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Updated Final

Community Relations Plan
Naval Weapons Station Yorktown
Yorktown, Virginia
and
Cheatham Annex
Williamsburg, Virginia

Prepared For

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Prepared by

CH2M HILL
Federal Group, Ltd.

Baker
Environmental, Inc.

CDM
Federal Programs Corp.

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LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
AST	Aboveground Storage Tank
Baker	Baker Environmental, Inc.
CAX	Cheatham Annex
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CRP	Community Relations Plan
DOD	Department of Defense
DON	Department of the Navy
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosive Ordnance Disposal
FFA	Federal Facility Agreement
FS	Feasibility Study
FY	Fiscal Year
HRSD	Hampton Roads Sanitation District
IAS	Initial Assessment Study
IRP	Installation Restoration Program
LANTDIV	U. S. Navy, Atlantic Division
LANTNAVFACENGCOM	Atlantic Division Naval Facilities Engineering Command
NAVFACENGCOM	Naval Facilities Engineering Command
NCP	National Contingency Plan
NEDED	Naval Explosives Development Engineering Department
NEESA	Naval Energy and Environmental Support Activity
NFRAP	No Further Response Action Planned
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPS	National Park Service
ORC	Office of Regional Counsel
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
PAH	Polynuclear Aromatic Hydrocarbons
PAO	Public Affairs Officer
PCB	Polychlorinated Biphenyl
PRAP	Proposed Remedial Action Plan
PW	Public Works

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued)

RA	Remedial Action
RAB	Remedial/Advisory Board
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SI	Site Investigation
SMP	Site Management Plan
SSA	Site Screening Area
SSP	Site Screening Process
STP	Sewage Treatment Plant
SVOC	Semi-Volatile Organic Compound
SWMU	Solid Waste Management Unit
TCDD	2,3,7,8 Tetrachlorodibenzo-p-dioxin
TCE	Trichloroethylene
TNT	Trinitrotoluene
TRC	Technical Review Committee
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VDEQ	Virginia Department of Environmental Quality
VOC	Volatile Organic Compound
WPNSTA Yorktown	Naval Weapons Station Yorktown, Yorktown, Virginia

1.0 OVERVIEW OF THIS COMMUNITY RELATIONS PLAN

This Community Relations Plan (CRP) for the Naval Weapons Station (WPNSTA) Yorktown, Virginia and the Cheatham Annex site (CAX) Williamsburg, Virginia is designed to present the community relations program for the Installation Restoration Program (IRP) at the facilities and to document the program activities to date. The purpose of the CRP is to provide techniques to ensure effective communication among the U.S. Navy Atlantic Division (LANTDIV), WPNSTA Yorktown, CAX, the regulatory agencies, and the community. This CRP focuses on informing the public, local officials, interested parties, and regulatory agencies; eliciting responses to form the basis of two-way communication; and providing a central point of contact for inquiries. As a revised final document it also evaluates activities conducted to date.

Baker Environmental, Inc. (Baker) has prepared this CRP under the Department of the Navy (DON) Atlantic Division, Naval Facilities Engineering Command's Comprehensive, Long-Term Environmental Action Navy (CLEAN) program.

This CRP has been prepared in general accordance with the following guidelines:

1. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (Public Law 96-510), as amended, including Section 117 of the Superfund Amendments and Reauthorization Act (SARA) of 1986 (Public Law 99-499, October 17, 1986).

2. EPA's Public Involvement in the Superfund Program (WH/FS-86-004) and CERCLA Compliance with other environmental statues (Federal Register 50[20]:5928-59321).

3. Community Relations in Superfund: A Handbook (Office of Solid Waste and Emergency Response [OSWER] Directive Number 9230.0-3A, March 1986).

4. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (under revision).

This CRP is divided into six sections. Section 2.0 provides background information on WPNSTA Yorktown and CAX and Section 3.0 provides background information on the sites from both areas in the IR Program. Section 4.0 includes an overview of the Installation Restoration Program and the operable units at WPNSTA Yorktown and CAX. Community background, community involvement, and key community concerns are included in Section 5.0. The community relations program is outlined in Section 6.0 and Section 7.0 provides a program summary. References are included in Section 8.0.

2.0 LOCATION AND HISTORY

2.1 Naval Weapons Station (WPNSTA) Facility Description

WPNSTA Yorktown is a 10,624-acre installation located on the Virginia Peninsula in York and James City Counties and the City of Newport News (Figure 2-1). The installation is bounded on the northwest by the Naval Supply Center Cheatham Annex, the Virginia Emergency Fuel Farm, and the future community development of Whittaker's Mill; on the northeast by the York River and the Colonial National Historic Parkway; on the southwest by Route 143 and Interstate 64; and on the southeast by Route 238 and the community of Lackey.

WPNSTA Yorktown, originally named the U.S. Mine Depot, was established in 1918 to support the laying of mines in the North Sea during World War I. The establishment of the depot was the culmination of a search process, begun in 1917 at the request of Congress, to locate an Atlantic coast site for a weapons handling and storage facility. For 20 years after World War I, the depot received, reclaimed, stored, and issued mines, depth charges, and related materials. During World War II, the facility was expanded to include three additional trinitrotoluene (TNT) loading plants and new torpedo overhaul facilities. A research and development laboratory for experimentation with high explosives was established in 1944. In 1947, a quality evaluation laboratory was developed to monitor special tasks assigned to the facility, which included the design and development of depth charges and advanced underwater weapons. On August 7, 1959, the U.S. Mine Depot was redesignated the U.S. Naval Weapons Station. The primary mission of WPNSTA Yorktown is to provide ordnance, technical support, and related services to sustain the war-fighting capability of the armed forces in support of national military strategy. The long-term plans and land-use objectives for the facility are the same as current plans. (Department of the Navy, 1991).

CAX is located north and west of WPNSTA Yorktown. The facility originally covered 3,349 acres but parcels of land were transferred to the National Park Service (NPS), Commonwealth of Virginia, and York County. Currently CAX encompasses 1,578 acres divided into two parcels. The larger of the two parcels is located along the York River and is bordered by Cheatham Pond to the west, the Colonial Parkway to the south, and King Creek to the east. WPNSTA Yorktown is on the other side of King Creek to the south. Almost all base activities take place on this parcel. The smaller parcel south of the Colonial National Historic Parkway contains Jones Pond, CAX's water supply and a watershed

protection area. It is bordered by the Colonial Parkway to the north, the NPS property to the south, and west, and the Virginia Fuel Farm to the east.

In October 1998, CAX was transferred to WPNSTA. CAX was established in June 1943 as a satellite unit of the Naval Supply Depot to provide bulk storage facilities and served as an assembly and overseas shipping point throughout WWII.

Before becoming part of WPNSTA, CAX operated as an annex to Fleet and Industrial Supply Center (FISC), Norfolk, which is the world's largest navy supply center. CAX provided logistic and supply support to naval shore installations. CAX is the Navy Sea System Command's East Coast consolidated stock point for major shipboard mechanical, electronic, and some navigational equipment and receives, stores, issues, packs, and ships navy stock material, particularly large, bulky (often unique) shipboard equipment (e.g., submarine periscopes, ship propellers, bull gears, antennae, and sonar domes) CAX also provides warehouse and distribution services for 39 Storage Authorization Programs and tenant organizations.

In July 1987, CAX was designated the Hampton Roads Navy Recreational Complex. Today in addition to supplying Atlantic Fleet ships, CAX provides recreational opportunities to military and civilian personnel; 55 percent of CAX is undeveloped and rich in natural resources. Outdoor recreational facilities and activities available include: 13 cabins, 19 recreational vehicle (RV) sites, camp sites, an 18-hole golf course, swimming pool, ball fields, freshwater and saltwater fishing, boating, wildlife watching and hunting (Department of the Navy [DON], 1998).

During World War I, DuPont operated the Penniman Shell Loading Plant on what is now CAX. The plant operated until 1918 and was later dismantled. From 1918 until 1943 the area was farmed.

2.2 WPNSTA Environmental Status/Previous Investigations and Reporting

The environmental condition of WPNSTA Yorktown is being investigated through the Department of Defense's (DoD's) IRP. On October 15, 1992, WPNSTA Yorktown was included on the National Priorities List (NPL) primarily due to the facility's proximity to wetlands and the potential impact on the surrounding environment.

Previous investigation reports completed through the IRP include an Initial Assessment Study (IAS) (July 1984), two Confirmation Study Reports (June 1986 and June 1988), a Remedial Investigation (RI) Interim Report (July 1991), a Site 21 Site Inspection Report (February 1992), a Focused Biological Sampling and Risk Evaluation Report (April 1993), and a Round One RI Report (July 1993). The following paragraphs briefly describe the most important previous investigations conducted at WPNSTA Yorktown. More information can be found in the actual reports located in the Information Repositories.

2.2.1 WPNSTA Initial Assessment Study

The purpose of the IAS (C. C. Johnson & Associates, Inc. and CH2M Hill, 1984) was to identify and assess sites posing a potential threat to human health and/or the environment due to contamination from past operations. A total of 19 potentially contaminated sites were identified based on information from historical records, aerial photographs, field inspections, and personnel interviews. Each site was evaluated for the type of contamination, migration pathways, and pollutant receptors. The IAS concluded that 15 of the 19 sites were a sufficient threat to human health or the environment to warrant Confirmation Studies.

2.2.2 WPNSTA Confirmation Study

Two rounds of data were obtained during the Confirmation Study. During the first round of sampling, conducted in the winter of 1986, environmental samples were collected from the 15 sites identified in the IAS. This effort was documented in the "Confirmation Study Step IA (Verification), Round One," (Dames & Moore, 1986). The initial sampling effort included:

- Installation and sampling of 26 monitoring wells
- Collection of 21 surface water and sediment samples
- Collection of 26 surface soil samples
- Chemical analysis of the samples collected

The second round of sampling was conducted during November and December 1987. The Round Two effort included:

- Collection of 26 groundwater samples from the previously installed wells
- Collection of 26 surface water and 32 sediment samples
- Collection of 12 surface soil samples
- Chemical analysis of the samples collected

The results of the analyses and comparisons with appropriate regulatory standards were presented in the Confirmation Study Step IA (Verification), Round Two, (Dames & Moore, 1988). The results of these field efforts were combined and summarized in the Draft RI Interim Report (Dames & Moore, 1989). This report was subsequently revised by Versar in 1991 to incorporate comments from the Technical Review Committee (TRC) and is referred to as the RI Interim Report. The RI Interim Report recommended that further RI activities be completed at 14 of the 15 sites for which data were available.

2.2.3 WPNSTA Site 21 Site Investigation

In November 1990, WPNSTA Yorktown personnel identified an additional site (Site 21, the Battery and Drum Disposal Area) that had not been included in the previous investigations. A Site Investigation (SI) at Site 21 was conducted in October 1991. Three monitoring wells were installed and sampled, and surface and subsurface soil samples were collected. The results of this investigation were presented in the Draft Final Site Inspection Report, Site 21-Battery and Drum Disposal Area, Naval Weapons Station Yorktown, Yorktown, Virginia (Baker/Weston, 1992).

2.2.4 WPNSTA Focused Biological Sampling and Preliminary Risk Evaluation

The Focused Biological Sampling and Preliminary Risk Evaluation Report (Baker/Weston, 1993b) summarized the results of a limited biological tissue, surface water, and sediment sampling effort conducted in October 1992. The primary object of the sampling program was to evaluate the potential human health risk associated with consumption of fish and shellfish taken from select waters within WPNSTA Yorktown.

2.2.5 WPNSTA Round One RI

The RI Interim Report recommended that 14 of the 15 sites be included for further study. However, based on evaluation of the available data, all 15 sites were recommended for further study during the Round One RI. In addition, based on the data obtained from the SI at Site 21, this site also was included in the Round One study (Baker/Weston, 1993a).

The Round One RI sampling effort included:

- Geophysical investigations
- Biota investigations
- Tidal investigations
- Aquifer testing
- Monitoring well installation (23 wells)
- Collection of 51 groundwater samples (22 new wells, 29 existing wells; one newly installed well was dry)
- Collection of 196 surface water and sediment samples
- Collection of 115 surface soil samples
- Collection of 48 subsurface soil samples
- Chemical analysis of the samples collected

The results of the Round One RI indicated that further investigation was needed at all of the 16 sites, with the exception of Site 5, to better define the nature and/or extent of contamination associated with each site. A No Action Record of Decision (ROD) was finalized in September 1994 for Site 5.

Additional Round One RIs are planned for Site Screening Areas (SSAs) retained as IRP sites following Site Screening Process (SSP) investigations. These sites include:

- Site 23 - Building 428 Teague Road Disposal Area (Former SSA 1)
- Site 24 - Aviation Field (Former SSA 6)
- Site 25 - Building 373 Pocket Plant (Former SSA 7)
- Site 26 - Building 1816 Mark 48 Waste Otto Fuel Tank (Former SSA 18)

- Site 27 - Building 1751 Chemistry Lab Naturalization Unit and Drainage Area (Former SSA 9)
- Site 28 - X-Ray Facility Tank Drain Field (Former SSA 10)
- Site 29 - Lee Pond (Former SSA 21)
- Site 30 - Bracken Road Incinerator (Former SSA 24)

2.2.6 WPNSTA Round Two RIs

A Round Two RI field investigation was conducted for the following areas: (1) Sites 6, 7, 12, 16, and SSA 16 and Background for the York River Drainage Area in 1994; (2) Sites 9 and 19 in 1995 to supplement the Round One RI; (3) Sites 1, 3, 4, 11, 17, 21, and 22 in 1996 to supplement the Round One RI; (4) Sites 2, 8, 18 and SSA 14 in 1997 to supplement the Round One RI; and (5) Sites 23, 24, 25, and 26 (SSAs 1, 6, 7, and 18, respectively) in 1997 as recommended by the SSP. Additional soil, subsurface soil, surface water, sediment, and groundwater samples and biota were collected.

2.2.7 WPNSTA SSA Investigations

The following SSA investigations have been conducted at WPNSTA Yorktown since 1994: SSAs 1, 3, 6, 7, 12, and 15 were investigated during 1994; SSAs 2, 17, 18, and 19 were investigated in early 1995; SSAs 8, 11, 12, and 13 were investigated in early 1996; and SSAs 3, 4, 5, 9, 10, 20, 21, 22, and 24 were investigated in the latter part of FY 1997. Environmental media including surface soil, subsurface soil, groundwater, surface water, and sediment were investigated at those SSAs having potential impacts on the environment.

SSAs 3, 4, 5, 17, 19, 21, and 22 have been removed from the RI/FS process because these SSAs did not pose unacceptable human health or ecological risk according to the risk screening. Long-term monitoring at SSA 2 has been included in a RCRA Part B - Permit Application. SSA 15 was combined with another investigation area (Site 12).

2.3 CAX Environmental Status/Previous Investigations and Reporting

CAX was included on the NPL on December 1, 2000. Before CAX was added to the NPL, the base's IR Program voluntarily followed CERCLA guidance. CAX will be added to the FFA for WPNSTA Yorktown.

2.3.1 CAX Initial Assessment Study

An IAS was conducted to identify and assess sites posing a potential threat to human health or the environment due to contamination from past operations. A total of 12 sites were considered in the study including:

- Site 1 - Landfill near Incinerator
- Site 2 - Contaminated Food Disposal Area
- Site 3 - Submarine Dye Disposal Area
- Site 4 - Medical Supplies Disposal Area
- Site 5 - Photographic Chemicals Disposal Area
- Site 6 - Spoiled Food Disposal Area
- Site 7 - Old DuPont Disposal Area
- Site 8 - Landfill near Warehouse 14
- Site 9 - Transformer Storage Area
- Site 10 - Decontamination Agent Disposal Area near First Street
- Site 11 - Bone Yard
- Site 12 - Disposal Site near Water Tower

Four potentially contaminated sites were identified based on information from historical records, aerial photographs, field inspections, and personnel interviews. Each site was evaluated for the type of contamination, migration pathways, and pollutant receptors. The four identified sites recommended for confirmation study included:

- Site 1 - Landfill near Incineration
- Site 9 - Transformer Storage Area

- Site 10 - Decontamination Agent Disposal Area near First Street
- Site 11 - Bone Yard

2.3.2 CAX Confirmation Studies

The Confirmation Studies were conducted by Dames & Moore in two rounds. During the first round of sampling, conducted in the winter of 1986, environmental samples were collected from the four sites (Sites 1, 9, 10, and 11) identified in the IAS. This effort was documented in the report Confirmation Study Step IA (Verification), Round One, submitted to LANTDIV on June 11, 1986. The first round of work at these four sites included the installation of five new monitoring wells and the collection and analysis of groundwater samples. Groundwater samples were also collected from four existing monitoring wells installed for landfill closure at Site 1. This effort also involved the collection and analysis of three surface water samples plus bottom sediment samples from the same locations. Twenty-two surface soil samples were also collected and analyzed. The Transformer Storage Area (Site 9) was taken off the list based on the results of the sampling completed during Round One of the Confirmation Study. Additional investigations were recommended for the three remaining sites (Sites 1, 10, and 11) under the Confirmation Studies.

The second round of sampling for the Confirmation Study was conducted during November and December 1987. The Round Two effort for the three sites included the collection and analysis of nine groundwater samples (Sites 1 and 11), and three surface water and three sediment samples (Site 11). The results of the analyses performed on these samples and comparisons with applicable regulatory standards were presented in the report Confirmation Study Step IA (Round Two), submitted to LANTDIV on June 20, 1988. No recommendations were presented.

2.3.3 Remedial Investigation Interim Report

A Draft RI Interim Report prepared by Dames & Moore was submitted to LANTDIV in March 1989. The report was finalized by Dames & Moore and submitted in February 1991 under Environmental Science and Engineering, Inc. (ESE) cover (Dames & Moore, 1991). The RI Interim Report summarized available data for Sites 1, 9, 10, and 11 and, based on the data, provided recommendations to complete the RI. The recommendations included aerial photographic interpretation, an off-Base well inventory, limited biota sampling, and background sampling of soil, surface water, and sediment. Site-specific recommendations included collection of groundwater samples from Site 1, historical aerial photographic interpretation to gather information regarding disposal activities at Site 10, and collection of groundwater, surface water, sediment and soil samples from Site 11.

2.3.4 Site Investigation Report for Sites 1, 10, and 11

In July/August 1992, Roy F. Weston, as a subcontractor to Baker, conducted additional field activities at Sites 1, 10, and 11. These activities included well installation, a soil gas survey, and collection and analysis of soil, groundwater, surface water, and sediment samples. Results of this investigation are presented in the Final Site Inspection Report for Sites 1, 10, and 11 (Weston, 1994).

2.3.5 Site Screening Process Report for Sites 1, 10, and 11

In August 1997, Baker collected groundwater samples from the existing monitoring wells at Sites 1, 10, and 11. The samples were analyzed for volatiles, semivolatiles, pesticides/polychlorinated biphenyls (PCBs), and total and dissolved metals.

As part of the Site Screening Process (SSP), human health and ecological risk screening was performed to determine whether contaminants detected in environmental media pose unacceptable risks to human receptors and/or the environment. The risk screening process was completed in accordance with the SSP Guidelines (Baker, 1994).

2.3.6 Aerial Photographic Analysis

The Aerial Photographic Analysis report presents the results of an analysis of historical aerial photographs of CAX. Nine black-and-white and color infrared photographs dating from 1937, 1942, 1955, 1960, 1963, 1969, 1975, 1989, and 1998 were used to analyze the site. Environmentally significant hazardous waste-related features and conditions were identified. The report provided remote sensing support to field investigations for USEPA Region III under CERCLA.

Seven of the 12 IAS sites were located and documented in the report. The remaining five IAS sites were not located due to lack of visible features on the photographs.

2.3.7 Shoreline Assessment Letter Report

The August 14, 1998 Shoreline Erosion Assessment Letter Report (Baker, 1998) was prepared to address the erosion of the bank of the York River in the vicinity of Site 1. The assessment concluded that the erosion of the riverbank was attributable to high water levels and wave action. The erosion is increased by factors such as wind, poor vegetation, and the presence of large trees along the top of the bank. As an interim measure, Baker recommended clearing trees within a distance of approximately two bank-heights (i.e., approximately 50 feet) from the toe of the slope, and establishing low-growing vegetation. The long-term solution entails cutting the slope back to 2 horizontal (H) to 1 vertical (V) and installing a stone revetment at the toe of the slope.

2.3.8 Field Investigation Report – Site 1 and AOC 2

A field investigation was conducted at Site 1 and AOC 2 in October 1998. The findings of the investigation were documented in the Field Investigation Report. The final version of this document was submitted on September 7, 1999 (Baker, 1999c).

The Field Investigation Report recommended that the sources of the geophysical anomalies and potential sources of contamination be identified by excavating a total of six shallow test pits in the vicinity of the most significant anomalies detected.

2.3.9 Site Inspection Narrative Report for the Penniman Shell Loading Facility

In January 1999, Weston/USEPA performed a site investigation which included collection of soil, sediment, surface water, and waste samples. The purpose of the investigation was to assess potential sources of contamination associated with the Penniman Facility and determine the need for additional investigation. The data would also be available to support HRS evaluations. A total of 29 samples were collected including fourteen waste source samples, two surface water samples, one drinking water sample, nine sediment samples, and three background samples.

The report concluded that six inorganic compounds and one nitroaromatic compound were present at levels exceeding USEPA Region III Risk-Based Concentrations in waste source samples. Four of these constituents (cadmium, chromium, lead, and magnesium) were detected in sediment and surface water samples at levels which indicate a release. Several areas of potential concern associated with remnant waste materials from the Penniman loading operations were noted. Based on the findings of the site investigation, additional sampling of groundwater, waste materials, soil, treated drinking water, surface water and sediment, along with performance of a human health risk assessment was recommended. The final report was submitted in August 1999 (Weston, 1999a).

2.3.10 Data Acquisition/Summary Report, Penniman Shell Loading Plant

The purpose of the Data Acquisition/Summary Report was to compile and combine all available information regarding the Penniman Shell Loading Plant into a useable format. The report was finalized in October 1999 (Weston, 1999b).

2.3.11 1999 Field Investigation

In November 1999, a field investigation was performed at Site 1 - Landfill Near Incinerator, Site 4 - Medical Supplies Disposal Area, Site 7 - Old DuPont Disposal Area, Site 11 - Boneyard, AOC 1 - Scrap Metal Dump, and AOC 2 - Dextrose Dump.

2.3.12 HRS Documentation

USEPA prepared a HRS Documentation Record (PRE Score) for CAX. The document was sent to the Navy on February 3, 2000. Surface water was the only pathway included in the scoring. The HRS site score for CAX was 48.72.

2.3.13 Draft Removal Closeout Report Site 11 – Bone Yard

This Closeout Report (Baker, 2000a) summarizes removal activities that have occurred at Site 11 – Bone Yard. In November 1999, Baker conducted confirmatory sampling at Site 11 at the request of VDEQ. A RI/FS has been discussed among representatives from the Navy, VDEQ, and USEPA. This effort will compile all existing data, fill data gaps, and include a human health risk assessment. The RI will provide recommendations regarding the need for additional actions at the site. The FS will select and describe the appropriate actions for the site. A screening-level ecological risk assessment is also planned for Site 11 and will have to be completed before RI recommendations can be formulated.

2.3.14 Final Construction Closeout Report - Site 1 Time Critical Removal Action

This report summarizes the construction activities associated with the TCRA performed at Site 1-Landfill near Incinerator (Baker, 2000b). The TCRA for Site 1 was conducted to remove the debris that had collected on the beach area and to temporarily stabilize the toe of the bank in the erosion area. Three sand-filled geotextile tubes were installed. The TCRA was implemented to stabilize the site until the long-term solution for the management of the Site 1 landfill is implemented. A Final Action Memorandum for the TCRA was prepared by Baker in August 1999.

2.3.15 Draft Pond Study Report

This report summarizes a field investigation conducted in April 2000 to support future screening-level ecological risk assessments (ERAs) that will be performed at CAX during FY 2001 (Baker, 2000c). During this investigation, surface water and sediment samples were collected from four water bodies at CAX. The samples were collected from the following water bodies: Cheatham Pond, Jones Pond, Youth Pond, and Penniman Lake.

2.3.16 Draft Final Remedial Investigation Report for Site 1 – Landfill Near Incinerator

This report presents the results of the RI that was conducted at Site 1 – Landfill Near Incinerator (Baker, 2000d). Results of the investigation showed that the landfill contained a variety of wastes that are both non-hazardous and hazardous by characteristic. The analytical data presented showed that samples of landfilled material contained polyaromatic hydrocarbons (PAHs), pesticides, PCBs, and inorganic compounds, particularly copper and lead. The data shows evidence suggesting the landfill has impacted the surrounding environment to a limited extent.

2.1.17 Draft Final Site Inspection Report, Site 4 and AOC 1

In November 1999, Baker performed a site inspection that included collection of soil and sediment at Site 4 and soil, surface water, and sediment at AOC 1. The findings of the investigation are documented in the Draft Final Site Inspection Report (Baker, 2000e).

2.1.18 Draft Final Field Investigation Report, Site 7 and AOC 2

This Field Investigation Report summarizes the November 1999 field investigation activities that were conducted at Site 7 and AOC 2. The purpose of the field investigation was to evaluate the nature and extent of possible contamination at Site 7 and AOC 2. The findings of the investigation are documented in the Draft Final Field Investigation Report (Baker, 2000f).

During a site visit by representatives from the Navy and USEPA in August 2000, a fourth location for the disposal area was discovered. At this time, concrete and metal surface debris was found in the wooded area between the recreational cabins and the York River. Debris was also found along a portion of the shoreline of the York River. Based on the location and type of debris found in this area (e.g., pieces of charred, melted glass and engine parts from the World War I era), it is believed that this fourth location is in fact the site that received wastes from Penniman and the DuPont Facility. This area has been designated Site 13 (Penniman Disposal Area) and will be addressed under a separate investigation.

2.1.19 Draft Focused Feasibility Study for Site 1 – Landfill Near Incinerator

This report presents the Focused Feasibility Study completed for Site 1 – Landfill Near Incinerator (Baker, 2000g). The purpose of the Focused FS for Site 1 was to identify remedial action alternatives (RAAs) protect of human health and the environment. The partnering team agreed upon focused FS, evaluating a limited number of remedies for the surface soil remediation at the site. The area of concern at Site 1 from a human health risk perspective is the soil inside the landfill. From this perspective, the following three RAAs were developed for Site 1.

- RAA 1: No action.
- RAA 2: Shoreline erosion control, surface debris removal, and soil cover.
- RAA 3: Surface debris removal and excavation with off-site disposal.

3.0 SITE DESCRIPTIONS

This section describes the history at each of the WPNSTA sites included in the Federal Facility Agreement (FFA), the four newly added sites which were former SSAs, and the site which has been added for investigation and evaluation which was not included in the FFA. CAX IR sites and AOCs are also described. The information presented is from previous studies (C.C. Johnson & Associates and CH2M Hill, 1984; USEPA, 1992a and b) and has been updated based on additional historical review and discussions with WPNSTA Yorktown personnel. The site descriptions are presented in numerical order for ease of reference. Site locations are shown on Figure 2-2.

3.1 WPNSTA Site Descriptions

3.1.1 WPNSTA Site 1 - Dudley Road Landfill

Site 1 is a 6-acre area located just north of the headwaters of Indian Field Creek. The solid waste landfill was in use from approximately 1965 to 1979 for general disposal, with one area used for disposal of plastic lens grinding waste until 1983. The solid waste landfill operated under a conditional permit (No. 287) issued by the Commonwealth of Virginia. The site was originally used for sand mining. Two unfilled borrow pits were found at this site. One was located within the eastern portion of the site. The other borrow pit was located in the southwest portion of the site and accumulated surface water runoff. The water within this borrow pit fluctuated throughout the year from a few inches to two feet deep. Seasonal ponding also occurred in the southeastern section of the site. Wastes disposed within the depression created by sand mining included asbestos insulation from steam piping; oil, grease, paint, and solvent containers; nitramine-contaminated carbon; household appliances; scrap metal banding; construction rubble; plastic lens grinding wastes; tree limbs; lumber; packaging wastes; electrical wires; and waste oil. The landfill received an estimated 255 tons of waste during the time in which the site was in use. Currently, the landfill is covered by approximately 2 feet of soil and the abandoned sand reclamation area is covered by 8 feet of soil.

A Final ROD is currently undergoing review by USEPA Region III Office of Regional Council (ORC). The ROD specifies debris removal excavation/disposal of arsenic contaminated soil and reestablishment of the soil cover over the solid waste landfill portion of the site.

3.1.2 WPNSTA Site 2 - Turkey Road Landfill

Site 2 is a 5-acre disposal area located east of Turkey Road in a wetland area adjacent to the southern branch of Felgates Creek. Operations at the landfill reportedly began in the 1940s and ceased in 1981. Wastes disposed in this landfill included mercury and carbon-zinc batteries, tree stumps and limbs, construction rubble, missile hardware (e.g., wings, fins and power packs), electrical devices, and unidentified drums and/or tanks. Waste quantities have been estimated at 240 tons during the period of use. Hard waste material (mine casings) was primarily located along the tributaries to the southern branch of Felgates Creek. Hard waste material was removed during the summer of 1994 at Site 2. Wastes encountered at Site 2 included large concrete masses, asphalt, HEPA filter drums, scrap metal, empty drums, miscellaneous construction/demolition debris, and unexploded ordnance (UXO). Excavated wastes consisted of batteries and soil. All ordnance items were certified as inert.

3.1.3 WPNSTA Site 3 - Group 16 Magazine Landfill

Site 3 is a 2-acre area located behind the Group 16 magazines, just south of Site 1 (separated from Site 1 by a ravine), along the headwaters of Indian Field Creek. The landfill is named for its proximity to the Group 16 Magazines but this landfill is unrelated to them. The landfill area was reportedly in use from 1940 to 1970 and received an estimated 90 tons of waste during the time in which the site was in use. The site was originally used for sand mining. Wastes disposed within the depression created by sand mining include solvents, sludge from boiler cleaning operations, grease trap wastes, Imhoff tank skimmings containing oil and grease, and animal carcasses. Currently, most of the site, which is overgrown with trees, is covered by approximately 2 feet of soil with some scattered surface debris.

USEPA Region III ORC is currently reviewing a Final ROD for this site. The ROD specifies debris removal, excavation of a PAH hotspot, and off-site disposal of a small volume of soil.

3.1.4 WPNSTA Site 4 - Burning Pad Residue Landfill

Site 4 is an approximately 10-acre landfill. The site is bordered by the Explosives Burning Facility 1401 (Site 22) to the southwest, Site 21 (the Battery and Drum Disposal Area) and an unnamed drainage way to the southeast, West Road to the northeast, and a gravel road leading to the burning facility to the northwest. This area was used as a land disposal area from 1940 until 1975. The landfill received an

estimated 595 tons of waste during the time in which the site was in use. The landfill was reportedly backfilled three to four times a week. An ash pile measuring approximately 100 feet by 150 feet was located in the northeast corner of the site. Materials reportedly disposed at the site included: carbon-zinc batteries from underwater weapons, burning pad residues, tree stumps, fly ash from coal-fired boilers, mine casings, electrical equipment, and transformers. A large battery disposal area was identified in the southeast portion of the site. In addition, construction debris, pipes, glass, concrete, bottles, cans, and drums have been discovered in various locations within the site boundary.

A removal action was conducted at Site 4 during the summer of 1994 and the area has been revegetated. Wastes encountered during the removal action included surface debris consisting of large concrete masses, empty drums, steel cables, tree stumps, assorted construction debris, asphalt shingles, slate shingles, scrap metal, and assorted porcelain fixtures including a kitchen sink. Excavated wastes consisted of batteries and explosives containing ash residue. Several suspect UXO devices also were encountered and identified as inert. Approximately 7,285 tons of material were removed from the site including 2,460 tons of ash, 3,025 tons of batteries, 1,295 tons of soil, and 510 tons of debris.

3.1.5 WPNSTA Site 5 - Surplus Transformer Storage Area

Site 5 is located near Barracks Road in the northeastern portion of the Station adjacent to the south end of Building 76. Site 5 is also referred to as OU I. The area is approximately 1,000 square feet in size and is fenced. Two concrete pads are located within the fenced area; the remainder of the area is covered with gravel. This site was used from 1940 to 1981 as a storage area for surplus polychlorinated biphenyl (PCB)-containing transformers which were stored on and around the two large concrete pads. After 1981, only non-leaking transformers were stored at this location. Currently, the stored transformers have been removed and the site is no longer used as a transformer storage area.

An estimated 300 pounds of PCB-containing fluids reportedly leaked from stored transformers. A cleanup effort, conducted in December 1982, included the removal of contaminated soil at Site 5. However, the success of this removal effort was not documented (i.e., no information on the amount of soil removed, verification samples, and type and source of backfill). The recently completed Round One RI investigation and a Risk Evaluation confirmed that the contaminated soil was successfully removed during this effort. Based on the results of the Risk Evaluation and limited confirmational sampling by USEPA Region III, a No Action ROD was finalized for Site 5 (OU I) on September 29, 1994.

3.1.6 WPNSTA Site 6 - Explosives-Contaminated Wastewater Impoundment

Site 6 contains a 3-acre, unlined, surface impoundment located adjacent to wetlands along a small tributary to the main branch of Felgates Creek. This impoundment operated from 1942 to 1975 and received contaminated wastewater and solvents from the explosives reclamation facility at Building 109 and from weapons loading operations (washdown water) at Building 110. In 1975, a carbon adsorption tower was installed to treat the contaminated wastewater prior to discharge into the drainage way and the discharge of solvents ceased. A National Pollutant Discharge Elimination System (NPDES) permit was granted by USEPA Region III to allow the discharge of effluent from the carbon adsorption tower containing relatively low concentrations of nitramines/nitroaromatics. In 1986, the effluent from the tower was diverted to the sanitary sewer and ultimately to the Hampton Roads Sanitation District (HRSD). Currently, the impoundment collects only surface runoff from the area between Buildings 109 and 110 (Building 109, pipes and trenches have been identified in the FFA for additional RI/FS activities).

In addition, north of the impoundment and northwest of Building 1249, a previously excavated area has been identified via aerial photography. This area is currently wooded, but concrete rubble and miscellaneous debris are evident.

A ROD for this site specifies removal of contaminated soil and sediment from the flume area and onsite biological treatment, backfilling of the flume area and the Site 6 excavated area (north of the impoundment), and long-term monitoring of the groundwater, impoundment area surface water, and sediment. Treated soil and sediment will be reused at the site or elsewhere at the Station. The ROD for Site 6 was signed on October 5, 1998.

3.1.7 WPNSTA Site 7 - Plant 3 Explosives-Contaminated Wastewater Discharge Area

Site 7 is a 300-foot long (approximately) drainage area located adjacent to wetlands and along a small tributary to Felgates Creek, approximately one mile upstream from the confluence of Felgates Creek and the York River. This drainage area received nitramine-contaminated wastewater from Loading Plant 3 between 1945 and 1975. In 1975, a carbon adsorption tower was installed to treat the contaminated wastewater prior to discharge into the drainage way. An NPDES permit was granted by the USEPA

Region III to allow this discharge. In 1986, the effluent from the tower was diverted to the sanitary sewer and ultimately to HRSD. The site reverted to a natural drainage area and received no discharge from the Plant 3 complex after 1986. This area has been excavated to provide soil/sediment for a full-scale pilot study of nitramine/nitroaromatic contamination of bioremediation (OHM, 1997).

The Final ROD for Site 7 specifies no additional action because the removal of contaminated soil and sediment for use in the bioremediation full-scale pilot study conducted in 1996 mitigated potential human health risks and ecological concerns. The ROD for Site 7 was signed on October 5, 1998.

3.1.8 WPNSTA Site 8 - NEDED Explosives-Contaminated Wastewater Discharge Area

Site 8 is a 300-foot drainage way located along the eastern branch of Felgates Creek, approximately 1.5 miles from the confluence of the creek and the York River. This area received wastewater from the Naval Explosives Development Engineering Department (NEDED) complex (Building 456) from 1940 to 1975. The wastewater reportedly contained unspecified solvents, spent/neutralized acids, and nitramine compounds. In 1974, a carbon adsorption tower was installed to treat the contaminated wastewater prior to discharge into the drainage area. An NPDES permit was granted by USEPA Region III to allow this discharge. In 1986, the effluent from the tower was diverted to the sanitary sewer and ultimately to HRSD. Currently, the site has reverted to a natural drainage area.

3.1.9 WPNSTA Site 9 - Plant 1 Explosives-Contaminated Wastewater Discharge Area

Site 9 is a 600-foot drainage ditch located just east of Lee Pond, which empties into the eastern branch of Felgates Creek, and topographically downslope from Site 19. This area was reportedly in use from the late 1930s to 1975. Contaminants in the wastewater from Plant 1 (Building 10) included nitramine compounds as well as organic solvents. During the more than 40 years that the drainage area was used, an estimated 6,800 pounds of nitramine- and solvent-contaminated material may have been discharged to the area. A carbon adsorption tower was installed in 1974 to treat the contaminated wastewater prior to discharge into the drainage area. An NPDES permit was granted by USEPA Region III to allow this discharge. In 1986, the effluent from the tower was diverted to the sanitary sewer and ultimately to HRSD. Currently, the site has reverted to a natural drainage way for surface runoff from surrounding areas and receives no discharge from the Plant 1 complex. A limited removal action was conducted for hard waste present at Site 9 in the natural drainage way between Bollman Road and Lee Pond during the

summer and early fall of 1994. Two types of wastes were removed from Site 9: ordnance, which consisted primarily of depth charges, and railroad ties.

A Final ROD for Sites 9 (OU VII) and 19 (OU VI) was finalized for soil, surface water, and sediment in March of 1998. No additional action is the selected alternative for Site 9. Site 9 groundwater will be evaluated at a later date.

3.1.10 WPNSTA Site 11 - Abandoned Explosives Burning Pits

Site 11 is an area of approximately 0.5-acres located south of Dudley Road, east of Main Road, west of Site 1, and north of a drainage channel leading to Indian Field Creek. This area was used from 1930 to 1950 for burning ordnance and ordnance-contaminated waste. Ashes and residues from the open burning of nitramine-containing wastes and sludges are potentially present at the site. During the 20 years that the pits were used approximately 200 pounds of nitramine waste residues may have been deposited. Currently, the area is thickly vegetated.

3.1.11 WPNSTA Site 12 - Barracks Road Landfill

Site 12 is a 4-acre landfill located east of Barracks Road, north of the community of Lackey, and northwest of the Colonial National Historical Park along a drainage swale leading to Ballard Creek. This area operated from approximately 1925 to the mid-1960s. Wastes reported to have been disposed in the landfill include refuse, scrap wood, and nitramine-contaminated packaging. Because this facility was the predecessor to the Dudley Road Landfill (Site 1), it is likely that wastes similar to those identified at Site 1, including solvents, also were disposed in this area. The landfill received an estimated 1,400 tons of waste during the time the site was in use. Adjacent to the landfill are two incinerators (Solid Waste Management Unit [SWMU] 142 and SWMU 143) formerly used to burn a variety of waste, both industrial and nonindustrial. Incineration ash was disposed on the hillside behind the incinerator buildings. Scrap metal, charred wood and cloth, and medicine bottles were observed in the ash. Located approximately 400 feet east of Site 12 is the Wood/Debris Disposal Area (formerly SWMU 164 and now considered a part of Site 12), which is approximately 4 acres in size. This area consists of a steep ravine in which wooden pallets and construction debris has been disposed. Each area is currently vegetated and drains toward Ballard Creek. Based on the results of the risk evaluation, a ROD was

finalized for Site 12 (OUs III, IV, and V) on May 16, 1997 and remediation of Area A was completed in November 1997. Miscellaneous debris at Area B/C was removed in May and June of 1998.

3.1.12 WPNSTA Site 16 - West Road Landfill

Site 16 is a 5-acre area located adjacent to West Road near Indian Field Road. This site was operated from the early 1950s to the early 1960s. Site 16/SSA 16 also is referred to as OU II. Wastes reported to have been disposed include dry carbon-zinc (Leclanche) batteries, banding materials, pressure transmitting fluid, unknown types of chemicals, and 55-gallon drums (contents unknown). An investigation at this site in 1992 (Baker/Weston, 1993a) confirmed the presence of drums, scrap metal, batteries, mine casings, and construction debris. Another waste area was also identified beneath one of the drum piles. This waste area included glass containers, cans, and newspapers. Landfill boundaries are not evident from visual observation of the area. The site is wooded, except the northern portion along West Road, which is covered with grasses. A removal action was conducted at Site 16 during the summer of 1994 to eliminate drums, scrap metal, batteries, and construction debris. Site 16 was evaluated in conjunction with SSA 16 because of its proximity and geophysical data which indicate overlap between the two areas. Wastes encountered at this site included drums filled with silica gel desiccant, dry cell carbon/zinc batteries, surface debris, steel cables, underwater mine casings, and scrap ordnance. An approximate total of 420 tons of batteries, 60 tons of debris, 125 tons of silica gel, and the following ordnance items were removed: three Mk 13 torpedo sections, three Mk 51 Underwater mines, 29 Mk 10 Mod 3 mines, eight 500-pound general purpose bombs, three 2000-pound general purpose bombs, three Mk 36 mines, two AN&M fragmentation bombs, 10 Mk 13 mines, one Zuni rocket motor, one 1,000-pound armor piercing bomb, and 90 Burster tubes. All ordnance items were certified inert. Based on the results of the risk evaluation and limited confirmational sampling by USEPA Region III, a "No Further Remedial Action with Institutional Controls" ROD was finalized for Site 16/SSA 16 (OU II) on September 29, 1995.

3.1.13 WPNSTA Site 17 - Holm Road Landfill

Site 17 is a 2-acre disposal area located south of Holm Road and east of Main Road. The site was operated for approximately 10 years, from the 1950s to the 1960s. Wastes reportedly disposed include acid batteries from underwater weapons, hydraulic fluids (Dolconik) from the demilling of torpedoes, other types of hydraulic fluids, drums from the Public Works Department and ordnance production

shops, and scrap metal. An estimated 60 tons of waste were deposited during the period the landfill was in use. Currently, the site is overgrown with mature trees and no evidence of surficial waste is apparent. In addition, results from the geophysical investigation of this site during the Round One RI did not indicate any evidence of buried material.

3.1.14 Site 18 - Building 476 Discharge Area

Site 18 is a one-quarter mile long, unlined drainage ditch located north of Building 476 in the southeastern area of the Station along a small tributary leading to Lee Pond. This area was in use for approximately 20 years from the 1940s to the 1960s. The discharge into the area reportedly contained battery acid waste, consisting of hydrochloric acid or calcium hydroxide and dissolved metals such as lead, cadmium, nickel, and antimony. An estimated 100 to 200 pounds of metal may have been discharged during the operational period. Battery acid waste is no longer discharged from Building 476 into this drainage way.

3.1.15 Site 19 - Conveyor Belt Soils at Building 10

Site 19 is a 500-foot long soil strip located beneath and around Building 10, approximately 300 feet from Site 9 and connected to Site 9 via a concrete drainage channel. Nitramine-contaminated soil was reported beneath the conveyor belt between Buildings 10 and 98. In 1973/1974, soil below the conveyor belt was removed; however, later tests indicated that contamination remained.

In 1998, the conveyer belt was dismantled and the metalic components were heat decontaminated to remove residual explosives. Asbestos components of the conveyor belt were double bagged and sent to a special landfill. Soil from beneath the conveyor belt (approximately 1000 cubic yards) was excavated and treated at the Site 22 biocell using J.R. Simplot's SABRE® technology. The former site of the conveyor belt has been revegetated.

3.1.16 Site 21 - Battery and Drum Disposal Area

Site 21 covers approximately 1 acre and is located south of West Road adjacent to the ravine that separates Site 21 from Site 4. Historical information for this site is limited. Wastes identified in this area include various sized cans and drums, dry carbon-zinc batteries (Leclanche), empty solvent

containers, and scrap metal. A removal action was conducted at Site 21 during the summer of 1994. Wastes encountered at this site consisted primarily of batteries, empty drums, scattered debris and seven drums of unknown oils. A total of 6,070 tons of batteries and screened soil, 90 tons of soil, 650 tons of debris, and four drums of hazardous waste liquids were removed from the site. The site has been revegetated in those areas affected by the removal.

3.1.17 WPNSTA Site 22 - Burn Pad

Site 22 covers approximately 9 acres and is located in the central portion of the Station between Sites 4 and 21. A circular array of 11 steel burning pans was used for burning waste plastic explosives and spent solvents. The pans surrounded a 150-foot inch diameter circular area. The site became an area used for a treatability study for the treatment of explosive-contaminated soil in 1996. As a part of the treatability study, a biocell was constructed which measured 153-feet long by 86-feet wide by 7-feet deep. Soil samples were obtained from the "footprint" of the biocell prior to the placement of liners and footers for the rail system, upon which a gantry rests. The cell was completed in 1996 and was expanded to accommodate soil from Site 19.

3.1.18 WPNSTA Site 23 - Building 428 Teague Road Disposal Area

Site 23 (a portion of former SSA 1) is approximately 2.8 acres in size and is located northeast of Building 428, in the northeast portion of the Station along the Station boundary. The site is comprised of five smaller areas of SSA 1 which are adjacent to the railroad tracks and the unnamed ditch and within the western portion of the former SSA boundary. The York River is located to the north of Site 23 and Roosevelt Pond bounds the area to the west/northwest. The area is wooded and bisected by a railroad track constructed in 1919.

Disposal activities reportedly began in 1940 and ceased in 1960. A pier fire occurred in the mid-1950s and debris from this fire was disposed in this area (1955 to 1957). Aerial photography suggests that past waste storage practices occurred at Site 23 (primarily in 1945). From 1960 to the present there is no evidence of additional waste storage or release. However, a land survey, conducted in the fall of 1993 as part of a removal action, indicated discrete piles of debris that appear to have been dumped on top of native soil, while other areas of debris appear to be partially buried. The debris was identified as

concrete rubble; scrap metal; wooden pilings and railroad ties; empty fuel cans; empty, open, and corroded drums; asbestos pipe insulation; and shingles.

A removal action was conducted during the summer and early fall of 1994 to remove surface debris present at Site 23. Items removed included two 55-gallon drums of paint cans/spilled paint, 443 tons of wooden creosote timbers (remains of the burnt pier), 763 tons of ordinary non-hazardous debris, 1,119 tons of debris containing non-friable asbestos, 1,680 pounds of pipe wrapped with friable asbestos, 31 tons of recyclable metal, and two truck batteries. Approximately 5,800 tons of TNT and trinitrobenzene-contaminated ash/soil also were removed from an area north of the railroad tracks at the northeast portion of the site. Contaminants of potential concern at Site 23 include PAHs that may be associated with former disposal activities. Additional IRP activities will include investigation of subsurface contamination and impacts on shallow groundwater and an ecological evaluation/habitat evaluation of the unnamed ditch.

3.1.19 WPNSTA Site 24 - Aviation Field

Site 24 (a portion of former SSA 6) is an area approximately 15 acres in size located around the helicopter landing pad. It is bounded by Bellfield Road to the north, railroad tracks to the east, Main Road to the south, and storage areas to the west. The site is an open grassy area around the helicopter landing pad where mine components coated with PCB-1254-containing antifoulant were discovered in the subsurface soil. Historically, the area was used as an aviation field until 1927, after which it was used for storage of munitions in underground caches. Aerial photography indicates that peak storage activity on the ground surface occurred in 1968. No storage of liquid or hazardous waste was reported or observed. In addition, this area may also have been used briefly as an explosives burning area although available data do not indicate the presence of nitramines/nitroaromatics. A helicopter pad and an air control tower are now present on the AV field.

3.1.20 WPNSTA Site 25 - Building 373 Rocket Plant

Site 25 (a portion of former SSA 7), the Rocket Plant, is approximately 0.14 acres in size and is located immediately northwest of Building 373. Site 25 consists of a 500-gallon (approximately) precast concrete pipe, which was used as an underground storage tank (UST), and the associated cast iron piping. The concrete pipe was installed vertically into the ground with a bottom section cast in the

concrete pipe. A 500-gallon fuel oil UST was removed from the area in 1998 under a separate DoD contract. The area around the 500-gallon fuel oil UST is not considered to be a part of Site 25.

Prior to the 1960s, wash/rinse water from the cleanup of formulation/pouring equipment drained into a settling basin within the building for removal of suspended solids. The solids were open burned at Site 4 (Burning Pad Residue Landfill). The wash/rinse water subsequently was discharged into Felgates Creek. The discharge line to the creek was replaced in the early 1960s by a 500-gallon UST which was installed to contain the wash/rinse water. From the 1960s to 1980s, the UST received batch wastes from NEDED assembly of 2.75-inch rockets as well as the wash/rinse waters. Once the tank was filled, the water was filtered through a carbon unit and discharged to the sanitary sewer system. The UST was closed in the early 1980s when the current aboveground storage tank (AST) was installed. Materials contained within the tanks consisted of binders, curatives, catalysts, stabilizers, and explosives.

In addition to the above areas, USEPA Region III personnel reportedly found "hard waste" (empty mine casings and other miscellaneous wastes) in the woods south/southeast of SSA 7. A removal action was conducted in June/July 1996 to remove the 500-gallon UST and associated piping. During the removal action, the bottom section, which had been cast to the concrete pipe, was heavily stained. The soil from beneath the UST was removed. There were no visible signs of staining along the sides of the UST or in the soil surrounding the sides of the UST. A strong solvent odor was noted during the removal activities.

3.1.21 WPNSTA Site 26 - Building 1816 Mark 48 Waste Otto Fuel Tank

Site 26 (formerly SSA 18) is approximately 6.7 acres in size and is located in the central portion of the Station at Building 1816, north of Sharpe Road and west of the intersection of Sharpe Road and Lee Road. A 2,500-gallon concrete UST and network of ancillary drain pipes that were formerly used to store waste Otto fuel were found within this area. This fuel consists of a mixture of Otto fuel and water, which may have also contained oil, denatured ethyl alcohol, detergent, and trace amounts of cyanide, halogenated hydrocarbons, and heavy metals. In late 1987, waste Otto fuel was discovered leaking from the tank. The fuel was removed, the tank was cleaned, and a RCRA closure permit was filed. In March 1995, the 2,500-gallon waste Otto fuel UST was removed along with an 8,000-gallon UST located in the vicinity. Site 26 has been retained as an IRP site because of chlorinated volatiles detected in shallow groundwater. The extent of this contamination has not yet been adequately defined.

3.1.22 WPNSTA Site 27 - Building 1751 Chemistry Laboratory Neutralization Unit and Drainage Area

Site 27, formerly SSA 9, occupies an area of approximately 1.9 acres, and is located adjacent to Building 1751 in the north central portion of the Station (near Site 8, the NEDED Explosives-Contaminated Wastewater Discharge Area). This SSA consists of a below-grade cylindrical unit into which acids from the Chemistry Lab were discharged for neutralization. Because it is below the ground, the integrity of the unit is unknown. The unit operated from 1969 to early 1995. The drainage was diverted to the sanitary sewer and ultimately to HRSD in 1995. In addition, there are four underground septic tanks in the area. Historical records indicate that industrial waste may have been stored in these tanks.

3.1.23 WPNSTA Site 28 - Building 28 X-Ray Facility Tank Drain Field

Site 28, formerly SSA 10, is located at Building 28 in the south central portion of the Station and occupies an area of approximately 5.8 acres. The X-ray process began in the late 1960s. Before silver recovery units were installed, the tanks may have stored hazardous wastes. The area consists of a septic tank drain field that receives sanitary wastewater from the X-Ray Facility at Building 28. It was assumed that by the end of Fiscal Year 1997, wastewater would be diverted to the sanitary sewer and ultimately to HRSD. This was accomplished in the later part of 1998.

3.1.24 WPNSTA Site 29 - Lee Pond

Site 29, formerly SSA 20, is an approximately 4.1 acre pond located in the east central portion of the Station. The pond receives drainage from Building 10 at Site 9 located due east of the pond. The drainage area is approximately 500 to 600 feet in length and was subjected to a limited removal action in 1994. Site 29 also receives stormwater runoff from the industrial area and sites therein such as Sites 18 and 19 and SSAs 8 and 22.

Lee Pond empties into a channel which in turn flows around the Site 16/SSA 16 study area into Felgates Creek. The pond has been investigated by the Commonwealth of Virginia in 1994 and as part of a Focused Biological Sampling and Preliminary Risk Evaluation (Baker/Weston, 1993b). Water levels in Lee Pond are raised and lowered during summer and winter respectively for support of the local

ecology. The SSP Report (Baker, 1998a) for Lee Pond indicates that additional RI/FS activities are necessary to address the site and area groundwater as an operable unit.

3.1.25 WPNSTA Site 30 - Bracken Road Incinerator and Environs

Site 30, formerly SSA 24, is in an area approximately 0.1 acres located north of Site 5 (Surplus Transformer Storage Area), northeast of a cooling pond (76A), and south of railroad tracks. The USEPA collected samples and detected metals and nitramine compounds exceeding regulatory screening levels. Additional investigation under the SSP was, therefore, necessary to determine potential human health risks and ecological concerns associated with this SSA. The SSP Report (Baker, 1998a) indicates that additional RI/FS activities are necessary to address environmental concerns at this site.

3.2 WPNSTA Site Screening Area Descriptions

This section describes the history of past disposal practices at each of the SSAs currently included in the FFA and the four SSAs which have been added for investigation and evaluation but which were not included in the FFA. As these are primarily newly identified areas, there is limited information available. The information contained in the following sections has been adapted from the SSP reports (Baker, 1997 and 1998), USEPA Region III's RCRA Solid Waste Management Unit Investigation, (USEPA, 1992a), and Study Area Analysis, Yorktown Naval Weapons Station Yorktown, Yorktown, Virginia, Volume 1 (USEPA, 1992b).

3.2.1 WPNSTA Site Screening Area 2 - Former EOD Burning/Disposal Area

SSA 2 is an irregular, U-shaped area located at the north end of the existing Explosives Ordnance Disposal (EOD) range which occupies an area of approximately 400 feet by 450 feet. The area was wooded and strewn with non-explosive arming devices, MK 46 shipping containers, various types of scrap metal, and debris. Numerous earthen berms and depressions indicate that earth-moving equipment has been used historically throughout the SSA. Demolition records indicate that the area was the original site of the EOD range for WPNSTA Yorktown and was actively used throughout the 1950s and 1960s for routine destruction of ordnance material. The area was closed in 1970 and operations were moved south to the present EOD range location. Anecdotal information indicates that the move was prompted by growing concerns that range operations might cause forest fires in the wooded areas bordering the

SSA. A removal action was conducted at SSA 2 during the summer and early fall of 1994 to remove three dump truck loads of scrap metal, 14 containers of lead, and 11 live ordnance pieces. The scrap metal included torpedo casings, bomb casings, powder cans, used detonation devices, tractor parts, marsh matting, and other miscellaneous debris. Based on the results of the SSP, no further RI/FS activities will be conducted at SSA 2; however, long-term monitoring of groundwater will be conducted as part of the Part B RCRA permit. Specifications of the long-term monitoring will be presented as part of the final permit.

3.2.2 WPNSTA Site Screening Area 3 - Fire Training Pits and Vicinity

SSA 3 occupies an area of approximately 2.7 acres and is located just north of Main Road and Site 16, the West Road Landfill, in the north central portion of the Station. The area consists of three concrete oil pits; one is T-shaped and the other two are rectangular. One rectangular pit is located at the eastern end of the field, the second rectangular pit is located in the western end of the field, and the T-shaped pit is located in the central section of the field, where a patch of stressed vegetation is evident. Berms were built around each of the pit areas in 1986 and a roof was added to each area in 1991. Debris was reportedly placed in each pit, doused with jet fuel and set on fire. In addition, in the vicinity of the pits, there appeared to be portions of a tanker trailer that was formerly used for confined space entry training. The trailer is open on the bottom and placed directly on the soil. The inside of the trailer is blackened and burned. A removal action was conducted during the late spring/early summer of 1996 to remove the fire training pits. Based on the results of the SSP Report (Baker, 1998a), no further RI/FS activities are suggested at this SSA.

3.2.3 WPNSTA Site Screening Area 4 - Weapons Casing/Drum Disposal Area

SSA 4 occupies approximately one-half acre between Main Road and Bypass Road at the headwaters of a tributary leading to Roosevelt Pond. The area consists of a ravine in which debris, including weapons casings and drums, was deposited. There is a flat, grassy area just along the roadway, indicating that this area may have been an old landfill. Some of the material in the ravine may have been present as a result of landfilling activities. A removal action was conducted at SSA 4 during the summer and early fall of 1994 to remove surface debris in the ravine. The wastes encountered included various types of ordnance, empty drums, miscellaneous construction/demolition debris, fire extinguishers, and

nominal amounts of paint wastes and paraffin wax. Based on the results of the SSP Report (Baker, 1998a), no additional RI/FS activities are suggested for this SSA.

3.2.4 WPNSTA Site Screening Area 5 - Bypass Road Landfill

SSA 5 is located just north of Bypass Road and covers approximately 0.9 acres. This area consists of a ravine in which debris is evident. A small stream passes through the site and exits from a culvert that begins south of Bypass Road. The small stream is the second tributary which flows into Roosevelt Pond. Both Bypass Road and the railroad system were constructed in 1919 and are still in use.

Metal debris, with lesser amounts of concrete and miscellaneous materials, was present at SSA 5. Two empty drums were present. No wood was identified among the surface debris. A removal action was conducted at SSA 5 during the summer of 1994 to remove the small amount of ordinary debris including empty drums, pipes, scrap metal, and rubble. Based on the results of the SSP Report (Baker, 1998a), no additional RI/FS activities are suggested for this SSA.

3.2.5 WPNSTA Site Screening Area 8 - Building 350 Rail Roundhouse Maintenance Area Trench Outfall

SSA 8 occupies an area of approximately 0.4 acres, and is located outside Building 350, on the western side of the railroad tracks, in the southeastern corner of the Station. Within Building 350, there is one concrete trench, which was (and is presently) used to access train engines from below. The trench is used for train maintenance and there are no records of any releases from the trench. During train maintenance liquids may have dripped into the trench, but were covered with absorbent material and put into drums for disposal. The floor of the trench appears heavily stained; however, the trench drain has been plugged. The drain pipe from the trench leads to a catch basin approximately 100 yards south of the locomotive repair building. The outfall associated with the catch basin extends under the railroad tracks toward Bollman Road. Natural surface drainage (overland flow) extends under Bollman Road toward the wooded area east of Site 18. The Final SSP Report for SSA 8 (Baker, 1997) concluded that this area should not be retained as an IR site for further investigation.

3.2.6 WPNSTA Site Screening Area 11 - Building 3 Neutralization Unit

SSA 11 is located at the southeast corner of Building 3 in the eastern section of the Station (southwest of Site 12 near SSAs 12 and 13) and occupies an area of approximately 0.2 acres. SSA 11 consists of an open, metal tank (approximately 3 feet by 5 feet by 3 feet deep) and associated trench and sump. This tank was apparently used for neutralization of wastes from an unknown process, but has been inactive for at least 15 years. Chipping and pitting are evident in the trench and sump. The trench drains to the storm sewer system. The outfall from the SSA 11 storm sewer system is located in the vicinity of the headwaters of Ballard Creek. The Final SSP Report for SSA 11 (Baker, 1997) concluded that this area should not be retained as an IR site for further investigation.

3.2.7 WPNSTA Site Screening Area 12 - Public Works Storage Yard/Building 683 Vicinity

SSA 12 is approximately 1.5 acres in size and is located in the Public Works (PW) storage yard and the surrounding area in the eastern portion of the Station near Site 12 and SSAs 11 and 13. Surface water bodies are not located near this SSA. One area consists of a field, approximately 150 feet by 300 feet, in which waste generated by the Public Works Department is stored. Drums of used motor oil and used batteries were observed on pallets and directly on the ground (Kearney, 1992). Historically, the area was used to store old tires. Another area, controlled by Building 645, consists of a fenced yard used to store new electrical transformers and other electrical equipment. Used or damaged transformers were not stored at SSA 12. The new transformers were staged on pallets before installation. Historical records indicated that wastes may have been stored in this area in the past. In addition, there is a formerly wooded area where demolition debris was reportedly deposited. Concrete debris is visible at the edge of the area. Currently, approximately one-half of the area is used for vehicle storage.

In September 1994, a soil investigation was conducted by Baker at SSA 12 related to the proposed location of a new building (P-518). This investigation involved the sampling of surface and subsurface soil to determine if site soil was contaminated, and thus, affecting the construction of the new building (Baker, 1995).

In February 1996, an UST was discovered during site reconnaissance when a partially buried pipe was discovered in the area. It is reported that the UST may have been a gasoline tank. This tank was removed prior to any formal UST program; therefore, records of the removal are not available.

The Final SSP Report for SSA 12 (Baker, 1997) concludes that this area should not be retained as an IR site for further investigation.

3.2.8 WPNSTA Site Screening Area 13 - Building 529 Battery Drainage Area

SSA 13 occupies an area of approximately one-half acre and is located outside Building 529 in the eastern portion of the Station near Site 12 and SSAs 11 and 12. The area consists of pavement where neutralized battery washwater, created from washing the external portion of the batteries and neutralizing the washwater with baking soda, was released and migrated to a storm drain approximately 100 feet away. The storm drain is located below the southeastern corner of the concrete platform of Building 529. The pavement on the western side of Ballard Road and the eastern side of Building 529 is sloping on all sides toward the storm drain. The surface water is channeled to the storm sewer system and eventually to the Ballard Creek headwaters. The entire area is asphalt covered. The pavement is currently worn, but intact, with some vegetation apparent. The Final SSP Report for SSA 13 (Baker, 1997) concludes that this area should not be retained as an IR site for further investigation.

3.2.9 WPNSTA Site Screening Area 14 - Building 537 Discharge to Felgates Creek

SSA 14 occupies an area of approximately 0.4 acres and is located outside Building 537 between Site 8 (NEDED Explosives-Contaminated Wastewater Discharge Area) and SSA 9 (Building 1751 Chemistry Laboratory Neutralization Unit and Drainage Area), in the north central portion of the Station. This SSA consists of a pipe leading from the building, through which nitramine-contaminated wastewater was reportedly discharged to Felgates Creek. Some rubble and rusted piping were found where this pipe was reportedly located. SSA 14 was investigated with Sites 2, 8, and 18 in 1997. Results of the investigation are forthcoming.

3.2.10 WPNSTA Site Screening Area 15 - Sewage Treatment Plant #1/Sludge Drying Beds and Discharge Area

SSA 15 is comprised of the sewage treatment plant (STP) #1/Sludge Drying Beds and Discharge Area and represents AOCs 5, 6, and 7, which are also former sewage treatment plants. SSA 15 is located in the southeastern corner of the Station, east of Buildings 3 and 4, and south of Site 12 (Barracks Road Landfill). This site covers approximately 0.3 acres and consists of an Imhoff tank, a trickling filter, a

sludge drying bed, and a chlorination unit. Wastewater reportedly entered the Imhoff tank, which operated as a primary settling basin for the waste. The water then was passed through the trickling filter for biological treatment and pumped back to the Imhoff tank for secondary settling. The water was chlorinated in the chlorination unit and discharged to a tributary of Ballard Creek. Sludge from the Imhoff tank periodically was removed and placed in the sludge drying bed. STP #1 received and managed only sanitary waste from physical plants and the Officer's Club located nearby, but may have treated nitramine-containing and other industrial wastewater. WPNSTA Yorktown personnel have reported, during the operation of STP #1, a mercury-containing bearing on the trickling filter cracked, allowing mercury to be released. Also, WPNSTA Yorktown personnel indicated that sludges from SSA 15 were transported to SSA 6 and land farmed. Currently, substantial vegetation is present in the sludge drying bed. Based on the results of the SSP, no further RI/FS activities will be conducted. However, because of the site's proximity to Site 12 and the Industrial Area, a final action at SSA 15 was addressed in the Site 12 ROD. Additional investigative efforts for SSA 15 or AOCs 5, 6, and 7 were not recommended.

3.2.11 WPNSTA Site Screening Area 16 - Building 402 Metal Disposal Area and Environs

SSA 16 is located between West Road and a set of railroad tracks, just west of Building 402 and encompasses the northern area of Site 16. The area is a large dirt field, approximately 0.4 acres in size, where scrap metal was stored. Site 16/SSA 16 also is referred to as OU II. Dumpsters containing scrap metal are located on the lower southwest side of the yard; scrap metal and empty drums also are scattered over the ground surface near these dumpsters. This area was reportedly used for scrap metal storage prior to the construction of the Hazardous Waste Storage Facility.

SSA 16 was evaluated in conjunction with Site 16 because of its proximity and geophysical data which indicate overlap between the two areas. Based on the results of the risk evaluation and limited confirmational sampling by USEPA Region III, a "No Further Remedial Action with Institutional Controls" ROD was finalized for Site 16/SSA 16 (OU II) on September 29, 1995.

3.2.12 WPNSTA Site Screening Area 17 - Building 1456 Mark 46 Waste Otto Fuel Tank

SSA 17, which occupies an area of approximately 330 feet by 310 feet, is located northwest of SSA 18 in the central portion of the Station. This SSA is located approximately 400 feet north of Sharpe Road

and approximately 2,000 feet northwest of the intersection of Sharpe and Lee Roads. This area previously consisted of an inactive, 5,000-gallon, underground steel tank and a network of ancillary drain pipes; the tank was located under the parking apron. This tank was used to store waste Otto fuel generated during cleaning procedures associated with MK 46 torpedo activities. Waste Otto fuel is a mixture of Otto fuel and water which potentially contained oil, denatured ethyl alcohol, detergent, and trace amounts of cyanide. In June 1988, a tank integrity test was performed on the waste Otto fuel tank. The tank system failed the hydrostatic integrity test and was subsequently taken out of service, the floor drains leading to the tank were sealed, and a RCRA closure and post-closure plan was submitted to VDEQ in November 1988. The 5,000-gallon waste Otto fuel UST system was removed in March 1995. The MK 46 torpedo shop subsequently accumulated waste Otto fuel in compatible, 55-gallon drums, which were stored for less than 90 days prior to transport off site for disposal. Waste Otto fuel is not currently generated or stored at SSA 17. Based on the results of the SSP, no further RI/FS activities will be conducted at SSA 17.

3.2.13 WPNSTA Site Screening Area 19 - Beaver Road/Ponds 11 and 12 Drainage Area and Environs

SSA 19, which occupies an area of approximately 164 acres (3,000 feet by 3,500 feet), is located in the northwestern section of the Station and encompasses the area surrounding the EOD range, including drainage into Ponds 11 and 12. A smaller pond, Pond 11A, is situated along the northwest perimeter of the SSA. SSA 19 is circumjacent to SSA 2. The area is used for explosive waste destruction. The EOD range began operations in 1970 when the former disposal range (SSA 2) was taken out of service. Soil is stacked approximately 40 feet above ground surface, holes are dug about 12 to 20 feet into the mound of soil, the holes are filled with explosive ordnance, and backfilled. The explosives are detonated; the same soil is used repeatedly. During the winter, this area is covered and grass is grown to prevent erosion. Unlined settling ponds collect runoff, through pipes, from this area. Effluent from these ponds may discharge to nearby Ponds 11 and 12 and ultimately to King Creek and the York River. In addition, nine metal containers of varying sizes are used for burning explosive waste when hotter burning is required. This type of burning is performed one to two times per year, primarily in the summer. Based on the results of the SSP (Baker, 1998a), no further RI/FS activities will be conducted at SSA 19.

3.2.14 WPNSTA Site Screening Area 21 - Roosevelt Pond

Roosevelt Pond is an approximately 22.2 acre pond located in the eastern portion of the Station. The pond receives stormwater from the industrial area and sites therein such as SSAs 4 and 5. Roosevelt Pond empties into the York River. The pond has been subjected to limited investigations by the Commonwealth of Virginia in 1994 and a Focused Biological Sampling and Preliminary Risk Evaluation (Baker/Weston, 1993b). The SSP Report (Baker, 1998a) for SSA 21 indicates that no additional RI/FS efforts are needed to address environmental concerns at this SSA.

3.2.15 WPNSTA Site Screening Area 22 - Sand Blasting Grit Pile

Site Screening Area 22 (formerly AOC 4) is an area which consists of approximately 0.5 acres in the eastern portion of WPNSTA Yorktown adjacent to Building 530. Building 530 was built and put into operation in 1945 and operated until the early to mid 1980s. Bomb fins and wings, inert bomb casings, and various other inert ordnance items were grit blasted inside Building 530 in a blasting booth and outside at the northern end of the building near a personnel door. Blasting material may have been composed of coal slag or steel grit. The blasting booth within the building utilized a dust collector. The dust, which was accumulated in the dust collector, may have been deposited in the vicinity of the northern side of Building 530. AOCs were investigated in 1995 by Baker. Elevated concentrations of cadmium were detected in SSA 22 soil samples which warranted its retention for further investigation under the SSP.

Based on the results of the SSP Report (Baker, 1998a), no further RI/FS activities are recommended for SSA 22. However, an Engineering Evaluation/Cost Analysis (EE/CA) and removal action will be conducted to mitigate any potential soil contamination.

3.2.16 Site Screening Area 23 - Coal Storage Area

SSA 23, is an area of approximately 1-acre adjacent to Building 708. Coal was stored in this area from 1953 to the late 1970s. The coal pile was surrounded by a 9-inch thick reinforced concrete wall. The walled storage area is referred to as Building 1827. Every 20 feet a hole 2- by 6-inches was located at the ground surface of Building 1827 on the north side of the walled area. These holes were to release water from the coal storage area. Currently, only residual coal remains within the coal storage area. As

with other AOCs, SSA 23 was investigated in 1997 and elevated concentrations of inorganics including arsenic and vanadium were detected in surface soil samples. Some samples were collected near the drainage holes in the wall surrounding the coal pile. Additional investigation under the SSP was, therefore, necessary to determine potential human health risks and ecological concerns associated with this SSA. The SSP Report (Baker, 1998a) indicates that housekeeping activities are warranted for this site and could address the potential concerns raised by inorganic contamination.

The blasting grit and inorganic contaminated soil will be removed and disposed, rather than listing this SSA as an IRP site.

3.3 CAX Site Descriptions

This section provides summaries of the site histories and status for each IR site and AOC. All relevant information for a given site is presented in the same subsection.

3.3.1 CAX Site 1 – Landfill Near Incinerator

Site 1, which covers approximately 1.3 acres, is located along the York River behind the old incinerator. The incinerator was dismantled between 1989 and 1992. From 1942 to 1951 the landfill was used as a disposal area for burn residues and from 1951 to 1972 it was used as a general landfill. A variety of wastes, including empty paint cans and paint thinner cans, cartons of ether and other unspecified drugs, railroad ties, tar paper, sawdust, rags, concrete, and lumber were burned and disposed in the landfill until 1981. The landfill was not used after 1981. An estimated 34,500 tons of solid waste were buried at the landfill. The surface of the landfill is relatively flat and is overgrown with vegetation most of the year. In 1981 the landfill was and a 2-foot soil cover the debris. Part of the landfill and a locked gate. The fence does not correspond with the landfill perimeter. Very rugged terrain and dense vegetation outside the fence limit access to the unfenced parts of the landfill. The areas immediately adjacent to the former landfill are wooded.

There is a steep drop to the York River 25 feet below the landfill. The bank of the York River adjacent to the landfill is extremely steep and is not vegetated. Baker conducted a limited shoreline erosion assessment of the riverbank in the vicinity of Site 1. The assessment concluded that the erosion of the riverbank is caused by high water levels and wave action.

A large area of debris is present to the north of the landfill. The area contains cables, conex boxes, an empty storage tank, automobiles, airplane/boat parts, and other miscellaneous items. This area was previously designated as AOC 5 – Debris Area, but is currently being managed as part of Site 1.

A small area along the northeastern perimeter has been eroding. The area in which the landfill perimeter was eroding was difficult to access during high tide and was littered with fallen/washed up trees/wood. A TCRA was conducted to remove the debris that had collected on the beach area (December 1999) and to stabilize the toe of the bank in the erosion area (January 2000). Three sand-filled geosynthetic tubes were installed to stabilize the toe of the landfill. This will stabilize the site until the long-term solution for the management of the Site 1 landfill is implemented. The Final Action Memorandum for the TCRA was prepared by Baker in August 1999 (Baker, 1999d).

There are eight monitoring wells present at the site. Monitoring wells 1GW01 through 1GW04 were installed in 1981 as part of the landfill closure. Monitoring wells 1GW05 and 1GW06 were installed in 1985 as part of the Confirmation Study. Monitoring wells 1GW07 and 1GW08 were installed by Weston as part of the Site Investigation in 1992.

Based on the analytical data collected during investigations at the site, soil and sediment in the vicinity of the landfill have been affected by contaminants. The most significant contamination consists of semi-volatile organic compounds (SVOCs), PAHs, and metals (including lead and other heavy metals). PCBs were also detected at potentially actionable levels (i.e. greater than 1.0 parts per million [ppm]) in soil and sediment. LANTDIV is actively addressing the contamination being released by the site.

3.3.2 CAX Site 2 – Contaminated Food Disposal Area

This site is located in a grassy area in the woods behind the cold storage warehouse. Ammonia-contaminated frozen food was buried in a disposal pit approximately 50 feet in diameter and 12 to 15 feet deep in 1970. The ammonia was the result of a leak that developed in one of the cold

storage rooms. The food was buried with cellophane wrappers and boxes intact. The site was overgrown at the time of the IAS (NEESA, 1984). The IAS concluded that additional study was not warranted for the site because the wastes buried at the site would naturally decompose.

3.3.3 CAX Site 3 – Submarine Dye Disposal Area

This site is located at the northeastern corner of Building CAD 15. The area is presently used as a storage lot. The dye was stored in 55-gallon drums on two or three pallets located between the warehouses. The drums corroded and dye leaked onto the ground and into the storm sewer system. On rainy days, puddles containing a green fluorescein dye were observed. At times, the dye would leak into the storm sewer leading to the York River, turning the river green. The Coast Guard notified the Activity and the drums were subsequently removed in the early 1970s (NEESA, 1984).

The IAS concluded that additional study was not warranted for the site because the dye no longer posed an environmental hazard.

3.3.4 CAX Site 4 – Medical Supplies Disposal Area

Site 4 is located along the pond just upgradient of Youth Pond, between buildings CAD 11 and CAD 12. In 1968 or 1969, out-of-date medical supplies, possibly including syringes and empty IV bottles, and one-inch metal banding were unloaded down a bank in this area and covered with soil. Much of this material was reportedly removed from the site because syringe needles were getting stuck in deer hooves. After heavy rains, what appeared to be syringes could sometimes be seen floating in the adjacent pond and in Youth Pond. The IAS concluded that additional study was not warranted for the site due to the inert nature of the materials disposed. During a May 4, 1998, site visit with VDEQ representatives, packages of what appeared to be unused needles wrapped in foil were noted within the drainage swale leading to the unnamed pond.

In May 1998, Reactives Management, Inc. removed surficial debris. Approximately 200 pounds of debris and 13 pounds of sharps (metal and plastic) were recovered from the site and incinerated. Debris was removed from the surface, by hand or with hand tools, and no intrusive work (e.g., excavation) was conducted.

The Draft Final Site Inspection Report (Baker, 2000e) recommended that a limited investigation to define the lateral extent of debris at the site be performed. In addition, an EE/CA was recommended to evaluate the most appropriate means of removing or covering the debris that is present at the site.

3.3.5 CAX Site 5– Photographic Chemicals Disposal Area

In 1967 or 1968, outdated photographic chemicals (developers and fixers) were reportedly disposed in a pit of unknown dimensions. This site was originally a "marl pit" located behind (southeast) of the old DuPont munitions factory area, near Second Street. The IAS concluded that, based on the small quantity and the non-hazardous nature of the chemicals that were disposed, further study was not warranted.

In June 1998 Baker and LANTDIV representatives visited Site 5 and reconnoitered the area to locate the site. No signs of contamination, distressed areas, or evidence of the disposal pit could be seen. Based on the small quantity of the chemicals that were reportedly disposed and the lack of evidence of contamination, the site is not considered to be a significant source of contamination.

3.3.6 CAX Site 6 – Spoiled Food Disposal Area

Site 6 is located to the west of the old DuPont ammunition factory. Reportedly, approximately 750 cubic yards of food spoiled in cold storage was buried in a 12 to 15 foot deep pit around 1970. The IAS concluded that additional study was not warranted for the site because the decomposed food was not hazardous.

3.3.7 CAX Site 7 - Old DuPont Disposal Area

Site 7 is located along the York River. The area is comprised of a flat, sparsely vegetated depression, with a berm along the northern perimeter. Gravel and ballast rock can be seen on the ground surface. To the east of the flat area, the land drops off slightly and in a very small area along the perimeter buried debris (pipe, metal, wood) can be seen outcropping from the edge of the slope. The nature of the debris indicates that the disposal occurred more recently than the World War I era.

According to the IAS, Site 7 received wastes from the City of Penniman and from the DuPont facility. The wastes were reported to be non-hazardous and/or inert. However, specific information documenting the types and quantities of wastes was not available. E.I. DuPont de Nemours and Company was contacted during the IAS, but specific information regarding disposal practices was not available. The surface of the site was described as level and supporting a variety of grasses. No evidence of stressed vegetation was noted during the IAS. The western, northern, and eastern boundaries of the site are clearly defined by steep banks rising an estimated 10 to 20 feet in elevation. The IAS also indicates that ammunition waste was disposed at the site, but it is not clear how this determination was made.

LANTDIV recognizes that sources of contamination may be present at the site. Further investigation and possible removal of sources of contamination may be required.

3.3.8 CAX Site 8 – Landfill Near Building CAD 14

Site 8 is located approximately 300 feet north of Building CAD 14 and is estimated to be less than one-quarter acre in size. The disposal area reportedly consisted of a series of trenches 2,000 feet long and 10 feet deep. The site was used at various times since the early 1940s but was most active before the Landfill near the Incinerator (Site 1) was opened. Waste was reportedly disposed of at the site as recently as 1980.

Specific information documenting disposal practices is not available. Reportedly, only non-hazardous materials such as spoiled meat, spoiled candy, and clothing have been disposed at the site. The surface of the site is level and overgrown with tall grasses, and at the time of the IAS, there was no surface evidence of waste and no stressed vegetation.

The IAS concluded that additional study was not warranted for the site because wastes disposed at the site was not hazardous. Based on the inert nature of the materials that were reportedly buried at Site 8, the site is not considered to be a significant source of contamination.

3.3.9 CAX Site 9 – Transformer Storage Area

This site is approximately 7,000 square feet in size and located adjacent to the northwest corner of Building CAD. Between 1973 and 1980, electrical transformers, some of which contained PCBs, were

reportedly stored at the site for repair or disposal. Between six and thirty transformers were stored at the site at a time. The storage area surface was not paved although it was enclosed by an earthen wall. Transformers were not stored at the site after 1980 and the area was graded and covered with gravel (NEESA, 1984).

The IAS recommended additional study due to the potential for PCB contamination. The Confirmation Study Step 1A (Verification), Round One (Dames and Moore, 1986) included collection of 13 soil samples from Site 9 for analysis of PCBs and 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). Arochlor 1260 was the only PCB detected (eight of 13 samples). TCDD was not detected in any samples. Detected concentrations of Arochlor 1260 ranged from 21 micrograms per kilogram (mg/kg) to 321 mg/kg. No additional sampling was recommended because of the low levels of the detections.

A Draft Final NFRAP Decision Document was submitted for the site in December 1999. The document was reviewed by the VDEQ and USEPA and further investigation and an ecological risk assessment were recommended. Further discussion is required to determine the action to be taken at this site.

3.3.10 CAX Site 10 -Decontamination Agent Disposal Area Near First Street

Site 10 is located south of First Street in the southernmost part of the old DuPont munitions plant. An estimated 75 to 100 gallons of decontamination agent (DS-2) was reportedly buried at the site before 1982. DS-2, which is toxic to humans and corrosive to metals, is used for decontaminating equipment contaminated with nerve or blister agents. Whether the DS-2 was neutralized prior to disposal is not clear.

The IAS recommended that a magnetometer survey be performed to locate metallic containers of DS-2. A magnetometer survey of Site 10 was performed in December 1985 (Geosight, 1985). The mounds of soil present in the wooded area appeared to contain little iron. The magnetometer survey was summarized in the Final Remedial Investigation Interim Report (Dames and Moore, 1991). The report recommended that historical aerial photographs be reviewed to ascertain additional information about the disposal activities and that a risk assessment be performed.

The site investigation for Site 10 was performed in 1992. As part of the site investigation, three monitoring wells were installed within the shallow aquifer. One surface soil sample and three subsurface

soil samples were collected from each monitoring well boring. Groundwater samples were collected from each well. The site investigation report concluded that low levels of contamination in soil and groundwater did not appear to be related to DS-2.

In 1997, as part of the SSP investigation Baker re-sampled the three Site 10 monitoring wells to confirm the site investigation results. No organic compounds were detected in groundwater.

SI and SSP investigation sampling did not locate any significant sources of contamination at the site. The buried containers of DS-2 have not been located to date. Based on the results of these investigations and the relatively small volume of DS-2 that was reportedly buried, the site does not appear to pose a significant threat to human health or the environment.

3.3.11 CAX Site 11 – Bone Yard

Site 11 encompasses an estimated 8-acre area located approximately 250 ft south of Antrim Road, behind the public works facility. The site was reportedly used between 1940 and 1978 to dispose oil, asphalt, and gasoline. These wastes were contained in 15 barrels and two 500-gallon above-ground tanks at the time of the IAS. It was reported that unspecified wastes might also have been buried at the site.

During the IAS, scrap metal, old containers (fuel oil, mixing tanks, etc), fence posts, and abandoned cars were found inside the gate within an estimated 1-acre area. Various discarded clamshell buckets and other surplus metal objects used in heavy construction were also located throughout the area. Approximately ten 5-gallon containers labeled "paraplastic" (concrete sealant) were also present.

South of the entrance, numerous barrels containing petroleum products were discovered, as well as several 500-gallon square tanks containing asphalt or oil used in making asphalt. These tanks were reported to have leaked in the past.

Numerous tar cylinders were deposited at the end of the road leading into the site. The cylinders had apparently been there for quite a while, as their initial cardboard containers had decomposed and the tar had melted. Numerous pieces of scrap metal and surplus construction equipment were scattered along the path.

Due to the oil and gasoline at the site, and reported spills and waste burial, the IAS recommended additional study for Site 11.

The Confirmation Study Step 1A (Verification), Round One (Dames and Moore, 1986) included collection of three surface water and three sediment samples, and installation of three shallow monitoring wells. Groundwater samples were collected from each of the three monitoring wells. A total of nine soil samples were collected – one composite sample from each of the monitoring well borings, and six discrete samples from locations throughout the site. A total of 18 samples were collected from 15 drums (three of the drums contained a liquid phase which was sampled).

The Confirmation Study Step 1A (Verification), Round Two (Dames and Moore, 1988) included collection of three surface water and three sediment samples co-located with the Round One samples, and collection of a second round of groundwater samples from each of the three monitoring wells that were installed during Round One.

The Final Remedial Investigation Interim Report (Dames and Moore, 1991) reported that most of the 55-gallon drums and scrap metal had been removed from the site since the IAS. This report, which characterizes the site as more of a scrap yard than burial site, summarized the findings of the Confirmation Study.

The Site Investigation for Site 11 (Weston, 1994) included a soil-gas survey, collection of 14 surface soil samples, installation of two monitoring wells with soil samples collected from each boring, collection of groundwater samples from the newly installed and existing monitoring wells, collection of 16 sediment samples from eight locations, and collection of five surface water samples.

The Site Investigation concluded that previous activities at Site 11 have had some impact on shallow soils, marsh sediments, and lake sediments, but very little to no impact on groundwater and surface water. Potential for further degradation of the environment was minimal. The report recommended that the drums and asphalt tank remaining on site be removed. Confirmation of TCE detections in surface soil, VOCs and dissolved metals in groundwater, and TCE at one surface water sample location was also recommended.

The SSP investigation (Baker, 1997) included collection of an additional round of groundwater samples from each of the Site 11 monitoring wells. No organic compounds were detected. Concentrations of total (unfiltered) metals were significantly lower in the 1997 samples than in previously collected samples. Low-flow sampling was used during the SSP investigation. The SSP report concluded that no additional investigations be conducted at Site 11.

At the time of the SSP groundwater investigation (August 1997), approximately 60 drums were noted in the woods along with three tanks that contained tar. Approximately one half of the drums were empty. The remaining drums contained one or a combination of the following: tar, leaves, soil, or sludge. The drums and tanks were removed from the site in early September 1997 by Industrial Marine Services, Inc. of Norfolk, Virginia. Approximately 60 tons of material, including drums, tanks, solidified tar, and miscellaneous scrap/materials were disposed as non-hazardous waste.

The Draft Removal Closeout Report (Baker, 2000a) summarizes removal activities that have occurred at Site 11 – Bone Yard. In November 1999.

Previous investigations at Site 11 have not located any sources of significant contamination at the site. Previous removals and housekeeping activities have eliminated sources of contamination from the site; however, an RI/FS is planned in the future to thoroughly evaluate the site.

3.3.12 CAX Site 12 – Disposal Site Near Water Tower

Site 12 is located approximately 2000 feet west of Jones Pond. The site was used for surface disposal of scrap metal, primarily old automobile parts and iron pipe. Based on visual inspection of the site approximately 10 to 110 cubit feet of material were disposed at the site. Because the materials disposed at the site were reportedly not hazardous, the IAS recommended no further study.

3.3.13 CAX AOC 1 – Scrap Metal Dump

AOC 1 is a debris disposal area located just west of Chapman Road in two ravines along unnamed tributaries to Jones Pond. Wood and metal debris outcrop from the banks of the ravines.

In November 1999 a field investigation that included a geophysical survey and collection of soil, surface water and sediment samples was performed. VOCs, SVOCs, pesticides, PCBs, inorganics, and cyanide were detected in the surface soil samples. SVOCs and inorganics were detected in the surface water at low levels. VOCs, SVOCs, PCBs, and inorganics were detected in the sediment samples. The extensive volume of debris at the AOC is a potential source of contamination.

The Draft Final Site Inspection Report (Baker, 2000e) recommended that a limited investigation to evaluate disposal parameters be performed. In addition, an EE/CA was recommended to evaluate the most appropriate means of removing or covering the debris that is present at the site.

3.3.14 CAX AOC 2 – Dextrose Dump

AOC 2 was discovered during site visits performed by LANTDIV, USEPA, VDEQ, and Baker in late 1997 and early 1998. The area is situated in woods, north of Garrison Road, along the southern perimeter of CAX. The area contains several rows of concrete foundation piers which, at one time apparently supported a Shipping House at the former Penniman Shell Loading Plant. Most of the Penniman facility was demolished between 1918 and 1925. Grass-covered lanes which lead to the area are probable locations of former rail lines that have been removed. Several glass bottles, many of which are labeled dextrose, were present. In addition, several partially buried empty drums were also noted. Mounds of soil which are present may also indicate buried materials. Additional buried drums may be located in this area.

During May 1998, Reactives Management, Inc. removed 470 bottles from the site as part of a routine housekeeping operation and selected 24 bottles for random analysis. Each bottle contained greater than 2,000 ppm glucose indicating that the bottles did contain dextrose, as suspected.

In 1998, Baker performed a field investigation for AOC 2 that consisted of a geophysical survey, and soil and groundwater investigations. The Field Investigation Report (Baker, 1999b) recommended that the sources of the geophysical anomalies and potential sources of contamination be identified by excavating a total of six shallow test pits in the vicinity of the most significant anomalies detected. In November 1999 Baker performed a field investigation that included test pits and exploratory hand auger borings to define the lateral extent of buried debris at the site. Samples of native soil and soil within the debris zones were collected. During the investigation, a large volume of buried drums and respirator

filter canisters was encountered. A few of the drums contained a thin layer of tar coating or residue. The remaining drums were empty.

In the Draft Final Field Investigation Report (Baker, 2000f), additional geophysical surveying with confirmatory test pitting was recommended to further delineate the extent of buried debris, with emphasis placed on locating areas of buried respirator cartridge canisters. Based on the findings of the investigation, it was recommended that an Engineering Evaluation/Cost Analysis (EE/CA) be completed to determine the appropriate management strategy for the site.

3.3.15 CAX AOC 3 – CAD 11/12 Pond Bank

AOC 3 consists of an approximately 20-foot by 20-foot by 10-foot high pile of metal banding along the north bank of the unnamed pond, north of D Street. The pond is situated between Buildings 11 and 12. This area, which also contains a few empty drums, is adjacent to Site 4 – Medical Supplies Disposal Area This location was designated as an AOC in 1998 following site visits by LANTDIV, USEPA, and VDEQ representatives.

During the 1999 field investigation, two soil samples and two sediment samples were collected next to the metal banding pile. Results of the sample analyses were included in the Site Inspection Report – Site 4 and AOC 1 (Baker, 2000e). The site is not currently considered to be a significant source of contamination.

This area will be managed separately from Site 4. The samples collected during the 1999 field investigation were intended to determine if future investigation is warranted and to confirm that there are no sources of contamination present within the pile so the pile can be removed as part of a housekeeping measure, rather than under a removal action. Removal of the metal banding pile or other actions at the site are not currently scheduled or funded.

3.3.16 CAX AOC 4– IR SITE 4 – Medical Supplies Disposal Area

During 1998, AOC 4 was identified as a new AOC by LANTDIV. However, based on review of site history and available information, it was determined that AOC 4 is actually the same area as Site 4. AOC 4 will no longer be addressed as separate entity.

3.3.17 CAX AOC 5 - Debris Area

During 1998, AOC 5 was identified as a new AOC by LANTDIV. AOC 5 is the large pile of debris at the toe of the Site 1 landfill which contains cables, convex boxes, an empty storage tank, automobiles, airplane/boat parts, and other miscellaneous items. Based on the results of the 1998 field investigation (Baker, 1999b), which included a geophysical survey and soil and sediment sampling in the vicinity of the pile, LANTDIV decided that it was more appropriate to manage these two areas (Site 1 and AOC 5) as one unit. VDEQ concurred. Consequently, AOC 5 will no longer be addressed as a separate unit and will be managed as part of Site 1.

3.3.18 CAX PENNIMAN AOC

There are five sub-areas within this AOC:

- Ammonia Settling Pits – This area consists of earthen ammonia settling pits that were part of a former shell loading area located on Cheatham Annex. Wastewater from an ammonia finishing building was discharged through these settling pits.

- Trinitrotoluene (TNT) Graining House Sump – This area consists of a concrete-lined, open-top pit believed to be the sump pit for the TNT graining house in the former shell loading area.

- TNT Catch Box Ruins – This area consists of an earthen, brick-lined depression located immediately adjacent to the TNT graining house in the former shell loading area. This area was used to separate TNT particles from wastewater.

- Waste Slag Material – This area consists of waste metallic slag material that is located throughout the shell loading area, predominantly along the railroad tracks.

- 1918 Drum Storage – This area was used for the storage of 55-gallon drums when the shell loading area was active.

Based on an agreement among LANTDIV, VDEQ, and Baker, only three of the five sub-areas will be addressed in the upcoming field investigation: Ammonia Settling Pits, TNT Graining House Sump, and TNT Catch Box Ruins. All parties agreed that there was insufficient evidence of site-related activity to warrant further investigation at the Waste Slag Material and 1918 Drum Storage sub-areas.

The following investigative activities are proposed at the Penniman AOC: collection of soil samples, collection of surface water and sediment samples, and installation of temporary monitoring wells.

These sub-areas of the Penniman AOC have not yet been investigated. Detailed figures presenting the site plan have not been developed. A Site Investigation Report, including figures and site photographs, summarizing results and conclusions of the field investigation (June 2001) is scheduled to be finalized in July 2001. Pending results of the Site Investigation Report, an RI/FS may be recommended for the Penniman AOC.

4.0 CERCLA Process Activities

The investigation and remediation activities to be completed at identified sites at WPNSTA Yorktown and CAX will follow the guidelines established by the USEPA as part of the CERCLA process. Once an SSA has been identified as potentially contaminated and the site screening investigation and risk screening process (both limited in scope) have determined that a potential risk to human health and/or the environment exists, the SSA will be subjected to full RI/FS process. However, a removal action and/or an interim remedial action also may be appropriate. The decision to implement one or a combination of these actions at either already established RI/FS sites or SSAs is dependent upon the nature and extent of contamination at the site, how well it is characterized, the degree of associated human health and/or environmental risks, and the complexity of the potential remedial actions (i.e., how apparent the optimal remedy is). CERCLA processes are described below.

4.1 RI/FS Process

The RI/FS process is generally the longest step in investigating and remediating CERCLA sites. Figure 2-3 outlines the steps to remedial action under the RI/FS process. For the RI/FS, a full RI, Baseline Risk Assessment, and FS are completed, along with a Proposed Remedial Action Plan (PRAP) prior to the formal public comment period. After the public comments have been addressed as part of the Responsiveness Summary in the ROD, the ROD is placed in the Administrative Record. After the ROD has been complexed, remedial design (RD) activities are begun, followed by the implementation of the remedial action (RA).

Presumptive remedies also are part of the RI/FS process. Presumptive remedies apply to certain types of sites such as landfills which received a variety of waste types and where containment of these wastes is the preferred remedial alternative. Candidate sites for presumptive remedies should be identified early in the investigative process. Once identified, presumptive remedy sites follow the same general process as presented in Figure 2-3, but have streamlined RIs and FSs. Streamlined RI/FS documents evaluate the sites and site dynamics, evaluate risks, and bypass the initial screening and identification of remedial alternatives other than containment.

The FFA for WPNSTA Yorktown mandates the integration of the CERCLA Program with Station RCRA issues. The SSP was developed jointly by USEPA Region III, Commonwealth of Virginia, and

the Navy to address RCRA SWMUs and AOCs on WPNSTA Yorktown in a manner consistent with the CERCLA process. RCRA SWMUs and AOCs have been designated as SSAs and are evaluated to determine whether significant contamination exists to warrant further investigative or remedial activities (Figure 2-4). If unacceptable human health risks or ecological risks do not exist, SSAs are recommended for no further action. If risks do exist, removal actions, interim actions, or additional RI/FS activities are proposed and the SSA becomes an IRP site. There are no plans at this time to designate CAX AOCs as SSAs.

4.1.1 Removal Actions

Removal actions are taken to clean up or remove hazardous substances from the environment. In addition, a removal action also may be to mitigate, minimize, or prevent damage to human health and the environment from a release or threat of a release by limiting exposure to the hazardous substances (i.e., security fencing or access limitation). Removal actions are classified as either time-critical or non-time-critical. Time-critical removal actions are conducted when there is an imminent threat to human health and the environment, such as corroded drums of wastes that are leaking into groundwater.

Non-time-critical removal actions are defined as actions that, based on the degree of potential risk to human health and/or the environment, may be delayed for six months or more before on-site cleanup is begun.

All removal actions which occurred at WPNSTA Yorktown and CAC were classified as non-time-critical removal actions. A removal action may be completed any time during the RI/FS process; however, it will often begin prior to the completion of the RI/FS to limit the spread of contamination. There are no removal actions currently planned at WPNSTA Yorktown or CAX.

Figure 2-5 shows the general process for non-time-critical removal actions. Rather than preparing an FS, an EE/CA is completed which focuses only on the substances to be removed and not on all potentially contaminated media (other contaminated media will be addressed as part of the RI/FS process). Because the scope of a removal action is typically smaller than a final, full-scale remedial action, the time frames for completion of the EE/CA, related design efforts, and implementation of the removal action are much shorter than for a full scale FS. The opportunity for public involvement is similar to the FS, with a public comment period and a Removal Action Memorandum completed to

document the evaluation and choice of removal action procedures. It should be noted that a removal action may become the final remedial action if the risk screening/assessment results indicate that further remediation is not required for protection of human health and the environment. Where no further action is required at a site that has undergone a removal action, a no-action ROD will be signed between the concerned parties in order to remove the site from the program.

4.1.2 Interim (Early) Remedial Actions

Early remedial actions are designed to provide temporary mitigation of potential risks posed by a site until a final remedial action is selected. As with removal actions, early remedial actions usually take place before a full-scale FS because of the risks posed by the contamination in the area. For example, installation of a groundwater pump and treat system to control plume migration would be considered an early remedial action. An early remedial action applied in the beginning of CERCLA process might reduce costs in the long term by limiting the extent of contaminant migration.

The early remedial action process is shown in Figure 2-6. Rather than preparing an FS, a Focused FS is completed, as is an early action ROD to document the activities to be performed. Design and implementation activities follow. It should be noted that an early remedial action may become the final remedial action if the risk screening/assessment results indicate that further remediation is not required to protect human health and the environment.

4.1.3 Presumptive Remedies

Presumptive remedies help to streamline the site cleanup process by eliminating for initial identification and screening of alternatives during the FS. Presumptive remedies are preferred technologies for common categories of sites based on historical patterns of remedy selection at similar types of sites. The selection of a presumptive remedy must be considered at the beginning of the RI/FS process so that particular attention can be paid to the risk evaluation, areas of potential contaminant migration, and identification of hot spots.

4.1.4 Treatability Studies

Treatability studies have been conducted for bioremediation technology performance prior to the finalization of FS reports, in which bioremediation is considered a remedial action alternative. Treatability studies are conducted to:

- Provide sufficient data to allow treatment alternatives to be fully developed and evaluated
- Support the remedial design of a selected alternative
- Reduce cost and performance uncertainties for treatment alternatives to acceptable levels to aid in remedy selection.

Treatability studies for explosives-contaminated soil were conducted in Fiscal Year (FY) 1996 and 1997, concurrent with ongoing IRP activities. These studies provided data for FSs involving explosives-contaminated sites. To date, technologies associated with treatability study work at WPNSTA Yorktown have been extremely successful and have saved DoD millions of dollars in IRP site cleanup costs at the Station.

4.2 Operable Units

A Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial action is often divided into Operable Units (OUs). As defined by the National Oil and Hazardous Substance Contingency Plan (NCP), an OU means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, eliminates a release, mitigates a release, or threat of release, or pathway of exposure. OUs can address geographical portions of a site, specific site problems, or may consist of any set of actions over time or that are concurrent but located in different parts of a site.

4.2.1 WPNSTA Operable Units

At WPNSTA Yorktown, sites are designated as OUs when investigative activities are completed. Assigning sites to OUs helps in selecting of remedial action alternatives and serves accounting purposes for multiple-IR-site RODs produced for WPNSTA Yorktown. OUs have been determined for the following sites.

Site 5 - OU I
Site 16/SSA 16 - OU II
Site 12 - OUs III, IV, V
Sites 9 and 19 - OUs VI and VII
Sites 1 and 3 - OUs VIII and IX
Sites 11 and 17 - OUs X and XI
Sites 6 and 7 - OUs XII, XIII, XIV, and IV

4.2.1.1 Operable Unit No. I (Site 5)

A "No Action" Record of Decision for Site 5 was signed in September 1994. There are no other IRP activities associated with this site.

4.2.1.2 Operable Unit No. II (Site 16/SSA 16)

A "No Further Remedial Action with Institutional Controls" Record of Decision for Site 16/SSA 16 was signed in September 1995. There are no other IRP activities associated with this site.

4.2.1.3 Operable Unit No. III (Site 12 Area A Soil)

A soil/clay equivalent cover was constructed on soil which contains lead above the USEPA lead action level (400 mg/kg). Erosion control measures and institutional controls were implemented. Institutional controls include groundwater and land use restrictions. Long-term surface water monitoring of Ballard Creek also was implemented.

4.2.1.4 Operable Unit No. IV (Site 12 Areas B/C and Wood/Debris Disposal Area Soil)

A "No Action" Record of Decision for Site 12 Areas B/C and Wood/Debris Disposal Area soil was signed in May 1997. There are no other IRP activities associated with this OU.

4.2.1.5 Operable V (Site 12 Groundwater Across the Study Area and Surface Water and Sediment in Ballard Creek)

Long-term groundwater monitoring as per the NCP has been implemented. The NCP includes a review of the remedy every five years. In addition, surface water and sediment within Ballard Creek will be monitored as agreed to by USEPA, VDEQ, and DoN. The first long-term monitoring report will be available in spring, 1999.

4.2.1.6 Operable Unit No. VI (Site 19 Conveyor Belt Soil)

Removal of explosives-contaminated soil (i.e., 2,4,6-TNT greater than 15 mg/kg and RDX greater than 5 mg/kg) from beneath the conveyor belt (to a depth of 4 feet below ground surface) and biological treatment at the Site 22 biocell were conducted in 1998. Aluminum-contaminated surface soil (0-6 inch depth) was also excavated around Building 527 and placed in the bottom of the conveyor belt excavation. Excavated areas were backfilled with clean fill and revegetated. No monitoring or five-year reviews are necessary for this OU.

4.2.1.7 Operable Unit No. VII (Site 9 Soil, Surface Water and Sediment)

No Action is specified for this OU because human health risks fall within acceptable risk ranges and remediation would result in greater harm to the environment than the presence of low level contamination.

4.2.1.8 Operable Unit No. VIII (Site 1 Soil)

Surface debris and arsenic-contaminated soil (exceedances of 63 mg/kg) will be removed around monitoring wells 1GW12A, and 1GW12B. Surface soil will be removed to a depth of two feet. Excavated areas will be backfilled with clean fill. The existing soil cover at Site 1 will also be restored

where needed. In addition, institutional controls will be implemented, since contaminants are not being removed to residential levels.

4.2.1.9 Operable Unit No. IX (Site 3 Soil)

Surface debris and soil contaminated with polynuclear aromatic hydrocarbon (PAH) (exceedances of total carcinogenic PAHs of 10 mg/kg) in the northeast portion of the site will be removed. Surface soil will be removed to a depth of two feet. Excavated areas will be backfilled with clean fill and covered with six inches of topsoil.

4.2.1.10 Operable Unit No. X (Site 11 Soil, Groundwater, Surface Water, and Sediment)

No Action is specified for this OU because human health risks fall within acceptable risk ranges. A small amount of inorganic contaminated soil will be excavated at Site 11 and combined with soils removed from Site 17.

4.2.1.11 Operable Unit No. XI (Site 17 Soil and Groundwater)

Surface debris and PAH (exceedances of total carcinogenic PAHs of 10,000 ug/kg)-contaminated soil will be removed. Excavated areas will be backfilled with clean fill and covered with six inches of topsoil.

4.2.1.12 Operable Unit No. XII (Site 7 Soil, Groundwater, Surface Water, and Sediment)

No additional remedial action is specified for this OU because risks posed to human health and the environment have been mitigated by a removal action conducted in support of a full-scale pilot study for bioremediation of explosive-contaminated sediment.

4.2.1.13 Operable Unit No. XIII (Site 6 - Drainage Flume Area Soil and Sediment)

The remedial action specified for this OU includes the removal of soil and sediment contaminated with explosives, VOCs, and nickel from the flume area. Excavated areas will be backfilled with clean fill and a six-inch layer of topsoil. In addition, the sewer outlet at SWMU 179 will be plugged and grouted and sludge will be removed from the trenches under Building 109 AOC C).

4.2.1.14 Operable Unit No. XIV (Site 6 - Excavated Area Soil)

In the excavated area at Site 6, the cadmium- and zinc-contaminated soil will remain in place. Placement of eight inches of backfill and four inches of topsoil as a cover will prevent contact with contaminated surface soil. In addition, a permanent fence will be installed to prevent disturbance in this area.

4.2.1.15 Operable Unit No. XV (Site 6 - Impoundment Area Surface Water, Sediment, and Study Area Groundwater)

No active remediation is proposed for this area. Long-term monitoring of groundwater, surface water, and sediment for nitramine/nitroaromatics, chlorinated volatile organics, and inorganics will be conducted to assess the efficacy of the flume area remediation (OU XIII) and evaluate environmental concerns associated with contaminants left in place.

4.2.2 CAX Operable Units

No operable units have been identified at CAX.

5.0 COMMUNITY BACKGROUND

In the following sections, background community information, including demographics, employment and community involvement history, is summarized.

5.1 Community Demographics

Approximately 75 percent of the Yorktown Naval Weapons Station is located within York County, and the remainder is situated in James City County and Newport News. CAX is located within York County. The Station, including CAX, is located within the Hampton Roads statistical area, which includes four cities and four counties on the Virginia Peninsula and five cities to the south. Population for the region is 1.5 million. Detailed demographic data was collected for York County; and generalized data was collected for the surrounding areas of James City, Williamsburg, Gloucester, and Newport News.

Initially, most of the demographic information presented in this section was gathered from the ,County of York, Virginia: Demographic Profile and Protection. A Report of the York County Comprehensive Plan, January 1990, by the York County Planning Commission. Other information was gathered from agencies and based on the 1980 and 1990 U.S. Census and projections for the 1990 U.S. Census. To update the CRP, demographic data was collected from the York County web site (http://www.co.york.va.us/planning/pop.) and from regional business publications.

5.1.1 Population

An average population growth of 27 percent was recorded in York County during the 1980s. The projected growth for the area was expected to be approximately 20 percent slower for the 1990s. The substantial population growth in York County during the 1980s -- the fastest rate in the York-James Peninsula -- can be attributed to a relatively strong rate of incoming migration, lower death rate, and larger population over the age 65. Naval Weapons Station on-base population was relatively stable, reportedly growing approximately 4 percent during this same time. Current population for York County is 52,000.

The median age for York County residents during the 1970s was 23.8 years; during the 1980s was 28.6 years; and was projected to be 31.2 years for 1990. Actual median age posted in 1999 was 32.8 years.

The Peninsula is following the national trend of aging, with a growing population over 65 years of age. Some of this aging population can be attributed to the popularity of the region for retirement, particularly for military retirees.

During the 1980s, York County's number of households increased faster than the population growth, reflecting more people living alone or in single parent households. This trend is also expected to slow somewhat, corresponding with the general trend of a less rapid, more moderate growth.

5.1.2 Employment

York County experienced a change in both the types and numbers of jobs available: a substantial civilian employment growth coinciding with a loss of government (mainly federal) employment. During 1980, the public sector encompassed slightly over half of the employment growth, falling approximately one-third of that growth by 1988. Approximately 34,000 new private sector jobs were available, while the non-military public (government) employment declined by approximately 500 jobs.

Primary businesses in the region include military installations, shipyards, and tourism. The largest private sector employer is Newport News Shipbuilding. Major tourist attractions include Colonial Williamsburg, Busch Gardens, and Water Country in addition to historic sites at Jamestown and Yorktown and beaches at Virginia Beach. Manufacturing and service industries have also been attracted to the area and there are approximately 120 foreign-based firms in the region. The area is becoming a technology hub; because of the military, NASA (located at Langley AFB), the number of federal contractors, and the shipbuilding industry, the area has a high concentration of engineers and scientists, one of the highest concentrations in the country.

The Hampton Roads area has been dominated by the military and military employment, but this domination is decreasing. In 1975, 50 percent of the jobs in the region were military; by 1996 this percentage had declined to 31 percent. From 1988 to 1997 46,999 Navy jobs were lost: 23,000 military jobs; 11,000 civilian support jobs; and 12,000 shipyard jobs. To make up for this decline, economic development organizations are attracting new employers to the region.

5.1.3 Proximity to Area Residents

According to topographic maps, the nearest residents to the hazardous waste sites are all located within the boundaries of NWS Yorktown. The closest home to any site is located within a circle of 19 multifamily dwellings approximately 0.5 miles upgradient from the Dudley Road Landfill, Site 1. The second nearest residential area is the Rochambeau Village, commonly called "Skiffes Creek Annex" which consists of approximately 102 family dwellings. The dwelling of closest proximity is approximately 1.75 miles from Site 18, the discharge area of Building 476. Outside the NWS Yorktown perimeter, the small community of Lackey is located directly across from NWS Yorktown Gate 1.

The nearest residents for the sites on CAX are the base residents and the homes along Road 641 more than a mile west and upgradient of the sites.

5.1.4 Proximity to Schools or Playgrounds to the Site

Within the limits of the four-mile radius of WPNSTA Yorktown are the Yorktown High School, Intermediate, and Elementary Schools. In addition, the Douglass School and the Queens Lake School are within the four-mile radius of CAX.

5.1.5 Presence of Livestock, Crops, or Other Vegetation

There are no large commercial farms in the area. A dairy farm is located in Lee Hall, at the southwestern corner of the four-mile radius. A small family farm also is located just off Route 238, near NWS Yorktown Gate 1. Some NWS Yorktown residents may maintain their own small gardens.

5.1.6 Location of a Public Water Supply

The nearest reservoir is the Skiffes Creek Reservoir, located in Lee Hall. This water supply system is operated by the City of Newport News, and supplies NWS Yorktown and other surrounding area residents. This area is not a drainage receptor for any of the sites.

5.1.7 Proximity to Recreational Lakes, Ponds, Rivers, Streams, and Parks

Several unnamed ponds are used for fishing at the Station. The main surface water drainage receptors for NWS Yorktown, Felgates Creek and Indian Field Creek, are not thought to be used for recreation. However, the York and James Rivers are heavily used for both commercial and recreational fishing and crabbing. Commercial and pleasure boat traffic is moderate along these rivers.

Penniman Lake, Jones Pond, and Cheatham Pond on CAX are used for recreation.

The surrounding area also has several parks including the Colonial National Historical Park, Monument Park, the Yorktown battle trenches and battlefields, and the Yorktown Victory Center. Several public and private golf courses are situated nearby, and a golf course is located at NWS Yorktown.

5.2 Community Involvement History - WPNSTA Yorktown

NWS Yorktown has maintained a low profile in the community due to the nature of its mission and the nature of materials handled at the Station. The Station employs many people in the surrounding areas; thus, the nearby communities have a close working relationship with NWS Yorktown. For these two reasons, the low profile and good neighbor policy, NWS Yorktown did not have a formal Community Relations Plan until 1991. Instead, the Station responded to community concerns as they arose.

The Public Affairs Office maintained a working relationship with the public, elected officials and media throughout the years. When an information inquiry was received, the Public Affairs Officer (PAO) addressed the query, and if it did not deal with classified information, the PAO prepared the desired data for release. Tours of the Station had been given in the past to public officials and media representatives to establish a relationship of mutual understanding.

NWS Yorktown participated in community events and celebrations to foster closer ties with the community. NWS Yorktown assisted civic ventures by setting up bandstands for parades and special celebrations, and by helping to clear highway litter. NWS Yorktown also had on-site community activities such as the Red Cross Blood Drive and seasonal festivals.

Insofar as negative community activities concerning the site, only several protests were documented in the mid 1980s. All demonstrations were peaceful and without incident.

As part of the requirements of the Community Relations Program, community interviews were conducted from July 29 to August 1, 1991 by the Baker Environmental Community Relations Specialist and the NWS Yorktown Public Affairs Officer. An NWS Yorktown Environmental Protection Specialist and the Atlantic Division Naval Facilities Engineering Command (LANTNAVFACENGCOM) Remedial Project Manager (Project Engineer-in-Charge) also participated in some of the interviews. These interviews were conducted to inform the community, primarily through elected officials, public agencies, interest groups and concern citizens, of the IRP and the sites at NWS Yorktown. Additionally, it was of paramount concern to obtain feedback from the community at large on the perception of NWS Yorktown, and the reaction concerning placement of NWS Yorktown on the NPL as a Superfund Site.

The team interviewed 26 individuals. The NWS Yorktown PAO interviewed additional citizens. Attempts were made to speak with a wide variety of individuals representing local and state government, community groups, and educational groups. Citizens representing the area closest to the station, the community of Lackey, were also interviewed. Appendix A includes the list of individuals interviewed and the Community Interview Questionnaire used to guide the interviews.

The interview results indicated that the community was concerned with three main issues: water, money, and validity of information. Those who rely on the York River for their income and public officials voiced concern about water. Surrounding areas, like James City County, have water supply problems and citizens were concerned with possible migration of NWS Yorktown contaminants to the water supply. Additionally, one of the reservoirs for Newport News is located within four miles of NWS Yorktown. The working watermen of the Gloucester area had concerns with York River pollution because fishing and crabbing depend on the water quality of the York River. York County has approximately 200 miles of shoreline, which is vital to the tourist economy. "No Fishing/Swimming" signs had already appeared on parts of the shoreline, and citizens were concerned about beach closures due to contamination or other causes. Lastly, many people expressed concern for the possible effects of York River pollutants upon the Chesapeake Bay.

The second issue, money, centered on adequate funding availability to clean up the hazardous waste sites. Citizens and officials alike expressed a lack of confidence with waste site cleanup in Virginia, and doubted whether sufficient funds would be appropriated, or if the sites would actually be cleaned up.

The third and last main issue was the concern with validity of information. Due to the high security nature of NWS Yorktown, the PAO could not release all requested information to the public. However, the Navy planned to release all environmental information to the public. Citizens expressed surprise at this change information release policy, but expressed concern that NWS Yorktown would be thought to be hiding a larger problem or masking information. Citizens commented that NWS Yorktown would always be thought to be telling only part of the story based upon past history. In general, misunderstanding and misinformation was cited as a major concern, having the potential to fuel rumors and cause NWS Yorktown to lose credibility.

As an example of lack of appropriate information and communication, several citizens cited the fear and panic created by a previous hazardous waste incident in the area. Others in a nearby community discussed the "inborn fear" they have concerning NWS Yorktown operations stemming from a November 15, 1943 explosion that killed six people. The citizens added that the accident was minimized and the community was not well informed concerning the situation. The community was apprehensive of, but also generally supportive of, NWS Yorktown.

Reviewing all the interview responses, it appeared that skepticism of the government's commitment, financial and otherwise, would be a community relations concern until actual cleanup progresses, and the community can see the physical progress. The overall response from the community interviews was otherwise very positive.

After the community relations interview with a reporter, an article appeared, describing the hazardous waste sites. Except for two misquotes, the article was factual. No citizen calls in reaction to the article were recorded by the PAO. This article is one of the first published with detailed site information.

Since the initial community relations program was implemented in the late 1980s and early 1990s, regular community relations activities have been conducted to support the IR program. These activities have included fact sheets, brochures, and presentations to explain work at specific sites; regularly conducted RAB meetings; and public notices, public meetings, and a public comment period for

applicable milestones at specific sites. Site tours and briefings have been conducted, as needed, primarily for RAB members. Because of the amount of information disseminated to the public, there has been virtually no conflict with the surrounding community. Public meetings attract small groups of local residents and media interest has been sparse. All community relations activities are documented in the community relations section of the Administrative Record. The Administrative Record is located with the Information Repositories in on-base and community libraries. (Information repository locations are included in Appendix B.)

5.3 Community Involvement History - CAX

Initially, CAX was part of the Naval Supply Center and community relations activities were conducted in conjunction with Yorktown Fuels and Craney Island. On December 1988, the first Technical Review Committee (TRC) was established. Letters were sent to a variety of local organizations and government agencies asking them to nominate two potential TRC members, one from the organization and one from the community.

The first TRC meeting was held on January 6, 1989 at Yorktown Fuels. It included an introduction to the IR Program and a windshield tour of the sites. Members included representatives from local government and the National Park Service as well as community members.

Approximately a month after the first TRC meeting was held, an article on CAX appeared in the local newspaper discussing the IR Program at York County Navy facilities including CAX. Two specific issues, a dye spill in the York River and waste syringes that had been found in deer hooves, were discussed. Both of these issues were historic and had been resolved. CAX was also mentioned in a number of articles that discussed regional environmental issues on military facilities.

A Community Relations Plan for three naval supply center facilities, including CAX, was prepared in 1992. To prepare the plan, the Navy conducted community interviews using the questionnaire in Appendix A. At the time the CRP was developed, there appears to have been minimal interest in CAX. This may be a result of the environmental issues at Yorktown Fuels and Craney Island, which attracted more public attention.

In 1993, an introductory fact sheet was developed for CAX and made available to the public. At that time, Sites 1, 10, 11, and 13 were being investigated as part of the IR Program. The fact sheet discussed the program in general and provided photographs and background information on the four sites.

Public interest in the IR Program continued to wane until the TRC was disbanded. Since CAX has been reassigned to WPNSTA Yorktown, the WPNSTA RAB will address community concerns at CAX.

6.0 COMMUNITY RELATIONS PROGRAM

WPNSTA Yorktown has always had a cooperative relationship with the community, but until the IR program, NWS Yorktown had never had to focus on informing and educating the public about environmental issues. The effectiveness of the NWS Yorktown CRP is based on timely and accurate information dissemination, feedback from the public, NWS Yorktown response to community concerns, and an effective dialogue with the regulatory agencies. NWS Yorktown is committed to a proactive CRP, supplying complete information to the community in a timely fashion and in a clear, concise form.

This CRP has been prepared to accommodate local community issues of concern as expressed in part through community interviews and historical newspaper review. As community response is an integral component of the CRP's success, it has been purposefully designed to provide concerned citizens, elected officials, interest groups and others an avenue to express their ideas and concerns. Finally, an open channel between regulatory agencies, the community, and NWS Yorktown is necessary to foster the free flow of ideas, information, and mutual trust.

6.1 Goals and Objectives

The main goal of the NWS Yorktown CRP is to achieve effective, open communication between the communities of York County, James City County, Gloucester County, the City of Newport News, and Williamsburg; NWS Yorktown and CAX; the Virginia Department of Environmental Quality, and EPA Region III.

Informing the public of IRP activities, providing the public with an avenue for input and comments, and eliciting responses will be achieved through several media and strategies. A site photo album detailing the IRP sites has been prepared, as have a site slide show and site brochure. The IRP data is available at NWS Yorktown's library and at two local libraries for public access. Several meetings were scheduled for citizens to voice concerns. A public web site has been developed to inform the public about upcoming meetings and public comment periods. Additionally, public comment will be received through regularly held Remedial Advisory Board (RAB) meetings. Public comment will also be solicited at significant milestones of the remedial process for sites, SSAs, and OUs via notices in the local press.

The main objectives of the community relations program are to:

1. Inform all participants in the IRP of the CRP and encourage their cooperation.

2. Assure the community at large that the health, welfare, and safety of their environment is of the utmost importance to NWS Yorktown and CAX.

3. Provide information, in layman's terms and in a proactive manner, concerning the IRP in general, and the sites at critical stages in the process to all members of the civilian and military community, elected officials, and federal and state regulatory agency staff in a timely manner.

4. Provide all interested members of the civilian and military community, elected officials, and federal and state regulatory agency staff opportunities and avenues to present opinions and ideas during the IRP process.

5. Provide the media with interviews, briefings, and requested information, as available, in a timely manner to ensure accurate coverage of the IRP events.

6. Swiftly and effectively respond to expressed concerns of the civilian and military community, elected officials, and federal and state regulatory agency staff.

7. Cultivate and maintain a cooperative and productive, two-way dialogue with the civilian and military community, elected officials, and federal and state regulatory agency staff by a proactive PAO to ensure a climate of trust and understanding during the IRP process.

8. Provide one point of contact through which all inquires are directed to ensure continuity and reduce confusion.

9. Constantly evaluate the effectiveness of the CRP during the IRP process and revise its methods and activities as deemed appropriate.

6.2 Responsibilities

The Commanding Officer, NWS Yorktown has the CRP implementation responsibilities. NWS Yorktown is fully committed to the IRP process and the remediation of hazardous waste sites resulting from past disposal which may be a threat to human health and the environment.

The Commanding Officer has assisted in the CRP implementation by sharing tasks with the NWS Yorktown PAO, NWS Yorktown military and civilian personnel, state and federal regulatory agencies, and technical personnel contracted by NWS Yorktown to assist in the IRP process. These main responsibilities are outlined below.

1. NWS Yorktown, Virginia and CAX:

   a. Implements the CRP; and
   b. Hold/participates in any public meetings regarding site activities.

2. NWS Yorktown Public Affairs Officer (PAO):

   a. Plans, schedules, and coordinates all activities and necessary requirements for implementing the CRP. Activities may include specific communication techniques for regulatory agencies, the local community, media, military personnel, and resident and civilian work force as listed in the following sections;

   b. Informs and coordinates with Naval Facilities Engineering Command (NAVFACENGCOM), as appropriate, the development and distribution of news releases and fact sheets relating to the site investigation;

   c. Provides an on-the-scene spokesperson for the NWS Yorktown site investigation program and responds to media queries using statements or plans prepared in conjunction with NAVFACENGCOM;

d. Informs the state and all appropriate federal agencies of activities and findings relative to the sites, in a timely manner;

e. Insures that Freedom of Information Act requests are properly coordinated;

f. Remains sensitive to the needs and concerns of the local community regarding the sites, and implements activities of the CRP as appropriate; and

g. Updates the CRP as new developments and/or changes occur at the sites;

3. Naval Facilities Engineering Command (NAVFACENGCOM):

a. Provides general public affairs guidance and support for the implementation of the NWS Yorktown CRP;

b. Provides timely and accurate information to NWS Yorktown regarding the site activities and technical data/results; and

c. Refers to appropriate technical and legal personnel for clearance and/or coordination of all material intended for public release that has not been previously cleared or specifically authorized for release in the NWS Yorktown CRP.

4. United States Environmental Protection Agency (USEPA)

a. Acts as a spokesperson on policy or queries concerning programs within USEPA's area of responsibility;

b. Provides a spokesperson to respond to appropriate queries from briefings for local officials, interested community groups, citizens and the media; and

c. Responds to press queries, as required, and notifies other involved agencies of responses and potential concerns.

5. Virginia Department of Environmental Quality (VDEQ)

a. Acts as a spokesperson on policy or queries concerning programs within VDEQ's area of responsibility;

b. Provides a spokesperson to respond to appropriate queries from briefings for local officials, interested community groups, citizens, and media; and

c. Responds to press queries, as required, and notifies other involved agencies of responses and potential concerns.

6.3 Communication Activities and Techniques

Building and maintaining an effective communication network where the flow of information and dialogue is constant, timely, and unimpeded is paramount to successful community relations. Developing different communication techniques for several levels of audience and retaining the flexibility to adapt different tactics according to changes in the public attitude is imperative to cultivate and maintain this communication network were developed, in part, as a result of suggestions offered during the community interviews, from USEPA guidance documents, and from past experience.

6.3.1 Agency Communication Techniques

As emphasized in USEPA guidance, effective communication between NWS Yorktown and CAX and state and federal regulatory agencies is necessary for a community relations program. These agencies must be updated to coordinate participation in the CRP. Previously, NWS Yorktown personnel and the agencies have met primarily for annual inspections and coordinated review of past IRP documents. The following communication techniques should further improve agency/NWS Yorktown relationship and coordination with respect to the IRP.

1. Partnering Meetings

Partnering with representatives from the USEPA Region III, VDEQ, Naval Facilities Engineering Command, and other agency groups as deemed appropriate, is needed to review the progress of the IRP, community concerns, upcoming events, and the overall IRP schedule. These meetings are important to keep all parties informed and involved in the IRP and will be conducted on a regular basis.

2. Technical Review Committee (TRC)/Restoration Advisory Board (RAB) Meetings

The TRC first met in March, 1989 to review the Remedial Investigation Interim Report. This consortium of agency representatives, public officials, technical and business people, and NWS Yorktown personnel serves to provide technical review and public comment. TRC meetings were scheduled periodically, whenever a major project milestone was reached. The additional review by outside sources and the public involvement represented by the TRC meetings was very important to the CRP process. The TRC was later expanded to include more representation from the public at large and renamed the Restoration Advisory Board. A community meeting was held at this time to announce the formation of the RAB. Activities previously planned for special audiences (local officials, community groups) will be coordinated through the RAB. Appendix C contains a list of current RAB members. The current WPNSTA Yorktown RAB will expand, if necessary, to address CAX issues. In any case, CAX issues will be addressed by the WPNSTA Yorktown RAB.

3. Telephone Conference Calls

NWS Yorktown and NAVFACENGCOM will schedule routine telephone conference calls to appropriate regulatory agencies to maintain the lines of communication and flow of information.

4. News and Fact Sheet Releases

In order to give the USEPA, VDEQ, and local officials time to assess the information and prepare their response to public inquiry, all news releases, fact sheets, or other similar IRP site information will be provided to NAVFACENGCOM, USEPA, VDEQ, and appropriate local regulators, officials, and public information agencies prior to release to the public.

5. Prior Notice of Scheduled Public Meetings

In order to ensure adequate scheduling time for attendance by the agencies and the public, maximum advance notice is required. The notice for public meetings will be announced in the local newspapers.

6. Web Site

A project-specific web site will be developed to communicate IRP activities to the general public.

6.3.2 Local Community and Media Communication Techniques

The Public Affairs Officer (PAO) of NWS Yorktown is the established general information and communication contact for the public and media. The PAO will serve as the main contact for implementing CRP activities. The following recommended techniques serve to expand the current communication network between NWS Yorktown and the community.

1. Information Repositories

A total of five information repositories were initially established to allow access to IRP study documents, letters, relevant collected news clippings, the site photo album, the site brochure, and additional pertinent information. These repositories were located in the York County Library, the Williamsburg-Jamestown Library, the Gloucester Library, the Newport News Library, and the NWS Yorktown library. After several

years Information Repositories were reduced to four: the York County Library, the Gloucester Library, the Newport News Library, and the NWS Yorktown Library. In addition to the Information Repositories, copies of the Administrative Record are maintained at these locations.

The CAX Information Repositories were located at the York County Public Library, the York County Office of Public Information, and at CAX. These repositories and the Administrative Record will be incorporated into the existing WPNSTA Yorktown repositories.

2. Fact Sheet/News Releases

Fact Sheets were prepared to update the community, regulatory agencies, media, civic groups, elected and civic officials, and mailing list individuals about project milestones or major developments. For example, a fact sheet was prepared explaining the IRP process and the final results of the Remedial Investigation. Fact sheets were prepared in a clear, concise manner free of excessive technical jargon; were posted in the libraries, post office and other prominent public buildings to increase exposure; and were mailed to individuals on the mailing list.

3. Site Brochure

A four-page IRP summary brochure was prepared to briefly explain the site history and the contaminants at each site. A NWS Yorktown map and photographs were included illustrating site locations. The IRP process was described in general, to provide an understanding of the work NWS Yorktown was undertaking. This brochure was distributed to the mailing list individuals, the information repositories, elected and civic officials, regulatory officials, media, citizens groups, NAVFACENGCOM, and NWS Yorktown personnel following its production in December 1991.

4. Site Slide Show Presentation

A slide show was developed in December 1991, containing text and color site photographs, to better explain site conditions to the public. Included in the slide show text was information concerning NWS Yorktown's mission and history. This slide show was available for public meetings and for presentations to civic community groups. A copy of the slide show is included in the Administrative Record.

5. Special Briefings for Local Elected Officials

Typically, when community members have concerns or questions, they call their local elected officials to get information or to register a complaint. During interviews, local officials all expressed a willingness to work with NWS Yorktown, and each asserted the importance of being well informed about the progress and events of the IRP at the NWS Yorktown. In order to keep these key people informed, meetings will be conducted periodically when major project milestones occur.

6. On-Site Tours

On-site tours are valuable in presenting a realistic view of the sites and fostering a better understanding of the investigation and remediation methods offered. One main tour will be arranged for the media, elected and civic, state and local officials, and community group leaders.

7. Community Meeting

A community meeting was held to explain the IRP progress, findings, and recommendations and also to garner ideas and address concerns from the community. The only suitable place, considering size and location, for this meeting was the York County High School Auditorium, which seats 500 people. Advance notice for the meeting was published in the local newspapers and sent to the local community cable information television channel. Technical personnel, as well as the PAO and NAVFACENGCOM, were involved in the meeting. A transcript of the meeting was

recorded by a stenographer and the resulting document placed in the information repositories.

8. Web Site

The project-specific web site will include material that is geared toward the public including site photographs, site histories, IRP background, and the public participation process. Eventually, the WPNSTA Yorktown photo album and Administrative Record will be launched on the web site. Local media representatives will be notified when the site is available.

6.3.3 Communication Techniques for NWS Yorktown Personnel, Residents, and Civilian Work Force

An effective communication network with residents, military personnel, and civilian employees must be a priority due to the proximity of housing and office units to the sites.

1. Commander's Weekly Staff Meeting

The PAO or a member of the environmental staff chosen by the PAO will provide a weekly brief of the IRP site activities, conclusions, recommendations, and actions to the Commanding Officer and his staff to ensure NWS Yorktown leaders are informed and aware of IRP progress or concerns.

2. NWS Yorktown Information Repository

The NWS Yorktown library contains the same site information as the civilian community libraries.

3. The Booster

NWS Yorktown's monthly magazine includes approximately 16 pages of NWS Yorktown information. This periodical provides an appropriate medium for publishing environmental information, as all NWS Yorktown residents receive it and copies are available for all non-residential employees.

7.0 SUMMARY

Through the attentive implementation of this CRP, an effective communication network between NWS Yorktown, the community, and regulatory agencies will address and respond to community concerns. The suggested Community Relations Activities Schedule is presented in Table 5-1.

8.0 REFERENCES AND SOURCES

The following documents/sources were used to prepare sections of this report:

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United States Environmental Protection Agency. 1992b. Study Area Analysis, Yorktown Naval Weapons Station, Yorktown, Virginia. Volume 1. Environmental Monitoring Systems Laboratory, Office of Research and Development. Las Vegas, Nevada. November 1992.

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TABLES

TABLE 3-1

YORK COUNTY AT A GLANCE

Current Population (est. 07/98)	**54,700**	Land Area	**108.5 sq. mi.**
White	**81%**	No. of Households	**19,200**
Black	**16%**	Avg. Household Size	**2.83 persons**
Other	**3%**	Housing Units	**20,167**
Male	**49.8%**	Jobs	**14,556**
Female	**50.2%**	Median Age	**32.8**
School Membership (2/98)	**11,124**	Median House Value	**$121,600 (1990)**
Elementary (K-5)	**5,049**	Median Hshld Income	**$53,146 (1996)**
Middle (6-8)	**2,836**	Civilian Labor Force	**27,324**
High (9-12)	**3,239**	Military Personnel	**2,797**
Unemployment Rate	**1.9%**	On-Base Military Population	**6,443**

Note: Information is calculated using base data from the 1990 U.S. Census, the University of Virginia's Weldon Cooper Center for Public Service, the Virginia Employment Commission, and the York County School Division.

TABLE 5-1

SUGGESTED COMMUNITY RELATIONS ACTIVITIES SCHEDULE FOR WPNSTA YORKTOWN

Phase of Remedial Action	Suggested Activity	Navy Responsibility	Baker Responsibility
During the RI:	Prepare Mailing List	Receive mailing list and maintain at activity PAO.	Compile names and addresses of appropriate federal, state and local officials, interested groups and individuals and give to activity.
	Conduct community interviews	Identify individuals for interviews; participate in interviews; follow up with the community; answer questions raised by citizens during interviews.	Prepare questions to be used; arrange interview dates and logistics; accompany PAO on interviews; record responses; analyze social and political environment.
	Develop CRP	Review and comment on draft CRP; review and approve final CRP.	Analyze community relations concerns based on interviews, research and information from regulatory agencies; develop a site specific plan addressing community concerns including objectives and recommended activities for community involvement and communication between the activity, community and agencies.
	Establish any additional repositories and maintain information repositories	Establish the repositories and maintain repositories as necessary.	Identify additional locations for information repositories; advise Navy on repository contents.
	Notify public of the availability of the additional repositories	Approve Press Release	Draft Press Release and distribute to appropriate news media.
	Revise existing site information photograph album	Approve site information photograph album.	Obtain additional photographs to characterize the sites; revise text as necessary to update; color copy photographs; compile photograph albums; deliver to Navy
	Develop a site information brochure	Review and comment on draft brochure; review and approve final brochure; distribute brochure to names on mailing list and at public meetings.	Obtain site photographs; design brochure; submit draft for approval; revise draft as per comments; supervise printing; deliver to Navy.
	Prepare a Fact Sheet - overview of IRP and current stage of work at WPNSTA Yorktown	Review and comment on draft Fact Sheet; review and approve final Fact Sheet; distribute Fact Sheet to names on mailing list.	Compile Fact Sheet (double sided) and submit for review; finalize Fact Sheet; supervise printing; deliver to Navy

TABLE 5-1 *(Continued)*

SUGGESTED COMMUNITY RELATIONS ACTIVITIES SCHEDULE FOR WPNSTA YORKTOWN

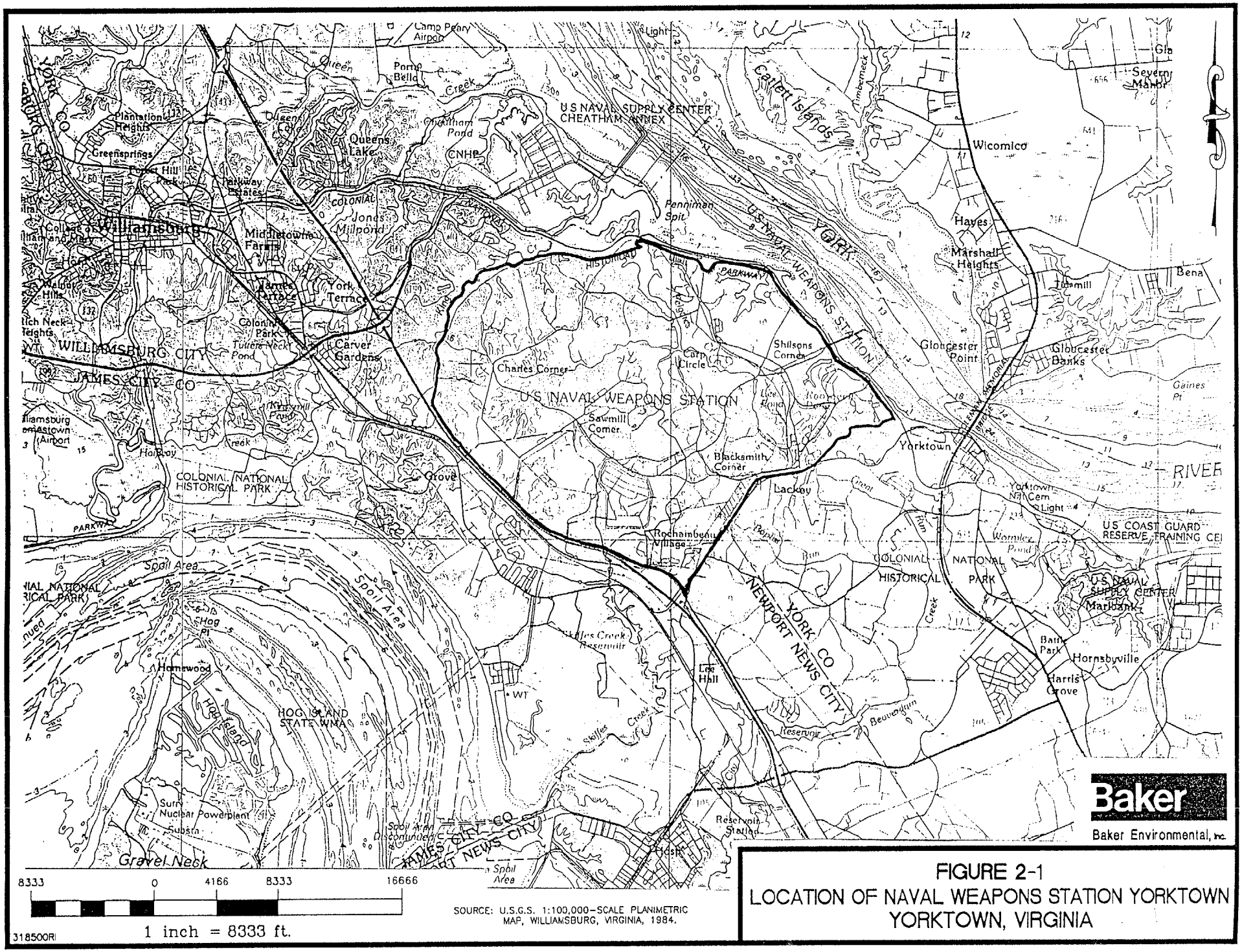
Phase of Remedial Action	Suggested Activity	Navy Responsibility	Baker Responsibility
	Prepare a site slide show	Review and comment on draft slide show; approve final slide show; present slide show to interested parties or at public meeting.	Prepare draft slide show featuring IRP process, site history, activity mission and commitment to the environment; prepare text; submit for review; finalize slide show; supervise production.
	Establish Administrative Record	Approve Administrative Record	Establish Administrative Record for WPNSTA Yorktown.
RI Completion:	Hold RAB meeting to review RI results	Organize RAB meeting; present RI finding and answer queries.	Provide support services as requested (possibly with slides, overheads or technical presentations).
FS completion/ Draft ROD issuance:	Prepare the Responsiveness Summary	Coordinate with legal and technical staff to prepare responses to inquiries on policy issues; provide Baker with public comments received and Navy or state responses to comments and inquiries; review and approve the Responsiveness Summary; place in repository.	Compile and summarize major issues; prepare draft responses; upon approval, finalize Responsiveness Summary.
Remedial Design:	Review CRP and evaluate effectiveness; revise as necessary	Provide comment on CRP effectiveness; review report and approve a revised CRP, if necessary.	Compile report on the effectiveness of the CRP activities and submit recommendations for revision; revise CRP as directed.
	Prepare Fact Sheet	Review and comment on draft Fact Sheet; approve Fact Sheet; distribute.	Draft Fact Sheet explaining remedial design; submit for approval; finalize Fact Sheet; supervise printing; deliver to the Navy.
	Local and public elected officials briefing	Contact these individuals and brief them about the FS and progress to date.	Provide support services as requested.
	Agency Project Status Meeting	Contact appropriate Federal and state agencies and provide update concerning RI results; receive input and ideas from agencies.	Provide support services as requested.

TABLE 5-1 *(Continued)*

SUGGESTED COMMUNITY RELATIONS ACTIVITIES SCHEDULE FOR WPNSTA YORKTOWN

Phase of Remedial Action	Suggested Activity	Navy Responsibility	Baker Responsibility
RI Completion:	Contact local public and elected officials and brief them about RI results	Contact local public and elected officials and brief them about RI results.	Provide support services as requested, such as developing a Fact Sheet to explain RI results.
	Agency Project Status Meetings/Conference Call	Contact appropriate Federal and state agencies and provide update concerning RI results; receive input and ideas from agencies.	Provide support services as requested.
During the FS:	Solicit public/agency comments on criteria for evaluating and screening FS alternatives	Review results of inquiry.	Conduct telephone inquiries to those on mailing list concerning criteria for evaluating and screening FS alternatives; compile results.
FS completion/ Draft ROD issuance:	Solicit public comment on Draft ROD	Approve Press Release; place Draft ROD in repositories.	Compile Press Release announcing 30 day public comment period of the Draft ROD; distribute to appropriate news media; notify individuals on mailing list of public comment period.
	Hold a Public Meeting	Approve Public Meeting Plans; conduct public meeting.	Plan the logistics of the Public Meeting; compile Press Release announcing public meeting; upon approval, distribute to appropriate news media; provide support services such as overheads, slide show, technical support.
Remedial Action:	Prepare Fact Sheet	Review and comment on draft Fact Sheet; approve Fact Sheet; distribute.	Draft Fact Sheet explaining remedial action; submit for approval; finalize Fact Sheet; supervise printing; deliver to the Navy.
	Agency Project Status Meeting	Contact appropriate Federal and state agencies and provide update concerning RA progress; receive input and ideas from agencies.	Provide support services as requested.

FIGURES

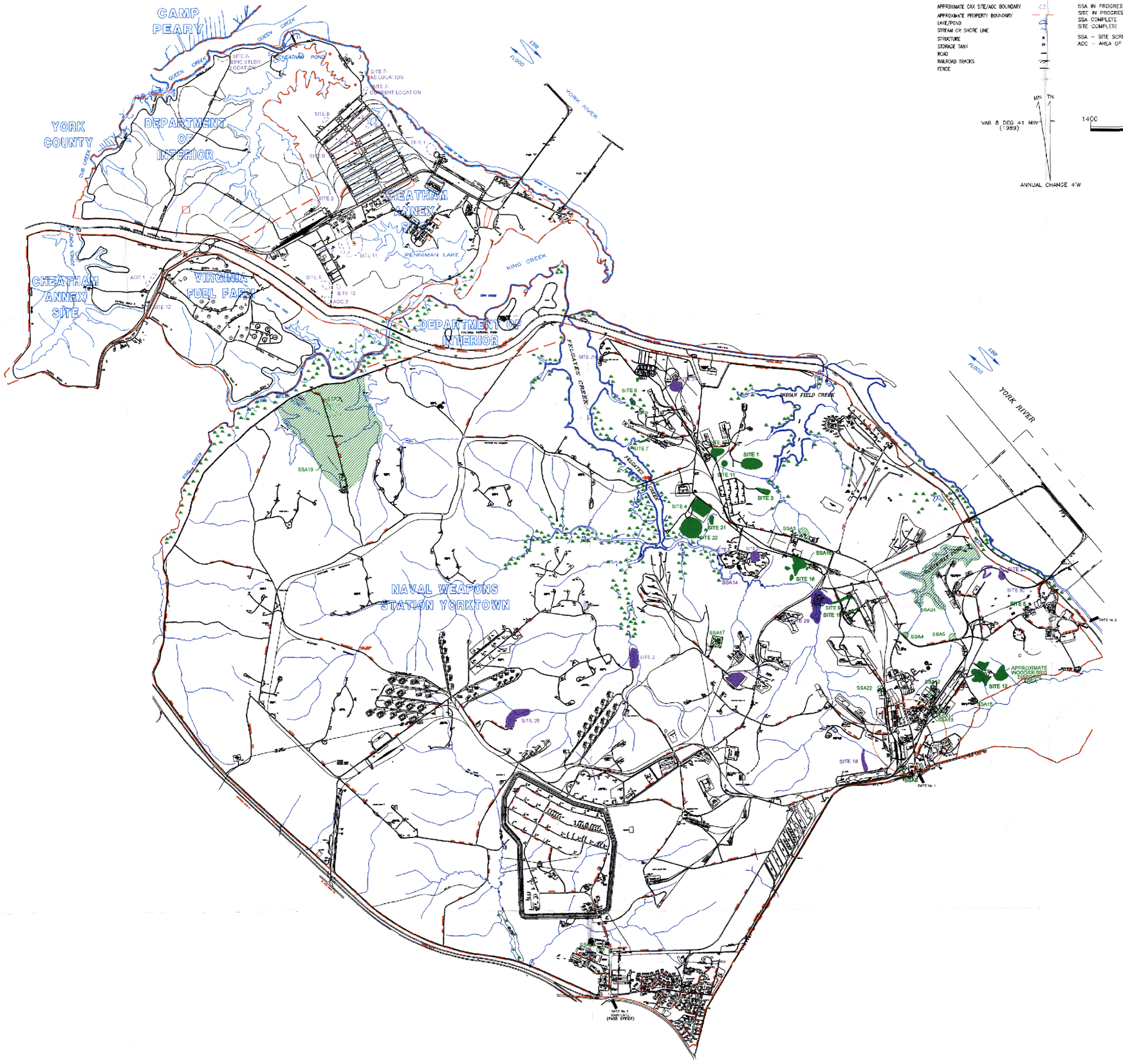


SOURCE: U.S.G.S. 1:100,000-SCALE PLANIMETRIC MAP, WILLIAMSBURG, VIRGINIA, 1984.

Baker

Baker Environmental, Inc.

FIGURE 2-1
LOCATION OF NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA



LEGEND

- APPROXIMATE CAX SITE/AOC BOUNDARY
- APPROXIMATE PROPERTY BOUNDARY
- LAKE/POND
- STREAM OR SHORE LINE
- STRUCTURE
- STORAGE TANK
- ROAD
- RAILROAD TRACKS
- FENCE
- SSA IN PROGRESS
- SITE IN PROGRESS
- SSA COMPLETE
- SITE COMPLETE
- SSA – SITE SCREENING AREA
- AOC – AREA OF CONCERN
- BUILDINGS
- STRUCTURES
- ROADS: PAVED
- ROADS: UNPAVED
- TRACK/TRAIL
- RAILROADS
- STATION BOUNDARY
- STATION BOUNDARY W/FENCE
- MARSH, SWAMP
- GATE
- FENCES
- WALLS
- TRANSFORMER

PLEASE NOTE: BORDERS SHOWN AROUND AREAS OF CONCERN ARE ARBITRARY AND ARE NOT NECESSARILY INDICATIVE OF SITE BOUNDARIES. ANY ISSUES INVOLVING SITES, SSAs, OR AOCs SHOULD BE ROUTED THROUGH THE LANTDIV ENVIRONMENTAL CODE.

MN TN
VAR 8 DEG 41 MIN (1989)
ANNUAL CHANGE 4'W

1400 0 1400 2800 4200 5600 7000
1 INCH = 1400 FEET

REVISIONS
1
2
3
4
5
6
7
8

DSN/DWN:
CHK: KTW
S.O. NO.: 26007-195
FILE: 2195500C

NORTH
-N-

NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA AND
CHEATHAM ANNEX SITE, WILLIAMSBURG, VIRGINIA

Baker Environmental, Inc.
Coraopolis, Pennsylvania

Baker

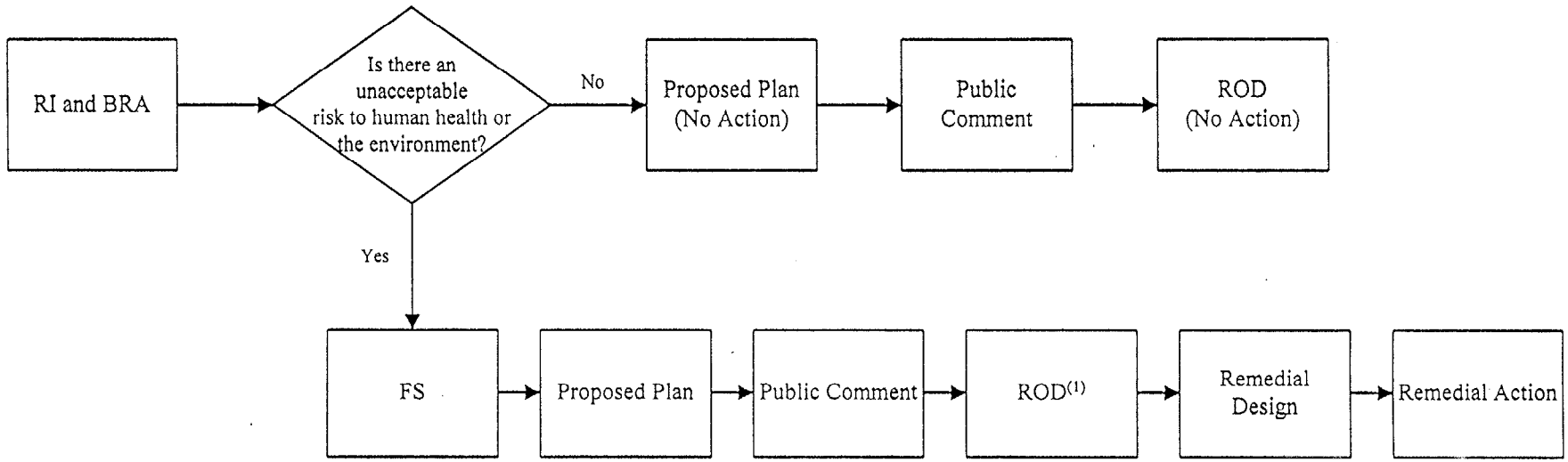
SITE, SSA, AND
AOC LOCATIONS

SCALE: 1" = 1400'
DATE: JUNE 2001

FIGURE NO.
2-2

FIGURE 2-3

RI/FS PROCESS

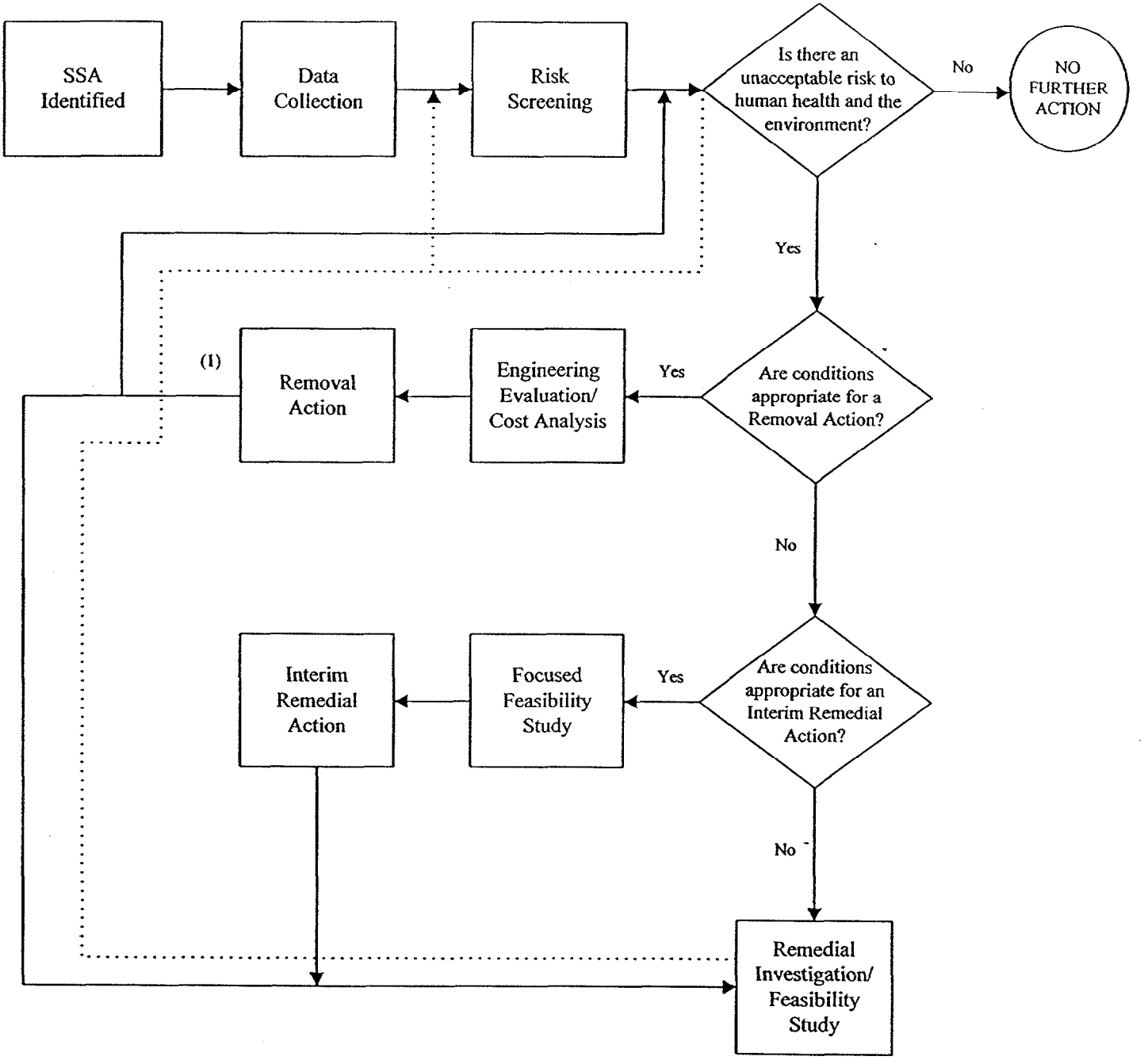


RI = Remedial Investigation
BRA = Baseline Risk Assessment
FS = Feasibility Study
ROD = Record of Decision (including Responsiveness Summary)

(1) Includes summary of any Interim Remedial Actions or Removal Actions for the Operable Unit

FIGURE 2-4

KEY DECISION POINTS DURING THE SITE SCREENING PROCESS

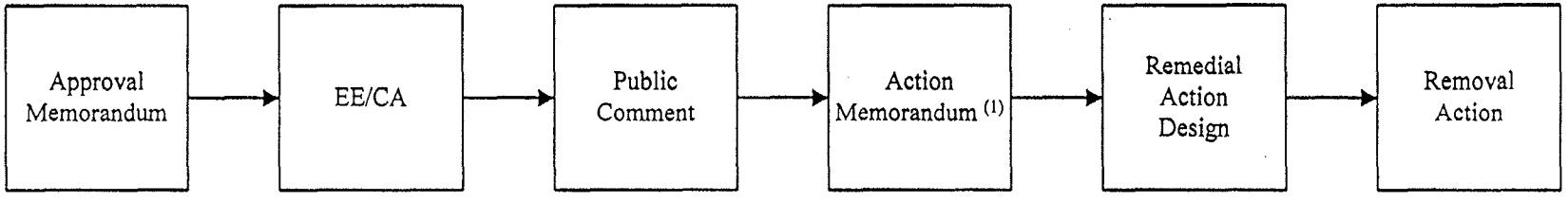


Note:

(1) Steps taken following the Removal Action will depend on the point at which the action is taken during the site screening and RI/FS processes.

FIGURE 2-5

NON-TIME-CRITICAL REMOVAL ACTION PROCESS

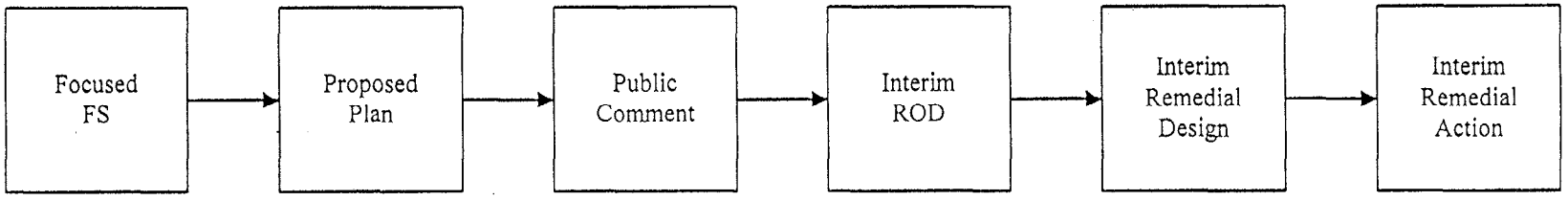


EE/CA = Engineering Evaluation/Cost Analysis

(1) Includes Responsiveness Summary to Public Comment

FIGURE 2-6

INTERIM REMEDIAL ACTION PROCESS



FS = Feasibility Study
ROD = Record of Decision

APPENDIX A
COMMUNITY INTERVIEWS

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

S.O. No.: 19018-50-SRN

DATE: 7-22-91

CONTRACT NO.: N62470-89-D-4814

To: Steve Williams

Repres.: Water Control Board

Phone No.: (804) 527-5206

From: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

SUBJECT: Complaints: "Not that I knew of"; try:

Marsha Hunter

(804) 527-5194

PREPARED BY Melissa C. Davidson TITLE Community Relations Specialist PAGE 1 OF 1

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

S.O. No.: 19018-50-SRN

DATE: 7-25-91

CONTRACT NO.: N62470-89-D-4814

To: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

From: Richard Strauss

Repres.: Va. Dept. of Waste Management

Phone No.: (804) 225-2667

SUBJECT: Returned my call of last week for file search of NAVWPN Yorktown files. Said he receives RCRA citizen's complaints and does not recall any. He urged me to come and examine their Superfund and RCRA files, just to be sure I have all data.

Referred me to Mohammad Hoehabibi (the head) in Inspections or Steve Frashier, who has done RCRA inspections at NAVWPNSTA.

PREPARED BY Melissa C. Davidson TITLE Community Relations Specialist PAGE 1 OF 1

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

S.O. No.: 19018-50-SRN

DATE: 7-22-91

CONTRACT NO.: N62470-89-D-4814

To: Marsha Hunter

Repres.: Water Pollution Control Board

Phone No.: (804) 527-5194

From: Melissa Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

SUBJECT: Violations and complaints from 7-85 to present on disk; like a library book - just check it out. Need someone to pick up and sign for disk. Waiting list for disk. Call me when it's ready.

In Richmond, VA -- their office.

Manipulate data on database to search for any complaints.

If we have time, I'll pursue.

3:10 p.m.

PREPARED BY Melissa C. Davidson TITLE Community Relations Specialist PAGE 1 OF 1

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

S.O. No.: 19018-50-SRN

DATE: 7-22-91

CONTRACT NO.: N62470-89-D-4814

To: Ken Pinzel

Repres.: State Air Board

Phone No.: (804) 424-6707

From: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

SUBJECT: "No complaints. That facility is very isolated."

2:30 p.m.

PREPARED BY Melissa C. Davidson TITLE Community Relations Specialist PAGE 1 OF 1

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

S.O. No.: 19018-50-SRN

DATE: 7-25-91

CONTRACT NO.: N62470-89-D-4814

To: Jamie Walters

Repres.: Va. Dept. of Waste Management

Phone No.: (804) 225-2903

From: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

SUBJECT: She informed me that as per their agreement with the DoD, their office should have been involved with the site tour and interviews. She'll send me a copy of the agreement. She told me that many people are not aware of this requirement. She'll need draft copies of all CRP and wants to be put on mailing list for all comments.

She has not received any complaints and suggested that I try local officials.

11:15 a.m.

PREPARED BY Melissa C. Davidson TITLE Community Relations Specialist PAGE 1 OF 1

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

S.O. No.: 19018-50-SRN

DATE: 7-22-91

CONTRACT NO.: N62470-89-D-4814

To: Bob Thompson

Repres.: EPA Region III

Phone No.: (215) 597-7858

From: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

SUBJECT: Due to lack of time, made the regulatory file review over the phone. I knew what documents were in their files from the EMO Office at WPNSTA. I called to inquire what files they had and confirmed my list. Also checked on any citizen complaints. Bob said no complaints filed and called Yorktown a "quiet giant".

His total files: IAS 1984

Dames & Moore Interim

HRS '91

Photo Album

He needs final Dames & Moore to be up to date, and I'll update his photo album.

10:30 a.m.

PREPARED BY Melissa C. Davidson TITLE Community Relations Specialist

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

S.O. No.: 19018-50-SRN

DATE: 7-22-91

CONTRACT NO.: N62470-89-D-4814

To: Ann Field

Repres.: Va. Dept. of Waste Management

Phone No.: (804) 371-8713

From: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

SUBJECT: File review and inquire about citizen complaints. Ann just started on this and referred me to several other people, including their CR person, Janice Walters.

She only has the IAS and mentioned that she and Brenda had spoken in the past about bringing the VADWM up to date on documents. She'll get in touch with Brenda.

Mentioned for future interest that there is a nesting bald eagle on the site.

Very helpful references.

11:00 a.m.

PREPARED BY Melissa C. Davidson TITLE Community Relations Specialist PAGE 1 OF 1

Yorktown Naval Weapons Station : List of Questions for the Community Survey

(1) How long have you lived here?

(2) Have you worked for the Naval Weapons Station or have any of your relatives? If so, when and for how long?

(3) What are your general thoughts about having the Naval Weapons Station as a neighbor?

(4) Have you had any past problems with the Station's activities? If so, did you bring your concerns to the attention of government officials? If not, why? And if so, do you feel as if your concerns were adequately addressed?

(5) What is your understanding of the past and present activities at the Station? Do you feel that you have a good understanding of the facility and its operations?

(6) Are you aware that the facility has sites that may be contaminated by hazardous waste and sites that have confirmed hazardous substance contamination?

(7) Do you now feel that site activities could affect your health, property, employment, local waterways or parks in any adverse ways? If so, have you considered getting involved with any area community or civic groups to acquire more information or to voice your opinion?

(8) What is your opinion of the government's commitment to cleaning up hazardous waste?

(9) Would you like to receive information, relating to the hazardous waste sites, as it is released?

(10) How do you think information about the sites can best be distributed to the public?

(11) Can you think of any other person or group that should be interviewed to express their opinion of the site activities?

(12) Do you feel that the media in this area has accurately represented your concerns?

The Yorktown Naval Weapons Station thanks you for your time in reviewing this list of questions. Your input during the upcoming interview is greatly appreciated.

COMMUNITY INTERVIEW PARTICIPANTS

York County

Martin C. Fisher, Environmental Services
John Carl, Public Information Officer
Jim Funk, Board of Supervisors
Jim Dishner, Fire Department
Lamont Myers, Industrial Development Authority

Virginia Institute of Marine Science

Dr. Robert Huggett

National Park Service

Chuck Rafkin, Environmental Manager

Newport News

Robert Walker, Marine Chemist
Louis Stark, Fire Chief
William Fitzgerald, Vice Mayor

Virginia House of Delegates

Shirley Cooper, York County
Harvey Morgan, Gloucester County

Victory Center

Nancy Perry, Director

Watermen's Museum

Marion Bowditch

James City County

Frank Tate, Russ Lowry, Fire Department
Perry De Pue, Board of Supervisors

Weapons Station Residents

Cdr. T.B. Stark, Executive Officer
Cdr. John Kotz, Public Works Officer
Ltjg. Len Cooke, Assistant PWO

Lackey Residents

Mary Giles
Alice Roache
Mrs. Redcross

ADDITIONAL INTERVIEWS BY THOMAS BLACK, PAO

Jim Gleason, Whittaker's Mill
Claire Fortier, Virginia Gazette
Marin Fisher, York County Environmental Services
Michael Fox, U. S. Congressman Bateman's Aide
Bobby Scott, Virginia Senator
Will Molineux, Editor
Sid Dixon, Chesapeake Bay Foundation, York County Chapter
Danny Stuck, York County Administrator
Charles Barbour, Candidate, Virginia House of Delegates
Mark Herzog, Campaign Manager

APPENDIX B
INFORMATION REPOSITORY LOCATIONS

APPENDIX B
Information Repository Locations

York County Public Library
(757) 890-3377
8500 George Washington Highway
Yorktown, Virginia 23692

Gloucester Public Library
(804) 693-2998
P. O. Box 367
Main Street
Gloucester, VA 23061

Newport News City Public Library
Grissom Branch (757) 886-7896
366 Deshazor Drive
Newport News, VA 23602

Naval Weapons Station Yorktown
Environmental Directorate
(757) 887-4775 x29 (Contact: Mr. Jeff Harlow)
Building 31-B, P. O. Drawer 160
Yorktown, VA 23691-0160

APPENDIX C
CURRENT NAVAL WEAPONS STATION RAB MEMBERS AND ORIGINAL CHEATHAM ANNEX TRC MEMBERS

NAVAL WEAPONS STATION YORKTOWN
RESTORATION ADVISORY BOARD

Revised 3/9/99

LANTNAVFACENGCOM

Commander Atlantic Division *(1 Full copy of PD,D,and DF and 2 Full copies of Final documents)*FED-EX
Naval Facilities Engineering Command
Attn: Code 18223 Mr. Scott Park
1510 Gilbert Street, Bldg N-26
Norfolk, Virginia 23511-2699
(757) 322-4788
Fax (757) 322-4805
INTERNET:PARKSR@EFDLANT.NAVFAC.NAVY.MIL

Commander Atlantic Division *(Transmittal letter only)*LANTDIV MAIL
Naval Facilities Engineering Command
Attn: Code 02116 Ollie Glodis
1510 Gilbert Street
Norfolk, Virginia 23511-2699
(Copy of forwarding letter only)
(757) 322-4154
INTERNET: GLODISOB@EFDLANT.NAVFAC.NAVY.MIL

ACTIVITY

Commanding Officer *(2 Full copies of all documents; 3 copies of text only for repositories)*FED-EX
Naval Weapons Station, Building 31B
P.O. Drawer 160 (Code 09E17)
Yorktown, Virginia 23691-0160
Attn: Mr. Jeffrey C. Harlow
(757) 887-4775 ext.29
Fax (757) 887-4478
INTERNET: HARLOWJ@NOCLANT.NAVY.MIL

USEPA

Robert Stroud *(3 Full copies of all documents for Sites 9 & 19 and 1 & 3 only)*FED-EX
Office of Superfund Federal Facilities
U. S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029
(215) 814-3366
Fax (215) 814-3001

Internet: STROUD.ROBERT@EPAMAIL.EPA.GOV

USEPA Consultants

Carl Rodzewich *(1 Full copy of all documents; copy of transmittal to R. Stroud or R. Thomson)*FED-EX
Dynamac Corporation
994 Old Eagle School Road
Suite 1016
Wayne, PA 19087
(610) 989-9400 Ext.126
Fax (610) 989-9414
Internet: CRODZEWI@DYNAMAC.COM

Ed Kashdan *(1 Full copy of all documents; copy of transmittal to R. Stroud or R. Thomson)*FED-EX
Gannett Flemming, Inc.
Fed Ex Address
1010 Adams Avenue
Audubon, PA 19403
Mailing Address
P.O. Box 80794
Valley Forge Corporate Center
Valley Forge, PA 19482
(610)650-8101
Fax (610)650-8190
Internet: GFKOPJRD@INTERRAMP.COM

STATE
Commonwealth of Virginia *(2 Full copies of all documents)*FED-EX
Department of Environmental Quality
Attn: Mr. Stephen Mihalko - 4th Floor
Federal Facilities Project Officer
629 E. Main Street
Richmond, Virginia 23219
(804) 698-4202
Fax (804) 444-4234
INTERNET:SAMIHALKO@DEQ.STATE.VA.US

NATURAL RESOURCE TRUSTEES

Mr. Peter Knight *(One full copy of all documents)*FED-EX
NOAA Coastal Resource Coordinator 3
c/o U.S. Environmental Protection Agency (3HS41)
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029
(215) 814-3321
Fax (215) 814-3001
NOAA Hazmat (206) 526-6317
INTERNET:KNIGHT.PETER@EPAMAIL.EPA.GOV

Mr. Bob Dexter *(One full copy of all documents; copy of transmittal to Peter Knight of NOAA)*CERTIFIED MAIL - **OR FED EX (for quick review documents)**

EVS Consultants
200 West Mercer Street
Suite 403
Seattle, WA 98119
(206) 217-9337
Fax (206) 217-9343

NATURAL RESOURCE TRUSTEES (continued)

(108)

Ms. Susan Lingenfelser **(send documents to John McCloskey, while Susan is on maternity leave)**
U.S. Fish and Wildlife Service *(One full copy of all documents; copy of transmittal to Robert Thomson orRobert Stroud of EPA)*CERTIFIED MAIL
6669 Short Lane (Fed-Ex address)
P.O. Box 99 (regular mail address)
Gloucester, VA 23061
(804) 693-6694 ext. 113
Fax (804) 693-9032
INTERNET:R5ES_VAFO@FWS.GOV

Mr. David Nelms *(One full copy of all documents)*CERTIFIED MAIL
U.S. Geological Survey
Water Resources Division
3600 West Broad Street
Room 606
Richmond, Virginia 23230
(804) 261-2600 ext. 232
Fax (804) 358-0476

Mr. Chuck Rafkind, Natural Resource Specialist *(One full copy of all documents)*CERTIFIED MAIL
U.S. National Park Service
Colonial National Historic Park
P.O. Box 210
Ranger Station
209 Read Street
Yorktown, Virginia 23690
Phone and Fax (757) 898-8677
Main Phone (757) 898-3400
INTERNET: CHARLES_RAFKIND@ NPS.GOV

(Note: Send one copy to the following address per Alex Gould's request. These people will not be RAB Members, but may have input through the local National Park Service Superintendent.)

Dr. Roy Irwin - USDI and
Mr. Gary Rosenlieb*(One full copy of all documents if Site along Park Property)*CERTIFIED MAIL
National Park Service
1201 Oakridge Drive, Suite 250
Fort Collins, CO 80525
(303) 225-3520
Fax (303) 225-9965

ATSDR

Ms. Carole Hossom (*Executive Summary of Draft documents only)* REGULAR MAIL
Agency for Toxic Substances and Disease Registry
Mail Stop E-56
1600 Clifton Road
Atlanta, Georgia 30333
(404) 639-6045/6070

Fax (404) 639-6075

RAB MEMBERS

Mr. Morris H. Roberts, Jr. *(One full copy of Draft documents only)*CERTIFIED MAIL
Professor of Marine Science
Department of Environmental Sciences
Virginia Institute of Marine Science
P.O. Box 1346, Great Road
Gloucester Point, Virginia 23602-1346
(804) 642-7370 {direct line} (804) 640-7260{to leave a message}
Fax (804) 642-7186

Mr. John T. Dunn, P.E., Director *(Executive summary of Draft documents only)*CERTIFIED MAIL
Department of Environmental Services
County of York, Virginia
201 Goodwin Neck Road
Yorktown, Virginia, 23692
(757) 890-3759

Mr. Richard M. Miller, Chief *(Executive summary of Draft documents only)*CERTIFIED MAIL
James City County Fire Department
5077 John Tyler Highway
Williamsburg, Virginia 23185
(757) 220-0626

Mr. Stephen P. Kopczynski, Fire Chief *(Executive summary of Draft documents only)*CERTIFIED MAIL
York County Fire and Life Safety
P.O. Box 532
126 Ballard Street
Yorktown, Virginia 23690
(757) 890-3626

CAPT Glen Cox *(Executive summary of Draft documents only)*CERTIFIED MAIL
Newport News Fire Department
Station 6
685 Oyster Point Road
Newport News, Virginia 23602
(757) 881-5043

Mr. Dexter Haven *(Executive summary of Draft documents only)*REGULAR MAIL
Chesapeake Bay Foundation
130 Lafayette Road
Yorktown, Virginia 23690
(757) 898-3227

Ms. Elizabeth Rogers *(Executive summary of Draft documents only)*REGULAR MAIL
210 West Queens Drive
Williamsburg, VA 23185
(757) 229-3779

COMMUNITY MEMBERS

Mr. Jay N. Dewing - Community Co-Chair *(One full copy of Draft documents only)*REGULAR MAIL
236 Kings Grant Drive
Yorktown, VA 23692
(757) 898-3154
York County Citizen

Ms. Cynthia Irene Barbeau *(Executive summary of Draft documents only)*REGULAR MAIL
102 Jean Place
Yorktown, VA 23693
(757) 322-4752 (daytime)
(757) 867-8261 (evening)
Group Affiliation: York County Business Association (YCBA)

Mr. Douglas L. Blount *(Executive summary of Draft documents only)*REGULAR MAIL
110 Millside Way
Grafton, VA 23692
(757) 881-6557 (daytime)
(757) 898-3259 (evening)
York County Citizen

Mr. Greg B. Cheuvront *(Executive summary of Draft documents only)*REGULAR MAIL
220 Harris Grove Lane
Yorktown, VA 23692
(757) 898-8317
York County Citizen

Mr. Mickey Russell *(Executive summary of Draft documents only)*REGULAR MAIL
101 Appaloosa Drive
Yorktown, VA 23693
(757) 890-9312
Group Affiliation: York County Business Association (YCBA)

Mr. E. Yancey McGann *(Executive summary of Draft documents only)*REGULAR MAIL
214 Kingswood Drive
Williamsburg, VA 23185
(757) 229-6492
Williamsburg Citizen

Ms. Patricia E. Grunow *(Executive summary of Draft documents only)*REGULAR MAIL
112 Yorkwood Lane
Yorktown, VA 23692-3046
(757)898-7423
Group Affiliation: York County Public Schools

COMMUNITY MEMBERS (continued)

Mr. Barry F. Moss *(Executive summary of Draft documents only)*REGULAR MAIL
831 Sandy Bay Cove
Newport News, VA 23602
(757) 269-7942 (daytime)
(757) 898-8450 (evening)
Newport News Citizen

Mr. Dan Story *(Executive summary of Draft documents only)*REGULAR MAIL
101 Azalea Drive
Yorktown, VA 23692
(757) 898-4788
Group Affiliation: York County Historical Committee

09.03-01/01/01-00101

TRC MEMBERS
CHEATHAM ANNEX AND YORKTOWN FUELS

Trist McConnell
City Councilman
16 Bayberry Lane
Williamsburg, VA 23185

Robert B. Gardner
Planning Director
City of Poquoson
830 Poquoson Ave.
Poquoson, VA 23662

Martin C. Fisher
Environmental Services Director
County of York
P.O. Box 532
Yorktown, VA 23690

Randolph Lathrop
Commonwealth of Virginia
Department of Waste Management
James Monroe Building
Eleventh Floor
101 N. 14th Street
Richmond, VA 23219

A. C. (Charlie) Drubel
Citizen of York County
Address Unkown

John McKnight
Citizen of Williamsburg
Address Unkown

David Moffit and Charles Rafkind
Colonial National Park Service
National Park Service
P.O. Box 210
Yorktown, VA 23690