002
Lead	0.030	NA	0.020	NA	0.035[e]
Zinc	0.14	NA	0.046	NA	0.077
Dissolved Metals (mg/l)					
Arsenic	0.031	NA	0.019	NA	ND
Lead	ND	NA	ND	NA	ND
Zinc	0.060	NA	ND	NA	0.029
Inorganics (mg/l)	ND	NA	ND	NA	ND
Field Parameters[f]					
Temperature (°C)	23.6	NA	19.6	NA	20.0
pH	6.3	NA	6.6	NA	5.9
Conductivity (µmho)	600	NA	140	NA	200
Turbidity (NTU)	131.7	NA	67.6	NA	544.4

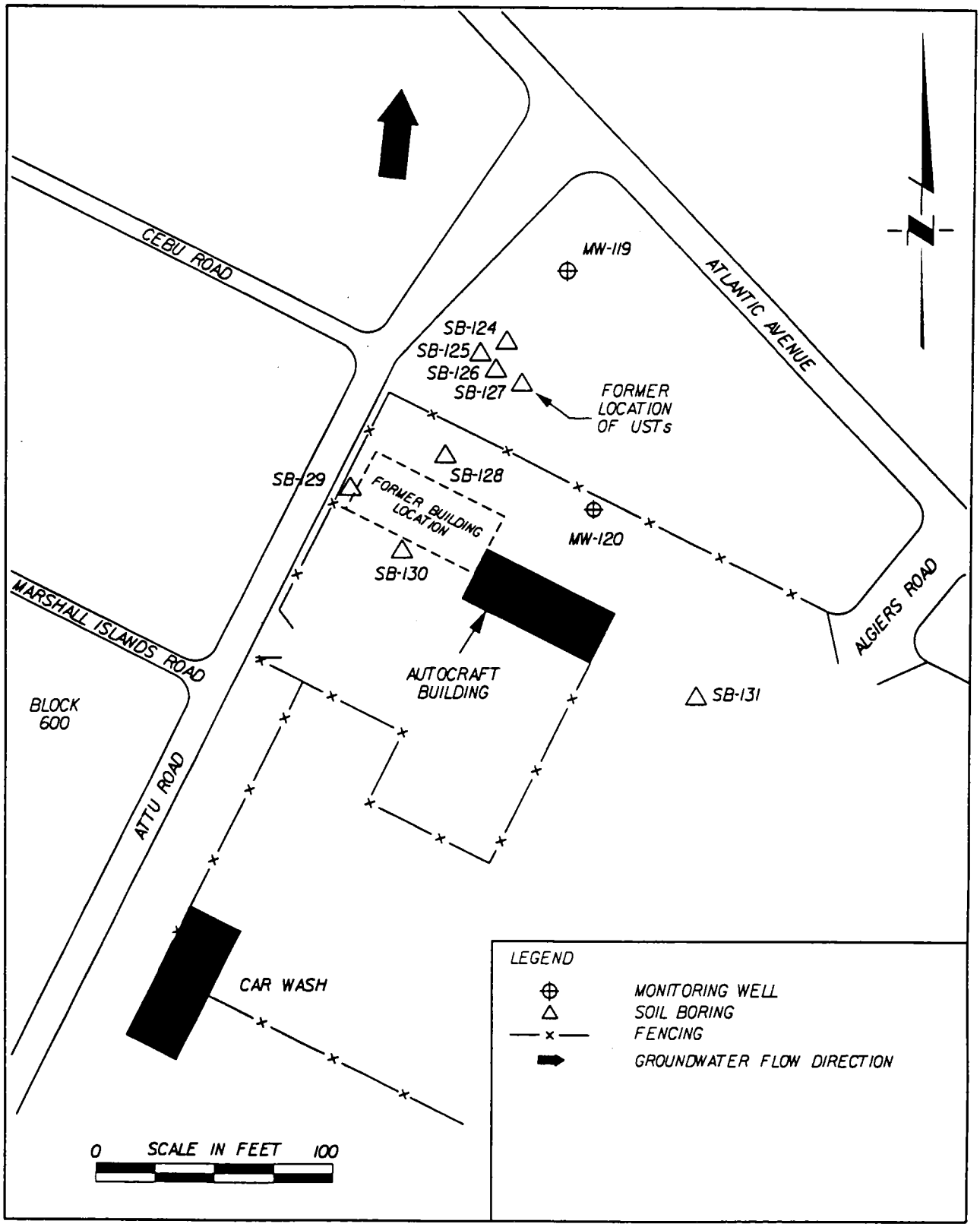
(a) Resampling.
(b) ND - not detected.
(c) NA - not analyzed.
(d) Sample dilution increased reported detection limits.
(e) Analytical results considered suspect due to detection of compound in associated blank sample.
(f) Field parameters measured after purging, and prior to sampling.
(g) Analytical results considered estimated, but below the compound detection limit.
(h) Analytical results considered estimated, but above the compound detection limit.

(i) NP - not performed (sample extract evaporated).

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

Site 7, Autocraft Building Area

Fort Story, Virginia



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Site 7, Auto Craft Building
Fort Story, VA

TABLE 7-SS

SOIL SAMPLES - FORT STORY, SITE 7

Parameters	MW-119		MW-120		SB-124		
	0	2	0.5	9	0	0(R)[c]	9.5
Pesticides/PCBs (mg/kg)							
p,p' DDD	0.007	ND	ND[a]	ND	ND	NA[d]	0.025
p,p' DDE	0.038	ND	ND	ND	ND	NA	ND
p,p' DDT	ND	0.011[b]	ND	ND	ND	NA	ND
VOCs (mg/kg)							
Methylene Chloride	ND	ND	ND	ND	ND	0.010	ND[e]
Chloroform	ND	ND	ND	ND	ND	NA	ND[e]
BNAs (mg/kg)	ND	ND	ND	ND	ND	NA	ND
TFH-H (mg/kg)	ND	ND	37	ND	ND	NA	ND
Metals (mg/kg)							
Arsenic	ND	ND	3.0	ND	ND	NA	ND
Barium	26	ND	34	ND	10	NA	ND
Cadmium	ND	ND	ND	ND	ND	NA	ND
Chromium	6.8	4.0	9.5	ND	3.3	NA	ND
Copper	6.2	3.0	2.8	ND	7.0	NA	ND
Mercury	0.03	ND	ND	ND	ND	NA	ND
Nickel	ND	ND	5.8	ND	ND	NA	ND
Lead	19	4.5	7.5	1.5	53	NA	3.8
Zinc	31	6.0	16	ND	19	NA	7.1
Total Solids (%)	90	94	96	84	96	NA	85

TABLE 7-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 7

Parameters	SB-125			SB-126			
	0	0(R)	9.5	0	0(R)	9.5	9.5-D
Pesticides/PCBs (mg/kg)							
p,p' DDD	ND	NA	ND	ND	NA	ND	ND
p,p' DDE	0.004	NA	ND	ND	NA	ND	ND
p,p' DDT	0.014	NA	ND	ND	NA	0.029	ND
VOCs (mg/kg)							
Methylene Chloride	ND	0.087	ND[e]	ND	ND	ND[e]	ND[e]
Chloroform	ND	ND	ND[e]	ND	6.0	ND[e]	ND[e]
BNAs (mg/kg)	ND[f]	NA	ND	ND	NA	ND	ND
TFH-H (mg/kg)	42	NA	160(100)	ND	NA	ND	ND
Metals (mg/kg)							
Arsenic	ND	NA	ND	ND	NA	ND	ND
Barium	21	NA	ND	ND	NA	ND	ND
Cadmium	ND	NA	ND	ND	NA	ND	ND
Chromium	5.2	NA	1.4	1.8	NA	ND	1.2
Copper	4.3	NA	ND	2.7	NA	1.1	ND
Mercury	0.02	NA	ND	ND	NA	ND	ND
Nickel	ND	NA	ND	ND	NA	ND	ND
Lead	20	NA	1.5	6.0	NA	2.0	1.5
Zinc	15	NA	ND	11	NA	4.2	ND
Total Solids (%)	91	NA	86	96	NA	85	82

TABLE 7-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 7

Parameters	SB-127		SB-128		SB-129	
	0	9.5	0	8	0.5	10
Pesticides/PCBs (mg/kg)						
p,p' DDD	ND	ND	ND	ND	0.11	ND
p,p' DDE	ND	ND	ND	ND	0.030	ND
p,p' DDT	ND	ND	ND	ND	0.14	0.020
VOCs (mg/kg)						
Methylene Chloride	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND
BNAs (mg/kg)	ND	ND	ND	ND	ND	ND
TFH-H (mg/kg)	470(100)	ND	200(100)	ND	2,400(100)	22
Metals (mg/kg)						
Arsenic	ND	ND	ND	ND	2.5	ND
Barium	ND	ND	ND	ND	100	ND
Cadmium	ND	ND	ND	ND	1.4	ND
Chromium	2.2	1.2	2.0	5.5	18	6.6
Copper	9.5	ND	2.0	ND	12	1.7
Mercury	ND	ND	ND	ND	0.03	ND
Nickel	ND	ND	ND	ND	4.0	ND
Lead	18	1.0	6.0	1.5	530(71)	44
Zinc	15	2.8	8.4	3.2	870(57)	93(57)
Total Solids (%)	96	83	96	91	90	94

TABLE 7-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 7

Parameters	SB-130			SB-131	
	0.5	0.5-D	8	0.5	8
Pesticides/PCBs (mg/kg)					
p,p' DDD	ND	ND	ND	ND	ND
p,p' DDE	ND	ND	ND	ND	ND
p,p' DDT	ND	ND	ND	ND	ND
VOCs (mg/kg)					
Methylene Chloride	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND
BNAs (mg/kg)	ND	ND(f)	ND(f)	ND(f)	ND
TFH-H (mg/kg)	43	15	ND	13	ND
Metals (mg/kg)					
Arsenic	ND	ND	ND	2.5	ND
Barium	ND	ND	ND	28	ND
Cadmium	ND	ND	ND	ND	ND
Chromium	3.2	3.1	2.3	11	1.6
Copper	1.4	1.3	1.6	2.6	ND
Mercury	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	4.9	ND
Lead	4.5	6.0	1.5	6.0	1.0
Zinc	5.8	6.0	3.9	13	2.4
Total Solids (%)	95	96	88	91	92

(a) ND - not detected.
(b) Analytical results considered estimated, but above the compound detection limit.
(c) Resampling.
(d) NA - not analyzed.
(e) Analytical results considered estimated, but below the compound detection limit.
(f) Sample dilution increased reporting detection limts.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

TABLE 7-GW

GROUNDWATER SAMPLES - FORT STORY, SITE 7

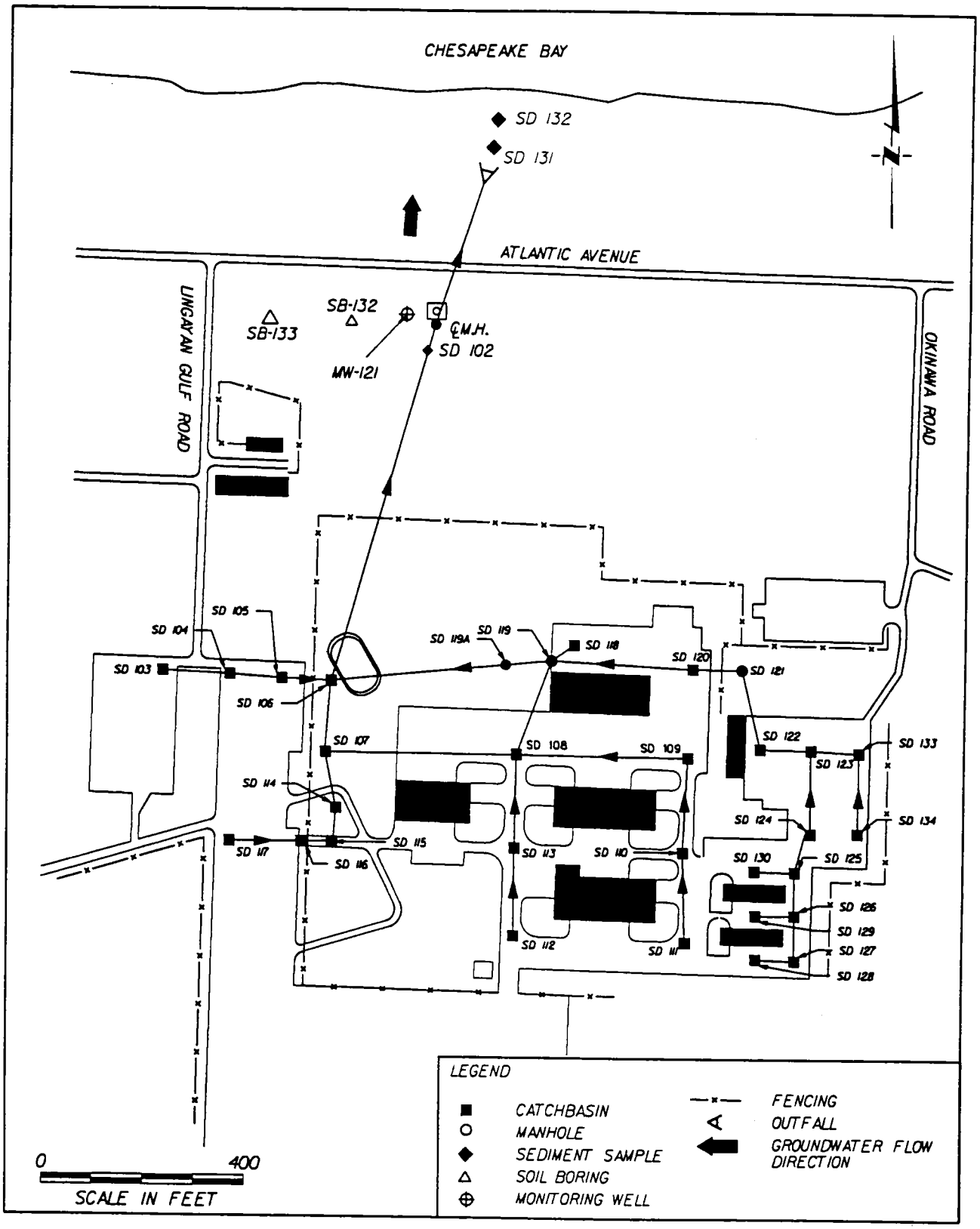
Parameters	GW-119	GW-119(R)[a]	GW-119-D	GW-119-D(R)	GW-120
Pesticides/PCBs (µg/l)	ND[b]	NA[c]	ND	NA	ND
VOCs (µg/l)					
Tetrachloroethene	4.3[d]	NA	ND[e]	NA	ND[e]
BNAs (µg/l)	ND	NA	ND	NA	ND
TFH-H (mg/l)	**3.6**(1)[d,f]	0.7	0.1	**1.4**(1)	ND
Total Metals (mg/l)					
Chromium	0.028	NA	0.020	NA	0.013
Copper	ND	NA	ND	NA	0.023[f]
Lead	0.020[f]	NA	0.015[f]	NA	0.010[f]
Zinc	0.34	NA	0.20	NA	0.077
Dissolved Metals (mg/l)					
Zinc	0.14	NA	0.14	NA	0.056
Inorganics (mg/l)	ND	NA	ND	NA	ND
Field Parameters					
Temperature (°C)	24.1	NA	24.1	NA	22.2
pH	6.1	NA	6.1	NA	5.8
Conductivity (µmho)	400	NA	400	NA	700
Turbidity (NTU)	425.2	NA	425.2	NA	89.6

(a) Resampling.
(b) ND - not detected.
(c) NA - not analyzed.
(d) Analytical results considered estimated, but above the compound detection limit.
(e) Sample dilution increased reported detection limits.
(f) Analytical results considered suspect due to detection of compound in associated blank sample.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

Site 8, Drainage Outfall

Fort Story, Virginia



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Site 8, Drainage Outfall Line
Fort Story, VA

TABLE 8-SS

SOIL SAMPLES - FORT STORY, SITE 8

Parameters	SB-132 COMP	SB-133 COMP
Pesticides/PCBs (mg/kg)	ND[a]	ND
VOCs (mg/kg)	ND	ND
BNAs (mg/kg)	ND	ND
TFH-H (mg/kg)	ND	ND
Metals (mg/kg)		
Chromium	1.1	ND
Lead	1.0	1.0
Zinc	4.8	3.8
Inorganics		
Total Solids (%)	79	81

(a) ND - not detected.

TABLE 8-GW

GROUNDWATER SAMPLES - FORT STORY, SITE 8

Parameters	GW-121	GW-121-D
Pesticides/PCBs (µg/l)	ND[a]	ND
VOCs (µg/l)		
Methylene Chloride	ND[b]	22[b,c]
BNAs (µg/l)	ND	ND
TFH-H (mg/l)	ND	ND[c]
Total Metals (mg/l)		
Copper	0.016[c]	0.012[c]
Lead	0.015[c]	0.015[c]
Zinc	0.051	0.036
Dissolved Metals (mg/l)		
Zinc	0.033	0.037
Inorganics (mg/l)	ND	ND
Field Parameters[d]		
Temperature (°C)	25.6	25.6
pH	5.9	5.9
Conductivity (µmho)	170	170
Turbidity (NTU)	82.2	82.2

(a) ND - not detected.
(b) Sample dilution increased reported detection limits.
(c) Analytical results considered suspect due to detection of compound in associated blank sample.
(d) Field parameters measured after purging, and prior to sampling.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

TABLE 8-SD

SEDIMENT SAMPLES - FORT STORY, SITE 8[c]

Parameters	SD-102	SD-102-D	SD-103	SD-104	SD-105
Pesticides/PCBs (mg/kg)					
p,p' DDD	ND[a]	ND	ND	0.026	ND
p,p' DDE	ND	ND	ND	0.008	ND
p,p' DDT	ND	ND	ND	ND	ND
Arochlor 1254	ND	ND	ND	ND	ND
Arochlor 1260	ND	ND	ND	ND	ND
VOCs (mg/kg)					
1,2-Dichloroethane	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	0.25	ND	ND
Toluene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	0.02	ND	ND
cis-1,2-Dichloroethene	ND	ND	0.15	ND	ND
m,p-Xylenes	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND
BNAs (mg/kg)	ND	ND	ND[b]	ND[b]	ND[b]
TFH-H (mg/kg)	760(100)	200(100)	110(100)	5,300(100)	230(100)
Metals (mg/kg)					
Arsenic	ND	ND	ND	ND	ND
Barium	ND	ND	ND	41	ND
Cadmium	ND	ND	ND	2.3	0.9
Chromium	2.5	2.6	4.7	19	5.9
Copper	15(14)	3.6	36(14)	9.8	11
Mercury	ND	ND	ND	0.02	ND
Nickel	ND	ND	ND	ND	ND
Lead	8.3	8.0	150(71)	120(71)	31
Zinc	18	17	47	65(57)	46
Total Solids (%)	83	85	82	90	84

TABLE 8-SD
(Continued)

SEDIMENT SAMPLES - FORT STORY, SITE 8[c]

Parameters	SD-106	SD-107	SD-108	SD-109	SD-110
Pesticides/PCBs (mg/kg)					
p,p' DDD	ND	ND	ND	0.05	0.038
p,p' DDE	ND	ND	ND	ND	ND
p,p' DDT	ND	ND	ND	ND	ND
Arochlor 1254	ND	ND	ND	ND	0.17
Arochlor 1260	ND	ND	ND	ND	0.097
VOCs (mg/kg)					
1,2-Dichloroethane	ND	ND	ND	ND	ND[b]
Ethylbenzene	ND	ND	ND	ND	ND[b]
Tetrachloroethene	ND	ND	ND	ND	ND[b]
Toluene	ND	ND	ND	ND	ND[b]
1,1,1-Trichloroethane	ND	ND	ND	ND	ND[b]
Trichloroethene	ND	ND	ND	ND	ND[b]
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND[b]
m,p-Xylenes	ND	ND	ND	ND	ND[b]
1,2-Dichlorobenzene	ND	ND	ND	ND	ND[b]
1,3-Dichlorobenzene	ND	ND	ND	ND	ND[b]
1,4-Dichlorobenzene	ND	ND	ND	ND	ND[b]
o-Xylene	ND	ND	ND	ND	ND[b]
BNAs (mg/kg)	ND	ND	ND[b]	ND[b]	ND[b]
TFH-H (mg/kg)	32	25	470(100)	420(100)	4,700(100)
Metals (mg/kg)					
Arsenic	ND	ND	ND	ND	ND
Barium	ND	ND	11	28	44
Cadmium	ND	ND	0.7	1.5	3.0
Chromium	1.3	1.6	7.1	31(28)	52(28)
Copper	2.3	2.1	21(14)	40(14)	34(14)
Mercury	ND	ND	ND	0.13	0.02
Nickel	ND	ND	ND	ND	ND
Lead	3.0	3.0	31	140(71)	170(71)
Zinc	11	13	23	80(57)	120(57)
Total Solids (%)	84	86	79	75	68

TABLE 8-SD
(Continued)

SEDIMENT SAMPLES - FORT STORY, SITE 8[c]

Parameters	SD-111	SD-112	SD-113	SD-114	SD-115	SD-115-D
Pesticides/PCBs (mg/kg)						
p,p' DDD	ND	ND	ND	ND	ND	ND
p,p' DDE	ND	ND	ND	ND	ND	ND
p,p' DDT	ND	ND	ND	ND	ND	0.006
Arochlor 1254	ND	ND	ND	ND	ND	ND
Arochlor 1260	ND	ND	ND	ND	ND	ND
VOCs (mg/kg)						
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND
o-Xylene	ND	ND	ND	ND	ND	ND
BNAs (mg/kg)	ND[b]	ND[b]	ND[b]	ND	ND	ND
TFH-H (mg/kg)	330(100)	5,500(100)	670(100)	33	ND	ND
Metals (mg/kg)						
Arsenic	ND	ND	ND	ND	ND	ND
Barium	ND	ND	10	ND	ND	ND
Cadmium	1.7	0.7	0.7	ND	ND	ND
Chromium	7.6	3.6	5.2	2.2	ND	1.0
Copper	9.2	7.5	15(14)	1.2	ND	ND
Mercury	ND	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND
Lead	29	17	28	2.5	2.0	2.0
Zinc	37	24	33	12	5.5	8.6
Total Solids (%)	78	76	82	85	87	83

TABLE 8-SD
(Continued)

SEDIMENT SAMPLES - FORT STORY, SITE 8[c]

Parameters	SD-117	SD-118	SD-119	SD-119A	SD-120
Pesticides/PCBs (mg/kg)					
p,p' DDD	0.008	0.012	0.014	ND	ND
p,p' DDE	ND	ND	ND	ND	ND
p,p' DDT	ND	0.015	ND	ND	ND
Arochlor 1254	ND	ND	0.08	ND	ND
Arochlor 1260	ND	ND	ND	ND	ND
VOCs (mg/kg)					
1,2-Dichloroethane	ND[b]	ND	ND	3.0	ND
Ethylbenzene	ND[b]	ND	ND	2.7	ND
Tetrachloroethene	ND[b]	ND	ND	ND[b]	ND
Toluene	ND[b]	ND	ND	5.5	ND
1,1,1-Trichloroethane	ND[b]	ND	ND	10	ND
Trichloroethene	ND[b]	ND	ND	ND[b]	ND
cis-1,2-Dichloroethene	ND[b]	ND	ND	ND[b]	ND
m,p-Xylenes	ND[b]	ND	ND	11	ND
1,2-Dichlorobenzene	ND[b]	ND	ND	15	ND
1,3-Dichlorobenzene	ND[b]	ND	ND	ND[b]	ND
1,4-Dichlorobenzene	ND[b]	ND	ND	ND[b]	ND
o-Xylene	ND[b]	ND	ND	ND[b]	ND
BNAs (mg/kg)	ND	ND[b]	ND[b]	ND[b]	ND[b]
TFH-H (mg/kg)	4,800(100)	13,000(100)	360(100)	23,000(100)	160(100)
Metals (mg/kg)					
Arsenic	ND	ND	ND	ND	ND
Barium	ND	11	46	31	ND
Cadmium	1.2	1.2	1.7	2.2	ND
Chromium	7.0	12	19	96(28)	2.2
Copper	4.5	74(14)	24(14)	88(14)	2.8
Mercury	ND	ND	0.03	0.03	ND
Nickel	ND	ND	4.1	ND	ND
Lead	35	67	94(71)	320(71)	7.3
Zinc	52	65(57)	82(57)	320(57)	11
Total Solids (%)	72	81	69	78	78

TABLE 8-SD
(Continued)

SEDIMENT SAMPLES - FORT STORY, SITE 8[c]

Parameters	SD-121	SD-122	SD-123	SD-124	SD-124-D	SD-125
Pesticides/PCBs (mg/kg)						
p,p' DDD	ND	ND	ND	0.005	ND	0.009
p,p' DDE	ND	ND	ND	ND	ND	ND
p,p' DDT	ND	ND	0.004	ND	ND	ND
Arochlor 1254	ND	0.72	ND	ND	ND	ND
Arochlor 1260	ND	0.31	ND	ND	ND	ND
VOCs (mg/kg)						
1,2-Dichloroethane	ND	ND[b]	ND	ND[b]	ND[b]	ND
Ethylbenzene	ND	ND[b]	ND	ND[b]	ND[b]	0.1
Tetrachloroethene	ND	ND[b]	ND	ND[b]	ND[b]	ND
Toluene	ND	ND[b]	ND	ND[b]	ND[b]	0.09
1,1,1-Trichloroethane	ND	ND[b]	ND	ND[b]	ND[b]	ND
Trichloroethene	ND	ND[b]	ND	ND[b]	ND[b]	ND
cis-1,2-Dichloroethene	ND	ND[b]	ND	ND[b]	ND[b]	ND
m,p-Xylenes	ND	ND[b]	ND	ND[b]	ND[b]	0.4
1,2-Dichlorobenzene	ND	ND[b]	ND	ND[b]	ND[b]	ND
1,3-Dichlorobenzene	ND	ND[b]	ND	ND[b]	ND[b]	ND
1,4-Dichlorobenzene	ND	ND[b]	ND	ND[b]	ND[b]	ND
o-Xylene	ND	ND[b]	ND	ND[b]	ND[b]	0.2
BNAs (mg/kg)	ND[b]	ND[b]	ND[b]	ND[b]	ND[b]	ND[b]
TFH-H (mg/kg)	270(100)	630(100)	170(100)	2,500(100)	2,100(100)	2,900(100)
Metals (mg/kg)						
Arsenic	ND	ND	ND	3.0	2.8	ND
Barium	ND	10	ND	ND	ND	12
Cadmium	0.7	1.3	ND	ND	1.1	2.4
Chromium	5.0	6.5	1.5	2.9	7.5	9.3
Copper	6.9	12	1.5	5.8	20(14)	28(14)
Mercury	ND	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND
Lead	18	32	7.0	13	29	54
Zinc	24	54	9.1	32	66(57)	83(57)
Total Solids (%)	82	87	88	84	81	82

TABLE 8-SD
(Continued)

SEDIMENT SAMPLES - FORT STORY, SITE 8[c]

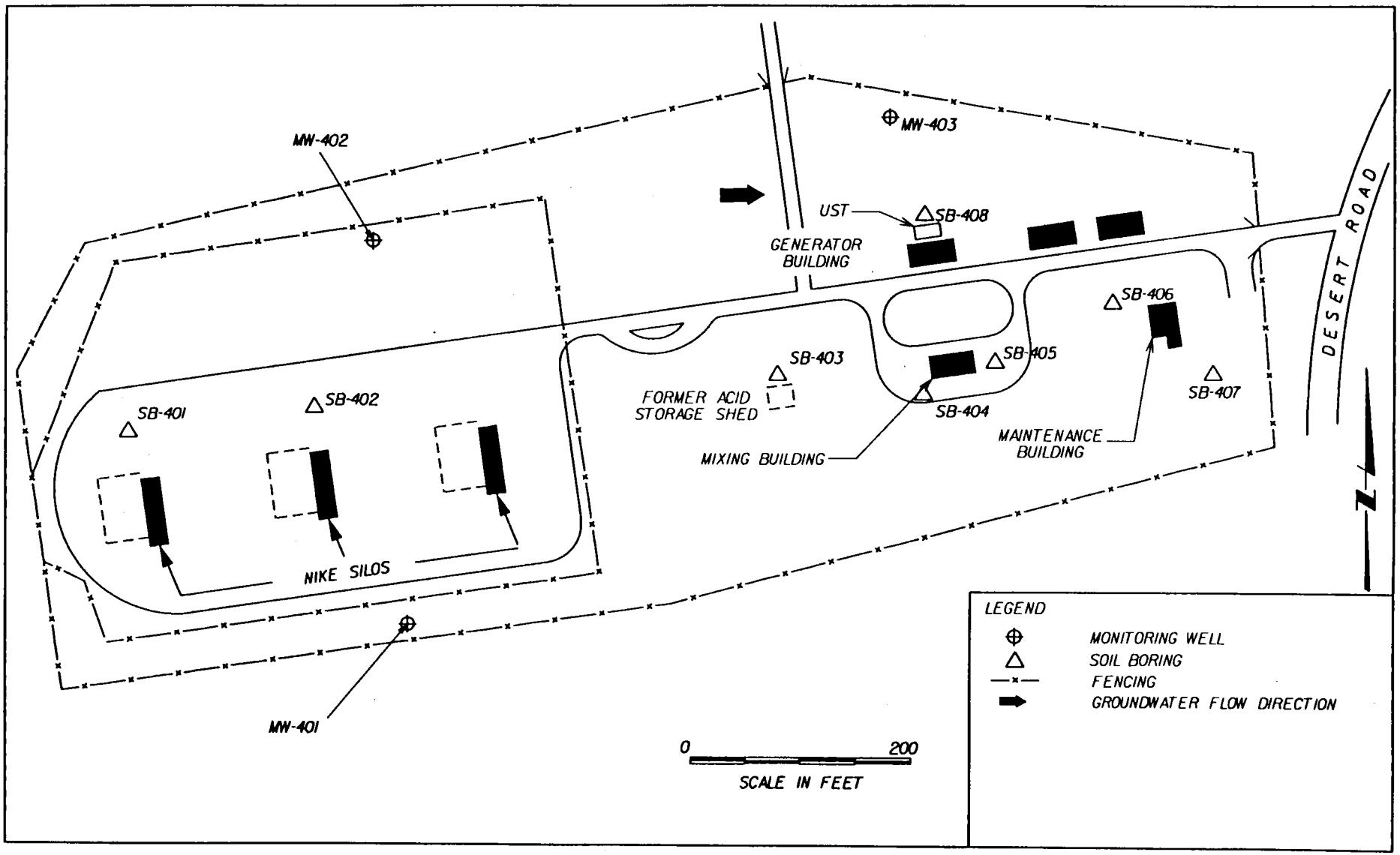
Parameters	SD-131	SD-132	SD-133	SD-134	SD-135
Pesticides/PCBs (mg/kg)					
p,p' DDD	ND	ND	0.007	0.055	0.009
p,p' DDE	ND	ND	ND	ND	ND
p,p' DDT	ND	ND	ND	ND	ND
Arochlor 1254	ND	ND	ND	ND	ND
Arochlor 1260	ND	ND	ND	ND	ND
VOCs (mg/kg)					
1,2-Dichloroethane	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	0.4
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	ND	ND
m,p-Xylenes	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	1.5
1,3-Dichlorobenzene	ND	ND	ND	ND	0.1
1,4-Dichlorobenzene	ND	ND	ND	ND	0.2
o-Xylene	ND	ND	ND	ND	ND
BNAs (mg/kg)	ND	ND	ND[b]	ND[b]	ND[b]
TFH-H (mg/kg)	ND	ND	**410**(100)	**3,300**(100)	ND
Metals (mg/kg)					
Arsenic	ND	ND	ND	ND	ND
Barium	ND	ND	12	26	12
Cadmium	ND	ND	ND	1.3	1.2
Chromium	ND	1.1	6.2	**34**(28)	24
Copper	ND	ND	3.0	**26**(14)	**57**(14)
Mercury	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	4.5	8.8
Lead	ND	2.5	25	**220**(71)	70
Zinc	2.1	3.6	35	**69**(57)	**72**(57)
Total Solids (%)	86	88	84	67	83

(a) ND - not detected.
(b) Sample dilution increased reported detection limits.
(c) Note that only SD-131 and SD-132 relate to in situ sediment samples. All other samples were collected inside the storm sewer system.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

Site 9, NIKE Missile Facility

Fort Story, Virginia



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Site 9, Fort Story NIKE Facility
Fort Story, VA

TABLE 9-SS

SOIL SAMPLES - FORT STORY, SITE 9

Parameters	MW-401			
	0	0-D	20	40
Pesticides/PCBs (mg/kg)				
p,p' DDE	ND[a]	ND	ND[b]	ND[b]
p,p' DDT	ND	ND	ND[b]	ND[b]
VOCs (mg/kg)	ND	ND	ND	ND
BNAs (mg/kg)	ND	ND	ND	ND
TFH-H (mg/kg)	ND	ND	ND	ND
Metals (mg/kg)				
Arsenic	ND	ND	ND	ND
Barium	ND	ND	ND	ND
Chromium	2.4	2.3	1.1	1.0
Copper	1.4	ND	ND	ND
Mercury	ND	ND	ND	ND
Lead	3.3	3.7	ND	1.0
Zinc	11	9.4	6.1	ND
Total Solids (%)	94	92	97	83

TABLE 9-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 9

Parameters	MW-402			MW-403	
	0	15	25	0	35
Pesticides/PCBs (mg/kg)					
p,p' DDE	0.011	ND	ND	ND	ND
p,p' DDT	0.011	ND	ND	ND	ND
VOCs (mg/kg)	ND	ND	ND	ND	ND
BNAs (mg/kg)	ND	ND	ND	ND	ND
TFH-H (mg/kg)	ND	ND	ND	ND	ND
Metals (mg/kg)					
Arsenic	ND	ND	ND	3.0	ND
Barium	14	ND	ND	23	ND
Chromium	5.3	1.4	1.2	5.3	1.8
Copper	1.7	ND	ND	2.4	ND
Mercury	ND	ND	ND	ND	ND
Lead	7.8	ND	ND	6.5	1.0
Zinc	73(57)	6.5	2.1	12	2.3
Total Solids (%)	92	97	88	92	91

TABLE 9-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 9

Parameters	SB-401 COMP	SB-402 COMP	SB-403 COMP	SB-404 COMP	SB-405 COMP
Pesticides/PCBs (mg/kg)					
p,p' DDE	ND	ND	ND	ND[b]	ND
p,p' DDT	0.011	ND	ND	ND[b]	ND
VOCs (mg/kg)	ND	ND	ND	ND	ND
BNAs (mg/kg)	ND	ND	ND	ND	ND
TFH-H (mg/kg)	ND	ND	ND	ND	ND
Metals (mg/kg)					
Arsenic	ND	ND	3.8	ND	ND
Barium	ND	12	15	ND	ND
Chromium	3.2	5.2	3.8	3.3	1.7
Copper	ND	2.0	2.3	1.4	ND
Mercury	ND	ND	0.02	ND	ND
Lead	1.5	5.0	4.5	1.0	1.0
Zinc	4.1	9.5	8.8	8.0	2.1
Total Solids (%)	99	99	96	97	97

TABLE 9-SS
(Continued)

SOIL SAMPLES - FORT STORY, SITE 9

Parameters	SB-406 COMP	SB-407 COMP	SB-408 COMP	SB-408-D COMP
Pesticides/PCBs (mg/kg)				
p,p' DDE	ND	ND	ND	ND
p,p' DDT	ND	ND	ND	ND
VOCs (mg/kg)	ND	ND	ND	ND
BNAs (mg/kg)	ND	ND	ND	ND
TFH-H (mg/kg)	ND	ND	ND	ND
Metals (mg/kg)				
Arsenic	ND	ND	ND	ND
Barium	ND	ND	ND	ND
Chromium	3.3	2.2	2.4	2.4
Copper	ND	ND	1.1	ND
Mercury	ND	ND	ND	ND
Lead	1.8	1.5	3.8	3.0
Zinc	4.3	3.7	5.9	5.2
Total Solids (%)	97	96	92	93

(a) ND - not detected.
(b) Analytical results considered estimated, but below the compound detection limit.

A bold, underlined, **0**, number meets or exceeds the trigger level for the parameter in question.
A bracketed number, (0), is the trigger level for the parameter in question.

TABLE 9-GW

GROUNDWATER SAMPLES - FORT STORY, SITE 9

Parameters	GW-401	GW-401-D	GW-402	GW-403
Pesticides/PCBs (µg/l)	ND[a]	ND	ND	ND
VOCs (µg/l)				
Chloroform	12[b]	ND[c]	ND[c]	ND[c]
Carbon Disulfide	16	130	71	ND
BNAs (µg/l)	ND	ND	ND	ND
TFH-H (mg/l)	ND	ND	0.20	ND
Total Metals (mg/l)				
Lead	ND	0.010	0.010	0.010
Zinc	0.029[b]	0.10[b]	0.14[b]	0.056[b]
Dissolved Metals (mg/l)				
Zinc	0.019	0.026	0.16	0.11
Inorganics (mg/l)	ND	ND	ND	ND
Field Parameters [d]				
Temperature (°C)	27.0	27.0	22.0	23.6
pH	6.0	6.0	6.1	5.3
Conductivity (µmho)	70	70	100	140
Turbidity (NTU)	103.7	103.7	91.6	11.9

(a) ND - not detected.
(b) Analytical results considered suspect due to detection of compound in associated blank sample.
(c) Sample dilution increased reported detection limits.
(d) Field parameters measured after purging, and prior to sampling.

REFERENCE 3

3.3.7.3 Sediment Sampling. The storm drainage system for the LARC Maintenance area is reported to include 39 structures including Field inspection of the site, however, confirmed the existance of 36 such structures. Though an attempt was made to sample each of the identified structures, sediment samples were collected at a total of 30 points within the drainage system. The lack of an adequate quantity of sediment for sampling or the inaccessibility of some of the drainage system structures prohibited the sampling of six identified sampling points. Structure inaccessibility resulted from conditions such as the partial covering of gratings with asphalt or gratings that were corrosion-locked. Sediment samples collected were analyzed for pesticides/PCBs, VOCs, BNAs, TFH-H, total metals, and total solids. Results of these analyses are indicated in Table 3-32.

3.3.8 Background Borings

Background borings were collected during the project to determine the background levels of analytes in soils that were not impact by previous activity at the Installation. There were three background borings installed at the Fort Story: SB-135, SB-136, and SB-137 (Figure 3-8). SB-134 was located near the eastern perimeter of the installation, adjacent to the Officers Club; it was constructed to a total depth of 15 feet and serves as a representative sample of soils near Ocean area. SB-135 was constructed near the western perimeter to a depth of 15 feet, and represents the marshy area. SB-136 was located in the sand dunes adjacent to the officer's housing. It was completed at a depth of 25 feet and represents the dune area.

Soil samples were collected from the soil borings for the assessment of background soil contamination at the site. There were two analytical soil samples collected per boring for a total of six analytical samples. Analytical soil sampling were collected during the construction of the soil borings at ground surface and at the total depths of the borings (Table 3-33). The laboratory analyses performed on each of the analytical soil samples collected included pesticides/PCBs, VOCs, BNAs, total metals, EP toxicity metals, and total solids. Results of these analyses are presented in Table 3-34.

3.3.9 Site 3, Landfill 3 (1962-1974) (RI/FS)

The Landfill 3 investigation performed for this project involved the assessment of groundwater and surface water contamination. Two new monitoring wells were installed at the site, wells MW-201 and MW-202. In addition to the collection of groundwater samples from these wells, samples were collected from three of the existing monitoring wells installed for the 1987 AEHA investigation. The existing monitoring wells sampled include wells EMW-7, EMW-8 and EMW-9. The locations of the new and existing monitoring well locations are shown on Figure 3-9. The installation depths of wells MW-201 and MW-202 were 11.50 and 11.00 feet, respectively. Field measurements of total depths for existing wells EMW-7, EMW-8, and EMW-9 indicate that these wells

were completed at the respective depths of 16.0, 17.0 and 16.0 feet. Table 3-35 indicates the depths at which split spoon samples were driven during the construction of wells MW-201 and MW-202.

The investigation of Site 3 also includes surface water assessment. The low-lying area along the western flank of Landfill 3 is frequently the site of ponded surface water. Three surface water samples were collected from this area.

3.3.9.1 Groundwater Sampling. Groundwater quality in the vicinity of Landfill 3 was assessed by sampling five monitoring wells. The sampled wells include wells MW-201, MW-202, EMW-7, EMW-8 and EMW-9. Construction details of each of wells are provided in Table 3-36. The water levels in MW-201 and MW-202 at the time of groundwater sample collection were 2.3 and 1.5 feet, respectively, below the top of the screens of these wells. The water levels in existing well EMW-7, EMW-8, and EMW-9 ranged from 7.42 to 4.4 feet, and averaged 5.97 feet, below the respective screened intervals in these wells. Groundwater samples were analyzed for pesticides/PCBs, VOCs, BNAs, dissolved metals, total metals, cyanide, and inorgnics. Table 3-37 indicates the analytical results obtained from the groundwater samples collected from Landfill 2.

3.3.9.2 Surface Water Sampling. Water ponded along the western flank of the landfill was sampled to help determine if landfill leachate is discharging to this area. Three surface water samples were collected. The absence of a sheen precluded the collection of a sheen sample from the surface water at Site 3. The surface water samples collected were analyzed for pesticides/PCBs, VOCs, BNAs, dissolved metals, total metals, cyanide, and inorganics. Analytical results for surface water samples at Site 3, Landfill 3 are presented in Table 3-38.

3.3.10 Site 3A, Pond South of Landfill 3 (RI/FS)

Potential contamination in the surface water and in the pond sediments at Site 3A are being evaluated in this project. Five sediment samples and three surface water samples were collected. Locations of sampling points area are indicated on Figure 3-9.

3.3.10.1 Sediment Sampling. Five sediment sampling points were chosen to assess the depth of sediment and the relative extent of contamination. Sediment samples were obtained from a depth of approximately 10 feet using a Vibracore sampling rig. The samples were analyzed for pesticides/PCBs, VOCs, BNAs, TFH-H, total metals, EP Toxicity metals, cyanide and inorganics. Analytical results for the sediment samples collected at Site 3A are presented in Table 3-39.

3.3.10.2 Surface Water Sampling. Surface water samples were obtained from three locations in the pond. Samples were collected from discrete depths within the water column. After collection, the samples from each location were composited. Sampling depths at each location corresponded to 1/3 and 2/3 of the total depth of the pond

TABLE 3-38

SURFACE WATER SAMPLES - FT STORY, SITE 3

Parameters	SW-201	SW-202	SW-203
Pesticides/PCBs (μg/l)			
p,p' DDT	0.08	ND[a]	ND
VOCs (μg/l)			
Toluene	ND	ND	11.
BNAs (μg/l)			
Phenol	ND	ND	5.2
4-Methylphenol	ND	ND	35.
Metals (mg/l)			
Copper	0.042 (.012)	0.017	0.024
Mercury	ND	ND	0.0002
Lead	0.085 .005 (.0032)	ND	0.030
Zinc	0.38 (.047)	0.064	0.053
Cyanide (mg/l)	ND	ND	ND
Inorganics (mg/l)			
Flouride	0.11	0.15	ND
Chloride	22.3	22.9	29.3
Field Parameters[b]			
Temperature (°C)	28.4	22.9	29.3
pH	6.7	6.1	6.9
Conductivity (μmho)	140	155	140
Turbidity (NTU)	28.4	124.4	120.6

[a] ND - not detected
[b] Field parameters measured after purging; prior to sampling

TABLE 3-40

SURFACE WATER SAMPLES - FT STORY, SITE 3A

Parameters	SW-204	SW-204 (R)[a]	SW-205	SW-206	SW-206 (R)
Pesticides/PCBs (μg/l)	ND[b]	NA[c]	ND	ND	NA
VOCs (μg/l)					
Acetone	ND	NA	ND	16.	NA
BNAs (μg/l)	ND	ND	ND	ND	ND
TFH-H (mg/l)	ND	NA	ND	ND	NA
Metals (mg/l)					
Lead	0.004	NA	ND	ND	NA
Zinc	0.022	NA	0.02	0.020	NA
Cyanide (mg/l)	ND	NA	ND	ND	NA
Inorganics (mg/l)					
Chloride	35.	NA	32.	32.	NA
Sulfate	11.	NA	4.7	5.1	NA
Nitrate as Nitrogen	0.3	NA	ND	ND	NA
Field Parameters[d]					
Temperature (°C)	28.9	NA	28.9	28.9	NA
pH	6.93	NA	6.93	6.93	NA
Conductivity (μmho)	120	NA	120	120	NA
Turbidity (NTU)	146.5	NA	146.5	146.5	NA

[a] Resampling
[b] ND - not detected
[c] NA - not analyzed
[d] Field parameters measured after purging; prior to sampling

The Site 5 analytical groundwater samples were evaluated for dissolved lead, total lead, TFH and BETX. The groundwater samples for Site 5 registered non-detections for dissolved lead, TFH, and BETX. Each of the samples tested positively, however, for total lead.

4.3 SURFACE WATER

Potential surface water contamination was investigated at two Fort Story sites: Site 3, Landfill 3, and Site 3A, the pond located adjacent to Landfill 3. Six surface water samples from these two sites were submitted for chemical analysis. Each of the surface water samples were analyzed for pesticides/PCBs, VOCs, BNAs, TFH, total metals, cyanide, and common ions. Of the seven surface water samples submitted for analysis, 50 percent registered positive detections in at least one of five analytical groups (pesticides/PCBs, VOCs, BNAs, TFH, and cyanide). Site 3 ranked first among surface water sites in detection percentage, with 67 percent of the surface water samples collected testing positively for either pesticides/PCBs or BNAs. Of the three surface water samples collected at Site 3A, one sample tested positively for VOCs.

Detection of pesticides/PCBs at Site 3 was restricted to the compound p,p'DDT, a pesticide constituent. The BNA compounds detected at this site included phenol and 4-methyl-phenol. The VOC positive detection at Site 3A resulted from acetone. The total metals analyses performed at both sites indicate the presence of detectable levels of both lead and zinc. Additionally, mercury and copper were detected in the surface water samples submitted from Site 3.

4.4 SEDIMENT

A total of 34 sediment samples were collected at two Fort Story sites: Site 3A and Site 8. These sites correspond to the pond located adjacent to Landfill 3 and the drainage outfall line, respectively. The sediment samples collected from each of these sites were analyzed for pesticides/PCBs, VOCs, BNAs, TFH, total metals, and total solids. In addition, sediment samples from Site 3A were also analyzed for EP Tox and cyanide. Of the total number of sediment samples analyzed, 76 percent tested positively within at least one of the five analytical groups including pesticides/PCBs, VOCs, BNAs, EP Tox, and cyanide. With 90 percent of the samples testing positively for pesticides/PCBs, TFH or VOCs, the drainage outfall line scored the highest percentage of detections among the Fort Story sediment investigation sites. Analyses of the five sediment samples from Site 3A resulted in non-detections of pesticides/PCBs, VOCs, BNAs, and TFH. One Site 3A sediment sample from Site 3A, however, tested positively for cyanide.

As the Site 3A sediment sample analyses generally resulted in nondetections, the summarization of the most frequently encountered chemical species with the exception of metals will focus on the Site 8 sediment sample analyses results. Twenty-nine sediment samples were collected at Site 8. Though pesticides/PCB compounds were detected in 45 percent of these samples, the compound p,p'DDD (a pesticide constituent) was the compound of this analytical group encountered most frequently. In

TABLE 3-1

SUMMARY OF RECOMMENDATIONS FOR PA/SI PROJECT SITES - FORT STORY, VIRGINIA

Site Identifier	Media	Contaminants of Concern[a]	Projected Future Activities
Site 1 - Landfill 1	Soil	None	No Further Action
	Groundwater	None	
Site 2 - Landfill 2	Soil	Metals (>T)	Further Confirmatory Investigation
	Groundwater	Metals (>T)	
Site 4 - Firefighter Training Area	Soil	TFH-L (>T) Metals (>T)	RI/FS
	Groundwater	VOCs (>T) BNAs (>T) TFH-L (>T)	
Site 5 - Underground Fuel Storage Tanks	Soil	TFH-L (>T) Total Lead (>T)	RI/FS
	Groundwater	BETX (>T)	
Site 6 - LARC Maintenance Area	Soil	VOCs (>T) TFH-H (>T) Metals (>T)	
	Groundwater	VOCs (>T) TFH-H (>T) Metals (>T)	RI/FS
Site 7 - Auto Craft Building	Soil	TFH-H (>T) Metals (>T)	RI/FS
	Groundwater	TFH-H (>T) Metals (>T)	

TABLE 3-1 (Continued)

SUMMARY OF RECOMMENDATIONS FOR
PA/SI PROJECT SITES - FORT STORY, VIRGINIA

Site Identifier	Media	Contaminants of Concern[a]	Projected Future Activities
Site 8 - Drainage Outfall Line	Soil	None	No Further Action
	Sediment in Outfall Line	TFH-H (>T) Metals (>T)	
	Sediment at Outfall Discharge	None	
	Groundwater	None	

(a) Contaminant concentrations are indicated as greater than the trigger (>T) level for that contaminant in a specific medium.
(b) Possible laboratory artifact.

RI/FS Remedial Investigation/Feasibility Study
T Trigger Level

TABLE 3-2

SUMMARY OF RECOMMENDATIONS FOR
NIKE PROJECTS - FORT STORY, VIRGINIA

Site Identifier	Media	Contaminants of Concern[a]	Projected Future Activities
Site 9 - NIKE Facility	Soil	Zn >T	No Further Action
	Groundwater	None	

(a) Contaminant concentrations are indicated as greater than the trigger (>T) level for that contaminant in a specific medium.

REFERENCE 5

Ft Story Wall

3A1-3A6
3B

COMMONWEALTH of VIRGINIA

STATE WATER CONTROL BOARD
~~2111 Hamilton Street~~

Richard N. Burton
Executive Director

Post Office Box 11143
Richmond, Virginia 23230-1143
(804) 367-0056
TDD (804) 367-9763

Please reply to: Tidewater Regional Office
287 Pembroke Office Park
Suite 310 Pembroke No. 2
Virginia Beach, Virginia 23462-2955
(804) 552-1840

BOARD MEMBERS

William T. Clements
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W. Bidgood Wall, Jr.
Robert C. Wininger

June 27, 1990

Mr. Scott Houston
Roy S. Weston
Weston Way (G2S)
West Chester, PA 19380

Dear Mr. Houston:

This letter is in response to your data request regarding your Fort Story study. Enclosed please find a copy of a printout and a topo map covering the City of Virginia Beach. The numbers which have been written on the map corrospond with the well nos. on the printout. The prefix "228-" on the printout indicates that the well is in Virginia Beach. Further information is available regarding ground water quality which I will send in the next couple of days if you so desire.

Our agency is presently in the midst of a project to verify that the computer database contains the same information as the hard copies on file here in our office. The data for the City of Virginia Beach has been so verified. If I can be of further assistance please do not hesitate to call me.

Sincerely,

Virginia P. Newton

Virginia P. Newton
Geologist
Water Resources Division

cc: Robert F. Jackson

a:ginny#3\datareq3

72 P

68 N.L.

382 G.C.

~~2~~

319 P

86 P.

203 P.

Wells not on map.

85 Farmer's Market

216 P

1 APT —

18 Private —

1 Business —

3 Schools —

7 Gol Courses —

1 Not listed —

31 Total —

No Municipal

Mai Kai Resort Apts
(904) 428 1096
48 units

Well	Use
221 - 201	Priv.
202	P
219	P
324	P
325	P
227	P
226	P
229	P.
217	Bus.
81	School
82	Sch.
83	Sch.
333	G.C.
334	G.C.
335	G.C.
[illegible]	G.C.
337	G.C.
338	G.C.
87	Priv.
90	P.
211	Apt.
149	P.
222	P
223	P.

1 ~~Apartment~~
18 ~~Private~~ - 60 people fire business
2 Business → Farmers Market
3 Schools (3 wells 1 school)
7 Golf Courses
1 Not Listed
31 Total

(800) 496-6[illegible]
1000

REFERENCE 6

Ft Story

3l

36° 55' 19" N
76° 02' 20" W

```
end
READY
qed
IKJ56700A ENTER DATA SET NAME -
gwftst1
DATASET NOT LINE NUMBERED-NONUM ASSUMED
QED
list
 RETRIEVAL PROGRAM
0   PGM=INVENT
       THIS IS AN INVENTORY RETRIEVAL SHOWING SUMMARY STATISTICS FOR ALL PARAMETERS
0   NO BEGINNING DATE WAS REQUESTED -- STORET ASSUMED THE BEGINNING DATE WAS THAT OF THE OLDEST DATA VALUE FOUND
    NO ENDING DATE WAS REQUESTED -- STORET ASSUMED THE ENDING DATE WAS THAT OF THE MOST RECENT DATA VALUE FOUND
-STATION SELECTION WAS BY:

-              *****ERROR MSG:  NO STATION SELECTOR KEYWORDS WERE SPECIFIED - THEREFORE NO STATIONS WERE RETRIEVED *****
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-                                  ***** END OF SUMMARY SECTION *****
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                                                                   51810   VIRGINIA          VIRGINIA BEACH (CITY
                                                                   02-NORTH ATLANTIC         021400
 /TYPA/AMBNT/WELL                                                  14-POTOMAC-SHENDOAH
                                                                   21VASWCB  851221               02080108
                                                                   0000 FEET DEPTH
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00403	PH	LAB	SU	WATER		1	6.600000			6.6	6.6	84/11/16	84/11/16
00410	T ALK	CACO3	MG/L	WATER		1	179.0000			179	179	84/11/16	84/11/16
00620	NO3-N	TOTAL	MG/L	WATER		1	.0050000			.005	.005	84/11/16	84/11/16
00900	TOT HARD	CACO3	MG/L	WATER		1	60.00000			60	60	84/11/16	84/11/16
00940	CHLORIDE	TOTAL	MG/L	WATER		1	67.00000			67	67	84/11/16	84/11/16
01045	IRON	FE,TOT	UG/L	WATER		1	91.00000			91	91	84/11/16	84/11/16
72001	TOT DPTH	OF HOLE	FT	WATER		1	150.0000			150.0	150.0	85/11/23	85/11/23
72019	DEPTH-FT	BL LAND	SURFACE	WATER		1	35.00000			35.00	35.00	85/11/23	85/11/23
72020	ELEV	FEET AB	MSL	WATER		1	24.00000			24.00	24.00	85/11/23	85/11/23
72035	PUMP HR	S TOTAL	DAILY	WATER		1	24.00000			24	24	85/11/23	85/11/23
72038	PUMPING	LVL BELW	M.P. FT	WATER		1	117.0000			117.00	117.00	85/11/23	85/11/23
72057	SCREEN	TOP 1ST	FR MP FT	WATER		1	124.0000			124.00	124.00	85/11/23	85/11/23
72058	CASING	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	85/11/23	85/11/23
72059	SCREEN	BOT 1ST	FR MP FT	WATER		1	144.0000			144.00	144.00	85/11/23	85/11/23
72060	CASING	BOT 1ST	FR MP FT	WATER		1	20.00000			20.00	20.00	85/11/23	85/11/23
72061	CASING	TOP 2ND	FR MP FT	WATER		1	.0000000			.00	.00	85/11/23	85/11/23
72062	CASING	BOT 2ND	FR MP FT	WATER		1	124.0000			124.00	124.00	85/11/23	85/11/23
72085	SCREEN	DIA 1ST	SCR (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72090	CASING	DIA 1ST	CAS (IN)	WATER		1	18.00000			18.00	18.00	85/11/23	85/11/23
72091	CASING	DIA 2ND	CAS (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72096	SCR SIZE	1ST ZONE	.001 IN	WATER		1	16.00000			16.00	16.00	85/11/23	85/11/23
72100	HOLE DIA	1ST ZONE	INCHES	WATER		1	17.00000			17.00	17.00	85/11/23	85/11/23
74041	WQF	SAMPLE	UPDATED	WATER		2	900520.0	.0000000	.0000000	900628	900412	84/11/16	85/11/23
82511	WELL	YIELD	GPM	WATER		1	30.00000			30.00	30.00	85/11/23	85/11/23

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                                                                   02-NORTH ATLANTIC         021400
 /TYPA/AMBNT/WELL                                                  14-POTOMAC-SHENDOAH
                                                                   21VASWCB  851221               02080108
                                                                   0000 FEET DEPTH
```

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00403	PH	LAB	SU	WATER		1	6.700000			6.7	6.7	84/11/01	84/11/01
00410	T ALK	CACO3	MG/L	WATER		1	82.00000			82	82	84/11/01	84/11/01
00620	NO3-N	TOTAL	MG/L	WATER		1	.2070000			.207	.207	84/11/01	84/11/01
00900	TOT HARD	CACO3	MG/L	WATER		1	50.00000			50	50	84/11/01	84/11/01
00940	CHLORIDE	TOTAL	MG/L	WATER		1	116.0000			116	116	84/11/01	84/11/01
01045	IRON	FE,TOT	UG/L	WATER		1	70.00000			70	70	84/11/01	84/11/01
72001	TOT DPTH	OF HOLE	FT	WATER		1	150.0000			150.0	150.0	85/11/23	85/11/23
72019	DEPTH-FT	BL LAND	SURFACE	WATER		1	37.00000			37.00	37.00	85/11/23	85/11/23
72020	ELEV	FEET AB	MSL	WATER		1	25.00000			25.00	25.00	85/11/23	85/11/23
72035	PUMP HR	S TOTAL	DAILY	WATER		1	24.00000			24	24	85/11/23	85/11/23
72038	PUMPING	LVL BELW	M.P. FT	WATER		1	94.00000			94.00	94.00	85/11/23	85/11/23
72057	SCREEN	TOP 1ST	FR MP FT	WATER		1	104.0000			104.00	104.00	85/11/23	85/11/23
72058	CASING	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	85/11/23	85/11/23
72059	SCREEN	BOT 1ST	FR MP FT	WATER		1	124.0000			124.00	124.00	85/11/23	85/11/23
72060	CASING	BOT 1ST	FR MP FT	WATER		1	104.0000			104.00	104.00	85/11/23	85/11/23
72085	SCREEN	DIA 1ST	SCR (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72090	CASING	DIA 1ST	CAS (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72096	SCR SIZE	1ST ZONE	.001 IN	WATER		1	16.00000			16.00	16.00	85/11/23	85/11/23

72100	HOLE DIA	1ST ZONE	INCHES	WATER	1	17.00000			17.00	17.00	85/11/23 85/11/23
74041	WQF	SAMPLE	UPDATED	WATER	2	900520.0	.0000000	.0000000	900628	900412	84/11/01 85/11/23
82511	WELL	YIELD	GPM	WATER	1	15.00000			15.00	15.00	85/11/23 85/11/23

1STORET RETRIEVAL DATE 91/12/02 PGM=INVENT PAGE: 3

FT. STORY (SE)

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51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC 021400
14-POTOMAC-SHENDOAH
21VASWCB 851221 02080108
0000 FEET DEPTH

/TYPA/AMBNT/WELL

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00403	PH	LAB	SU	WATER		2	6.450000	.0450140	.2121600	6.6	6.3	85/06/04	85/06/05
00410	T ALK	CACO3	MG/L	WATER		2	92.50000	12.50000	3.535500	95	90	85/06/04	85/06/05
00620	NO3-N	TOTAL	MG/L	WATER		2	.7950000	.0544510	.2333500	.960	.630	85/06/04	85/06/05
00900	TOT HARD	CACO3	MG/L	WATER		2	131.5000	60.50000	7.778200	137	126	85/06/04	85/06/05
00940	CHLORIDE	TOTAL	MG/L	WATER		2	18.50000	12.50000	3.535500	21	16	85/06/04	85/06/05
01045	IRON	FE,TOT	UG/L	WATER		2	275.0000	8450.000	91.92400	340	210	85/06/04	85/06/05
50041	GRAVLPAK	BELOW LS	FEET	WATER		1	25.00000			25.00	25.00	85/11/23	85/11/23
72001	TOT DPTH	OF HOLE	FT	WATER		1	150.0000			150.0	150.0	85/11/23	85/11/23
72019	DEPTH-FT	BL LAND	SURFACE	WATER		1	16.00000			16.00	16.00	85/11/23	85/11/23
72020	ELEV	FEET AB	MSL	WATER		1	10.00000			10.00	10.00	85/11/23	85/11/23
72035	PUMP HR	S TOTAL	DAILY	WATER		1	24.00000			24	24	85/11/23	85/11/23
72038	PUMPING	LVL BELW	M.P. FT	WATER		1	58.00000			58.00	58.00	85/11/23	85/11/23
72057	SCREEN	TOP 1ST	FR MP FT	WATER		1	30.00000			30.00	30.00	85/11/23	85/11/23
72058	CASING	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	85/11/23	85/11/23
72059	SCREEN	BOT 1ST	FR MP FT	WATER		1	120.0000			120.00	120.00	85/11/23	85/11/23
72060	CASING	BOT 1ST	FR MP FT	WATER		1	20.00000			20.00	20.00	85/11/23	85/11/23
72061	CASING	TOP 2ND	FR MP FT	WATER		1	.0000000			.00	.00	85/11/23	85/11/23
72062	CASING	BOT 2ND	FR MP FT	WATER		1	30.00000			30.00	30.00	85/11/23	85/11/23
72063	CASING	TOP 3RD	FR MP FT	WATER		1	120.0000			120.00	120.00	85/11/23	85/11/23
72064	CASING	BOT 3RD	FR MP FT	WATER		1	140.0000			140.00	140.00	85/11/23	85/11/23
72065	GROUT	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	85/11/23	85/11/23
72068	GROUT	BOT 1ST	FR MP FT	WATER		1	25.00000			25.00	25.00	85/11/23	85/11/23
72085	SCREEN	DIA 1ST	SCR (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72090	CASING	DIA 1ST	CAS (IN)	WATER		1	18.00000			18.00	18.00	85/11/23	85/11/23
72091	CASING	DIA 2ND	CAS (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72092	CASING	DIA 3RD	CAS (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72096	SCR SIZE	1ST ZONE	.001 IN	WATER		1	16.00000			16.00	16.00	85/11/23	85/11/23
72100	HOLE DIA	1ST ZONE	INCHES	WATER		1	17.00000			17.00	17.00	85/11/23	85/11/23
74041	WQF	SAMPLE	UPDATED	WATER		3	900560.0	.0000000	.0000000	900628	900412	85/06/04	85/11/23

1STORET RETRIEVAL DATE 91/12/02 PGM=INVENT PAGE: 4

FT. STORY (SE)

228-00333
36 53 45.0 076 02 47.0 4
BROAD BAY
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC 021400
14-POTOMAC-SHENDOAH
21VASWCB 851221 02080108
0000 FEET DEPTH

/TYPA/AMBNT/WELL

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00403	PH	LAB	SU	WATER		1	7.600000			7.6	7.6	84/11/16	84/11/16
00410	T ALK	CACO3	MG/L	WATER		1	146.0000			146	146	84/11/16	84/11/16
00620	NO3-N	TOTAL	MG/L	WATER		1	.0030000			.003	.003	84/11/16	84/11/16
00900	TOT HARD	CACO3	MG/L	WATER		1	89.00000			89	89	84/11/16	84/11/16
00940	CHLORIDE	TOTAL	MG/L	WATER		1	52.00000			52	52	84/11/16	84/11/16
01045	IRON	FE,TOT	UG/L	WATER		1	90.00000			90	90	84/11/16	84/11/16
50041	GRAVLPAK	BELOW LS	FEET	WATER		1	10.00000			10.00	10.00	85/11/23	85/11/23
72001	TOT DPTH	OF HOLE	FT	WATER		1	150.0000			150.0	150.0	85/11/23	85/11/23
72019	DEPTH-FT	BL LAND	SURFACE	WATER		1	28.00000			28.00	28.00	85/11/23	85/11/23
72020	ELEV	FEET AB	MSL	WATER		1	23.00000			23.00	23.00	85/11/23	85/11/23
72035	PUMP HR	S TOTAL	DAILY	WATER		1	24.00000			24	24	85/11/23	85/11/23
72038	PUMPING	LVL BELW	M.P. FT	WATER		1	90.00000			90.00	90.00	85/11/23	85/11/23
72057	SCREEN	TOP 1ST	FR MP FT	WATER		1	78.00000			78.00	78.00	85/11/23	85/11/23
72058	CASING	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	85/11/23	85/11/23
72059	SCREEN	BOT 1ST	FR MP FT	WATER		1	84.00000			84.00	84.00	85/11/23	85/11/23
72060	CASING	BOT 1ST	FR MP FT	WATER		1	78.00000			78.00	78.00	85/11/23	85/11/23
72061	CASING	TOP 2ND	FR MP FT	WATER		1	73.00000			73.00	73.00	85/11/23	85/11/23
72062	CASING	BOT 2ND	FR MP FT	WATER		1	119.0000			119.00	119.00	85/11/23	85/11/23
72065	GROUT	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	85/11/23	85/11/23
72068	GROUT	BOT 1ST	FR MP FT	WATER		1	10.00000			10.00	10.00	85/11/23	85/11/23
72071	SCREEN	BOT 2ND	FR MP FT	WATER		1	134.0000			134.00	134.00	85/11/23	85/11/23
72073	SCREEN	TOP 2ND	FR MP FT	WATER		1	119.0000			119.00	119.00	85/11/23	85/11/23
72085	SCREEN	DIA 1ST	SCR (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72086	SCREEN	DIA 2ND	SCR (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72090	CASING	DIA 1ST	CAS (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72091	CASING	DIA 2ND	CAS (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72096	SCR SIZE	1ST ZONE	.001 IN	WATER		1	16.00000			16.00	16.00	85/11/23	85/11/23
72097	SCR SIZE	2ND ZONE	.001 IN	WATER		1	16.00000			16.00	16.00	85/11/23	85/11/23

72100	HOLE DIA	1ST ZONE	INCHES	WATER		1	17.00000			17.00	17.00	85/11/23	85/11/23
74041	WQF	SAMPLE	UPDATED	WATER		2	900520.0	.0000000	.0000000	900628	900412	84/11/16	85/11/23
82511	WELL	YIELD	GPM	WATER		1	50.00000			50.00	50.00	85/11/23	85/11/23

1STORET RETRIEVAL DATE 91/12/02 PGM=INVENT PAGE: 5

FT. STORY (SE)

228-00337
36 53 45.0 076 02 52.0 4
BROAD BAY
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC 021400
14-POTOMAC-SHENDOAH
21VASWCB 851221 02080108
0000 FEET DEPTH

/TYPA/AMBNT/WELL

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00403	PH	LAB	SU	WATER		2	6.800000	.0000000	.0000000	6.8	6.8	85/06/10	85/06/11
00410	T ALK	CACO3	MG/L	WATER		2	110.0000	98.00000	9.899500	117	103	85/06/10	85/06/11
00620	NO3-N	TOTAL	MG/L	WATER		1	.1700000			.170	.170	85/06/10	85/06/10
00630	NO2&NO3	N-TOTAL	MG/L	WATER		1	.9000000			.90	.90	85/06/11	85/06/11
00900	TOT HARD	CACO3	MG/L	WATER		2	141.5000	40.50000	6.364000	146	137	85/06/10	85/06/11
00940	CHLORIDE	TOTAL	MG/L	WATER		2	21.50000	4.500000	2.121300	23	20	85/06/10	85/06/11
01045	IRON	FE,TOT	UG/L	WATER		2	325.0000	2450.000	49.49800	360	290	85/06/10	85/06/11
72001	TOT DPTH	OF HOLE	FT	WATER		1	150.0000			150.0	150.0	85/11/23	85/11/23
72019	DEPTH-FT	BL LAND	SURFACE	WATER		1	26.00000			26.00	26.00	85/11/23	85/11/23
72020	ELEV	FEET AB	MSL	WATER		1	22.00000			22.00	22.00	85/11/23	85/11/23
72035	PUMP HR	S TOTAL	DAILY	WATER		1	24.00000			24	24	85/11/23	85/11/23
72038	PUMPING	LVL BELW	M.P. FT	WATER		1	39.00000			39.00	39.00	85/11/23	85/11/23
72057	SCREEN	TOP 1ST	FR MP FT	WATER		1	30.00000			30.00	30.00	85/11/23	85/11/23
72058	CASING	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	85/11/23	85/11/23
72059	SCREEN	BOT 1ST	FR MP FT	WATER		1	90.00000			90.00	90.00	85/11/23	85/11/23
72060	CASING	BOT 1ST	FR MP FT	WATER		1	30.00000			30.00	30.00	85/11/23	85/11/23
72061	CASING	TOP 2ND	FR MP FT	WATER		1	90.00000			90.00	90.00	85/11/23	85/11/23
72062	CASING	BOT 2ND	FR MP FT	WATER		1	110.0000			110.00	110.00	85/11/23	85/11/23
72071	SCREEN	BOT 2ND	FR MP FT	WATER		1	140.0000			140.00	140.00	85/11/23	85/11/23
72073	SCREEN	TOP 2ND	FR MP FT	WATER		1	110.0000			110.00	110.00	85/11/23	85/11/23
72085	SCREEN	DIA 1ST	SCR (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72086	SCREEN	DIA 2ND	SCR (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72090	CASING	DIA 1ST	CAS (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72091	CASING	DIA 2ND	CAS (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72096	SCR SIZE	1ST ZONE	.001 IN	WATER		1	16.00000			16.00	16.00	85/11/23	85/11/23
72097	SCR SIZE	2ND ZONE	.001 IN	WATER		1	16.00000			16.00	16.00	85/11/23	85/11/23
72100	HOLE DIA	1ST ZONE	INCHES	WATER		1	17.00000			17.00	17.00	85/11/23	85/11/23
74041	WQF	SAMPLE	UPDATED	WATER		3	900560.0	.0000000	.0000000	900628	900412	85/06/10	85/11/23

1STORET RETRIEVAL DATE 91/12/02 PGM=INVENT PAGE: 6

FT. STORY (SE)

228-00334
36 53 46.0 076 02 43.0 4
BROAD BAY
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC 021400
14-POTOMAC-SHENDOAH
21VASWCB 851221 02080108
0000 FEET DEPTH

/TYPA/AMBNT/WELL

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00403	PH	LAB	SU	WATER		1	7.100000			7.1	7.1	84/11/16	84/11/16
00410	T ALK	CACO3	MG/L	WATER		1	191.0000			191	191	84/11/16	84/11/16
00620	NO3-N	TOTAL	MG/L	WATER		1	.0060000			.006	.006	84/11/16	84/11/16
00900	TOT HARD	CACO3	MG/L	WATER		1	65.00000			65	65	84/11/16	84/11/16
00940	CHLORIDE	TOTAL	MG/L	WATER		1	57.00000			57	57	84/11/16	84/11/16
01045	IRON	FE,TOT	UG/L	WATER		1	80.00000			80	80	84/11/16	84/11/16
72001	TOT DPTH	OF HOLE	FT	WATER		1	150.0000			150.0	150.0	85/11/23	85/11/23
72019	DEPTH-FT	BL LAND	SURFACE	WATER		1	35.00000			35.00	35.00	85/11/23	85/11/23
72020	ELEV	FEET AB	MSL	WATER		1	24.00000			24.00	24.00	85/11/23	85/11/23
72035	PUMP HR	S TOTAL	DAILY	WATER		1	24.00000			24	24	85/11/23	85/11/23
72038	PUMPING	LVL BELW	M.P. FT	WATER		1	82.00000			82.00	82.00	85/11/23	85/11/23
72057	SCREEN	TOP 1ST	FR MP FT	WATER		1	94.00000			94.00	94.00	85/11/23	85/11/23
72058	CASING	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	85/11/23	85/11/23
72059	SCREEN	BOT 1ST	FR MP FT	WATER		1	114.0000			114.00	114.00	85/11/23	85/11/23
72060	CASING	BOT 1ST	FR MP FT	WATER		1	94.00000			94.00	94.00	85/11/23	85/11/23
72085	SCREEN	DIA 1ST	SCR (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72090	CASING	DIA 1ST	CAS (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72096	SCR SIZE	1ST ZONE	.001 IN	WATER		1	16.00000			16.00	16.00	85/11/23	85/11/23
72100	HOLE DIA	1ST ZONE	INCHES	WATER		1	17.00000			17.00	17.00	85/11/23	85/11/23
74041	WQF	SAMPLE	UPDATED	WATER		2	900520.0	.0000000	.0000000	900628	900412	84/11/16	85/11/23
82511	WELL	YIELD	GPM	WATER		1	11.00000			11.00	11.00	85/11/23	85/11/23

1STORET RETRIEVAL DATE 91/12/02 PGM=INVENT PAGE: 7

FT. STORY (SE)

228-00202
36 54 12.8 076 02 58.8 1
BAY ISLAND
51810 VIRGINIA VIRGINIA BEACH (CITY
NORTH ATLANTIC 021500
RAPPAHANNOCK/YORK RIVERS/VA. COAST
21VASWCB 830611 02080101

/TYPA/AMBNT/WELL

0000 FEET DEPTH

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00008 LAB	IDENT.	NUMBER	WATER		2	3896.500	.0000000	.0000000	3899	3894	81/04/23	81/04/23
00094 CNDUCTVY	FIELD	MICROMHO	WATER		1	6660.000			6660	6660	81/04/23	81/04/23
00400 PH		SU	WATER		2	7.700000	.0000000	.0000000	7.70	7.70	81/04/23	81/04/23
00403 PH	LAB	SU	WATER		1	7.500000			7.5	7.5	81/04/23	81/04/23
00410 T ALK	CACO3	MG/L	WATER		1	267.0000			267	267	81/04/23	81/04/23
00500 RESIDUE	TOTAL	MG/L	WATER		1	4110.000			4110	4110	81/04/23	81/04/23
00505 RESIDUE	TOT VOL	MG/L	WATER		1	570.0000			570	570	81/04/23	81/04/23
00510 RESIDUE	TOT FIX	MG/L	WATER		1	3540.000			3540	3540	81/04/23	81/04/23
00515 RESIDUE	DISS-105 C	MG/L	WATER		1	4110.000			4110	4110	81/04/23	81/04/23
00530 RESIDUE	TOT NFLT	MG/L	WATER		1	5.000000			5	5	81/04/23	81/04/23
00535 RESIDUE	VOL NFLT	MG/L	WATER		1	5.000000			5	5	81/04/23	81/04/23
00540 RESIDUE	FIX NFLT	MG/L	WATER		1	5.000000			5	5	81/04/23	81/04/23
00610 NH3+NH4-	N TOTAL	MG/L	WATER		1	2.200000			2.200	2.200	81/04/23	81/04/23
00615 NO2-N	TOTAL	MG/L	WATER		1	.0100000			.010	.010	81/04/23	81/04/23
00620 NO3-N	TOTAL	MG/L	WATER		1	.0500000			.050	.050	81/04/23	81/04/23
00625 TOT KJEL	N	MG/L	WATER		1	2.500000			2.500	2.500	81/04/23	81/04/23
00665 PHOS-TOT		MG/L P	WATER		1	.4000000			.400	.400	81/04/23	81/04/23
00671 PHOS-DIS	ORTHO	MG/L P	WATER		1	.3200000			.320	.320	81/04/23	81/04/23
00680 T ORG C	C	MG/L	WATER		1	23.00000			23.0	23.0	81/04/23	81/04/23
00900 TOT HARD	CACO3	MG/L	WATER		1	740.0000			740	740	81/04/23	81/04/23
00940 CHLORIDE	TOTAL	MG/L	WATER		1	2000.000			2000	2000	81/04/23	81/04/23
00945 SULFATE	SO4-TOT	MG/L	WATER		1	135.0000			135	135	81/04/23	81/04/23
00951 FLUORIDE	F,TOTAL	MG/L	WATER		1	.1700000			.17	.17	81/04/23	81/04/23
01045 IRON	FE,TOT	UG/L	WATER		1	110.0000			110	110	81/04/23	81/04/23
01055 MANGNESE	MN	UG/L	WATER		1	90.00000			90.0	90.0	81/04/23	81/04/23
72001 TOT DPTH	OF HOLE	FT	WATER		1	65.00000			65.0	65.0	10/01/01	10/01/01
72020 ELEV	FEET AB	MSL	WATER		1	10.00000			10.00	10.00	10/01/01	10/01/01
72057 SCREEN	TOP 1ST	FR MP FT	WATER		1	60.00000			60.00	60.00	10/01/01	10/01/01
72058 CASING	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	10/01/01	10/01/01
72059 SCREEN	BOT 1ST	FR MP FT	WATER		1	65.00000			65.00	65.00	10/01/01	10/01/01
72060 CASING	BOT 1ST	FR MP FT	WATER		1	60.00000			60.00	60.00	10/01/01	10/01/01
72085 SCREEN	DIA 1ST	SCR (IN)	WATER		1	1.000000			1.00	1.00	10/01/01	10/01/01
72090 CASING	DIA 1ST	CAS (IN)	WATER		1	1.000000			1.00	1.00	10/01/01	10/01/01
74041 WQF	SAMPLE	UPDATED	WATER		2	880510.0	.0000000	.0000000	880506	880506	81/04/23	81/04/23
82032 CALCIUM	TOTAL C A	UG/L	WATER		1	98000.00			98000	98000	81/04/23	81/04/23
82033 MG	TOTAL MG	UG/L	WATER		1	123000.0			123000	123000	81/04/23	81/04/23
82034 K	TOTAL K	UG/L	WATER		1	51500.00			51500	51500	81/04/23	81/04/23
82035 SODIUM	TOTAL NA	UG/L	WATER		1	983000.0			983000	983000	81/04/23	81/04/23
84054 LITH-	OLOGY	CODE	WATER	TXT	1	TEXT	TEXT	TEXT	TEXT	TEXT	10/01/01	10/01/01

1STORET RETRIEVAL DATE 91/12/02 PGM=INVENT PAGE: 8

FT. STORY (SE)

228-00324
36 54 16.0 076 03 16.0 4
BAY ISLAND
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC 021500
15-RAPPAHANOCK/YORK-COAST
21VASWCB 860104 02080101
0000 FEET DEPTH

/TYPA/AMBNT/WELL

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00008 LAB	IDENT.	NUMBER	WATER		1	17659.00			17659	17659	85/08/13	85/08/13
00094 CNDUCTVY	FIELD	MICROMHO	WATER		1	1152.000			1152	1152	85/08/13	85/08/13
00116 INTNSVE	SURVEY	IDENT	WATER		1	865100.0			865101	865101	85/08/13	85/08/13
00400 PH		SU	WATER		1	7.800000			7.80	7.80	85/08/13	85/08/13
00403 PH	LAB	SU	WATER		1	8.100000			8.1	8.1	85/08/13	85/08/13
00410 T ALK	CACO3	MG/L	WATER		1	131.0000			131	131	85/08/13	85/08/13
00515 RESIDUE	DISS-105 C	MG/L	WATER		1	632.0000			632	632	85/08/13	85/08/13
00610 NH3+NH4-	N TOTAL	MG/L	WATER		1	.2000000			.200	.200	85/08/13	85/08/13
00620 NO3-N	TOTAL	MG/L	WATER		1	.0500000			.050	.050	85/08/13	85/08/13
00625 TOT KJEL	N	MG/L	WATER		1	.3000000			.300	.300	85/08/13	85/08/13
00665 PHOS-TOT		MG/L P	WATER		1	.1000000			.100	.100	85/08/13	85/08/13
00680 T ORG C	C	MG/L	WATER		1	2.000000			2.0	2.0	85/08/13	85/08/13
00900 TOT HARD	CACO3	MG/L	WATER		1	2.000000			2	2	85/08/13	85/08/13
00940 CHLORIDE	TOTAL	MG/L	WATER		1	285.0000			285	285	85/08/13	85/08/13
00945 SULFATE	SO4-TOT	MG/L	WATER		1	17.80000			18	18	85/08/13	85/08/13
00951 FLUORIDE	F,TOTAL	MG/L	WATER		1	.1500000			.15	.15	85/08/13	85/08/13
01002 ARSENIC	AS,TOT	UG/L	WATER		1	1.000000			1	1	85/08/13	85/08/13
01027 CADMIUM	CD,TOT	UG/L	WATER		1	1.000000			1	1	85/08/13	85/08/13
01034 CHROMIUM	CR,TOT	UG/L	WATER		1	1.000000			1	1	85/08/13	85/08/13
01042 COPPER	CU,TOT	UG/L	WATER		1	60.00000			60	60	85/08/13	85/08/13
01045 IRON	FE,TOT	UG/L	WATER		1	400.0000			400	400	85/08/13	85/08/13
01051 LEAD	PB,TOT	UG/L	WATER		1	28.00000			28	28	85/08/13	85/08/13
01055 MANGNESE	MN	UG/L	WATER		1	20.00000			20.0	20.0	85/08/13	85/08/13
01067 NICKEL	NI,TOTAL	UG/L	WATER		1	100.0000			100	100	85/08/13	85/08/13
01092 ZINC	ZN,TOT	UG/L	WATER		1	20.00000			20	20	85/08/13	85/08/13
50041 GRAVLPAK	BELOW LS	FEET	WATER		1	95.00000			95.00	95.00	85/12/01	85/12/01
72001 TOT DPTH	OF HOLE	FT	WATER		1	105.0000			105.0	105.0	85/12/01	85/12/01
72002 TOP DPTH	WB ZONE	FT	WATER		1	22.00000			22.0	22.0	85/12/01	85/12/01
72003 BOT DPTH	WB ZONE	FT	WATER		1	34.00000			34.0	34.0	85/12/01	85/12/01

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
72019 DEPTH-FT	BL LAND	SURFACE	WATER		1	6.000000			6.00	6.00	85/12/01	85/12/01
72020 ELEV	FEET AB	MSL	WATER		1	5.000000			5.00	5.00	85/12/01	85/12/01
72035 PUMP HR	S TOTAL	DAILY	WATER		1	4.000000			4	4	85/12/01	85/12/01
72037 PUMPING	RATE	GPM	WATER		1	15.00000			15.00	15.00	85/12/01	85/12/01
72038 PUMPING	LVL BELW	M.P. FT	WATER		1	12.00000			12.00	12.00	85/12/01	85/12/01
72043 BRAKE	HORSE-	POWER	WATER		1	.5000000			.5	.5	85/12/01	85/12/01
72044 PUMPING	HEAD	FEET	WATER		1	90.00000			90.0	90.0	85/12/01	85/12/01
72057 SCREEN	TOP 1ST	FR MP FT	WATER		1	100.0000			100.00	100.00	85/12/01	85/12/01
72058 CASING	TOP 1ST	FR MP FT	WATER		1	1.000000			1.00	1.00	85/12/01	85/12/01
72059 SCREEN	BOT 1ST	FR MP FT	WATER		1	105.0000			105.00	105.00	85/12/01	85/12/01

1STORET RETRIEVAL DATE 91/12/02 PGM=INVENT PAGE: 9

FT. STORY (SE)

228-00324
36 54 16.0 076 03 16.0 4
BAY ISLAND
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC 021500
15-RAPPAHANOCK/YORK-COAST
21VASWCB 860104 02080101
0000 FEET DEPTH

/TYPA/AMBNT/WELL

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
72060 CASING	BOT 1ST	FR MP FT	WATER		1	100.0000			100.00	100.00	85/12/01	85/12/01
72065 GROUT	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	85/12/01	85/12/01
72068 GROUT	BOT 1ST	FR MP FT	WATER		1	50.00000			50.00	50.00	85/12/01	85/12/01
72075 TOP DPTH	2ND WB	ZONE(FT)	WATER		1	99.00000			99.00	99.00	85/12/01	85/12/01
72076 BOT DPTH	2ND WB	ZONE(FT)	WATER		1	106.0000			106.00	106.00	85/12/01	85/12/01
72085 SCREEN	DIA 1ST	SCR (IN)	WATER		1	4.000000			4.00	4.00	85/12/01	85/12/01
72090 CASING	DIA 1ST	CAS (IN)	WATER		1	4.000000			4.00	4.00	85/12/01	85/12/01
72096 SCR SIZE	1ST ZONE	.001 IN	WATER		1	10.00000			10.00	10.00	85/12/01	85/12/01
72100 HOLE DIA	1ST ZONE	INCHES	WATER		1	7.000000			7.00	7.00	85/12/01	85/12/01
74041 WQF	SAMPLE	UPDATED	WATER		2	880710.0	7759E+05	27856.00	900412	861010	85/08/13	85/12/01
82032 CALCIUM	TOTAL C A	UG/L	WATER		1	1000.000			1000	1000	85/08/13	85/08/13
82033 MG	TOTAL MG	UG/L	WATER		1	300.0000			300	300	85/08/13	85/08/13
82034 K	TOTAL K	UG/L	WATER		1	2700.000			2700	2700	85/08/13	85/08/13
82035 SODIUM	TOTAL NA	UG/L	WATER		1	170000.0			170000	170000	85/08/13	85/08/13
82511 WELL	YIELD	GPM	WATER		1	15.00000			15.00	15.00	85/12/01	85/12/01
84054 LITH-	OLOGY	CODE	WATER	TXT	1	TEXT	TEXT	TEXT	TEXT	TEXT	85/12/01	85/12/01
84069 FORMAT'N	CODE	ALPHA	WATER	TXT	1	TEXT	TEXT	TEXT	TEXT	TEXT	85/12/01	85/12/01

1STORET RETRIEVAL DATE 91/12/02 PGM=INVENT PAGE: 10

FT. STORY (SE)

228-00325
36 54 18.0 076 03 13.0 4
BAY ISLAND
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC 021500
15-RAPPAHANOCK/YORK-COAST
21VASWCB 860104 02080101
0000 FEET DEPTH

/TYPA/AMBNT/WELL

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010 WATER	TEMP	CENT	WATER		1	15.55600			15.6	15.6	85/12/01	85/12/01
00011 WATER	TEMP	FAHN	WATER		1	60.00000			60.0	60.0	85/12/01	85/12/01
50041 GRAVLPAK	BELOW LS	FEET	WATER		1	90.00000			90.00	90.00	85/12/01	85/12/01
72001 TOT DPTH	OF HOLE	FT	WATER		1	106.0000			106.0	106.0	85/12/01	85/12/01
72002 TOP DPTH	WB ZONE	FT	WATER		1	6.000000			6.0	6.0	85/12/01	85/12/01
72003 BOT DPTH	WB ZONE	FT	WATER		1	25.00000			25.0	25.0	85/12/01	85/12/01
72019 DEPTH-FT	BL LAND	SURFACE	WATER		1	4.000000			4.00	4.00	85/12/01	85/12/01
72020 ELEV	FEET AB	MSL	WATER		1	5.000000			5.00	5.00	85/12/01	85/12/01
72035 PUMP HR	S TOTAL	DAILY	WATER		1	4.000000			4	4	85/12/01	85/12/01
72037 PUMPING	RATE	GPM	WATER		1	15.00000			15.00	15.00	85/12/01	85/12/01
72038 PUMPING	LVL BELW	M.P. FT	WATER		1	6.000000			6.00	6.00	85/12/01	85/12/01
72043 BRAKE	HORSE-	POWER	WATER		1	.5000000			.5	.5	85/12/01	85/12/01
72044 PUMPING	HEAD	FEET	WATER		1	92.40000			92.4	92.4	85/12/01	85/12/01
72057 SCREEN	TOP 1ST	FR MP FT	WATER		1	101.0000			101.00	101.00	85/12/01	85/12/01
72058 CASING	TOP 1ST	FR MP FT	WATER		1	1.000000			1.00	1.00	85/12/01	85/12/01
72059 SCREEN	BOT 1ST	FR MP FT	WATER		1	106.0000			106.00	106.00	85/12/01	85/12/01
72060 CASING	BOT 1ST	FR MP FT	WATER		1	101.0000			101.00	101.00	85/12/01	85/12/01
72065 GROUT	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	85/12/01	85/12/01
72068 GROUT	BOT 1ST	FR MP FT	WATER		1	53.00000			53.00	53.00	85/12/01	85/12/01
72075 TOP DPTH	2ND WB	ZONE(FT)	WATER		1	98.00000			98.00	98.00	85/12/01	85/12/01
72076 BOT DPTH	2ND WB	ZONE(FT)	WATER		1	106.0000			106.00	106.00	85/12/01	85/12/01
72085 SCREEN	DIA 1ST	SCR (IN)	WATER		1	4.000000			4.00	4.00	85/12/01	85/12/01
72090 CASING	DIA 1ST	CAS (IN)	WATER		1	4.000000			4.00	4.00	85/12/01	85/12/01
72096 SCR SIZE	1ST ZONE	.001 IN	WATER		1	10.00000			10.00	10.00	85/12/01	85/12/01
72100 HOLE DIA	1ST ZONE	INCHES	WATER		1	7.000000			7.00	7.00	85/12/01	85/12/01
74041 WQF	SAMPLE	UPDATED	WATER		1	900410.0			900412	900412	85/12/01	85/12/01
82511 WELL	YIELD	GPM	WATER		1	30.00000			30.00	30.00	85/12/01	85/12/01
84054 LITH-	OLOGY	CODE	WATER	TXT	1	TEXT	TEXT	TEXT	TEXT	TEXT	85/12/01	85/12/01
84069 FORMAT'N	CODE	ALPHA	WATER	TXT	1	TEXT	TEXT	TEXT	TEXT	TEXT	85/12/01	85/12/01

1STORET RETRIEVAL DATE 91/12/02 PGM=INVENT PAGE: 11

FT. STORY (SE)

228-00226
36 54 20.6 076 02 56.1 1
BAY ISLAND

/TYPA/AMBNT/WELL

51810 VIRGINIA VIRGINIA BEACH (CITY
NORTH ATLANTIC 021500
RAPPAHANNOCK/YORK RIVERS/VA. COAST
21VASWCB 830611 02080101
0000 FEET DEPTH

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00008 LAB	IDENT.	NUMBER	WATER		2	11949.00	.0000000	.0000000	11951	11947	81/09/16	81/09/16
00094 CNDUCTVY	FIELD	MICROMHO	WATER		1	799.0000			799	799	81/09/16	81/09/16
00400 PH		SU	WATER		2	5.700000	.0000000	.0000000	5.70	5.70	81/09/16	81/09/16
00403 PH	LAB	SU	WATER		1	5.400000			5.4	5.4	81/09/16	81/09/16
00410 T ALK	CACO3	MG/L	WATER		1	4.000000			4	4	81/09/16	81/09/16
00500 RESIDUE	TOTAL	MG/L	WATER		1	465.0000			465	465	81/09/16	81/09/16
00505 RESIDUE	TOT VOL	MG/L	WATER		1	101.0000			101	101	81/09/16	81/09/16
00510 RESIDUE	TOT FIX	MG/L	WATER		1	364.0000			364	364	81/09/16	81/09/16
00515 RESIDUE	DISS-105 C	MG/L	WATER		1	465.0000			465	465	81/09/16	81/09/16
00530 RESIDUE	TOT NFLT	MG/L	WATER		1	5.000000			5	5	81/09/16	81/09/16
00535 RESIDUE	VOL NFLT	MG/L	WATER		1	5.000000			5	5	81/09/16	81/09/16
00540 RESIDUE	FIX NFLT	MG/L	WATER		1	5.000000			5	5	81/09/16	81/09/16
00610 NH3+NH4-	N TOTAL	MG/L	WATER		1	.1000000			.100	.100	81/09/16	81/09/16
00615 NO2-N	TOTAL	MG/L	WATER		1	.0100000			.010	.010	81/09/16	81/09/16
00620 NO3-N	TOTAL	MG/L	WATER		1	1.500000			1.500	1.500	81/09/16	81/09/16
00625 TOT KJEL	N	MG/L	WATER		1	.3000000			.300	.300	81/09/16	81/09/16
00665 PHOS-TOT		MG/L P	WATER		1	.2000000			.200	.200	81/09/16	81/09/16
00671 PHOS-DIS	ORTHO	MG/L P	WATER		1	.1800000			.180	.180	81/09/16	81/09/16
00680 T ORG C	C	MG/L	WATER		1	7.000000			7.0	7.0	81/09/16	81/09/16
00900 TOT HARD	CACO3	MG/L	WATER		1	94.00000			94	94	81/09/16	81/09/16
00940 CHLORIDE	TOTAL	MG/L	WATER		1	189.0000			189	189	81/09/16	81/09/16
00945 SULFATE	SO4-TOT	MG/L	WATER		1	29.20000			29	29	81/09/16	81/09/16
00951 FLUORIDE	F,TOTAL	MG/L	WATER		1	.1000000			.10	.10	81/09/16	81/09/16
01045 IRON	FE,TOT	UG/L	WATER		1	30.00000			30	30	81/09/16	81/09/16
01055 MANGNESE	MN	UG/L	WATER		1	40.00000			40.0	40.0	81/09/16	81/09/16
72001 TOT DPTH	OF HOLE	FT	WATER		1	25.00000			25.0	25.0	10/01/01	10/01/01
72020 ELEV	FEET AB	MSL	WATER		1	10.00000			10.00	10.00	10/01/01	10/01/01
72043 BRAKE	HORSE-	POWER	WATER		1	.5000000			.5	.5	10/01/01	10/01/01
72057 SCREEN	TOP 1ST	FR MP FT	WATER		1	20.00000			20.00	20.00	10/01/01	10/01/01
72058 CASING	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	10/01/01	10/01/01
72059 SCREEN	BOT 1ST	FR MP FT	WATER		1	25.00000			25.00	25.00	10/01/01	10/01/01
72060 CASING	BOT 1ST	FR MP FT	WATER		1	20.00000			20.00	20.00	10/01/01	10/01/01
72085 SCREEN	DIA 1ST	SCR (IN)	WATER		1	1.000000			1.00	1.00	10/01/01	10/01/01
72090 CASING	DIA 1ST	CAS (IN)	WATER		1	1.000000			1.00	1.00	10/01/01	10/01/01
74041 WQF	SAMPLE	UPDATED	WATER		2	880510.0	.0000000	.0000000	880506	880506	81/09/16	81/09/16
82032 CALCIUM	TOTAL C A	UG/L	WATER		1	27000.00			27000	27000	81/09/16	81/09/16
82033 MG	TOTAL MG	UG/L	WATER		1	8000.000			8000	8000	81/09/16	81/09/16
82034 K	TOTAL K	UG/L	WATER		1	6000.000			6000	6000	81/09/16	81/09/16
82035 SODIUM	TOTAL NA	UG/L	WATER		1	65000.00			65000	65000	81/09/16	81/09/16

FT. STORY (SE)

228-00227
36 54 20.6 076 02 56.1 1
BAY ISLAND

/TYPA/AMBNT/WELL

51810 VIRGINIA VIRGINIA BEACH (CITY
NORTH ATLANTIC 021500
RAPPAHANNOCK/YORK RIVERS/VA. COAST
21VASWCB 830611 02080101
0000 FEET DEPTH

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00008 LAB	IDENT.	NUMBER	WATER		2	11950.00	.0000000	.0000000	11952	11948	81/09/16	81/09/16
00094 CNDUCTVY	FIELD	MICROMHO	WATER		1	4320.000			4320	4320	81/09/16	81/09/16
00400 PH		SU	WATER		2	7.000000	.0000000	.0000000	7.00	7.00	81/09/16	81/09/16
00403 PH	LAB	SU	WATER		1	7.500000			7.5	7.5	81/09/16	81/09/16
00410 T ALK	CACO3	MG/L	WATER		1	255.0000			255	255	81/09/16	81/09/16
00500 RESIDUE	TOTAL	MG/L	WATER		1	2204.000			2204	2204	81/09/16	81/09/16
00505 RESIDUE	TOT VOL	MG/L	WATER		1	263.0000			263	263	81/09/16	81/09/16
00510 RESIDUE	TOT FIX	MG/L	WATER		1	1941.000			1941	1941	81/09/16	81/09/16
00515 RESIDUE	DISS-105 C	MG/L	WATER		1	2204.000			2204	2204	81/09/16	81/09/16
00530 RESIDUE	TOT NFLT	MG/L	WATER		1	5.000000			5	5	81/09/16	81/09/16
00535 RESIDUE	VOL NFLT	MG/L	WATER		1	5.000000			5	5	81/09/16	81/09/16
00540 RESIDUE	FIX NFLT	MG/L	WATER		1	5.000000			5	5	81/09/16	81/09/16
00610 NH3+NH4-	N TOTAL	MG/L	WATER		1	1.900000			1.900	1.900	81/09/16	81/09/16
00615 NO2-N	TOTAL	MG/L	WATER		1	.0100000			.010	.010	81/09/16	81/09/16
00620 NO3-N	TOTAL	MG/L	WATER		1	.0500000			.050	.050	81/09/16	81/09/16
00625 TOT KJEL	N	MG/L	WATER		1	1.900000			1.900	1.900	81/09/16	81/09/16
00665 PHOS-TOT		MG/L P	WATER		1	.5000000			.500	.500	81/09/16	81/09/16
00671 PHOS-DIS	ORTHO	MG/L P	WATER		1	.5200000			.520	.520	81/09/16	81/09/16
00680 T ORG C	C	MG/L	WATER		1	19.00000			19.0	19.0	81/09/16	81/09/16
00900 TOT HARD	CACO3	MG/L	WATER		1	398.0000			398	398	81/09/16	81/09/16
00940 CHLORIDE	TOTAL	MG/L	WATER		1	111.0000			111	111	81/09/16	81/09/16
00945 SULFATE	SO4-TOT	MG/L	WATER		1	43.89000			44	44	81/09/16	81/09/16
00951 FLUORIDE	F,TOTAL	MG/L	WATER		1	.2400000			.24	.24	81/09/16	81/09/16
01045 IRON	FE,TOT	UG/L	WATER		1	90.00000			90	90	81/09/16	81/09/16
01055 MANGNESE	MN	UG/L	WATER		1	70.00000			70.0	70.0	81/09/16	81/09/16

72001	TOT DPTH	OF HOLE	FT	WATER		1	77.00000			77.0	77.0	10/01/01	10/01/01
72020	ELEV	FEET AB	MSL	WATER		1	10.00000			10.00	10.00	10/01/01	10/01/01
72043	BRAKE	HORSE-	POWER	WATER		1	.5000000			.5	.5	10/01/01	10/01/01
72057	SCREEN	TOP 1ST	FR MP FT	WATER		1	67.00000			67.00	67.00	10/01/01	10/01/01
72058	CASING	TOP 1ST	FR MP FT	WATER		1	.0000000			.00	.00	10/01/01	10/01/01
72059	SCREEN	BOT 1ST	FR MP FT	WATER		1	77.00000			77.00	77.00	10/01/01	10/01/01
72060	CASING	BOT 1ST	FR MP FT	WATER		1	67.00000			67.00	67.00	10/01/01	10/01/01
72085	SCREEN	DIA 1ST	SCR (IN)	WATER		1	1.000000			1.00	1.00	10/01/01	10/01/01
72090	CASING	DIA 1ST	CAS (IN)	WATER		1	1.000000			1.00	1.00	10/01/01	10/01/01
74041	WQF	SAMPLE	UPDATED	WATER		2	880510.0	.0000000	.0000000	880506	880506	81/09/16	81/09/16
82032	CALCIUM	TOTAL C A	UG/L	WATER		1	52000.00			52000	52000	81/09/16	81/09/16
82033	MG	TOTAL MG	UG/L	WATER		1	110000.0			110000	110000	81/09/16	81/09/16
82034	K	TOTAL K	UG/L	WATER		1	44000.00			44000	44000	81/09/16	81/09/16
82035	SODIUM	TOTAL NA	UG/L	WATER		1	540000.0			540000	540000	81/09/16	81/09/16

1STORET RETRIEVAL DATE 91/12/02 PGM=INVENT PAGE: 13

FT. STORY (SE)

228-00201
36 54 22.0 076 02 45.0 4
BAY ISLAND
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC 020700
7-SMALL COAS. + CHES. BAY
21VASWCB 830611 02080101
0000 FEET DEPTH

/TYPA/AMBNT/WELL

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00008	LAB	IDENT.	NUMBER	WATER		2	3897.500	16.00000	4.000000	3900	3895	81/04/23	81/04/23
00094	CNDUCTVY	FIELD	MICROMHO	WATER		1	990.0000			990	990	81/04/23	81/04/23
00400	PH		SU	WATER		2	7.300000	.0000000	.0000000	7.30	7.30	81/04/23	81/04/23
00403	PH	LAB	SU	WATER		1	7.000000			7.0	7.0	81/04/23	81/04/23
00410	T ALK	CACO3	MG/L	WATER		1	153.0000			153	153	81/04/23	81/04/23
00500	RESIDUE	TOTAL	MG/L	WATER		1	511.0000			511	511	81/04/23	81/04/23
00505	RESIDUE	TOT VOL	MG/L	WATER		1	85.00000			85	85	81/04/23	81/04/23
00510	RESIDUE	TOT FIX	MG/L	WATER		1	426.0000			426	426	81/04/23	81/04/23
00515	RESIDUE	DISS-105 C	MG/L	WATER		1	511.0000			511	511	81/04/23	81/04/23
00530	RESIDUE	TOT NFLT	MG/L	WATER		1	5.000000			5	5	81/04/23	81/04/23
00535	RESIDUE	VOL NFLT	MG/L	WATER		1	5.000000			5	5	81/04/23	81/04/23
00540	RESIDUE	FIX NFLT	MG/L	WATER		1	5.000000			5	5	81/04/23	81/04/23
00610	NH3+NH4-	N TOTAL	MG/L	WATER		1	1.600000			1.600	1.600	81/04/23	81/04/23
00615	NO2-N	TOTAL	MG/L	WATER		1	.0100000			.010	.010	81/04/23	81/04/23
00620	NO3-N	TOTAL	MG/L	WATER		1	.0500000			.050	.050	81/04/23	81/04/23
12/04/91: VSAM AND GDG CONVERSION TO SMS					- SEE NEWS ALERT13 OPER								
00625	TOT KJEL	N	MG/L	WATER		1	2.000000			2.000	2.000	81/04/23	81/04/23
00665	PHOS-TOT		MG/L P	WATER		1	12.60000			12.600	12.600	81/04/23	81/04/23
00671	PHOS-DIS	ORTHO	MG/L P	WATER		1	1.800000			1.800	1.800	81/04/23	81/04/23
00680	T ORG C	C	MG/L	WATER		1	25.00000			25.0	25.0	81/04/23	81/04/23
00900	TOT HARD	CACO3	MG/L	WATER		1	168.0000			168	168	81/04/23	81/04/23
00940	CHLORIDE	TOTAL	MG/L	WATER		1	154.0000			154	154	81/04/23	81/04/23
00945	SULFATE	SO4-TOT	MG/L	WATER		1	7.000000			7	7	81/04/23	81/04/23
00951	FLUORIDE	F,TOTAL	MG/L	WATER		1	.1200000			.12	.12	81/04/23	81/04/23
01045	IRON	FE,TOT	UG/L	WATER		1	1130.000			1130	1130	81/04/23	81/04/23
01055	MANGNESE	MN	UG/L	WATER		1	130.0000			130.0	130.0	81/04/23	81/04/23
72001	TOT DPTH	OF HOLE	FT	WATER		1	85.00000			85.0	85.0	10/01/01	10/01/01
72020	ELEV	FEET AB	MSL	WATER		1	15.00000			15.00	15.00	10/01/01	10/01/01
72043	BRAKE	HORSE-	POWER	WATER		1	.5000000			.5	.5	10/01/01	10/01/01
74041	WQF	SAMPLE	UPDATED	WATER		2	880510.0	.0000000	.0000000	880506	880506	81/04/23	81/04/23
82032	CALCIUM	TOTAL C A	UG/L	WATER		1	19000.00			19000	19000	81/04/23	81/04/23
82033	MG	TOTAL MG	UG/L	WATER		1	20000.00			20000	20000	81/04/23	81/04/23
82034	K	TOTAL K	UG/L	WATER		1	13000.00			13000	13000	81/04/23	81/04/23
82035	SODIUM	TOTAL NA	UG/L	WATER		1	89000.00			89000	89000	81/04/23	81/04/23
84054	LITH-	OLOGY	CODE	WATER	TXT	1	TEXT	TEXT	TEXT	TEXT	TEXT	10/01/01	10/01/01

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FT. STORY (SE)

228-00219
36 54 24.2 076 02 37.5 1
BAY ISLAND
51810 VIRGINIA VIRGINIA BEACH (CITY
NORTH ATLANTIC 021500
RAPPAHANNOCK/YORK RIVERS/VA. COAST
21VASWCB 830611 02080101
0000 FEET DEPTH

/TYPA/AMBNT/WELL

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00008	LAB	IDENT.	NUMBER	WATER		2	8221.000	16.00000	4.000000	8224	8218	81/07/15	81/07/15
00094	CNDUCTVY	FIELD	MICROMHO	WATER		1	1203.000			1203	1203	81/07/15	81/07/15
00403	PH	LAB	SU	WATER		1	7.200000			7.2	7.2	81/07/15	81/07/15
00410	T ALK	CACO3	MG/L	WATER		1	213.0000			213	213	81/07/15	81/07/15
00500	RESIDUE	TOTAL	MG/L	WATER		1	630.0000			630	630	81/07/15	81/07/15
00505	RESIDUE	TOT VOL	MG/L	WATER		1	107.0000			107	107	81/07/15	81/07/15
00510	RESIDUE	TOT FIX	MG/L	WATER		1	523.0000			523	523	81/07/15	81/07/15
00515	RESIDUE	DISS-105 C	MG/L	WATER		1	625.0000			625	625	81/07/15	81/07/15
00530	RESIDUE	TOT NFLT	MG/L	WATER		1	5.000000			5	5	81/07/15	81/07/15
00535	RESIDUE	VOL NFLT	MG/L	WATER		1	4.000000			4	4	81/07/15	81/07/15
00540	RESIDUE	FIX NFLT	MG/L	WATER		1	1.000000			1	1	81/07/15	81/07/15

00610	NH3+NH4-	N TOTAL	MG/L	WATER	1	3.200000			3.200	3.200	81/07/15	81/07/15
00615	NO2-N	TOTAL	MG/L	WATER	1	.0100000			.010	.010	81/07/15	81/07/15
00620	NO3-N	TOTAL	MG/L	WATER	1	.0500000			.050	.050	81/07/15	81/07/15
00625	TOT KJEL	N	MG/L	WATER	1	3.400000			3.400	3.400	81/07/15	81/07/15
00665	PHOS-TOT		MG/L P	WATER	1	.8000000			.800	.800	81/07/15	81/07/15
00671	PHOS-DIS	ORTHO	MG/L P	WATER	1	.8000000			.800	.800	81/07/15	81/07/15
00680	T ORG C	C	MG/L	WATER	1	30.00000			30.0	30.0	81/07/15	81/07/15
00900	TOT HARD	CACO3	MG/L	WATER	1	210.0000			210	210	81/07/15	81/07/15
00940	CHLORIDE	TOTAL	MG/L	WATER	1	212.0000			212	212	81/07/15	81/07/15
00945	SULFATE	SO4-TOT	MG/L	WATER	1	3.000000			3	3	81/07/15	81/07/15
00951	FLUORIDE	F,TOTAL	MG/L	WATER	1	.3200000			.32	.32	81/07/15	81/07/15
01045	IRON	FE,TOT	UG/L	WATER	1	3100.000			3100	3100	81/07/15	81/07/15
01055	MANGNESE	MN	UG/L	WATER	1	370.0000			370.0	370.0	81/07/15	81/07/15
72001	TOT DPTH	OF HOLE	FT	WATER	1	95.00000			95.0	95.0	10/01/01	10/01/01
72020	ELEV	FEET AB	MSL	WATER	1	10.00000			10.00	10.00	10/01/01	10/01/01
72043	BRAKE	HORSE-	POWER	WATER	1	1.000000			1.0	1.0	10/01/01	10/01/01
72057	SCREEN	TOP 1ST	FR MP FT	WATER	1	90.00000			90.00	90.00	10/01/01	10/01/01
72058	CASING	TOP 1ST	FR MP FT	WATER	1	.0000000			.00	.00	10/01/01	10/01/01
72059	SCREEN	BOT 1ST	FR MP FT	WATER	1	95.00000			95.00	95.00	10/01/01	10/01/01
72060	CASING	BOT 1ST	FR MP FT	WATER	1	90.00000			90.00	90.00	10/01/01	10/01/01
72085	SCREEN	DIA 1ST	SCR (IN)	WATER	1	1.000000			1.00	1.00	10/01/01	10/01/01
72090	CASING	DIA 1ST	CAS (IN)	WATER	1	1.000000			1.00	1.00	10/01/01	10/01/01
74041	WQF	SAMPLE	UPDATED	WATER	2	880510.0	.0000000	.0000000	880506	880506	81/07/15	81/07/15
82032	CALCIUM	TOTAL C A	UG/L	WATER	1	31000.00			31000	31000	81/07/15	81/07/15
82033	MG	TOTAL MG	UG/L	WATER	1	34000.00			34000	34000	81/07/15	81/07/15
82034	K	TOTAL K	UG/L	WATER	1	14700.00			14700	14700	81/07/15	81/07/15
82035	SODIUM	TOTAL NA	UG/L	WATER	1	103000.0			103000	103000	81/07/15	81/07/15

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0 13 TOTAL STATIONS PROCESSED
FT. STORY (SE)

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	STA BEG	STA END	# OF OBS	# OF SAMPLE	STA END-PERIOD OF RECD IN YRS =0	<.5	<3	>=3
<1972	5	0	40	5	0	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	5	163	10	0	0	0	5
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	4	0	28	4	0	0	0	0
1985	4	8	231	13	0	4	4	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
TOTAL	13	13	462	32	0	4	4	5

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0 13 TOTAL STATIONS PROCESSED
FT. STORY (SE)

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0	PARAMETER		MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00008	LAB	IDENT.	NUMBER	WATER	11	8862.500	21495000	4636.200	17659	3894	81/04/23	85/08/13
00010	WATER	TEMP	CENT	WATER	1	15.55600			15.6	15.6	85/12/01	85/12/01
00011	WATER	TEMP	FAHN	WATER	1	60.00000			60.0	60.0	85/12/01	85/12/01
00094	CNDUCTVY	FIELD	MICROMHO	WATER	6	2520.700	5857700	2420.300	6660	799	81/04/23	85/08/13
00116	INTNSVE	SURVEY	IDENT	WATER	1	865100.0			865101	865101	85/08/13	85/08/13
00400	PH		SU	WATER	9	7.022200	.6469700	.8043500	7.80	5.70	81/04/23	85/08/13
00403	PH	LAB	SU	WATER	14	6.942900	.4318900	.6571800	8.1	5.4	81/04/23	85/08/13
00410	T ALK	CACO3	MG/L	WATER	14	144.7200	5158.700	71.82400	267	4	81/04/23	85/08/13
00500	RESIDUE	TOTAL	MG/L	WATER	5	1584.000	2519700	1587.400	4110	465	81/04/23	81/09/16
00505	RESIDUE	TOT VOL	MG/L	WATER	5	225.2000	42342.00	205.7700	570	85	81/04/23	81/09/16
00510	RESIDUE	TOT FIX	MG/L	WATER	5	1358.800	1913700	1383.400	3540	364	81/04/23	81/09/16
00515	RESIDUE	DISS-105 C	MG/L	WATER	6	1424.500	2168400	1472.600	4110	465	81/04/23	85/08/13
00530	RESIDUE	TOT NFLT	MG/L	WATER	5	5.000000	.0000000	.0000000	5	5	81/04/23	81/09/16
00535	RESIDUE	VOL NFLT	MG/L	WATER	5	4.800000	.2000200	.4472400	5	4	81/04/23	81/09/16
00540	RESIDUE	FIX NFLT	MG/L	WATER	5	4.200000	3.200000	1.788900	5	1	81/04/23	81/09/16
00610	NH3+NH4-	N TOTAL	MG/L	WATER	6	1.533300	1.438700	1.199500	3.200	.100	81/04/23	85/08/13
00615	NO2-N	TOTAL	MG/L	WATER	5	.0100000	.0000000	.0000000	.010	.010	81/04/23	81/09/16
00620	NO3-N	TOTAL	MG/L	WATER	13	.2870000	.2151700	.4638600	1.500	.003	81/04/23	85/08/13

00625	TOT KJEL	N	MG/L	WATER	6	1.733300	1.514700	1.230700	3.400	.300	81/04/23	85/08/13
00630	NO2&NO3	N-TOTAL	MG/L	WATER	1	.9000000			.90	.90	85/06/11	85/06/11
00665	PHOS-TOT		MG/L P	WATER	6	2.433300	24.86700	4.986700	12.600	.100	81/04/23	85/08/13
00671	PHOS-DIS	ORTHO	MG/L P	WATER	5	.7240000	.4160800	.6450400	1.800	.180	81/04/23	81/09/16
00680	T ORG C	C	MG/L	WATER	6	17.66700	119.0700	10.91200	30.0	2.0	81/04/23	85/08/13
00900	TOT HARD	CACO3	MG/L	WATER	14	173.0000	35472.00	188.3400	740	2	81/04/23	85/08/13
00940	CHLORIDE	TOTAL	MG/L	WATER	14	237.3600	264210.0	514.0100	2000	16	81/04/23	85/08/13
00945	SULFATE	SO4-TOT	MG/L	WATER	6	39.31500	2421.000	49.20300	135	3	81/04/23	85/08/13
00951	FLUORIDE	F,TOTAL	MG/L	WATER	6	.1833300	.0068267	.0826240	.32	.10	81/04/23	85/08/13
01002	ARSENIC	AS,TOT	UG/L	WATER	1	1.000000			1	1	85/08/13	85/08/13
01027	CADMIUM	CD,TOT	UG/L	WATER	1	1.000000			1	1	85/08/13	85/08/13
01034	CHROMIUM	CR,TOT	UG/L	WATER	1	1.000000			1	1	85/08/13	85/08/13
01042	COPPER	CU,TOT	UG/L	WATER	1	60.00000			60	60	85/08/13	85/08/13
01045	IRON	FE,TOT	UG/L	WATER	14	456.5000	657820.0	811.0600	3100	30	81/04/23	85/08/13
01051	LEAD	PB,TOT	UG/L	WATER	1	28.00000			28	28	85/08/13	85/08/13
01055	MANGNESE	MN	UG/L	WATER	6	120.0000	16480.00	128.3800	370.0	20.0	81/04/23	85/08/13
01067	NICKEL	NI,TOTAL	UG/L	WATER	1	100.0000			100	100	85/08/13	85/08/13
01092	ZINC	ZN,TOT	UG/L	WATER	1	20.00000			20	20	85/08/13	85/08/13
50041	GRAVLPAK	BELOW LS	FEET	WATER	4	55.00000	1916.700	43.78000	95.00	10.00	85/11/23	85/12/01
72001	TOT DPTH	OF HOLE	FT	WATER	13	112.1500	1730.800	41.60300	150.0	25.0	10/01/01	85/12/01
72002	TOP DPTH	WB ZONE	FT	WATER	2	14.00000	128.0000	11.31400	22.0	6.0	85/12/01	85/12/01
72003	BOT DPTH	WB ZONE	FT	WATER	2	29.50000	40.50000	6.364000	34.0	25.0	85/12/01	85/12/01
72019	DEPTH-FT	BL LAND	SURFACE	WATER	8	23.37500	173.7000	13.17900	37.00	4.00	85/11/23	85/12/01
72020	ELEV	FEET AB	MSL	WATER	13	14.84600	58.30800	7.636000	25.00	5.00	10/01/01	85/12/01

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0 13 TOTAL STATIONS PROCESSED

FT. STORY (SE)

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0	PARAMETER		MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
72035	PUMP HR	S TOTAL DAILY	WATER		8	19.00000	85.71400	9.258200	24	4	85/11/23	85/12/01
72037	PUMPING	RATE GPM	WATER		2	15.00000	.0000000	.0000000	15.00	15.00	85/12/01	85/12/01
72038	PUMPING	LVL BELW M.P. FT	WATER		8	62.25000	1630.500	40.38000	117.00	6.00	85/11/23	85/12/01
72043	BRAKE	HORSE- POWER	WATER		6	.5833300	.0416670	.2041300	1.0	.5	10/01/01	85/12/01
72044	PUMPING	HEAD FEET	WATER		2	91.20000	2.882800	1.697900	92.4	90.0	85/12/01	85/12/01
72057	SCREEN	TOP 1ST FR MP FT	WATER		12	74.83300	1136.500	33.71200	124.00	20.00	10/01/01	85/12/01
72058	CASING	TOP 1ST FR MP FT	WATER		12	.1666700	.1515200	.3892500	1.00	.00	10/01/01	85/12/01
72059	SCREEN	BOT 1ST FR MP FT	WATER		12	95.75000	973.8400	31.20700	144.00	25.00	10/01/01	85/12/01
72060	CASING	BOT 1ST FR MP FT	WATER		12	65.33300	1182.300	34.38400	104.00	20.00	10/01/01	85/12/01
72061	CASING	TOP 2ND FR MP FT	WATER		4	40.75000	2262.300	47.56300	90.00	.00	85/11/23	85/11/23
72062	CASING	BOT 2ND FR MP FT	WATER		4	95.75000	1954.900	44.21500	124.00	30.00	85/11/23	85/11/23
72063	CASING	TOP 3RD FR MP FT	WATER		1	120.0000			120.00	120.00	85/11/23	85/11/23
72064	CASING	BOT 3RD FR MP FT	WATER		1	140.0000			140.00	140.00	85/11/23	85/11/23
72065	GROUT	TOP 1ST FR MP FT	WATER		4	.0000000	.0000000	.0000000	.00	.00	85/11/23	85/12/01
72068	GROUT	BOT 1ST FR MP FT	WATER		4	34.50000	424.3300	20.59900	53.00	10.00	85/11/23	85/12/01
72071	SCREEN	BOT 2ND FR MP FT	WATER		2	137.0000	18.00000	4.242600	140.00	134.00	85/11/23	85/11/23
72073	SCREEN	TOP 2ND FR MP FT	WATER		2	114.5000	40.50000	6.364000	119.00	110.00	85/11/23	85/11/23
72075	TOP DPTH	2ND WB ZONE(FT)	WATER		2	98.50000	.5000000	.7071100	99.00	98.00	85/12/01	85/12/01
72076	BOT DPTH	2ND WB ZONE(FT)	WATER		2	106.0000	.0000000	.0000000	106.00	106.00	85/12/01	85/12/01
72085	SCREEN	DIA 1ST SCR (IN)	WATER		12	5.000000	10.90900	3.302900	8.00	1.00	10/01/01	85/12/01
72086	SCREEN	DIA 2ND SCR (IN)	WATER		2	8.000000	.0000000	.0000000	8.00	8.00	85/11/23	85/11/23
72090	CASING	DIA 1ST CAS (IN)	WATER		12	6.666700	36.97000	6.080300	18.00	1.00	10/01/01	85/12/01
72091	CASING	DIA 2ND CAS (IN)	WATER		4	8.000000	.0000000	.0000000	8.00	8.00	85/11/23	85/11/23
72092	CASING	DIA 3RD CAS (IN)	WATER		1	8.000000			8.00	8.00	85/11/23	85/11/23
72096	SCR SIZE	1ST ZONE .001 IN	WATER		8	14.50000	7.714300	2.777500	16.00	10.00	85/11/23	85/12/01
72097	SCR SIZE	2ND ZONE .001 IN	WATER		2	16.00000	.0000000	.0000000	16.00	16.00	85/11/23	85/11/23
72100	HOLE DIA	1ST ZONE INCHES	WATER		8	14.50000	21.42900	4.629100	17.00	7.00	85/11/23	85/12/01
74041	WQF	SAMPLE UPDATED	WATER		27	891640.0	1329E+05	11530.00	900628	861010	81/04/23	85/12/01
82032	CALCIUM	TOTAL C A UG/L	WATER		6	38000.00	1139E+06	33752.00	98000	1000	81/04/23	85/08/13
82033	MG	TOTAL MG UG/L	WATER		6	49217.00	2863E+06	53508.00	123000	300	81/04/23	85/08/13
82034	K	TOTAL K UG/L	WATER		6	21983.00	4234E+05	20577.00	51500	2700	81/04/23	85/08/13
82035	SODIUM	TOTAL NA UG/L	WATER		6	325000.0	1351E+08	367640.0	983000	65000	81/04/23	85/08/13
82511	WELL	YIELD GPM	WATER		6	25.16700	214.1700	14.63500	50.00	11.00	85/11/23	85/12/01
84054	LITH-	OLOGY CODE	WATER	TXT	4	TEXT	TEXT	TEXT	TEXT	TEXT	10/01/01	85/12/01
84069	FORMAT'N	CODE ALPHA	WATER	TXT	2	TEXT	TEXT	TEXT	TEXT	TEXT	85/12/01	85/12/01

THAT'S ALL FOLKS

1STORET RETRIEVAL DATE 91/12/02

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001001FT. STORY (SE)

10000009999990000099999 ******** 77777777 F

L5,3657032,07604304,3657032,07600096,3653347,07600096,3653347,07604304,,

0EXTRACT/MASKING OPTION PERFORMED

CLR000000

SEL000013

-

-

0 ********

****

** **

** **

```
**        13 STATIONS MET STATION SELECTION CRITERIA        **
**           (PRIOR TO STATION RESTRICTIONS)                 **
**                                                           **
**                                                           **
***********************************************************
***********************************************************
STORET RETRIEVAL DATE  91/12/02   -  ECHO OF ORIGINAL REQUEST
PGM=INVENT,
#-------------------------------------------------------------------
#                     REQUEST NAME: GWFTST1
#                       CREATED BY: HED
#                             DATE: 91/12/02
#                             TIME: 21:12
#
#-----------------------<  STATION SELECTION  >------------------------
#    OPTION 4 - WITHIN AN AREA DEFINED BY LAT/LONG POLYGONS OR CIRCLES
# DEFINE CIRCULAR AREA(S) BY SPECIFYING THE CENTER AND RADIUS
RADIUS=      3220,L=3655190,L=07602200,
#
#-----------------------<  STATION RESTRICTION  >---------------------
# RESTRICT TO SPECIFIC ARCHIVED DATA CLASSES
ARCLASS=ALL,
# RESTRICT TO SPECIFIC STATION TYPES/PARAMETER ATTRIBUTES
ONLYATTR=WELL OR SPRING,
#
#------------------------<  SPECIAL OPTIONS  >-------------------------
# GROSS WITH INDIVIDUAL STATION DATA
#       EXCLUDING STATIONS WITH NO SAMPLE DATA
# SET INVENTORY BREAK POINTS
INVBRK=M,
# SUPPRESS DATA TRANSFORMATIONS
# PRINT THE STATION HEADER AT THE TOP RIGHT CORNER OF EACH PAGE
HEAD=FT. STORY (SE),
./HED JOB (RFWESTORP,MHED),'PHOENIX-INVENT',TIME=(1,30),PRTY=1,
./             MSGLEVEL=(0,0),NOTIFY=HED
**ROUTE  PRINT HOLD
**JOBPARM  LINES=999

END OF DATA
```

REFERENCE 7

TABLE IV.
GROUND WATER ANALYSIS

Parameters	Units	Well 7	Well 8	Well 9
Conductivity	umhos/cm	260	632	93
Turbidity	NTU	90	165	185
Total Solids	mg/l	348	648	377
Total Dissolved Solids	mg/l	207	370	103
Hardness	mg/l as $CaCO_3$	105	162	44
TOC	mg/l	123	83	235
TPO_4/N	mg/l	0.20	0.29	0.24
NH_3/N	mg/l	1.2	11.0	0.7
NO_2-NO_3/N	mg/l	0.17	0.26	0.26
Chloride	mg/l	25.7	48.2	14.4
COD	mg/l	197	167	386
Arsenic	mg/l	0.037	0.048	0.058
Cadmium	mg/l	0.009	0.009	0.009
Chromium	mg/l	0.025	0.026	0.066
Zinc	mg/l	0.046	0.026	0.057
Lead	mg/l	0.036	0.047	0.055
Iron	mg/l	13.8	30.3	15.2

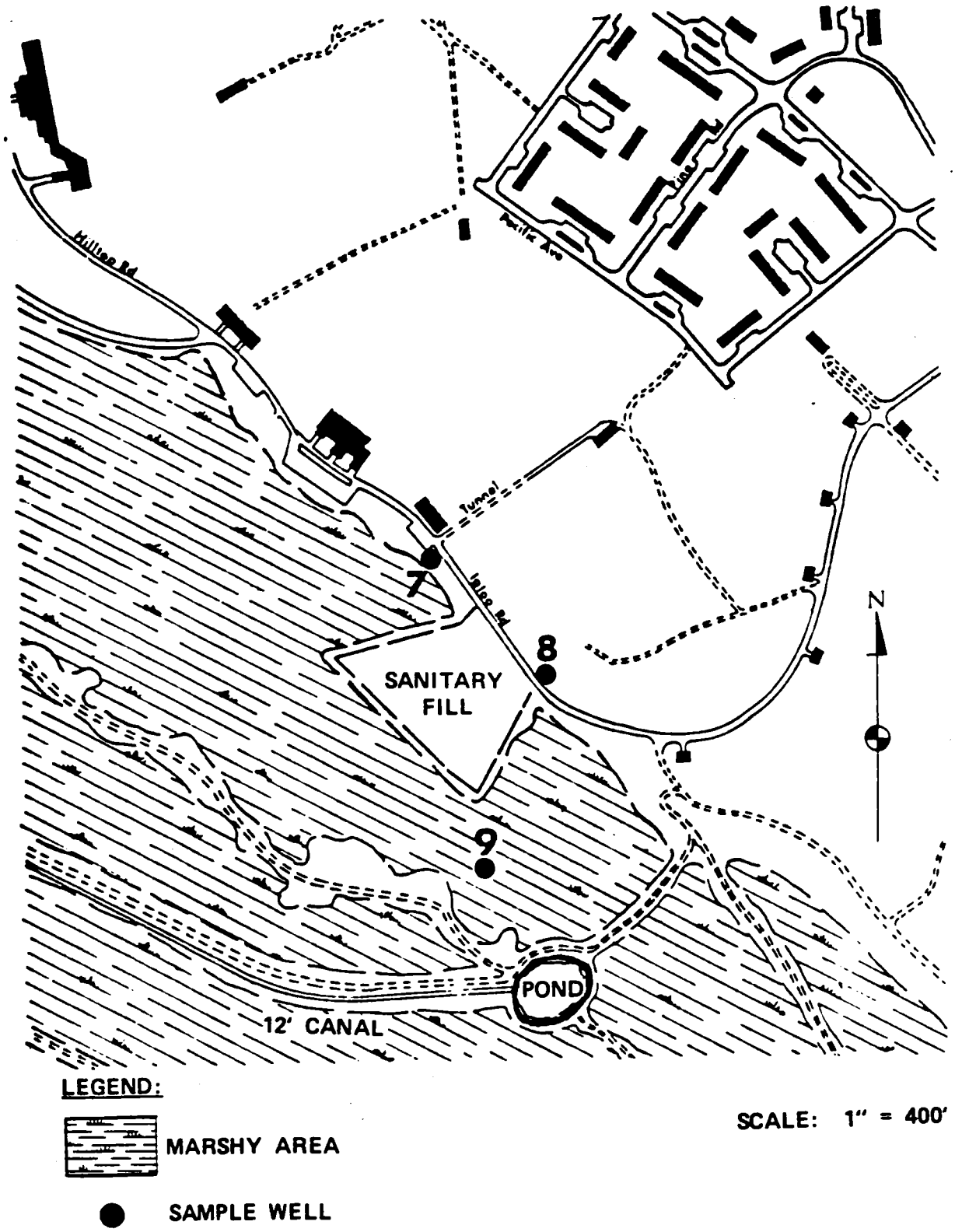

Figure 8. LOCATION OF SAMPLE WELLS AT SANITARY LANDFILL, FT. STORY

REFERENCE 8

WESTON

3N

J. Nist
Originator

PHONE CONVERSATION RECORD

Conversation with:

Name Mr. Terry Wagner

Company Virginia State Water Control Board

Address

Phone (804) 527-5203

Subject Wellhead Protection Areas

Date 12 / 16 / 91

Time 12:45 AM/(PM)

☐ Originator Placed Call

☑ Originator Received Call

W.O. NO. 2281-11-10

Notes:

The following resulted from our phone conversation:

There are no wellhead protection areas recognized by the US EPA in the State of Virginia.

☑ File

☐ Tickle File ____/____/____

☐ Follow-Up By:

☐ Copy/Route To:

Follow-Up-Action:

Originator's Initials

RFW 110-4-83

WESTON

3N

PHONE CONVERSATION RECORD

Conversation with:
Name Virginia Newton
Company
Address [redacted]

Phone (804) 552-1840

Subject

Date 12, 13, 91
Time AM/PM
[redacted]
☐ Originator Received Call
W.O. NO.

Notes: Re: Ft Eustis
[redacted]
Re: story

No well head protection areas in that part of the state

☐ File
☐ Tickle File / /
☐ Follow-Up By:
☐ Copy/Route To:

Follow-Up-Action:

Originator's Initials

RFW 110-4-83

REFERENCE 9

Surface water — Ft Story

list

1STORET RETRIEVAL DATE 91/12/03 PGM=INVENT PAGE: 1

FORT STORY

XTI9520 X413500 Y4076175

36 49 45.0 075 58 00.0 4 ← COORDINATES

RUDEE INLET, RI

51810 VIRGINIA VIRGINIA BEACH (CITY

NORTH ATLANTIC 021600

JAMES RIVER

21VASWCB 810509 02080108010 0027.550 ON

0000 FEET DEPTH

4I, 4S

/TYPA/AMBNT/STREAM

< 15 miles downstream from Fort Story

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
71937	COPPER	TISMG/KG	WET WGT	WATER		9	17.34500	22.67800	4.762100	24.00	11.00	74/04/01	75/04/01
71938	ZINC	TISMG/KG	WET WGT	WATER		9	437.0000	14262.00	119.4200	590.00	282.00	74/04/01	75/04/01
71940	CADMIUM	TISMG/KG	WET WGT	WATER		9	.3333300	.0060501	.0777830	.48	.24	74/04/01	75/04/01
75000	FISH	SPECIES	CODE	WATER		9	.0000000	.0000000	.0000000	0	0	74/04/01	75/04/01
81614	NO.INDV.	IN THE	SAMPLE	WATER		9	10.00000	.0000000	.0000000	10	10	74/04/01	75/04/01
84005	FISH	SPECIES	F &WL	WATER	TXT	9	TEXT	TEXT	TEXT	TEXT	TEXT	74/04/01	75/04/01
84007	ANATOMY	ALPHA	CODE	WATER	TXT	9	TEXT	TEXT	TEXT	TEXT	TEXT	74/04/01	75/04/01
84008	LIFE	STYLE/	HABITAT	WATER	TXT	9	TEXT	TEXT	TEXT	TEXT	TEXT	74/04/01	75/04/01

1STORET RETRIEVAL DATE 91/12/03 PGM=INVENT PAGE: 2

FORT STORY

BSS07115

36 51 42.0 075 59 48.0 4

BROAD AND LINKHORN BAYS NUMBERED STATION

51810 VIRGINIA VIRGINIA BEACH (CITY

NORTH ATLANTIC 021600

JAMES RIVER

21VASWCB 820619 02080108010 0024.560 ON

0000 FEET DEPTH

< 15 miles

/TYPA/AMBNT/STREAM

"

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00067	TIDE	STAGE	CODE	WATER		7	3.571400	.6190600	.7868000	4	2	69/02/28	82/07/19
00480	SALINITY		PPTH	WATER		7	20.47200	9.389000	3.064200	24.7	16.6	69/02/28	82/07/19
31615	FEC COLI	MPNECMED	/100ML	WATER		4	122.5800	50686.00	225.1400	460	3	68/09/23	69/04/17
31621	FEC COLI	A-1M H20	MPN	WATER		5	60.02000	3143.500	56.06700	150.0	9.1	71/08/27	82/07/19
82553	RAINFALL	1 DAY	INCHES	WATER		7	.0000000	.0000000	.0000000	.00	.00	69/02/28	82/07/19
82554	RAINFALL	7 DAYS	INCHES	WATER		7	.7114300	.8532500	.9237100	2.70	.00	69/02/28	82/07/19

1STORET RETRIEVAL DATE 91/12/03 PGM=INVENT PAGE: 3

FORT STORY

7-LNC000.68 VA7-3B-X0118 VA7-5X0118

36 51 57.0 075 59 54.0 1

LITTLE NECK CREEK

51810 VIRGINIA VIRGINIA BEACH (CITY

02-NORTH ATLANTIC

7-SMALL COA. + CHES. BAY

21VASWCB 751231 02080108

0000 FEET DEPTH

< 15 miles

/TYPA/AMBNT/STREAM

"

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00002	HSAMPLOC	% FROM	RT BANK	WATER		86	50.00000	.0000000	.0000000	50.0	50.0	75/10/16	91/05/23
00005	VSAMPLOC	DEPTH	% OF TOT	WATER		27	50.00000	.0000000	.0000000	50	50	75/10/16	78/05/01
00010	WATER	TEMP	CENT	WATER		94	17.11700	80.51800	8.973200	32.5	.2	75/10/16	91/05/23
00011	WATER	TEMP	FAHN	WATER		94	62.81000	260.9400	16.15400	90.5	32.4	75/10/16	91/05/23
00041	WEATHER	WMO CODE	4501	WATER		100	2.440000	.7741500	.8798600	4	1	75/10/16	91/05/23
00067	TIDE	STAGE	CODE	WATER		94	3.095800	1.033800	1.016700	4	1	75/10/16	91/05/23
00070	TURB	JKSN	JTU	WATER		10	4.970000	7.153500	2.674600	8.7	1.6	89/03/29	91/05/23
00080	COLOR	PT-CO	UNITS	WATER		1	14.00000			14	14	91/05/23	91/05/23
00094	CNDUCTVY	FIELD	MICROMHO	WATER		55	30220.00	63823000	7988.900	45600	4470	79/12/06	91/05/23
00095	CNDUCTVY	AT 25C	MICROMHO	WATER		11	29441.00	8492700	2914.200	33500	22000	75/12/15	91/05/23
00116	INTNSVE	SURVEY	IDENT	WATER		29	795110.0	.0000000	.0000000	795110	795110	80/04/21	86/03/27
00300	DO		MG/L	WATER		94	8.979800	5.911600	2.431400	16.4	3.9	75/10/16	91/05/23
00301	DO	SATUR	PERCENT	WATER		93	90.32000	309.6100	17.59600	142.9	46.4	75/10/16	91/05/23
00310	BOD	5 DAY	MG/L	WATER		57	2.719300	2.848400	1.687700	13.0	1.0	78/04/05	91/05/23
00400	PH		SU	WATER		92	8.151900	.5650800	.7517200	9.50	5.00	75/10/16	91/05/23
00403	PH	LAB	SU	WATER		20	7.781500	.0335630	.1832000	8.3	7.6	81/11/05	91/05/23
00410	T ALK	CACO3	MG/L	WATER		20	87.65000	57.69400	7.595700	99	65	81/11/05	91/05/23
00480	SALINITY		PPTH	WATER		18	18.30600	15.38700	3.922700	24.0	14.0	87/08/04	91/05/23
00500	RESIDUE	TOTAL	MG/L	WATER		56	29918.00	1064E+05	10318.00	59628	18920	79/12/06	91/05/23
00505	RESIDUE	TOT VOL	MG/L	WATER		56	9765.200	85101000	9225.000	35862	2792	79/12/06	91/05/23
00510	RESIDUE	TOT FIX	MG/L	WATER		55	20100.00	6867600	2620.600	24041	12246	79/12/06	91/05/23
00530	RESIDUE	TOT NFLT	MG/L	WATER		56	27.10700	493.6600	22.21900	96	1	79/12/06	91/05/23
00535	RESIDUE	VOL NFLT	MG/L	WATER		56	10.85700	55.28900	7.435600	36	1	79/12/06	91/05/23
00540	RESIDUE	FIX NFLT	MG/L	WATER		56	16.53600	240.2900	15.50100	60	0	79/12/06	91/05/23
00610	NH3+NH4-	N TOTAL	MG/L	WATER		81	.0904900	.0004797	.0219030	.100	.040	75/10/16	91/05/23
00612	UN-IONZD	NH3-N	MG/L	WATER		77	.0102710	.0001639	.0128030	.046	.000002	75/10/16	91/05/23
00615	NO2-N	TOTAL	MG/L	WATER		95	.0099997	.0000000	.0000000	.010	.010	75/10/16	91/05/23
00619	UN-IONZD	NH3-NH3	MG/L	WATER		77	.0124890	.0002423	.0155660	.056	.000002	75/10/16	91/05/23
00620	NO3-N	TOTAL	MG/L	WATER		64	.0481230	.0000345	.0058774	.080	.040	75/10/16	91/05/23
00625	TOT KJEL	N	MG/L	WATER		44	.6749800	.0596030	.2441400	1.400	.300	75/10/16	91/05/23
00630	NO2&NO3	N-TOTAL	MG/L	WATER		30	.0506600	.0000064	.0025416	.06	.05	76/06/14	79/06/28

00665	PHOS-TOT		MG/L P	WATER	30	.1333300	.0022990	.0479470	.200	.100	85/03/07	91/05/23
00671	PHOS-DIS	ORTHO	MG/L P	WATER	56	.0173220	.0000926	.0096278	.040	.010	79/12/06	91/05/23
00680	T ORG C	C	MG/L	WATER	90	8.808200	9.569300	3.093400	16.0	2.9	75/10/16	91/05/23
00900	TOT HARD	CACO3	MG/L	WATER	13	3441.900	958160.0	978.8600	4200	395	88/09/06	91/05/23
00940	CHLORIDE	TOTAL	MG/L	WATER	10	11151.00	1560700	1249.300	12860	9410	89/03/29	91/05/23
00945	SULFATE	SO4-TOT	MG/L	WATER	10	1506.500	33541.00	183.1400	1760	1280	89/03/29	91/05/23
00951	FLUORIDE	F,TOTAL	MG/L	WATER	8	.4787500	.0004982	.0223210	.50	.43	89/03/29	91/05/23
00955	SILICA	DISOLVED	MG/L	WATER	9	1.663000	2.517300	1.586600	4.2	.01	89/05/23	91/05/23

1STORET RETRIEVAL DATE 91/12/03 PGM=INVENT PAGE: 4

FORT STORY

7-LNC000.68 VA7-3B-X0118 VA7-5X0118
36 51 57.0 075 59 54.0 1
LITTLE NECK CREEK
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC
7-SMALL COA. + CHES. BAY
21VASWCB 751231 02080108
0000 FEET DEPTH

<15 miles

/TYPA/AMBNT/STREAM

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
01002	ARSENIC	AS,TOT	UG/L	WATER		11	3.909100	15.49100	3.935900	10	1	76/03/22	88/11/03
01003	ARSENIC	SEDMG/KG	DRY WGT	WATER		4	19.42500	36.08300	6.006900	26.70	12.00	81/06/30	90/06/21
01012	BERYLIUM	BE,TOT	UG/L	WATER		5	5.200000	10.20000	3.193800	10.00	1.00	84/05/02	88/11/03
01013	BERYLIUM	SEDMG/KG	DRY WGT	WATER		3	2.000000	.8400000	.9165200	2.80	1.00	83/05/26	90/06/21
01027	CADMIUM	CD,TOT	UG/L	WATER		11	6.999700	13.79800	3.714600	10	1	76/03/22	88/11/03
01028	CD MUD	DRY WGT	MG/KG-CD	WATER		4	2.450000	5.216700	2.284000	5.80	.90	81/06/30	90/06/21
01029	CHROMIUM	SEDMG/KG	DRY WGT	WATER		4	50.12500	2.837200	1.684400	51.00	47.60	81/06/30	90/06/21
01034	CHROMIUM	CR,TOT	UG/L	WATER		11	18.45400	325.6500	18.04600	50	1	76/03/22	88/11/03
01042	COPPER	CU,TOT	UG/L	WATER		11	58.18000	3136.500	56.00400	150	10	76/03/22	88/11/03
01043	COPPER	SEDMG/KG	DRY WGT	WATER		4	82.27500	47.61500	6.900300	90.60	75.40	81/06/30	90/06/21
01045	IRON	FE,TOT	UG/L	WATER		3	140.0000	1900.000	43.58900	190	110	88/09/06	88/11/03
01051	LEAD	PB,TOT	UG/L	WATER		11	8.452600	16.45400	4.056400	14	1	76/03/22	88/11/03
01052	LEAD	SEDMG/KG	DRY WGT	WATER		4	142.5000	1659.700	40.73900	187.00	105.00	81/06/30	90/06/21
01055	MANGNESE	MN	UG/L	WATER		3	53.33300	33.33600	5.773700	60.0	50.0	84/05/02	88/11/03
01059	THALLIUM	TL,TOTAL	UG/L	WATER		5	14.00000	80.00000	8.944300	30	10	84/05/02	88/11/03
01065	NICKEL	NI,DISS	UG/L	WATER		5	99.99400	.0058594	.0765470	100	100	76/03/22	78/09/18
01067	NICKEL	NI,TOTAL	UG/L	WATER		6	61.66700	1176.700	34.30300	100	10	84/05/02	88/11/03
01068	NICKEL	SEDMG/KG	DRY WGT	WATER		4	27.72500	7.542700	2.746400	31.10	24.40	81/06/30	90/06/21
01077	SILVER	AG,TOT	UG/L	WATER		3	5.000000	.0000000	.0000000	5.0	5.0	88/09/06	88/11/03
01092	ZINC	ZN,TOT	UG/L	WATER		11	31.81600	196.3800	14.01300	50	10	76/03/22	88/11/03
01093	ZINC	SEDMG/KG	DRY WGT	WATER		4	294.0000	738.0000	27.16600	325.00	261.00	81/06/30	90/06/21
01147	SELENIUM	SE,TOT	UG/L	WATER		5	8.200000	16.20000	4.024900	10	1	84/05/02	88/11/03
01148	SELENIUM	SEDMG/KG	DRY WGT	WATER		3	4.900000	10.53000	3.245000	8.50	2.20	83/05/26	90/06/21
01351	STREAM	FLOW	SEVERITY	WATER		46	3.087000	.1700500	.4123700	5	3	79/12/06	91/05/23
10060	INVALID	PAR	NUMBER	WATER		1	8.300000			8.300000	8.300000	82/02/10	82/02/10
31505	TOT COLI	MPN CONF	/100ML	WATER		37	1547.000	56731000	7532.000	46000	3	75/10/16	79/06/28
31506	TOT COLI	MPN CONF	TUBECODE	WATER		23	128.2600	34068.00	184.5700	750	3	80/09/24	85/05/30
31614	FEC COLI	MPN	TUBECODE	WATER		53	70.14700	32753.00	180.9800	920	2	80/09/24	91/05/23
31616	FEC COLI	MFM-FCBR	/100ML	WATER		44	102.4600	41546.00	203.8300	930	3	75/10/16	80/08/27
34259	DELTABHC		TOTUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34351	ENDSULSF		TOTUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34356	B-ENDO	SULFAN	TOTWUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34361	A-ENDO	SULFAN	TOTWUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34366	ENDRINAL	DEHYDE	TOTWUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34480	THALLIUM	SEDMG/KG	DRY WGT	WATER		3	3.266700	4.093300	2.023200	5.600	2.000	83/05/26	90/06/21
34671	PCB	1016	TOTWUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
38442	DICAMBA	(BANVEL)	DISSUG/L	WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
38451	DICLPROP		SUSPUG/L	WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
38745	2,4-DB		TOTWUG/L	WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29

1STORET RETRIEVAL DATE 91/12/03 PGM=INVENT PAGE: 5

FORT STORY

7-LNC000.68 VA7-3B-X0118 VA7-5X0118
36 51 57.0 075 59 54.0 1
LITTLE NECK CREEK
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC
7-SMALL COA. + CHES. BAY
21VASWCB 751231 02080108
0000 FEET DEPTH

<15 miles

/TYPA/AMBNT/STREAM

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
39032	PCP		TOT UG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39061	PCP	SEDUG/KG	DRY WGT	WATER		1	.0100000			.010	.010	86/07/30	86/07/30
39300	P,P'DDT		TOT UG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39310	P,P'DDD		TOT UG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39320	P,P'DDE		TOT UG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39330	ALDRIN		TOT UG/L	WATER		3	.0666670	.0033333	.0577350	.100	.000	84/05/02	86/05/29
39333	ALDRIN	SEDUG/KG	DRY WGT	WATER		2	.1600000	.0392000	.1979900	.30	.02	81/06/30	83/05/26
39337	ALPHABHC		TOTUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39338	BETA BHC		TOTUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39340	GAMMABHC	LINDANE	TOT.UG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39351	CDANEDRY	TECH&MET	MUDUG/KG	WATER		1	1.000000			1.00	1.00	86/07/30	86/07/30
39363	DDD	MUD	UG/KG	WATER		1	.1000000			.10	.10	86/07/30	86/07/30
39368	DDE	MUD	UG/KG	WATER		1	.1000000			.10	.10	86/07/30	86/07/30

39373	DDT	MUD	UG/KG	WATER	1	.1000000			.10	.10	86/07/30	86/07/30
39380	DIELDRIN		TOTUG/L	WATER	2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39383	DIELDRIN	SEDUG/KG	DRY WGT	WATER	1	.1000000			.10	.10	86/07/30	86/07/30
39390	ENDRIN		TOT UG/L	WATER	2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39393	ENDRIN	SEDUG/KG	DRY WGT	WATER	1	.1000000			.10	.10	86/07/30	86/07/30
39400	TOXAPHEN		TOTUG/L	WATER	2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39403	TOXAPHEN	SEDUG/KG	DRY WGT	WATER	1	1.000000			1.00	1.00	86/07/30	86/07/30
39410	HEPTCHLR		TOTUG/L	WATER	2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39413	HEPTCHLR	SEDUG/KG	DRY WGT	WATER	1	.1000000			.10	.10	86/07/30	86/07/30
39420	HPCHLREP		TOTUG/L	WATER	2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39488	PCB-1221		TOTUG/L	WATER	2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39492	PCB-1232		TOTUG/L	WATER	2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39496	PCB-1242		TOTUG/L	WATER	2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39500	PCB-1248		TOTUG/L	WATER	2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39508	PCB-1260		TOTUG/L	WATER	2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39526	PCBS TOT	SED DRY	WT UG/KG	WATER	1	1.000000			1	1	86/07/30	86/07/30
39630	ATRAZINE	WHL SMPL	UG/L	WATER	1	.0000000			.000	.000	84/05/02	84/05/02
39631	ATRAZINE	MUD	UG/KG	WATER	2	.2000000	.0200000	.1414200	.30	.10	81/06/30	83/05/26
39730	2,4-D	WHL SMPL	UG/L	WATER	2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
39740	2,4,5-T	WHL SMPL	UG/L	WATER	2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
39760	SILVEX	WHL SMPL	UG/L	WATER	2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
70505	T PO4	P-COL	MG/L	WATER	15	.1599900	.0540010	.2323800	1.00	.10	75/10/16	78/01/19
70507	PHOS-T	ORTHO	MG/L P	WATER	39	.0133320	.0000543	.0073722	.040	.010	75/10/16	79/06/28
71900	MERCURY	HG,TOTAL	UG/L	WATER	11	.3729700	.0102510	.1012500	.5	.3	76/03/22	88/11/03
71921	MERCURY	SEDMG/KG	DRY WGT	WATER	4	.7000000	.0285340	.1689200	.9	.5	81/06/30	90/06/21
74041	WQF	SAMPLE	UPDATED	WATER	32	885820.0	1953E+05	13978.00	911101	861126	85/05/30	91/05/23

1STORET RETRIEVAL DATE 91/12/03 PGM=INVENT PAGE: 6

FORT STORY

7-LNC000.68 VA7-3B-X0118 VA7-5X0118
36 51 57.0 075 59 54.0 1
LITTLE NECK CREEK
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC
7-SMALL COA. + CHES. BAY
21VASWCB 751231 02080108
0000 FEET DEPTH

<15 miles

/TYPA/AMBNT/STREAM

	PARAMETER		MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
77825	ALACHLOR	TOTAL UG/L	WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29

1STORET RETRIEVAL DATE 91/12/03 PGM=INVENT PAGE: 7

FORT STORY

BSS0717C
36 52 40.0 075 59 36.0 4
BROAD AND LINKHORN BAYS NUMBERED STATION
51810 VIRGINIA VIRGINIA BEACH (CITY
NORTH ATLANTIC 021600
JAMES RIVER
21VASWCB 820619 02080108010 0023.680 ON
0000 FEET DEPTH

<15 miles

/TYPA/AMBNT/STREAM

	PARAMETER		MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00067	TIDE	STAGE CODE	WATER		3	4.000000	.0000000	.0000000	4	4	81/07/13	82/04/19
31621	FEC COLI	A-1M H20 MPN	WATER		3	39.86700	2211.500	47.02600	93.0	3.6	81/07/13	82/04/19
82553	RAINFALL	1 DAY INCHES	WATER		3	.0000000	.0000000	.0000000	.00	.00	81/07/13	82/04/19
82554	RAINFALL	7 DAYS INCHES	WATER		3	1.043300	2.104600	1.450700	2.70	.00	81/07/13	82/04/19

1STORET RETRIEVAL DATE 91/12/03 PGM=INVENT PAGE: 8

FORT STORY

7-CRY000.59 VA7-3B-X0109 VA7-5X0109
36 52 44.0 075 59 38.0 1
CRYSTAL LAKE
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC
7-SMALL COA. + CHES. BAY
21VASWCB 751231 02080108010 0023.530 ON
0000 FEET DEPTH

< 15 miles downstream

/TYPA/AMBNT/STREAM

	PARAMETER		MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00002	HSAMPLOC	% FROM RT BANK	WATER		89	50.00000	.0000000	.0000000	50.0	50.0	75/10/16	91/05/23
00005	VSAMPLOC	DEPTH % OF TOT	WATER		30	50.00000	.0000000	.0000000	50	50	75/10/16	78/05/01
00010	WATER	TEMP CENT	WATER		99	17.56400	79.48600	8.915500	32.5	.2	75/10/16	91/05/23
00011	WATER	TEMP FAHN	WATER		99	63.61400	257.6100	16.05000	90.5	32.4	75/10/16	91/05/23
00041	WEATHER	WMO CODE 4501	WATER		103	2.436900	.7386300	.8594400	3	1	75/10/16	91/05/23
00067	TIDE	STAGE CODE	WATER		96	3.062500	1.069700	1.034300	4	1	75/10/16	91/05/23
00070	TURB	JKSN JTU	WATER		9	4.555600	11.10000	3.331700	12.8	1.4	89/03/29	90/10/11
00078	TRANSP	SECCHI METERS	WATER		1	3.800000			3.80	3.80	91/05/23	91/05/23
00080	COLOR	PT-CO UNITS	WATER		1	36.00000			36	36	91/05/23	91/05/23
00094	CNDUCTVY	FIELD MICROMHO	WATER		56	30219.00	61899000	7867.600	46700	4727	79/12/06	91/05/23
00095	CNDUCTVY	AT 25C MICROMHO	WATER		11	29101.00	9800500	3130.600	32199	21000	75/12/15	91/05/23
00116	INTNSVE	SURVEY IDENT	WATER		29	795110.0	.0000000	.0000000	795110	795110	80/04/21	86/03/27
00300	DO	MG/L	WATER		97	9.225000	6.598000	2.568700	16.0	2.7	75/10/16	91/05/23
00301	DO	SATUR PERCENT	WATER		97	93.28900	323.7000	17.99200	140.4	32.9	75/10/16	91/05/23
00310	BOD	5 DAY MG/L	WATER		98	3.071400	1.695900	1.302300	9.0	1.0	75/10/16	91/05/23

00400	PH		SU	WATER	96	8.209500	.4245500	.6515700	9.50	6.60	75/10/16	91/05/23
00403	PH	LAB	SU	WATER	21	11.67300	322.1200	17.94800	90.0	7.5	78/03/30	91/05/23
00410	T ALK	CACO3	MG/L	WATER	20	87.77500	51.74400	7.193300	97	65	81/11/05	91/05/23
00480	SALINITY		PPTH	WATER	18	18.58300	17.36100	4.166600	25.0	13.0	87/08/04	91/05/23
00500	RESIDUE	TOTAL	MG/L	WATER	56	28540.00	1082E+05	10404.00	57445	1009	79/12/06	91/05/23
00505	RESIDUE	TOT VOL	MG/L	WATER	56	8295.200	73209000	8556.200	34757	145	79/12/06	91/05/23
00510	RESIDUE	TOT FIX	MG/L	WATER	55	20380.00	25788000	5078.200	45380	864	79/12/06	91/05/23
00530	RESIDUE	TOT NFLT	MG/L	WATER	57	24.57900	347.9600	18.65400	96	3	79/12/06	91/05/23
00535	RESIDUE	VOL NFLT	MG/L	WATER	57	9.807000	42.05200	6.484700	27	1	79/12/06	91/05/23
00540	RESIDUE	FIX NFLT	MG/L	WATER	57	14.98300	167.7300	12.95100	69	0	79/12/06	91/05/23
00610	NH3+NH4-	N TOTAL	MG/L	WATER	84	.0915440	.0006180	.0248610	.200	.040	75/10/16	91/05/23
00612	UN-IONZD	NH3-N	MG/L	WATER	80	.0116780	.0002055	.0143360	.051	.0002	75/10/16	91/05/23
00615	NO2-N	TOTAL	MG/L	WATER	100	.0099997	.0000000	.0000000	.010	.010	75/10/16	91/05/23
00619	UN-IONZD	NH3-NH3	MG/L	WATER	80	.0141990	.0003038	.0174310	.062	.0002	75/10/16	91/05/23
00620	NO3-N	TOTAL	MG/L	WATER	66	.0487860	.0000539	.0073427	.090	.040	75/10/16	91/05/23
00625	TOT KJEL	N	MG/L	WATER	47	.6233800	.0466220	.2159200	1.000	.100	75/10/16	91/05/23
00630	NO2&NO3	N-TOTAL	MG/L	WATER	34	.0517580	.0000513	.0071664	.09	.05	76/06/14	79/06/28
00665	PHOS-TOT		MG/L P	WATER	32	.1375000	.0024194	.0491880	.200	.100	85/03/07	91/05/23
00671	PHOS-DIS	ORTHO	MG/L P	WATER	57	.0168420	.0000969	.0098484	.050	.010	79/12/06	91/05/23
00674	PHOS-SUS	ORTHO	MG/L P	WATER	1	.0200000			.020	.020	90/10/11	90/10/11
00680	T ORG C	C	MG/L	WATER	95	8.824800	15.08300	3.883700	30.0	2.0	75/10/16	91/05/23
00900	TOT HARD	CACO3	MG/L	WATER	13	3450.500	1030900	1015.300	4500	387	88/09/06	91/05/23
00940	CHLORIDE	TOTAL	MG/L	WATER	10	11069.00	1693400	1301.300	12952	9250	89/03/29	91/05/23
00945	SULFATE	SO4-TOT	MG/L	WATER	10	1487.700	38839.00	197.0800	1763	1228	89/03/29	91/05/23

1STORET RETRIEVAL DATE 91/12/03 PGM=INVENT PAGE: 9

FORT STORY

7-CRY000.59 VA7-3B-X0109 VA7-5X0109
36 52 44.0 075 59 38.0 1
CRYSTAL LAKE
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC
7-SMALL COA. + CHES. BAY
21VASWCB 751231 02080108010 0023.530 ON
0000 FEET DEPTH

/TYPA/AMBNT/STREAM

< 15 miles downstream

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00951	FLUORIDE	F,TOTAL	MG/L	WATER		8	1.658800	11.25200	3.354300	9.96	.43	89/03/29	91/05/23
00955	SILICA	DISOLVED	MG/L	WATER		9	1.485000	1.288200	1.135000	3.5	.01	89/05/23	91/05/23
01002	ARSENIC	AS,TOT	UG/L	WATER		12	3.750000	14.38600	3.792900	10	1	76/03/22	88/11/03
01003	ARSENIC	SEDMG/KG	DRY WGT	WATER		4	17.87500	37.49000	6.122900	24.20	10.00	81/06/30	90/06/21
01012	BERYLIUM	BE,TOT	UG/L	WATER		5	5.200000	10.20000	3.193800	10.00	1.00	84/05/02	88/11/03
01013	BERYLIUM	SEDMG/KG	DRY WGT	WATER		3	2.066700	1.013300	1.006700	3.00	1.00	83/05/26	90/06/21
01027	CADMIUM	CD,TOT	UG/L	WATER		12	7.249700	13.29400	3.646000	10	1	76/03/22	88/11/03
01028	CD MUD	DRY WGT	MG/KG-CD	WATER		4	2.025000	4.309200	2.075900	5.00	.30	81/06/30	90/06/21
01029	CHROMIUM	SEDMG/KG	DRY WGT	WATER		4	38.10000	6.467500	2.543100	41.40	35.20	81/06/30	90/06/21
01034	CHROMIUM	CR,TOT	UG/L	WATER		12	18.58200	332.5900	18.23700	50	1	76/03/22	88/11/03
01042	COPPER	CU,TOT	UG/L	WATER		12	54.16500	3244.800	56.96300	150	10	76/03/22	88/11/03
01043	COPPER	SEDMG/KG	DRY WGT	WATER		4	62.52500	6.967500	2.639600	65.30	59.40	81/06/30	90/06/21
01045	IRON	FE,TOT	UG/L	WATER		3	153.3300	1033.400	32.14600	190	130	88/09/06	88/11/03
01051	LEAD	PB,TOT	UG/L	WATER		12	5.583300	14.99300	3.872000	10	1	76/03/22	88/11/03
01052	LEAD	SEDMG/KG	DRY WGT	WATER		4	110.3500	1721.200	41.48700	154.00	69.00	81/06/30	90/06/21
01055	MANGNESE	MN	UG/L	WATER		3	53.33300	33.33600	5.773700	60.0	50.0	84/05/02	88/11/03
01059	THALLIUM	TL,TOTAL	UG/L	WATER		5	12.00000	20.00000	4.472100	20	10	84/05/02	88/11/03
01065	NICKEL	NI,DISS	UG/L	WATER		6	99.99300	.0046875	.0684650	100	100	76/03/22	78/09/18
01067	NICKEL	NI,TOTAL	UG/L	WATER		6	61.66700	1016.700	31.88500	100	20	84/05/02	88/11/03
01068	NICKEL	SEDMG/KG	DRY WGT	WATER		4	24.25000	13.34400	3.653000	28.20	19.80	81/06/30	90/06/21
01077	SILVER	AG,TOT	UG/L	WATER		3	5.000000	.0000000	.0000000	5.0	5.0	88/09/06	88/11/03
01092	ZINC	ZN,TOT	UG/L	WATER		12	58.33100	6579.000	81.11100	270	10	76/03/22	88/11/03
01093	ZINC	SEDMG/KG	DRY WGT	WATER		4	181.0000	184.6700	13.58900	199.00	166.00	81/06/30	90/06/21
01147	SELENIUM	SE,TOT	UG/L	WATER		5	26.20000	1717.200	41.43900	100	1	84/05/02	88/11/03
01148	SELENIUM	SEDMG/KG	DRY WGT	WATER		3	4.033300	3.423300	1.850200	5.90	2.20	83/05/26	90/06/21
01351	STREAM	FLOW	SEVERITY	WATER		46	3.087000	.1700500	.4123700	5	3	79/12/06	91/05/23
31505	TOT COLI	MPN CONF	/100ML	WATER		39	189.4600	86821.00	294.6600	1500	3	75/10/16	79/06/28
31506	TOT COLI	MPN CONF	TUBECODE	WATER		23	172.0400	244790.0	494.7600	2400	3	80/09/24	85/05/30
31614	FEC COLI	MPN	TUBECODE	WATER		53	32.00800	4085.600	63.91900	430	1	80/09/24	91/05/23
31616	FEC COLI	MFM-FCBR	/100ML	WATER		47	60.04300	12082.00	109.9200	750	3	75/10/16	80/08/27
34259	DELTABHC		TOTUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34351	ENDSULSF		TOTUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34356	B-ENDO	SULFAN	TOTWUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34361	A-ENDO	SULFAN	TOTWUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34366	ENDRINAL	DEHYDE	TOTWUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34480	THALLIUM	SEDMG/KG	DRY WGT	WATER		3	4.100000	3.870000	1.967200	5.900	2.000	83/05/26	90/06/21
34671	PCB	1016	TOTWUG/L	WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
38442	DICAMBA	(BANVEL)	DISSUG/L	WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
38451	DICLPROP		SUSPUG/L	WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29

1STORET RETRIEVAL DATE 91/12/03 PGM=INVENT PAGE: 10

FORT STORY

7-CRY000.59 VA7-3B-X0109 VA7-5X0109
36 52 44.0 075 59 38.0 1
CRYSTAL LAKE
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC
7-SMALL COA. + CHES. BAY
21VASWCB 751231 02080108010 0023.530 ON
0000 FEET DEPTH

/TYPA/AMBNT/STREAM

< 15 miles

PARAMETER		MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
38745 2,4-DB		TOTWUG/L WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
39032 PCP		TOT UG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39061 PCP	SEDUG/KG	DRY WGT WATER		1	.0100000			.010	.010	86/07/30	86/07/30
39300 P,P'DDT		TOT UG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39310 P,P'DDD		TOT UG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39320 P,P'DDE		TOT UG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39330 ALDRIN		TOT UG/L WATER		3	.0666670	.0033333	.0577350	.100	.000	84/05/02	86/05/29
39333 ALDRIN	SEDUG/KG	DRY WGT WATER		2	.1600000	.0392000	.1979900	.30	.02	81/06/30	83/05/26
39337 ALPHABHC		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39338 BETA BHC		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39340 GAMMABHC	LINDANE	TOT.UG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39351 CDANEDRY	TECH&MET	MUDUG/KG WATER		1	1.000000			1.00	1.00	86/07/30	86/07/30
39363 DDD	MUD	UG/KG WATER		1	.1000000			.10	.10	86/07/30	86/07/30
39368 DDE	MUD	UG/KG WATER		1	.1000000			.10	.10	86/07/30	86/07/30
39373 DDT	MUD	UG/KG WATER		1	.1000000			.10	.10	86/07/30	86/07/30
39380 DIELDRIN		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39383 DIELDRIN	SEDUG/KG	DRY WGT WATER		1	.1000000			.10	.10	86/07/30	86/07/30
39390 ENDRIN		TOT UG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39393 ENDRIN	SEDUG/KG	DRY WGT WATER		1	.1000000			.10	.10	86/07/30	86/07/30
39400 TOXAPHEN		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39403 TOXAPHEN	SEDUG/KG	DRY WGT WATER		1	1.000000			1.00	1.00	86/07/30	86/07/30
39410 HEPTCHLR		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39413 HEPTCHLR	SEDUG/KG	DRY WGT WATER		1	.1000000			.10	.10	86/07/30	86/07/30
39420 HPCHLREP		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39488 PCB-1221		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39492 PCB-1232		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39496 PCB-1242		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39500 PCB-1248		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39508 PCB-1260		TOTUG/L WATER		2	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39526 PCBS TOT	SED DRY WT	UG/KG WATER		1	1.000000			1	1	86/07/30	86/07/30
39630 ATRAZINE	WHL SMPL	UG/L WATER		1	.0000000			.000	.000	84/05/02	84/05/02
39631 ATRAZINE	MUD	UG/KG WATER		1	.0250000			.03	.03	83/05/26	83/05/26
39730 2,4-D	WHL SMPL	UG/L WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
39740 2,4,5-T	WHL SMPL	UG/L WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
39760 SILVEX	WHL SMPL	UG/L WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
70505 T PO4	P-COL	MG/L WATER		16	.1562400	.0506260	.2250000	1.00	.10	75/10/16	77/12/08
70507 PHOS-T	ORTHO	MG/L P WATER		42	.0126170	.0000295	.0054345	.030	.010	75/10/16	79/06/28
71900 MERCURY	HG,TOTAL	UG/L WATER		12	.3836300	.0106830	.1033600	.5	.3	76/03/22	88/11/03
71921 MERCURY	SEDMG/KG	DRY WGT WATER		4	.2975000	.0262920	.1621500	.4	.1	81/06/30	90/06/21

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FORT STORY

7-CRY000.59 VA7-3B-X0109 VA7-5X0109
36 52 44.0 075 59 38.0 1
CRYSTAL LAKE
51810 VIRGINIA VIRGINIA BEACH (CITY
02-NORTH ATLANTIC
7-SMALL COA. + CHES. BAY
21VASWCB 751231 02080108010 0023.530 ON
0000 FEET DEPTH

/TYPA/AMBNT/STREAM

~15 miles

"

PARAMETER		MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
74041 WQF	SAMPLE	UPDATED WATER		32	885170.0	2013E+05	14189.00	911101	861126	85/05/30	91/05/23
77825 ALACHLOR	TOTAL	UG/L WATER		2	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29

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FORT STORY

BSS0717B
36 52 58.0 075 59 51.0 4
BROAD AND LINKHORN BAYS NUMBERED STATION
51810 VIRGINIA VIRGINIA BEACH (CITY
NORTH ATLANTIC 021600
JAMES RIVER
21VASWCB 820619 02080108010 0023.530 ON
0000 FEET DEPTH

/TYPA/AMBNT/STREAM

< 15 miles

"

PARAMETER		MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00067 TIDE	STAGE	CODE WATER		3	4.000000	.0000000	.0000000	4	4	81/07/13	82/04/19
31621 FEC COLI	A-1M H20	MPN WATER		3	15.00000	432.0000	20.78500	39.0	3.0	81/07/13	82/04/19
82553 RAINFALL	1 DAY	INCHES WATER		3	.0000000	.0000000	.0000000	.00	.00	81/07/13	82/04/19
82554 RAINFALL	7 DAYS	INCHES WATER		3	1.043300	2.104600	1.450700	2.70	.00	81/07/13	82/04/19

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FORT STORY

XSI6293
36 56 10.1 075 59 17.2 4
BAY MOUT VCB1661
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0052 FEET DEPTH

/TYPA/AMBNT/ESTURY

ADJACENT TO

TS

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
74036	GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	806001	79/05/02	79/05/02
80250	SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	54.46000			54.46	54.46	79/05/02	79/05/02
80251	SEDIMENT	PARTSIZE	VFNESAND	WATER		1	38.68000			38.68	38.68	79/05/02	79/05/02
80252	SEDIMENT	PARTSIZE	FINESAND	WATER		1	6.860000			6.86	6.86	79/05/02	79/05/02
80253	SEDIMENT	PARTSIZE	MED SAND	WATER		1	.0000000			.00	.00	79/05/02	79/05/02
80254	SEDIMENT	PARTSIZE	CRS SAND	WATER		1	.0000000			.00	.00	79/05/02	79/05/02
80255	SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	.0000000			.00	.00	79/05/02	79/05/02
80256	SEDIMENT	PARTSIZE	GRAVEL	WATER		1	.0000000			.00	.00	79/05/02	79/05/02

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0 7 TOTAL STATIONS PROCESSED
FORT STORY

Summary

	STA BEG	STA END	# OF OBS	# OF SAMPLE	STA END-PERIOD OF RECD IN YRS =0	<.5	<3	>=3
<1972	1	0	17	5	2	0	0	0
1972	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0
1974	1	0	48	6	0	0	0	0
1975	2	1	149	9	0	0	1	0
1976	0	0	456	22	0	0	0	0
1977	0	0	385	19	0	0	0	0
1978	0	0	432	24	0	0	0	0
1979	1	1	206	13	0	1	0	0
1980	0	0	313	12	0	0	0	0
1981	2	0	341	18	0	0	0	0
1982	0	3	298	14	0	0	2	1
1983	0	0	290	10	0	0	0	0
1984	0	0	192	6	0	0	0	0
1985	0	0	317	8	0	0	0	0
1986	0	0	451	12	0	0	0	0
1987	0	0	283	11	0	0	0	0
1988	0	0	384	16	0	0	0	0
1989	0	0	318	10	0	0	0	0
1990	0	0	398	11	0	0	0	0
1991	0	2	78	2	0	0	0	2
TOTAL	7	7	5356	228	2	1	3	3

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0 7 TOTAL STATIONS PROCESSED
FORT STORY

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00002	HSAMPLOC	% FROM	RT BANK	WATER		175	50.00000	.0000000	.0000000	50.0	50.0	75/10/16	91/05/23
00005	VSAMPLOC	DEPTH	% OF TOT	WATER		57	50.00000	.0000000	.0000000	50	50	75/10/16	78/05/01
00010	WATER	TEMP	CENT	WATER		193	17.34600	79.62200	8.923100	32.5	.2	75/10/16	91/05/23
00011	WATER	TEMP	FAHN	WATER		193	63.22200	258.0400	16.06400	90.5	32.4	75/10/16	91/05/23
00041	WEATHER	WMO CODE	4501	WATER		203	2.438400	.7523800	.8674000	4	1	75/10/16	91/05/23
00067	TIDE	STAGE	CODE	WATER		203	3.123200	1.029300	1.014600	4	1	69/02/28	91/05/23
00070	TURB	JKSN	JTU	WATER		19	4.773700	8.555400	2.925000	12.8	1.4	89/03/29	91/05/23
00078	TRANSP	SECCHI	METERS	WATER		1	3.800000			3.80	3.80	91/05/23	91/05/23
00080	COLOR	PT-CO	UNITS	WATER		2	25.00000	242.0000	15.55600	36	14	91/05/23	91/05/23
00094	CNDUCTVY	FIELD	MICROMHO	WATER		111	30220.00	62281000	7891.800	46700	4470	79/12/06	91/05/23
00095	CNDUCTVY	AT 25C	MICROMHO	WATER		22	29271.00	8741100	2956.500	33500	21000	75/12/15	91/05/23
00116	INTNSVE	SURVEY	IDENT	WATER		58	795110.0	.0000000	.0000000	795110	795110	80/04/21	86/03/27
00300	DO		MG/L	WATER		191	9.104300	6.242400	2.498500	16.4	2.7	75/10/16	91/05/23
00301	DO	SATUR	PERCENT	WATER		190	91.83600	317.3400	17.81400	142.9	32.9	75/10/16	91/05/23
00310	BOD	5 DAY	MG/L	WATER		155	2.941900	2.133000	1.460500	13.0	1.0	75/10/16	91/05/23
00400	PH		SU	WATER		188	8.181300	.4915000	.7010700	9.50	5.00	75/10/16	91/05/23
00403	PH	LAB	SU	WATER		41	9.774600	164.9600	12.84400	90.0	7.5	78/03/30	91/05/23
00410	T ALK	CACO3	MG/L	WATER		40	87.71300	53.32200	7.302200	99	65	81/11/05	91/05/23
00480	SALINITY		PPTH	WATER		43	18.77500	15.18600	3.896900	25.0	13.0	69/02/28	91/05/23
00500	RESIDUE	TOTAL	MG/L	WATER		112	29229.00	1068E+05	10337.00	59628	1009	79/12/06	91/05/23
00505	RESIDUE	TOT VOL	MG/L	WATER		112	9030.200	78987000	8887.500	35862	145	79/12/06	91/05/23
00510	RESIDUE	TOT FIX	MG/L	WATER		110	20240.00	16198000	4024.600	45380	864	79/12/06	91/05/23
00530	RESIDUE	TOT NFLT	MG/L	WATER		113	25.83200	418.0200	20.44600	96	1	79/12/06	91/05/23
00535	RESIDUE	VOL NFLT	MG/L	WATER		113	10.32800	48.45400	6.960900	36	1	79/12/06	91/05/23
00540	RESIDUE	FIX NFLT	MG/L	WATER		113	15.75200	202.4700	14.22900	69	0	79/12/06	91/05/23
00610	NH3+NH4-	N TOTAL	MG/L	WATER		165	.0910270	.0005470	.0233900	.200	.040	75/10/16	91/05/23
00612	UN-IONZD	NH3-N	MG/L	WATER		157	.0109880	.0001844	.0135800	.051	.000002	75/10/16	91/05/23
00615	NO2-N	TOTAL	MG/L	WATER		195	.0099997	.0000000	.0000000	.010	.010	75/10/16	91/05/23
00619	UN-IONZD	NH3-NH3	MG/L	WATER		157	.0133600	.0002726	.0165120	.062	.000002	75/10/16	91/05/23
00620	NO3-N	TOTAL	MG/L	WATER		130	.0484600	.0000441	.0066444	.090	.040	75/10/16	91/05/23
00625	TOT KJEL	N	MG/L	WATER		91	.6483300	.0529780	.2301700	1.400	.100	75/10/16	91/05/23
00630	NO2&NO3	N-TOTAL	MG/L	WATER		64	.0512440	.0000301	.0054935	.09	.05	76/06/14	79/06/28
00665	PHOS-TOT		MG/L P	WATER		62	.1354800	.0023269	.0482380	.200	.100	85/03/07	91/05/23
00671	PHOS-DIS	ORTHO	MG/L P	WATER		113	.0170800	.0000940	.0096992	.050	.010	79/12/06	91/05/23
00674	PHOS-SUS	ORTHO	MG/L P	WATER		1	.0200000			.020	.020	90/10/11	90/10/11

00680	T ORG C	C	MG/L	WATER		185	8.816800	12.33400	3.512000	30.0	2.0	75/10/16	91/05/23
00900	TOT HARD	CACO3	MG/L	WATER		26	3446.200	954760.0	977.1200	4500	387	88/09/06	91/05/23
00940	CHLORIDE	TOTAL	MG/L	WATER		20	11110.00	1543200	1242.200	12952	9250	89/03/29	91/05/23
00945	SULFATE	SO4-TOT	MG/L	WATER		20	1497.100	34378.00	185.4100	1763	1228	89/03/29	91/05/23
00951	FLUORIDE	F,TOTAL	MG/L	WATER		16	1.068800	5.622200	2.371100	9.96	.43	89/03/29	91/05/23
00955	SILICA	DISOLVED	MG/L	WATER		18	1.574000	1.799200	1.341400	4.2	.01	89/05/23	91/05/23
01002	ARSENIC	AS,TOT	UG/L	WATER		23	3.826100	14.24100	3.773800	10	1	76/03/22	88/11/03

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0 7 TOTAL STATIONS PROCESSED
FORT STORY

0	PARAMETER		MEDIUM		RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
01003	ARSENIC	SEDMG/KG	DRY WGT	WATER		8	18.65000	32.21700	5.676000	26.70	10.00	81/06/30	90/06/21
01012	BERYLIUM	BE,TOT	UG/L	WATER		10	5.200000	9.066700	3.011100	10.00	1.00	84/05/02	88/11/03
01013	BERYLIUM	SEDMG/KG	DRY WGT	WATER		6	2.033300	.7426700	.8617800	3.00	1.00	83/05/26	90/06/21
01027	CADMIUM	CD,TOT	UG/L	WATER		23	7.130100	12.93500	3.596500	10	1	76/03/22	88/11/03
01028	CD MUD	DRY WGT	MG/KG-CD	WATER		8	2.237500	4.134100	2.033300	5.80	.30	81/06/30	90/06/21
01029	CHROMIUM	SEDMG/KG	DRY WGT	WATER		8	44.11300	45.30200	6.730700	51.00	35.20	81/06/30	90/06/21
01034	CHROMIUM	CR,TOT	UG/L	WATER		23	18.52000	314.3200	17.72900	50	1	76/03/22	88/11/03
01042	COPPER	CU,TOT	UG/L	WATER		23	56.08500	3052.300	55.24700	150	10	76/03/22	88/11/03
01043	COPPER	SEDMG/KG	DRY WGT	WATER		8	72.40000	134.8400	11.61200	90.60	59.40	81/06/30	90/06/21
01045	IRON	FE,TOT	UG/L	WATER		6	146.6700	1226.700	35.02400	190	110	88/09/06	88/11/03
01051	LEAD	PB,TOT	UG/L	WATER		23	6.955600	17.12300	4.138000	14	1	76/03/22	88/11/03
01052	LEAD	SEDMG/KG	DRY WGT	WATER		8	126.4300	1744.300	41.76400	187.00	69.00	81/06/30	90/06/21
01055	MANGNESE	MN	UG/L	WATER		6	53.33300	26.67000	5.164300	60.0	50.0	84/05/02	88/11/03
01059	THALLIUM	TL,TOTAL	UG/L	WATER		10	13.00000	45.55600	6.749500	30	10	84/05/02	88/11/03
01065	NICKEL	NI,DISS	UG/L	WATER		11	99.99400	.0000000	.0000000	100	100	76/03/22	78/09/18
01067	NICKEL	NI,TOTAL	UG/L	WATER		12	61.66700	996.9700	31.57500	100	10	84/05/02	88/11/03
01068	NICKEL	SEDMG/KG	DRY WGT	WATER		8	25.98800	12.40200	3.521600	31.10	19.80	81/06/30	90/06/21
01077	SILVER	AG,TOT	UG/L	WATER		6	5.000000	.0000000	.0000000	5.0	5.0	88/09/06	88/11/03
01092	ZINC	ZN,TOT	UG/L	WATER		23	45.65000	3562.200	59.68400	270	10	76/03/22	88/11/03
01093	ZINC	SEDMG/KG	DRY WGT	WATER		8	237.5000	4043.700	63.59000	325.00	166.00	81/06/30	90/06/21
01147	SELENIUM	SE,TOT	UG/L	WATER		10	17.20000	860.4000	29.33300	100	1	84/05/02	88/11/03
01148	SELENIUM	SEDMG/KG	DRY WGT	WATER		6	4.466700	5.806700	2.409700	8.50	2.20	83/05/26	90/06/21
01351	STREAM	FLOW	SEVERITY	WATER		92	3.087000	.1681900	.4101100	5	3	79/12/06	91/05/23
10060	INVALID	PAR	NUMBER	WATER		1	8.300000			8.300000	8.300000	82/02/10	82/02/10
31505	TOT COLI	MPN CONF	/100ML	WATER		76	850.3800	27742000	5267.000	46000	3	75/10/16	79/06/28
31506	TOT COLI	MPN CONF	TUBECODE	WATER		46	150.1500	136820.0	369.8900	2400	3	80/09/24	85/05/30
31614	FEC COLI	MPN	TUBECODE	WATER		106	51.07700	18611.00	136.4200	920	1	80/09/24	91/05/23
31615	FEC COLI	MPNECMED	/100ML	WATER		4	122.5800	50686.00	225.1400	460	3	68/09/23	69/04/17
31616	FEC COLI	MFM-FCBR	/100ML	WATER		91	80.55100	26479.00	162.7300	930	3	75/10/16	80/08/27
31621	FEC COLI	A-1M H20	MPN	WATER		11	42.24600	2168.400	46.56700	150.0	3.0	71/08/27	82/07/19
34259	DELTABHC		TOTUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34351	ENDSULSF		TOTUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34356	B-ENDO	SULFAN	TOTWUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34361	A-ENDO	SULFAN	TOTWUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34366	ENDRINAL	DEHYDE	TOTWUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
34480	THALLIUM	SEDMG/KG	DRY WGT	WATER		6	3.683300	3.393700	1.842200	5.900	2.000	83/05/26	90/06/21
34671	PCB	1016	TOTWUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
38442	DICAMBA	(BANVEL)	DISSUG/L	WATER		4	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
38451	DICLPROP		SUSPUG/L	WATER		4	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
38745	2,4-DB		TOTWUG/L	WATER		4	.2000000	.0000000	.0000000	.200	.200	85/05/30	86/05/29
39032	PCP		TOT UG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39061	PCP	SEDUG/KG	DRY WGT	WATER		2	.0100000	.0000000	.0000000	.010	.010	86/07/30	86/07/30

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0 7 TOTAL STATIONS PROCESSED
FORT STORY

0	PARAMETER		MEDIUM		RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
39300	P,P'DDT		TOT UG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39310	P,P'DDD		TOT UG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39320	P,P'DDE		TOT UG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39330	ALDRIN		TOT UG/L	WATER		6	.0666670	.0026667	.0516400	.100	.000	84/05/02	86/05/29
39333	ALDRIN	SEDUG/KG	DRY WGT	WATER		4	.1600000	.0261330	.1616600	.30	.02	81/06/30	83/05/26
39337	ALPHABHC		TOTUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39338	BETA BHC		TOTUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39340	GAMMABHC	LINDANE	TOT.UG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39351	CDANEDRY	TECH&MET	MUDUG/KG	WATER		2	1.000000	.0000000	.0000000	1.00	1.00	86/07/30	86/07/30
39363	DDD	MUD	UG/KG	WATER		2	.1000000	.0000000	.0000000	.10	.10	86/07/30	86/07/30
39368	DDE	MUD	UG/KG	WATER		2	.1000000	.0000000	.0000000	.10	.10	86/07/30	86/07/30
39373	DDT	MUD	UG/KG	WATER		2	.1000000	.0000000	.0000000	.10	.10	86/07/30	86/07/30
39380	DIELDRIN		TOTUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39383	DIELDRIN	SEDUG/KG	DRY WGT	WATER		2	.1000000	.0000000	.0000000	.10	.10	86/07/30	86/07/30
39390	ENDRIN		TOT UG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39393	ENDRIN	SEDUG/KG	DRY WGT	WATER		2	.1000000	.0000000	.0000000	.10	.10	86/07/30	86/07/30
39400	TOXAPHEN		TOTUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29
39403	TOXAPHEN	SEDUG/KG	DRY WGT	WATER		2	1.000000	.0000000	.0000000	1.00	1.00	86/07/30	86/07/30
39410	HEPTCHLR		TOTUG/L	WATER		4	.1000000	.0000000	.0000000	.100	.100	85/05/30	86/05/29

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  39413 HEPTCHLR SEDUG/KG  DRY WGT WATER                    2 .1000000 .0000000 .0000000      .10      .10  86/07/30 86/07/30
  39420 HPCHLREP           TOTUG/L WATER                    4 .1000000 .0000000 .0000000     .100     .100  85/05/30 86/05/29
  39488 PCB-1221           TOTUG/L WATER                    4 .1000000 .0000000 .0000000     .100     .100  85/05/30 86/05/29
  39492 PCB-1232           TOTUG/L WATER                    4 .1000000 .0000000 .0000000     .100     .100  85/05/30 86/05/29
  39496 PCB-1242           TOTUG/L WATER                    4 .1000000 .0000000 .0000000     .100     .100  85/05/30 86/05/29
  39500 PCB-1248           TOTUG/L WATER                    4 .1000000 .0000000 .0000000     .100     .100  85/05/30 86/05/29
  39508 PCB-1260           TOTUG/L WATER                    4 .1000000 .0000000 .0000000     .100     .100  85/05/30 86/05/29
  39526 PCBS TOT SED  DRY WT UG/KG WATER                    2 1.000000 .0000000 .0000000       1        1  86/07/30 86/07/30
  39630 ATRAZINE WHL SMPL   UG/L   WATER                    2 .0000000 .0000000 .0000000     .000     .000  84/05/02 84/05/02
  39631 ATRAZINE   MUD     UG/KG   WATER                    3 .1416700 .0202080 .1421600     .30      .03  81/06/30 83/05/26
  39730  2,4-D   WHL SMPL   UG/L   WATER                    4 .2000000 .0000000 .0000000    .200     .200  85/05/30 86/05/29
  39740 2,4,5-T  WHL SMPL   UG/L   WATER                    4 .2000000 .0000000 .0000000    .200     .200  85/05/30 86/05/29
  39760  SILVEX  WHL SMPL   UG/L   WATER                    4 .2000000 .0000000 .0000000    .200     .200  85/05/30 86/05/29
  70505  T PO4    P-COL    MG/L    WATER                   31 .1580600 .0505170 .2247600   1.00      .10  75/10/16 78/01/19
  70507  PHOS-T   ORTHO    MG/L P  WATER                   81 .0129610 .0000410 .0064095    .040     .010  75/10/16 79/06/28
  71900 MERCURY  HG,TOTAL   UG/L   WATER                   23 .3785400 .0100300 .1001500     .5       .3  76/03/22 88/11/03
  71921 MERCURY  SEDMG/KG  DRY WGT WATER                    8 .4987500 .0697840 .2641700     .9       .1  81/06/30 90/06/21
  71937 COPPER   TISMG/KG  WET WGT WATER                    9 17.34500 22.67800 4.762100   24.00    11.00  74/04/01 75/04/01
  71938 ZINC     TISMG/KG  WET WGT WATER                    9 437.0000 14262.00 119.4200  590.00   282.00  74/04/01 75/04/01
  71940 CADMIUM  TISMG/KG  WET WGT WATER                    9 .3333300 .0060501 .0777830     .48      .24  74/04/01 75/04/01
  74036  GRANT   PROJECT  NUMBER   WATER                    1 806000.0                     806001   806001  79/05/02 79/05/02
  74041   WQF     SAMPLE   UPDATED WATER                   64 885490.0 1952E+05 13972.00  911101   861126  85/05/30 91/05/23
  75000   FISH    SPECIES   CODE   WATER                    9 .0000000 .0000000 .0000000       0        0  74/04/01 75/04/01
1STORET RETRIEVAL DATE 91/12/03                PGM=INVENT                                                   PAGE:    18
                                                     GROSS
0      7 TOTAL STATIONS PROCESSED
 FORT STORY
```

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-
0            PARAMETER                MEDIUM          RMK   NUMBER    MEAN  VARIANCE STAN DEV MAXIMUM  MINIMUM   BEG DATE END DATE
  77825 ALACHLOR  TOTAL     UG/L   WATER                        4 .2000000 .0000000 .0000000    .200     .200  85/05/30 86/05/29
  80250 SEDIMENT PARTSIZE SILTCLAY WATER                        1 54.46000                     54.46    54.46  79/05/02 79/05/02
  80251 SEDIMENT PARTSIZE VFNESAND WATER                        1 38.68000                     38.68    38.68  79/05/02 79/05/02
  80252 SEDIMENT PARTSIZE FINESAND WATER                        1 6.860000                      6.86     6.86  79/05/02 79/05/02
  80253 SEDIMENT PARTSIZE MED SAND WATER                        1 .0000000                       .00      .00  79/05/02 79/05/02
  80254 SEDIMENT PARTSIZE CRS SAND WATER                        1 .0000000                       .00      .00  79/05/02 79/05/02
  80255 SEDIMENT PARTSIZE VCRSSAND WATER                        1 .0000000                       .00      .00  79/05/02 79/05/02
  80256 SEDIMENT PARTSIZE  GRAVEL  WATER                        1 .0000000                       .00      .00  79/05/02 79/05/02
  81614 NO.INDV. IN THE    SAMPLE  WATER                        9 10.00000 .0000000 .0000000      10       10  74/04/01 75/04/01
  82553 RAINFALL  1 DAY   INCHES   WATER                       13 .0000000 .0000000 .0000000     .00      .00  69/02/28 82/07/19
  82554 RAINFALL  7 DAYS   INCHES   WATER                       13 .8646200 1.157800 1.076000    2.70      .00  69/02/28 82/07/19
  84005   FISH    SPECIES   F &WL  WATER          TXT          9    TEXT     TEXT     TEXT     TEXT     TEXT   74/04/01 75/04/01
  84007 ANATOMY  ALPHA    CODE     WATER          TXT          9    TEXT     TEXT     TEXT     TEXT     TEXT   74/04/01 75/04/01
  84008   LIFE     STYLE/ HABITAT  WATER          TXT          9    TEXT     TEXT     TEXT     TEXT     TEXT   74/04/01 75/04/01
 THAT'S ALL FOLKS
1STORET   RETRIEVAL DATE 91/12/03
 P
 R1
 H P          :
 DSCXT
 J        Y
 001001FORT STORY
 1000000999999000000999999                          ********      77777777  F  9
 DUM.ORDER=1;                 3643030                7600000                 3656150                 7600000
    3656150                   7545000                3643030                 7545000
0EXTRACT/MASKING OPTION PERFORMED
 CLR000000
 SEL000009
-
-
0              ************************************************************
               ************************************************************
               **                                                        **
               **                                                        **
               **        9 STATIONS MET STATION SELECTION CRITERIA       **
               **          (PRIOR TO STATION RESTRICTIONS)               **
               **                                                        **
               **                                                        **
               ************************************************************
               ************************************************************
 STORET RETRIEVAL DATE  91/12/03   -  ECHO OF ORIGINAL REQUEST
 PGM=INVENT,
 #-----------------------------------------------------------------
 #                    REQUEST NAME: STORY
 #                      CREATED BY: HED
 #                            DATE: 91/12/03
 #                            TIME: 17:32
 #
 #----------------------<  STATION SELECTION  >------------------------
 #    OPTION 4 - WITHIN AN AREA DEFINED BY LAT/LONG POLYGONS OR CIRCLES
 # DEFINE RECTANGLE(S) BY SPECIFYING NORTH/SOUTH/EAST/WEST LIMITS
 POLY=LLRET,  L=3643030,L=07600000,  L=3656150,L=07600000,
              L=3656150,L=07545000,  L=3643030,L=07545000,
 #
 #----------------------<  STATION RESTRICTION  >---------------------
```

REFERENCE 10

4J BACKGROUND SEDIMENT & SW

RETRIEVAL PROGRAM
0 PGM=INVENT
THIS IS AN INVENTORY RETRIEVAL SHOWING SUMMARY STATISTICS FOR ALL PARAMETERS
0 NO BEGINNING DATE WAS REQUESTED -- STORET ASSUMED THE BEGINNING DATE WAS THAT OF THE OLDEST DATA VALUE FOUND
NO ENDING DATE WAS REQUESTED -- STORET ASSUMED THE ENDING DATE WAS THAT OF THE MOST RECENT DATA VALUE FOUND
-STATION SELECTION WAS BY:

***** ERROR MSG: NO STATION SELECTOR KEYWORDS WERE SPECIFIED - THEREFORE NO STATIONS WERE RETRIEVED *****

***** END OF SUMMARY SECTION *****

STORET RETRIEVAL DATE 91/12/15 PGM=INVENT PAGE: 1
EUSTIS RADIUS 5 MI

XSH6187
36 56 05.1 076 08 43.4 4
BRDG TUN VCB1721
51990 VIRGINIA
/TYPA/AMBNT/ESTURY NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0029 FEET DEPTH

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
74036	GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	806001	79/05/04	79/05/04
80250	SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	14.60000			14.60	14.60	79/05/04	79/05/04
80251	SEDIMENT	PARTSIZE	VFNESAND	WATER		1	5.410000			5.41	5.41	79/05/04	79/05/04
80252	SEDIMENT	PARTSIZE	FINESAND	WATER		1	29.43000			29.43	29.43	79/05/04	79/05/04
80253	SEDIMENT	PARTSIZE	MED SAND	WATER		1	47.39000			47.39	47.39	79/05/04	79/05/04
80254	SEDIMENT	PARTSIZE	CRS SAND	WATER		1	2.770000			2.77	2.77	79/05/04	79/05/04
80255	SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	.0000000			.00	.00	79/05/04	79/05/04
80256	SEDIMENT	PARTSIZE	GRAVEL	WATER		1	.4000000			.40	.40	79/05/04	79/05/04

ORET RETRIEVAL DATE 91/12/15 PGM=INVENT PAGE: 2
STIS RADIUS 5 MI

XSH6176
36 56 05.9 076 07 21.5 4
BAY MOUT VCB1625
51990 VIRGINIA
PA/AMBNT/ESTURY NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0036 FEET DEPTH

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
036	GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	806001	79/05/02	79/05/02
250	SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	10.40000			10.40	10.40	79/05/02	79/05/02
251	SEDIMENT	PARTSIZE	VFNESAND	WATER		1	3.320000			3.32	3.32	79/05/02	79/05/02
52	SEDIMENT	PARTSIZE	FINESAND	WATER		1	6.760000			6.76	6.76	79/05/02	79/05/02
53	SEDIMENT	PARTSIZE	MED SAND	WATER		1	37.28000			37.28	37.28	79/05/02	79/05/02
54	SEDIMENT	PARTSIZE	CRS SAND	WATER		1	27.44000			27.44	27.44	79/05/02	79/05/02
55	SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	9.380000			9.38	9.38	79/05/02	79/05/02
56	SEDIMENT	PARTSIZE	GRAVEL	WATER		1	4.450000			4.45	4.45	79/05/02	79/05/02

RETRIEVAL DATE 91/12/15 PGM=INVENT PAGE: 3
RADIUS 5 MI

XSH6160
36 56 06.0 076 06 01.1 4
BAY MOUT VCB1627
51990 VIRGINIA
AMBNT/ESTURY NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0032 FEET DEPTH

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
	GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	806001	79/05/02	79/05/02
	SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	43.18000			43.18	43.18	79/05/02	79/05/02
	SEDIMENT	PARTSIZE	VFNESAND	WATER		1	48.28000			48.28	48.28	79/05/02	79/05/02
	SEDIMENT	PARTSIZE	FINESAND	WATER		1	3.130000			3.13	3.13	79/05/02	79/05/02
	SEDIMENT	PARTSIZE	MED SAND	WATER		1	3.350000			3.35	3.35	79/05/02	79/05/02
	SEDIMENT	PARTSIZE	CRS SAND	WATER		1	.8600000			.86	.86	79/05/02	79/05/02
	SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	.0000000			.00	.00	79/05/02	79/05/02
	SEDIMENT	PARTSIZE	GRAVEL	WATER		1	1.200000			1.20	1.20	79/05/02	79/05/02

ETRIEVAL DATE 91/12/15 PGM=INVENT PAGE: 4
DIUS 5 MI

XSH6209 X397500 Y4088450
36 56 21.0 076 09 01.0 4
SAPEAKE BAY, OFF LITTLE CREEK
51810 VIRGINIA VIRGINIA BEACH (CITY
NT/STREAM NORTH ATLANTIC 021600
JAMES RIVER
21VASWCB 810815 HQ 02080101
0000 FEET DEPTH

upstream of Ft Story in Chesapeake BAY

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
80255	SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	8.370000			8.37	8.37	79/05/02	79/05/02
80256	SEDIMENT	PARTSIZE	GRAVEL	WATER		1	5.350000			5.35	5.35	79/05/02	79/05/02

1STORET RETRIEVAL DATE 91/12/15
EUSTIS RADIUS 5 MI

PGM=INVENT

PAGE: 20

XSH7840
36 57 45.2 076 04 01.8 4
BAY MOUT VCB1639
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0052 FEET DEPTH

/TYPA/AMBNT/ESTURY

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
74036	GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	806001	79/05/02	79/05/02
80250	SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	3.100000			3.10	3.10	79/05/02	79/05/02
80251	SEDIMENT	PARTSIZE	VFNESAND	WATER		1	9.890000			9.89	9.89	79/05/02	79/05/02
80252	SEDIMENT	PARTSIZE	FINESAND	WATER		1	9.290000			9.29	9.29	79/05/02	79/05/02
80253	SEDIMENT	PARTSIZE	MED SAND	WATER		1	29.51000			29.51	29.51	79/05/02	79/05/02
80254	SEDIMENT	PARTSIZE	CRS SAND	WATER		1	30.39000			30.39	30.39	79/05/02	79/05/02
80255	SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	7.170000			7.17	7.17	79/05/02	79/05/02
80256	SEDIMENT	PARTSIZE	GRAVEL	WATER		1	6.900000			6.90	6.90	79/05/02	79/05/02

1STORET RETRIEVAL DATE 91/12/15
EUSTIS RADIUS 5 MI

PGM=INVENT

PAGE: 21

XSH7895
36 57 46.3 076 09 27.0 4
BRDG TUN VCB1717
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0026 FEET DEPTH

/TYPA/AMBNT/ESTURY

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
74036	GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	806001	79/05/04	79/05/04
80250	SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	20.75000			20.75	20.75	79/05/04	79/05/04
80251	SEDIMENT	PARTSIZE	VFNESAND	WATER		1	36.04000			36.04	36.04	79/05/04	79/05/04
80252	SEDIMENT	PARTSIZE	FINESAND	WATER		1	25.89000			25.89	25.89	79/05/04	79/05/04
80253	SEDIMENT	PARTSIZE	MED SAND	WATER		1	13.82000			13.82	13.82	79/05/04	79/05/04
80254	SEDIMENT	PARTSIZE	CRS SAND	WATER		1	2.800000			2.80	2.80	79/05/04	79/05/04
80255	SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	.0000000			.00	.00	79/05/04	79/05/04
80256	SEDIMENT	PARTSIZE	GRAVEL	WATER		1	.7000000			.70	.70	79/05/04	79/05/04

1STORET RETRIEVAL DATE 91/12/15
EUSTIS RADIUS 5 MI

PGM=INVENT

PAGE: 22

XSH8037 X401400 Y4091425
36 58 00.0 076 06 30.0 4
CHESAPEAKE BAY, NEAR THIMBLE SHOALS LIGHT
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
21VASWCB 810912 HQ 02080101
0000 FEET DEPTH

upstream
(background)

/TYPA/AMBNT/STREAM

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
39364	DDD	SHELFISH	UG/KG WT	WATER		1	10.00000			10.00	10.00	78/09/08	78/09/08
39369	DDE	SHELFISH	UG/KG WT	WATER		7	11.42900	14.28600	3.779700	20.00	10.00	78/09/08	79/04/24
75000	FISH	SPECIES	CODE	WATER		7	.0000000	.0000000	.0000000	0	0	78/09/08	79/04/24
81614	NO.INDV.	IN THE	SAMPLE	WATER		7	2.142900	3.809500	1.951800	5	1	78/09/08	79/04/24
84005	FISH	SPECIES	F &WL	WATER	TXT	7	TEXT	TEXT	TEXT	TEXT	TEXT	78/09/08	79/04/24
84007	ANATOMY	ALPHA	CODE	WATER	TXT	7	TEXT	TEXT	TEXT	TEXT	TEXT	78/09/08	79/04/24
84008	LIFE	STYLE/	HABITAT	WATER	TXT	7	TEXT	TEXT	TEXT	TEXT	TEXT	78/09/08	79/04/24

1STORET RETRIEVAL DATE 91/12/15
EUSTIS RADIUS 5 MI

PGM=INVENT

PAGE: 23

BSS069V0
36 58 07.0 076 10 30.0 4
CHES BAY:LITTLE CREEK TO LYNNHAVEN GRID STATION
51810 VIRGINIA VIRGINIA BEACH (CITY
NORTH ATLANTIC 021600
JAMES RIVER
21VASWCB 831001 HQ 02080101
0000 FEET DEPTH

/TYPA/AMBNT/STREAM

PARAMETER				MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00067	TIDE	STAGE	CODE	WATER		23	3.434800	.9842000	.9920700	4	1	66/07/12	76/04/06
31615	FEC COLI	MPNECMED	/100ML	WATER		24	3.812500	4.195900	2.048400	9	1	66/07/12	76/04/06
32553	RAINFALL	1 DAY	INCHES	WATER		24	.0170830	.0037955	.0616070	.30	.00	66/07/12	76/04/06
32554	RAINFALL	7 DAYS	INCHES	WATER		24	.7791700	2.146900	1.465200	5.98	.00	66/07/12	76/04/06

STORET RETRIEVAL DATE 91/12/15
EUSTIS RADIUS 5 MI

PGM=INVENT

PAGE: 24

XSH8275 2413
36 58 11.9 076 07 28.5 4

/TYPA/AMBNT/ESTURY

36 56 38.2 076 06 41.6 4
BAY MOUT VCB1626
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0029 FEET DEPTH

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
74036	GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	806001	79/05/02	79/05/02
80250	SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	28.85000			28.85	28.85	79/05/02	79/05/02
80251	SEDIMENT	PARTSIZE	VFNESAND	WATER		1	57.63000			57.63	57.63	79/05/02	79/05/02
80252	SEDIMENT	PARTSIZE	FINESAND	WATER		1	11.83000			11.83	11.83	79/05/02	79/05/02
80253	SEDIMENT	PARTSIZE	MED SAND	WATER		1	1.290000			1.29	1.29	79/05/02	79/05/02
80254	SEDIMENT	PARTSIZE	CRS SAND	WATER		1	.0000000			.00	.00	79/05/02	79/05/02
80255	SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	.0000000			.00	.00	79/05/02	79/05/02
80256	SEDIMENT	PARTSIZE	GRAVEL	WATER		1	.4000000			.40	.40	79/05/02	79/05/02

1STORET RETRIEVAL DATE 91/12/15 PGM=INVENT PAGE: 9
EUSTIS RADIUS 5 MI

UPSTREAM
(BACKGROUND)

/TYPA/AMBNT/ESTURY

XSH7160 2415
36 57 06.6 076 06 02.4 1
CHESAPEAKE BAY
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 800712 HQ 02080101
0000 FEET DEPTH

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
01028	CD MUD	DRY WGT	MG/KG-CD	BOTTOM		1	.0000000			.00	.00	78/09/27	78/09/27
01029	CHROMIUM	SEDMG/KG	DRY WGT	BOTTOM		1	2.900000			2.90	2.90	78/09/27	78/09/27
01038	CO MUD	DRY WGT	MG/KG-CO	BOTTOM		1	.9000000			.90	.90	78/09/27	78/09/27
01043	COPPER	SEDMG/KG	DRY WGT	BOTTOM		1	1.100000			1.10	1.10	78/09/27	78/09/27
01052	LEAD	SEDMG/KG	DRY WGT	BOTTOM		1	3.800000			3.80	3.80	78/09/27	78/09/27
01053	MN MUD	DRY WGT	MG/KG-MN	BOTTOM		1	35.00000			35.00	35.00	78/09/27	78/09/27
01068	NICKEL	SEDMG/KG	DRY WGT	BOTTOM		1	2.100000			2.10	2.10	78/09/27	78/09/27
01093	ZINC	SEDMG/KG	DRY WGT	BOTTOM		1	12.00000			12.00	12.00	78/09/27	78/09/27
01170	FE MUD	DRY WGT	MG/KG-FE	BOTTOM		1	3100.000			3100.00	3100.00	78/09/27	78/09/27
74036	GRANT	PROJECT	NUMBER	BOTTOM		1	805950.0			805954	805954	78/09/27	78/09/27

1STORET RETRIEVAL DATE 91/12/15 PGM=INVENT PAGE: 10
EUSTIS RADIUS 5 MI

XSH7161
36 57 07.1 076 06 02.7 4
CHES ENT VCB0019
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0026 FEET DEPTH

/TYPA/AMBNT/ESTURY

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
74036	GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	306001	78/11/02	78/11/02
80250	SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	3.000000			3.00	3.00	78/11/02	78/11/02
80251	SEDIMENT	PARTSIZE	VFNESAND	WATER		1	.0000000			.00	.00	78/11/02	78/11/02
80252	SEDIMENT	PARTSIZE	FINESAND	WATER		1	16.36000			16.36	16.36	78/11/02	78/11/02
80253	SEDIMENT	PARTSIZE	MED SAND	WATER		1	72.64000			72.64	72.64	78/11/02	78/11/02
80254	SEDIMENT	PARTSIZE	CRS SAND	WATER		1	7.700000			7.70	7.70	78/11/02	78/11/02
80255	SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	.0000000			.00	.00	78/11/02	78/11/02
80256	SEDIMENT	PARTSIZE	GRAVEL	WATER		1	.3000000			.30	.30	78/11/02	78/11/02

1STORET RETRIEVAL DATE 91/12/15 PGM=INVENT PAGE: 11
EUSTIS RADIUS 5 MI

XSH7187
36 57 08.4 076 08 44.1 4
BRDG TUN VCB1718
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0022 FEET DEPTH

/TYPA/AMBNT/ESTURY

	PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
74036	GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	806001	79/05/04	79/05/04
80250	SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	8.410000			8.41	8.41	79/05/04	79/05/04
80251	SEDIMENT	PARTSIZE	VFNESAND	WATER		1	11.73000			11.73	11.73	79/05/04	79/05/04
80252	SEDIMENT	PARTSIZE	FINESAND	WATER		1	56.02000			56.02	56.02	79/05/04	79/05/04
80253	SEDIMENT	PARTSIZE	MED SAND	WATER		1	15.63000			15.63	15.63	79/05/04	79/05/04
80254	SEDIMENT	PARTSIZE	CRS SAND	WATER		1	5.580000			5.58	5.58	79/05/04	79/05/04
80255	SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	1.830000			1.83	1.83	79/05/04	79/05/04
80256	SEDIMENT	PARTSIZE	GRAVEL	WATER		1	.8000000			.30	.30	79/05/04	79/05/04

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
00002 HSAMPLOC	% FROM	RT BANK	WATER		1	50.00000			50.0	50.0	79/07/01	79/07/01
01028 CD MUD	DRY WGT	MG/KG-CD	WATER		1	280.0000			280.00	280.00	79/07/01	79/07/01
01029 CHROMIUM	SEDMG/KG	DRY WGT	WATER		1	5.000000			5.00	5.00	79/07/01	79/07/01
01043 COPPER	SEDMG/KG	DRY WGT	WATER		1	1.300000			1.30	1.30	79/07/01	79/07/01
01052 LEAD	SEDMG/KG	DRY WGT	WATER		1	8.600000			8.60	8.60	79/07/01	79/07/01
01093 ZINC	SEDMG/KG	DRY WGT	WATER		1	32.00000			32.00	32.00	79/07/01	79/07/01
71921 MERCURY	SEDMG/KG	DRY WGT	WATER		1	.0800000			.08	.08	79/07/01	79/07/01

1STORET RETRIEVAL DATE 91/12/15
EUSTIS RADIUS 5 MI

PGM=INVENT PAGE: 5

XSH6654 2416
36 56 36.2 076 05 22.5 4
CHES ENT VCB0020
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0026 FEET DEPTH

/TYPA/AMBNT/ESTURY

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
01028 CD MUD	DRY WGT	MG/KG-CD	BOTTOM		1	.0900000			.09	.09	78/09/27	78/09/27
01029 CHROMIUM	SEDMG/KG	DRY WGT	BOTTOM		1	9.400000			9.40	9.40	78/09/27	78/09/27
01038 CO MUD	DRY WGT	MG/KG-CO	BOTTOM		1	3.000000			3.00	3.00	78/09/27	78/09/27
01043 COPPER	SEDMG/KG	DRY WGT	BOTTOM		1	4.800000			4.80	4.80	78/09/27	78/09/27
01052 LEAD	SEDMG/KG	DRY WGT	BOTTOM		1	6.200000			6.20	6.20	78/09/27	78/09/27
01053 MN MUD	DRY WGT	MG/KG-MN	BOTTOM		1	140.0000			140.00	140.00	78/09/27	78/09/27
01068 NICKEL	SEDMG/KG	DRY WGT	BOTTOM		1	9.000000			9.00	9.00	78/09/27	78/09/27
01093 ZINC	SEDMG/KG	DRY WGT	BOTTOM		1	38.00000			38.00	38.00	78/09/27	78/09/27
01170 FE MUD	DRY WGT	MG/KG-FE	BOTTOM		1	11000.00			11000.00	11000.00	78/09/27	78/09/27
74036 GRANT	PROJECT	NUMBER	BOTTOM		1	805950.0			805954	805954	78/09/27	78/09/27
			WATER		1	806000.0			806001	806001	78/11/02	78/11/02
80250 SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	23.10000			23.10	23.10	78/11/02	78/11/02
80251 SEDIMENT	PARTSIZE	VFNESAND	WATER		1	50.92000			50.92	50.92	78/11/02	78/11/02
80252 SEDIMENT	PARTSIZE	FINESAND	WATER		1	21.54000			21.54	21.54	78/11/02	78/11/02
80253 SEDIMENT	PARTSIZE	MED SAND	WATER		1	4.440000			4.44	4.44	78/11/02	78/11/02
80254 SEDIMENT	PARTSIZE	CRS SAND	WATER		1	.0000000			.00	.00	78/11/02	78/11/02
80255 SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	.0000000			.00	.00	78/11/02	78/11/02
80256 SEDIMENT	PARTSIZE	GRAVEL	WATER		1	.0000000			.00	.00	78/11/02	78/11/02

1STORET RETRIEVAL DATE 91/12/15
EUSTIS RADIUS 5 MI

PGM=INVENT PAGE: 6

XSH6694
36 56 36.3 076 09 23.3 4
BRDG TUN VCB1722
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0029 FEET DEPTH

/TYPA/AMBNT/ESTURY

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
74036 GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	806001	79/05/04	79/05/04
80250 SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	19.82000			19.82	19.82	79/05/04	79/05/04
80251 SEDIMENT	PARTSIZE	VFNESAND	WATER		1	39.37000			39.37	39.37	79/05/04	79/05/04
80252 SEDIMENT	PARTSIZE	FINESAND	WATER		1	19.89000			19.89	19.89	79/05/04	79/05/04
80253 SEDIMENT	PARTSIZE	MED SAND	WATER		1	15.14000			15.14	15.14	79/05/04	79/05/04
80254 SEDIMENT	PARTSIZE	CRS SAND	WATER		1	5.280000			5.28	5.28	79/05/04	79/05/04
80255 SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	.0000000			.00	.00	79/05/04	79/05/04
80256 SEDIMENT	PARTSIZE	GRAVEL	WATER		1	.5000000			.50	.50	79/05/04	79/05/04

1STORET RETRIEVAL DATE 91/12/15
EUSTIS RADIUS 5 MI

PGM=INVENT PAGE: 7

XSH6681
36 56 37.4 076 08 02.8 4
BRDG TUN VCB1719
51990 VIRGINIA
NORTH ATLANTIC 021600
JAMES RIVER
CHESBAY 791006 HQ 02080101
0026 FEET DEPTH

/TYPA/AMBNT/ESTURY

PARAMETER			MEDIUM	RMK	NUMBER	MEAN	VARIANCE	STAN DEV	MAXIMUM	MINIMUM	BEG DATE	END DATE
74036 GRANT	PROJECT	NUMBER	WATER		1	806000.0			806001	806001	79/05/04	79/05/04
80250 SEDIMENT	PARTSIZE	SILTCLAY	WATER		1	4.400000			4.40	4.40	79/05/04	79/05/04
80251 SEDIMENT	PARTSIZE	VFNESAND	WATER		1	.0800000			.08	.08	79/05/04	79/05/04
80252 SEDIMENT	PARTSIZE	FINESAND	WATER		1	36.96000			36.96	36.96	79/05/04	79/05/04
80253 SEDIMENT	PARTSIZE	MED SAND	WATER		1	41.28000			41.28	41.28	79/05/04	79/05/04
80254 SEDIMENT	PARTSIZE	CRS SAND	WATER		1	4.670000			4.67	4.67	79/05/04	79/05/04
80255 SEDIMENT	PARTSIZE	VCRSSAND	WATER		1	.3500000			.35	.35	79/05/04	79/05/04
80256 SEDIMENT	PARTSIZE	GRAVEL	WATER		1	.9500000			.95	.95	79/05/04	79/05/04

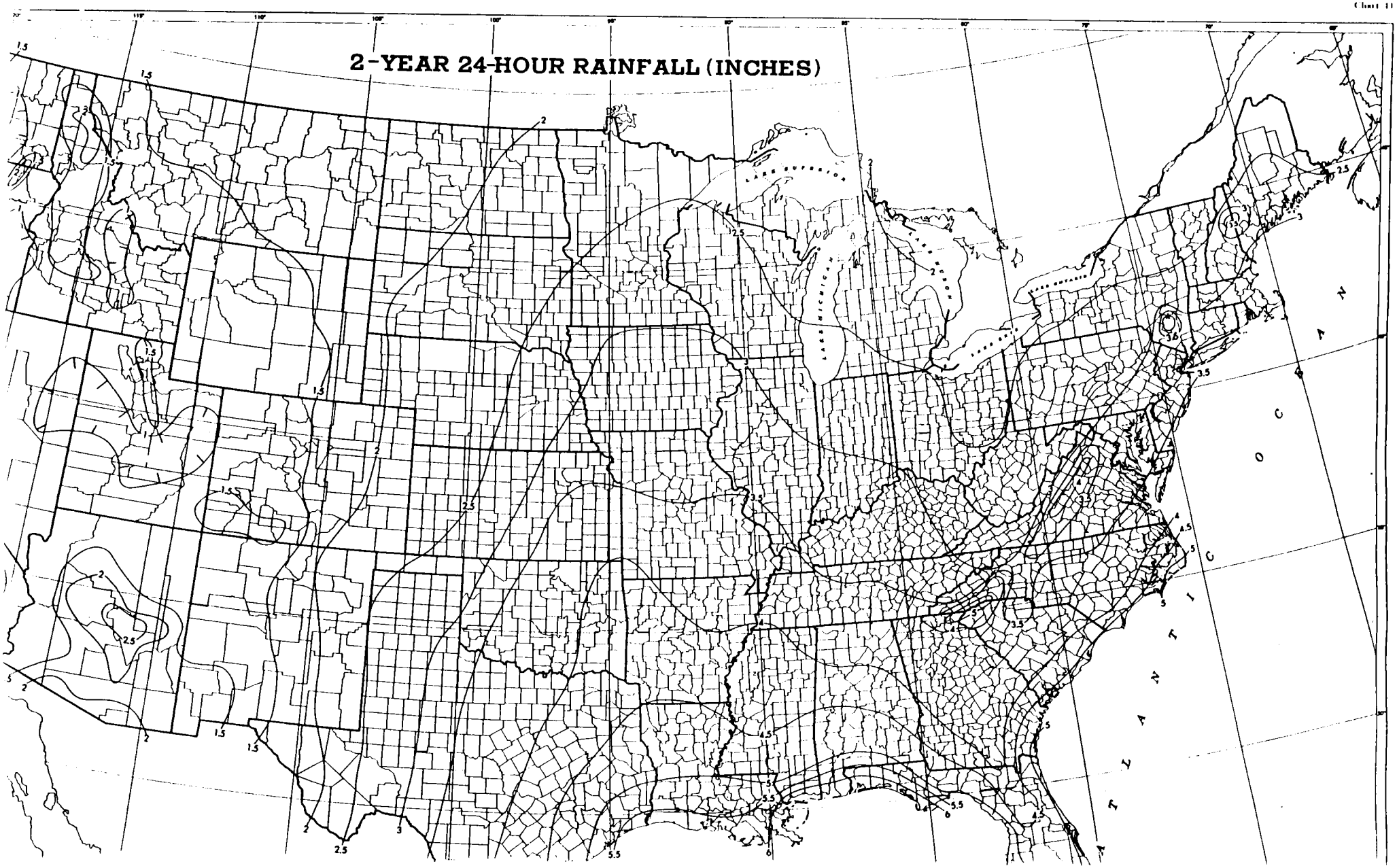
STORET RETRIEVAL DATE 91/12/15
EUSTIS RADIUS 5 MI

PGM=INVENT PAGE: 8

XSH6667

REFERENCE 11

2-YEAR 24-HOUR RAINFALL (INCHES)



REFERENCE 12

4R
4/Q1
4/Q2

WILLIAM A. PRUITT
Commissioner
ROBERT D. CRAFT
Chief, Administration and Finance
ROBERT W. GRABB
Chief, Habitat Management
ROBERT J. MARKLAND
Chief, Law Enforcement
JACK G. TRAVELSTEAD
Chief, Fisheries Management

COMMONWEALTH of VIRGINIA

Marine Resources Commission

P. O. Box 756
2600 Washington Avenue
Newport News, Virginia 23607-0756

ASSOCIATE MEMBERS
GEORGE S. FORREST
Poquoson, Virginia
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PETER W. ROWE
Chesapeake, Virginia
JANE C. WEBB
Newport News, Virginia

July 11, 1990

Mr. Joshua Kaplan
Associate Project Engineer
Roy F. Weston Inc.
1280 King Rd.
West Chester, PA 19380

Dollar awarded to fisherman

Dear Mr. Kaplan,

Here is the information you requested on July 3, 1990. I have included three items: a map to show how the water areas are divided, one table for shellfish landings, and one table for finfish landings. I have included the last ten years of pounds and values for the water areas requested. If you need additional information, please contact me at (804) 247-2240.

You also requested information about acreage of these water areas. This is a problem because the Engineering Department does not have the same division of water areas. For example: Plans and Statistics has four water area codes for the James River (322,323,324,325), the acreage information is only available as the entire James River. If you still want the information on acreage, please contact Mr. Mac Rogers at (804) 247-2225. I will warn you, there may be a time delay because that department is very busy this time of year.

Sincerely,

Sonya Knur

Sonya Knur
Fisheries Management Technician

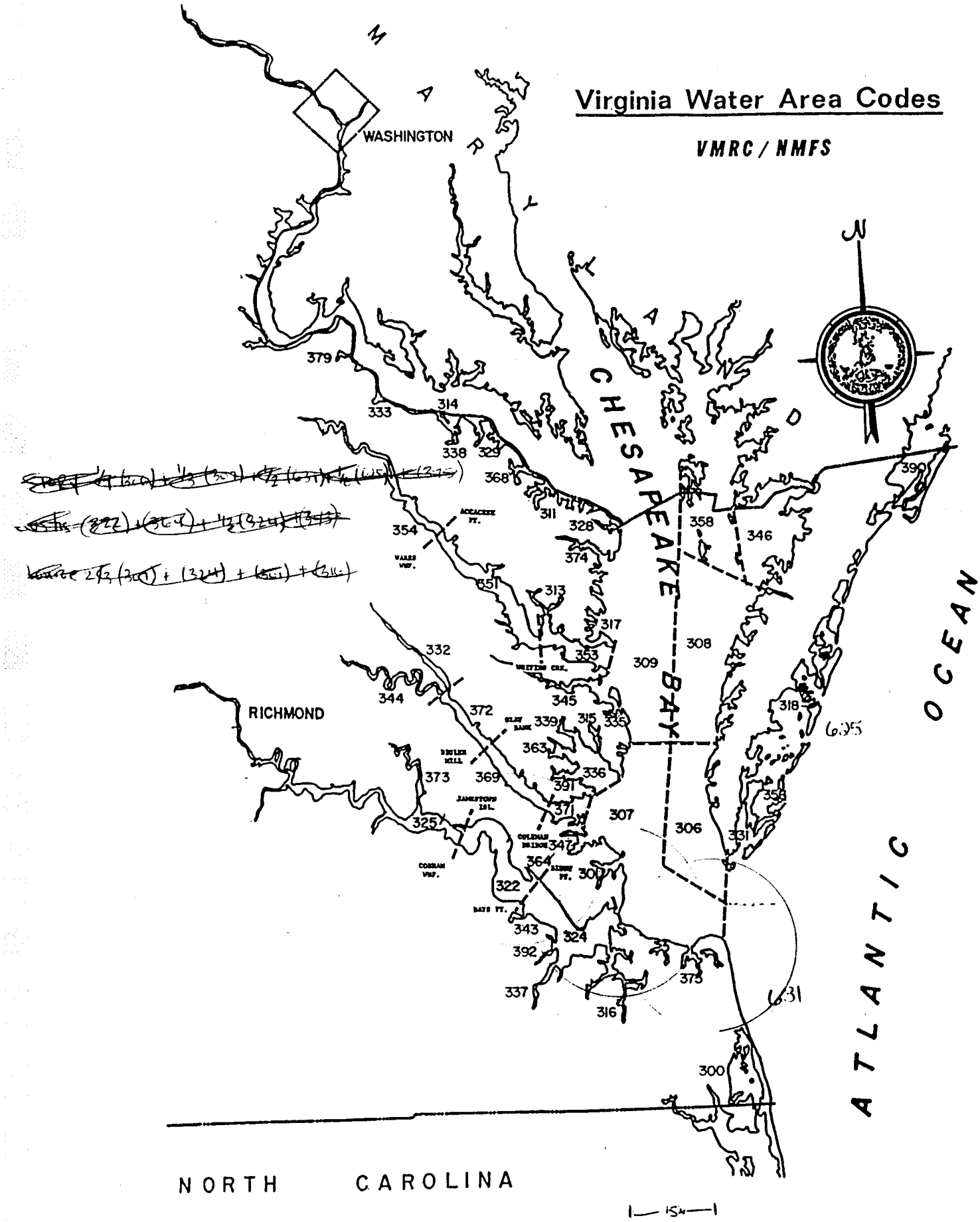

Virginia Water Area Codes
VMRC / NMFS
WASHINGTON
MARYLAND
CHESAPEAKE BAY
ATLANTIC OCEAN
RICHMOND
NORTH CAROLINA
379
333
314
338
329
368
311
328
374
354
651
313
317
353
332
344
372
345
339
315
336
363
373
369
391
371
325
347
364
322
343
324
392
337
316
307
306
309
308
358
346
390
318
635
331
631
300
15N

Table ?. Historical finfish landings (in pounds only) by water area for Virginia, 1980-1989. Value is presented in parentheses.
ALL LANDINGS DATA IS PRELIMINARY

Year	301	306	307	322	324	325	354	364	379	625	631
1980	30,132	1,345,793	6,450,663	166,201	127,071	501,882	1,307,215	0	0	3,018,111	2,963,554
	(23,685)	(338,098)	(1,260,959)	(45,048)	(50,696)	(120,798)	(328,299)	(0)	(0)	(1,094,848)	(972,539)
1981	45,273	1,080,714	2,849,584	23,806	38,729	404,493	476,443	230	0	1,113,302	1,036,751
	(15,500)	(322,609)	(519,529)	(6,702)	(16,378)	(104,584)	(205,343)	(85)	(0)	(390,389)	(401,091)
1982	389,825	413,659	3,791,540	69,434	39,002	259,299	484,333	0	0	901,044	1,527,002
	(49,558)	(173,614)	(784,530)	(28,827)	(16,915)	(62,418)	(152,416)	(0)	(0)	(404,771)	(554,843)
1983	3,220	834,885	2,385,899	89,859	92,019	310,497	560,118	0	0	1,934,988	2,735,009
	(1,490)	(237,937)	(563,879)	(37,153)	(41,637)	(80,567)	(177,131)	(0)	(0)	(871,511)	(1,176,927)
1984	13,058	354,965	2,872,578	174,893	83,721	142,556	259,439	0	0	1,473,908	5,541,758
	(3,003)	(181,024)	(813,959)	(65,294)	(39,782)	(36,691)	(107,890)	(0)	(0)	(678,730)	(2,512,558)
1985	72,157	405,171	2,951,133	1,200	29,449	77,416	322,499	0	0	1,524,452	2,826,847
	(23,884)	(198,843)	(784,462)	(480)	(13,415)	(20,482)	(269,466)	(0)	(0)	(838,704)	(1,852,369)
1986	36,658	702,019	3,354,528	0	1,784	149,273	280,317	0	0	784,816	2,861,576
	(11,798)	(351,941)	(926,501)	(0)	(695)	(39,220)	(154,497)	(0)	(0)	(274,142)	(1,748,910)
1987	43,676	711,162	4,119,633	3,948	9,350	211,458	348,655	0	0	1,425,019	3,430,053
	(15,190)	(347,874)	(1,156,685)	(1,888)	(7,242)	(55,580)	(207,920)	(0)	(0)	(830,587)	(1,952,612)
1988	122,061	861,157	4,111,260	95,881	267,785	295,649	407,195	0	0	2,640,230	2,778,069
	(43,196)	(353,495)	(1,210,112)	(159,731)	(150,489)	(179,192)	(248,038)	(0)	(0)	(1,289,901)	(1,871,654)
1989	46,109	956,698	7,921,557	124,572	366,204	123,954	487,128	0	0	913,251	1,270,097
	(26,442)	(490,150)	(1,430,682)	(107,195)	(221,474)	(33,713)	(204,939)	(0)	(0)	(478,259)	(1,271,608)

Source: VMRC.

301 BACK RIVER
306 CHESAPEAKE BAY (LOWER-EAST)
307 CHESAPEAKE BAY (LOWER-WEST)
322 JAMES RIVER (CENTRAL)
324 JAMES RIVER (LOWER)
325 JAMES RIVER (UPPER)
354 RAPPAHANNOCK (UPPER)
364 WARWICK RIVER
379 UPPER MACHODOC CREEK
625 OCEAN (VA EASTERN SHORE)
631 OCEAN (VA TO NC LINE)

Table ?. Historical shellfish landings (in pounds only) by water area for Virginia, 1980-1989. Value is presented in parentheses.
ALL LANDINGS DATA IS PRELIMINARY

Year	301	306	307	322	324	325	354	364	379	625	631
1980	499,029	2,175,621	15,050,817	26,812	1,226,487	96,197	46,509	0	0	2,103,123	1,013,072
	(337,365)	(445,004)	(3,025,822)	(23,282)	(1,355,790)	(48,598)	(44,684)	(0)	(0)	(968,307)	(224,906)
1981	829,420	2,684,780	15,394,242	142,560	2,850,109	30,521	49,408	0	0	2,974,262	2,123,749
	(244,693)	(723,480)	(3,448,770)	(124,778)	(1,631,619)	(11,794)	(83,526)	(0)	(0)	(1,515,823)	(943,749)
1982	975,897	1,669,359	19,041,966	1,114,698	1,919,825	93,449	96,671	0	251	852,310	3,894,608
	(267,890)	(389,403)	(3,998,166)	(363,285)	(1,154,268)	(40,374)	(101,817)	(0)	(465)	(423,836)	(2,283,832)
1983	479,566	2,420,454	15,919,601	1,269,928	2,943,357	59,963	63,520	0	5,062	2,278,569	3,260,660
	(246,920)	(794,120)	(3,962,690)	(486,797)	(1,438,400)	(24,943)	(36,426)	(0)	(7,567)	(885,060)	(1,491,006)
1984	701,007	3,099,987	18,086,876	1,442,252	1,709,494	127,218	67,940	627	0	4,642,503	3,767,806
	(265,264)	(742,722)	(4,148,935)	(780,371)	(1,093,987)	(60,532)	(45,681)	(1,520)	(0)	(2,329,818)	(1,897,395)
1985	1,291,979	1,594,189	14,973,287	483,187	1,545,381	78,092	24,200	860	0	9,375,379	1,937,566
	(343,059)	(412,728)	(3,603,182)	(284,047)	(1,324,704)	(39,614)	(12,792)	(1,880)	(0)	(5,084,866)	(991,613)
1986	737,948	2,099,448	18,858,576	2,560,197	1,128,180	71,016	236,417	0	0	3,944,546	1,018,916
	(207,205)	(737,912)	(4,766,913)	(2,903,250)	(2,177,448)	(36,525)	(658,003)	(0)	(0)	(2,256,206)	(584,725)
1987	698,165	3,331,454	11,052,036	2,941,717	1,582,069	58	30,804	0	0	1,456,725	953,883
	(272,111)	(1,428,579)	(3,564,331)	(4,500,261)	(4,078,344)	(190)	(100,123)	(0)	(0)	(594,376)	(407,459)
1988	1,322,373	3,494,574	9,677,050	2,087,233	2,034,938	1,240	99,583	0	0	1,044,213	1,433,630
	(469,110)	(1,221,400)	(3,071,272)	(4,150,884)	(3,526,415)	(6,025)	(91,410)	(0)	(0)	(414,662)	(511,582)
1989	1,523,452	5,514,356	15,330,333	1,044,760	2,069,413	0	213,478	1,101	0	1,407,406	1,068,189
	(639,706)	(1,806,982)	(4,665,598)	(1,928,744)	(3,102,763)	(0)	(86,465)	(2,100)	(0)	(573,350)	(417,211)

Source: VMRC.

301 BACK RIVER
306 CHESAPEAKE BAY (LOWER-EAST)
307 CHESAPEAKE BAY (LOWER-WEST)
322 JAMES RIVER (CENTRAL)
324 JAMES RIVER (LOWER)
325 JAMES RIVER (UPPER)
354 RAPPAHANNOCK (UPPER)
364 WARWICK RIVER
379 UPPER MACHODOC CREEK
625 OCEAN (VA EASTERN SHORE)
631 OCEAN (VA TO NC LINE)

WESTON
MANAGERS DESIGNERS/CONSULTANTS

SHEET ____ of ____

CLIENT/SUBJECT _____ W.O. NO. _____

TASK DESCRIPTION _____ TASK NO. _____

PREPARED BY _____ DEPT _____ DATE _____

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY _____ DEPT _____ DATE _____

Ft Story — lbs

streams & rivers
$\frac{1}{2}(375)$ — 500,000

Ponds, lakes bays & oceans
$1/4(306) + 1/3(307) + 1/2(631) + 1/8(625) + \frac{1}{2}(375)$
1,617,763 + 7,750,622 + 1,169,143 + 290,052 + 1,000,000 = 11,327,610

Ft Custer

streams & rivers
$(322) + 1/3(324) + (364)$
1,169,332 + 811,827 + 1,101 — 1,982,260

Ponds, lakes, bays & oceans — 0

Ft Monroe

streams & rivers
$(324) + (301)$
2,435,481 + 1,569,561 — 4,005,042

Ponds, lakes, bays, & oceans

$1/3(307) + 1/8(306) + 1/2(375) + (316) + 1/2(337)$
7,750,622 + 908,881 + 500,000 + 1,000,000 + 500,000 — 10,559,503

NOTE: NO INFO ON 375, 316, 337
ESTIMATE 1,000,000 each

RFW 10-05-003/A-5/85
512-5643

Tony Houston
Monroe Dennis
Eustis Kaplan
Fort Lee Maker

WESTON SM
MANAGERS DESIGNERS/CONSULTANTS

SHEET 1 of ____

CLIENT/SUBJECT USATHAMA- VA Docket Sites W.O. NO. 2281-09-02
TASK DESCRIPTION Checklist Information Gathering TASK NO. ____
PREPARED BY J.K. DEPT ____ DATE ____
MATH CHECK BY ____ DEPT ____ DATE ____
METHOD REV. BY ____ DEPT ____ DATE ____

APPROVED BY ____
DEPT ____ DATE ____

Department	Information
✓ 1) Water Supply Engineering Bureau. State Health Department (Offices of Water Program) Contact Regional Offices.	Surface Water / Groundwater Usage Well Locations
Action: See Attached Map and call your region	
✓ Jan 2) Virginia Fish and Game Commission Department of Game and Inland Fisheries	Endangered Fish and Animal Species
Action: J. Kaplan will send letter to include all VA sites.	
✓ Jan 3) Virginia Department of Agriculture Office of Plant Protection	Endangered Flora
Action: Show location of your site(s) on VA county map being passed around, J. Kaplan will send cover letter for information	

RFW 10-05-003/A-5/85

WESTON SM
MANAGERS DESIGNERS/CONSULTANTS

SHEET 2 of ____

CLIENT/SUBJECT USATHAMA - VA Docket Sites W.O. NO. 2281-09-02-1600

TASK DESCRIPTION ____ TASK NO. ____

PREPARED BY J.K. DEPT ____ DATE ____

MATH CHECK BY ____ DEPT ____ DATE ____

METHOD REV. BY ____ DEPT ____ DATE ____

APPROVED BY ____ DEPT ____ DATE ____

Department	Information
✓ 4) VA Air Pollution Control Dept. (Jeff has this)	Permits/Emission Inventory List
Action: See J. Kaplan quantitative emission info. for your site.	
(Jeff's unit) 5) Virginia Marine Resource Commission	Shell Fish Bed Locations./ Tidal Wetlands Inventory.
Action: Need to send VA County Map showing 15-mile radius of concern. Maps will be pulled at $5.00 per map. or can visit Commission Office for Free.	
(wait) 6) Virginia Army Corp of Eng. District Office - Norfolk, VA	Non-tidal Wetlands.
Action: To be determined.	
(ok wait) 7) U.S. National Fish and Wildlife Service.	Non-tidal / Tidal Wetlands.
Action: Will receive order form for 7.5 quadrangle type maps.	

RFW 10-05-003/A-5/85

WESTON SM
MANAGERS DESIGNERS/CONSULTANTS

SHEET ____ of ____

CLIENT/SUBJECT _____ W.O. NO. _____

TASK DESCRIPTION _____ TASK NO. _____

PREPARED BY _____ DEPT _____ DATE _____

MATH CHECK BY _____ DEPT _____ DATE _____

METHOD REV. BY _____ DEPT _____ DATE _____

APPROVED BY _____

DEPT _____ DATE _____

Department	Information
8) USGS	Hydrogeology information Statewide (observation groundwater wells only)/ River/Stream Flow Data.

Action: See J. Kaplan for USGS report.

RFW 10-05-003/A-5/85

Mary

N - Newtown Road
Cross N Hampton Blvd
brown brick 2nd floor
Cross ### 2nd Left Thurston

February 22, 1990

VIRGINIA State Health Department

OFFICE OF WATER PROGRAMS

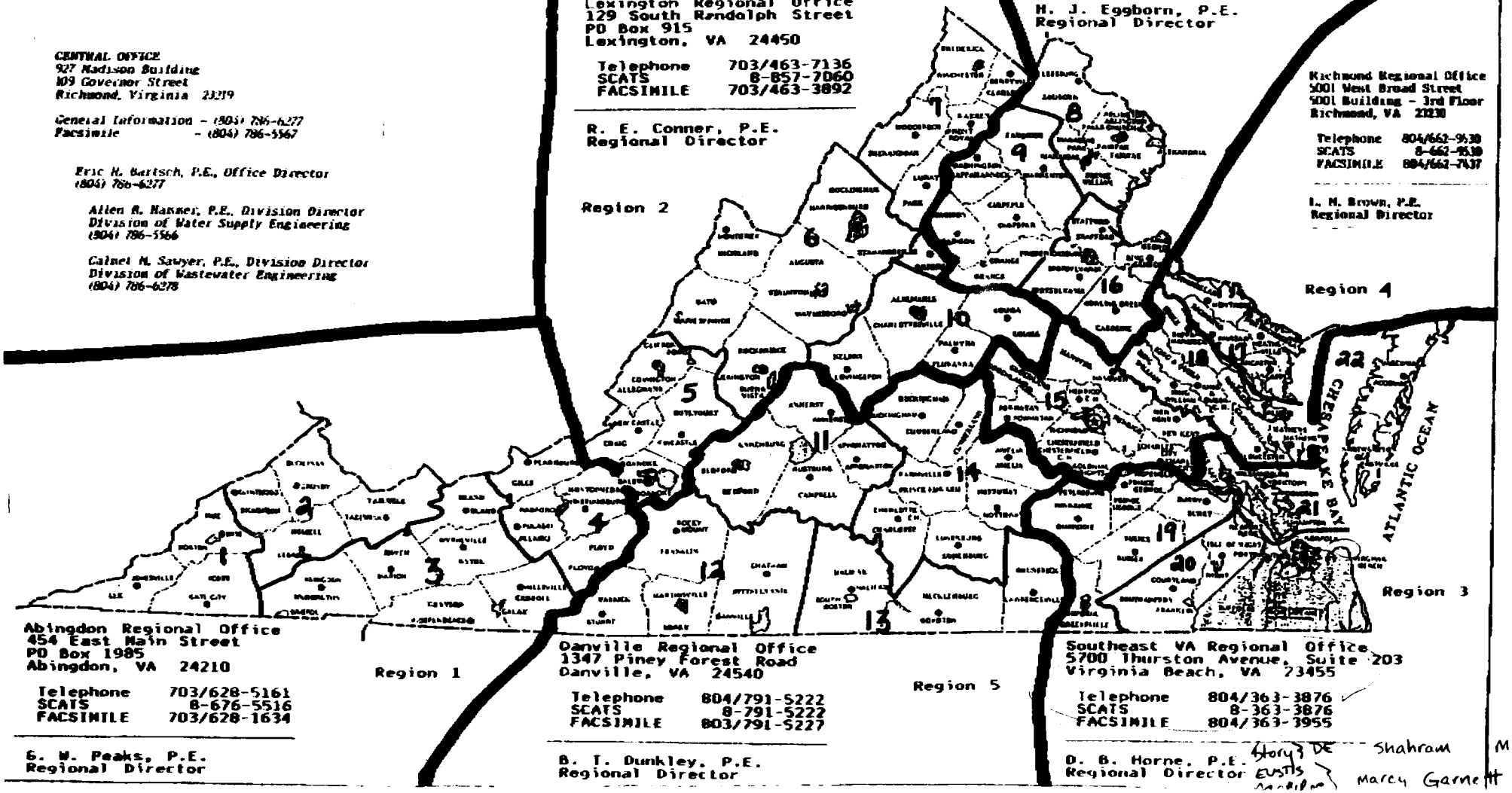
CENTRAL OFFICE
927 Madison Building
109 Governor Street
Richmond, Virginia 23219

General Information - (804) 786-6277
Facsimile - (804) 786-5567

Eric H. Bartsch, P.E., Office Director
(804) 786-6277

Allen R. Hanner, P.E., Division Director
Division of Water Supply Engineering
(804) 786-5566

Calnet M. Sawyer, P.E., Division Director
Division of Wastewater Engineering
(804) 786-6278



Culpeper Regional Office
102 North Main Street
3rd Floor
Culpeper, VA 22701

Telephone 703/825-6772
SCATS 8-899-4906
FACSIMILE 703/825-8510

H. J. Eggborn, P.E.
Regional Director

Region 6

Lexington Regional Office
129 South Randolph Street
PO Box 915
Lexington, VA 24450

Telephone 703/463-7136
SCATS 8-857-7060
FACSIMILE 703/463-3892

R. E. Conner, P.E.
Regional Director

Region 2

Richmond Regional Office
5001 West Broad Street
5001 Building - 3rd Floor
Richmond, VA 23230

Telephone 804/662-9630
SCATS 8-662-9630
FACSIMILE 804/662-7637

L. M. Brown, P.E.
Regional Director

Region 4

Abingdon Regional Office
454 East Main Street
PO Box 1985
Abingdon, VA 24210

Telephone 703/628-5161
SCATS 8-676-5516
FACSIMILE 703/628-1634

G. W. Peaks, P.E.
Regional Director

Region 1

Danville Regional Office
1347 Piney Forest Road
Danville, VA 24540

Telephone 804/791-5222
SCATS 8-791-5222
FACSIMILE 803/791-5227

B. T. Dunkley, P.E.
Regional Director

Region 5

Southeast VA Regional Office
5700 Thurston Avenue, Suite 203
Virginia Beach, VA 23455

Telephone 804/363-3876
SCATS 8-363-3876
FACSIMILE 804/363-3955

D. B. Horne, P.E.
Regional Director

Region 3

Story DE
EUSTIS
Marilyn

Shahram Mohseni
Marcy Garnett

16-08-90 FRI 16:31 P.02

ref's 14, 15

COMMONWEALTH of VIRGINIA

Department of Game and Inland Fisheries

4010 WEST BROAD STREET
BOX 11104
RICHMOND, VA 23230
1-800-252-7717 (V/TDD)
(804) 367-1000 (V/TDD)

June 21, 1990

Joshua Kaplan
WESTON, Inc.
Weston Way
West Chester, PA 19380

Dear Mr. Kaplan:

I am writing in response to your request for information about the endangered and threatened animals which may be associated with (or present within a 15 mile radius of) eleven U.S. Army sites in Virginia. Enclosed are annotated lists of the endangered, threatened, proposed, and candidate (ETPC) animals that may be associated with each site.

These lists were generated from our Fish and Wildlife Information System and describe animals that may reside (summer or winter) in the geographical area (within county/city or quadrangle). Field surveys would be necessary to verify the presence or absence of any of these species on or near the site. Also, additional animals may be present on or near the site, but their presence has not been documented in our database.

In addition to endangered species information, we reviewed additional resources (trout/anadromous fish waters, great blue heron or great egret nesting colonies, Virginia Wildlife Management Areas or Public Fishing Lakes, USFWS Wildlife Refuges, State Scenic Rivers, and National Estuarine Research Reserve sites) present within the 15 mile radius around each site. Comments regarding these additional resources are listed below the endangered species comments on each sheet.

As I noted in my June 5 letter, endangered plants and insects are under the jurisdiction of the Virginia Department of Agriculture and Consumer Services. Questions concerning ETPC plants and insects which may be associated with these sites should be directed to Marshall Trammell, Bureau of Plant Protection and Pesticide Regulation, VDACS, Washington Building, 1100 Bank Street, Richmond, VA 23219, (804) 786-3516.

Also, please note that you are required to obtain an endangered species collection permit from VDGIF before surveying for endangered species (see enclosed Fact Sheet for details).

There is a charge of $164.00 for responding to this request. Please remit a check within 30 days for these services. Make the check payable to TREASURER OF VIRGINIA and mail it to Rebecca K. Wajda, FWIS Coordinator at the VDGIF address given above. Also include a copy of this letter with your payment to ensure that your account is properly credited.

If you need any other assistance, you can contact me at (804) 367-0909 or our Environmental Program Planner, Bill Neal, at (804) 367-8998. We appreciate your interest in the fish and wildlife resources of Virginia.

Sincerely,

Chuck Rosenburg

Chuck Rosenburg
FWIS Research Associate

cc: Bill Neal, Environmental Program Planner
Sam Putt, Internal Auditor
Rebecca Wajda, FWIS Coordinator
Karen Terwilliger, Research Biologist Supervisor
Dana Bradshaw, Nongame/Endangered Species Biologist

WESTON SM
MANAGERS DESIGNERS/CONSULTANTS

SHEET 1 of 1

CLIENT/SUBJECT USATHAMA - Docket Site Information W.O. NO. 2281-09-02

TASK DESCRIPTION Virginia TASK NO.

PREPARED BY J.K. DEPT DATE 7/12/90

MATH CHECK BY DEPT DATE

METHOD REV. BY DEPT DATE

APPROVED BY

DEPT DATE

Please use the following documentation for your Docket Site Reports as well as your records:

REQUIREMENT	SOURCE
1) Sensitive Environments, Economically Important Resources - Commercial (VII. Surface Water Pathways)	Clam, Shellfish Oyster Bed Info. From VA. Marine Resource Comm. (VAMRC)
2) Fisheries within 15 miles (VIII. Additional Surface Water Factors) Md. tributaries only →	Commercial Fin Fish Landing Data For Upper Stem of Potomac River (From Anacostia R. to D.C. to begin. of "C" Section on Potomac)
3) Quantitative and Qual. Evidence of Air Release. (IX. Additional Air Pathway Factors)	Virginia Air Pollution Control Dept.
4) Federally Endangered Species* (VII. Surface Water Pathway)	VA. Dept. of Game and Inland Fisheries

* This info. was distributed to you around June 22, 1990.

5) Other Items on order which will be distributed as soon as rec'd.:

a) Commercial Fish Landing Inform. for Fort A.P. Hill, Fort Lee, Fort Eustis, Fort Monroe, Fort Story (From VAMRC)

b) Commercial Fish Landing Inform. for Potomac R. above Washington D.C. Virginia Trib. only. (From Potomac River Fisheries Comm.)

c) Flora and insect endangered species for all VA Docket sites (From VA. Dept. of Agriculture)

WESTON

SHEET 1 of 2

CLIENT/SUBJECT USATHAMA- Docket Sites W.O. NO. 2281-09-02-1600

TASK DESCRIPTION Virginia Marine Resource Commission TASK NO.

PREPARED BY J. Kaplan DEPT DATE

MATH CHECK BY DEPT DATE

METHOD REV. BY DEPT DATE

APPROVED BY

DEPT DATE

Interview with Gerald W. Showalter:
Assistance Chief Engineer

Mr. Bridger - Draftsman
also present.

Clam, Oyster Bed, Shellfish Bed, Information.

Fort Eustic

1) 15 mile downstream - heavily utilized for clams, oysters and crab.
One of the most highly utilized areas in the world.
2 miles upstream - no more shellfish beds.

Use to be for home - commercial consumption

2) Commercial and Sport Fin Fishing
15 mile downstream, greater than 2 miles upstream.

> 50 % public catch - est.

Fort Monroe

1) Not many oyster beds but many clams 15 miles and greater.
Clams up James River also within 5 mile limit.

2) More oysters at Mill Creek and East River area,
but this is primarily a clamming area

Commercial
Sport

3) Commercial and sport Fin Fishing at mouth of James River (Hampton Roads)
and out into Bay - 15 miles major Fishing Grounds.

WESTON SM
MANAGERS DESIGNERS/CONSULTANTS

SHEET 2 of 2

CLIENT/SUBJECT USATHAMA - Locate Sites W.O. NO.
TASK DESCRIPTION Virginia Marine Resource Comm TASK NO.
PREPARED BY J. Kaplan DEPT DATE
MATH CHECK BY DEPT DATE
METHOD REV. BY DEPT DATE

APPROVED BY
DEPT DATE

Fort Monroe

4) Blue, Flounder, Spot, Croaker, Trout, Striped Bass - Main Fish Catch
Sea Bass

Fort Story

1) Clamming - no oyster ground ~~nearby~~
Oyster Bed in Lynnaven River System - 15 mile distance
upper limit via waterway. Shorter distance via surface water runoff
routes.

2) Fin Fish - 15 miles into ocean
Tuna, Mackerel - major categories

For Lee

1) Some Fin Fishing on upper James River.

All Potomic Sites

1) Some Fin F[illegible]

2) No clams or oysters up this far (From King George and
Westmoreland Counties down south you have clams and oysters)

A.P. Hill

1) Fin Fish may be affected on Rappahannock R. - much less magnitude
than Jones River Area - Bass, Cat Fish Trout, Perch, Striped Bass

10L

Maryland Department of Natural Resources

Tidewater Administration
Tawes State Office Building
580 Taylor Avenue
Annapolis, Maryland 21401

William Donald Schaefer
Governor

Torrey C. Brown, M.D.
Secretary

DATE: 7/3/90

FROM: Connie Lewis

TO WHOM IT MAY CONCERN:

Upon receiving this document, please contact:

Name: Josh Caplan

Organization:

Phone: 344-3771

Total Pages: (2) including cover sheet

THANK YOU

FAX NUMBER:
(301) 263-6808

1988

Potomac Main Stem

Species Caught:	Pounds:
Catfish	4,660
Blue Crab	5,920

Potomac Tributaries

Species Caught:
- Carp
- Catfish
- Eel
- River Herring
- Shad
- White Perch

Total Pounds : 88,520

1989

Pototmac Tributaries

Species Caught:
- Carp
- Catfish
- Crappie
- Eel
- Large Mouth Bass
- White Perch
- Yellow Perch

Total Pounds : 71,030

NOTE* The Potomac River Main Stem Data is not yet available from this office.

WESTON

J. Kaylor
Originator

PHONE CONVERSATION RECORD

Conversation with:
Name Harry Collier
Company VA Air Pollution Control Dept.
Address
Phone 1-804-786-1570

Date 6 / 6 / 90
Time 1000 AM/PM

☐ Originator Placed Call
☐ Originator Received Call
W.O. NO. 2261-09-02

Subject Emmission Inventory List

Notes:

1988 - Most of Army Bases are Grandfather Clause - and most are in compliance.
Presently developing a operating permit to charge for amt. of emission.
New Permit application process being developed - similar to N.J.
Special permiting needed for VOCs.
Federal Factors Used to Calculate ~~for~~ Source Emissions - Rare to have actual Stack testing done.
Most of the Following, do not have oper. permit presently.
Regional Directors will if they have permits for entire source if they are new or added equipment. which would increase emission.

Fort Eustis - 1988 Data - SO_2 - 288 Ton/yr. Suspend Part - 9 CO - 6 VOCs - Ø NOx 27
Reg. 6 - 60333 Reg. # (Fuel Burning) - Incinerator shut down (solid waste)

Camelon Station - SO_2 - 30 S.P. - 0 2 1 12
Reg 7 - 71715 - Reg # Fuel Burning Solid Waste Fuel Burning

Fort AP Hill - SO_2 - 6 S.P. - 0 CO - 1 VOC - 3 NOx - 4
Reg 4 - 40306 - Reg # All From Fuel Burning Evap. Loss from fuel tanks

☐ **File**
☐ **Tickle File** / /
☐ **Follow-Up By:**
☐ **Copy/Route To:**

Follow-Up-Action:

Originator's Initials

RFW 110-4-83

WESTON

J Kogla
Originator

PHONE CONVERSATION RECORD

Conversation with:

Name Harry Collier

Company VA Air Pollution Control Dept

Address

Phone

Subject

Date 6 / 6 / 90

Time AM/PM

☑ Originator Placed Call

☑ Originator Received Call

W.O. NO. 2281-09-02

Notes:

Fort Belvoir - SO_2 - 223 Sus. Part. - 18 CO - 11 VOC - 10 NO_x - 91
Region - 7 Reg # 70550 Ful Burning Solid Waste Disp. Evap. from Fuel Handlin

Fort Lee - SO_2 - 7 Sus. Part. - 1 CO. - 8 VOC - 2 NO_x - 41
Region - 5 All Fuel Burning
Reg. # 50564

Fort Meyer SO_2 - 124 Sus. Part - 10 CO - 4 VOC - 20 NO_x - 42
Reg - 7 All From Fuel Burning From Gas Evap
Reg # - 71714

Fort Monroe SO_2 - 9 Sus. P - 0 CO - 2 VOC - 2 NO_x - 9
Reg - C All Fuel Burning Gas. Evap
Reg # - 60336

☐ **File**

☐ **Tickle File** / /

☐ **Follow-Up By:**

☐ **Copy/Route To:**

Follow-Up-Action:

Originator's Initials

RFW 110-4-83

WESTON

J. Kyd
Originator

PHONE CONVERSATION RECORD

Conversation with:

Name Harry Collier

Company

Address

Phone

Subject

Date 6 / 6 / 90

Time 1000 AM/PM

☐ Originator Placed Call

☐ Originator Received Call

W.O. NO. 2281-99-02

Notes:

→ VA Beach

Fort Story SO_2 - 2 Sus. Part. - 0 CO_2 - 0 VOC - 0 NO_x - 0

Reg. 6 Fuel Burning

60330 - Reg # Almost closed down

Warrenton Trg. Center SO_2 - 0 All - 0's.

Reg. 4

40384 - Reg #

Woodbridge Res. Fac. - Not Reg as a source

Reg 7 - Call to double check.

Vint Hill Farms Station - All 0's

Reg 4 -

Reg # 40246

☐ **File**

☐ **Tickle File** / /

☐ **Follow-Up By:**

☐ **Copy/Route To:**

Follow-Up-Action:

Originator's Initials

RFW 110-4-83

ref (17)

Potential endangered/threatened/proposed/candidate animals: Fort Story.

COM.NAME	SCIENTIFIC NAME	T.STATUS
Terrapin, northern diamon	Malaclemys terrapin	Federal Candidate

WE HAVE NO SITE RECORDS FOR THIS SPECIES, BUT IT IS LIKELY TO OCCUR ON AND ADJACENT TO SITE AREAS OF APPROPRIATE HABITAT.

Turtle, Atlantic green se	Chelonia mydas	Federal Threatened
Turtle, Kemp's Ridley sea	Lepidochelys kempi	Federal Endangered
Turtle, hawksbill sea	Eretmochelys imbricata	Federal Endangered
Turtle, leatherback sea	Dermochelys coriacea	Federal Endangered
Turtle, loggerhead sea	Caretta caretta	Federal Threatened

ALL FIVE SEA TURTLES ARE KNOWN TO OCCASIONALLY FORAGE IN CHESAPEAKE BAY AND/OR ATLANTIC OCE WATERS DURING SUMMER MONTHS. NO KNOWN NESTING IN THIS AREA, BUT KNOWN TO NEST ALONG ATLANT COAST BEACHES JUST SOUTH OF THE SITE.

Turtle, eastern chicken	Deirochelys reticularia	State Endangered

THE ONLY KNOWN SITE IN VIRGINIA IS LOCATED WITHIN SEASHORE STATE PARK ALONG SOUTHERN BOUNDA OF SITE.

Mouse, white-footed	Peromyscus leucopus	Federal Candidate

KNOWN TO OCCUR WITHIN FORT STORY AND SOUTH ALONG THE ATLANTIC OCEAN SHORELINE TO THE NORTH CAROLINA STATE LINE.

OTHER CONCERNS:

1. THE NORTH LANDING RIVER AND ITS TRIBUTARIES IS A STATE SCENIC RIVER.

REFERENCE 13

this concentration level (100 mg/kg) was adopted for this evaluation as a regulatory-based trigger level for TFH in soil.

PolyChlorinated Biphenyls (PCBs)

The EPA regulates PCBs under the Toxic Substance Control Act (TSCA). No regulatory requirements exist for PCB cleanup with the exception of the requirement for timely action to cleanup. However, EPA has published a nationwide Toxic Substance Control Act (TSCA) PCB spill cleanup policy (40 CFR Part 61, Subpart G) (EPA, 1987).

Since the sites at Fort Story can be considered nonrestricted access areas, the relevant section of the policy will serve as the basis for the trigger level for PCBs. The cleanup level is set as 10 mg/kg and has been adopted as the appropriate trigger level.

DDT and Chlordane

JMM was able to determine through contacts with Commonwealth of Virginia employees (Personal Communication, Young, Chase, 1991) that the levels of DDT, DDD, DDE and chlordane present at the sampling sites at Fort Story were not unusual, given the extensive past use of DDT and chlordane at the Installation, as well as in the Commonwealth of Virginia. Both contacts considered the detected values to be within the expected range for.concentrations of DDT and its metabolites, as well as chlordane within the soils in the area of the project sites. Subsequently, no trigger level has been set for DDT and its metabolites, along with chlordane, as all detected concentrations are considered to be within expected background ranges.

Background Borings. Background borings were drilled and sampled during the project to determine the background levels of analytes in pristine areas of Fort Story. Figure 2-2 shows the

location of background borings sampled for the Fort Story investigation. These include borings SB-134, SB-135 and SB-136. Soil boring SB-134 was located near the eastern perimeter of Fort Story and is representative of conditions in the sand flat area. Soil boring SB-135 was located adjacent to the western boundary of Fort Story and is representative of conditions in the central sand ridge area. Located in the north-central perimeter of Fort Story, SB-136 is representative of conditions in the coastal dune complex.

Two soil samples were collected from each background boring for analytical characterization. Seven analytical samples, including one field duplicate sample, were collected from the background borings. The analytical soil samples were collected from the ground surface and at the total depth of each boring. Table 2-6 summarizes the soil sampling depths for the samples collected from the three background borings. The laboratory analyses performed on each of the analytical soil samples collected included pesticides/PCBs, VOCs, BNAs, total metals, EP Toxicity metals and total solids. Results of these analyses are presented in the *FTSFARD*.

Statistical Evaluation of Background Soil Analytical Data. A statistical evaluation was performed on the analytical data for metals obtained from the Fort Story background boring analytical data. The purpose of the evaluation was to develop a single background concentration for each of the metal analytes found in native Fort Story area soils, i.e., areas where anthropogenic activities were not expected to have occurred. These levels were set equal to the upper one-sided 95 percent confidence limit of the mean concentration of each metal, using a standard statistical procedure described in a standard engineering statistics textbook (Devore, 1982).

This statistical method is based on the assumption that the metals concentrations are distributed according to the T-distribution, which is a distribution for a limited number of sample sizes, such as the background boring metals concentrations for Fort Story. The method involves estimating the upper limit of the range in which the true mean soil concentration of a metal at Fort Story lies,

TABLE 2-6

BACKGROUND BORINGS
SUMMARY OF SOIL SAMPLING DEPTHS

Boring Number	Total Depth[a] (ft)	Samples Logged	Samples Analyzed	Depth of Soil Samples[b] (ft)
SB-134	15	4	2	0,4,9,13
SB-135	42	9	2	0,5,10,15,20,25,30,35,40
SB-136	22	6	2	0,4,9,13,15,20

(a) Total depth relative to ground surface.
(b) An underlined number (e.g., 0) indicates depth at which an analytical sample was collected. Lithological samples were collected at all depths shown.

As a result of this analysis, identification of any particular metal analyte at concentrations greater than the 95 percent confidence interval concentration should not automatically result in a recommendation for further investigation at the given Fort Story PA/SI site. A trigger level has been established for soils that realistically reflects a situation at any given site where anthropogenic activities have most likely resulted in contamination that requires further investigation. As a result of these considerations, the evaluation of the reported metals concentrations is based on the assumption that additional investigation is warranted when any metal analyte exceeds the 95 percent confidence interval for background concentration by an order of magnitude (10 times background) (EPA, 1988). EPA's Department of Site Assessment further approved the use of 10 times background upon discussion with JMM and indicated that this was the best approach to take, given the lack of regulatory guidance (Personal Communication , Grubbs, 1991). This value, therefore, is utilized as the specified trigger level for the given analyte.

Analytes not Detected in Background Samples. The background soil samples were analyzed for pesticides/PCBs, VOCs, BNAs, total metals and EP Toxicity metals. Only DDT, arsenic, chromium, copper, lead and zinc were found in concentrations greater than the Method Reporting Level (MRL). Many analytes not found in the background samples were found in the site samples. Identification of any analyte greater than the MRL should not automatically result in recommendation for further action at any given site. Subsequently, evaluation of these will be based upon a site specific evaluation of all media sampled.

Because some trace metals were not detected in background soil borings and in order to provide some supporting information to complement background boring analytical data, JMM attempted to determine the native concentrations of trace metals in the area of Fort Story.

Although it is clear that soils are derived from parent geologic materials as a result of physical, chemical, and biological weathering processes, the range of natural or background metal concentrations is extremely large, with the composition of the parent material being the principal factor influencing the concentrations of metals in pristine soils. It was found that while there is some published information about typical ranges of concentrations for the United States as a whole (Shaklette and Boernegen, 1986, Kabata-Pendius and Pendius, 1984), no specific information was found which would help to determine native concentrations. JMM contacted representatives of the United States and Commonwealth of Virginia Departments of Agriculture (Personal Communication, Wenthouse, 1991) and the United States Geological Survey (Personal Communication, McNeil, 1991), along with professors from the Department of Crop and Environmental Sciences, Virginia Polytechnic Institute (Personal Communication, Daniels, Martins, 1991). No specific information was determined from these contacts. JMM determined that while the background metal concentration levels were within the typical ranges for U.S. soils, a more specific determination could not be made for the Fort Story area.

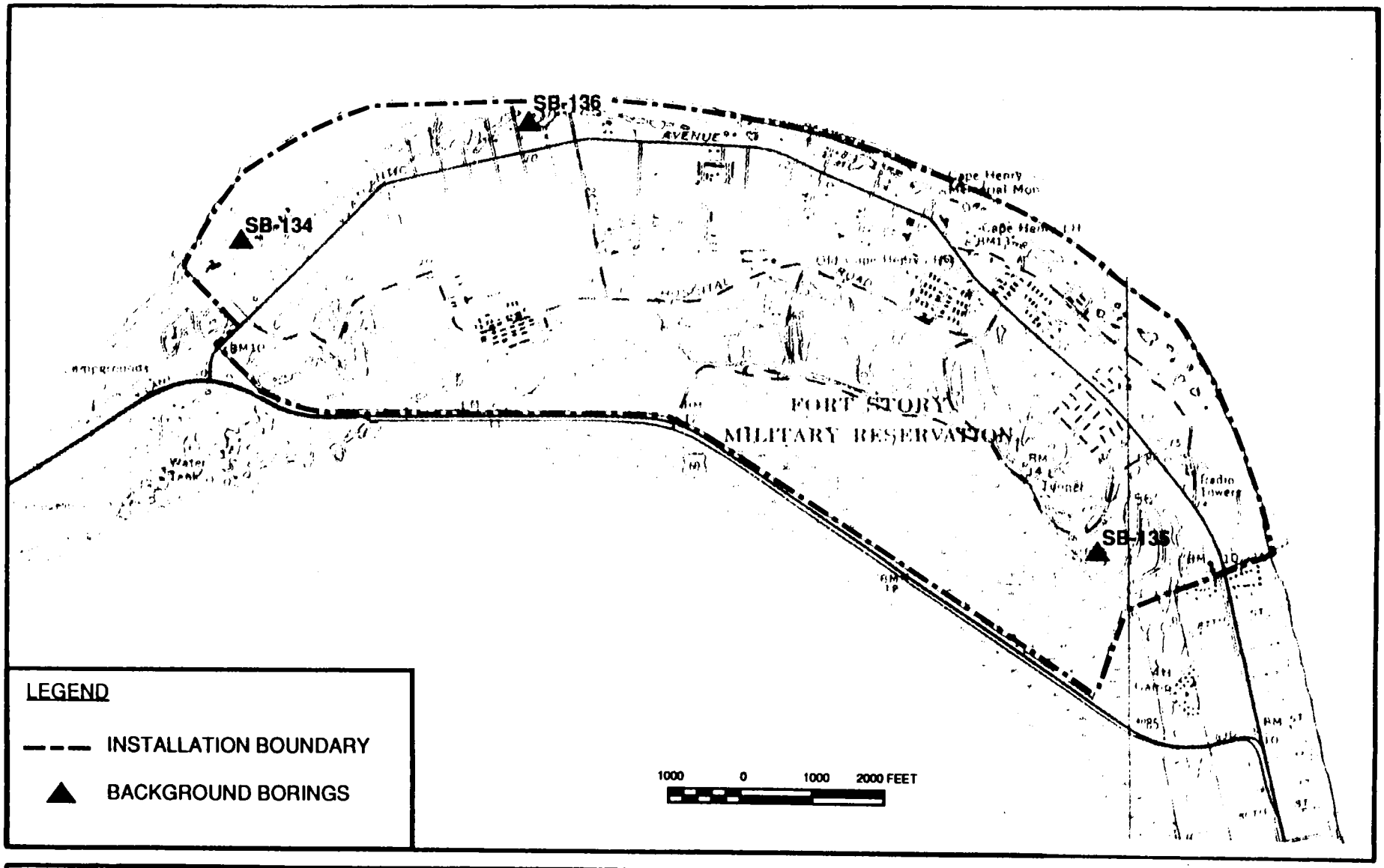
Recommended Trigger Levels. Table 2-8 presents the MRL, background 95 percent confidence interval concentration levels, along with the trigger level for each analyte detected in Fort Story soil samples. The trigger levels, as herein defined, provide conservative guidance for determination of whether further investigative activity is required at a given site.

The trigger levels determined for compounds of concern found at PA/SI and NIKE PA/SI sites are intended as a quantitative indicator whether further investigatory action may be appropriate for the site. The trigger levels are derived based on statistically-significant background concentrations of compounds of concern, or regulatory standards as may be appropriate. The trigger levels do not necessarily constitute applicable or relevant or appropriate requirements (ARARs). ARARs are developed after a project site has undergone an RI/FS evaluation, and the magnitude and extent of

REFERENCE 14

Background Borings

Fort Story, Virginia



JMM

Background Boring Locations
Ft. Story, VA

TABLE BB

SOIL SAMPLES - FORT STORY, BACKGROUND BORINGS

Parameters	SB-134		SB-135			SB-136	
	0	13	0	0-D	40	0	20
Pesticides/PCBs (mg/kg)							
p,p' DDT	ND[a]	ND	0.005	0.005	ND	ND	ND
VOCs (mg/kg)	ND	ND	ND	ND	ND	ND	ND
BNAs (mg/kg)	ND	ND	ND	ND	ND	ND	ND
Metals (mg/kg)							
Arsenic	ND	ND	ND	2.5	ND	ND	ND
Chromium	1.3	2.9	2.4	2.9	2.3	1.2	2.1
Copper	1.5	ND	ND	ND	ND	1.2	1.8
Lead	2.5	2.0	2.3	6.5	11	ND	1.0
Zinc	ND	ND	3.0	2.7	8.9	ND	3.7
EP Tox Metals (mg/l)	ND	ND	ND	ND	ND	ND	ND
Total Solids (%)	96	83	94	94	99	81	94

(a) ND - not detected.