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UPDATED FINAL

COMMUNITY RELATIONS PLAN

NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA

CONTRACT TASK ORDER 0229

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NAVAL FACILITIES
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LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
AST	Aboveground Storage Tank
Baker	Baker Environmental, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CRP	Community Relations Plan
DOD	Department of Defense
DON	Department of the Navy
EE/CA	Engineering Evaluation/Cost Analysis
EOD	Explosive Ordnance Disposal
FFA	Federal Facility Agreement
FY	Fiscal Year
HRSD	Hampton Roads Sanitation District
IAS	Initial Assessment Study
IRP	Installation Restoration Program
LANTDIV	U. S. Navy, Atlantic Division
NAVFACENGCOM	Naval Facilities Engineering Command
NCP	National Contingency Plan
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
ORC	Office of Regional Counsel
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
PAH	Polynuclear Aromatic Hydrocarbons
PAO	Public Affairs Officer
PCB	Polychlorinated Biphenyl
PRAP	Proposed Remedial Action Plan
PW	Public Works

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued)

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

1.0 OVERVIEW OF THIS COMMUNITY RELATIONS PLAN

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

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

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

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

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

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

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

This CRP is divided into six sections. Section 2.0 provides background information on WPNSTA Yorktown and the sites in the IR Program. Section 3.0 includes an overview of the community, community involvement, and key community concerns. The highlights of the community relations program are included in Section 4.0 and Section 5.0 provides details on the community relations program. References are included in Section 6.0.

2.0 NAVAL WEAPONS STATION LOCATION AND HISTORY

2.1 Facility Description

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

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

2.2 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.

2.2.1 Initial Assessment Study

The purpose of the IAS (C. C. Johnson & Associates, Inc. and CH2M Hill, 1984) was to identify and assess sites posing a potential threat to human health and/or the environment due to contamination from past operations. A total of 19 potentially contaminated sites 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 threat to human health or the environment to warrant Confirmation Studies.

2.2.2 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, 1986). The initial sampling effort included:

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

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

- Collection of 26 groundwater samples from the previously installed wells

- Collection of 26 surface water and 32 sediment samples
- Collection of 12 surface soil samples
- Chemical analysis of the samples collected

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

2.2.3 Site 21 Site Investigation

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

2.2.4 Focused Biological Sampling and Preliminary Risk Evaluation

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

2.2.5 Round One RI

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

The Round One RI sampling effort included:

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

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

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

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

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

2.2.6 Round Two RIs

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

2.2.7 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 on the environment.

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

2.3 Site Descriptions

This section describes the history of the disposal practices at each of the sites included in the Federal Facility Agreement (FFA), the four newly added sites which were former SSAs, and the site which has been added for investigation and evaluation which was not included in the FFA. The information presented is from previous studies (C.C. Johnson & Associates and CH2M Hill, 1984; USEPA, 1992a and b) and has been updated based on additional historical review and discussions with WPNSTA Yorktown personnel. The site descriptions are presented in numerical order for ease of reference. Site locations are shown on Figures 2-2 to 2-4.

2.3.1 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 are found at this site. One is located within the eastern portion of the site. The other borrow pit is located in the southwest portion of the site and accumulates surface water runoff. The water within this borrow pit fluctuates throughout the year from a few inches to two feet deep. Seasonal ponding also occurs in the southeastern section of the site. Wastes disposed within the depression created by sand mining included asbestos insulation from steam piping; oil, grease, paint, and solvent containers; nitramine-contaminated carbon; household appliances; scrap metal banding; construction rubble; plastic lens grinding wastes; tree limbs; lumber; packaging wastes; electrical wires; and waste oil. The landfill received an estimated 255 tons of waste during the time in which the site was in use. Currently, the landfill is covered by approximately 2 feet of soil and the abandoned sand reclamation area is covered by 8 feet of soil.

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

2.3.2 Site 2 - Turkey Road Landfill

Site 2 is a 5-acre landfill located east of Turkey Road in a wetland area adjacent to the southern branch of Felgates Creek. Operations at the landfill reportedly began in the 1940s and ceased in 1981. Wastes disposed in this landfill 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.

2.3.3 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 is named for its proximity to the Group 16 Magazines. This landfill is unrelated to 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. Currently, most of the site, which is overgrown with trees, is covered by approximately 2 feet of soil with some scattered surface debris.

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

2.3.4 Site 4 - Burning Pad Residue Landfill

Site 4 is an approximately 10-acre landfill. The site is bordered by the Explosives Burning Facility 1401 (Site 22) to the southwest, Site 21 (the Battery and Drum Disposal Area) and an unnamed

drainage way to the southeast, West Road to the northeast, and a gravel road leading to the burning facility to the northwest. This area was used as a land disposal area from 1940 until 1975. The landfill received an estimated 595 tons of waste during the time in which the site was in use. The landfill was reportedly backfilled three to four times a week. An ash pile measuring approximately 100 feet by 150 feet was located in the northeast corner of the site. Materials reportedly disposed at the site included: carbon-zinc batteries from underwater weapons, burning pad residues, tree stumps, fly ash from coal-fired boilers, mine casings, electrical equipment, and transformers. A large battery disposal area was identified in the southeast portion of the site. In addition, construction debris, pipes, glass, concrete, bottles, cans, and drums have been discovered in various locations within the site boundary.

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

2.3.5 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.

2.3.6 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), and long-term monitoring of the groundwater, impoundment area surface water, and sediment. Treated soil and sediment will be reused at the site or elsewhere at the Station. The ROD for Site 6 was signed on October 5, 1998.

2.3.7 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 (OHM, 1997).

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

2.3.8 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.

2.3.9 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. 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.

2.3.10 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 are potentially present at the site. During the 20 years that the pits were used approximately 200 pounds of nitramine waste residues may have been deposited. Currently, the area is thickly vegetated.

2.3.11 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, including solvents, also were disposed in this area. The landfill received an estimated 1,400 tons of waste during the time the site was in use. Adjacent to the landfill are two incinerators (Solid Waste Management Unit [SWMU] 142 and SWMU 143) formerly used to burn a variety of waste, both industrial and nonindustrial. Incineration ash 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. The removal of miscellaneous debris at Area B/C was accomplished in May and June of 1998.

2.3.12 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 eliminate drums, scrap metal, batteries, and construction debris. Site 16 was evaluated in conjunction with SSA 16 because of its

proximity and geophysical data which indicate overlap between the two areas. Wastes encountered at this site included drums filled with silica gel desiccant, dry cell carbon/zinc batteries, surface debris, steel cables, underwater mine casings, and scrap ordnance. An approximate total of 420 tons of batteries, 60 tons of debris, 125 tons of silica gel, and the following ordnance items were removed: three Mk 13 torpedo sections, three Mk 51 Underwater mines, 29 Mk 10 Mod 3 mines, eight 500-pound general purpose bombs, three 2000 pound general purpose bombs, three Mk 36 mines, two AN&M fragmentation bombs, 10 Mk 13 mines, one Zuni rocket motor, one 1,000 pound armor piercing bomb, and 90 Burster tubes. All ordnance items were certified inert. Based on the results of the risk evaluation and limited confirmational sampling by USEPA Region III, a "No Further Remedial Action with Institutional Controls" ROD was finalized for Site 16/SSA 16 (OU II) on September 29, 1995.

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

2.3.14 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.

2.3.15 Site 19 - Conveyor Belt Soils at Building 10

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

2.3.16 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 previously discussed. 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.

2.3.17 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 surrounded a 150-foot inch diameter circular area. The site became an area used for a treatability study for the treatment of explosive-contaminated soil in 1996. As a part of the treatability study, a biocell was constructed which measured 153-feet long by 86-feet wide by 7-feet deep. Soil samples were obtained from the "footprint" of the biocell prior to the placement of liners and footers for the rail system, upon which a gantry rests. The cell was completed in 1996 and is currently in operation and was expanded to accommodate soil from Site 19.

2.3.18 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 5 smaller areas of SSA 1 which are adjacent to the railroad tracks and the unnamed ditch and within the western portion of the former SSA boundary. The York River is located to the north of Site 23 and Roosevelt Pond bounds the area to the west/northwest. The area is wooded and bisected by a railroad track constructed in 1919.

Disposal activities reportedly began in 1940 and ceased in 1960. A pier fire occurred in the mid-1950s and debris from this fire was disposed in this area (1955 to 1957). Areal photography suggests that past waste storage practices occurred at Site 23 (primarily in 1945). From 1960 to the present there is no evidence of additional waste storage or release. However, a land survey, conducted in the fall of 1993 as part of a removal action, indicated discrete piles of debris that appear to have been dumped on top of native soil, while other areas of debris appear to be partially buried. The debris was identified as concrete rubble; scrap metal; wooden pilings and railroad ties; empty fuel cans; empty, open, and corroded drums; asbestos pipe insulation; and shingles.

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

2.3.19 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.

2.3.20 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 the UST was removed. There were no visible signs of staining along the sides of the UST or in the soil surrounding the sides of the UST. A strong solvent odor was noted during the removal activities.

2.3.21 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. The extent of this contamination has not yet been adequately defined.

2.3.22 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 operated from 1969 to early 1995. The drainage was diverted to the sanitary sewer and ultimately to HRSD in 1995. In addition, there are four underground septic tanks in the area. Historical records indicate that industrial waste may have been stored in these tanks.

2.3.23 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.

2.3.24 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/Weston, 1993b). Water levels in Lee Pond are raised and lowered during summer and winter respectively for support of the local ecology. The SSP Report (Baker, 1998a) for Lee Pond indicates that additional RI/FS activities are necessary to address the site and area groundwater as an operable unit.

2.3.25 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 conducted sampling activities and detected metals and nitramine compounds exceeding regulatory screening levels. Additional investigation under the SSP was therefore necessary to determine potential human health risks and ecological concerns associated with this SSA. The SSP

Report (Baker, 1998a) indicates that additional RI/FS activities are necessary to address environmental concerns at this site.

2.4 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," (USEPA, 1992a), and "Study Area Analysis, Yorktown Naval Weapons Station Yorktown, Yorktown, Virginia," Volume 1 (USEPA, 1992b).

2.4.1 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 which occupies an area of approximately 400 feet by 450 feet. The area was wooded and strewn with non-explosive arming devices, MK 46 shipping containers, various types of scrap metal, and debris. Numerous earthen berms and depressions indicate the historical use of bulldozers and other earth-moving equipment 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.

2.4.2 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.

2.4.3 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.

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

2.4.5 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, 1997) concluded that this area should not be retained as an IR site for further investigation.

2.4.6 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, 1997) concluded that this area should not be retained as an IR site for further investigation.

2.4.7 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 in yard used to store new electrical transformers and other electrical equipment. Used or damaged transformers were not stored at SSA 12. The new transformers were staged on pallets before installation. Historical records indicated that wastes may have been stored in this area in the past. In addition, there is a formerly wooded area where demolition debris was reportedly deposited. Concrete debris is visible at the edge of the area. Currently, approximately one-half of the area is used for vehicle storage.

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

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

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

2.4.8 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, 1997) concludes that this area should not be retained as an IR site for further investigation.

2.4.9 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.

2.4.10 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, 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.

2.4.11 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 are located on the lower southwest side of the yard; scrap metal and empty drums also are scattered over the ground surface near these dumpsters. This area was reportedly used for scrap metal storage prior to the construction of the Hazardous Waste Storage Facility.

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

2.4.12 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 procedures associated with MK 46 torpedo activities. Waste Otto fuel is a mixture of Otto fuel and water which potentially contained oil, denatured ethyl alcohol, detergent, and trace amounts of cyanide. In June 1988, a tank integrity test was performed on the waste Otto fuel tank. The tank system failed the hydrostatic integrity test and was subsequently taken out of service, the floor drains leading to the tank were sealed, and a RCRA closure and post-closure plan was submitted to VDEQ in November 1988. The 5,000-gallon waste Otto fuel UST system was removed in March 1995. The MK 46 torpedo shop subsequently accumulated waste Otto fuel in compatible, 55-gallon drums, which were stored for less than 90 days prior to transport off site for disposal. Waste Otto fuel is not currently generated or stored at SSA 17. Based on the results of the SSP, no further RI/FS activities will be conducted at SSA 17.

2.4.13 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 stacked approximately 40 feet above ground surface, holes are dug about 12 to 20 feet into the mound of soil, the holes are filled with explosive ordnance and backfilled. The explosives are detonated; the same soil is used repeatedly. During the winter, this area is covered and grass is grown to prevent erosion. Unlined settling ponds collect runoff, through pipes, from this area. Effluent from these ponds may discharge to nearby Ponds 11 and 12 and ultimately to King Creek and the York River. In addition, nine metal containers of varying sizes are used for burning explosive waste when hotter burning is required. This type of burning is performed one to two times per year, primarily in the summer. Based on the results of the SSP (Baker, 1998a), no further RI/FS activities will be conducted at SSA 19.

2.4.14 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/Weston, 1993b). The SSP Report (Baker, 1998a) for SSA 21 indicates that no additional RI/FS efforts are needed to address environmental concerns at this SSA.

2.4.15 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 cadmium were detected in SSA 22 soil samples which warranted its retention for further investigation under the SSP.

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

2.4.16 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 humane health risks and ecological concerns associated with this SSA. The SSP Report (Baker, 1998a) indicates that housekeeping activities are warranted for this site and could address the potential concerns raised by inorganic contamination.

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

2.5 CERCLA Process Activities

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

2.5.1 RI/FS Process

The RI/FS process is generally the longest step in investigating and remediating CERCLA sites. Figure 2-5 outlines the steps to remedial action under the RI/FS process. For the RI/FS, a full RI, Baseline Risk Assessment, and FS are completed, along with a Proposed Remedial Action Plan (PRAP) prior to the formal public comment period. After the public comments have been addressed as part of the Responsiveness Summary in the ROD, the ROD is placed in the Administrative Record. Subsequent to completion of the ROD, remedial design (RD) activities are initiated, followed by the implementation of the remedial action (RA).

Presumptive remedies also are part of the RI/FS process. Presumptive remedies apply to certain types of sites such as landfills which received a variety of waste types and where containment of these wastes is the preferred remedial alternative. Candidate sites for presumptive remedies should be identified early in the investigative process. Once identified, presumptive remedy sites follow the same general process as presented in Figure 3-1, but have streamlined RIs and FSs. Streamlined RI/FS documents evaluate the sites and site dynamics, evaluate risks, and bypass the initial screening and identification of remedial alternatives other than containment.

The FFA for WPNSTA Yorktown mandates the integration of the CERCLA Program with Station RCRA issues. The SSP was developed jointly by USEPA Region III, Commonwealth of Virginia, and the Navy to address RCRA SWMUs and AOCs in a manner consistent with the CERCLA process. RCRA SWMUs and AOCs have been designated as SSAs and are evaluated to determine whether significant contamination exists to warrant further investigative or remedial activities (Figure 2-6). If unacceptable human health risks or ecological risks do not exist, SSAs are recommended for no further action. If risks do exist, removal actions, interim actions, or additional RI/FS activities are proposed and the SSA becomes an IRP site.

2.5.2 Removal Actions

Removal actions are those actions taken to clean up or remove released hazardous substances from the environment. In addition, a removal action also may be implemented to mitigate, minimize, or prevent damage to human health and the environment from a release or threat of a release by limiting exposure to the hazardous substances (i.e., security fencing or access limitation). Removal actions are classified as either time-critical or non-time-critical. Time-critical removal actions are conducted when there is an imminent threat to human health and the environment, such as corroded drums of wastes that are leaking into groundwater. Non-time-critical removal actions are defined as actions that, based on the degree of potential risk to human health and/or the environment, may be delayed for six months or more before on-site cleanup is initiated.

All removal actions which occurred at WPNSTA Yorktown were classified as non-time-critical removal actions. A removal action may be completed any time during the RI/FS process; however,

it will often begin prior to the completion of the RI/FS to mitigate the spread of contamination. There are no removal actions currently planned at WPNSTA Yorktown.

Figure 2-7 shows the general process for non-time-critical removal actions. Rather than preparing an FS, an EE/CA is completed which focuses only on the substances to be removed and not on all potentially contaminated media (other contaminated media will be addressed as part of the RI/FS process). Because the scope of a removal action is typically smaller than a final, full-scale remedial action, the time frames for completion of the EE/CA, related design efforts, and implementation of the removal action are much shorter than for a full scale FS. The opportunity for public involvement is similar to the FS, with a public comment period and a Removal Action Memorandum completed to document the evaluation and choice of removal action procedures. It should be noted that a removal action may become the final remedial action if the risk screening/assessment results indicate that further remediation is not required for protection of human health and the environment. Where no further action is required at a site that has undergone a removal action, a no action ROD will be signed between the concerned parties in order to remove the site from the program.

2.5.3 Interim (Early) Remedial Actions

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

The early remedial action process is shown in Figure 2-8. Rather than preparing an FS, a Focused FS is completed, as is an early action ROD to document the activities to be performed. Design and implementation activities follow. It should be noted that an early remedial action may become the final remedial action if the risk screening/assessment results indicate that further remediation is not required for protection of human health and the environment.

2.5.4 Presumptive Remedies

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

2.5.5 Treatability Studies

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

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

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

2.6 Operable Units

A Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial action is often divided into Operable Units (OUs). As defined by the National Oil and Hazardous

Substance Contingency Plan (NCP), an OU means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, eliminates a release, mitigates a release, or threat of release, or pathway of exposure. OUs can address geographical portions of a site, specific site problems, or may consist of any set of actions over time or that are concurrent but located in different parts of a site. 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 IV

2.6.1 Operable Unit No. I (Site 5)

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

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

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

2.6.3 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 also was implemented.

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

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

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

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

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

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

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

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

2.6.8 Operable Unit No. VIII (Site 1 Soil)

Surface debris and arsenic contaminated soil (exceedances of 63 mg/kg) will be removed around monitoring wells 1GW12A, and 1GW12B. Surface soil will be removed to a depth of two feet. Excavated areas will be backfilled with clean fill. The existing soil cover at Site 1 will also be restored where needed. In addition, institutional controls will be implemented, since contaminants are not being removed to residential levels.

2.6.9 Operable Unit No. IX (Site 3 Soil)

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 will be removed. Surface soil will be removed to a depth of two feet. Excavated areas will be backfilled with clean fill and covered with six inches of topsoil.

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

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

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

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

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

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

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

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

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

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

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

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

3.0 COMMUNITY BACKGROUND

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

3.1 Community Demographics

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

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

3.1.1 Population

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

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

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

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

3.1.2 Employment

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

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

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

3.1.3 Proximity to Area Residents

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

3.1.4 Proximity to Schools or Playgrounds to the Site

Within the limits of the four-mile radius are the Yorktown High School, Intermediate and Elementary Schools.

3.1.5 Presence of Livestock, Crops, or Other Vegetation

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

3.1.6 Location of a Public Water Supply

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

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

Several unnamed ponds are used for fishing at the Station. The main surface water drainage receptors for NWS Yorktown, Felgates Creek and Indian Field Creek, are not thought to be used for

recreation. However, the York and James Rivers are heavily used for both commercial and recreational fishing and crabbing. Commercial and pleasure boat traffic is moderate along these rivers.

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

3.2 Community Involvement History

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

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

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

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

As part of the requirements of the Community Relations Program, community interviews were conducted from July 29 to August 1, 1991 by the Baker Environmental Community Relations

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

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

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

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

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

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

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

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

Since the initial community relations program was implemented in the late 1980s and early 1990s, regular community relations activities have been conducted to support the IR program. These activities have included fact sheets, brochures, and presentations to explain work at specific sites; regularly conducted RAB meetings; and public notices, public meetings, and a public comment period for applicable milestones at specific sites. Site tours and briefings have been conducted, as needed, primarily for RAB members. Because of the amount of information disseminated to the public, there has been virtually no conflict with the surrounding community. Public meetings attract

small groups of local residents and media interest has been sparse. All community relations activities are documented in the community relations section of the Administrative Record. The Administrative Record is located with The Information Repositories in on-base and community libraries. (Information repository locations are included in Appendix B.)

4.0 COMMUNITY RELATIONS PROGRAM

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

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

4.1 Goals and Objectives

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

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

The main objectives of the community relations program are to:

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

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

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

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

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

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

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

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

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

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

4.2 Responsibilities

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

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

1. NWS Yorktown, Virginia:

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

2. NWS Yorktown Public Affairs Officer (PAO):

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

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

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

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

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

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

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

3. Naval Facilities Engineering Command (NAVFACENGCOM):

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

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

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

4. United States Environmental Protection Agency (USEPA)

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

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

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

5. Virginia Department of Environmental Quality (VDEQ)

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

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

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

4.3 Communication Activities and Techniques

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

4.3.1 Agency Communication Techniques

As emphasized in USEPA guidance, effective communication between NWS Yorktown and state and federal regulatory agencies is necessary for a community relations program. These agencies must be updated to coordinate participation in the CRP. Previously, NWS Yorktown personnel and the agencies have met primarily for annual inspections and coordinated review of past IRP

documents. The following communication techniques should further improve agency/NWS Yorktown relationship and coordination with respect to the IRP.

1. Partnering Meetings

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

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

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

3. Telephone Conference Calls

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

4. News and Fact Sheet Releases

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

5. Prior Notice of Scheduled Public Meetings

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

6. Web Site

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

4.3.2 Local Community and Media Communication Techniques

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

1. Information Repositories

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

In addition to the Information Repositories, copies of the Administrative Record are maintained at these locations.

2. Fact Sheet/News Releases

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

3. Site Brochure

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

4. Site Slide Show Presentation

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

5. Special Briefings for Local Elected Officials

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

6. On-Site Tours

On-site tours are valuable in presenting a realistic view of the sites and fostering a better understanding of the investigation and remediation methods offered. In order to facilitate the time and energy involved with tours, one main tour will be arranged for the media, elected and civic, state and local officials, and community group leaders.

7. Community Meeting

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

8. Web Site

The project-specific web site will include material that is geared toward the media. Local media representatives will be notified when the site is available.

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

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

1. Commander's Weekly Staff Meeting

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

2. NWS Yorktown Information Repository

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

3. The Booster

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

5.0 SUMMARY

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

6.0 REFERENCES AND SOURCES

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

Baker Environmental, Inc. 1998a. Site Screening Process Report for Site Screening Areas 3, 4, 5, 9, 10, 11, 20, 21, 22, 23, and 24, Naval Weapons Station Yorktown, Yorktown, Virginia. May 1998.

Baker Environmental, Inc. 1998b. Site Management Plan, Naval Weapons Station Yorktown, Yorktown, Virginia. January 1998.

Baker Environmental, Inc. 1997. Site Screening Process Report for Site Screening Areas 8, 11, 12, and 13, Naval Weapons Station Yorktown, Yorktown, Virginia. July 1997.

Baker Environmental, Inc. 1995. Final Assessment Report for Site Screening Area 12, Proposed Location of P-518, Automotive Vehicle Maintenance Shop, Naval Weapons Station Yorktown, Yorktown, Virginia. September 1995.

Baker Environmental, Inc. and Roy F. Weston, Inc. 1993a. Final Round One Remedial Investigation, Sites 1-9, 11, 12, 16-19, and 21, Naval Weapons Station Yorktown, Yorktown, Virginia. July 1993.

Baker Environmental, Inc. and Roy F. Weston, Inc. 1993b. Focused Biological Sampling and Preliminary Risk Evaluation, Naval Weapons Station Yorktown, Yorktown, Virginia. April 1993.

Baker Environmental, Inc. and Roy F. Weston, Inc. 1992. Draft Final Site Inspection Report, Site 21, Battery and Drum Disposal Area, Naval Weapons Station Yorktown, Yorktown, Virginia. February 1992.

Baker Environmental, Inc. 1991. New HRS Deficiency Information Collection Efforts, Naval Weapons Station Yorktown, Yorktown, Virginia. April 1991.

C.C. Johnson & Associates, Inc. and CH2M Hill. 1984. Initial Assessment Study of Naval Weapons Station Yorktown, Yorktown, Virginia. July 1984.

Dames & Moore. 1989. Draft Remedial Investigation Interim Report, Naval Weapons Station, Yorktown, Virginia. February 1989.

Dames & Moore. 1988. Confirmation Study Step 1A (Verification), Round Two, Naval Weapons Station Yorktown, Yorktown, Virginia. June 1988.

Dames & Moore. 1986. Confirmation Study Step 1A (Verification), Round One, Naval Weapons Station Yorktown, Yorktown, Virginia. June 1986.

Department of the Navy. 1991. Master Plan, U.S. Naval Weapons Station Yorktown, Yorktown, Virginia.

Hampton Roads Planning District Commission. 1991. Hampton Roads Reviews, Second and Third Quarters. 1991.

Kearney/Centaur Division. 1992. RCRA Solid Waste Management Unit Investigation, Naval Weapons Station - Yorktown. December 1992.

NEESA. 1984. Initial Assessment Study of Naval Weapons Station, Yorktown, Virginia. July 1984.

OHM Remediation Services Corp. 1997. Final Report for Field Scale Treatability Study, Naval Weapons Station Yorktown, Yorktown, Virginia. April 1997.

United States Environmental Protection Agency. 1992a. RCRA Solid Waste Management Unit Investigation, Naval Weapons Station - Yorktown. Submitted by Kearney/Centaur Division, A. T. Kearney, Inc. New York, New York. December 1992.

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

York County Planning Commission, 1990. County of York, Virginia: Demographic Profile and Projection. A Report of the York County Comprehensive Plan. January 1990.

TABLES

TABLE 3-1

YORK COUNTY AT A GLANCE

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

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

TABLE 5-1

SUGGESTED COMMUNITY RELATIONS ACTIVITIES SCHEDULE FOR WPNSTA YORKTOWN

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

TABLE 5-1 *(Continued)*

SUGGESTED COMMUNITY RELATIONS ACTIVITIES SCHEDULE FOR WPNSTA YORKTOWN

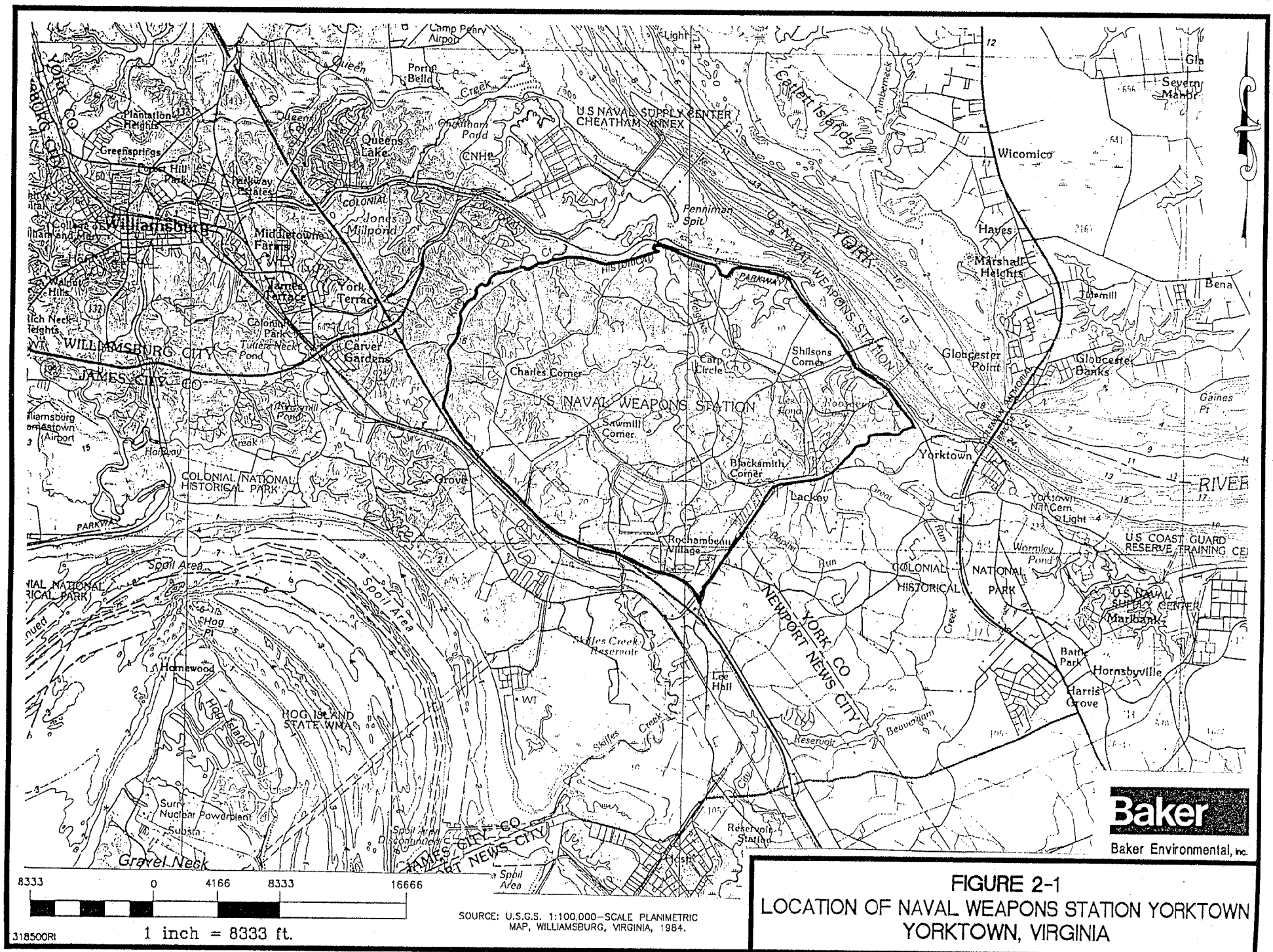
Phase of Remedial Action	Suggested Activity	Navy Responsibility	Baker Responsibility
	Prepare a site slide show	Review and comment on draft slide show; approve final slide show; present slide show to interested parties or at public meeting.	Prepare draft slide show featuring IRP process, site history,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

TABLE 5-1 *(Continued)*

SUGGESTED COMMUNITY RELATIONS ACTIVITIES SCHEDULE FOR WPNSTA YORKTOWN

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

FIGURES



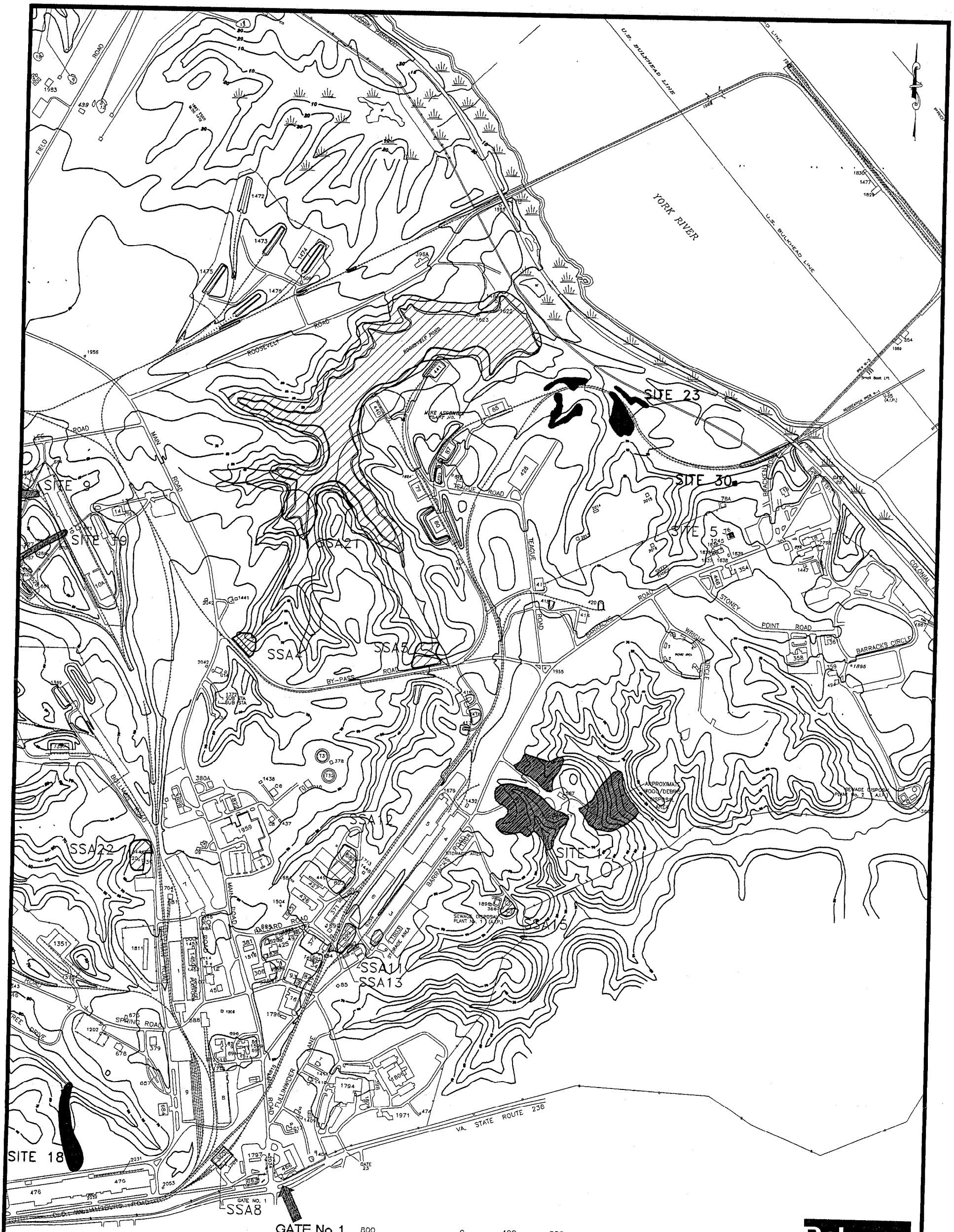
8333 0 4166 8333 16666

1 inch = 8333 ft.

318500RI

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

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



SOURCE OF BASE MAPPING: LANTDIV, APRIL 1996.
2035687W

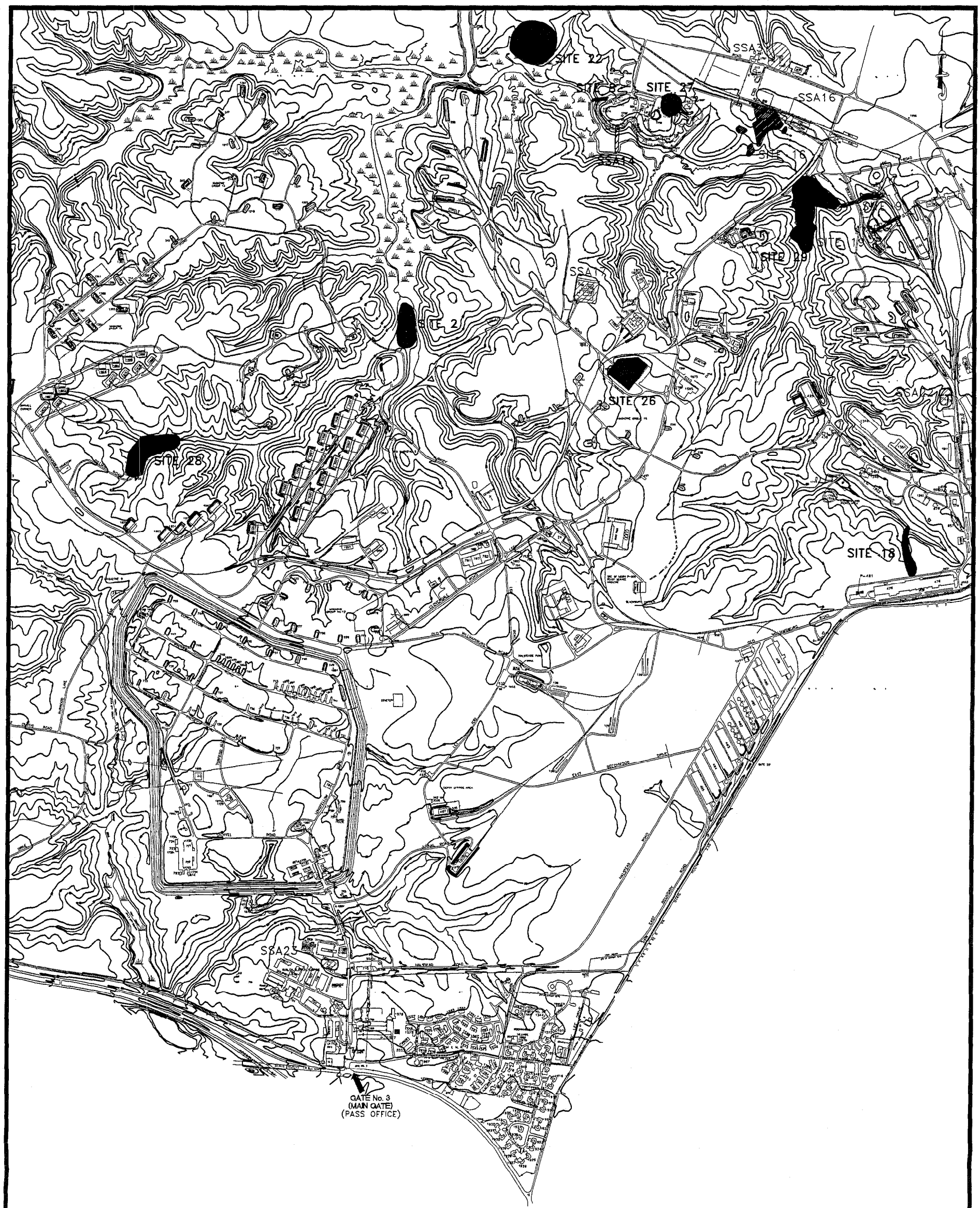
Baker
Baker Environmental, Inc.

LEGEND

- SSA IN PROGRESS
- SITE IN PROGRESS
- SSA COMPLETE
- SITE COMPLETE

FIGURE 2-2
LOCATION OF SITES AND SSAS
NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA

01766IB1Z



SOURCE OF BASE MAPPING: LANTDIV, APRIL 1996.

1500 0 750 1500

1 inch = 1500 ft.

2035689W

Baker

Baker Environmental, Inc.

LEGEND

- SSA IN PROGRESS
- SITE IN PROGRESS
- SSA COMPLETE
- SITE COMPLETE

FIGURE 2-3
LOCATION OF SITES AND SSAS
NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA

LEGEND

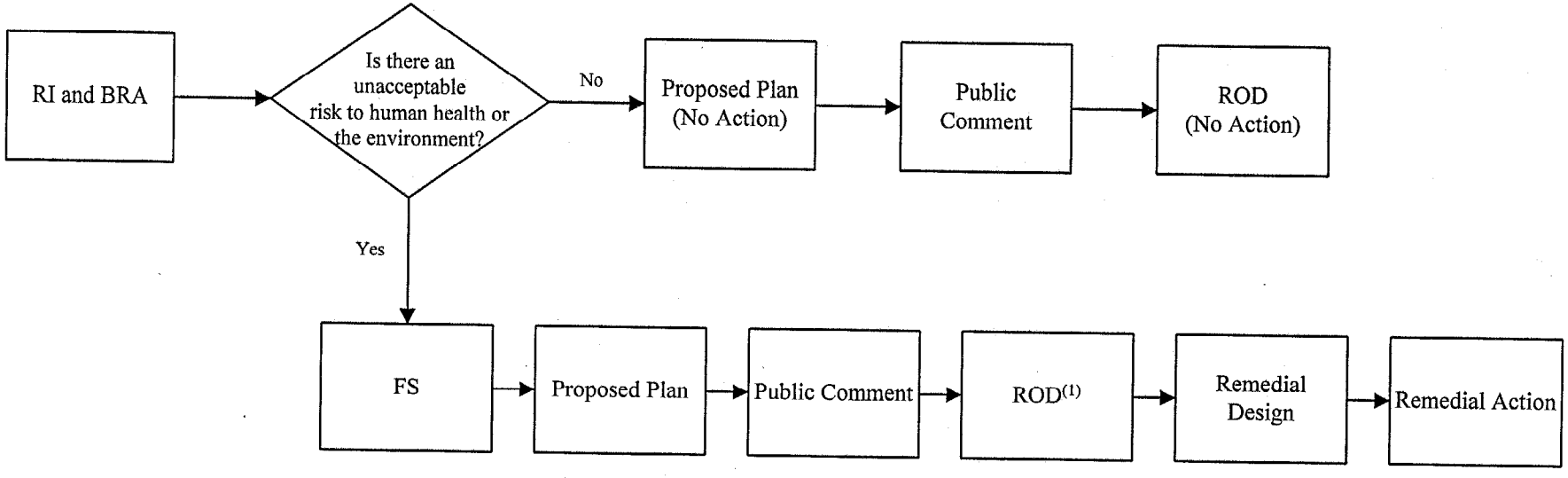
- SSA IN PROGRESS
- SITE IN PROGRESS
- SSA COMPLETE
- SITE COMPLETE

SOURCE OF BASE MAPPING: LANTDIV, 1996.

FIGURE 2-4
LOCATION OF SITES AND SSAS
NAVAL WEAPONS STATION YORKTOWN
YORKTOWN, VIRGINIA

FIGURE 2-5

RI/FS PROCESS

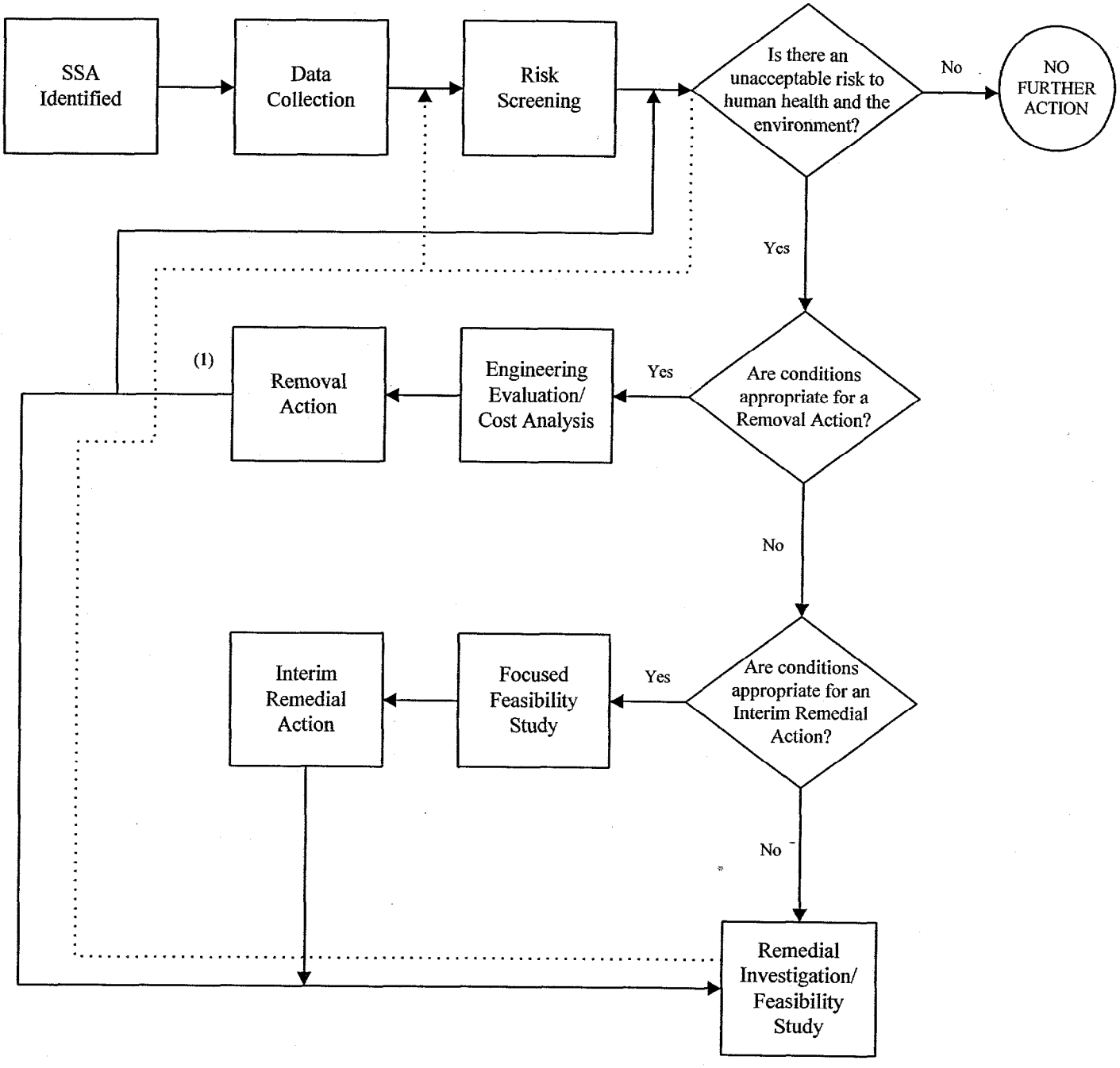


RI = Remedial Investigation
BRA = Baseline Risk Assessment
FS = Feasibility Study
ROD = Record of Decision (including Responsiveness Summary)

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

FIGURE 2-6

KEY DECISION POINTS DURING THE SITE SCREENING PROCESS

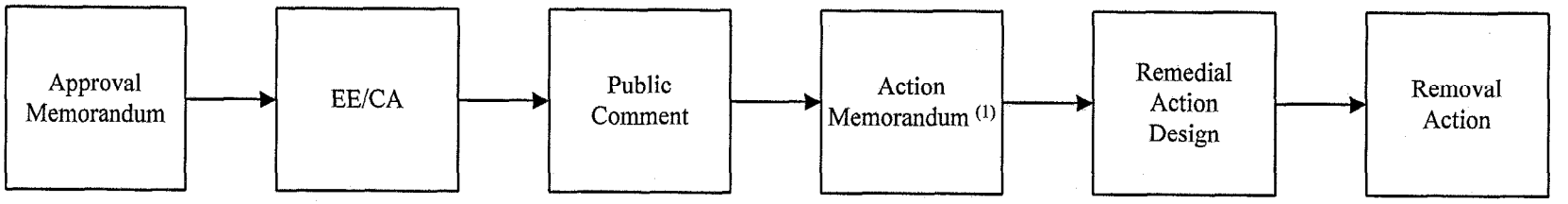


Note:

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

FIGURE 2-7

NON-TIME-CRITICAL REMOVAL ACTION PROCESS

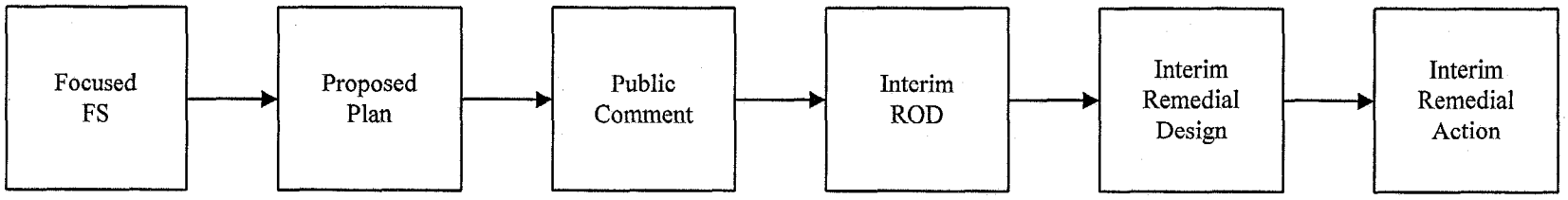


EE/CA = Engineering Evaluation/Cost Analysis

(1) Includes Responsiveness Summary to Public Comment

FIGURE 2-8

INTERIM REMEDIAL ACTION PROCESS



FS = Feasibility Study
ROD = Record of Decision

APPENDIX A
COMMUNITY INTERVIEWS

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

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

DATE: 7-22-91

CONTRACT NO.: N62470-89-D-4814

To: Steve Williams

Repres.: Water Control Board

Phone No.: (804) 527-5206

From: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

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

Marsha Hunter

(804) 527-5194

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

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

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

DATE: 7-25-91

CONTRACT NO.: N62470-89-D-4814

To: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

From: Richard Strauss

Repres.: Va. Dept. of Waste Management

Phone No.: (804) 225-2667

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

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

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

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

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

DATE: 7-22-91

CONTRACT NO.: N62470-89-D-4814

To: Marsha Hunter

Repres.: Water Pollution Control Board

Phone No.: (804) 527-5194

From: Melissa Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

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

In Richmond, VA -- their office.

Manipulate data on database to search for any complaints.

If we have time, I'll pursue.

3:10 p.m.

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

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

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

DATE: 7-22-91

CONTRACT NO.: N62470-89-D-4814

To: Ken Pinzel

Repres.: State Air Board

Phone No.: (804) 424-6707

From: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

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

2:30 p.m.

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

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

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

DATE: 7-25-91

CONTRACT NO.: N62470-89-D-4814

To: Jamie Walters

Repres.: Va. Dept. of Waste Management

Phone No.: (804) 225-2903

From: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

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

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

11:15 a.m.

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

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

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

DATE: 7-22-91

CONTRACT NO.: N62470-89-D-4814

To: Bob Thompson

Repres.: EPA Region III

Phone No.: (215) 597-7858

From: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

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

His total files: IAS 1984

Dames & Moore Interim

HRS '91

Photo Album

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

10:30 a.m.

PREPARED BY Melissa C. Davidson TITLE Community Relations Specialist

BAKER ENVIRONMENTAL, INC.

PHONE CALL REPORT

PROJECT/LOCATION: Yorktown NAVWPNSTA, Yorktown, VA

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

DATE: 7-22-91

CONTRACT NO.: N62470-89-D-4814

To: Ann Field

Repres.: Va. Dept. of Waste Management

Phone No.: (804) 371-8713

From: Melissa C. Davidson

Repres.: Baker - Navy CLEAN

Phone No.: (412) 269-2020

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

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

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

Very helpful references.

11:00 a.m.

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

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

(1) How long have you lived here?

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

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

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

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

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

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

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

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

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

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

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

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

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John Carl, Public Information Officer
Jim Funk, Board of Supervisors
Jim Dishner, Fire Department
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Shirley Cooper, York County
Harvey Morgan, Gloucester County

Victory Center

Nancy Perry, Director

Watermen's Museum

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Weapons Station Residents

Cdr. T.B. Stark, Executive Officer
Cdr. John Kotz, Public Works Officer
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Lackey Residents

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Will Molineux, Editor
Sid Dixon, Chesapeake Bay Foundation, York County Chapter
Danny Stuck, York County Administrator
Charles Barbour, Candidate, Virginia House of Delegates
Mark Herzog, Campaign Manager

APPENDIX B
INFORMATION REPOSITORY LOCATIONS

APPENDIX B
Information Repository Locations

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

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

Newport News City Public Library
Grissom Branch (757) 886-7896
366 Deshazor Drive
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Naval Weapons Station Yorktown
Environmental Directorate
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APPENDIX C
RAB MEMBERS

NAVAL WEAPONS STATION YORKTOWN
RESTORATION ADVISORY BOARD

Revised 3/9/99

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