

BEAUFORT MARINE CORPS AIR STATION

BEAUFORT, SOUTH CAROLINA



Engineering Field Division/Activity: SOUTH DIV
Major Claimant: CMC
Size: 6,676 Acres
Funding to Date: \$2,314,000
Estimated Funding to Complete: \$17,442,000

Base Mission: Provides operations, logistics and administrative support to the Fleet Marine Forces tenant units

Contaminants: Jet fuel waste oils, hydraulic fluids, antifreeze, solvents, pesticides/herbicides, paint, paint thinners and strippers, mercury amalgam, asbestos, sludge

Number of Sites:		Relative Risk Ranking of Sites:		
CERCLA:	22	High:	2	Not Evaluated:
RCRA Corrective Action:	14	Medium:	13	Not Required:
RCRA UST:	5	Low:	8	16
Total Sites:	41			

Sites Response Complete: 16

PROGRESS AND PLANS

CERCLA	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
PA / SI	20							1
RI / FS								6
RD								3
RAC								3
RAO								
IRA								
RC	16							6
Cumulative % RC	73%	73%	73%	73%	73%	73%	73%	100%
RCRA CA	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
RFA	12							2
RFI / CMS							1	11
DES								7
CMI								7
CMO								
IRA								
RC								14
Cumulative % RC	0%	0%	0%	0%	0%	0%	0%	100%
UST	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
SA	5							
CAP	1	2	2					
DES	1							1
IMP			2					2
IMO								1
IRA	1(2)			1(1)			1(1)	2(3)
RC			1					4
Cumulative % RC	0%	0%	20%	20%	20%	20%	20%	100%

CHARLESTON NAVAL COMPLEX

CHARLESTON, SOUTH CAROLINA



Engineering Field Division/Activity: SOUTHDIV
Major Claimant: COMNAVFACENGCOM/CNET/COMNAVRESFOR
Size: 2,879 Acres
Funding to Date: \$38,398,000
Estimated Funding to Complete: \$37,127,000

Base Mission: Provided support and supplies for assigned ships, drydocking, research and test work, and training

Contaminants: Asbestos, organic compounds, cyanide, decontaminating agents, paint, PCBs, POLs, solvents, heavy metals, pesticides, chemical agents

Number of Sites:		Relative Risk Ranking of Sites:			
CERCLA:	0	High:	30	Not Evaluated:	8
RCRA Corrective Action:	115	Medium:	64	Not Required:	3
RCRA UST:	7	Low:	17		
Total Sites:	122				

BRAC III, IV

Sites Response Complete: 3

EXECUTIVE SUMMARY

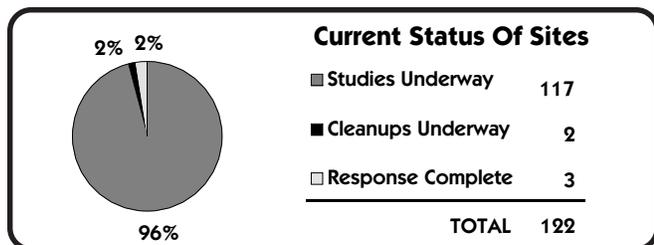
The Charleston Naval Complex is located on the west bank of the Cooper River about 5 miles north of Charleston, South Carolina. There are multiple Naval commands located on the complex: Naval Shipyard (NSY), Naval Station (NS), Naval Fleet and Industrial Supply Center (FISC), Fleet and Mine Warfare Training Center (FMWTC), and the Naval Reserve Center (NRC) (which is not a closing facility) and several other small organizations. The property and the majority of the commands were slated for closure by the Base Realignment and Closure (BRAC) commission in 1993, except for the FISC, which was closed by the BRAC commission in 1995. Operational closure of the base was completed on 01 April 1996. In support of the various missions of the multiple commands, typical operations on the complex which contributed to contaminated sites included welding shops, machining shops, metal shops, electrical and electronics shops, painting and sandblasting shops, chemical treatment shops, public works shops, photographic and printing shops, firefighting training areas, medical and dental clinics, storage of supplies, materials and fuels, and treatment and disposal of waste waters and solid wastes. In the early 1980's, the Navy changed its operational processes to prevent further contamination. The primary sites of concern are areas that were used as landfills or disposal pits without controls for runoff and leachate. The area, originally a tidal marsh, drains to groundwater and nearby wetlands areas, therefore providing a pathway through which contaminants could migrate. The wetlands, high water table, known surface soil contamination and potential for personnel exposure were the primary cause for the high-ranked sites in the Relative Risk Site Evaluation. The facility was granted a RCRA Part B permit in 1990 which contains legal requirements for remediation of past releases.

The complex is surrounded by commercial, industrial and residential areas. Due to its location on the river's edge, it is also surrounded by diverse ecosystems. There are many wetlands and tidal marsh areas with a great variety of aquatic life as well as plants, birds and animals. The nearby waterways are sources for fishing and recreational use. The water

table is within 3 to 7 feet of the ground surface which increases the possibilities for contaminant migration. The shallow aquifers are not a practical source of drinking water due to the high levels of dissolved solids and chlorides. The deeper aquifers are protected by a thick layer of impermeable clay. Drinking water supplies for this area are from surface water sources some distance from the base.

The complex has been divided into 12 zones to manage the restoration program efficiently. There are 115 RCRA SWMUs and 7 USTs on the complex. The NS has 54 SWMUs and 3 USTs (1 RC), the NSY has 39 SWMUs, and the FISC has 22 SWMUs and 2 USTs. The remaining two UST sites are RC with one on FMWTC and the other is on NRC. These sites are within the first ten zones. The first ten zones also include hundreds of AOC undergoing confirmatory sampling. Zones J and L which are currently under RFI stage are the waterside areas and the sanitary sewer system which may include contamination from any site or AOC. The UST sites are being remediated under the RCRA UST program. The NRC site and one FISC UST site have completed the cleanup. Two sites, UST 7 at FISC and UST 1 on FMWTC have cleanup underway. The tank program includes 141 tanks. 54 have been removed and the remaining are scheduled for removal in FY97 and FY98.

The establishment of the Shipyard Detachment, consisting of former shipyard engineers, technicians and production workers, has greatly accelerated the cleanup process at the Charleston Naval Complex. The Detachment has been involved in tank removals, asbestos abatement, process closures, groundwater monitoring, soil sampling, waste management, site surveying and remediation activities. The Detachment is providing support in other areas relating to property transfer in the development of lease specific Environmental Baseline Surveys (EBSLs). The community members on the Restoration Advisory Board have been highly supportive of the Navy to continue to employ these members of the community to allow many of them to complete their service with the Navy by continued service in installation restoration.



CHARLESTON NAVAL COMPLEX RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - The base is located on the west side of the Cooper River which flows on the east side of the town of Charleston, South Carolina. The eastern bank is undeveloped and contains extensive wetlands along Clouter Creek and Thomas Island. The Naval facilities that comprise the base are located on the western bank of the Cooper River. Much of the base is situated on dredge spoils that were used as fill in the low-lying tidal marsh areas by several small creeks. All surface drainage is directly into Cooper River. The Cooper River flows into the Charleston Harbor which eventually flows to the Atlantic Ocean. Most potable water in the Charleston area comes from surface water sources. There are two aquifers underlying the area, one of which is used as an industrial water source. All shallow groundwater aquifers under the base (water table at 3 to 7 feet) drain to the Cooper River. Pathways exist for contaminants to migrate via surface water runoff and via infiltration into the shallow aquifer to sensitive ecosystems downstream. Dredging in the navigable waterways and the Naval Base docking berths dumps potentially contaminated dredge spoils into nearby wetlands and wildlife habitats. From the 1930's to the early 1970's, these dredge spoils were used to fill in swampy areas on the base. Several large areas of the base are built on dredge spoils.



NATURAL RESOURCES - The wildlife of this area is diverse and includes terrestrial, aquatic, and marine mammals, numerous resident and migratory inland and coastal birds, and a great variety of reptiles and amphibians. Finfish and shellfish are abundant in the estuarine water of the Cooper River, Wando River, and Charleston Harbor. A survey of both Federal and State protected species included twelve animal and one plant species listed as endangered or threatened in the area. The bodies of water in the area are resources used for recreational fishing and collection of shellfish. The area has numerous salt marshes and wetlands. There is 1 archaeological site and 114 historical buildings in 3 historic districts. There are also 4 individual eligible structures. A Programmatic Agreement is in effect with the State and the Advisory Council on Historic Preservation.



RISK - A Baseline Risk Assessment for Human Health and an Ecological Risk assessment will be done by zone in accordance with EPA guidance when the appropriate data has been collected. A major difficulty was encountered in trying to determine background levels of metals for comparison to site data due to the many historical layers of dredge spoils underlying the base. With the cooperation of the EPA, a statistical methodology was developed to establish background levels, a supporting sampling plan designed, and sampling is underway. The Ecological Risk Assessment is being conducted in phases. A preliminary assessment has been done including habitat evaluation, biological inventory, migration route and exposure route determinations. As site sampling data becomes available, the risk assessment will go on to the next phase. Using the DOD Relative Risk Ranking Model 30 sites were ranked as high relative risk. The high rankings are primarily due to known contamination on the sites and the migration potential to the nearby wetlands or exposure of on-site personnel through direct contact with both the soil and the near surface groundwater table.

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - The Hazard Ranking System (HRS) score of 52 for the complex would normally place the base on the National Priorities List (NPL). Since there was no advantage to be gained under CERCLA compared to the Corrective Action program already underway under RCRA, the BRAC Cleanup Team (BCT), including the regulatory agencies, agreed there was no reason to pursue the CERCLA NPL listing. A Compliance Order was issued in 1992 to close Solid Waste Management Unit (SWMU) 25, a plating facility. The tanks and waste were removed and the facility closed in 1993.



LEGAL AGREEMENTS - The compliance actions are dictated by the RCRA Part B Permit rather than a Federal Facility Agreement (FFA). The permit was signed on 5 June 1990. As a condition of the permit, Installation Restoration (IR) program cleanups are done as RCRA Corrective Action under the Hazardous and Solid Waste Amendments (HSWA) portion of the permit. A Corrective Action Management Plan (CAMP) was prepared to provide a compliance schedule including start and completion dates for various phases and submittal dates for documents. Efforts to renegotiate the CAMP schedules were successful and a new CAMP schedule was established in March 1996.



PARTNERING - The EPA and the South Carolina Department of Health and Environmental Control (SCDHEC) have participated in the partnering efforts sponsored by the Navy. Discussions are underway to identify problem areas and ideas for improvement. This partnering effort includes the regulatory agencies, the BRAC Cleanup Team and outside agencies and organizations involved in cleanup decisions.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was formed in the late 1980's and met quarterly. The TRC was converted to a Restoration Advisory Board (RAB) in March 1994. The RAB has 24 members who represent the Navy, EPA, SCDHEC, natural resource trustees, community members and academia. The RAB meets monthly, and has had presentations on the environmental restoration process and soil sampling demonstrations from local experts. Two site visits have been conducted and several public meetings held. Of major concern to the public is the level of cleanup — how clean the Navy is going to leave the property after it closes.



COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was first published in the late 1980's. The CRP was updated in February 1993 to include the recently added Solid Waste Management Units (SWMUs). The CRP was revised in November 1995 to incorporate the establishment of the RAB. The RAB participated in creating seven Fact Sheets that have been distributed.



INFORMATION REPOSITORY - Although an Administrative Record (official file) is not required under RCRA. An Information Repository (public information source) has been created and is being updated with the latest documents that are relevant to the cleanup and transfer of any property on the complex. The repository is located at the Dorchester Road Regional Branch of the Charleston County Library in North Charleston, SC.

BASE REALIGNMENT AND CLOSURE



BRAC - There are multiple Navy activities on the complex. Four of the largest activities were listed for closure by the 1993 Base Realignment and Closure (BRAC) Commission: The Shipyard, Naval Station, Fleet and Industrial Supply Center, and the Fleet and Mine Warfare Training Center. Operations on the complex ceased on 01 April 1996 with the complex to be transferred sometime after that, depending on the cleanup schedule. Southern Division of the Naval Facilities Engineering Command is the cognizant caretaker for the base.



BRAC CLEANUP TEAM - A BRAC Cleanup Team (BCT) was formed in November 1993. The team members are representatives from the Navy, State of South Carolina and EPA Region IV. The BCT has been instrumental in accelerating the cleanup program by providing a decision-making group on site. The team holds regular meetings to discuss documents, resolve problems and review status of the cleanup efforts.

CHARLESTON NAVAL COMPLEX RELEVANT ISSUES



DOCUMENTS - A BRAC Business Plan was prepared in March 1996. The BRAC Business Plan was done in lieu of updating the BRAC Cleanup Plan (BCP). The Business Plan outlines the environmental restoration status, strategies and goals pertaining to the cleanup of Naval Base Charleston. An Environmental Baseline Survey (EBS) was completed in January 1996 and is currently under review by the regulators. It has been delayed due to radiological issues. In the EBS, the Environmental Condition of Property was assessed according to DOD and American Society for Testing and Materials (ASTM) guidelines.

Environmental Conditions of Property Classification						
1	2	3	4	5	6	7
0 acres	0 acres	0 acres	0 acres	29 acres	605 acres	2,246 acres



LEASE/TRANSFER - Findings Of Suitability to Lease (FOSL) have been completed for 472 facilities at Naval Base Charleston. FOSLs for an additional 231 facilities are currently being prepared. No Findings of Suitability to Transfer (FOST) have been completed to date. The Federal to Federal transfer of property (no FOST is necessary for fed to fed) at Naval Base Charleston to the National Oceanic and Atmospheric Administration (NOAA), the State Department, the United States Coast Guard, the United States Marine Corps, Naval Command Control and Ocean Surveillance Center In Service Engineering - East (NISE-East), and the United States Army Corps of Engineers involving over 1400 acres has taken place. The majority of the former controlled industrial area of the shipyard has been leased by three manufacturing and ship repair companies. There are several other private

businesses that are leasing facilities at the base. Several of the local governmental agencies are also leasing facilities on the base. The Border Patrol has set up an academy on the base for the training of Border Patrol and Immigration and Naturalization Service agents. The National Community Civilian Corps (NCCC) is also located on the base. The Defense Financial Accounting Service (DFAS) and the Defense Printing Services Detachment Office (DPSDO) are using facilities on the base.



REUSE - A local reuse committee was formed and called "BEST" which stands for Building Economic Solutions Together. This committee was established by the governor and includes local residents, government agencies, schools and businesses to identify potential reuse options. A second reuse group, the Charleston Naval Complex Redevelopment Authority (CNCRA) is a state agency. The Community Reuse Plan was approved in June 1994 and an Environmental Impact Statement (EIS) survey has been completed with the Record of Decision being signed on 07 May 96. Initial reuse plans include a privately-owned commercial shipyard, public recreational facilities and other community and commercial uses.



FAST TRACK INITIATIVES - One of the primary fast-track efforts is to shorten document review time. By working closely with the regulatory agencies and the public, and through the partnering agreement being established, the cleanup process is expected to proceed as quickly as possible. In the field, the Rotosonic drilling process for monitoring well installation has contributed to a fast-track investigation of sites by reducing installation time and reducing the volume of wastes generated. This technology has been in use at the complex since FY95.

HISTORICAL PROGRESS

FY83

Sites 1-8 The Initial Assessment Study, equivalent to a Preliminary Assessment (PA) was completed which identified 8 potential CERCLA sites (Sites 1-8). This study recommended all eight sites for a Confirmation Study, equivalent to an Site Inspection (SI).

FY88

UST 7 (FISC) - The Initial Site Characterization (ISC) was completed.

FY90

UST 7 (FISC) - The Corrective Action Plan (CAP) was completed.

FY92

USTs 1 and 2 (NS) - Five tanks were removed from the two Underground Storage Tank (UST) sites and the Initial Site Characterization was completed.

FY93

UST 3 (NS) - The ISC phase was completed.
UST 1 (FISC) - The ISC was completed.

FY94

All Sites and SWMUs - The RCRA Facility Assessment (RFA) started in January for all sites on the Naval complex.

Sites 1 and 5, SWMUs 13-17, 19, 20, 44, 47, 121, 136, 138, 159, 177, 178, 503, 516, 653, 655, 656, 662, 667, 670, 677, 681, 684, 689, 690 and 700 (NS) - The RCRA Facility Investigation (RFI) phase began.

Sites 3 and 8 (FISC) - The RFI phase began.

UST 1 (NS) - The CAP was completed.

UST 1 (FISC) - The Implementation of Corrective Action (groundwater monitoring) was completed. The site is considered to be Response Complete.

FY95

RFA was completed on 48 SWMUs.

SWMUs (NSY) - The RFI started for the SWMUs.

SWMUs (FISC) - The RFI began for all SWMUs.

SWMUs 4, 36, 37, 109, 504, 556, 607, 609, 613, 620, 621, 691, 692 and 699 (NS) - The RFI phase was started.

UST 2 (NS) - The Contamination Assessment was nearing completion.

UST 7 (FISC) - The Implementation of Corrective Action is underway. Bioremediation was the corrective action used.

PROGRESS DURING FISCAL YEAR 1996

FY96

SWMUs 635, 659 and 678 - The RFA was completed. Environmental Impact Statement (EIS) survey has been completed with the Record of Decision being signed on 07 May 96. BCP was modified. EBS still not approved due to review delays.

UST 1 (NS) - Completed 1 IRA and began 2 IRAs, which will include removal of contaminated soil, groundwater treatment and bioremediation.

UST 2 (NS) - CAP was completed.

UST (Removals) - Fifty-four USTs were removed in FY96.

**CHARLESTON NAVAL COMPLEX
PLANS FOR FISCAL YEARS 1997 AND 1998**

FY97

EBS to be approved.
 SWMUs 4, 6-8, 11-17, 19, 20, 24, 38, 120, 505, 624, 626, 627, 631, 637, 642, 692, 36, 37, 44, 47, 109, 121, 136, 138, 159, 162, 175, 177, 178, 503, 504, 556, 607, 609, 613, 620, 621, 653, 655, 656, 662, 663, 666, 667, 670, 677, 681, 684, 685, 689-692 and 698-700 - RFA will be complete for these 64 sites.
 SWMUs 3, 4, 6, 8, 9, 12-17, 19, 20, 24, 36-38, 44, 47, 109, 136, 138, 159, 175, 177, 178, 503, 505, 516, 607, 609, 613, 620, 621, 624, 626, 627, 631, 635, 637, 642, 653, 655, 656, 659, 662, 663, 666, 667, 677, 678, 681, 684, 685, 689, 690, 692 and 698-700 - RFI/CMS will be complete for these 60 sites.
 SWMUs 9, 13, 14, 17, 21, 83, 605, 653, 655, 656, 659 and 697 - The Design will be complete for these 12 sites.
 SWMU 17 - The CMI will be complete.
 SWMUs 12, 16, 24, 120, 175, 637 and 692 - These 7 sites will be RC.
 UST 1 (NS) - Complete the SA. Complete the CAP. Complete the RD. Begin the IMP.
 UST 2 (NS) - The Design and IMP will be completed. IRAs will continue
 UST 3 (NS) - The SA will be completed. The Design and IMP will be complete. LTO will begin.
 UST (Removals) - Fifty USTs are scheduled for removal in FY97.

FY98

SWMUs 1, 2, 5, 7, 11, 18, 21-23, 25, 39, 42, 43, 53, 54, 65, 70, 83, 84, 100, 102, 106, 121, 145, 172, 188, 504, 525, 526, 538, 539, 540, 544, 549, 556, 559, 561, 569-574, 578, 583, 590, 598, 603, 605, 670, 691, 692 and 694 - The RFI/CMS for these 53 sites will be completed.
 SWMUs 1, 4, 5, 15, 18, 20, 22, 23, 37-39, 42, 44, 53, 65, 70, 84, 109, 121, 136, 138, 159, 177, 178, 505, 631, 662, 663, 666, 667, 684, 685, 689, 690 and 700 - The Designs for these 35 sites will be completed.
 SWMUs 21, 605, 653, 655, 656, 662, 666, 667, 677 and 700 - The CMI for these 10 sites will be completed.
 SWMUs 53, 65, 70 and 84 - IRAs to be completed.
 SWMUs 21, 43, 605, 653, 655, 656, 662, 666, 677, 691, 692 and 700 - These 12 sites will go RC.
 UST 3 (NS) - The CAP will be completed.
 UST 1 (NS) - The IMP will be completed.
 USTs 1 and 2 - A total of 4 IRAs will be completed. 2 at each UST site.
 UST (Removals)- The remaining 37 identified USTs will be removed.

PROGRESS AND PLANS

RCRA CA	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
RFA	48	3	64					
RFI / CMS			60	53				
DES			12	35	35	15	7	
CMI			1	10	18	38	16	21
CMO						1		3
IRA				4(4)	11(11)	1(1)		
RC			7	12	20	37	16	23
Cumulative % RC	0%	0%	6%	17%	34%	66%	80%	100%
UST	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
SA	5		2					
CAP	3	1	1	1				
DES			3					
IMP	2		2	1		1		
IMO								3
IRA	2(3)	1(1)		2(4)				
RC	3					1		3
Cumulative % RC	43%	43%	43%	43%	43%	57%	57%	100%

CHARLESTON NAVAL WEAPONS STATION

CHARLESTON, SOUTH CAROLINA



Engineering Field Division/Activity: SOUTHDIV
Major Claimant: COMNAVSEASYSOM
Size: 16,668 Acres
Funding to Date: \$8,783,000
Estimated Funding to Complete: \$37,070,000

Base Mission: Provides assigned weapons and weapon systems; supports fleet and shore activities with guided missiles, conventional ammunition, torpedoes and other underwater weapons

Contaminants: Waste oils, solvents, unexploded ordnance, TNT, black powder, primer materials, pesticides, sludges, paint residues, laboratory chemicals, PCBs, metals, POLs

Number of Sites:		Relative Risk Ranking of Sites:			
CERCLA:	4	High:	5	Not Evaluated:	1
RCRA Corrective Action:	33	Medium:	14	Not Required:	11
RCRA UST:	3	Low:	9		
Total Sites:	40				

Sites Response Complete: 11

PROGRESS AND PLANS

CERCLA	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
PA / SI	4							
RI / FS								1
RD								
RAC								
RAO								
IRA								
RC	3							1
Cumulative % RC	75%	75%	75%	75%	75%	75%	75%	100%
RCRA CA	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
RFA	24	2	1					
RFI / CMS	1		1	10		2		12
DES	1	1						15
CMI	1							7
CMO								1
IRA	2(2)		1(1)					1(1)
RC	7		1	5	2			18
Cumulative % RC	21%	21%	24%	39%	45%	45%	45%	100%
UST	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
SA	3							
CAP	2	1						
DES								
IMP					1			1
IMO								
IRA					1(1)			1(1)
RC	1				1			1
Cumulative % RC	33%	33%	33%	33%	67%	67%	67%	100%

PARRIS ISLAND MARINE CORPS RECRUIT DEPOT

PARRIS ISLAND, SOUTH CAROLINA



Engineering Field Division/Activity: SOUTHDIV
Major Claimant: CMC
Size: 8,043 Acres
Funding to Date: \$3,489,000
Estimated Funding to Complete: \$19,181,000

Base Mission: Provides basic and combat training of enlisted personnel upon their first entry into the Marine Corps
Contaminants: Industrial wastes, pesticides, paint, POLs, PCBs, solvents, ordnance compounds, metals, acids, electrolyte

Number of Sites:		Relative Risk Ranking of Sites:		
CERCLA:	17	High:	9	Not Evaluated: 0
RCRA Corrective Action:	0	Medium:	2	Not Required: 9
RCRA UST:	8	Low:	5	
Total Sites:	25			



Sites Response Complete: 9

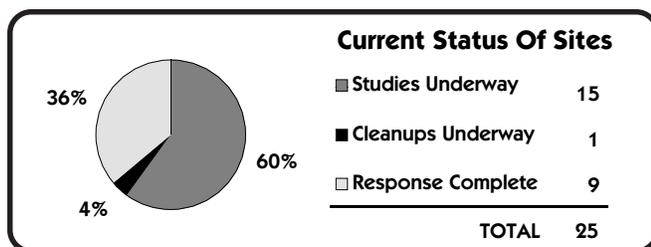
EXECUTIVE SUMMARY

Parris Island Marine Corps Recruit Depot (MCRD) is located on an island that lies along the southeastern coast of South Carolina, approximately one mile south of the city of Port Royal and 30 miles northeast of Savannah, Georgia. Hilton Head, South Carolina, a major recreational area, is located across Port Royal Sound, southwest of the Depot. Parris Island has been operated as a US Marine Corps recruit training facility since 1915. The installation consists of administrative buildings, training facilities, family and troop housing, maintenance, training and community facilities. Typical operations at the Depot that contributed to contaminated sites include recruit training, maintenance of boats and ground vehicles, and storage and maintenance of ordnance. Most of the sites at the installation are landfills or spill areas where groundwater and sediment are contaminated with solid waste, paint waste, construction debris, incinerator ash, solvents and petroleum products. Current operations include pollution prevention technologies to prevent further contamination. The contaminants in the landfill sites (Sites 1, 2 and 3) and the placement of landfills in tidal marshes were the primary drivers for the installation being added to the National Priorities List (NPL). The influences of the tidal waters on the marshes has allowed the contaminants to migrate out of the confines of the landfills. To date, a Federal Facility Agreement (FFA) is not in place at the Depot, but it is currently under negotiation.

Parris Island is one of several barrier islands used by the MCRD. There are 3,274 acres of dry land at the Depot, 4,344 acres of salt marshes and 429 acres of tidal ponds and streams. Buildings were built on the "high" areas, no more than 20 feet above sea level. Over the years wastes were thrown into the landfills which were built in the marshes. As the waters, marine, groundwater and surface water, flowed in and out of the tidal marshes, the contaminants in the marshes were carried with water and formed contaminated sediments in the surrounding marine environment. Commercial and recreational fishing activities are conducted in the vicinity of the base. The surrounding area is the home for several endangered wildlife species.

A Restoration Advisory Board (RAB) is currently being established for the installation and expects to hold it's first RAB meeting in 1997. The Community Relations Plan (CRP) is currently under development. It is being developed in partnership with the Navy Environmental Health Center (NEHC).

Of the 48 Installation Restoration (IR) and Underground Storage Tank (UST) sites that have been identified at Parris Island, 25 remain as official sites. Nine of these sites are currently recorded as Response Complete (RC). Two of the sites currently recorded as RC (Sites 9 and 15) are expected to be reopened in 1997 for further investigation. In FY86 an Initial Assessment Study (IAS) identified 16 sites. Ten sites (Sites 5 and 7 - 15) were recorded as RC at that time and 6 sites (Sites 1 - 4, 6 and 16) were recommended for further evaluation. In FY88 two RCRA Underground Storage Tank (UST) sites (UST 1 and 2) were identified. In FY89 Site 17 was identified. In FY90 Site 4 was recorded as RC. During FY90 EPA prepared a RCRA Facility Assessment (RFA), identifying 44 Solid Waste Management Units (SWMUs) and 4 Areas of Concern (AOCs). All of the previously identified Sites and USTs were included as SWMUs or AOCs. As a result of the RFA findings, 5 new sites were added (Sites 21, 27, 28, 35 and 38) and all 5 sites were recorded as RC at that time. In FY92 Site 17 was recorded as RC following an Interim Remedial Action (IRA). In FY93 Site 6 was recorded as RC following a Final Remedial Action (FRA). In FY94 Site 45 was identified. In FY95 after Parris Island was placed on the NPL, regulators reassessed the 18 sites previously recorded as RC and reopened a total of 9 sites (Sites 5, 7, 8, 12, 13, 14, 21, 27 and 35) for further evaluation. A total of 9 sites (Sites 4, 6, 9, 10, 11, 15, 17, 28 and 38) remain RC at this time. Sites 9 and 15 are currently being considered for further investigation and are expected to be reopened in FY97. The two RCRA UST sites on the base are scheduled for Corrective Action Plan (CAP) and Implementation (IMP) phases prior to completion. The scheduled completion dates are UST 1 in FY98 and UST 2 in FY00.



PARRIS ISLAND MCRD RELEVANT ISSUES

ENVIRONMENTAL RISK



HYDROGEOLOGY - Parris Island MCRD is located on a system of islands, marshes and interconnecting man-made causeways that form a peninsula. The islands are made up of barrier-island sand, silt and clay deposits that contain a surficial aquifer. While there is potential for contamination of this aquifer, its shallow depth and geographic isolation from other land masses would make the migration of contamination off-base to areas that use the aquifer as a water source highly unlikely. Salt water intrusion and a high sulfur content make the water in the surficial aquifer unfit for consumption. The facility is bordered by marsh areas and tidal creeks which drain into the Beaufort River and Broad River to form the Port Royal Sound. Surface runoff from most of the base flows into storm sewers that discharge into the marshes. Any contamination in the water of the surficial aquifer or surface runoff is transferred to the surface waters of the marshes and creeks and then into the rivers, the Sound and out to the Atlantic Ocean. Beneath the surficial aquifer lies the Tertiary Limestone Aquifer. It is a relatively large aquifer, extending from South Carolina to Florida, supplying groundwater to hundreds of wells, although water from this aquifer is not used for human consumption in the vicinity of Parris Island. There is little or no risk of surficial aquifer contamination penetrating into the water of the deeper Tertiary Limestone Aquifer. The aquifer is artesian and it is expected to be hydrologically separate from the overlying surficial aquifer. The top surface of the Tertiary Limestone Aquifer ranges from approximately 60 to 90 feet below the surface of the land with approximately 20 feet of the low permeable Hawthorn Formation separating the two aquifers. Water from the Tertiary Limestone Aquifer on base is not used for human consumption due to high saltwater contamination.



NATURAL RESOURCES - The installation has several past disposal sites adjacent to or in direct contact with salt water marshes, and previous studies have documented contaminant releases from some of these sites. The potential exists for contaminants to impact fish, shrimp, crabs, and mollusks that inhabit the marshes and are harvested commercially and by recreational fishermen. Surface waters of the area are used for recreational and commercial fishing and shellfish harvesting. Therefore, contamination of the water could have an adverse impact on human health and the environment. These surface waters also provide habitats for migratory, threatened and endangered species of wildlife (including the southern bald eagle, the wood stork, the Eskimo curlew and the short-nosed sturgeon), as well as their food sources.



RISK - A Department of Defense (DOD) Relative Risk Ranking was completed for the installation in FY95. Six of the 25 sites at Parris Island received a "High" ranking and an additional three sites received a "High" ranking after a sampling event conducted in FY96. Most of the contamination problems are due to the location of the installation; several small islands nestled between salt marshes and the surrounding ocean. The three landfill sites (Sites 1-3) were ranked "High" because of contaminated sediment found in the marine environment which surrounds the sites. The three landfill sites were located in salt marshes. Over the years as solid waste, paint waste, fill material and construction debris were placed in landfills, contamination was being forced into the surrounding marine areas by the flow of the tidal creeks through the marshes. Contaminants from the Jericho Island Disposal Area (Site 12), the Weapons Power Plant O/W Separator (Site 21) and Storm Sewer Outfalls (Site 14) discharge directly into the marshes and rivers surrounding the island. At Site 45 (Dry Cleaning Facility Spill Area), the organic solvent PCE and petroleum based solvents were detected during an investigation of an accidental spill. The groundwater in the area was impacted and it discharges directly into the surrounding water bodies. The two Underground Storage Tank (UST) sites (USTs 1 and 2) had a high ranking for groundwater contamination with a potential for migration to human water supplies.

Following the installations placement on the National Priorities List (NPL), the Agency for Toxic Substances and Diseases Register (ATSDR) performed the initial public health assessment (PHA) in June 1995 and assessed a total of 60 areas across the Depot. The PHA was completed in FY96 and identified 2 potentially contaminated areas as posing "no apparent public health hazard" and identified the remaining 58 as posing "no public health hazard".

REGULATORY ISSUES



NATIONAL PRIORITIES LIST - The installation was proposed for the National Priorities List (NPL) in August 1994 and listed on 16 December 1994. Contamination at three landfill sites were the main drivers for placement on the NPL. As a result of being placed on the NPL, 9 of the 18 sites, originally identified as Response Complete (RC), were reopened by regulators and rescheduled for investigation, with a completion date in FY08. An additional 2 sites remain RC, but are expected to be reopened by regulators in 1997 for further evaluation with a completion date to be determined.



LEGAL AGREEMENTS - EPA conducted a RCRA Facility Assessment (RFA) as part of a RCRA permit application in FY90. The RFA identified 44 Solid Waste Management Units (SWMUs) and four Areas of Concern (AOCs). All the previously identified CERCLA sites were included as SWMUs or AOCs. The application for the installation's RCRA permit has since been withdrawn, and any further study of the SWMUs will most likely be conducted under CERCLA.

In September 1995, Federal Facility Agreement (FFA) negotiations were initiated between the Navy, EPA, and South Carolina Department of Environmental Control (DHEC). An FFA is expected to be signed in FY97. A Site Management Plan (SMP) is expected to be issued in conjunction with the FFA, and then be reissued on an annual basis.



PARTNERING - A formal partnering arrangement between the Navy, Marine Corps, EPA Region IV and South Carolina state regulators has been initiated. The team participated in a workshop, kicking off the formal partnering arrangement in November 1995.

COMMUNITY INVOLVEMENT



RESTORATION ADVISORY BOARD - A Restoration Advisory Board (RAB) is in the process of being established for the installation. The RAB expects to hold its first meeting in 1997.



COMMUNITY RELATIONS PLAN - The Community Relations Plan (CRP) is currently under development. It is being developed in partnership with the Navy Environmental Health Center (NEHC).



INFORMATION REPOSITORY - Establishment of the Information Repository and Administrative Record are currently underway.

PARRIS ISLAND MCRD HISTORICAL PROGRESS

FY86

Sites 1-16 - An Initial Assessment Study (IAS), equivalent to a Preliminary Assessment (PA) was completed in September 1986 and identified 16 potential sites.

Sites 5, 7, 8, 9, 10, 11, 12, 13, 14 and 15 - These ten sites were listed as Response Complete (RC) following the IAS.

FY87

Sites 1, 2, 3, 4, 6 and 16 - Site Inspections (SI) started at these six sites.

FY88

USTs 1 and 2 - An Initial Site Characterization (ISC), equivalent to a PA for RCRA Underground Storage Tank (UST) program, established two UST sites. The ISC for UST 1 was completed in FY88, and the ISC for UST 2 will continue through FY97.

FY89

Site 17 - This new site was identified and an SI was started without a previous PA being accomplished.

FY90

All Sites - EPA prepared a RCRA Facility Assessment (RFA) as part of a RCRA permit application. The RFA identified 44 SWMUs and 4 AOCs. All previously identified IR sites were included as SWMUs or AOCs.

Sites 1, 2, 3, 4, 6 and 16 - An SI was completed at six sites. Site 4 was recorded as RC.

Sites 21, 27, 28, 35 and 38 - Additional PA identified five additional sites. Following the PA all five sites were listed as RC.

FY92

Site 17 - An SI and Remedial Action (RA) phase and an Interim Remedial Action (IRA) were completed. Following the tank removal it was listed as RC.

FY93

Site 3 - An Expanded Site Inspection (ESI) was completed. The ESI, which consisted of an ecological study of aquatic biota surrounding the site, is currently being reviewed by regulatory agencies.

Site 6 - Following the RA phase and Final Remedial Action (FRA) for a tank removal action was listed as RC.

FY94

Site 45 - This new site was identified and an SI was completed.

FY95

All Sites - Initiated process for Remedial Investigation/Feasibility Study (RI/FS) scoping of milestones plan.

All Sites - Agency for Toxic Substances and Diseases Register (ATSDR) performed the initial public health assessment in June 1995.

Site 2 - In an effort to reduce risk to human health this site was fenced.

Sites 4, 28 and 38 - After the depot was placed on the NPL, these 3 sites were reopened by regulators for further consideration and then reclosed with a new RC date of 1995.

Sites 5, 7, 8, 12, 13, 14, 21, 27 and 35 - These 9 sites were reopened by regulators for further evaluation after the depot was placed on the NPL.

Sites 9 and 15 - These 2 sites remain RC but are currently being considered for reopening by regulators for additional investigation.

UST 1 - Corrective Action Plan (CAP) phase was completed. Implementation (IMP) phase and IRA for removal of four tanks, soil removal, free product recovery and soil vapor extraction were started, with completion scheduled for FY98.

PROGRESS DURING FISCAL YEAR 1996

FY96

Generic Work Plans were drafted for cleanup of all active IR sites. Draft community relations plan were prepared and submitted to regulators. A Draft FFA was prepared. Started Administrative Record. CRP is being prepared. It was not completed in FY96 due to late start because of delayed funding.

RAB is being established. It was not completed because recruiting members has taken longer than first thought.

Sites 1, 2 and 3 - Began RI/FS activities for 3 sites.

Sites 4, 21 and 27 - PA/SI complete for all 3 sites.

Site 45 - Began RI/FS. Began an IRA.

UST 2 - SA complete. Began Corrective Action Plan (CAP).

Sites 9 and 15 - Evaluated the need for additional investigation at these 2 sites and considered appropriateness of reopening for further investigation.

PLANS FOR FISCAL YEARS 1997 AND 1998

FY97

Finalize generic workplans.
Finalize the Community Relations Plan.
Establish RAB.

Sign the FFA.

Sites 1, 2 and 3 - Field investigation will begin under the RI/FS.

Site 45 - Work continues on the IRA.

UST 2 - The CAP will be completed.

Sites 9 and 15 - Reopen sites for further investigation.

FY98

Sites 1 and 2 - RI/FS will be completed.

Site 3 - Work continues on the RI/FS.

Site 45 - Complete the IRA.

Sites 12, 14, 21 and 45 - Begin RI/FS.

UST 1 - IMP complete. IRA complete. IMO to begin.

UST 2 - Will begin the RA.

**PARRIS ISLAND MCRD
PROGRESS AND PLANS**

CERCLA	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
PA / SI	14	3						
RI / FS				2	1	4	1	6
RD					2			5
RAC						2	1	5
RAO								5
IRA				1(1)				
RC	3					2	1	11
Cumulative % RC	18%	18%	18%	18%	18%	29%	35%	100%
UST	FY95 and before	FY96	FY97	FY98	FY99	FY00	FY01	FY02 and After
SA	7	1						
CAP	1		1					
DES								
IMP	2			1		1		
IMO					1			1
IRA	3(3)			1(1)		1(1)		
RC	6				1			1
Cumulative % RC	75%	75%	75%	75%	88%	88%	88%	100%