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FINAL
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2002-2003
SITE MANAGEMENT PLAN

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

CONTRACT TASK ORDER 0195

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Prepared by:

CH2M Hill
Herndon, Virginia

BAKER ENVIRONMENTAL, INC.
Coraopolis, Pennsylvania

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LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
AST	Aboveground Storage Tank
AWQC	Ambient Water Quality Criteria
Baker	Baker Environmental, Inc.
CAX	Cheatham Annex Site
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHF	Contaminant Hazard Factor
CLEAN	Comprehensive Long-Term Environmental Action Navy
DOD	Department of Defense
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosives Ordnance Disposal
EPIC	Environmental Photographic Interpretation Center
FFA	Federal Facility Agreement
FY	Fiscal Year
HRSD	Hampton Roads Sanitation District
IAS	Initial Assessment Study
IRP	Installation Restoration Program
LOEL	Lowest Observed Effect Level
MPF	Migration Pathway Factor
NEDED	Naval Explosives Development Engineering Department
NEESA	Naval Energy and Environmental Support Activity
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OU	Operable Unit
PAH	Polynuclear Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyl
PRAP	Proposed Remedial Action Plan
PRG	Preliminary Remediation Goal
PW	Public Works

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued)

RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RF	Receptor Factor
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RRR	Relative Risk Ranking
SI	Site Investigation
SMP	Site Management Plan
SSA	Site Screening Area
SSP	Site Screening Process
STP	Sewage Treatment Plant
SWMU	Solid Waste Management Unit
TNT	Trinitrotoluene
TRC	Technical Review Committee
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
UXO	Unexploded Ordnance
WES	Waterways Experimental Station
WPNSTA Yorktown	Naval Weapons Station Yorktown, Yorktown, Virginia

1.0 INTRODUCTION

This report presents the Site Management Plan (SMP) for Naval Weapons Station (WPNSTA) Yorktown, Yorktown, Virginia and the Cheatham Annex Site (CAX), Williamsburg, Virginia. As part of the Federal Facility Agreement (FFA) (USEPA, 1994b), the SMP is required as the management tool for planning, reviewing, and setting priorities for all remedial response activities to be conducted at the facility. The SMP is updated annually to revise priorities of activities as work progresses and additional information becomes available. This SMP presents the rationale for the sequence of future investigation and remediation activities to be completed and the estimated schedule for completion of these activities, with detailed schedules and deadlines presented for Fiscal Years (FY) 2002 and 2003, as required by the FFA. An SMP allows for annual adjustment in scheduled activities for reasons such as Federal budgetary constraints, changes in scope of investigation/remediation activities, or other unanticipated events without modifying the FFA.

Section XII of the FFA requires that the SMP include the detailed scheduling of activities for two fiscal years, annual updating of the scheduled activities, and review and approval by the United States Environmental Protection Agency (USEPA) Region III and the Commonwealth of Virginia. As part of the FFA development and by mutual consent of the Navy and the USEPA, several Resource Conservation and Recovery Act (RCRA) Solid Waste Management Units (SWMUs) at WPNSTA have been included for investigation and evaluation under the FFA. There are 15 former SWMUs, two areas identified in the Environmental Photographic Interpretation Center (EPIC) study, one area of concern (AOC), and one former Installation Restoration Program (IRP) site to be investigated. These 19 areas at WPNSTA were termed Site Screening Areas (SSAs) and are listed in Appendix A of the FFA. Also, two AOCs (which have been designated SSAs), two SSAs, and one site at WPNSTA have been added for investigation and evaluation that were not included in the FFA. Based on the results of the site screening process (SSP), twelve SSAs at WPNSTA to date, have been retained as IRP sites for additional Remedial Investigation/Feasibility Study (RI/FS) efforts. Scheduled activities for the 25 sites and 16 SSAs at WPNSTA are presented in this SMP.

In October 1998 CAX control was transferred from Fleet and Industrial Supply Center (FISC) to WPNSTA. Although CAX has yet to be formally incorporated into the WPNSTA FFA, it will be in the near future. Until the incorporation of CAX into the WPNSTA FFA is complete, CAX will be voluntarily managed under the WPNSTA FFA. On December 1, 2000, CAX was included on the

NPL. Prior to this, all IR Program actions initiated at CAX were voluntary and consistent with other DON installations. To date a total of 12 sites and five AOCs have been identified at CAX. Not all of the sites/AOCs warrant investigation or actions. All CAX sites and AOCs are discussed in this document.

1.1 Facility Descriptions

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 1-1). The installation is bounded on the northwest by CAX, 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 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 World War II. Prior to 1943, CAX had been the location of the Penniman Shell Loading Plant, which was a large powder and shell loading facility operated by Dupont during World War I. The facility closed in

1918. Between 1918 and 1943, the property was used for farming or left idle until CAX was commissioned in 1943.

Before becoming part of WPNSTA, CAX operated as an annex to 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. In July 1987, CAX was designated the Hampton Roads Navy Recreational Complex. Today the mission of CAX includes supplying Atlantic Fleet ships and providing recreational opportunities to military and civilian personnel.

At inception, CAX occupied approximately 3,349 acres. Several portions of the original base have since been declared surplus and transferred to other government jurisdictions, including the National Park Service, the Commonwealth of Virginia, and York County. CAX is currently comprised of 1,578 acres (Figure 1-1). The Activity is divided into two separate parcels, with the larger parcel situated along the banks of the York River. Almost all of the activities at CAX (administration, training, maintenance, support, and housing) take place in this portion of the Activity. The smaller parcel is located south of the Colonial National Historic Parkway (Colonial Parkway). This area contains the Activity's water supply (Jones Pond) and is used mainly as a watershed protection area.

1.2 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.

1.2.1 Initial Assessment Study

The purpose of the IAS (C. C. Johnson & Associates, Inc. and CH2M Hill, July 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 was 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 enough threat to human health or the environment to warrant Confirmation Studies.

1.2.2 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, June 1986a). 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, June 1988a). The results of these field efforts were combined and summarized in the Draft RI Interim Report

(Dames & Moore, February 1989). This report was subsequently revised by Versar in 1991 to incorporate comments from the Technical Review Committee (TRC); this report 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.

1.2.3 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, February 1992).

1.2.4 Focused Biological Sampling and Preliminary Risk Evaluation

The Focused Biological Sampling and Preliminary Risk Evaluation Report (Baker/Weston, April 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.

1.2.5 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, July 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.

A Round One RI was conducted in 1997 for SSAs retained as IRP sites as recommended by the SSP investigations. These sites included:

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

Additional Round One RIs are planned for SSAs retained as IRP sites following SSP investigations. These sites included:

- 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)

Field investigations at these sites were recently completed.

1.2.6 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; and (4) Sites 2, 8, 18 and SSA 14 in 1997 to supplement the Round One RI. Additional soil, subsurface soil, surface water, sediment, and groundwater and biota samples were collected.

1.2.7 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; 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 to these media.

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).

1.3 CAX Environmental Status/Previous Investigations and Reporting

On December 1, 2000, CAX was included on the NPL primarily because of the facility's proximity to wetlands and the potential impact on the surrounding environment.

1.3.1 Initial Assessment Study

The purpose of the IAS was 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 potentially contaminated sites was 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.

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 IAS concluded that four of the 12 sites were a sufficient enough threat sites to human heath or the environment to warrant Confirmation Studies.

1.3.2 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 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 June 20, 1988. No recommendations were presented.

1.3.3 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 purpose of the RI Interim Report was to summarize available data for Sites 1, 9, 10, and 11 and, based on the data, provide recommendations for additional efforts to be conducted 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.

1.3.4 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).

The recommendations presented in the SI included limited actions as follows:

- Site 1 - Re-sampling of monitoring wells for volatile organic compounds (VOCs) and dissolved (filtered) metals and performance of a file search of past records to verify closure status of the landfill.

- Site 10 - Re-sampling of monitoring wells for VOCs and dissolved (filtered) metals.

- Site 11 - Re-sampling of shallow soils for VOCs, re-sampling of monitoring wells for VOCs and dissolved (filtered) metals, and re-sampling of surface water for VOCs.

1.3.5 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 Target Compound List (TCL) volatiles, semivolatiles, and pesticides/polychlorinated biphenyls (PCBs), and Target Analyte List (TAL), metals - total and dissolved.

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

The results of this report indicated that no additional investigation or remedial action was warranted for Sites 1, 10, and 11. However, it was recommended that the soil cover of the landfill at Site 1 be maintained, and monitoring wells that penetrate the landfill be abandoned to eliminate a future potential pathway of contaminants from the fill material.

1.3.6 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 are documented in the Field Investigation Report. The final version of this document was submitted on September 7, 1999 (Baker, 1999b).

For Site 1, the Field Investigation Report recommended removing surficial debris that had collected on the flat, inter-tidal beach area in the vicinity of the eroding bank; implementing interim measures to mitigate erosion in the 60-foot stretch of shoreline where the landfill was being undermined; instituting a periodic inspection program so that the condition of the slope could be monitored and documented; abandoning monitoring wells of poor integrity and those that were installed through the landfill, and developing and implementing solutions for long-term management of the landfill.

The Field Investigation for AOC 2 consisted of a geophysical survey and soil and groundwater investigations including installation of temporary monitoring wells. VOCs, pesticides, and inorganics were detected in the soil samples at low levels. Semivolatile organic compounds (SVOCs) and inorganics were detected in groundwater samples at low levels. These constituents were not suspected to be related to site activities.

For AOC 2, 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.

1.3.7 Site Inspection Narrative Report for the Penniman Shell Loading Facility

In January 1999, Weston/USEPA performed a site investigation that 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 14 waste source samples, two surface water samples, one drinking water sample, nine sediment samples, and three background samples. 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).

1.3.8 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 and analyzed for TCL organics and TAL metals. The samples were collected from the following water bodies: Cheatham Pond, Jones Pond, Youth Pond, and Penniman Lake.

1.3.9 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). Data evaluation for this RI Report included soil samples from 1999 and soil and groundwater samples from 2000, as well as soil samples from 1992, and soil, surface water and sediment samples from 1998. Results of the investigation show that the landfill contains a variety of wastes that are both non-hazardous and hazardous by characteristic. The analytical data presented show that samples of landfilled material exhibit the presence of 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. The RI Report recommended conducting a feasibility study at Site 1.

1.3.10 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 Final Site Inspection Report (Baker, 2001a). The Site Inspection Report recommended completing Engineering Evaluation/Cost Analyses (EE/CAs) for both Site 4 and AOC 1 to evaluate the most appropriate means of removing or covering the debris that is present.

1.3.11 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 collect data necessary to gain a better understanding of the nature and extent of possible contamination at Site 7 and AOC 2. The findings of the investigation are documented in the Final Field Investigation Report (Baker, 2001b). For Site 7, the Field Investigation Report recommended completing an EE/CA to determine the appropriate management strategy for the site (e.g., removal, capping, monitoring, no action, etc.).

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 will be designated as a new site, the Penniman Disposal Area, and will be addressed under a separate investigation.

For AOC 2, the Field Investigation Report recommended conducting a limited geophysical investigation to delineate the lateral extent of buried respirator cartridge canisters and locate the eastern perimeter of disposal along "Deer Pit" Road and conducting a test pit investigation to confirm the results of the geophysical investigation.

1.4 Reporting

1.4.1 WPNSTA Reporting

Subsequent to the field investigations, RI Reports and SSP Reports were generated for sites and SSAs. The following reports have been submitted in Draft form to USEPA Region III and the Commonwealth of Virginia:

RI Reports

- Sites 2, 8, 18, and SSA 14
- Sites 23, 24, 25, and 26

Feasibility Studies

- Sites 2, 8, 18, and SSA 14

Miscellaneous Reports

- WES Bench Scale Treatability Study Report (Army Corps document - not likely to become final)

The following reports have been submitted in Final form to USEPA Region III and the Commonwealth of Virginia:

RI Reports

- Site 16/SSA 16
- Site 12
- Sites 9 and 19
- Sites 1 and 3
- Sites 6 and 7
- Sites 11 and 17
- Sites 4, 21, and 22

Feasibility Studies

- Site 12
- Sites 9 and 19
- Sites 1 and 3
- Sites 6 and 7
- Sites 11 and 17
- Sites 4, 21, and 22

PRAPs/RODs

- Site 5 (No Further Remedial Action)
- Site 16/SSA 16 (No Further Remedial Action with Institutional Controls)
- Site 12 (Cover, long-term monitoring)
- Sites 9 and 19 (Excavation and biological treatment of Site 19 soil)
- Sites 1 and 3 (Landfill cover restoration and arsenic removal - Site 1, excavation and offsite disposal of soil - Site 3)
- Sites 6 and 7 (Removal of Site 6 impoundment soil/sediment, biological treatment and reuse, long-term monitoring)
- Sites 11 and 17 (Removal and offsite disposal of soil)

- Sites 4 and 22 (Removal and offsite disposal of soil)
- Site 21 (Removal and offsite disposal of soil)

SSP Reports

- SSAs 3, 4, 5, 9, 10, 20, 22, 23, and 24
- SSAs 1, 6, 7, and 15
- SSAs 2, 17, 18, and 19
- SSAs 8, 11, 12, and 13

Miscellaneous Reports

- Community Relations Plan
- Environmental Restoration Site Photograph Album
- Focused Biological Sampling and Preliminary Risk Evaluation Report
- Site 5 Risk Evaluation Report
- Background Literature Review Report
- Pilot Scale Treatability Study for Explosives Contaminated Soil
- York River Background Report
- WES Treatability Study Work Plan
- Sites 4 and 21 Post Removal Confirmatory Sampling Report and Baseline Risk Assessment
- Soil Assessment Report for SSA 12
- Habitat Evaluation
- Installation Restoration Program Site and SSA Photograph Album
- Relative Risk Ranking System Data Collection Investigation Report for SSAs 9, 10, and 14
- Area of Concern Report

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 or mitigates a release, or threat of release, or pathway of exposure. OUs can address geographical portions of a site or 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. At WPNSTA Yorktown, sites are designated as OUs when investigative activities are completed. Assigning sites to OUs aids in the selection 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 XV
Sites 4 and 22 - OUs XVI and XVII
Site 21 - OU XVIII

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.

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.

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

A soil/clay equivalent cover was constructed on soil which exceeds 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 and groundwater monitoring also has been implemented.

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.

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 5 years. In addition, surface water and sediment within Ballard Creek will be monitored as agreed to by USEPA, Virginia Department of Environmental Quality (VDEQ), and DoN. The first long-term monitoring report was issued in spring, 1999.

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

Removal of explosives contaminated soil (i.e., 2,4,6-trinitrotoluene greater than 15 mg/kg and RDX greater than 5 mg/kg) from beneath the conveyor belt (to a depth of 4 feet bgs) and biological treatment at the Site 22 biocell was conducted in 1998. Aluminum-contaminated surface soil (0-6" 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.

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.

Operable Unit No. VIII (Site 1 Soil)

Removal of surface debris and arsenic-contaminated soil (exceedances of 63mg/kg) around monitoring wells 1GW12A, and 1GW12B has been conducted. Surface soil was removed to a depth of two feet. Excavated areas were backfilled with clean fill. The existing soil cover at Site 1 was also restored. In addition, institutional controls have been implemented because of the landfill cover.

Operable Unit No. IX (Site 3 Soil)

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

Operable Unit No. X (Site 11 Soil)

Surface soil with levels of copper above 100 mg/kg or mercury above 0.06 mg/kg was removed. Excavated soil at Site 11 was combined with soil removed from Site 17. Excavated areas were backfilled with clean fill and covered with six inches of topsoil.

Operable Unit No. XI (Site 17 Soil)

Surface debris and PAH (exceedances of total carcinogenic PAHs of 10 mg/kg) contaminated soil was removed. Excavated areas were backfilled with clean fill and covered with six inches of topsoil.

Operable Unit No. XII (Site 7 Soil)

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.

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

The remedial action specified for this OU, the removal of soil and sediment contaminated with explosives, VOCs, and nickel from the flume area, has been completed. Habitat has not yet been reestablished. In addition, the sewer outlet at SWMU 179 was plugged and grouted and sludge was removed from the trenches under Building 109 (AOC C).

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

In the excavated area at Site 6, the cadmium- and zinc-contaminated soil has remained in place. Eight inches of backfill and four inches of topsoil have been placed as a cover to prevent contact with contaminated surface soil.

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

A portion of this area has been excavated and soil has been treated using Daramend. Long-term monitoring of groundwater, surface water, and sediment for nitramine/nitroaromatics, chlorinated volatile organics, and inorganics has been initiated to assess the efficacy of the flume area remediation (OU XIII) and evaluate environmental concerns associated with contaminants left in place.

1.4.2 CAX Reporting

The following reports have been submitted in Draft form to USEPA Region III and the Common of Virginia.

RI Reports

- Site 1-Landfill Near Incinerator

Feasibility Studies

- Site 1-Landfill Near Incinerator

The following reports have been submitted in Final form to USEPA Region III and the Commonwealth of Virginia:

SSP Reports

- Sites 1, 10, and 11

Miscellaneous Reports

- Field Investigation Report, Site 1 and AOC 2
- Action Memorandum - TCRA - Site 1
- Construction Closeout Report - Site 1 Time Critical Removal Action
- Site Inspection Report, Site 4 and AOC 1
- Field Investigation Report, Site 7 and AOC 2

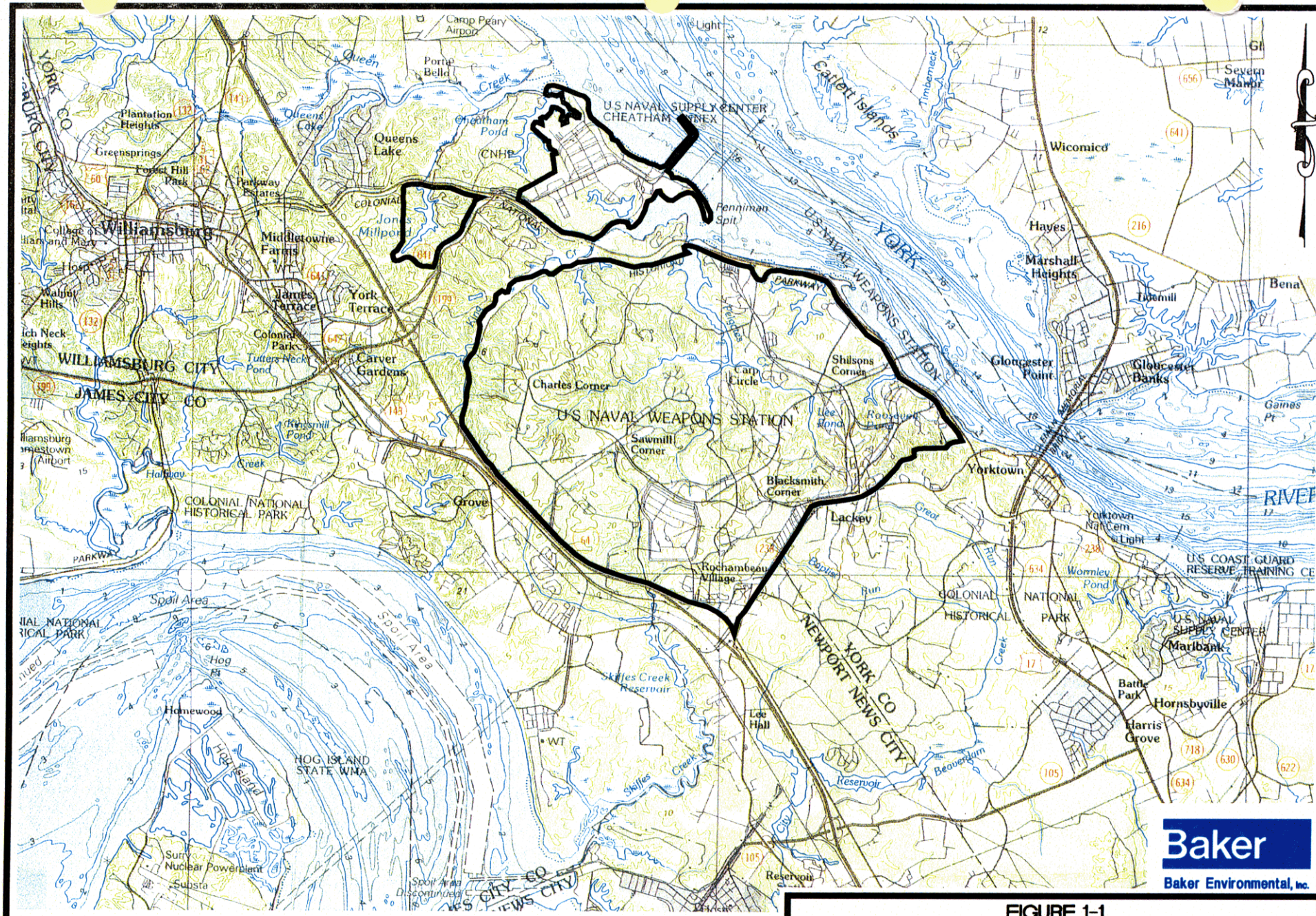
Operable Units

No operable units have been identified at CAX.

1.5 Report Organization

The remainder of this report contains three sections. Section 2.0 presents a brief description of the sites, SSAs, and AOCs. Section 3.0 provides the schedules for the planned activities at the Station and the assumptions used to develop these schedules. Section 4.0 provides the references used in preparing this document.

SECTION 1.0
FIGURE



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

Baker

Baker Environmental, Inc.

2195500W

FIGURE 1-1
LOCATION OF NAVAL WEAPONS STATION YORKTOWN YORKTOWN, VIRGINIA AND CHEATHAM ANNEX SITE WILLIAMSBURG, VIRGINIA

2.0 SITE, SSA, AND AOC DESCRIPTIONS

This section presents a brief description of each of the current RI/FS sites, SSAs, and AOCs at WPNSTA and CAX. Tables 2-1 and 2-2 list these areas, and Figure 2-1 depicts their approximate sizes and locations.

2.1 WPNSTA Site Descriptions

This section describes the history of the disposal practices at each of the RI/FS sites included in the FFA, the four sites which were former SSAs, and the site which has been added for investigation and evaluation which was not included in the FFA. The information presented is from previous studies (C.C. Johnson & Associates and CH2M Hill, 1984; USEPA, December 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.

2.1.1 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. Later, the landfill was covered by approximately 2 feet of soil and the abandoned sand reclamation area was covered by 8 feet of soil.

A Final ROD was signed by USEPA Region III in the summer of 1999. 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. The site has been remediated.

2.1.2 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 disposal area reportedly began in the 1940s and ceased in 1981. Wastes disposed include 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. A removal of hard waste material was conducted 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.

2.1.3 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 was named for its proximity to the Group 16 Magazines. This landfill was unrelated to the operations at the magazines. 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. Most of the site, which is overgrown with trees, was covered by approximately 2 feet of soil with some scattered surface debris.

A Final ROD for this site was signed by USEPA Region III in the summer of 1999. The ROD specifies debris removal excavation of a PAH hotspot and off-site disposal of a small volume of soil. This site has been remediated.

2.1.4 Site 4 - Burning Pad Residue Landfill

Site 4 was 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. An approximate total of 7,285 tons of material was 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.

2.1.5 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.

2.1.6 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 a 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), 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. Remediation at Site 6 is underway.

2.1.7 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 the years 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 has reverted to a natural drainage area and received no discharge from the Plant 3 complex beyond 1986. This area has been excavated to provide soil/sediment for a full-scale pilot study of nitramine/nitroaromatic contamination of bioremediation (Baker/OHM, 1996).

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. Remediation has been completed.

2.1.8 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.

2.1.9 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 (Section 2.1.15). 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.

2.1.10 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 were 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. The area was thickly vegetated.

A proposed remedial action for Site 11, OU X, Soil consisted of the removal of approximately 40 cubic yards of soil containing inorganic contamination. The Final ROD was signed in summer 2000 and the remediation has been completed.

2.1.11 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 was in operation 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 (Section 2.1.1), 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 were two incinerators (SWMU 142 and SWMU 143) formerly used to burn a variety of waste, both industrial and nonindustrial. Incineration ash from incineration activities 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 have 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.

2.1.12 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 consisted of 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 remove drums, scrap metal, batteries, and construction debris. Site 16 was evaluated in conjunction with SSA 16 because of its proximity

and geophysical data, which indicated 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: 3 Mk 13 torpedo sections, 3 Mk 51 Underwater mines, 29 Mk 10 Mod 3 mines, 8 500# general purpose bombs, 3 2000# general purpose bombs, 3 Mk 36 mines, 2 AN&M fragmentation bombs, 10 Mk 13 mines, 1 Zuni rocket motor, 1 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.

2.1.13 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 was deposited during the period the landfill was in use. The site was overgrown with mature trees and no evidence of surficial waste was apparent. Results from the geophysical investigation of this site during the Round One RI did not indicate any evidence of buried material.

The proposed remedial action for Site 17, OU XI, soil consisted of the removal of approximately 1300 cubic yards of PAH-contaminated soil. The Final ROD was signed in summer of 2000 and the remediation has been completed.

2.1.14 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.

2.1.15 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 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 conveyor belt was dismantled and the metallic components were heat decontaminated to remove residual explosives. Asbestos components of the conveyor belt were double bagged and sent to a special waste 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.

2.1.16 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 the 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.

2.1.17 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 surround 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 used to remediate soil from Site 19.

2.1.18 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 as well as, the unnamed ditch. It is 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, which was constructed in 1919 and continues to operate.

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 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.

2.1.19 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. The Daramend greenhouse/biocell was constructed in 1999 at Site 24 to treat Site 6 soil and sediment.

2.1.20 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 was installed to contain the wash/rinse water. From the 1960s to 1980s, the UST received batch wastes from NEDED assembly operations 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 and around the UST was removed.

2.1.21 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.

2.1.22 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 are discharged for neutralization. Because it is below the ground, the integrity of the unit is unknown. The unit was in operation from 1969 to early 1995. The process was diverted to the sanitary sewer and ultimately to HRSD in 1995. In addition, there

are four underground septic tanks in the area. Site 27 was investigated in 2000 and a draft RI report has been prepared and will be submitted in early summer 2001.

2.1.23 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. Site 28 was investigated in 2000 and a draft RI report has been prepared and will be submitted in summer 2001.

2.1.24 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 subjected to limited investigations by the Commonwealth of Virginia in 1994 and a Focused Biological Sampling and Preliminary Risk Evaluation (Baker, 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 indicated that additional RI/FS activities are necessary to address the site and area groundwater as an operable unit. Site 29 was investigated in 2000 and a draft RI report has been prepared and will be submitted in summer 2001.

2.1.25 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 were necessary to address environmental concerns at this site. Site 30 was investigated in 2000 and a draft RI report has been prepared and will be submitted in early 2001.

2.2 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 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," (December 1992), and "Study Area Analysis, Yorktown Naval Weapons Station Yorktown, Yorktown, Virginia," Volume 1 (November 1992).

2.2.1 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 and 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 bulldozers and other earth-moving equipment were used 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.

2.2.2 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.

2.2.3 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.

2.2.4 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 materials were identified among the surface debris piles. 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.

2.2.5 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. Some dripping from the maintenance activities may have fallen into the trench, but these 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, 1997a) concluded that this area should not be retained as an IR site for further investigation.

2.2.6 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, 1997a) concluded that this area should not be retained as an IR site for further investigation.

2.2.7 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 Environmental, Inc. (Baker) at SSA 12 in 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, affected the construction of the new building (Baker, 1995).

In February 1996, a potential 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, 1997a) concluded that this area should not be retained as an IR site for further investigation.

2.2.8 Site Screening Area 13 - Building 529 Battery Drainage Area

SSA 13 occupies an area of approximately one-half of an 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, 1997a) concluded that this area should not be retained as an IR site for further investigation.

2.2.9 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.

2.2.10 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 that, 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 are not recommended. However, recent demolition activities indicated that the main bearing of the trickler may contain elemental mercury. Additional sampling of soil/sediment was required as part of the demolition that was completed in 2001. Additional sampling will be conducted in summer 2001 to ensure that mercury has been removed to levels that protect human health and the environment.

2.2.11 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 were located on the lower southwest side of the yard; scrap metal and empty

drums also were 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.

2.2.12 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 of MK 46 torpedoes. 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.

2.2.13 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 mounded approximately 40 feet high, 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.

2.2.14 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, 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.

2.2.15 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 lead were detected in SSA 22 soil samples which warranted some general house-keep actions by the Station to prevent further movement of lead contamination away from the source area. A removal was conducted in 2000 at SSA 22 to remove soil containing lead

at concentration exceeding 200 mg/kg. Lead containing soil was disposed in an off-site disposal facility.

Based on the results of the confirmational samples collected, no further RI/FS activities are recommended for SSA 22.

2.2.16 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-in 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) indicated 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 was removed and disposed; therefore, this SSA will not be listed as an IRP site.

2.3 CAX Site Descriptions

This section provides summaries of the site histories and status for each IR site and AOC. Table 2-2 lists these areas and Figure 2-1 depicts their approximate sizes and locations.

2.3.1 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 regraded and a 2-foot soil cover was placed over the debris. Part of the landfill is enclosed with a fence 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 river bank in the vicinity of Site 1. The assessment concluded that the erosion of the river bank 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.

Based on the analytical data collected during investigations at the site, soil and sediment in the vicinity of the landfill have been adversely impacted by contaminants. The most significant

contamination consists of SVOCs, PAHs, and metals (including lead and other heavy metals). PCBs were also in soil and sediment. LANTDIV is actively addressing the contamination being released by the site.

2.3.2 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.

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

2.3.4 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 that 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 Final Site Inspection Report (Baker, 2001a) 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.

2.3.5 Site 5 - Photographic Chemicals Disposal Area

In 1967 or 1968 outdated photographic chemicals 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.

2.3.6 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.

2.3.7 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 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.

2.3.8 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 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 were 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.

2.3.9 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 16. 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 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.

2.3.10 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. It is not known if the DS-2 was neutralized prior to disposal.

At the time of the IAS, the surface of the site was covered with a variety of grasses. No evidence of stressed vegetation was noted and surrounding vegetation and animal life showed no visible adverse effects.

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 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.

2.3.11 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.

During 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. 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.

2.3.12 Site 12 - Disposal Site Near Water Tower

Site 12 is located approximately 2,000 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 was disposed at the site. Because the

materials disposed of at the site were reportedly not hazardous, the IAS recommended no further study.

2.4 CAX Area of Concern Descriptions

2.4.1 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 Final Site Inspection Report (Baker, 2001a) 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.

2.4.2 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 likely 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 that 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 Final Field Investigation Report (Baker, 2001b), 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 EE/CA be completed to determine the appropriate management strategy for the site.

2.4.3 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 for the samples (which were collected as part of the Site 4

investigation) were included in the Site Inspection Report - Site 4 and AOC 1 (Baker, 2001a). 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.

2.4.4 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.

2.4.5 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.

2.4.6 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 waste water.

- 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. A topographical and horizontal feature survey of the three sub-areas will be performed to establish accurate mapping.

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, a RI/FS may be recommended for the Penniman AOC.

SECTION 2.0
TABLE

TABLE 2-1

SITES AND SITE SCREENING AREAS
NAVAL WEAPONS STATION YORKTOWN, YORKTOWN, VIRGINIA

Site No.	Site Name
1	Dudley Road Landfill
2	Turkey Road Landfill
3	Group 16 Magazine Landfill
4	Burning Pad Residue Landfill
5	Surplus Transformer Storage Area
6	Explosives-Contaminated Wastewater Impoundment
7	Plant 3 Explosives-Contaminated Wastewater Discharge Area
8	Naval Explosives Development Engineering Department (NEDED) Explosives-Contaminated Wastewater Discharge Area
9	Plant I Explosives-Contaminated Wastewater Discharge Area
11	Abandoned Explosives Burning Pits
12	Barracks Road Landfill
16	West Road Landfill
17	Holm Road Landfill
18	Building 476 Discharge Area
19	Conveyor Belt Soils at Building 10
21	Battery and Drum Disposal Area
22	Burn Pad
23	Building 428 Teague Road Disposal Area
24	Aviation Field
25	Building 373 Rocket Plant
26	Building 1816 Mark 48 Waste Otto Tank
27	Building 1751 Chemistry Laboratory Neutralization Unit and Drainage Area
28	Building 28 X-Ray Facility Drain Field
29	Lee Pond
30	Bracken Road-Incinerator and Environs

Site No.	SSA Name
2	Former Explosives Ordnance Disposal Burning/Disposal Area
3	Fire Training Pits and Vicinity
4	Weapons Casing/Drum Disposal Area
5	Bypass Road Landfill
8	Building 350 Rail Roundhouse Maintenance Area Trench Outfall
11	Building 3 Neutralization Unit
12	Public Works Storage Yard/Building 683 Vicinity
13	Building 529 Battery Drainage Area
14	Building 537 Discharge to Felgates Creek
15	Sewage Treatment Plant #1 Sludge Drying Beds and Discharge Area
16	Building 402 Metal Disposal Area and Environs
17	Building 1456 Mark 46 Waste Otto Tank
19	Beaver Road/Ponds 11 and 12 Drainage Area and Environs
21	Roosevelt Pond
22	Sand Blasting Grit Pile (formerly AOC4)
23	Coal Storage

Note:

Shading indicates field investigations and report writing activities have been completed.

TABLE 2-2

CAX SITES AND AREAS OF CONCERN
NAVAL WEAPONS STATION YORKTOWN, YORKTOWN, VIRGINIA

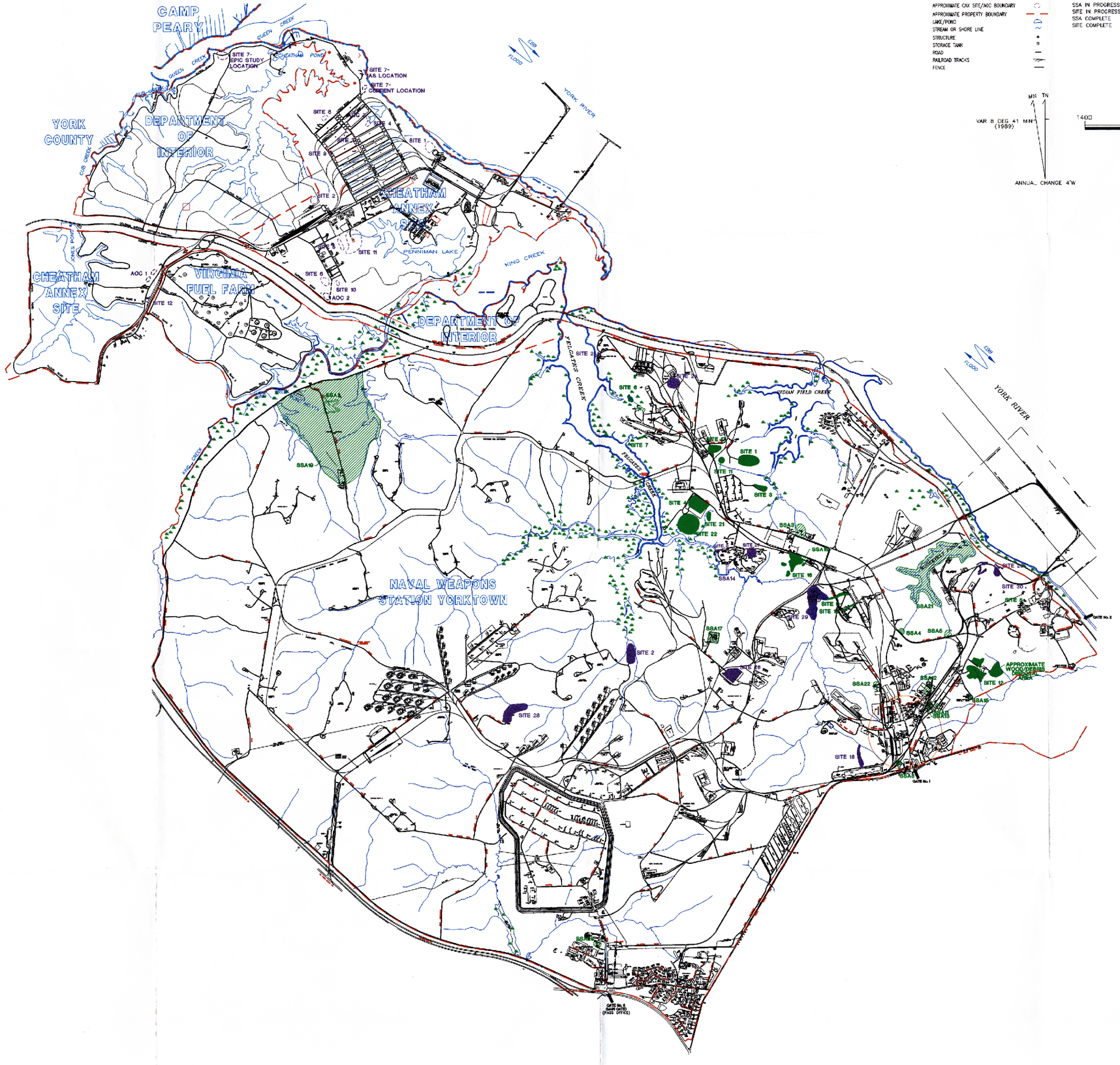
Site No.	Site Name
1	Landfill Near Incinerator
2	Contaminated Food Disposal Area
3	Submarine Dye Disposal Area
4	Medical Supplies Disposal Area
5	Photographic Chemicals Disposal Area
6	Spoiled Food Disposal Area
7	Old DuPont Disposal Area
8	Landfill Near Building CAD 14
9	Transformer Storage Area
10	Decontamination Agent Disposal Area Near First Street
11	Bone Yard
12	Disposal Site Near Water Tower

Site No.	AOC Name
1	Scrap Metal Dump
2	Dextrose Dump
3	CAD 11/12 Pond Bank
4	IR Site 4 - Medical Supplies Disposal Area
5	Debris Area
NA	Penniman AOC

Note:

NA - Not applicable.

SECTION 2.0
FIGURE



LEGEND

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

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

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

REVISIONS	
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8	

DSN/DWN:
CHK: KTW
S.O. NO.: 26007-195
FILE: 2195502W

NORTH

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.
2-1

012161K02Y

3.0 SITE MANAGEMENT PLAN SCHEDULES

This section presents the project schedules for the sites, SSAs, and AOCs identified in Section 2.0. Schedules depicting the major project activities for each site, SSA, and AOC are provided. These schedules are tentative based on funding allocation, completion of removal actions, and government comments received for the reports. In addition, specific submittal deadlines planned for fiscal years 2002 and 2003 have been developed. Appendix A presents actions (removal actions and finalized reports) which have been completed. Appendix B presents sites, SSAs, and AOCs that are currently active. Appendix C includes anticipated projects.

3.1 Scheduling Assumptions

Assumptions regarding document review periods and deviations from the FFA are discussed in the following sections.

3.1.1 Federal Facility Agreement Assumptions

RI/FS and RD/RA deliverables are classified as "primary" or "secondary" documents in the FFA. A primary document is typically a major, discrete portion of an RI/FS or RD/RA activity, whereas a secondary document may be a discrete portion of a primary document or may serve as a feeder document to a primary document. The project schedules have been developed using the primary and secondary document review and comment process specified in the FFA.

The time required for review will vary according to the length and complexity of the document. In an effort to expedite document finalization, the draft document review period may be decreased from the FFA 60-day duration to a 30-day period for the secondary documents listed.

- Treatability Study Work Plan
- Treatability Study Report
- Engineering Evaluation/Cost Analysis Report
- Removal Action Memorandum

These secondary documents are expected to be short in length and relatively straightforward in nature compared with the other primary and secondary documents.

3.1.2 Document Preparation, Field Investigation, and Sample Analysis/Validation Assumptions

Durations for work plan preparation and field investigation activities have been based on the available information for the sites, while taking into account the overall complexity of each area (e.g., size, media types, potential receptors, proximity to other sites). The sampling efforts needed to support RI/FS activities (i.e., required to fill existing risk-, hydrogeologic-, and engineering-related data gaps) also were taken into account. These factors will be more thoroughly evaluated during development of the work plans.

Work Plan development, field investigation, and sample analysis/validation activities for the sites, SSAs, and/or AOCs have been combined to optimize coordination of these efforts (e.g., document review, field mobilization/demobilization, database management).

The work plan durations represent the estimated time required to generate the first draft document (referred to as the Preliminary Draft). The field investigation durations include the time required for subcontractor procurement and mobilization of equipment and personnel.

With respect to sample analysis, a 28-day duration is the contractual turnaround time for Naval Energy and Environmental Support Activity (NEESA-) approved laboratories. Thirty days, however, is a more realistic estimate for receipt of analytical data. Therefore, thirty days was assumed for receipt of all laboratory analyses. For data validation, a 14-day duration was assumed for all analytical data, which is also the standard turnaround time for the data validation firms currently under contract.

For preparation of other RI/FS and RD/RA documents, "typical" or "average" durations were assumed based on prior experience in preparing these reports. More accurate estimates of document preparation times can be made in subsequent SMPs as more data become available; estimates will be updated in each site-specific work plan.

3.2 Site Management Plan Schedules

This section presents the proposed activities and schedules for the sites, SSAs, and AOCs identified in Section 2.0. The overall schedules for completion of activities at WPNSTA Yorktown and CAX are provided as Figure 3-1. Appendix A presents the schedules for completed actions. Appendix B presents detailed SMP schedules for RI/FS/RD activities that are currently underway. Appendix C presents anticipated activities.

The basic strategy employed during development of the SMP schedules was to overlap the RI/FS and RD/RA activities to the maximum extent practicable in order to compress the entire project schedule. The amount of overlap was based on the degree of dependency between the various tasks and documents and government agencies requested review times. Key dependencies and related assumptions are outlined below.

- Remedial Investigation: Preparation of the Preliminary Draft RI was assumed to start once all the analytical data are received prior to completion of data validation. Certain RI tasks can begin before the data are validated; to prevent duplication of effort, this overlap was assumed to be two weeks.

- Feasibility Study: Many FS tasks are dependent on the nature and extent of contamination which is determined in the RI document. Preparation of the Preliminary Draft FS was assumed to start upon submission of the Draft Final RI for those future sites which require a FS.

- Proposed Plan: Preparation of the Preliminary Draft Proposed Plan was assumed to start upon submission of the Draft Final FS. As comments are received from USEPA and the Commonwealth of Virginia on the FS, modifications to the PRAP will be made concurrently.

- Public Comment Period: The 45-day public comment period on the PRAP will begin when the final PRAP is submitted. Public comments on the PRAP can then be considered and addressed in the Responsiveness Summary section of the ROD.

- Record of Decision: Preparation of the ROD will begin upon submission of the Draft Final PRAP. The final ROD will incorporate all public comments received during the Public Comment Period.

- Remedial Design: The RD was assumed to start when the Draft Final ROD is submitted. Full scale preparation of the RD will; however, not begin until concurrence with the selected alternative(s) is obtained.

3.2.1 Proposed Removal Actions

No new removal actions are planned for WPNSTA Yorktown or CAX in FY 2002 or FY 2003.

3.2.2 RI/FS and RD/RA Schedules

Appendix B presents detailed schedules, including submittal deadlines and target dates, for the sites where activities are currently underway. Table 3-1 presents primary and secondary deliverables by month.

3.2.3 Treatability Study Schedule

All treatability studies scheduled for WPNSTA Yorktown have been completed. There have been no treatability studies completed at CAX. No new treatability studies are planned for WPNSTA or CAX in FY 2002 or FY 2003.

3.2.4 Presumptive Remedies

Presumptive remedies are preferred technologies for common categories of sites based on historical patterns of remedy selection and USEPA's scientific and engineering evaluation of performance data on technology implementation. The objective of presumptive remedies is to use past agency experience to streamline site investigation and speed up selection of cleanup actions by eliminating the need for the initial identification and screening of alternatives during the FS.

Presumptive remedies evolve from the expectation that containment will be the likely focus at sites having wastes that pose relatively low, long-term threats or where treatment is impracticable. Presumptive remedies typically apply to municipal and CERCLA landfills as types of sites where treatment of the waste may be impractical because of their size and the heterogeneity of their contents.

Several sites at WPNSTA could potentially be candidate sites for presumptive remedies. These sites include Site 2 (the Former Turkey Road Landfill) and Site 23 (Building 428 Teague Road Disposal Area). Site 1 (Landfill Near Incinerator) at CAX could potentially be a candidate for a presumptive remedy.

The potential use of a presumptive remedy at these sites will also be evaluated in FY 2002 and FY 2003 as RI/FS efforts are completed and receive agency approval.

SECTION 3.0
TABLE

TABLE 3-1

DRAFT 2002/2003 SITE MANAGEMENT PLAN
PRIMARY AND SECONDARY DELIVERABLES BY MONTH
WPNSTA YORKTOWN AND CHEATHAM ANNEX SITE

Submittal Date	CTO Number	Sites/SSAs	Document	EPA/State Review Due By
March 10, 2000	349	Sites 4, 21, and 22	Final FS	NA
August 7, 2000	35	Sites 23, 24, 25, 26	Draft FS	October 6, 2000
August 25, 2000	102	Sites 1, 3, 6, and 7	Draft LTM Report	October 24, 2000
November 9, 2000	394	Sites 27,28,29, and 30	Draft FS	January 1, 2001
November 27, 2000	35	Sites 23,24,25, and 26	Draft PRAP	January 26, 2001
December 12, 2000	363	Sites 2,8,18, and SSA 14	Draft PRAP	February 12, 2001
January 1, 2001	35	Sites 23,24,25, and 26	Draft ROD	March 5, 2001
January 25, 2001	172	CAX Site 1	Final ROD	NA
February 19, 2001	363	Site 2	Draft ROD	April 23, 2001
March 8, 2001	394	Sites 27,28,29, and 30	Draft PRAP	May 7, 2001
April 13, 2001	196	CAX Background	Draft Work Plan	June 15, 2001
April 30, 2001	363	Site 8 and SSA 14	Draft ROD	June 30, 2001
June 7, 2001	394	Sites 27 and 28	Draft ROD	July 30, 2001
June 14, 2001	195	All WPNSTA/CAX	Draft Site Management Plan	August 15, 2001
June 15, 2001	102	Sites 1, 3, 6, and 7	Final LTM Report	NA
June 15, 2001	213	Groundwater OU	Draft WP	August 1, 2001
June 20, 2001	214	LTM Sites 25 and 26	Draft LTM Work Plan	August 5, 2001
June 20, 2001	196	CAX Background	Final Work Plan	NA
June 30, 2001	363	Sites 2,8,18, and SSA 14	Final FS	NA
June 30, 2001	349	Sites 4, 21, and 22	Final PRAP	NA
July 2, 2001	394	Site 29	Draft ROD	August 31, 2001
July 2, 2001	195	CAX Sites 4, 9, and 11	Draft ERA Steps 1 and 2	August 30, 2001
July 2, 2001	195	All WPNSTA/CAX	Draft CRP	August 17, 2001
July 7, 2001	363	Site 18	Draft ROD	September 7, 2001
July 16, 2001	172	CAX Site 1	Final Focused Feasibility Study	NA
July 16, 2001	172	CAX Site 1	Draft PRAP	September 17, 2001

TABLE 3-1 (Continued)

DRAFT 2002/2003 SITE MANAGEMENT PLAN
PRIMARY AND SECONDARY DELIVERABLES BY MONTH
WPNSTA YORKTOWN AND CHEATHAM ANNEX SITE

Submittal Date	CTO Number	Sites/SSAs	Document	EPA/State Review Due By
August 15, 2001	213	Groundwater OU	Final WP	NA
August 20, 2001	214	LTM Sites 25 and 26	Final LTM Work Plan	NA
August 24, 2001	363	Sites 2,8,18, and SSA 14	Final PRAP	NA
August 25, 2001	349	Sites 4, 21, and 22	Final ROD	NA
September 10, 2001	363	Site 18	Final ROD	NA
September 17, 2001	172	CAX Site 1	Final PRAP	NA
September 21, 2001	394	Sites 27,28,29, and 30	Final RI	NA
September 28, 2001	196	CAX Background	Draft Background Report	November 23, 2001
October 1, 2001	195	All WPNSTA/CAX	Final CRP	NA
October 17, 2001	172	CAX Site 1	Draft ROD	December 17, 2001
October 31, 2001	35	Sites 23,24,25, and 26	Final PRAP	NA
October 31, 2001	195	CAX Sites 4, 9, and 11	Final ERA Steps 1 and 2	NA
November 13, 2001	394	Site 30	Draft ROD	January 14, 2002
November 16, 2001	394	Sites 27,28,29, and 30	Final FS	NA
November 23, 2001	363	Site 2	Final ROD	NA
November 23, 2001	363	Site 8 and SSA 14	Final ROD	NA
November 30, 2001	394	Sites 27,28,29, and 30	Final PRAP	NA
December 3, 2001	213	Groundwater OU	Draft RI	February 1, 2002
December 17, 2001	196	CAX Background	Final Background Report	NA
December 21, 2001	214	LTM Sites 25 and 26	Draft LTM Report	February 2, 2002
January 4, 2002	104	CAX Site 1	Final RI	NA
January 18, 2002	394	Sites 27 and 28	Final ROD	NA
January 18, 2002	394	Site 29	Final ROD	NA
January 18, 2002	394	Site 30	Final ROD	NA

TABLE 3-1 (Continued)

DRAFT 2002/2003 SITE MANAGEMENT PLAN
PRIMARY AND SECONDARY DELIVERABLES BY MONTH
WPNSTA YORKTOWN AND CHEATHAM ANNEX SITE

Submittal Date	CTO Number	Sites/SSAs	Document	EPA/State Review Due By
February 1, 2002	35	Sites 23, 24, 25, 26	Final FS	NA
February 1, 2002	213	Groundwater OU	Final RI	NA
February 1, 2002	213	Groundwater OU	Draft FS	April 1, 2002
February 28, 2002	195	All WPNSTA/CAX	Final Site Management Plan	NA
March 18, 2002	214	LTM Sites 25 and 26	Final LTM Report	NA
April 1, 2002	213	Groundwater OU	Draft PRAP	June 3, 2002
April 1, 2002	213	Groundwater OU	Final FS	NA
May 12, 2002	35	Sites 23,24,25, and 26	Final ROD	NA
May 31, 2002	213	Groundwater OU	Draft ROD	July 30, 2002
May 31, 2002	213	Groundwater OU	Final PRAP	NA
August 30, 2002	213	Groundwater OU	Final ROD	NA

Notes:

CTO = Contract Task Order. Deliverables having CTO numbers are funded.
FS = Feasibility Study
LTM = Long Term Monitoring
NA = Not Applicable
ERA = Ecological Risk Assessment
PRAP = Proposed Remedial Action Plan
RI = Remedial Investigation
ROD = Record of Decision
SSA = Site Screening Area
CRP = Community Relations Plan

SECTION 3.0
FIGURE

Figure 3-1
FY 2000/2001 Schedule for Activities to be Conducted at WPNSTA Yorktown
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Start	Finish
WEAPONS STATION YORKTOWN		
CTO-0349, Sites 4, 21 and 22	2/23/96	8/25/01
Remedial Investigation Report	6/30/97	10/8/99
Feasibility Study	10/8/99	3/10/00
Proposed Plan	6/12/00	6/30/01
Public Comment Period	1/21/01	3/6/01
Record of Decision	2/19/01	8/25/01
CTO-035, Sites 23, 24, 25 and 26	12/1/96	5/12/02
Remedial Investigation Report	11/24/97	9/28/01
Feasibility Study	9/28/01	2/1/02
Proposed Plan	10/15/01	10/31/01
Public Comment Period	2/4/02	3/21/02
Record of Decision	11/27/01	5/12/02
CTO-0035, SSAs 3, 4, 5, 9, 10, 20, 21, 22, 23, and 24	12/1/96	6/1/01
Site Screening Process Report	3/25/98	6/1/01
CTO-0363, Sites 2, 8, 18 and SSA 14	5/1/96	11/7/01
Remedial Investigation Report	2/20/98	6/30/01
Feasibility Study	9/17/98	6/30/01
Proposed Plan	7/1/01	8/24/01
Public Comment Period - Sites 2, 8, 18, SSA 14	7/13/01	8/27/01
Record of Decision, Site 18	7/27/01	9/10/01
Public Comment Period - Sites 2, 8 and SSA 14	9/11/01	11/2/01
Record of Decision, Sites 2, 8, SSA 14	9/14/01	11/23/01
CTO-0386, Site 12	1/1/98	4/30/02
Long-Term Monitoring Report (1998)	10/15/99	3/3/00
Long-Term Monitoring Report (2000)	6/25/01	7/24/01
Long-Term Monitoring Report (2001)	1/1/02	4/30/02
CTO-0394, Sites 27, 28, 29, and 30	6/1/99	2/13/02
Remedial Investigation Report	12/15/00	9/21/01
Feasibility Study	6/1/01	11/16/01
Proposed Plan	8/28/01	11/30/01
Public Comment Period	11/30/01	1/14/02
Records of Decision	9/17/01	1/18/02
CTO-0102, Sites 1, 3, 6, and 7	8/1/99	6/15/01
Long-Term Monitoring Report	1/1/00	6/15/01
CTO-0213, GW OU I, RI/FS/PRAP/ROD	5/24/01	8/30/02
Work Plan	5/21/01	8/15/01
Field Investigation	8/21/01	9/1/01
Remedial Investigation Report	10/31/01	2/1/02
Feasibility Study	12/18/01	4/1/02
Proposed Remedial Action Plan	2/8/02	5/31/02
Public Comment Period	7/1/02	8/15/02
Record of Decision	5/1/02	8/30/02
CTO-0214, LTM Sites 25 and 26	5/24/01	3/18/02
LTM Work Plan	5/22/01	8/20/01
Field Sampling	9/4/01	9/7/01
LTM Report	11/12/01	3/18/02
CHEATHAM ANNEX	4/15/01	4/15/01
CAX Site 11 RI/FS/PRAP/ROD	6/5/01	8/30/02
Work Plan	6/4/01	9/17/01
Fieldwork	9/17/01	10/1/01
Remedial Investigation	11/14/01	3/18/02
Feasibility Study	1/8/02	6/7/02
Proposed Remedial Action Plan	4/2/02	6/7/02
Public Comment Period	6/7/02	7/22/02
Record of Decision	4/26/02	8/29/02
CTO-0196, CAX Background Investigation and Report	3/16/01	12/17/01
Work Plan	3/14/01	7/19/01
Background Report	8/29/01	12/17/01
CTO-0172 - CAX - Landfill	6/19/01	1/25/02
Focused Feasibility Study	6/16/01	7/16/01
Proposed Remedial Action Plan	8/3/01	9/17/01
Record of Decision - Site 1	9/17/01	1/25/02
Remedial Investigation - Site 1	9/1/01	1/4/02
CTO-0195 - CAX Sites 4, 9, 11 Ecological Risk Assessment, Steps 1 & 2	5/2/01	10/31/01
Site Management Plan	5/15/01	6/15/01
Sites 4, 9, 11 ERA, Steps 1 & 2	6/4/01	10/31/01
Community Relations Plan	5/2/01	8/31/01
Public Comment Period	6/1/01	7/15/01

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APPENDIX A
DETAILED SCHEDULES FOR COMPLETED ACTIONS

Figure A - 1

FY 1994: Site 5 Risk Assessment, Proposed Plan, and Record of Decision
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITE 5	393ed	9/1/93	9/29/
RISK ASSESSMENT	**275ed**	**9/1/93**	**6/3/**
Preliminary Draft	61ed	9/1/93	11/1/
Review (Navy)	29ed	11/1/93	11/30/
Draft	30ed	11/30/93	12/30/
Review (EPA/State)	60ed	12/30/93	2/28/
Draft Final	60ed	2/28/94	4/29/
Final	35ed	4/29/94	6/3/
PROPOSED PLAN	**212ed**	**11/1/93**	**6/1/**
Preliminary Draft	30ed	11/1/93	12/1/
Review (Navy)	33ed	12/1/93	1/3/
Draft	28ed	1/3/94	1/31/
Review (EPA/State)	60ed	1/31/94	4/1/
Draft Final	31ed	4/1/94	5/2/
Final	30ed	5/2/94	6/1/
PUBLIC COMMENT PERIOD	**45ed**	**6/5/94**	**7/20/**

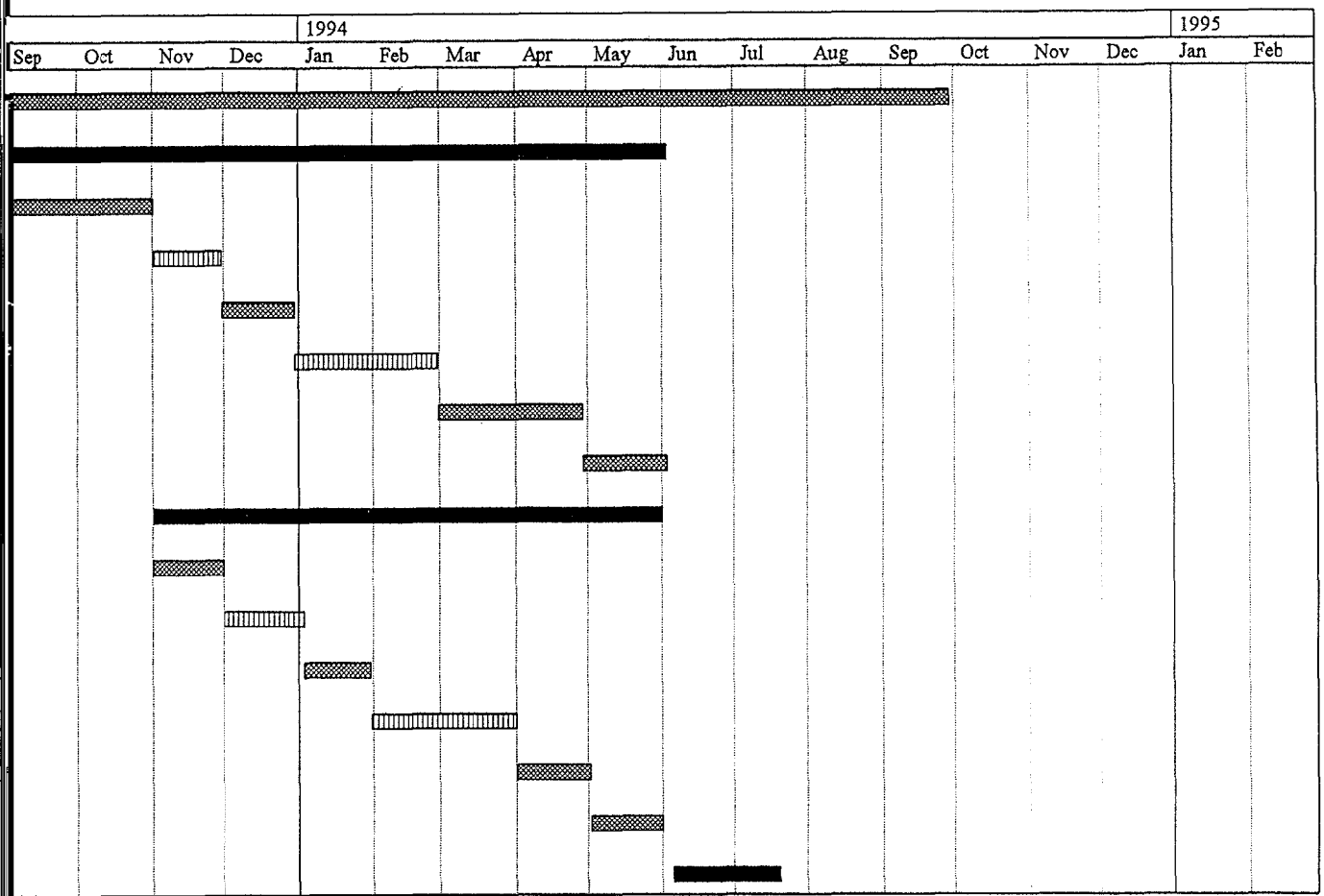


Figure A - 1

FY 1994: Site 5 Risk Assessment, Proposed Plan, and Record of Decision
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
RECORD OF DECISION	**302ed**	**12/1/93**	**9/29/94**
Preliminary Draft	33ed	12/1/93	1/3/94
Review (Navy)	29ed	1/3/94	2/1/94
Draft	29ed	2/1/94	3/2/94
Review (EPA/State)	61ed	3/2/94	5/2/94
Draft Final	30ed	5/2/94	6/1/94
Final	120ed	6/1/94	9/29/94

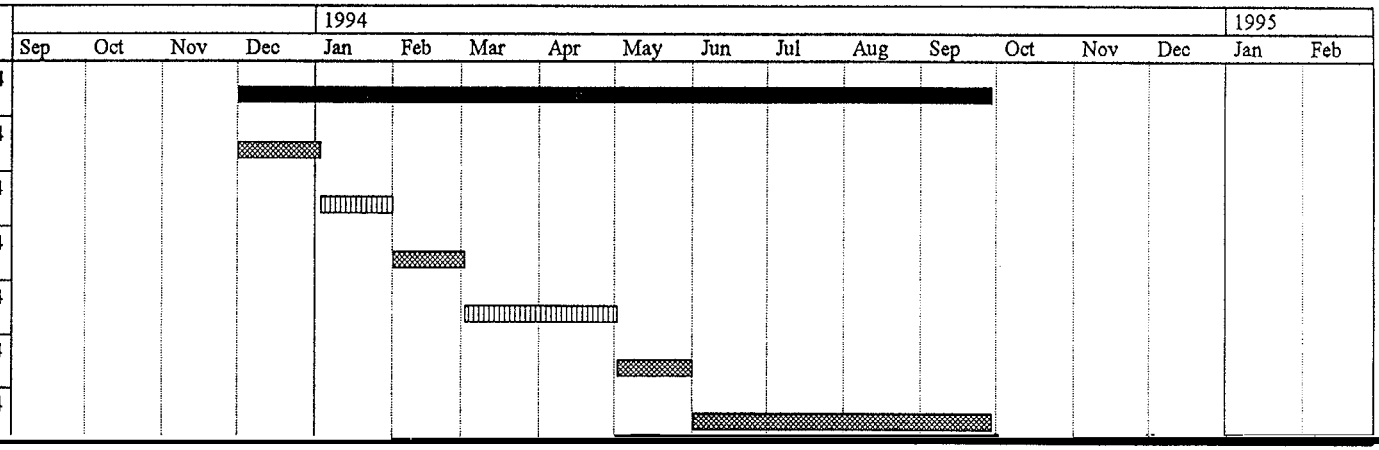


Figure A - 2

FY 1993: Removal Action at Sites 4, 16, and 21
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITES 4, 16, and 21	624ed	2/15/93	11/1/94
EE/CA Report	**393ed**	**2/15/93**	**3/15/94**
Public Comment Period	31ed	10/21/93	11/21/93
Final	113ed	11/22/93	3/15/94
REMOVAL ACTION MEMORANDUM	**105ed**	**11/30/93**	**3/15/94**
Draft	30ed	11/30/93	12/30/93
Review (Navy/EPA/State)	32ed	12/30/93	1/31/94
Final	43ed	1/31/94	3/15/94
REMOVAL ACTION WORK PLAN (Revised)	**190ed**	**9/30/93**	**4/8/94**
Draft	131ed	9/30/93	2/8/94
Review (Navy/EPA/State)	28ed	2/8/94	3/8/94
Final	31ed	3/8/94	4/8/94

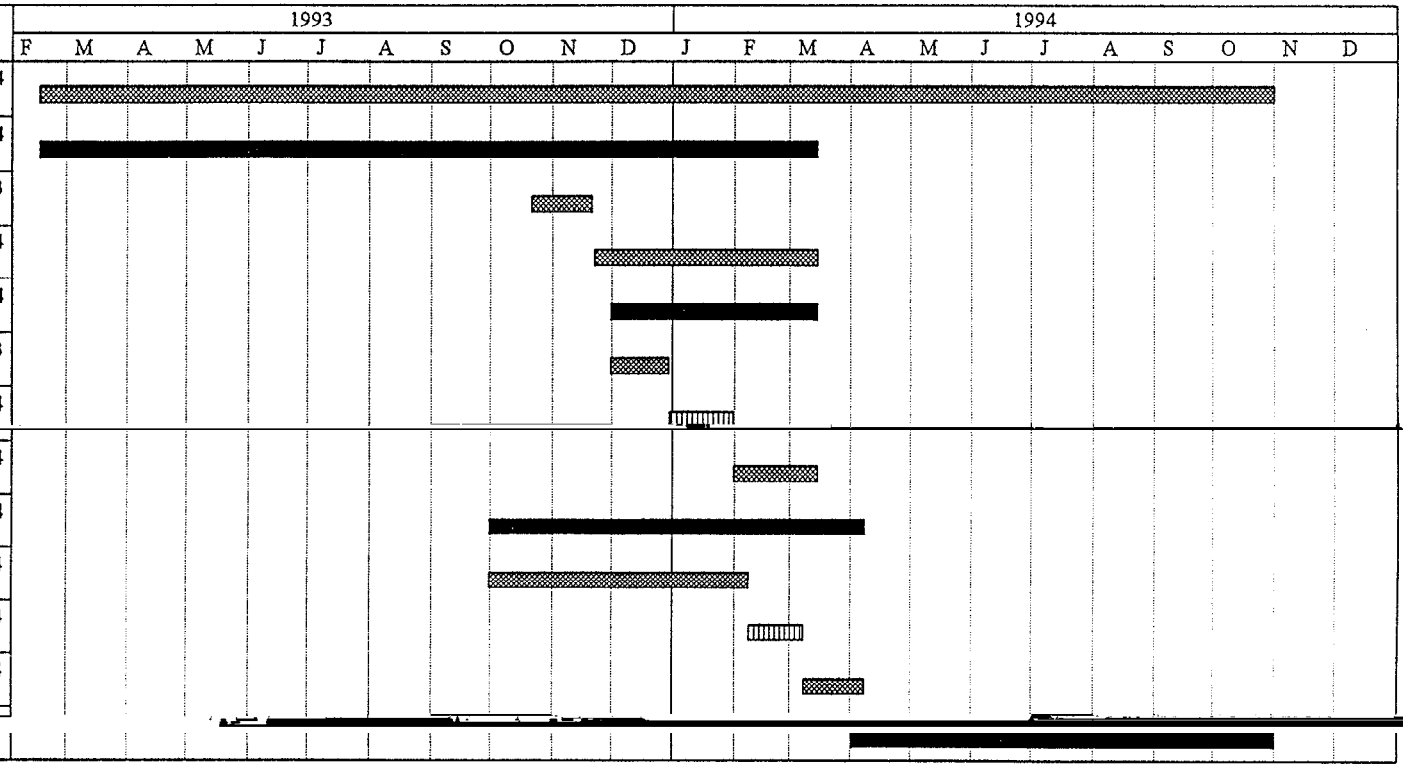


Figure A - 3

FY 1994: Sites 6, 7, 12, 16, SSA 16 and Background Work Plan / Field Investigation
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITES 6, 7, 12, 16, SSA 16 AND BACKGROUND	474ed	9/1/93	12/19/94
RI WORK PLAN	276ed	9/1/93	6/4/94
Preliminary Draft	61ed	9/1/93	11/1/93
Review (Navy)	30ed	11/1/93	12/1/93
Draft	34ed	12/1/93	1/4/94
Review (EPA/State)	60ed	1/4/94	3/5/94
Draft Final	60ed	3/5/94	5/4/94
Final	31ed	5/4/94	6/4/94
RI FIELD INVESTIGATION	135ed	20/94	**11/2/94**
Mobilization	15ed	20/94	7/5/94
Field Investigation	120ed	7/5/94	11/2/94
SAMPLE ANALYSIS/VALIDATION	160ed	7/7/94	**12/14/94**
Sample Analysis	146ed	7/7/94	11/30/94
Data Validation	132ed	8/4/94	12/14/94

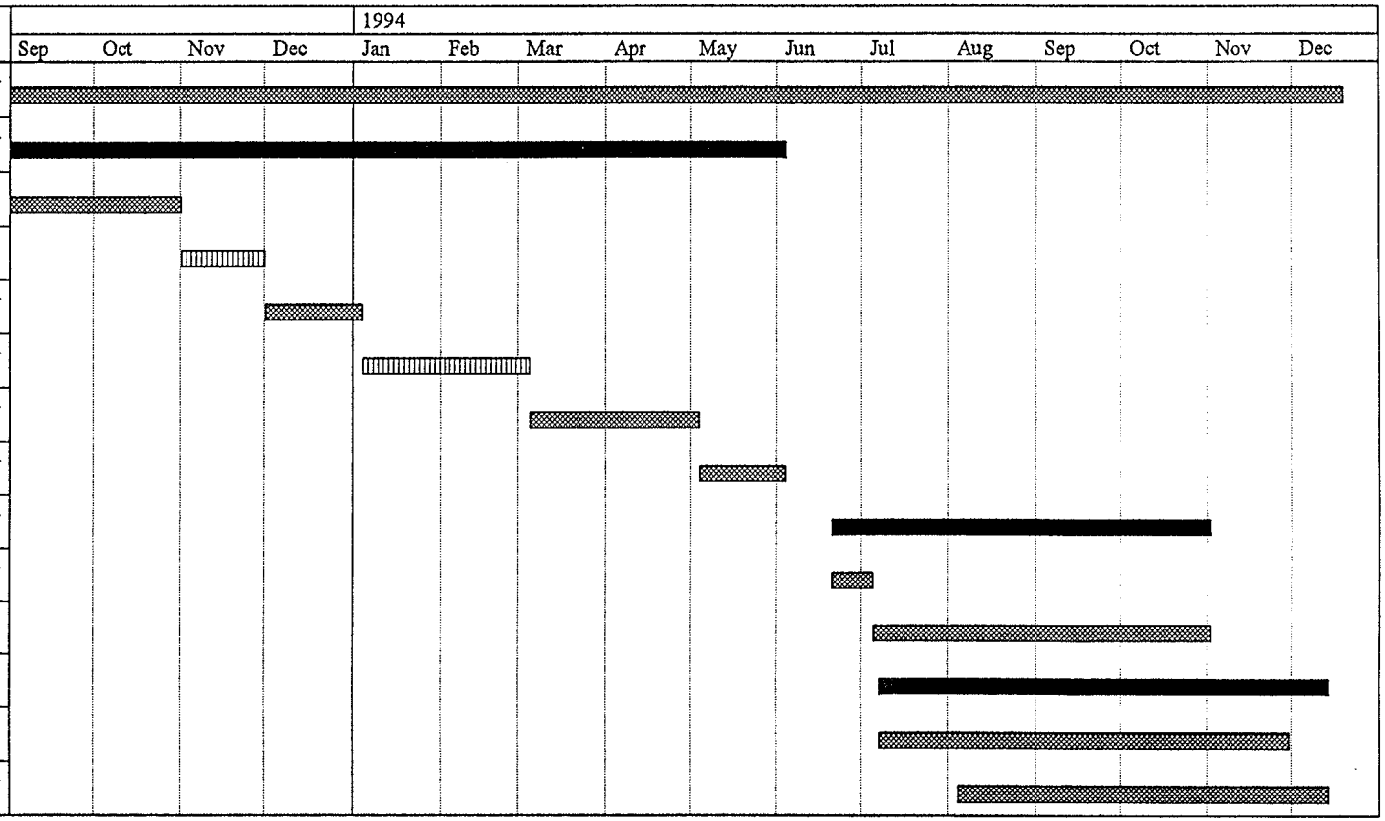


Figure A - 4

FY 1993: Removal Action at Sites 2, 9 and SSA 4

Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITES 2, 9 and SSA 4	679ed	4/12/93	2/20/95
EE/CA Report	**309ed**	**4/12/93**	**2/15/94**
Draft Final	23ed	11/22/93	12/15/93
PUBLIC COMMENT PERIOD	31ed	12/19/93	1/19/94
Final	22ed	1/24/94	2/15/94
REMOVAL ACTION MEMORANDUM	**74ed**	**4/4/94**	**6/17/94**
Draft	30ed	4/4/94	5/4/94
Review (Navy/EPA/State)	30ed	5/4/94	6/3/94
Final	14ed	6/3/94	6/17/94
REMOVAL ACTION WORK PLAN	**90ed**	**6/3/94**	**9/1/94**
Draft	30ed	6/3/94	7/3/94
Review (Navy/EPA/State)	30ed	7/3/94	8/2/94
Final	30ed	8/2/94	9/1/94
REMOVAL ACTION	**172ed**	**9/1/94**	**2/20/95**

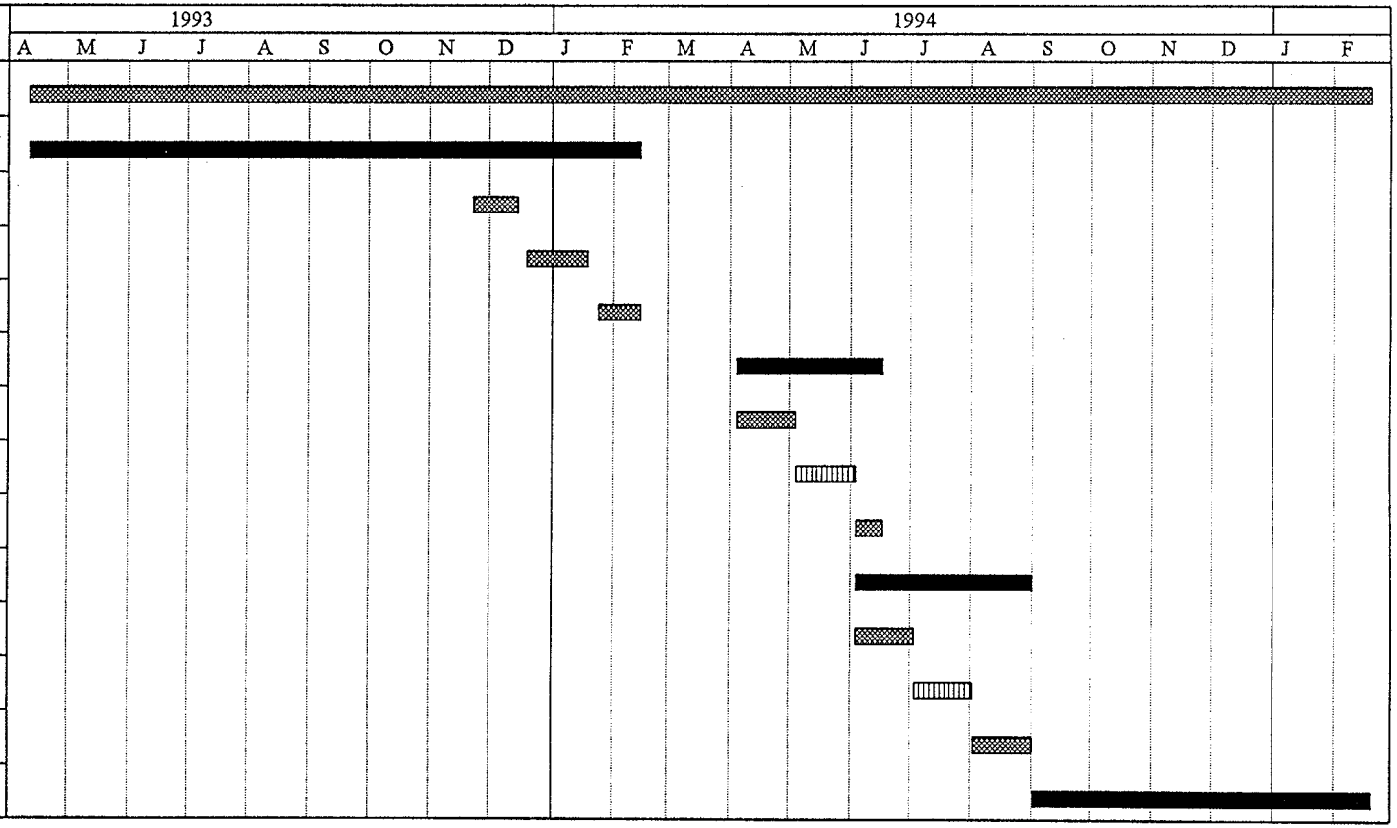


Figure A - 5

FY 1994: Removal Action at Site Screening Areas 1, 2 and 5

Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITE SCREENING AREAS 1, 2, and 5	610ed	9/1/93	5/4/95
EE/CA REPORT (Includes Sampling/Analysis)	**288ed**	**9/1/93**	**6/16/94**
Preliminary Draft	93ed	9/1/93	12/3/93
Review (Navy)	24ed	12/3/93	12/27/93
Draft	48ed	12/27/93	2/13/94
Review (EPA/State)	30ed	2/13/94	3/15/94
PUBLIC COMMENT PERIOD	**30ed**	**2/13/94**	**3/15/94**
Final	93ed	3/15/94	6/16/94
REMOVAL ACTION MEMORANDUM	**93ed**	**3/15/94**	**6/16/94**
Draft	34ed	3/15/94	4/18/94
Review (Navy/EPA/State)	28ed	4/18/94	5/16/94
Final	31ed	5/16/94	6/16/94
REMOVAL ACTION DESIGN	**126ed**	**10/11/93**	**2/14/94**
90% Design	53ed	10/11/93	12/3/93
Review (Navy)	34ed	12/3/93	1/6/94
Final Design	39ed	1/6/94	2/14/94
REMOVAL ACTION WORK PLAN	**68ed**	**5/4/94**	**7/11/94**
Draft	33ed	5/4/94	6/6/94
Review (Navy)	14ed	6/6/94	6/20/94
Final	21ed	6/20/94	7/11/94
REMOVAL ACTION	**117ed**	**7/11/94**	**11/5/94**
Mobilize and Setup	23ed	7/11/94	8/3/94

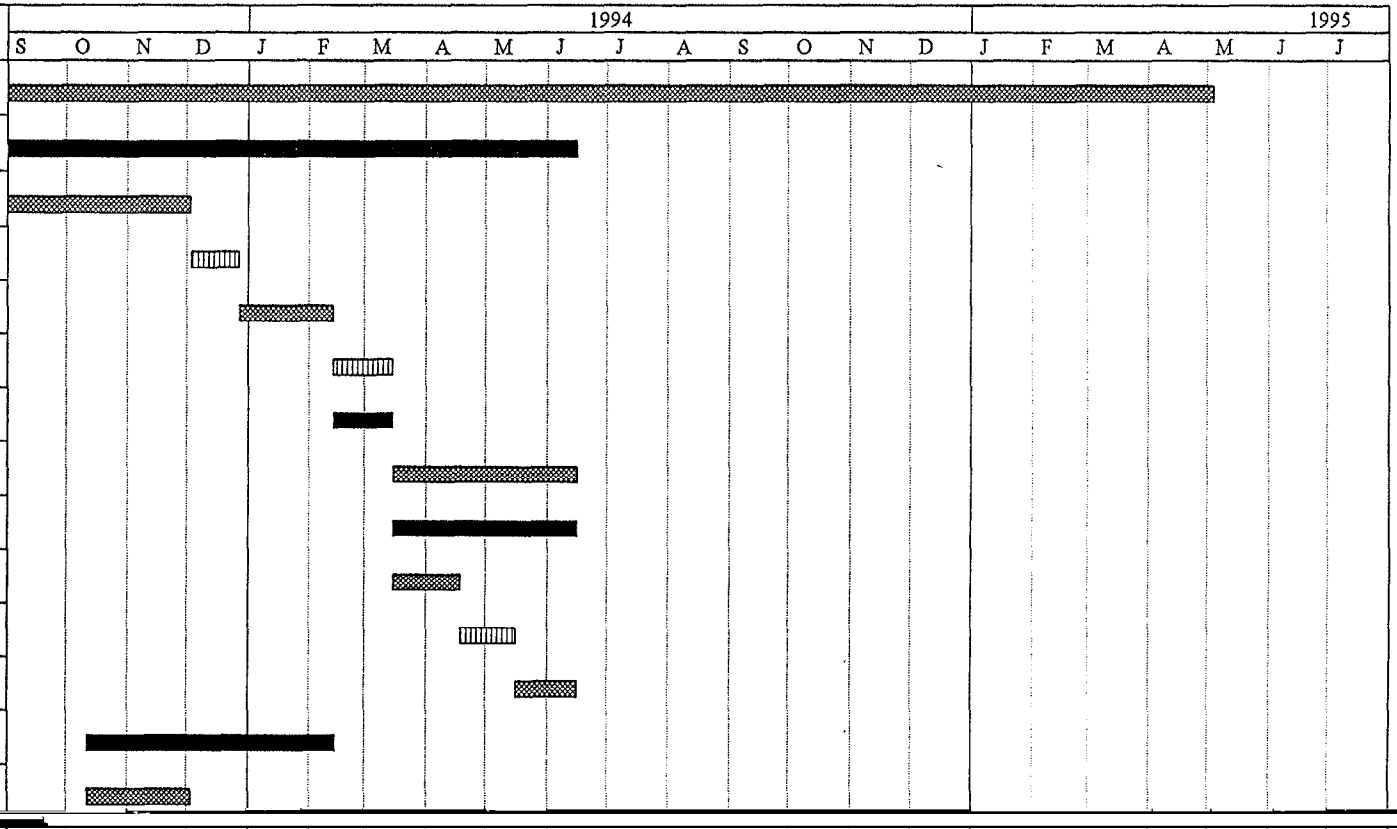


Figure A - 5

FY 1994: Removal Action at Site Screening Areas 1, 2 and 5
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
Removal Action - SSA 2	19ed	8/3/94	8/22/94
Removal Action - SSA 5	22ed	8/11/94	9/2/94
Removal Action - SSA 1	89ed	8/3/94	10/31/94
Confirmation Sampling - 3 SSAs	84ed	8/8/94	10/31/94
Lab Analysis/Data Validation	77ed	8/15/94	10/31/94
Project Closeout	31ed	10/5/94	11/5/94

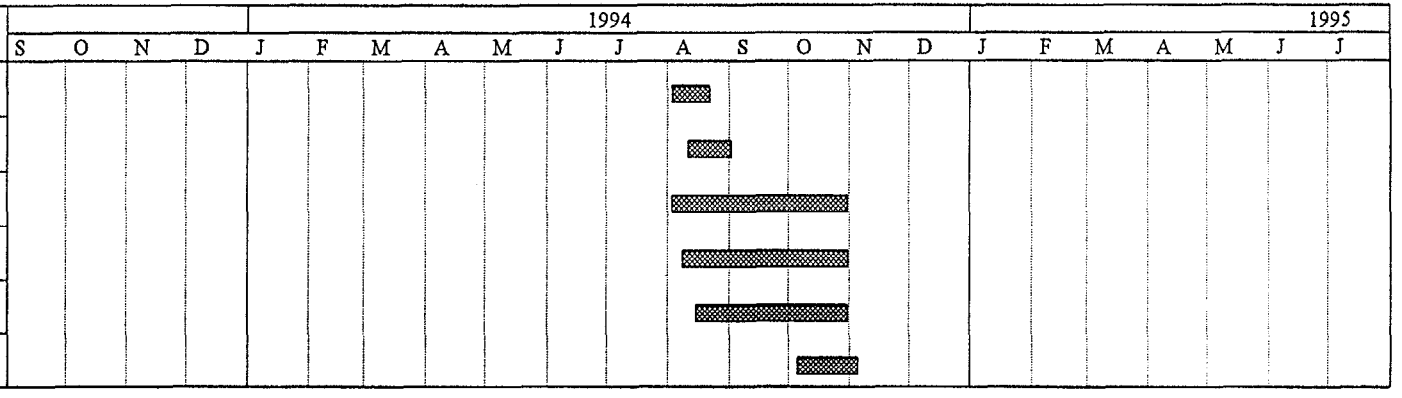


Figure A - 6

FY 1995: Removal Action at Site Screening Area 18
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITE SCREENING AREA 18	1032ed	6/1/92	3/30/95
EE/CA REPORT	**241ed**	**7/27/93**	**3/25/94**
Preliminary Draft	28ed	7/27/93	8/24/93
Review (Navy)	9ed	8/24/93	9/2/93
Draft	36ed	9/2/93	10/8/93
PUBLIC COMMENT PERIOD	**31ed**	**10/10/93**	**11/10/93**
Final	137ed	11/8/93	3/25/94
REMOVAL ACTION MEMORANDUM	**179ed**	**10/7/93**	**4/4/94**
Draft	61ed	10/7/93	12/7/93
Review (Navy/EPA/State)	87ed	12/7/93	3/4/94
Final	31ed	3/4/94	4/4/94
REMOVAL ACTION DESIGN	**452ed**	**6/1/92**	**8/27/93**
90% Design	183ed	6/1/92	12/1/92
Review (Navy)	209ed	12/1/92	6/28/93
Final Design	60ed	6/28/93	8/27/93
REMOVAL ACTION WORK PLAN	**411ed**	**9/30/93**	**11/15/94**
REMOVAL ACTION Tank Removal and Closeout	**135ed**	**11/15/94**	**3/30/95**

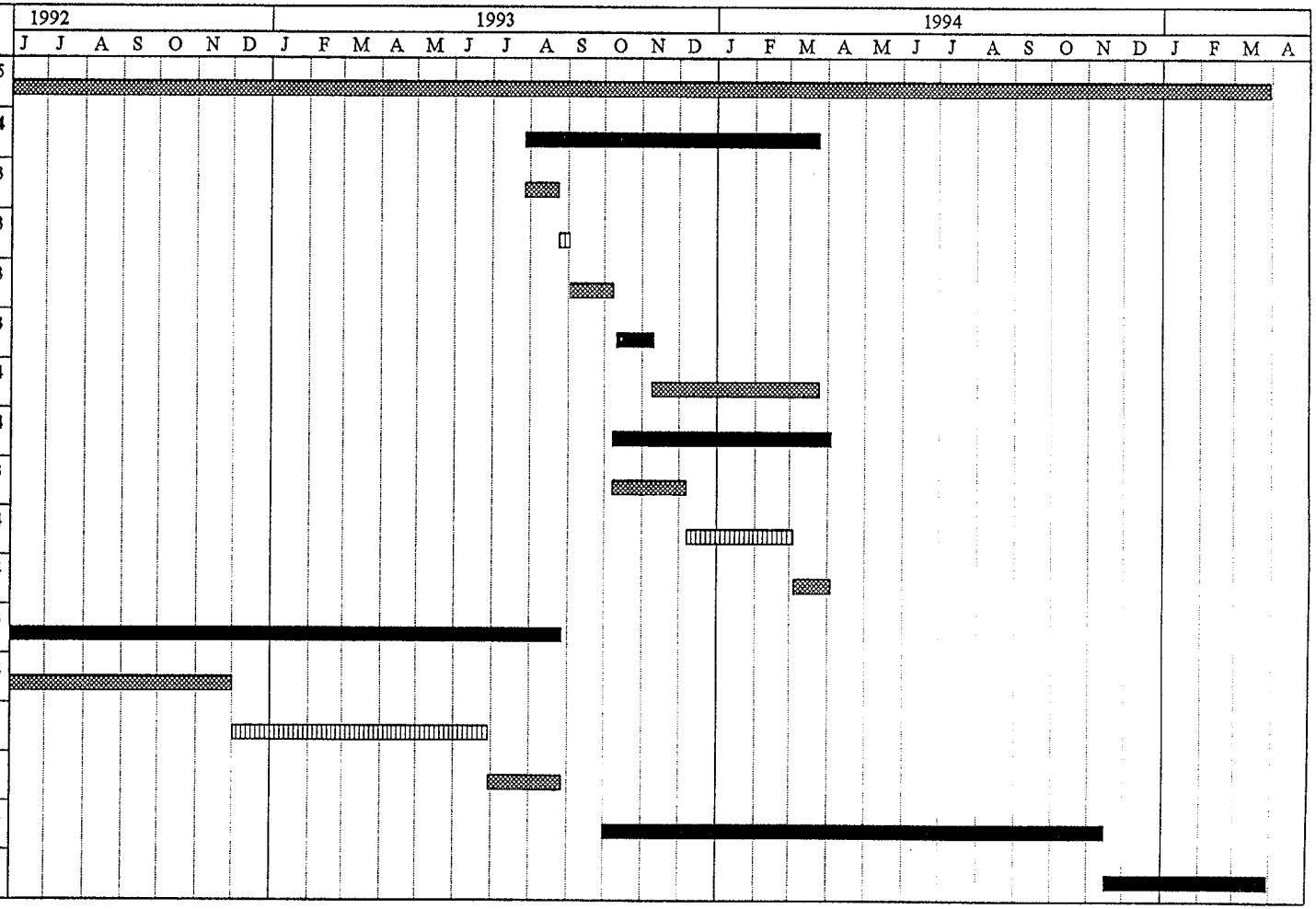


Figure A - 7

FY 1994: Removal Action at Site Screening Area 17
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITE SCREENING AREA 17	511ed	1/10/94	6/5/95
EE/CA REPORT	**106ed**	**1/10/94**	**4/26/94**
Preliminary Draft	25ed	1/10/94	2/4/94
Review (Navy)	17ed	2/4/94	2/21/94
Draft	30ed	2/21/94	3/23/94
PUBLIC COMMENT PERIOD	**30ed**	**3/20/94**	**4/19/94**
Final	7ed	4/19/94	4/26/94
REMOVAL ACTION MEMORANDUM	**44ed**	**4/26/94**	**6/9/94**
Draft	7ed	4/26/94	5/3/94
Review (Navy/EPA/State)	30ed	5/3/94	6/2/94
Final	7ed	6/2/94	6/9/94
REMOVAL ACTION DESIGN	**150ed**	**1/10/94**	**6/9/94**
90% Design	100ed	1/10/94	4/20/94
Review (Navy)	30ed	4/20/94	5/20/94
Final Design	20ed	5/20/94	6/9/94
REMOVAL ACTION	**301ed**	**8/8/94**	**6/5/95**

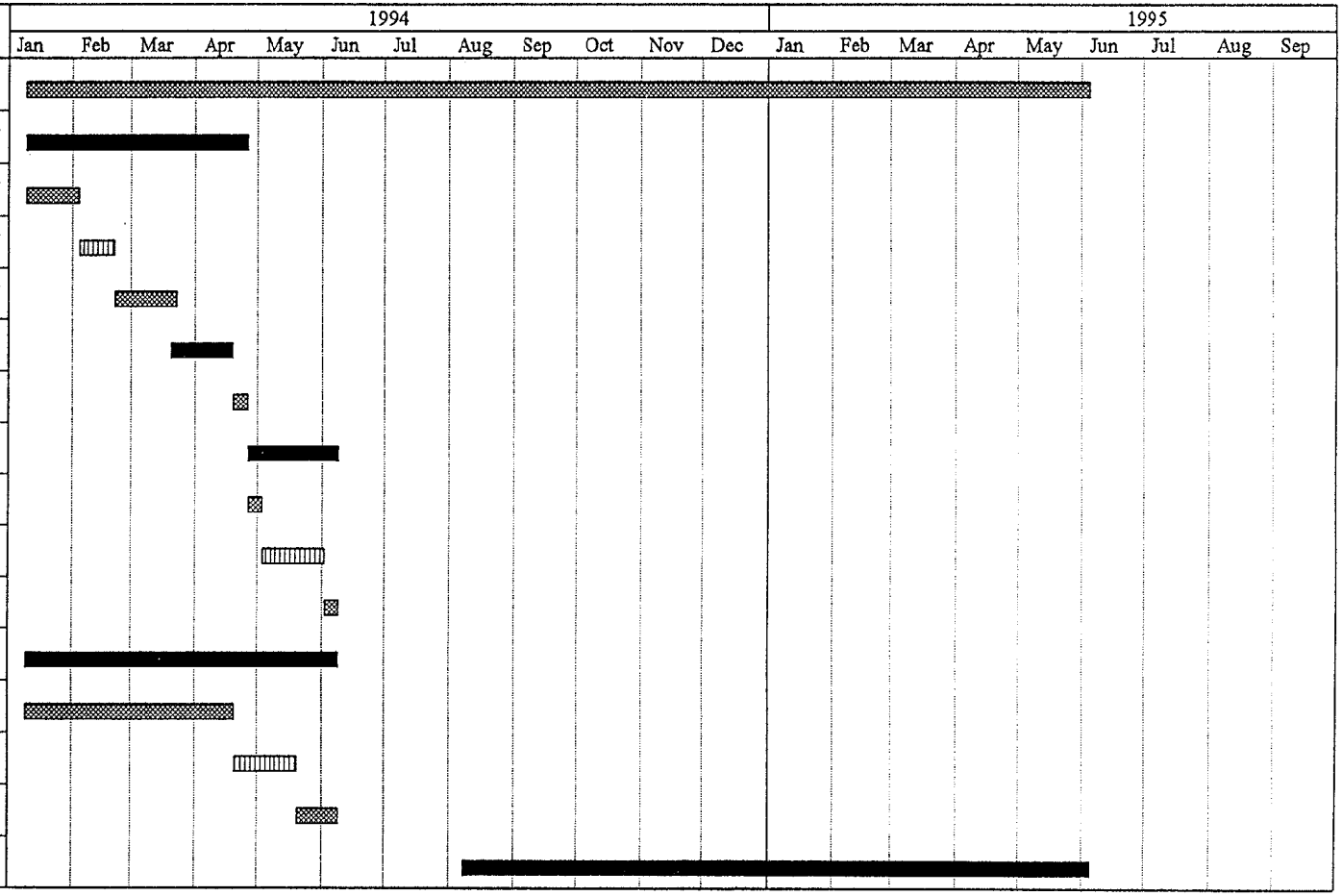
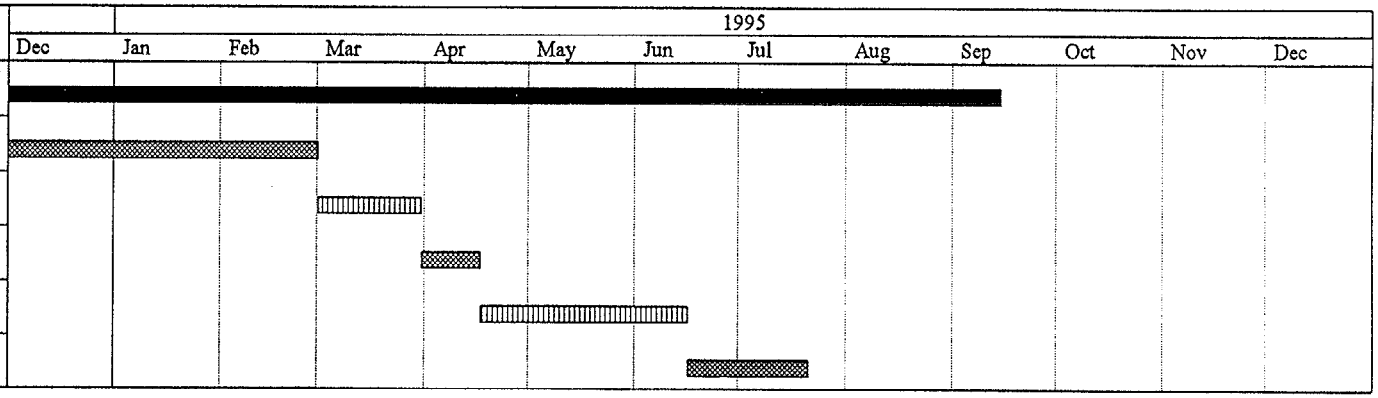


Figure A - 8

FY 1994: York River Basin Background Report
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
YORK RIVER BASIN BACKGROUND REPORT	**288ed**	**12/1/94**	**9/15/95**
Preliminary Draft	90ed	12/1/94	3/1/95
Review (Navy)	30ed	3/1/95	3/31/95
Draft	17ed	3/31/95	4/17/95
Review (EPA/State)	60ed	4/17/95	6/16/95
Final	35ed	6/16/95	7/21/95

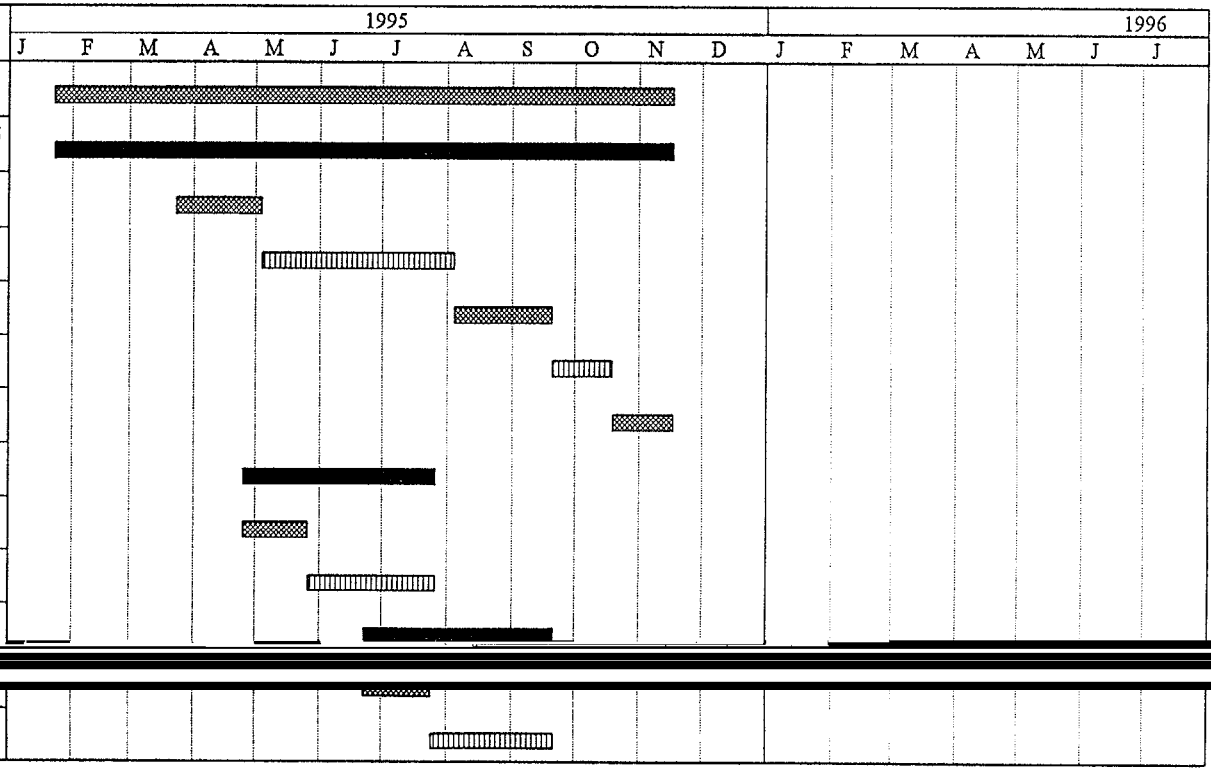


NOTE: The Draft Final Deliverable was not submitted due to limited Government comments.

Figure A - 9

FY 1995: Sites 4 and 21 Post-Removal Confirmation Sampling Report and Baseline Risk Assessment, Proposed Plan, and Record of Decision
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITES 4 and 21	298ed	1/23/95	11/17/95
POST-REMOVAL CONFIRMATION SAMPLING REPORT AND BASELINE RISK ASSESSMENT	**298ed**	**1/23/95**	**11/17/95**
Draft	42ed	3/23/95	5/4/95
Review (EPA/State)	92ed	5/4/95	8/4/95
Draft Final	47ed	8/4/95	9/20/95
Review (EPA/State)	29ed	9/20/95	10/19/95
Final	29ed	10/19/95	11/17/95
PROPOSED PLAN	**92ed**	**4/25/95**	**7/26/95**
Draft	31ed	4/25/95	5/26/95
Review (EPA/State)	61ed	5/26/95	7/26/95
RECORD OF DECISION	**91ed**	**6/22/95**	**9/21/95**
Review (EPA/State)	59ed	7/24/95	9/21/95

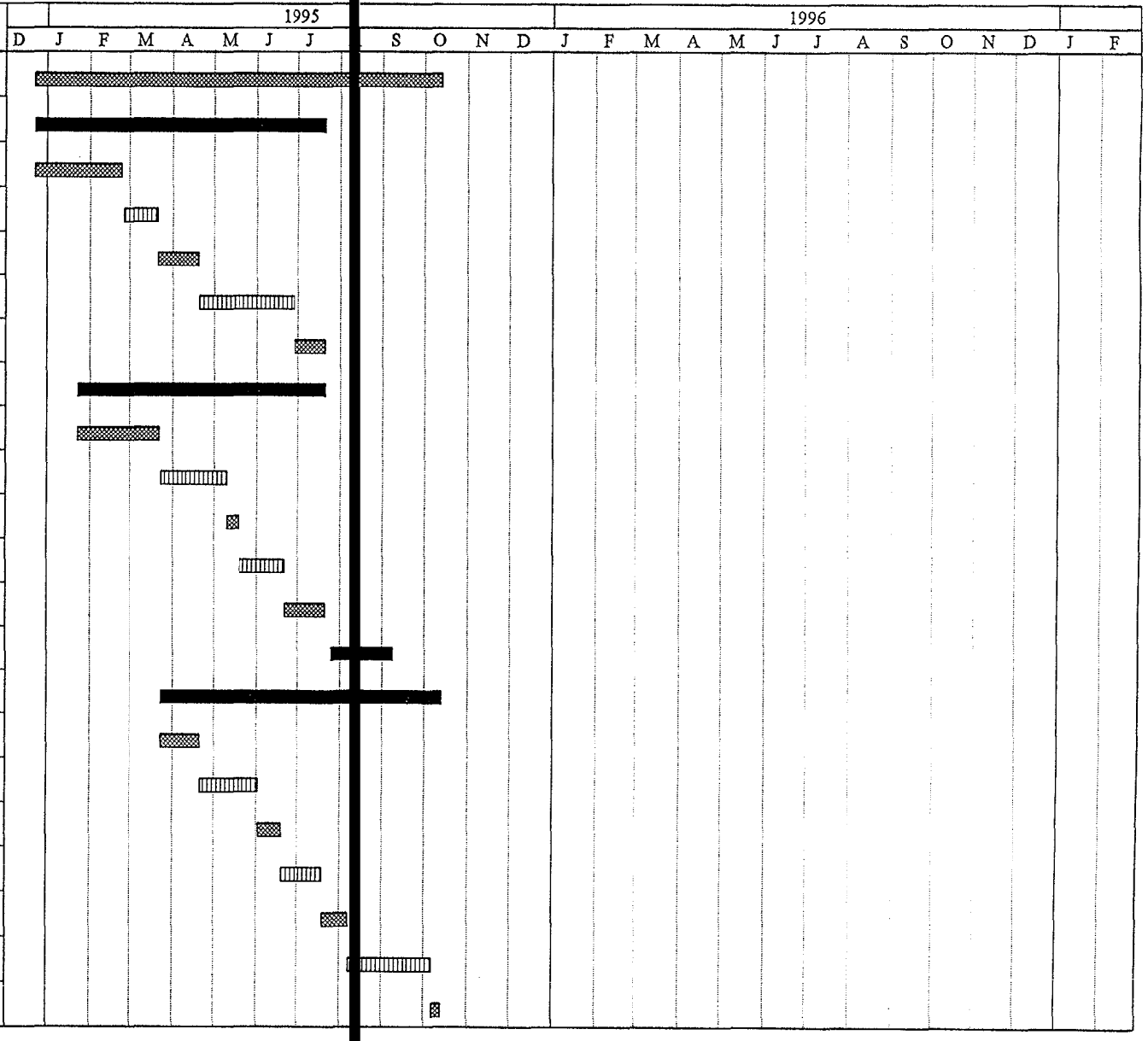


Note: The remaining deliverables for the Proposed Plan and Record of Decision were eliminated from the scope of work.

Figure A - 1

FY 1995: Site 16 and SSA 16 Remedial Investigation, Feasibility Study, Proposed Plan, and Record of Decision
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITES 16 and SSA 16	294ed	12/23/94	10/13/95
REMEDIAL INVESTIGATION REPORT	**210ed**	**12/23/94**	**7/21/95**
Preliminary Draft	62ed	12/23/94	2/23/95
Review (Navy)	25ed	2/24/95	3/21/95
Draft	30ed	3/21/95	4/20/95
Review (EPA/State)	69ed	4/20/95	6/28/95
Final	23ed	6/28/95	7/21/95
PROPOSED PLAN	**179ed**	**1/23/95**	**7/21/95**
Preliminary Draft	58ed	1/23/95	3/22/95
Review (Navy)	48ed	3/23/95	5/10/95
Draft	9ed	5/10/95	5/19/95
Review (EPA/State)	33ed	5/19/95	6/21/95
Final	30ed	6/21/95	7/21/95
PUBLIC COMMENT PERIOD	**45ed**	**7/25/95**	**9/8/95**
RECORD OF DECISION	**204ed**	**3/23/95**	**10/13/95**
Preliminary Draft	29ed	3/23/95	4/21/95
Review (Navy)	42ed	4/21/95	6/2/95
Draft	17ed	6/2/95	6/19/95
Review (EPA/State)	30ed	6/19/95	7/19/95
Draft Final	19ed	7/19/95	8/7/95
Review (EPA/State)	60ed	8/7/95	10/6/95
Final	7ed	10/6/95	10/13/95



NOTE: The Draft Final Deliverable was not submitted due to limited Government comments.

Figure A - 11

FY 1995: Sites 9 and 19 Work Plan/Field Investigation

Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITES 9 and 19	369ed	12/1/94	12/5/95
RI WORK PLAN	**267ed**	**12/1/94**	**8/25/95**
Preliminary Draft	74ed	12/1/94	2/13/95
Review (Navy)	16ed	2/13/95	3/1/95
Draft	30ed	3/1/95	3/31/95
Review (EPA/State)	59ed	3/31/95	5/29/95
Draft Final	30ed	5/29/95	6/28/95
Review (EPA/State)	30ed	6/28/95	7/28/95
Final	28ed	7/28/95	8/25/95
RI FIELD INVESTIGATION	**60ed**	**8/21/95**	**10/20/95**
Mobilization	4ed	8/21/95	8/25/95
Field Investigation	56ed	8/25/95	10/20/95
SAMPLE ANALYSIS/VALIDATION	**89ed**	**9/7/95**	**12/5/95**
Sample Analysis	74ed	9/7/95	11/20/95
Data Validation	60ed	10/6/95	12/5/95

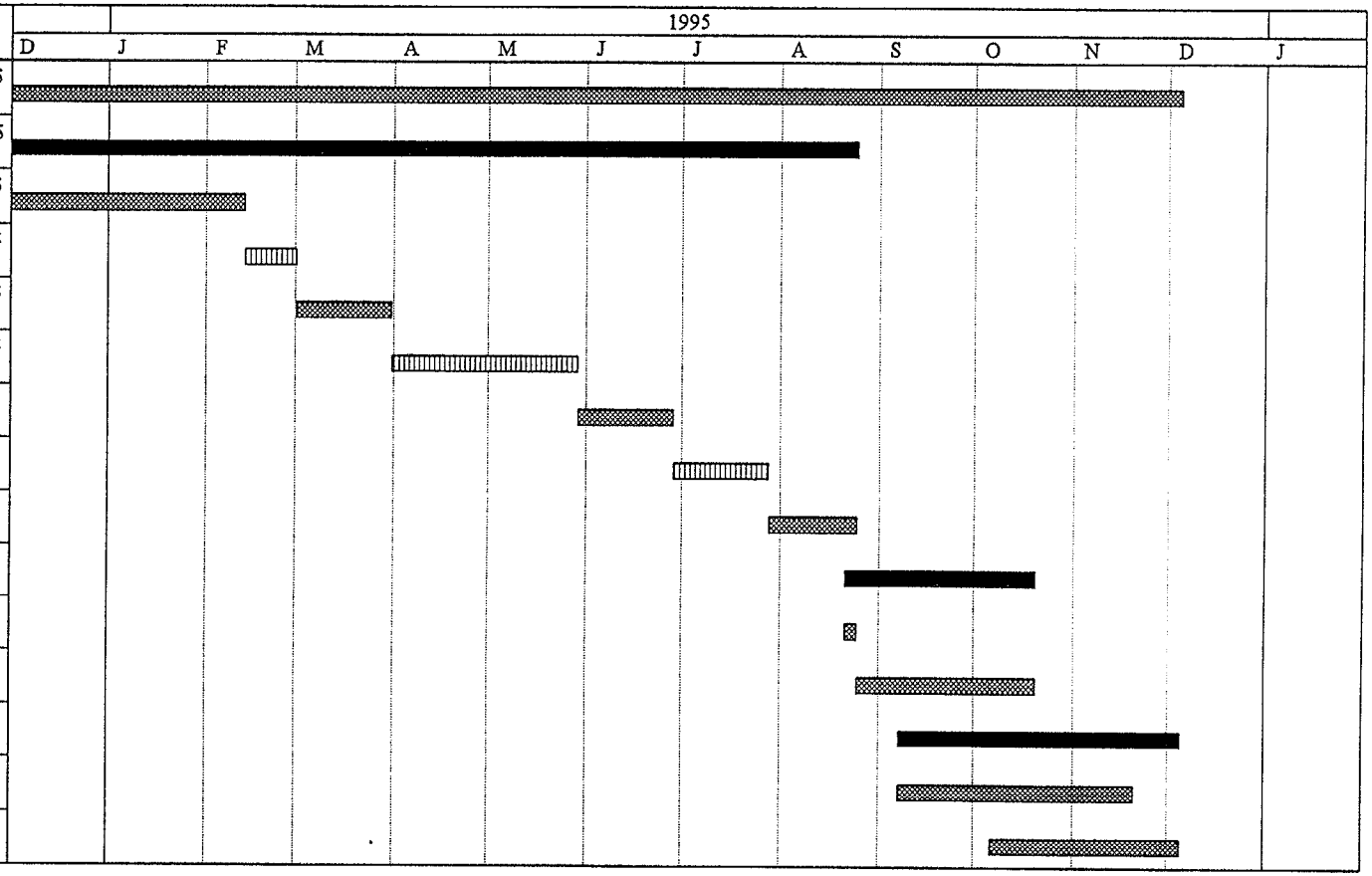


Figure A - 12

FY 1994: Site Screening Areas 1, 6, 7, and 15 Work Plan/Field Investigation/SSP Report
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITE SCREENING AREAS 1, 6, 7, and 15	811ed	1/10/94	3/31/96
SSA WORK PLAN	**316ed**	**1/10/94**	**11/22/94**
Preliminary Draft	84ed	1/10/94	4/4/94
Review (Navy)	30ed	4/4/94	5/4/94
Draft	30ed	5/4/94	6/3/94
Review (EPA/State)	60ed	6/3/94	8/2/94
Draft Final	69ed	8/2/94	10/10/94
Review (EPA/State)	30ed	10/10/94	11/9/94
Final	13ed	11/9/94	11/22/94
SSA FIELD INVESTIGATION	**46ed**	**10/31/94**	**12/16/94**
Mobilization	7ed	10/24/94	10/31/94
Field Investigation	46ed	10/31/94	12/16/94
SAMPLE ANALYSIS/VALIDATION	**45ed**	**10/31/94**	**12/15/94**
Sample Analysis	44ed	10/31/94	12/14/94
Data Validation	60ed	12/18/94	2/16/95
SSP REPORT	**440ed**	**1/16/95**	**3/31/96**
Preliminary Draft	58ed	1/16/95	3/15/95
Review (Navy)	30ed	3/15/95	4/14/95
Draft	77ed	4/14/95	6/30/95
Review (EPA/State)	94ed	6/30/95	10/2/95
Draft Final	37ed	10/2/95	11/8/95
Review (EPA/State)	84ed	11/8/95	1/31/96
Final	47ed	1/31/96	3/18/96

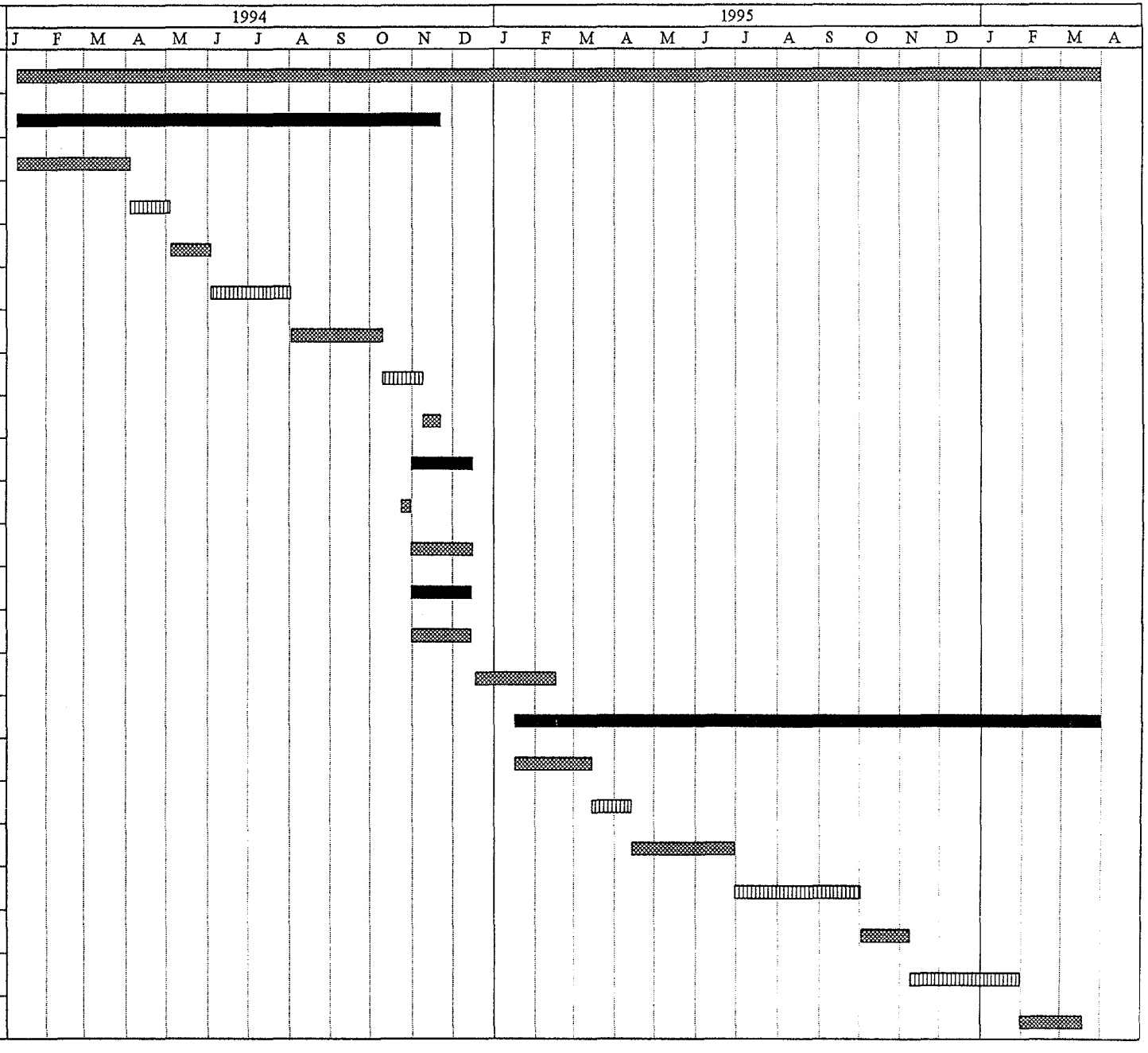
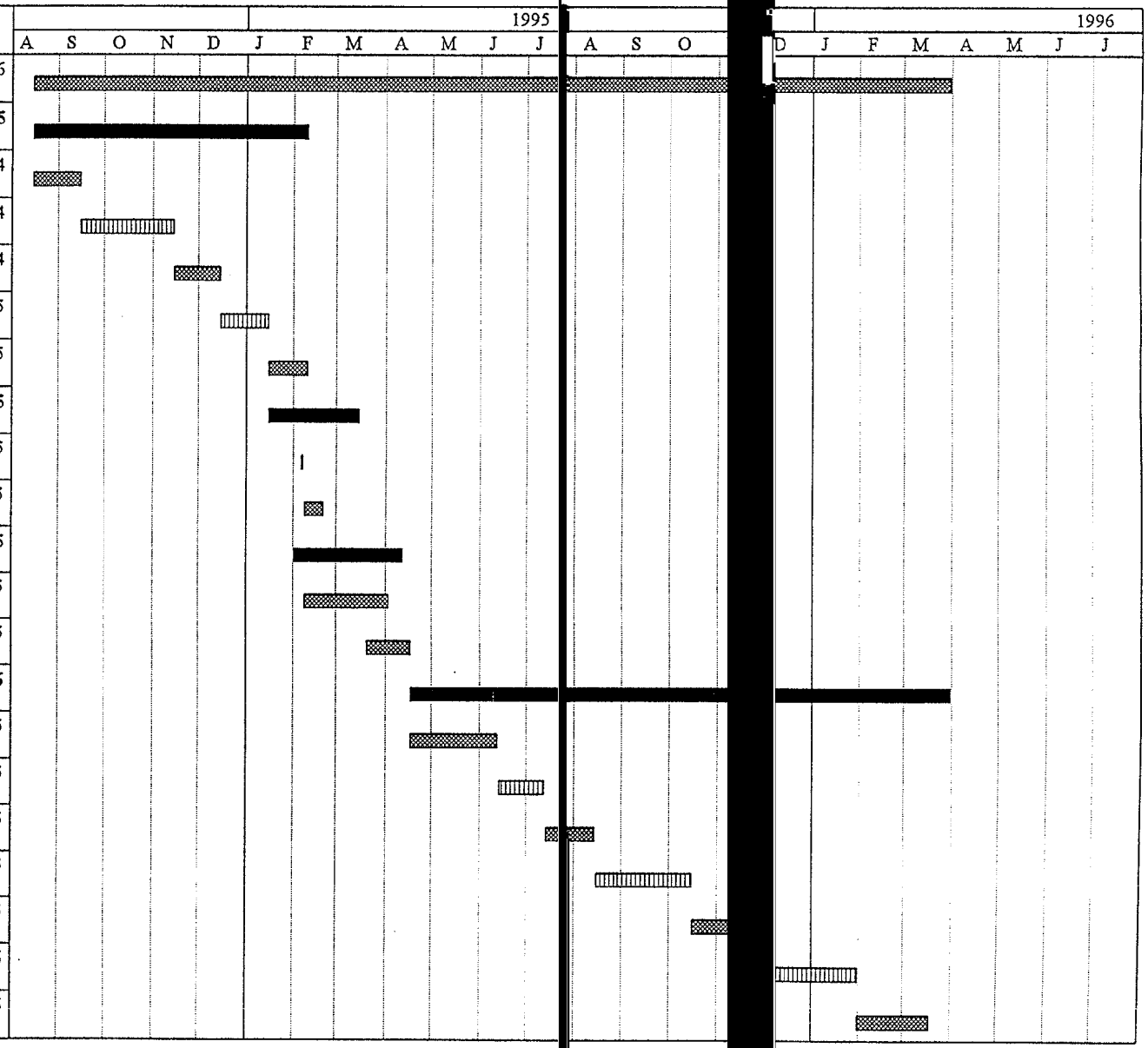


Figure A - 13

FY 1995: Site Screening Areas 2, 17, 18 and 19 Work Plan/Field Investigation/SSP Report
Naval Weapons Station Yorktown, Yorktown, Virginia

Task		Days	Start	Finish
SITE SCRE	G AREAS 2, 17, 18 and 19	594ed	8/15/94	3/31/96
SSP WORI	N	**179ed**	**8/15/94**	**2/10/95**
Draft		31ed	8/15/94	9/15/94
Review (Na		61ed	9/15/94	11/15/94
Draft Final		30ed	11/15/94	12/15/94
Review (EP/	e)	31ed	12/15/94	1/15/95
Final		26ed	1/15/95	2/10/95
SSP FIELD	ESTIGATION	**59ed**	**1/15/95**	**3/15/95**
Mobilizatior		1ed	2/6/95	2/7/95
Field Investi		12ed	2/8/95	2/20/95
SAMPLE A	YSIS/VALIDATION	**70ed**	**2/1/95**	**4/12/95**
Sample Anal		54ed	2/8/95	4/3/95
Data Validat		28ed	3/20/95	4/17/95
SSP REPOI		**349ed**	**4/17/95**	**3/31/96**
Preliminary		56ed	4/17/95	6/12/95
Review (Nav		29ed	6/13/95	7/12/95
Draft		32ed	7/13/95	8/14/95
Review (EP/	e)	62ed	8/15/95	10/16/95
Draft Final		31ed	10/16/95	11/16/95
Review (EP/	e)	76ed	11/16/95	1/31/96
Final		47ed	1/31/96	3/18/96

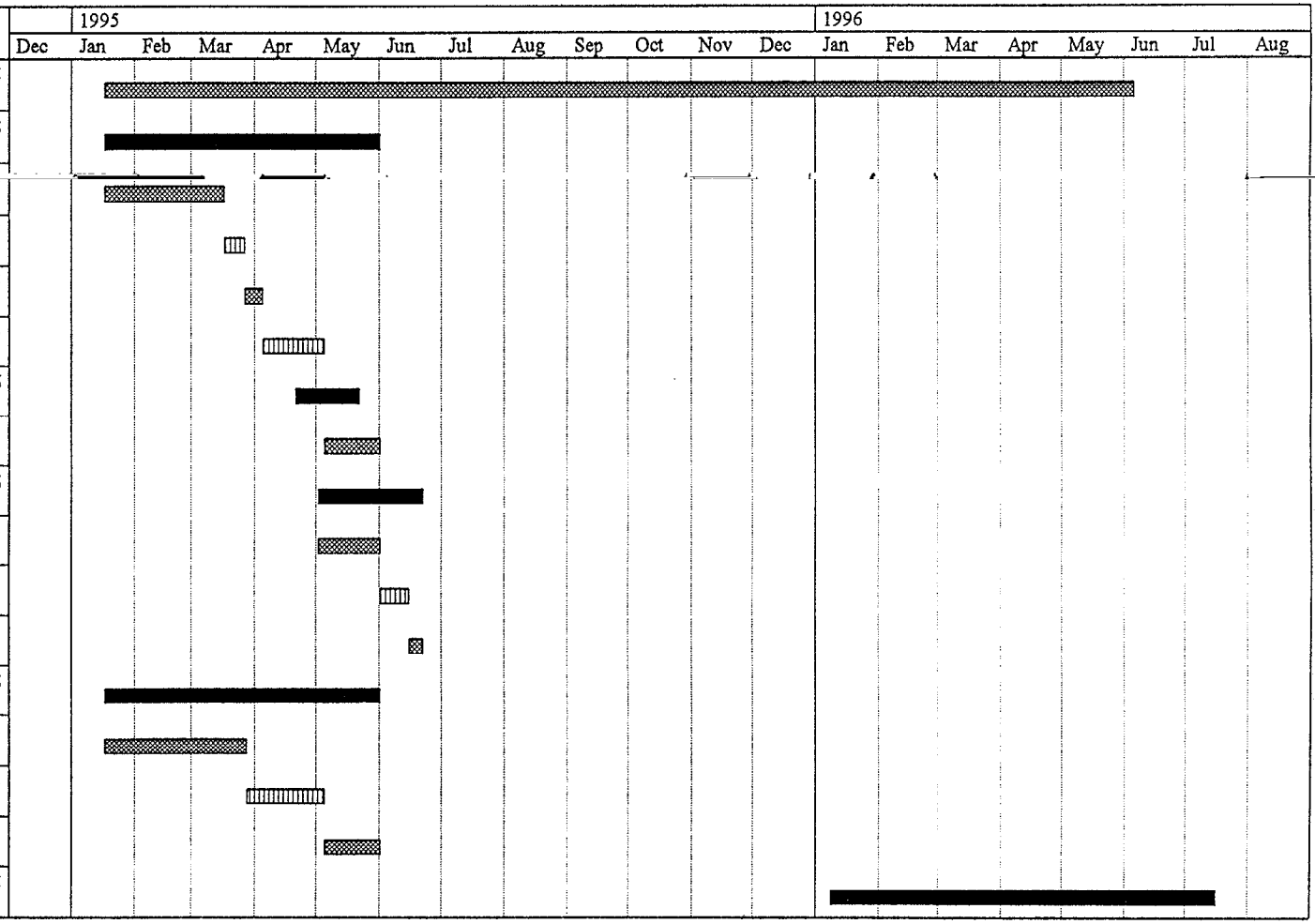


Note: Work Plan Production was funded in FY 1994.

Figure A-14

FY 1996: Removal Action at Site Screening Areas 3 and 7
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITE SCREENING AREAS 3 and 7	506ed	1/17/95	6/6/96
EE/CA REPORT	135ed	1/17/95	6/1/95
Draft (LANTDIV only)	59ed	1/17/95	3/17/95
Navy Review	10ed	3/17/95	3/27/95
Draft	9ed	3/27/95	4/5/95
Review (EPA/State/Navy)	30ed	4/5/95	5/5/95
PUBLIC COMMENT PERIOD	31ed	4/21/95	5/22/95
Final	27ed	5/5/95	6/1/95
REMOVAL ACTION MEMORANDUM	51ed	5/2/95	6/22/95
Draft	30ed	5/2/95	6/1/95
Review (Navy/EPA/State)	14ed	6/1/95	6/15/95
Final	7ed	6/15/95	6/22/95
REMOVAL ACTION DESIGN	135ed	1/17/95	6/1/95
100% Design	70ed	1/17/95	3/28/95
Review (Navy/EPA/State)	38ed	3/28/95	5/5/95
Final Design	27ed	5/5/95	6/1/95
REMOVAL ACTION	190ed	1/8/96	7/16/96

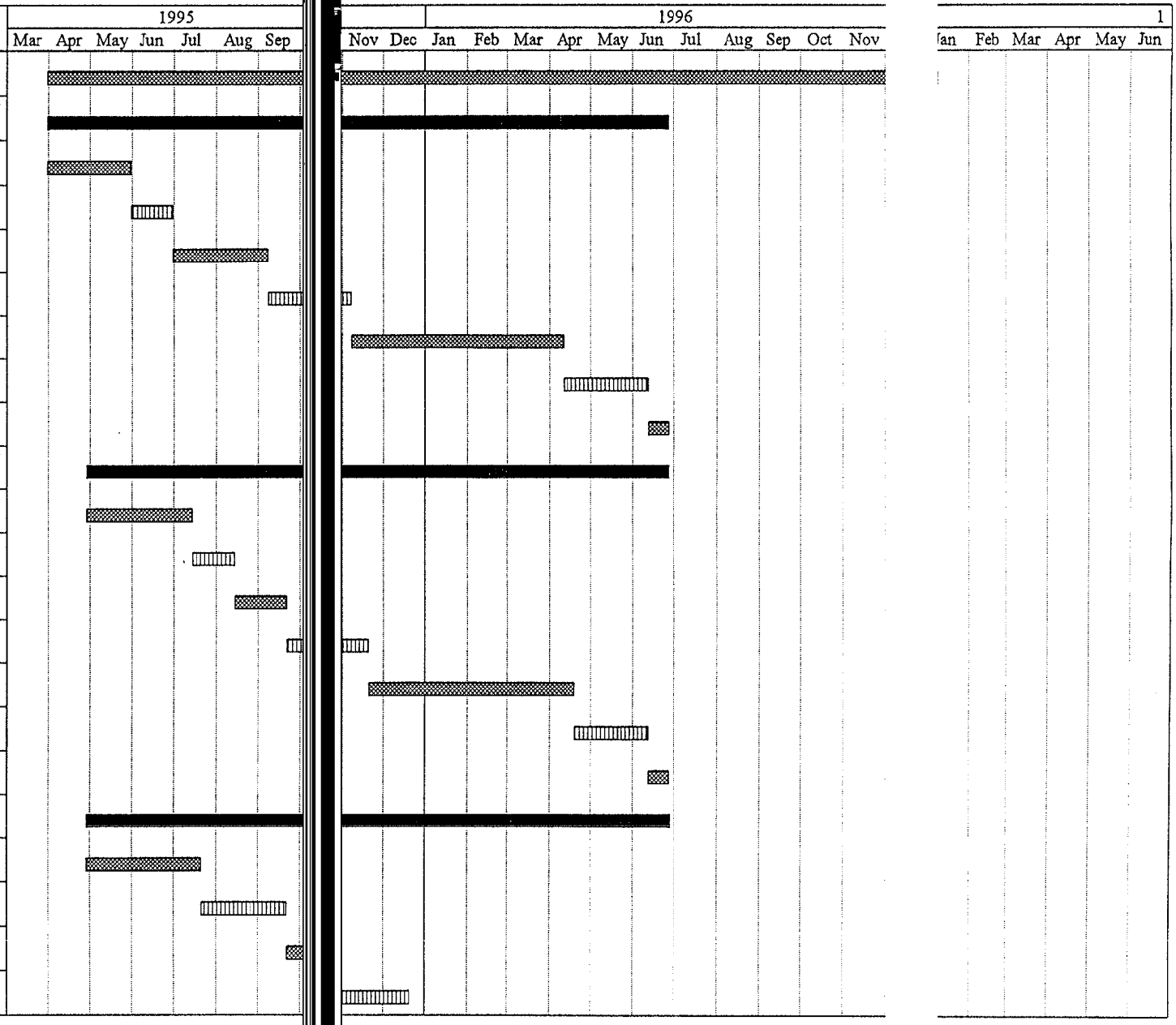


Note: A draft copy of the EE/CA was submitted to LANTDIV for comments prior to submitting a draft copy to USEPA.

Fi A - 15

FY 1995: Site 12 Remedial Investigatio sibility Study/Proposed Plan/Record of Decision
Naval Weapons Stati orktown, Yorktown, Virginia

Task	Days	Start	Finish
Site 12	650ed	3/31/95	1/9/97
REMEDIAL INVESTIGATION REPORT	**454ed**	**3/31/95**	**6/27/96**
Preliminary Draft	61ed	3/31/95	5/31/95
Review (Navy)	30ed	5/31/95	6/30/95
Draft	70ed	6/30/95	9/8/95
Review (EPA/State)	60ed	9/8/95	11/7/95
Draft Final	156ed	11/7/95	4/11/96
Review (EPA/State)	62ed	4/11/96	6/12/96
Final	15ed	6/12/96	6/27/96
FEASIBILITY STUDY	**426ed**	**4/28/95**	**6/27/96**
Preliminary Draft	77ed	4/28/95	7/14/95
Review (Navy)	31ed	7/14/95	8/14/95
Draft	38ed	8/14/95	9/21/95
Review (EPA/State)	60ed	9/21/95	11/20/95
Draft Final	151ed	11/20/95	4/19/96
Review (EPA/State)	54ed	4/19/96	6/12/96
Final	15ed	6/12/96	6/27/96
PROPOSED PLAN	**427ed**	**4/28/95**	**6/28/96**
Preliminary Draft	84ed	4/28/95	7/21/95
Review (Navy)	62ed	7/21/95	9/21/95
Draft	29ed	9/21/95	10/20/95
Review (EPA/State)	61ed	10/20/95	12/20/95



FY 19 Si

Figure A - 15
nvestigation/Feasibility Study/Proposed Plan/Record of Decision
apons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
Draft Final	60ed	2/26/96	4/26/96
Review (EPA/State)	45ed	4/26/96	6/10/96
Final	18ed	6/10/96	6/28/96
PUBLIC COMMENT PERIOD	**44ed**	**7/1/96**	**8/14/96**
RECORD OF DECISION	**529ed**	**7/30/95**	**1/9/97**
Preliminary Draft	62ed	7/30/95	9/30/95
Review (Navy)	29ed	9/30/95	10/29/95
Draft	187ed	10/29/95	5/3/96
Review (EPA/State)	52ed	5/3/96	6/24/96
Draft Final	11ed	6/24/96	7/5/96
Review (EPA/State)	31ed	7/5/96	8/5/96
Interim Draft Final	1ed	8/5/96	8/6/96
Review (EPA/State)	23ed	8/6/96	8/29/96
Final	14ed	8/29/96	9/12/96
Review (EPA/State)	21ed	9/12/96	10/3/96
Revised Final	21ed	10/3/96	10/24/96
Review (EPA/State)	47ed	10/24/96	12/10/96
Updated Revised Final	31ed	12/10/96	1/10/97
Revised (EPA/State)	41ed	1/10/97	2/20/97
Amended Updated Revised Final	85ed	2/20/97	5/16/97

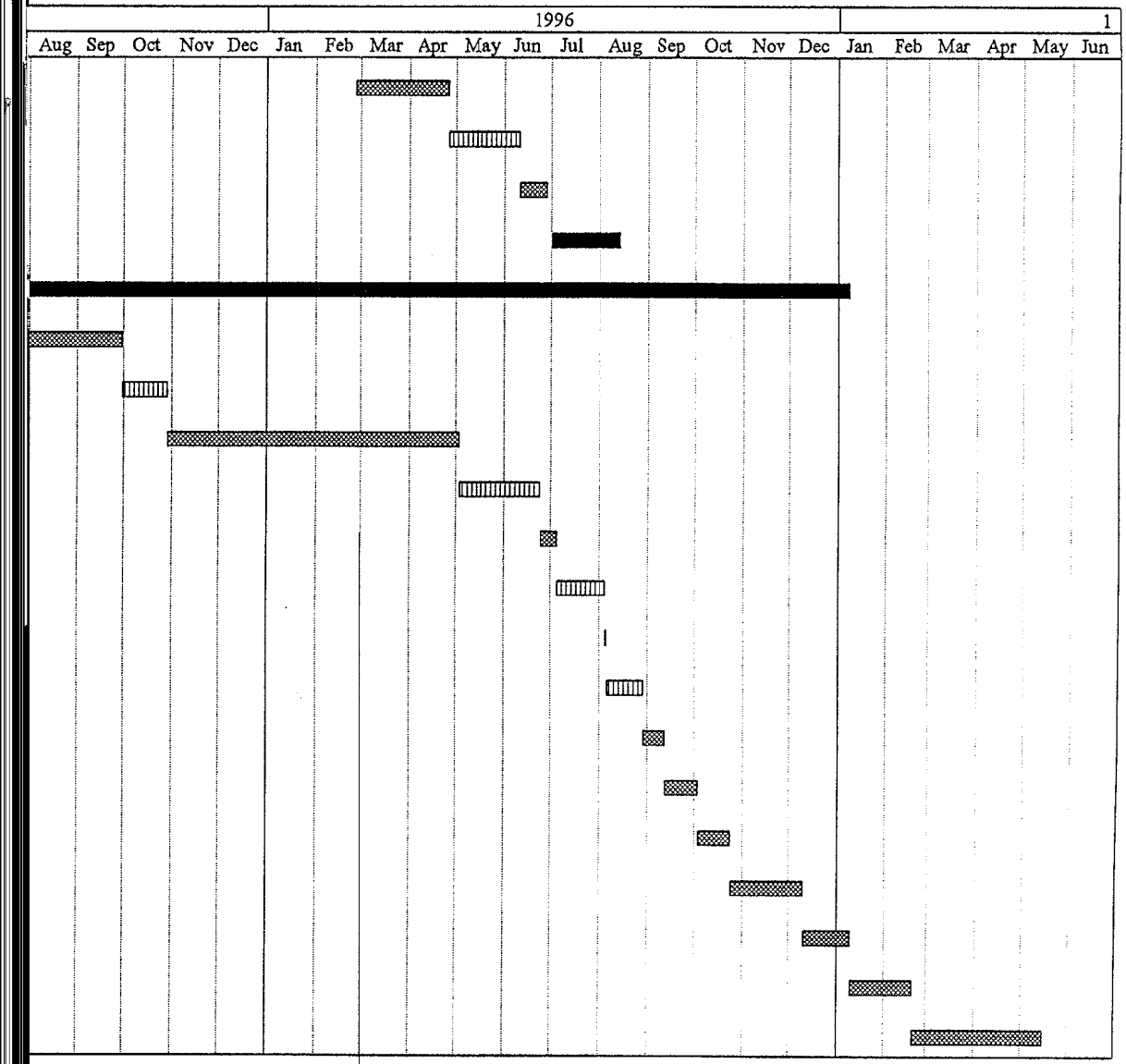
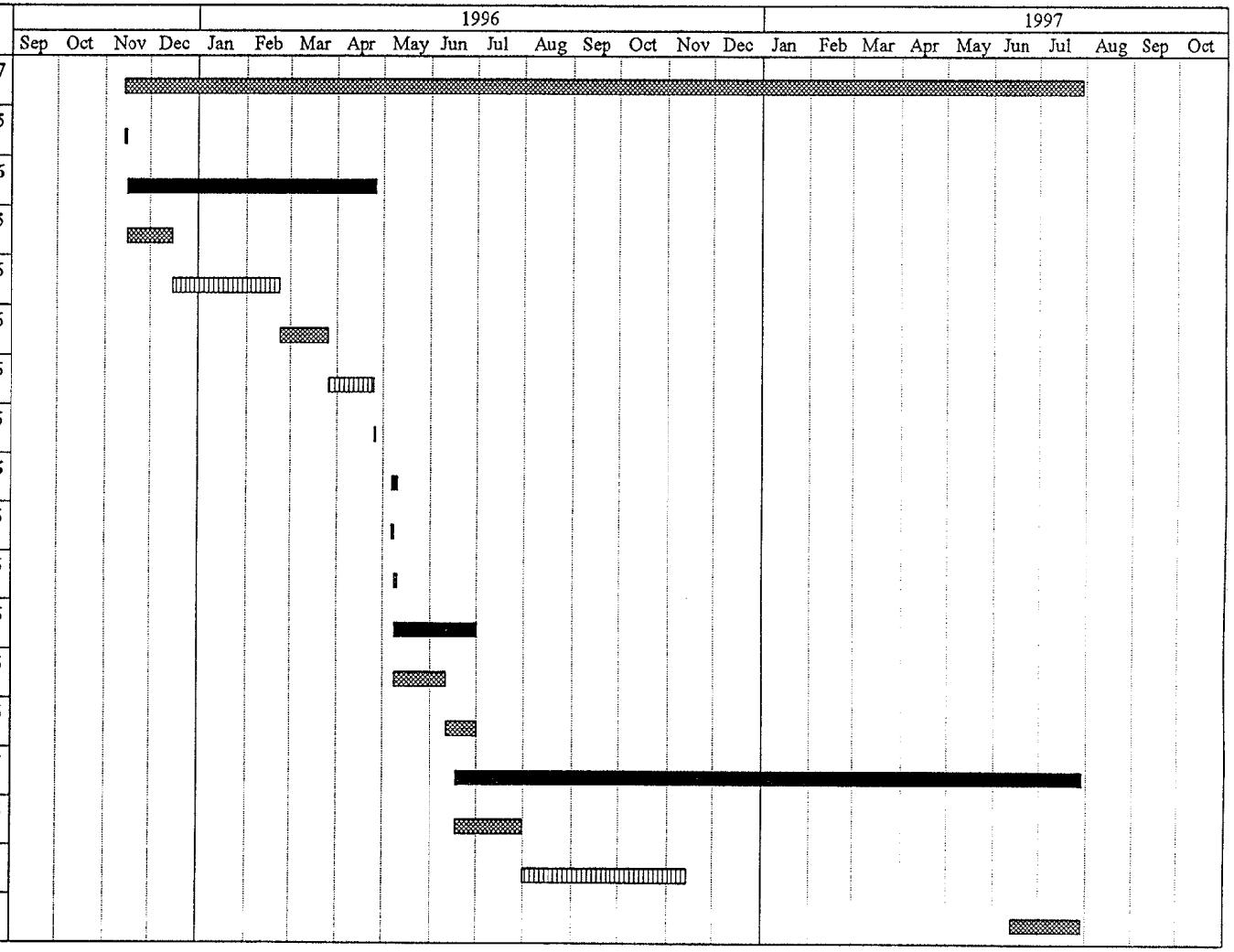


Figure 1-16
FY 1996: Site Screening Areas 8, 11, 12, and 13, Work Plan/SSP Report
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITE SCREENING AREAS 8, 11, 12, and 13	624ed	11/13/95	7/29/97
Site Visit	2ed	11/13/95	11/15/95
SSA WORK PLAN	**163ed**	**11/15/95**	**4/26/96**
Draft	30ed	11/15/95	12/15/95
Review (EPA/State)	70ed	12/15/95	2/23/96
Draft Final	32ed	2/23/96	3/26/96
Review (EPA/State)	30ed	3/26/96	4/25/96
Final	1ed	4/25/96	4/26/96
SSP FIELD INVESTIGATION	**4ed**	**5/6/96**	**5/10/96**
Mobilization	2ed	5/6/96	5/8/96
Field Investigation	2ed	5/8/96	5/10/96
SAMPLE ANALYSIS/VALIDATION	**54ed**	**5/8/96**	**7/1/96**
Sample Analysis	34ed	5/8/96	6/11/96
Data Validation	20ed	6/11/96	7/1/96
SITE SCREENING PROCESS REPORT	**407ed**	**6/17/96**	**7/29/97**
Draft	44ed	6/17/96	7/31/96
Review (EPA/State)	106ed	7/31/96	11/14/96
Final **	47ed	6/12/97	7/29/97



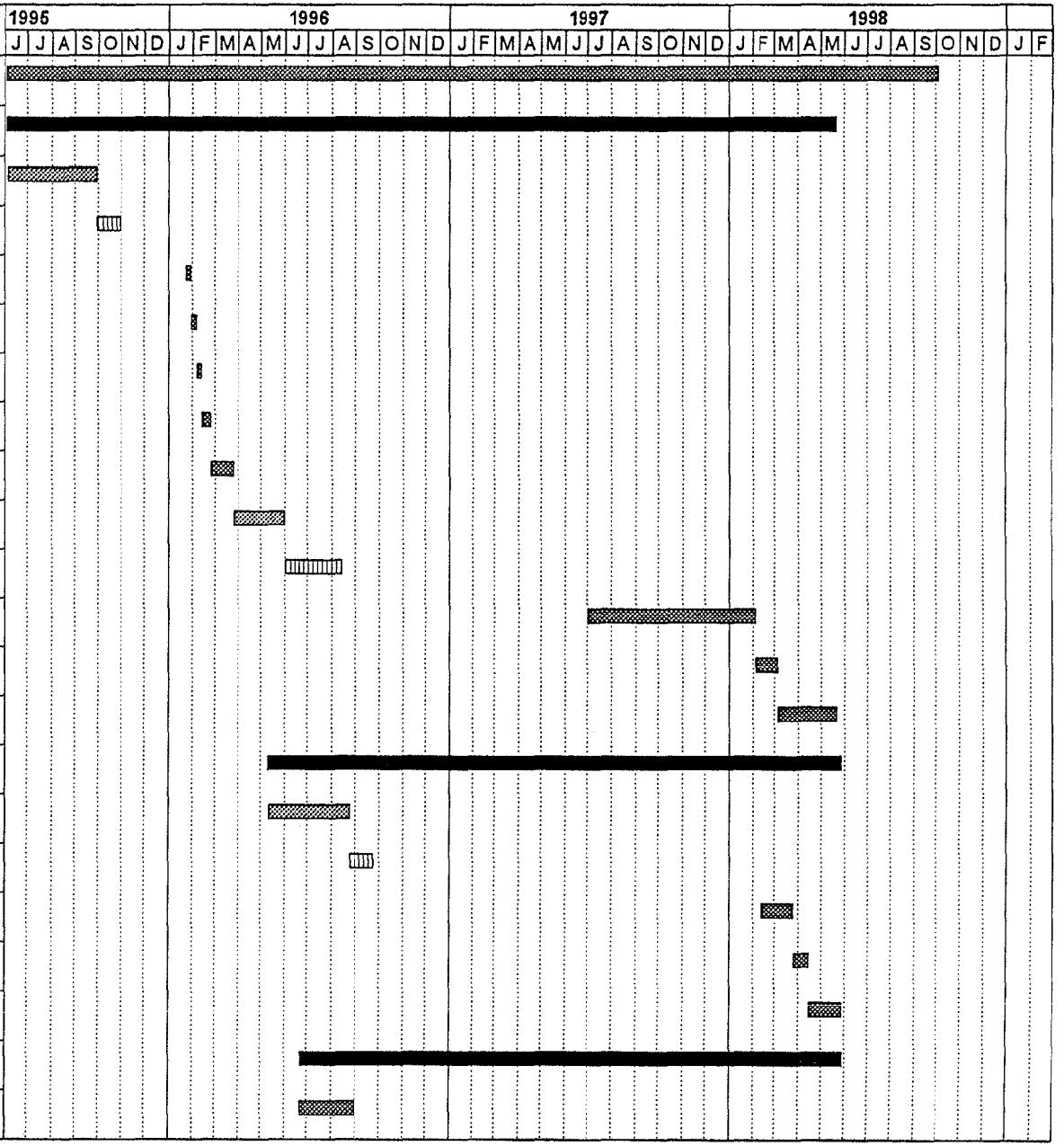
** Review and Comments of documents covered under Partnering

Figure A - 17

FY 95: Sites 6 and 7 Remedial Investigation/Feasiblity Study/Proposed Plan/Record of Decision

Naval Weapons Station Yorktown, Yorktown, Virginia

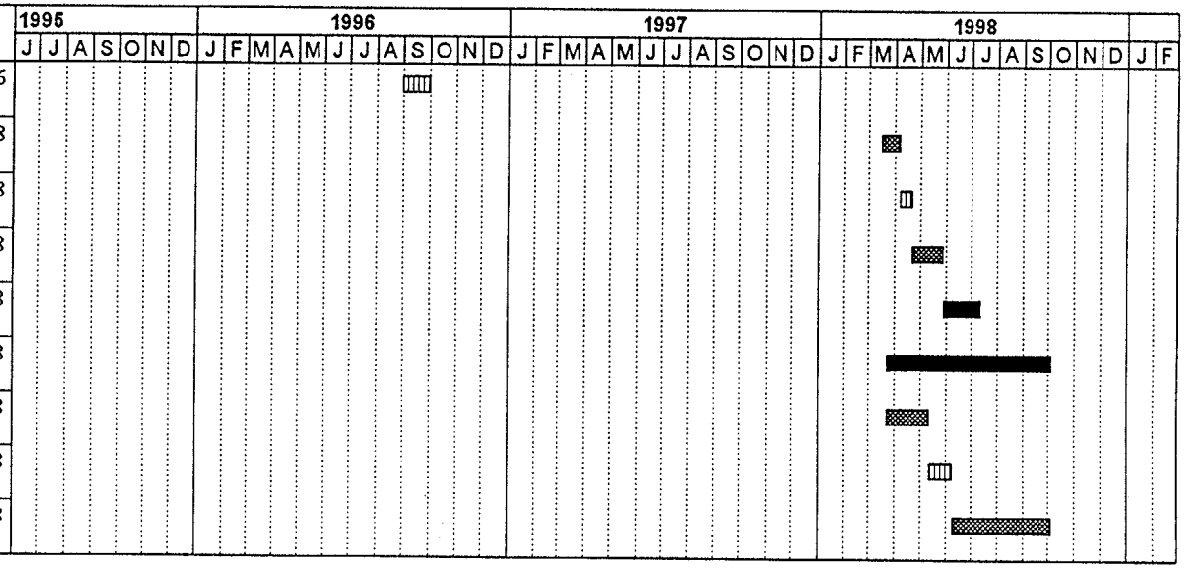
Task Name	D		Start	Finish
Sites 6 and 7	12	days	6/5/95	10/5/98
REMEDIAL INVESTIGATION REPORT	10	days	6/5/95	5/22/98
Preliminary Draft		days	6/5/95	9/29/95
Review (Navy)		days	9/29/95	10/30/95
Draft Work Plan Letter Addendum		days	1/23/96	1/30/96
Review		days	1/30/96	2/6/96
Final Work Plan Letter Addendum		days	2/6/96	2/12/96
Additional Field Investigation		days	2/12/96	2/24/96
Data Analysis and Validation		days	2/24/96	3/25/96
Draft		days	3/25/96	5/31/96
Review (EPA/State)		days	5/31/96	8/13/96
Interim Final	2	days	7/1/97	2/4/98
Review (EPA/State)		days	2/4/98	3/6/98
Final		days	3/6/98	5/22/98
FEASIBILITY STUDY	7	days	5/10/96	5/28/98
Preliminary Draft	1	days	5/10/96	8/23/96
Review (Navy)		days	8/23/96	9/23/96
Interim Final		days	2/13/98	3/26/98
Review (EPA/State)		days	3/26/98	4/14/98
Final **		days	4/14/98	5/28/98
PROPOSED PLAN	7	days	6/21/96	5/28/98
Preliminary Draft		days	6/21/96	8/30/96



NOTE: Publi mment Period will close prior to finalization of the Record of Decision. ** Review and Comments on documents covered under Partnering.

Figure A - 17
FY 1995: Sites 6 and 7 Remedial Investigation/Feasiblity Study/Proposed Plan/Record of Decision
Naval Weapons Station Yorktown, Yorktown, Virginia

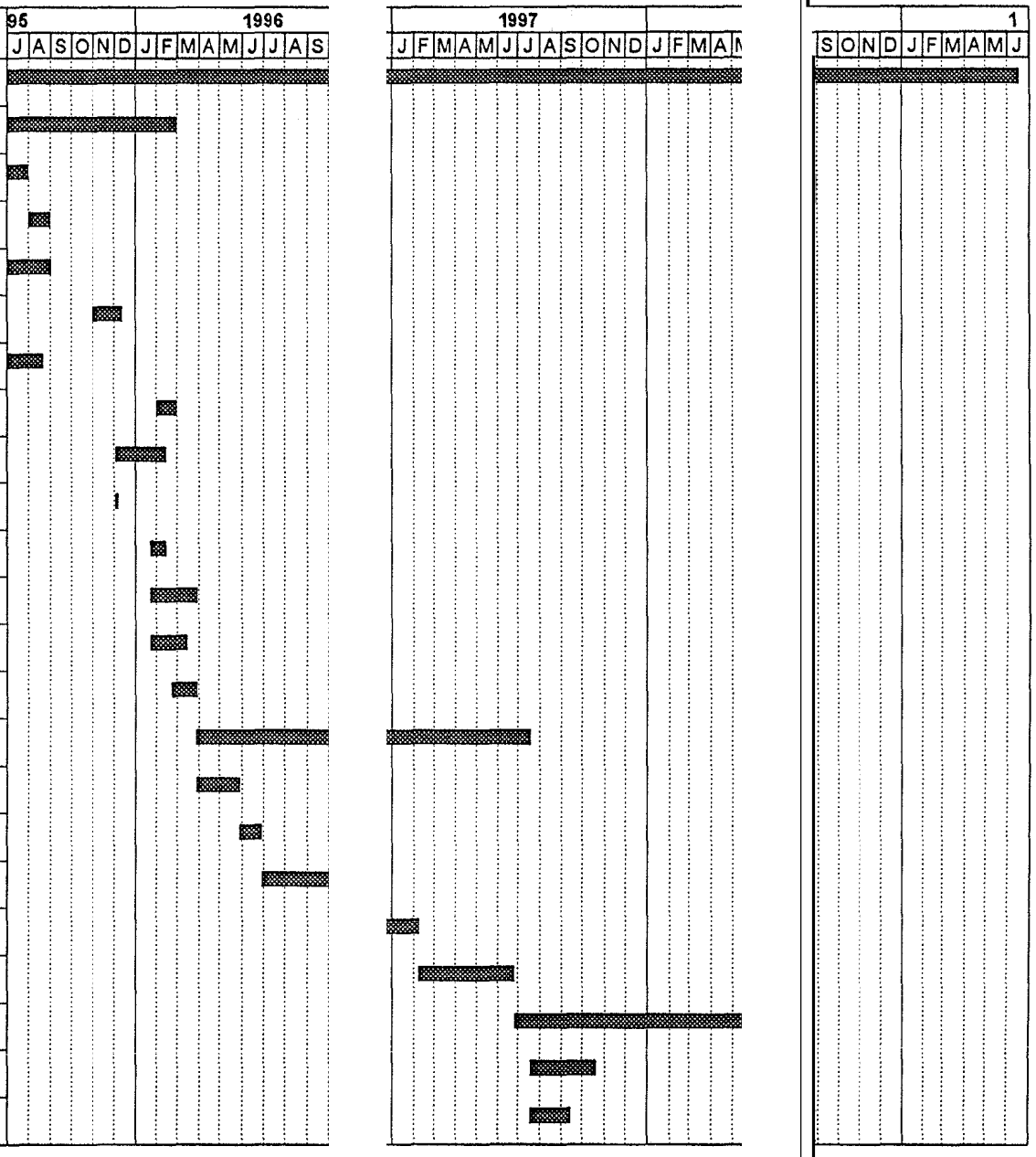
Task Name	Days	Start	Finish
Review (Navy)	31 edays	8/30/96	9/30/96
Interim Final	22 edays	3/16/98	4/7/98
Review (EPA/State)	15 edays	4/7/98	4/22/98
Final **	36 edays	4/22/98	5/28/98
PUBLIC COMMENT PERIOD	45 edays	5/28/98	7/12/98
RECORD OF DECISION	196 edays	3/23/98	10/5/98
Draft	50 edays	3/23/98	5/12/98
Review (EPA/State)	27 edays	5/12/98	6/8/98
Final	119 edays	6/8/98	10/5/98



NOTE: Public Comment Period will close prior to finalization of the Record of Decision. ** Review and Comments on documents covered under Partnering.

Figure A-18
FY 1995: Sites 1 and 3 Remedial Investigation/Feasibility Study/Prop lan/Record of Decision
Naval Weapons Station Yorktown, Yorktown, '

Task Name	Duration	Start	Finish
SITES 1 and 3	1446 edays	7/3/95	6/18/99
RI WORK PLAN	243 edays	7/1/95	2/29/96
Preliminary Draft Meeting	31 edays	7/1/95	8/1/95
Draft	31 edays	8/1/95	9/1/95
Review (EPA/State)	61 edays	7/3/95	9/2/95
Draft Final	42 edays	11/1/95	12/13/95
Review (EPA/State)	50 edays	7/3/95	8/22/95
Final	28 edays	2/1/96	2/29/96
RI FIELD INVESTIGATION	72 edays	12/4/95	2/14/96
Mobilization	3 edays	12/4/95	12/7/95
Field Investigation	23 edays	1/22/96	2/14/96
SAMPLE ANALYSIS/VALIDATION	68 edays	1/22/96	3/30/96
Sample Analysis	53 edays	1/22/96	3/15/96
Data Validation	37 edays	2/22/96	3/30/96
REMEDIAL INVESTIGATION REPORT	478 edays	3/28/96	7/19/97
Preliminary Draft Meeting	62 edays	3/28/96	5/29/96
Draft	31 edays	5/29/96	6/29/96
Review (EPA/State)	172 edays	6/29/96	12/18/96
Draft Final	51 edays	12/18/96	2/7/97
Review (EPA/State)	139 edays	2/7/97	6/26/97
Final **	330 edays	6/26/97	5/22/98
FOCUSED FEASIBILITY STUDY	94 edays	7/18/97	10/20/97
Draft	59 edays	7/18/97	9/15/97



Project: Sites 1 and 3
Date: 5/30/00
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Figure A-18
FY 1995: Sites 1 and 3 Remedial Investigation/Feasibility Study/Proposed Plan/Record of Decision
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Duration	Start	Finish
Review	14 edays	9/15/97	9/29/97
Final**	21 edays	9/29/97	10/20/97
PRAP	744 edays	4/28/96	5/12/98
Preliminary Draft Meeting	54 edays	4/28/96	6/21/96
Draft	40 edays	6/21/96	7/31/96
Review (EPA/State)	149 edays	7/31/96	12/27/96
Draft Final	101 edays	7/18/97	10/27/97
Review (EPA/State)	153 edays	10/28/97	3/30/98
Final	39 edays	3/30/98	5/8/98
PUBLIC COMMENT PERIOD	45 edays	5/26/98	7/10/98
RECORD OF DECISION	711 days	6/21/96	3/15/99
Preliminary Draft Meeting	69 edays	6/21/96	8/29/96
Draft	108 edays	7/18/97	11/3/97
Review (EPA/State)	60 edays	11/3/97	1/2/98
Interim Final	72 edays	3/4/98	5/15/98
Review (EPA/State)	282 edays	5/15/98	2/21/99
FINAL ROD	116 edays	2/22/99	6/18/99

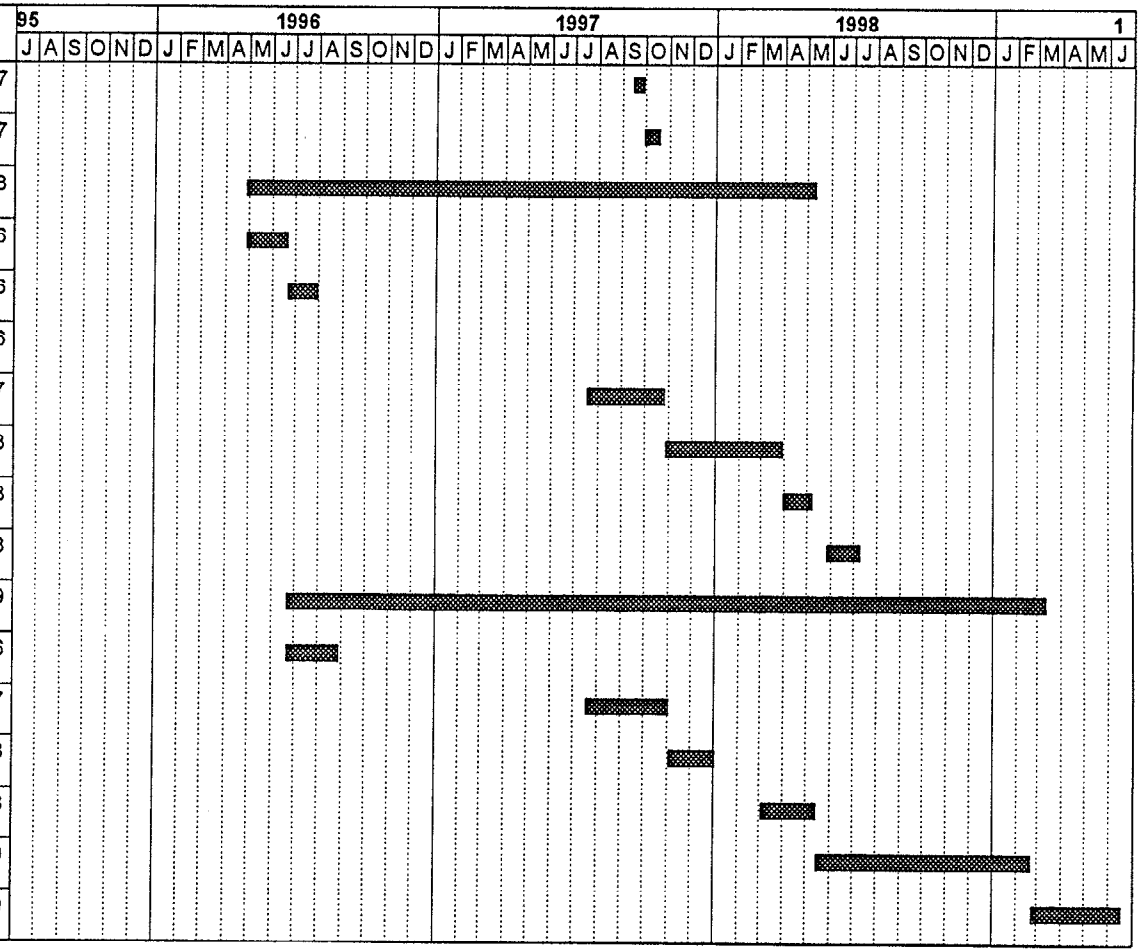
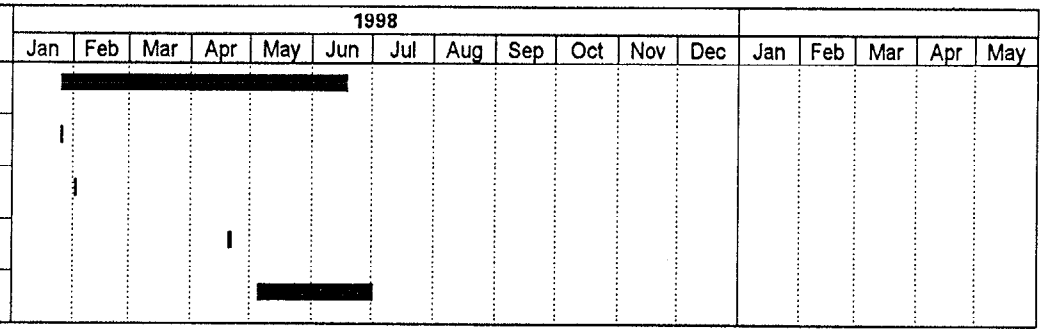


Figure A-19
FY 98: Site 12, Debris Removal - Area B/C
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Days	Start	Finish
SITE 12, Debris Removal - Area B/C	144 edays	1/26/98	6/19/98
Subcontractor Procurement	1 eday	1/26/98	1/27/98
Site Visit	1 eday	2/2/98	2/3/98
Mobilization	2 edays	4/20/98	4/22/98
Debris Removal	58 edays	5/4/98	7/1/98



Date: 5/30/00

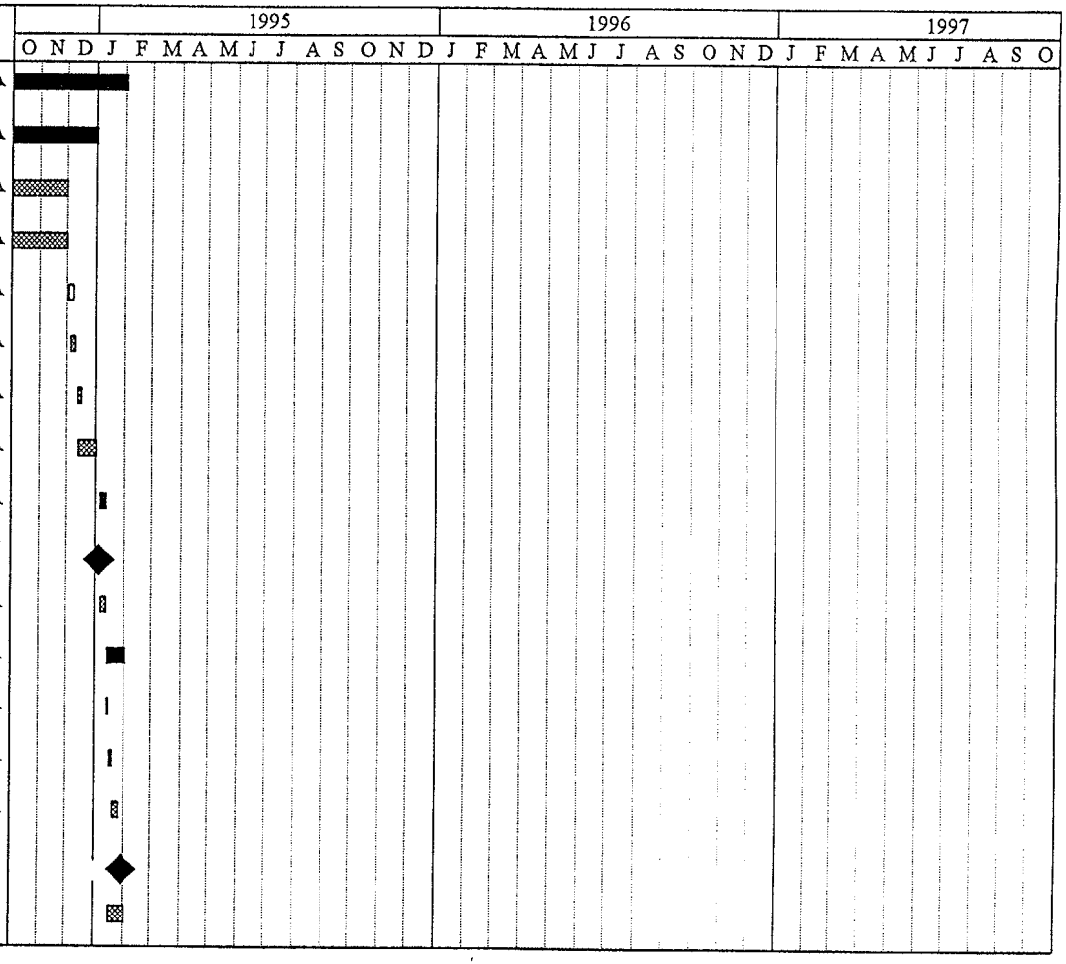
** Review and Comments of documents covered under Partnering

Figure A-20

FY 1995: CTO- 209 Bench-Scale Treatability Study

Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Description	Days		t	Finish	Start1
PHASE I	SOIL CHARACTERIZATION/COLLECTION	125ed	1	/94	2/3/95	NA
Task 1	Soil Characterization	93ed	1	/94	1/2/95	NA
	Project Scope Development	61ed	1	/94	12/1/94	NA
	Soil Characterization Work Plan	61ed	1	/94	12/1/94	NA
	Navy Review	7ed	1	/94	12/8/94	NA
	Field Preparation/Mobilization	5ed	1	/94	12/10/94	NA
	Field Investigation	5ed	12	/94	12/17/94	NA
	Laboratory Analysis	20ed	12	/94	1/2/95	NA
Task 2	Soil Characterization Evaluation	7ed		/95	1/12/95	NA
	Meeting @LANTDIV	0ed		/95	1/5/95	1/5/95
	Meeting Summary	6ed		/95	1/12/95	NA
Task 3	Soil Sample Collection	21ed	1	/95	2/3/95	NA
	Field Preparation	2ed	1	/95	1/15/95	NA
	Soil Collection	3ed	1	/95	1/19/95	NA
	Laboratory Analysis	7ed	1	/95	1/26/95	NA
	W.E.S Collection	0.67d	1	/95	1/30/95	1/30/95
	Documentation/Reporting	18ed	1	95	2/3/95	NA

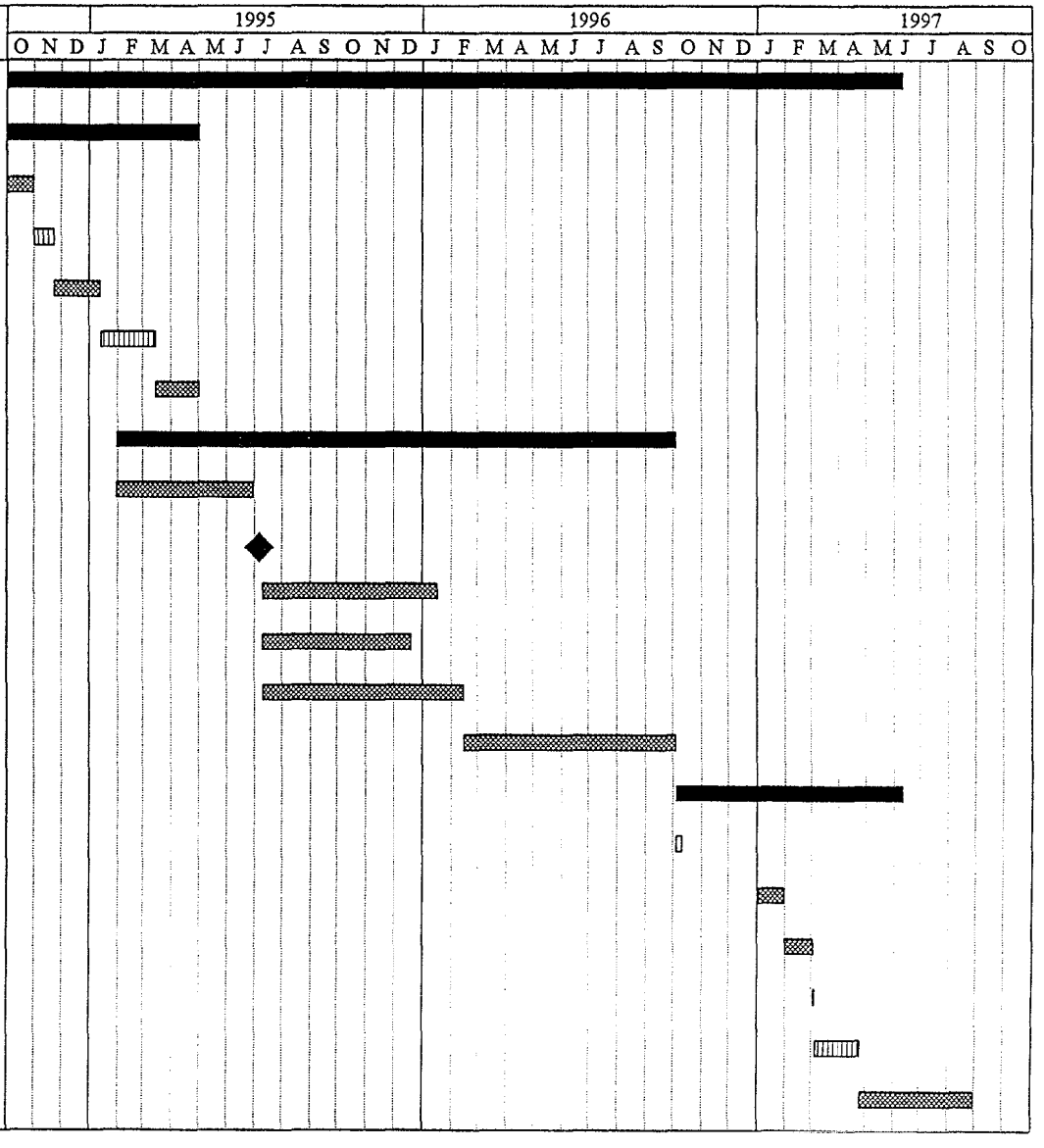


* Deliverable d[illegible]ate will b[illegible]odified pending peer review of the Army Corps of Engineers Report on the Treatability Study.

Fig... A-21

FY 1995: CTO- 209 Bench-Scale Treatability Study
Naval Weapons Station Yorktown, Yorktown, Virginia

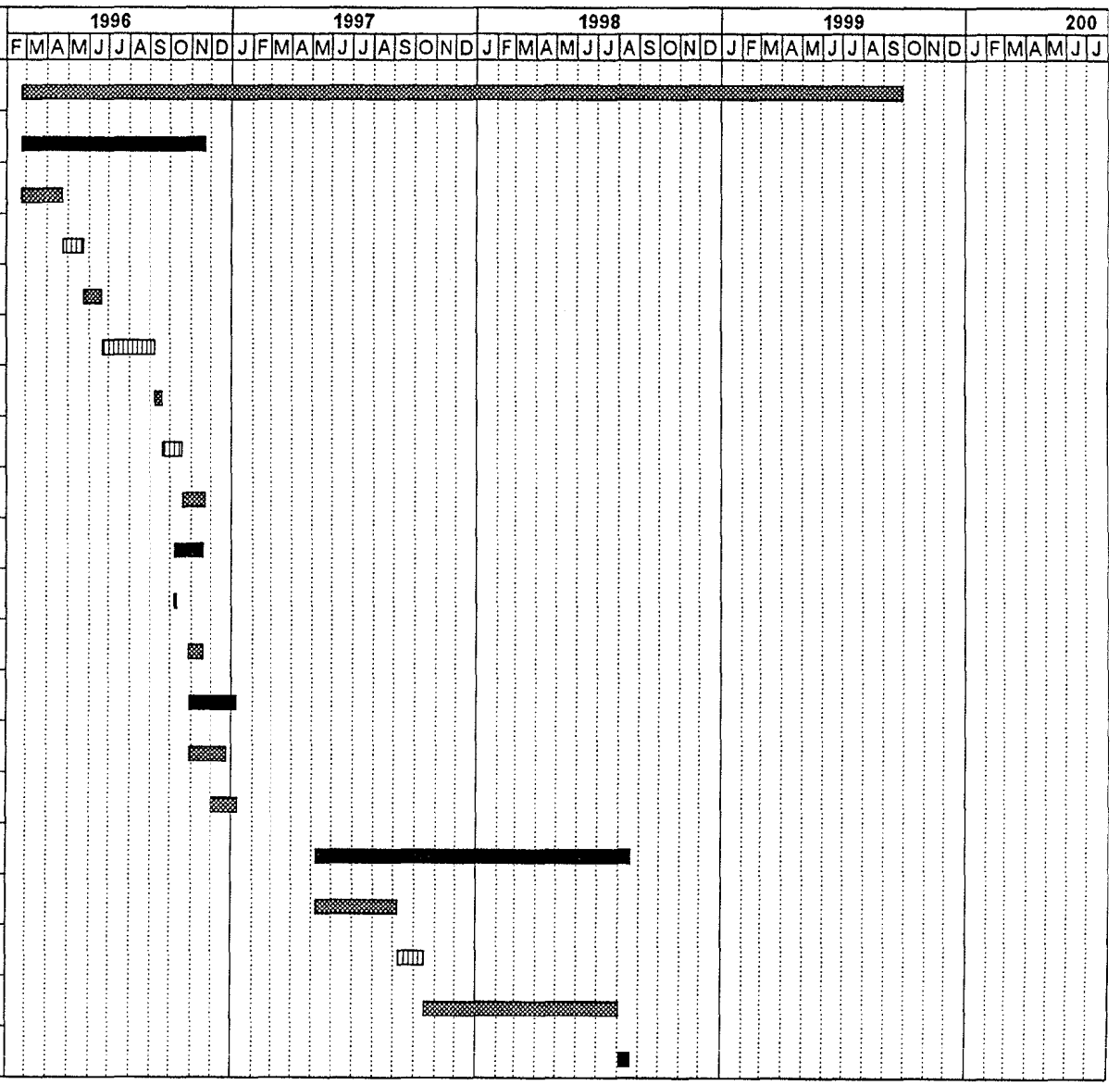
Task	Description		Days	Start	Finish	Start1
PHASE II	BENCH-SCALE TREATABI	CS	985ed	10/1/94	6/12/97	NA
Task 4	Treatability Study Work Plan		213ed	10/1/94	5/2/95	NA
	Preliminary Draft Work Plan (V		31ed	10/1/94	11/1/94	NA
	Navy/Baker Review		22ed	11/1/94	11/23/94	NA
	Draft Work Plan (WES)		51ed	11/23/94	1/13/95	NA
	EPA/State Review		61ed	1/13/95	3/15/95	NA
	Final Work Plan (WES/Baker)		48ed	3/15/95	5/2/95	NA
Task 5	Bench-Scale Treatability Stud		613ed	1/30/95	10/4/96	NA
	Phase I to III		151ed	1/30/95	6/30/95	NA
	Meeting @ WES		0ed	7/7/95	7/7/95	7/7/95
	Phase IV (Bioslurry)		191ed	7/10/95	1/17/96	NA
	Phase V (Biocell)		163ed	7/10/95	12/20/95	NA
	Phase VI (Slurox)		220ed	7/10/95	2/15/96	NA
	Phase VII (Reporting)		232ed	2/15/96	10/4/96	NA
Task 6	Treatability Study Report (T..		251ed	10/4/96	6/12/97	NA
	Review WES TS		7ed	10/4/96	10/11/96	NA
	Preliminary Draft T.S. (Baker)		29ed	1/2/97	1/31/97	NA
	LANTDIV Review		31ed	1/31/97	3/3/97	4/15/96
	Draft T.S. (WES/Baker)		2ed	3/3/97	3/5/97	NA
	EPA/State Review		51ed	3/5/97	4/25/97	NA
	Final T.S. Report (Baker) *		128ed	4/25/97	8/31/97	NA



...le due date will be modified pending peer review of the Army Corps of Engineers Report on the Treatability Study.

Figure A-22
FY 1996: CTO-354, Sites 11 and 17, Work Plan/Field Investigation/RI Report/FS Report/PRAP/ROD
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Days	Start	Finish
SITES 11 and 17	1315 edays	2/23/96	9/30/99
WORK PLAN	273 edays	2/23/96	11/22/96
Preliminary Draft	60 edays	2/23/96	4/23/96
Review (Navy)	30 edays	4/23/96	5/23/96
Draft	29 edays	5/23/96	6/21/96
Review (EPA/State)	80 edays	6/21/96	9/9/96
Draft Final	11 edays	9/9/96	9/20/96
Review (EPA/State)	29 edays	9/20/96	10/19/96
Final	34 edays	10/19/96	11/22/96
RI FIELD INVESTIGATION	44 edays	10/7/96	11/20/96
Mobilization	4 edays	10/7/96	10/11/96
Field Investigation	23 edays	10/28/96	11/20/96
SAMPLE ANALYSIS/VALIDATION	72 edays	10/29/96	1/9/97
Sample Analysis	57 edays	10/29/96	12/25/96
Data Validation	40 edays	11/30/96	1/9/97
REMEDIAL INVESTIGATION REPORT	470 edays	5/7/97	8/20/98
Draft	124 edays	5/7/97	9/8/97
Review (EPA/State)	38 edays	9/8/97	10/16/97
Draft Final	291 edays	10/16/97	8/3/98
Final	17 edays	8/3/98	8/20/98



Project: CTO-0354
Date: 6/1/00
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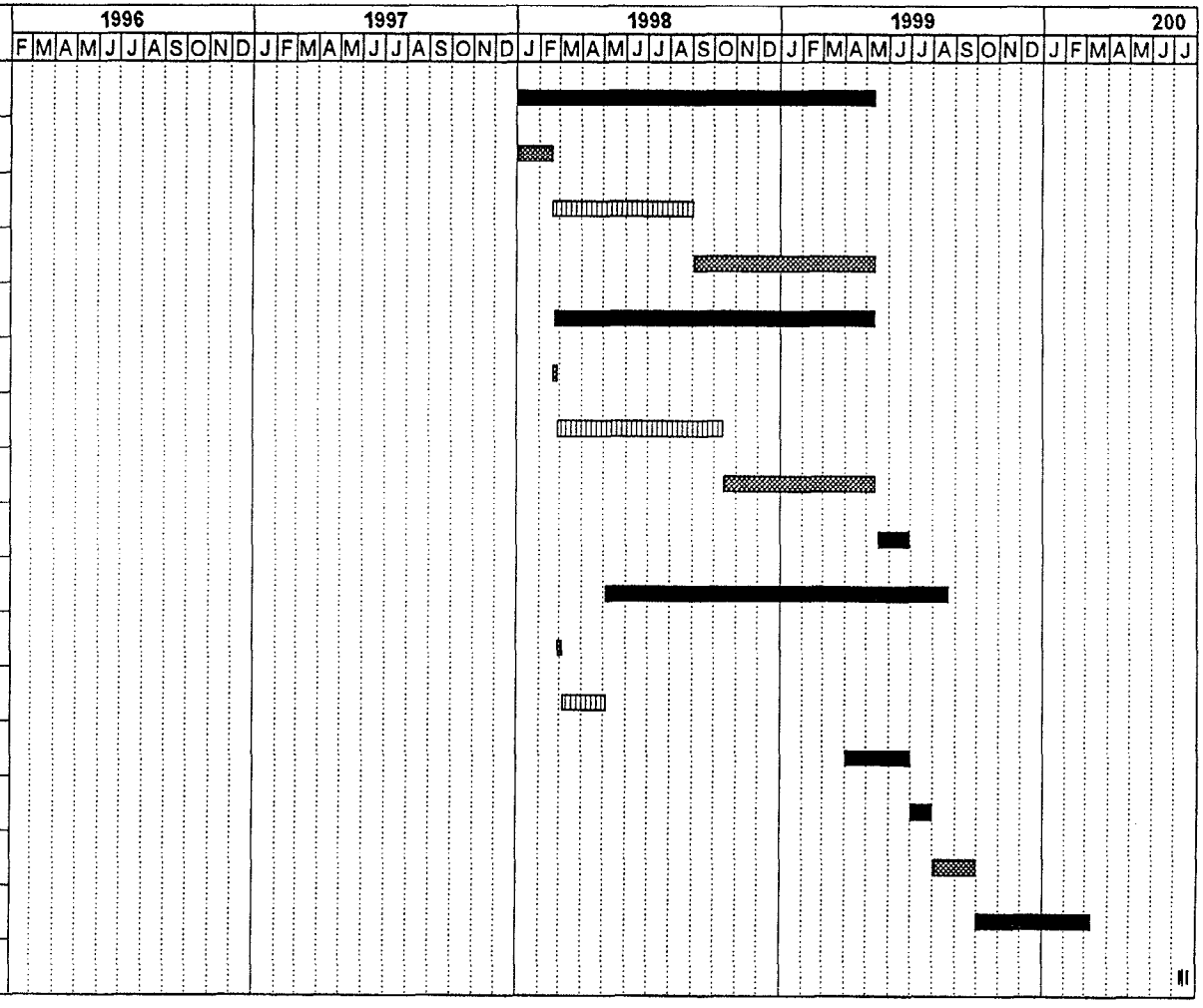
Note: Public Comment Period will close prior to finalization of the Record of Decision

Figure A-22
FY 1996: CTO-354, Sites 11 and 17, Work Plan/Field Investigation/RI Report/FS Report/PRAP/ROD
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Days	Start	Finish
FEASIBILITY STUDY	496 edays	1/2/98	5/13/99
Draft	49 edays	1/2/98	2/20/98
Review (EPA/State)	195 edays	2/20/98	9/3/98
Final	252 edays	9/3/98	5/13/99
PROPOSED PLAN	445 edays	2/22/98	5/13/99
Draft	7 edays	2/20/98	2/27/98
Review (EPA/State)	229 edays	2/27/98	10/14/98
Final	211 edays	10/14/98	5/13/99
PUBLIC COMMENT PERIOD	45 edays	5/16/99	6/30/99
RECORD OF DECISION	476 edays	5/3/98	8/22/99
Draft	7 edays	2/27/98	3/6/98
Review (EPA/State)	60 edays	3/6/98	5/5/98
Interim Final	91 edays	4/1/99	7/1/99
Review	31 edays	7/1/99	8/1/99
Draft Final	60 edays	8/1/99	9/30/99
Final	162 edays	9/30/99	3/10/00
EPA Approval & Signature	1 day	7/15/00	7/15/00



Project: CTO-0354
Date: 6/1/00
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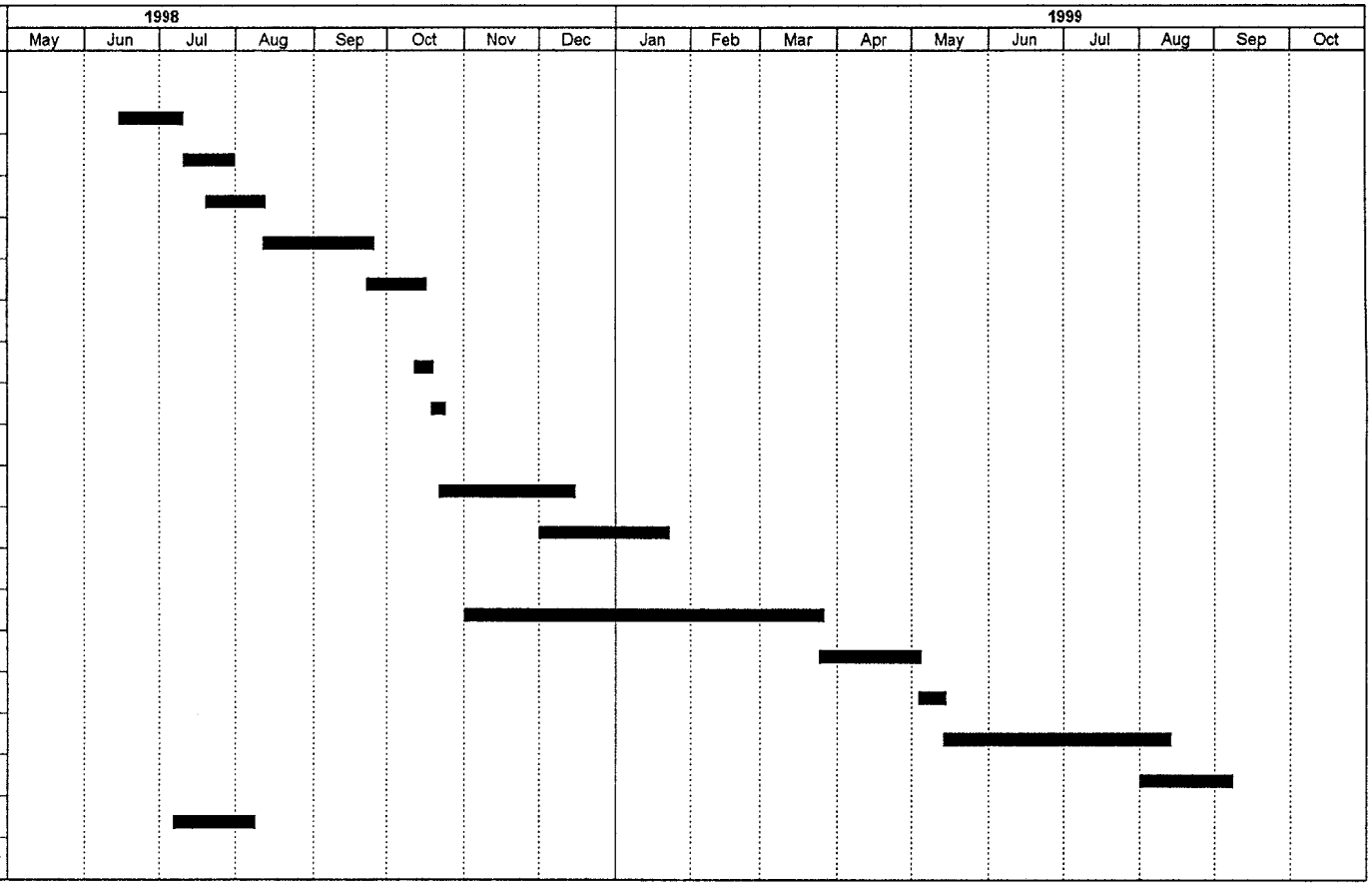
Note: Public Comment Period will close prior to finalization of the Record of Decision

Figure A-23
FY 1998 & 1999: CTO-0388 Field Investigation Report - Site 1 and AOC 2
Naval Weapons Station Yorktown, Yorktown Virginia
Cheatham Annex Site

Task Name	Start	Finish
PROJECT PLANS	NA	NA
Draft	6/15/98	7/10/98
Review (Navy)	7/11/98	7/31/98
Draft Final	7/20/98	8/12/98
Review (EPA/State)	8/12/98	9/25/98
Final	9/23/98	10/16/98
FIELD INVESTIGATION	NA	NA
Mobilization	10/12/98	10/19/98
Field Investigation	10/19/98	10/24/98
SAMPLE ANALYSIS/VALIDATION	NA	NA
Sample Analysis	10/22/98	12/15/98
Data Validation	12/1/98	1/22/99
REPORT	NA	NA
Draft	11/1/98	3/26/99
Review (Navy)	3/25/99	5/4/99
Draft Final	5/4/99	5/14/99
Review (EPA/State)	5/14/99	8/13/99
Final	8/1/99	9/7/99
Shoreline Erosion Evaluation	7/7/98	8/9/98
	NA	NA

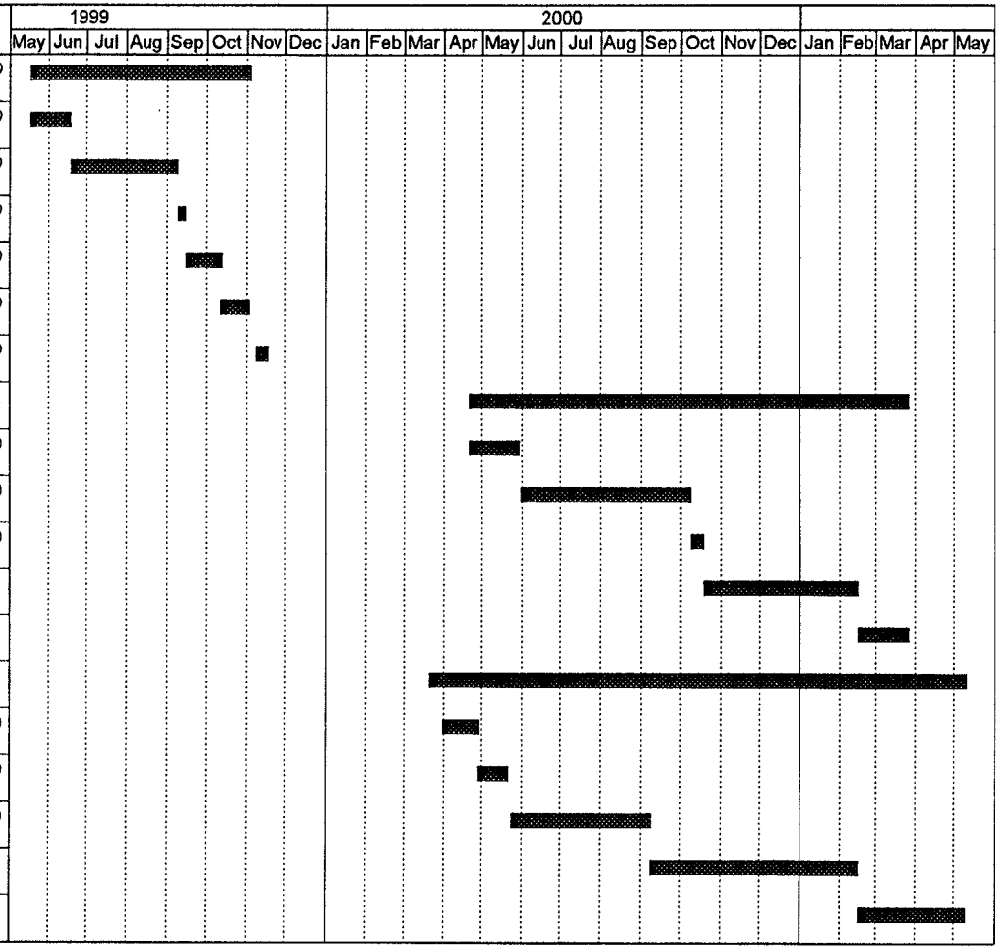


Project: CTO-0388
Date: 6/14/01

Actual Time

Figure A-24
FY 2000: CTO-104 Sites 1, 4, 7, 11 and AOCs 1 and 2
Cheatham Annex Site
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Duration	Start	Finish
PROJECT PLANS	170 edays	5/17/99	11/3/99
Draft	31 edays	5/17/99	6/17/99
Navy Review	83 edays	6/17/99	9/8/99
Draft Final	6 edays	9/8/99	9/14/99
Agency Review	28 edays	9/14/99	10/12/99
Final	22 edays	10/12/99	11/3/99
FIELD INVESTIGATION	10 edays	11/8/99	11/18/99
FIELD INVESTIGATION REPORT (Sites 7 and AOC 2)	340 edays	4/21/00	3/27/01
Draft	39 edays	4/21/00	5/30/00
Navy Review	131 edays	5/31/00	10/9/00
Draft Final	10 edays	10/9/00	10/19/00
Agency Review	119 edays	10/19/00	2/15/01
Final	40 edays	2/15/01	3/27/01
SITE INSPECTION REPORT (SITE 4 AND AOC 1)	298 days	3/21/00	5/10/01
Draft	29 edays	3/30/00	4/28/00
Navy Review	24 edays	4/28/00	5/22/00
Draft Final	108 edays	5/23/00	9/8/00
Agency Review	160 edays	9/8/00	2/15/01
Final	84 edays	2/15/01	5/10/01



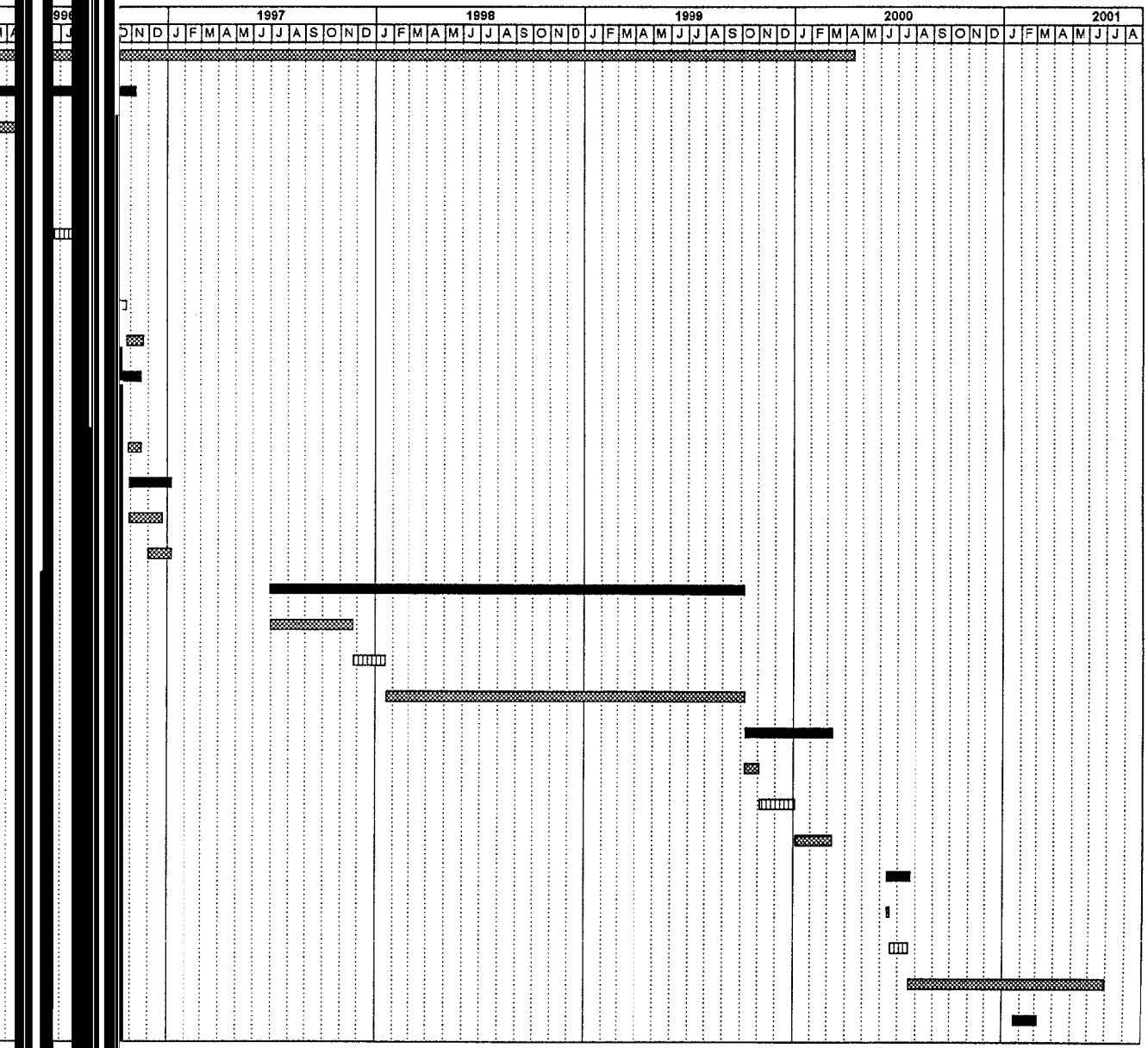
Project: CTO-0104
Date: 6/13/01

Task Review

APPENDIX B
DETAILED SCHEDULES FOR PROJECTS CURRENTLY UNDERWAY

Figure B-1
FY 1996: [redacted]-03 [redacted]es 4, 21, and 22, Work Plan/Field Investigation/RI Report/FS Report/PRAP/ROD
Naval Weapons Station, Yorktown, Virginia

Task Name	Days	Start	Finish
SITES 4, 21, AND 22	1513 edays	2/23/96	4/15/00
WORK PLAN	261 edays	2/23/96	11/10/96
Preliminary Draft	61 edays	2/23/96	4/24/96
Review (Navy)	30 edays	4/24/96	5/24/96
Draft	27 edays	5/24/96	6/20/96
Review (EPA/State)	81 edays	6/20/96	9/9/96
Draft Final	14 edays	9/9/96	9/23/96
Review (EPA/State)	30 edays	9/23/96	10/23/96
Final	30 edays	10/23/96	11/22/96
RI FIELD INVESTIGATION	44 edays	10/7/96	11/20/96
Mobilization	4 edays	10/7/96	10/11/96
Field Investigation	23 edays	10/28/96	11/20/96
SAMPLE ANALYSIS/VALIDATION	72 edays	10/29/96	1/9/97
Sample Analysis	57 edays	10/29/96	12/25/96
Data Validation	40 edays	11/30/96	1/9/97
REMEDIAL INVESTIGATION REPORT	830 edays	6/30/97	10/8/99
Draft	147 edays	6/30/97	11/24/97
Review (EPA/State	57 edays	11/24/97	1/20/98
Final	626 edays	1/20/98	10/8/99
FEASIBILITY STUDY	154 edays	10/8/99	3/10/00
Draft	28 edays	10/8/99	11/5/99
Review (EPA/State)	61 edays	11/5/99	1/5/00
Final	65 edays	1/5/00	3/10/00
PROPOSED PLAN	42 edays	6/12/00	7/24/00
Draft	7 edays	6/12/00	6/19/00
Review (EPA/State)	31 edays	6/19/00	7/20/00
Final	345 edays	7/20/00	6/30/01
PUBLIC COMMENT PERIOD	44 edays	1/21/01	3/6/01



Project: CTO-349
Date: 6/14/01
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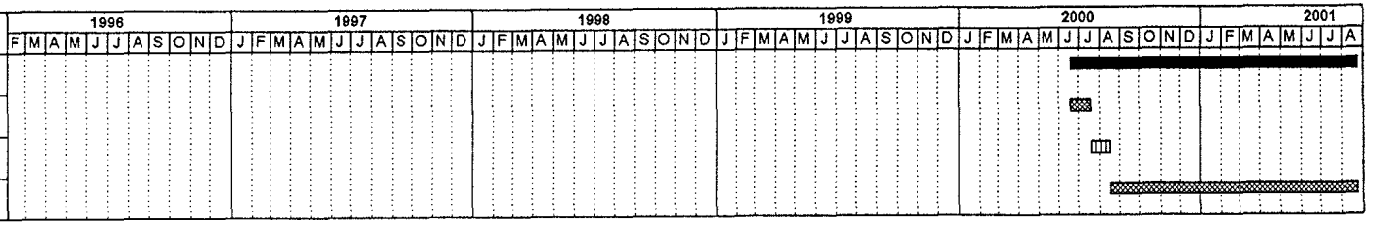
ublic Comment Period will close prior to finalization of the Record of Decision.

Figure B-1
FY 1996: CTO-0349. Sites 4, 21, and 22, Work Plan/Field Investigation/RI Report/FS Report/PRAP/ROD
Naval Weapons Station, Yorktown, Virginia

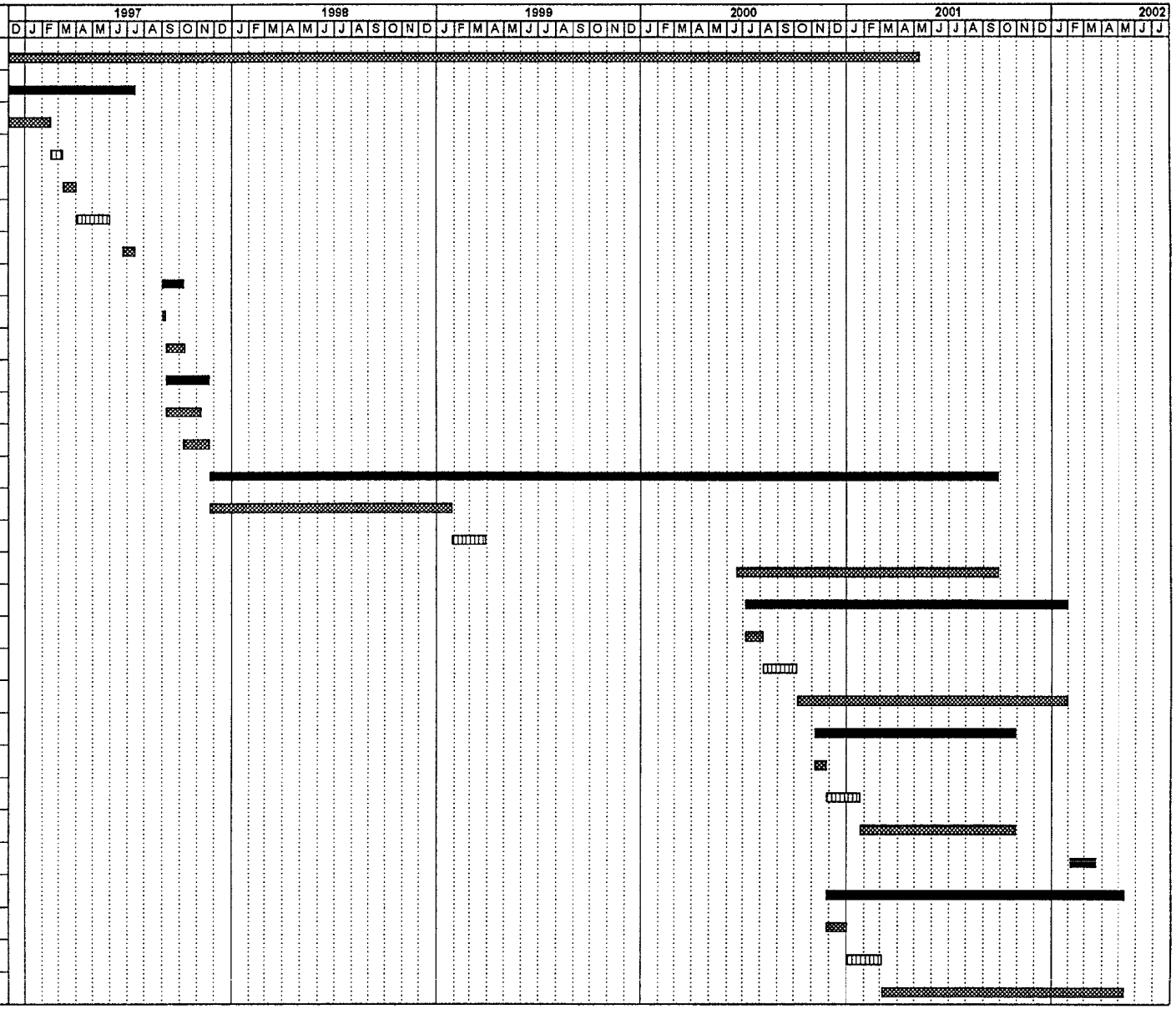
Task Name	Days	Start	Finish
RECORD OF DECISIC	432 edays	6/19/00	8/25/01
Draft	31 edays	6/19/00	7/20/00
Review (EPA/State)	29 edays	7/20/00	8/18/00
Final	372 edays	8/18/00	8/25/01



Note: Public Comment Period will close prior to finalization of the Record of Decision.

Figure B-2
FY 1997: CTO-35, Sites 23, 24, 25, 26 Work Plan/Field Investigation/RI Report/FS Report/PRAP/ROD
Naval Weapons Station Yorktown, Virginia

Task Name	Days	Start	Finish
SITES 23, 24, 25, and 26	1623 edays	12/1/96	5/12/01
WORK PLAN	226 edays	12/1/96	7/15/97
Preliminary Draft	78 edays	12/1/96	2/17/97
Review (Navy)	21 edays	2/17/97	3/10/97
Draft	23 edays	3/10/97	4/2/97
Review (EPA/State)	61 edays	4/2/97	6/2/97
Final	21 edays	6/24/97	7/15/97
RI FIELD INVESTIGATION	38 edays	9/2/97	10/10/97
Mobilization	6 edays	9/2/97	9/8/97
Field Investigation	32 edays	9/8/97	10/10/97
SAMPLE ANALYSIS/VALIDATION	77 edays	9/8/97	11/24/97
Sample Analysis	63 edays	9/8/97	11/10/97
Data Validation	47 edays	10/8/97	11/24/97
REMEDIAL INVESTIGATION REPORT	1404 edays	11/24/97	9/28/01
Draft	431 edays	11/24/97	1/29/99
Review (EPA/State)	60 edays	1/29/99	3/30/99
Final*	466 edays	6/19/00	9/28/01
FEASIBILITY STUDY	576 edays	7/5/00	2/1/02
Draft	33 edays	7/5/00	8/7/00
Review (EPA/State)	60 edays	8/7/00	10/6/00
Final	482 edays	10/7/00	2/1/02
PROPOSED PLAN	359 edays	11/6/00	10/31/01
Draft	21 edays	11/6/00	11/27/00
Review (EPA/State)	60 edays	11/27/00	1/26/01
Final	278 edays	1/26/01	10/31/01
PUBLIC COMMENT PERIOD	45 edays	2/4/02	3/21/02
RECORD OF DECISION	531 edays	11/27/00	5/12/02
Draft	37 edays	11/27/00	1/3/01
Review (EPA/State)	61 edays	1/3/01	3/5/01
Final	433 edays	3/5/01	5/12/02



CTO-0035
Date: 6/13/01
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* Pending receipt of comments from BTAG, LANTDIV, and VDEQ. Note: Public Comment Period will close prior to finalization of the Record of Decision

Figure B-3
FY 1997: CTO-35, SSAs 3, 4, 5, 9, 10, 20, 21, 22, 23, and 24 Work Plan/Field Investigation/SSP Report
Naval Weapons Station Yorktown, Yorktown, Virginia

Task		Days	Start	Finish
SITE SCREEI	REAS 3, 4, 5,	978 edays	12/1/96	8/6/99
9, 10, 20, 21,	AND 24			
WORK PLAI		226 edays	12/1/96	7/15/97
Preliminary D		78 edays	12/1/96	2/17/97
Review (Navy		21 edays	2/17/97	3/10/97
Draft		23 edays	3/10/97	4/2/97
Review (EPA/		61 edays	4/2/97	6/2/97
Final		43 edays	6/2/97	7/15/97
REMEDIAL INVESTIGA		69 edays	9/2/97	11/10/97
Mobilization		6 edays	9/2/97	9/8/97
Field Investiga		63 edays	9/8/97	11/10/97
SAMPLE ANALYSIS/	ATION	107 edays	9/8/97	12/24/97
Sample Analy		93 edays	9/8/97	12/10/97
Data Validatic		77 edays	10/8/97	12/24/97

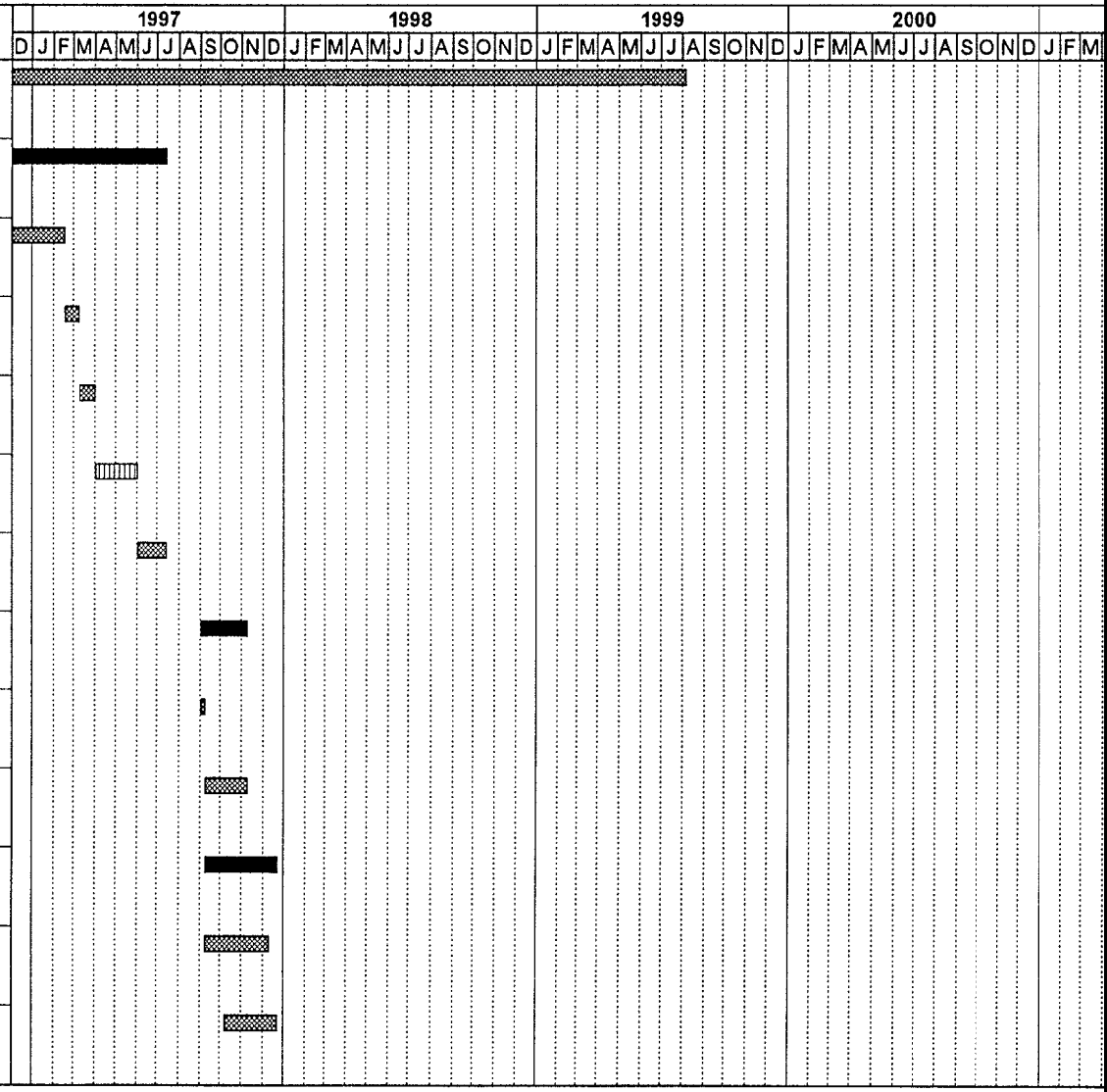


Figure B-3
FY 1997: CTO-35, SSAs 3, 4, 5, 9, 10, 20, 21, 22, 23, and 24 Work Plan/Field Investigation/SSP Report
Naval Weapons Station Yorktown, Yorktown, Virginia

Task	Days	Start	Finish
SITE SCREENING PROCESS REPORT	1164 edays	3/25/98	6/1/01
Draft	64 edays	3/25/98	5/28/98
Review (EPA/State)	60 edays	5/28/98	7/27/98
Final	35 edays	4/27/01	6/1/01

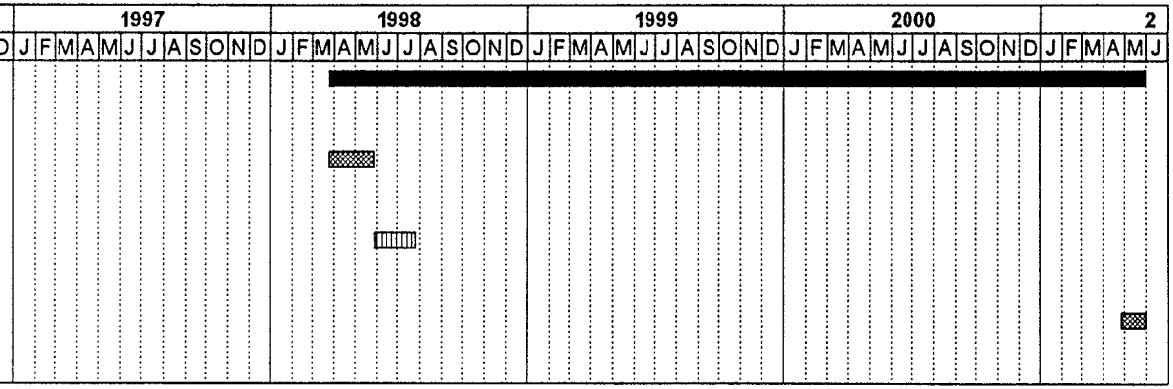
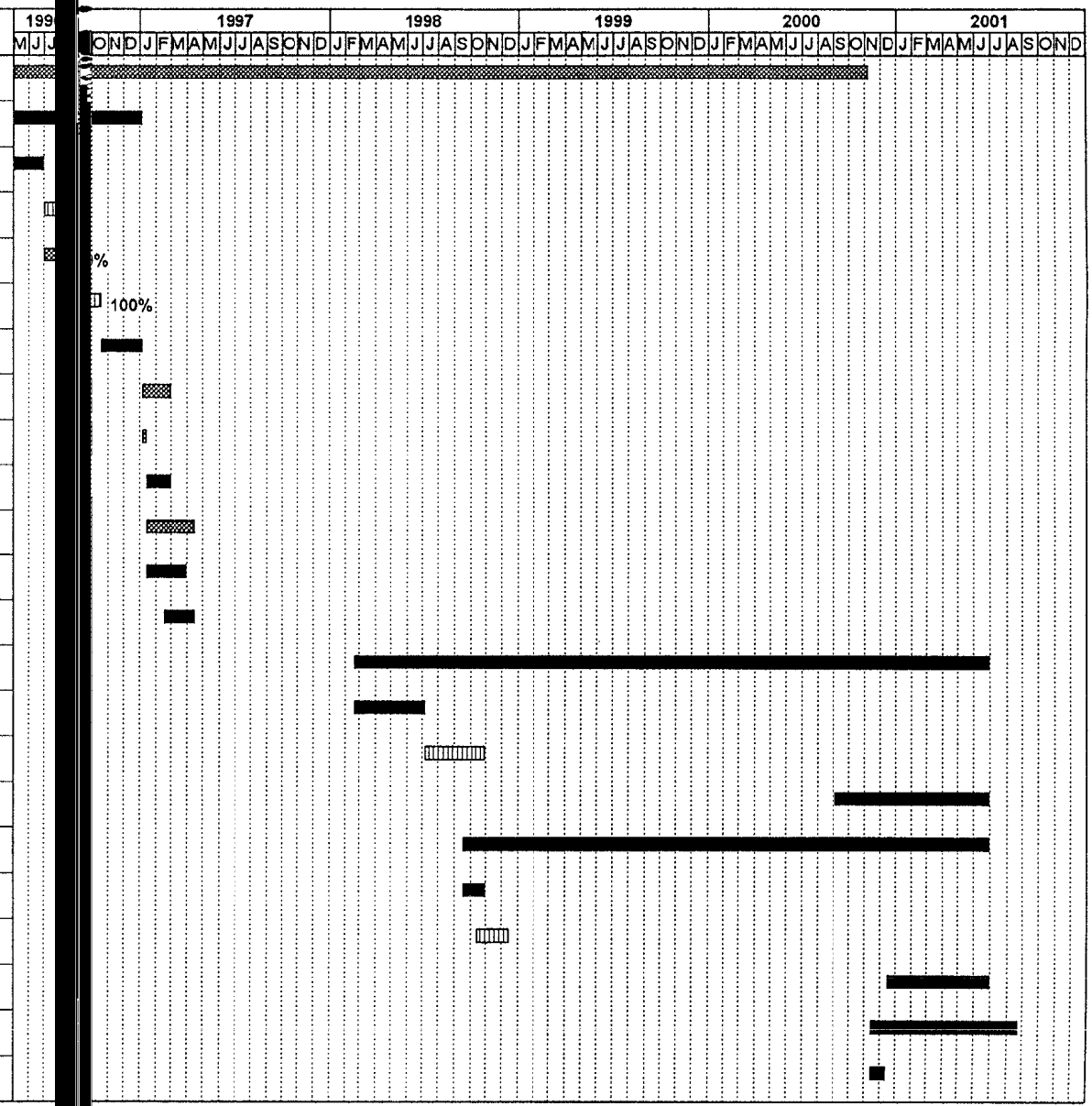


Figure B-4
FY 1996: CTO-363, Sites 2, 8, 18 and [redacted] 14 Work Plan/Field Investigation/RI Report/FS Report/PRAP/ROD
Nava[redacted]eapons Station, Yorktown, Virginia

Task Name	Duration	Start	Finish
SITES 2, 8, 18 and SSA 14	1651 edays	5/1/96	11/7/00
WORK PLAN	250 edays	5/1/96	1/6/97
Preliminary Draft	61 edays	5/1/96	7/1/96
Review (Navy)	30 edays	7/1/96	7/31/96
Draft	25 edays	7/1/96	7/26/96
Review (EPA/State)	84 edays	7/26/96	10/18/96
Final	80 edays	10/18/96	1/6/97
RI FIELD INVESTIGATION	53 edays	1/6/97	2/28/97
Mobilization	7 edays	1/6/97	1/13/97
Field Investigation	46 edays	1/13/97	2/28/97
SAMPLE ANALYSIS/VALIDATION	92 edays	1/14/97	4/16/97
Sample Analysis	75 edays	1/14/97	3/30/97
Data Validation	60 edays	2/15/97	4/16/97
REMEDIAL INVESTIGATION REPORT	1226 edays	2/20/98	6/30/01
Draft	137 edays	2/20/98	7/7/98
Review (EPA/State)	115 edays	7/7/98	10/30/98
Final	299 edays	9/4/00	6/30/01
FEASIBILITY STUDY	1017 edays	9/17/98	6/30/01
Draft	44 edays	9/17/98	10/31/98
Review (EPA/State)	60 edays	10/16/98	12/15/98
Final	197 edays	12/15/00	6/30/01
PROPOSED PLAN	284 edays	11/13/00	8/24/01
Draft	29 edays	11/13/00	12/12/00



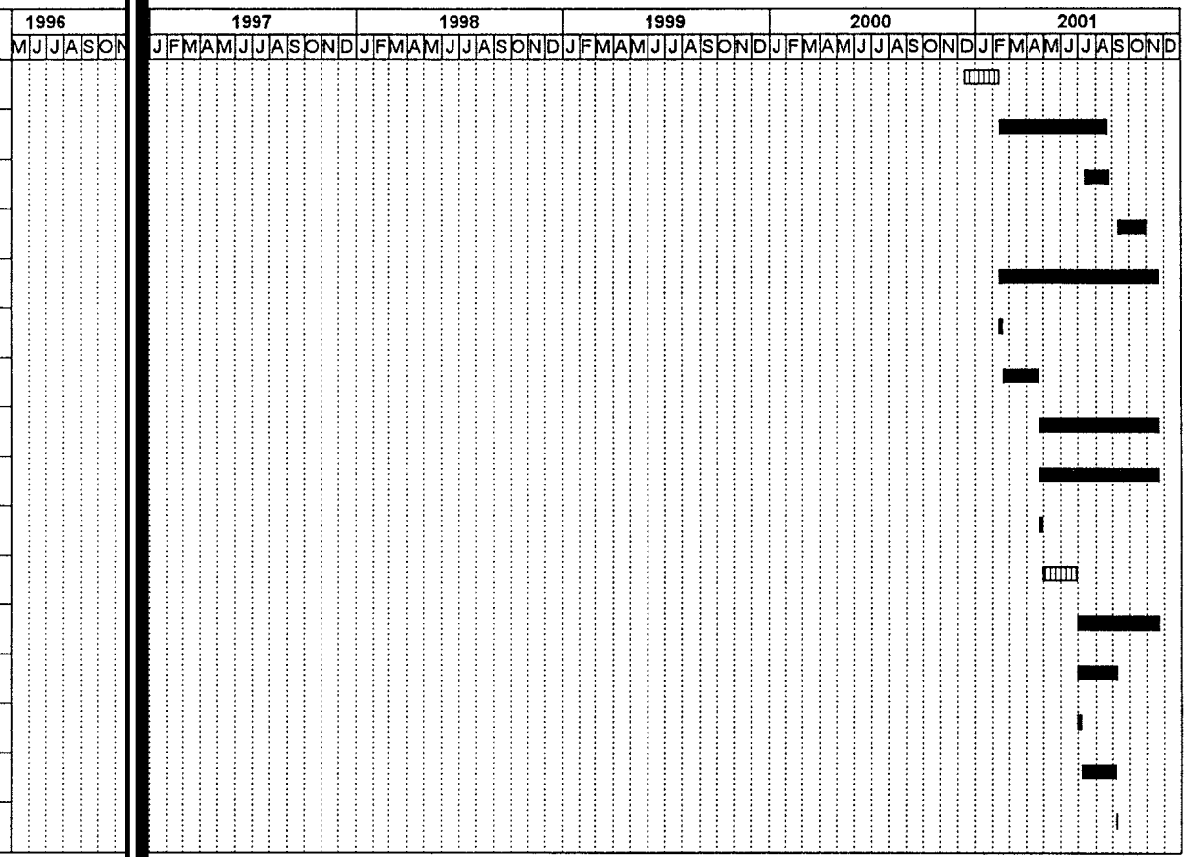
Project: CTO-0363
Date: 6/14/01
Page: 1

Note: Public Comm[redacted]eriod will close prior to finalization of the Record of Decision

Figure B-4

FY 1996: CTO-363, Sites 2, 8, 18 and SSA 14 Work Plan/Field Investigation/RI Report/FS Report/PRAP/ROD
Naval Weapons Station, Yorktown, Virginia

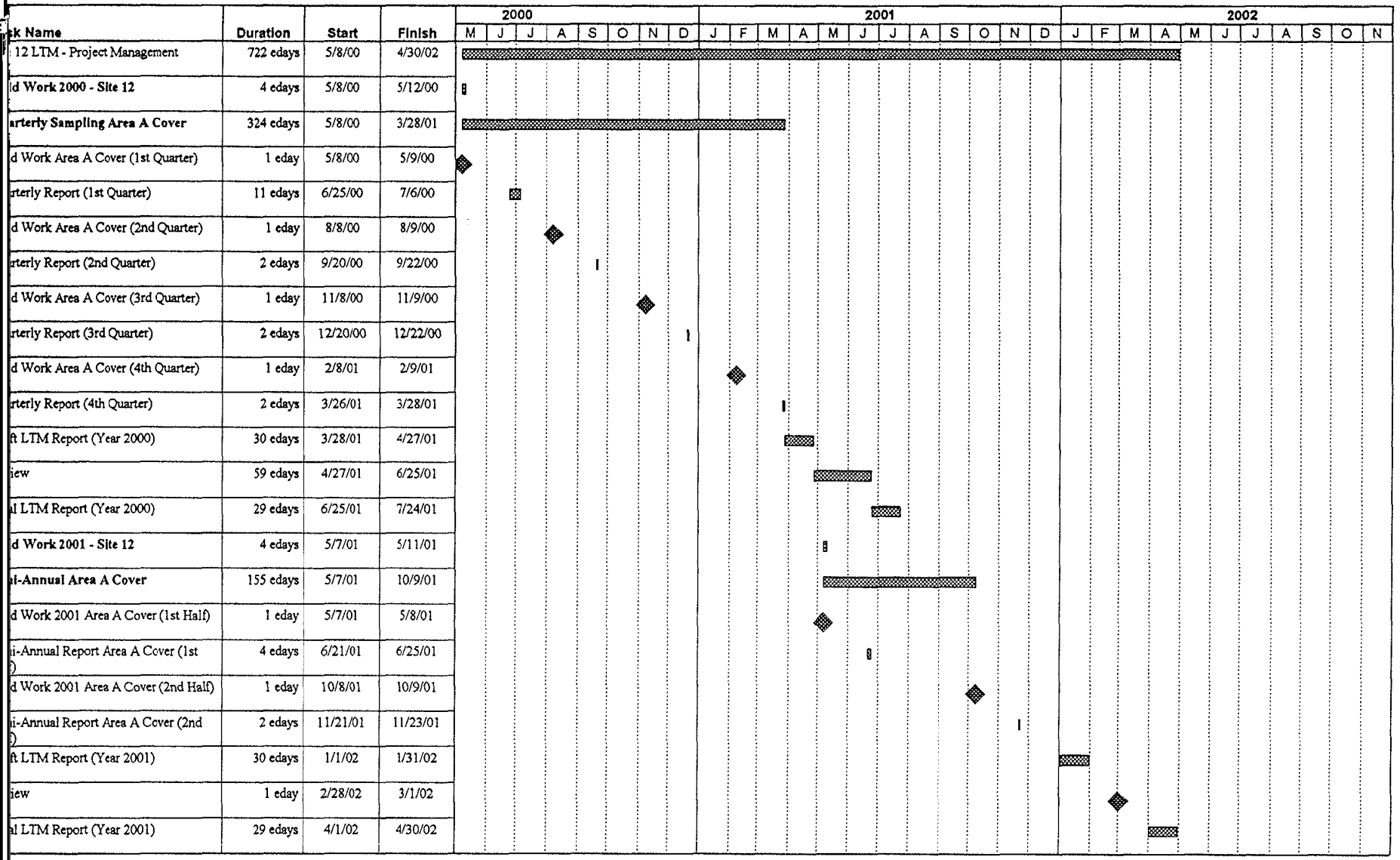
Task Name	Duration	Start	Finish
Review (EPA/State)	62 edays	12/12/00	2/12/01
Final	193 edays	2/12/01	8/24/01
PUBLIC COMMENT PERIOD-Sites 2, 8, 18, SSA 14	45 edays	7/13/01	8/27/01
PUBLIC COMMENT PERIOD- Sites 2, 8, SSA 14	52 edays	9/11/01	11/2/01
RECORD OF DECISION FOR SITE 2	284 edays	2/12/01	11/23/01
Draft	7 edays	2/12/01	2/19/01
Review (EPA/State)	63 edays	2/19/01	4/23/01
Final	214 edays	4/23/01	11/23/01
RECORD OF DECISION FOR SITE 8 AND SSA 14	214 edays	4/23/01	11/23/01
Draft	7 edays	4/23/01	4/30/01
Review (EPA/State)	61 edays	4/30/01	6/30/01
Final	146 edays	6/30/01	11/23/01
RECORD OF DECISION FOR SITE 18	72 edays	6/30/01	9/10/01
Draft	7 edays	6/30/01	7/7/01
Review (EPA/Review)	62 edays	7/7/01	9/7/01
Final	3 edays	9/7/01	9/10/01



Project: CTO-0363
Date: 6/14/01
Page: 2

Note: Public Comment Period will close prior to finalization of the Record of Decision

FIGURE B-5
FY 1998: CTO-386, Site 12 - Long Term Monitoring Schedule
Naval Weapons Station Yorktown, Yorktown, Virginia



ject: CTO-0386
e: 6/1/00

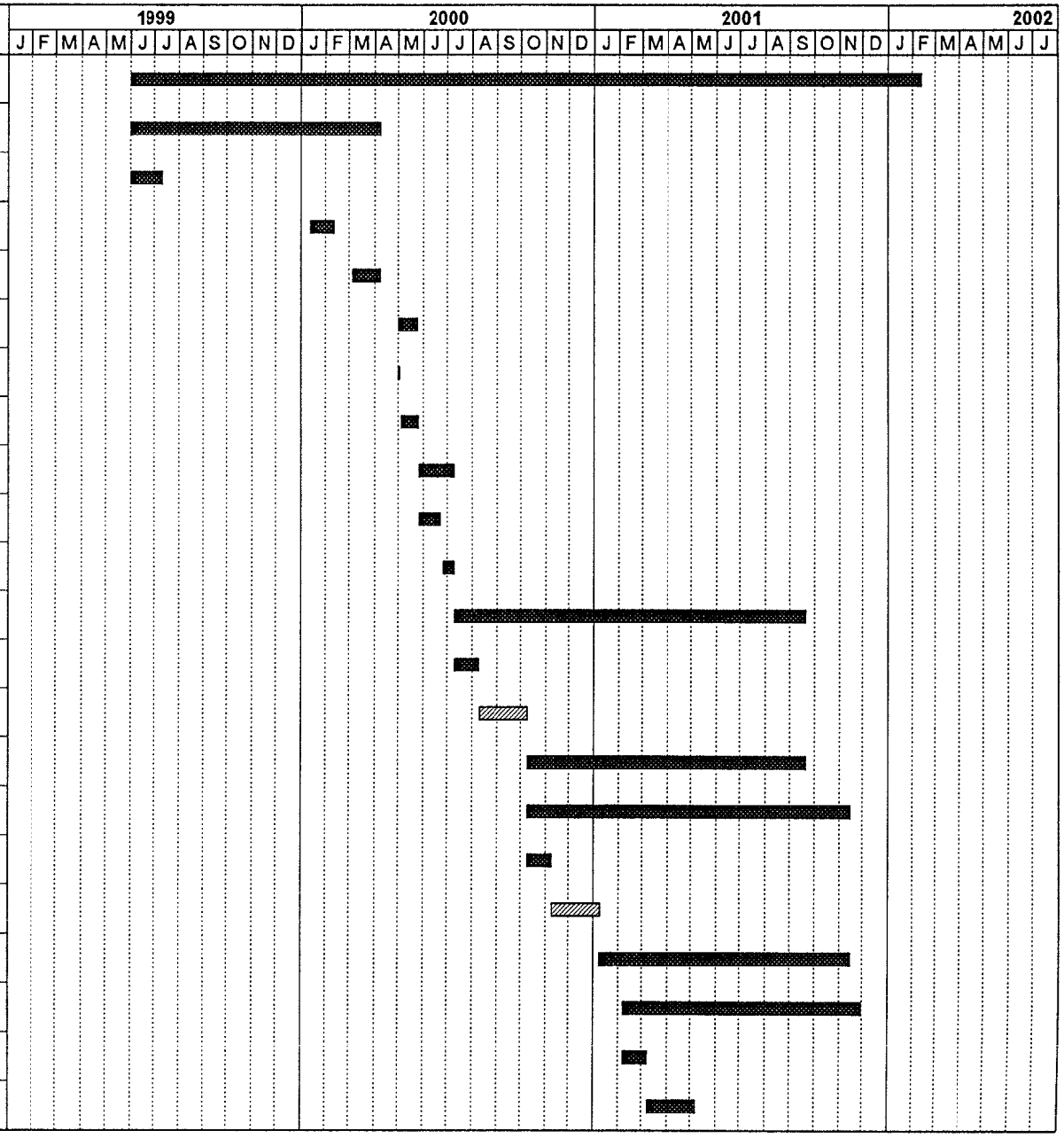
Planned Time Actual Time LANTDIV Review Milestone

FY 1999: CTO-

Figu 6

es 27, 28, 29, 30 Work Plan/Field Investigation/RI Report/FS Report PRAP/ROD and Site 8, SSA 14 Additional Work
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name		Start	Finish
SITES 27, 28, 29, 30	ys	6/1/99	2/13/02
WORK PLAN	ys	6/1/99	4/10/00
Draft	ys	6/1/99	7/12/99
Review (EPA/State)	ys	1/12/00	2/12/00
Final	ys	3/5/00	4/10/00
RI FIELD INVESTIGATION	ys	5/1/00	5/25/00
Mobilization	s	5/1/00	5/3/00
Field Investigation	ys	5/4/00	5/26/00
SAMPLE ANALYSIS/VALIDATION	ys	5/26/00	7/10/00
Sample Analysis	ys	5/26/00	6/23/00
Data Validation	ys	6/26/00	7/10/00
REMEDIAL INVESTIGATION REPORT	ys	7/10/00	9/21/01
Draft	ys	7/10/00	8/9/00
Review (EPA/State)	ys	8/10/00	10/9/00
Final	ys	10/9/00	9/21/01
FEASIBILITY STUDY	ys	10/9/00	11/16/01
Draft	ys	10/9/00	11/9/00
Review (EPA/State)	ys	11/9/00	1/8/01
Final	ys	1/8/01	11/16/01
PROPOSED PLAN	ys	2/7/01	11/30/01
Draft	ys	2/7/01	3/8/01
Review (EPA/State)	ys	3/8/01	5/7/01

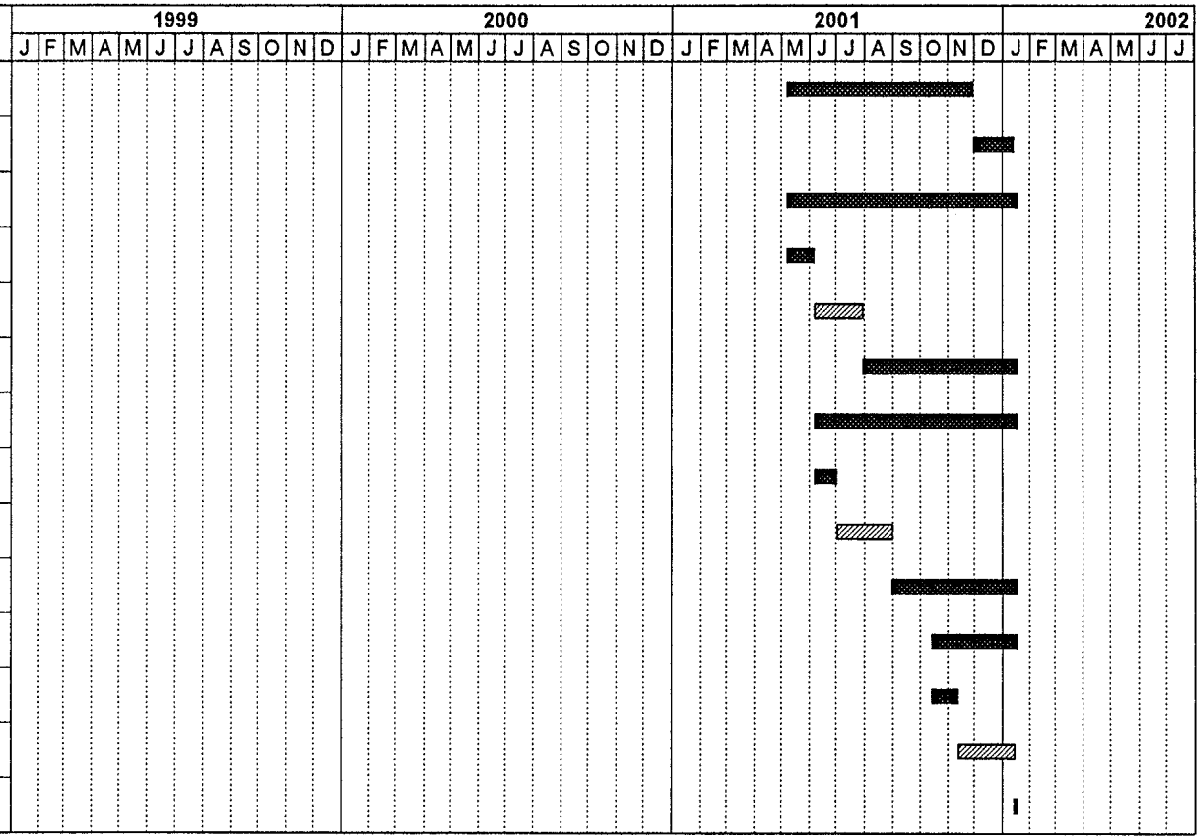


Project: CTO-0394
Date: 6/13/01
Page: 1

Figu 6

FY 1999: CTO-394 Sites 27, 28, 29, 30 Work Plan/Field Investigation/RI Report/FS Report PRAP/ROD and Site 8, SSA 14 Additional Work
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Days	Start	Finish
Final	207 edays	5/7/01	11/30/01
PUBLIC COMMENT PERIOD	45 edays	11/30/01	1/14/02
RECORD OF DECISION-SITE 27 and 28	256 edays	5/7/01	1/18/02
Draft	31 edays	5/7/01	6/7/01
Review (EPA/State)	53 edays	6/7/01	7/30/01
Final	172 edays	7/30/01	1/18/02
RECORD OF DECISION-SITE 29	225 edays	6/7/01	1/18/02
Draft	25 edays	6/7/01	7/2/01
Review	60 edays	7/2/01	8/31/01
Final	140 edays	8/31/01	1/18/02
RECORD OF DECISION-SITE 30	96 edays	10/14/01	1/18/02
Draft	30 edays	10/14/01	11/13/01
Review	62 edays	11/13/01	1/14/02
Final	4 edays	1/14/02	1/18/02

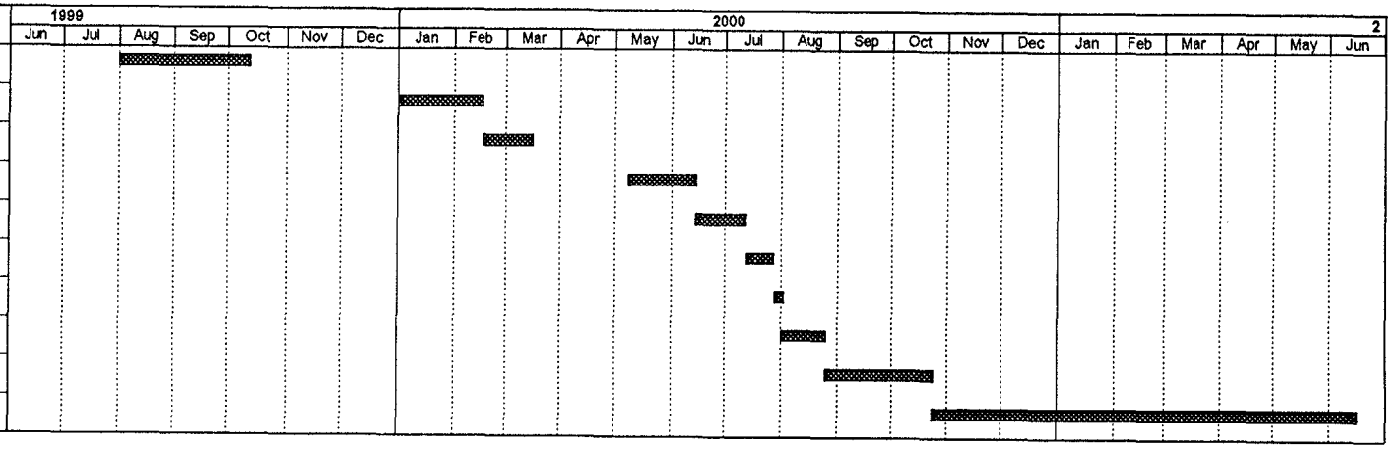


Project: CTO-0394
Date: 6/13/01
Page: 2

Task Review Milestone

Figure B-7
FY 1999: CTO-102 Long Term Monitoring - Sites 1, 3, 6, and 7
Naval Weapons Station, Yorktown, Virginia

Task Name	Duration	Start	Finish
Draft Project Plans	53 days	8/1/99	10/12/99
Review	34 days	1/1/00	2/16/00
Final Project Plans	21 days	2/17/00	3/16/00
Field Investigation	28 days	5/8/00	6/14/00
Sample Analysis	22 days	6/14/00	7/12/00
Sample Validation	11 days	7/13/00	7/27/00
Data Management	3 days	7/28/00	8/1/00
Draft LTM Report	19 days	8/1/00	8/25/00
Review	43 days	8/25/00	10/24/00
Final LTM Report	169 days	10/24/00	6/15/01

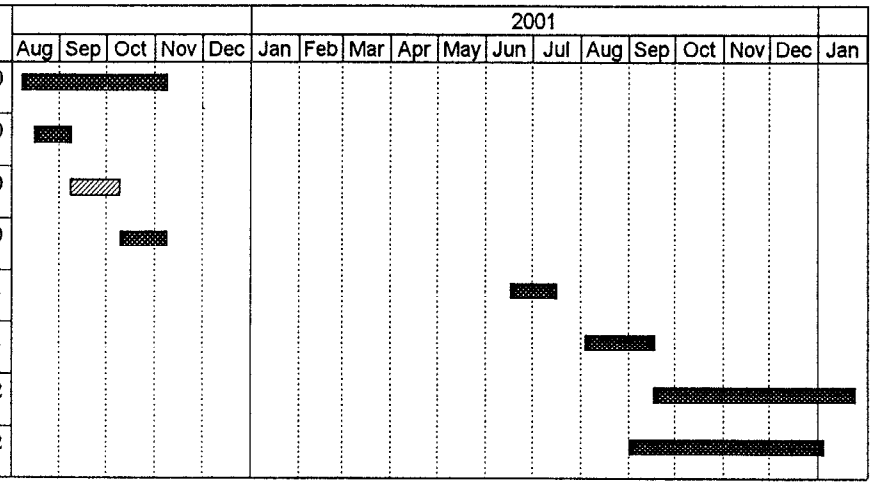


Project: CTO-0102
Date: 6/13/01

PlannedTime

Figure B-8
FY 2000-2001: CTO 172, Partnering, Environmental Support, Ecological Work Investigations, Engineering and Design
Cheatham Annex Site
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Duration	Start	Finish
GIS NEEDS ASSESSMENT and IMPLEMENTATION PLAN	93 edays	8/8/00	11/9/00
Draft Final	24 edays	8/15/00	9/8/00
Agency Review	32 edays	9/8/00	10/10/00
Final	30 edays	10/10/00	11/9/00
FOCUSED FEASIBILITY STUDY	30 edays	6/16/01	7/16/01
PROPOSED REMEDIAL ACTION PLAN	45 edays	8/3/01	9/17/01
RECORD OF DECISION - SITE 1	130 edays	9/17/01	1/25/02
REMEDIAL INVESTIGATION - SITE 1	91 days	9/1/01	1/4/02



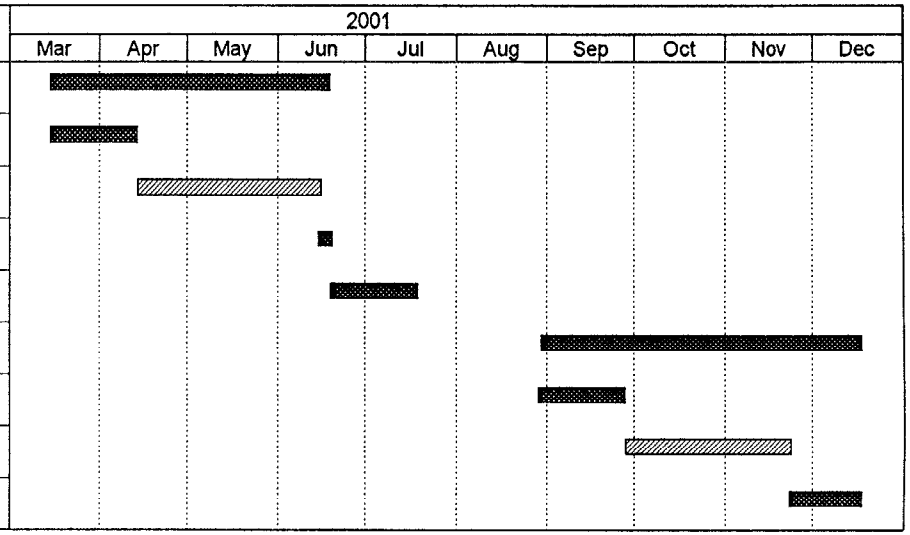
Project: CTO-0172
Date: 6/14/01

Task Review

Figure B-9
FY 2001: CTO 196, CAX Background Investigation and Report

Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Duration	Start	Finish
WORK PLAN	96 edays	3/14/01	6/18/01
Draft (Actual)	30 edays	3/14/01	4/13/01
Navy and Agency Review	63 edays	4/13/01	6/15/01
Final	5 edays	6/15/01	6/20/01
FIELD INVESTIGATION	30 edays	6/18/01	7/18/01
BACKGROUND REPORT	110 edays	8/29/01	12/17/01
Draft	30 edays	8/29/01	9/28/01
Navy and Agency Review	41 days	9/28/01	11/23/01
Final	17 days	11/23/01	12/17/01



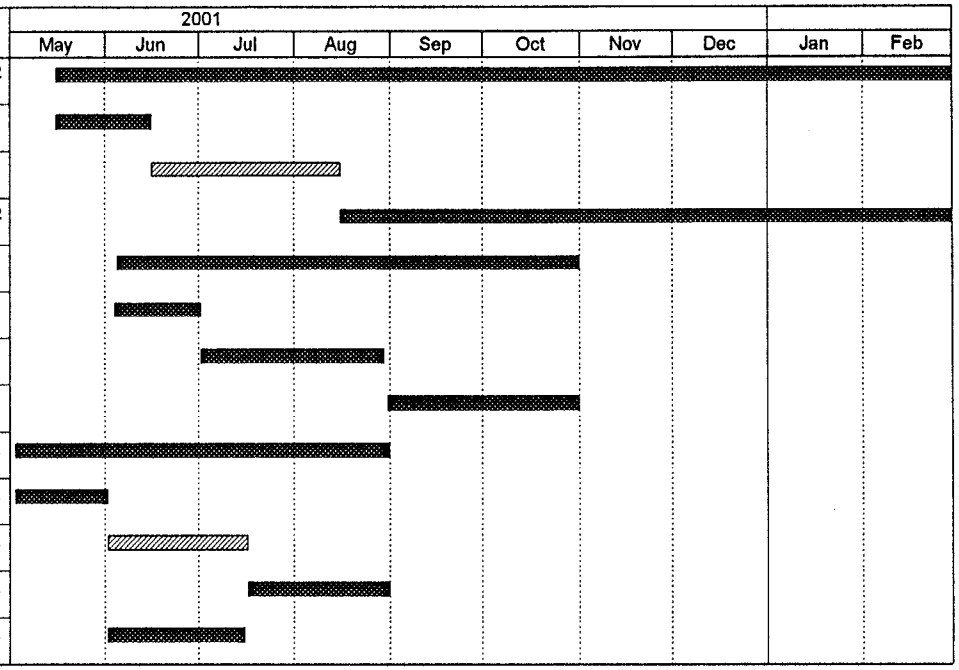
Project: Cto-196
Date: 6/14/01

Task

Review

Figure B-10
FY 2001: CTO 195, CAX Sites 4, 9, 11 Ecological Risk Assessment, Steps 1 & 2
Cheatham Annex Site
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Duration	Start	Finish
SITE MANAGEMENT PLAN	289 edays	5/15/01	2/28/02
Draft	31 edays	5/15/01	6/15/01
Navy and Agency Review	61 edays	6/15/01	8/15/01
Final	197 edays	8/15/01	2/28/02
ECOLOGICAL RISK ASSESSMENTS	149 edays	6/4/01	10/31/01
Draft	28 edays	6/4/01	7/2/01
Navy and Agency Review	59 edays	7/2/01	8/30/01
Final	62 edays	8/30/01	10/31/01
COMMUNITY RELATIONS PLAN	121 edays	5/2/01	8/31/01
Draft	30 edays	5/2/01	6/1/01
Navy and Agency Review	45 edays	6/1/01	7/16/01
Final	46 edays	7/16/01	8/31/01
PUBLIC COMMENT PERIOD	44 edays	6/1/01	7/15/01



Project: Cto-195
Date: 6/14/01

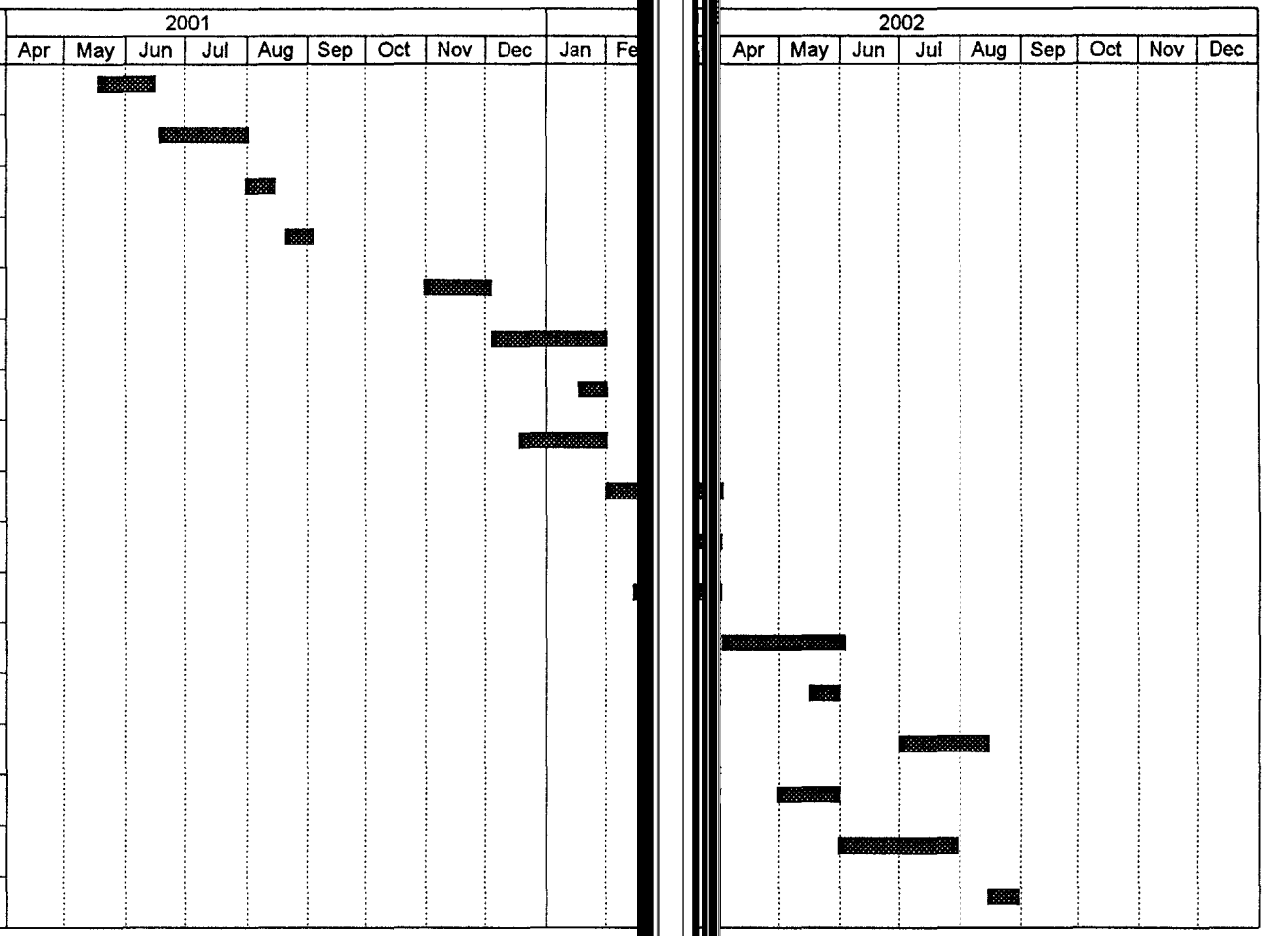
Task Review

APPENDIX C
DETAILED SCHEDULE FOR ANTICIPATED PROJECTS

Figure C-1

FY 2001: CTO-0213 - Groundwater Operable Unit Work Plans, Field Investig RI/FS, PRAP, and ROD
Naval Weapons Station Yorktown, Yorktown, Virgi

Task Name	Duration	Start	Finish
Draft Work Plan	22 days	5/18/01	6/15/01
Review	34 days	6/18/01	8/1/01
Final Work Plan	12 days	7/31/01	8/15/01
Field Investigation	11 days	8/21/01	9/4/01
Draft RI Report	24 days	10/31/01	12/3/01
Review	45 days	12/4/01	2/1/02
Final RI	11 days	1/18/02	2/1/02
Draft FS	34 days	12/18/01	2/1/02
Review	44 days	2/1/02	4/2/02
Final FS	12 days	3/18/02	4/1/02
Draft PRAP	33 days	2/15/02	4/1/02
Review	45 days	4/2/02	6/3/02
Final PRAP	12 days	5/16/02	5/31/02
Public Comment Period	34 days	7/1/02	8/15/02
Draft ROD	24 days	4/30/02	5/31/02
Review	44 days	5/31/02	7/30/02
Final ROD	12 days	8/15/02	8/30/02

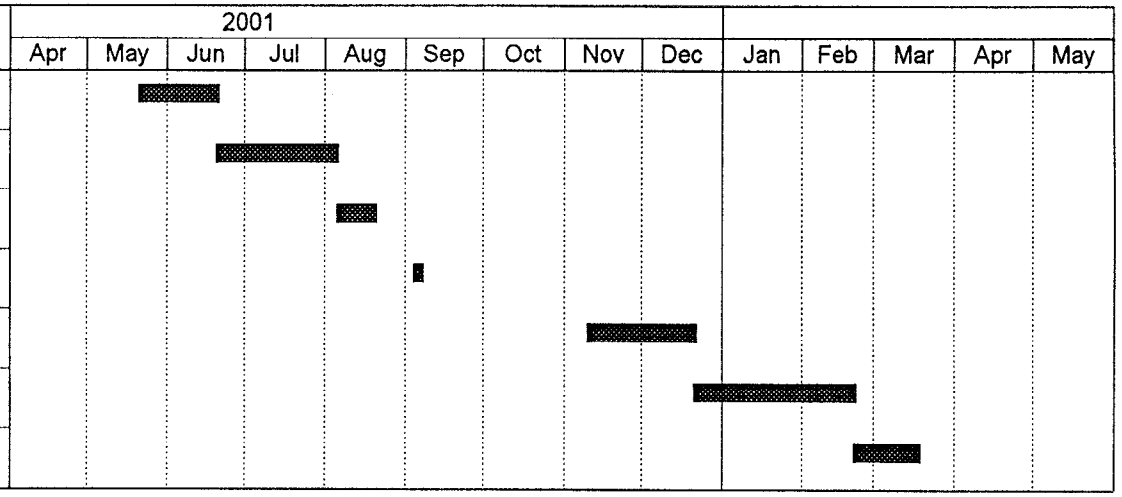


Project: CTO-0213
Date: 6/13/01

Planned Time

Figure C-2
FY 2001: CTO-0214 - Work Plans, Field Sampling, Long-Term Monitoring Report
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Duration	Start	Finish
Draft LTM Work Plan	23 days	5/21/01	6/20/01
Review	34 days	6/20/01	8/5/01
Final LTM work Plan	12 days	8/5/01	8/20/01
Field Sampling	4 days	9/4/01	9/7/01
Draft LTM Report	31 days	11/10/01	12/21/01
Review	45 days	12/21/01	2/21/02
Final LTM Report	18 days	2/21/02	3/18/02

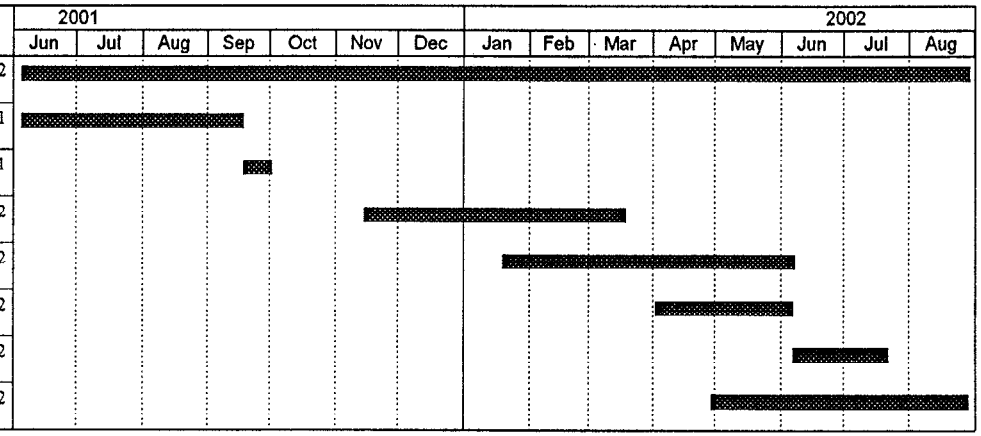


Project: CTO-0214
Date: 6/13/01

Task

Figure C-3
FY 2001-2002: CAX Site 11 RI/FS/PRAP/ROD
Cheatham Annex Site
Naval Weapons Station Yorktown, Yorktown, Virginia

Task Name	Duration	Start	Finish
CAX SITE 11	451 edays	6/5/01	8/30/02
Work Plan	105 edays	6/4/01	9/17/01
Field Work	14 edays	9/17/01	10/1/01
Remedial Investigation	124 edays	11/14/01	3/18/02
Feasibility Study	140 edays	1/18/02	6/7/02
Proposed Remedial Action Plan	66 edays	4/2/02	6/7/02
Public Comment Period	45 edays	6/7/02	7/22/02
Record of Decision	122 edays	4/29/02	8/29/02



Project: CAX Site 11
Date: 6/14/01

Task Review