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**FINAL**

**FISCAL YEAR 2002  
SITE MANAGEMENT PLAN**

**MARINE CORPS BASE  
CAMP LEJEUNE, NORTH CAROLINA**

**CONTRACT TASK ORDER 0120**

**MARCH 2002**

*Prepared for:*

**DEPARTMENT OF THE NAVY  
ATLANTIC DIVISION  
NAVAL FACILITIES  
ENGINEERING COMMAND  
*Norfolk, Virginia***

*Under the:*

**LANTDIV CLEAN PROGRAM  
Contract N62470-95-D-6007**

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# QC Review Page

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FINAL

FY 2002 Site Management Plan

MCB Camp Lejeune

Jacksonville, North Carolina

Contract Task Order Number - 120  
Contract Number N62470-95-D-6007  
Navy CLEAN II Program

*Prepared by*

Baker Environmental

and

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March 2002

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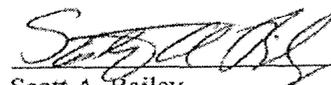
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## LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
AST	Aboveground Storage Tank
Baker	Baker Environmental, Inc.
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CTO	Contract Task Order
CWM	Chemical Warfare Material
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DNAPL	Dense Non-Aqueous Phase Liquid
DoN	Department of the Navy
DRMO	Defense Reutilization Marketing Office
EE/CA	Engineering Evaluation/Cost Analysis
FFA	Federal Facilities Agreement
FS	Feasibility Study
HPIA	Hadnot Point Industrial Area
HRSS	Hazardous Ranking System Score
IAS	Initial Assessment Study
IM	Interim Measures
IR	Installation Restoration
IROD	Interim Record of Decision
IRP	Installation Restoration Program
LANTDIV	Naval Facilities Engineering Command, Atlantic Division
LTTD	Low Temperature Thermal Desorption
LUCAP	Land Use Control Action Plan
LUCIP	Land Use Control Implementation Plan
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MORFORLANT	Marine Forces Atlantic
mg/kg	milligram per kilogram
NA	Natural Attenuation
NACIP	Navy Assessment and Control of Installation Pollutants
NAE	Natural Attenuation Evaluation
NC DENR	North Carolina Department of Environment and Natural Resources
NC	North Carolina
NCP	National Oil and Hazardous Substances Pollution Control Contingency Plan

**LIST OF ACRONYMS AND ABBREVIATIONS**  
*(Continued)*

NCWQS	North Carolina Water Quality Standards
NFA	No Further Action
NFESC	Naval Facilities Engineering Services Center
NPL	National Priorities List
OU	Operable Unit
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyls
PCE	tetrachloroethene
PCP	pentachlorophenol
PITIT	Partitioning Interwell Tracer Test
POL	petroleum, oil, lubricant
ppb	parts per billion
PRAP	Proposed Remedial Action Plan
Pre-RI	Pre-Remedial Investigation
RABITT	Reductive Anaerobic Bioremediation In-Situ Treatment Technology
RBC	Residential Risk Based Concentration
RCRA	Resource Conservation and Recovery Act
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SEAR	Surfactant Enhanced Aquifer Remediation
SI	Site Investigation
SMP	Site Management Plan
STP	Sewage Treatment Plant
SVE	Soil Vapor Extraction
SVOC	Semivolatile Organic Compound
SWMU	Solid Waste Management Unit
TCE	trichloroethene
TCRA	Time Critical Removal Action
TPH	total petroleum hydrocarbon
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

## **1.0 INTRODUCTION**

This document presents the Final Fiscal Year 2002 Site Management Plan (SMP) for Marine Corps Base (MCB), Camp Lejeune, North Carolina. The SMP presents planned activities to be conducted at MCB, Camp Lejeune during Fiscal Year 2002 and provides projections for long-term progress in accordance with the Department of Navy (DoN), Installation Restoration (IR) Program through FY 2004. This document has been prepared by Baker Environmental, Inc. (Baker) for the Atlantic Division, Naval Facilities Engineering Command (LANTDIV) and the MCB, Camp Lejeune IR Program. This document has been submitted to representatives of the North Carolina Department of Environment and Natural Resources (NC DENR) and the U.S. Environmental Protection Agency (USEPA), Region IV.

### **1.1 General Description**

Located in Onslow County, North Carolina, MCB, Camp Lejeune is host to five Marine Corps commands and two Navy commands. All of the real estate and infrastructure is owned, operated, and maintained by the host command. MCB, Camp Lejeune also provides support and training for the following tenant commands: Headquarters Nucleus, Second Marine Expeditionary Force; Second Marine Division; Second Marine Force Service Support Group; Second Marine Surveillance, Reconnaissance, and Intelligence Group; Sixth Marine Expeditionary Brigade; the Naval Hospital; and the Naval Dental Clinic.

The entire facility includes approximately 236 square miles and is located within the generally flat, Atlantic Coastal Plain. MCB, Camp Lejeune is bisected by the New River, which flows in a southeasterly direction and forms a large estuary before entering the Atlantic Ocean. The Atlantic Ocean forms the southeastern boundary of the facility. The western and northwestern boundaries are U.S. Route 17 and State Route 24, respectively. The City of Jacksonville, North Carolina is located immediately northwest of MCB, Camp Lejeune. Three large, publicly-owned tracts of land are located within 15 miles of the facility: Croatin National Forest, Hoffman Forest, and Camp Davis Forest. A majority of the land surrounding the facility is used for agriculture. Estuaries along the coast support commercial fishing and residential resort areas are located adjacent to MCB, Camp Lejeune along the Atlantic Ocean.

### **1.2 Environmental History**

MCB, Camp Lejeune has been actively involved with environmental investigations and remediation programs since 1983, beginning with the Navy Assessment and Control of Installation Pollutants (NACIP) Program. An Initial Assessment Study (IAS) was the first investigation of potentially hazardous sites conducted under NACIP. The IAS, which was conducted in 1983, identified areas of concern that might potentially cause threats to human health and the environment as a result of past storage, handling, and disposal of hazardous materials. Based on a review of historical records, field inspections, and personal interviews, 76 areas of concern (AOCs) were identified. The IAS concluded that, while none of the sites posed an immediate threat to human health or the environment, further investigations to assess the potential long-term impacts were warranted at 23 of the 76 sites.

The Department of Navy's IR Program was initiated in 1986 following enactment of the Superfund Amendments and Reauthorization Act (SARA) legislation. The IR Program, which was implemented to follow the requirements of SARA, replaced the NACIP. MCB, Camp Lejeune was placed on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) National Priorities List (NPL) on October 4, 1989 (54 Federal Register 41015, October 4, 1989). Following

that listing, a Federal Facilities Agreement (FFA) between USEPA Region IV, North Carolina Department of Environment, Health, and Natural Resources (now NC DENR), and the Department of Navy was signed in February 1991. The FFA was prepared to fulfill the following objectives:

- To ensure that potential environmental impacts associated with past and present activities at MCB, Camp Lejeune are thoroughly investigated and appropriate CERCLA response actions are developed and implemented as necessary to protect public health, welfare, and the environment;
- To establish a procedural framework and a schedule for developing, implementing, and monitoring appropriate response actions at MCB, Camp Lejeune in accordance with CERCLA, the National Oil and Hazardous Substances Pollution Control Contingency Plan (NCP), and relevant USEPA remediation policy;
- To encourage public participation, facilitate cooperation, and exchange of information among parties associated with the investigation and remediation process.

The original FFA pertained to 23 of the initial sites identified at MCB, Camp Lejeune. The 23 sites have been investigated in accordance with the NCP, CERCLA, and SARA, under the terms and conditions of the FFA. Based upon the conclusions and recommendations identified by subsequent site inspections, newly identified sites throughout MCB, Camp Lejeune have been added to the original list of 23.

As part of the requirements established under CERCLA, an administrative record file has been established for the IR Program at MCB, Camp Lejeune. The administrative record is a compilation of all documents, which the DoN used to select a remedial action or removal action for a site. Regardless of the nature of the site, an administrative record must be maintained. The administrative record will also serve as the basis for any future legal review of decisions made by the DoN concerning remedial action taken at a site. A copy of the camp lejeune administrative record file is available for review at LANTDIV in Norfolk, Virginia and at the Base. The files can also be viewed on-line at: [www.Bakerenv.com/Camplejeune](http://www.Bakerenv.com/Camplejeune).

### **1.3 Purpose**

This Fiscal Year 2002 SMP is a forward-looking management tool and one of the primary documents identified in the FFA. The SMP includes proposed deadlines for completion of deliverables, as specified in the FFA, to be submitted during Fiscal Year 2002. In addition, the SMP identifies IR Program activities projected for the next three-year period (2002-2004).

### **1.4 Site Listing Changes and Updates**

Sites 22 and 45 were originally identified in the FFA under the IR Program. These sites, however, have been reassigned to the Underground Storage Tank (UST) Program at MCB, Camp Lejeune and will not require an RI/FS or further tracking in this SMP. As of February 2002, a total of 42 sites (Sites 22 and 45 not included) were included in the IR Program at MCB, Camp Lejeune. Table 1-1 provides a listing of all the IR sites and Table 1-2 provides a listing of activities to be conducted during Fiscal Year 2002. Figure 1-1 depicts all IR sites located throughout MCB, Camp Lejeune. (Note that tables and figures are provided after each text section of the report.)

Based upon the results of Site Inspections conducted at MCB, Camp Lejeune during 1991, 1992, and 1993, the following sites were added to the IR Program:

- Site 3 (Old Creosote Plant)
- Site 7 (Tarawa Terrace Dump)
- Site 43 (Agan Street Dump)
- Site 44 (Jones Street Dump)
- Site 54 (Crash Crew Fire Training Burn Pit)
- Site 63 (Verona Loop Dump)
- Site 65 (Engineer Area Dump)
- Site 80 (Paradise Point Golf Course Maintenance Area)
- Site 82 (Volatile Organic Compound [VOC] Disposal Area at Piney Green Road)

Based upon findings from UST investigations conducted at MCB, Camp Lejeune during 1994, 1995, and 1996, the following sites have also been added to the IR Program:

- Site 88 (Building 25, Base Dry Cleaners)
- Site 89 (STC - 868)
- Site 90 (Building BB-9)
- Site 91 (Building BB-51)
- Site 92 (Building BB-46)
- Site 93 (Building TC-942)
- Site 94 (Building 1613)

Site 84 (Building 45 Area) was added to the IR Program in 1998 based on the findings of the Pre-Remedial Investigation (Pre-RI) Study and post study sampling activities conducted from 1996 through 1998.

The following sites have been closed out and will not require further actions:

- Site 1 (French Creek Liquids Disposal Area)
- Site 7 (Tarawa Terrace Dump)
- Site 9 (Fire Fighting Training Pit at Piney Green Road)
- Site 16 (Former Montford Point Burn Dump)
- Site 21 (Transformer Lot)
- Site 24 (Industrial Area Fly Ash Dump)
- Site 28 (Hadnot Point Burn Dump)
- Site 30 (Sneads Ferry Road Fuel Tank Sludge Area)
- Site 48 (MCAS Mercury Dump)
- Site 65 (Engineer Area Dump)
- Site 74 (Mess Hall Grease Dump Area)
- Site 80 (Paradise Point Golf Course Maintenance Area)
- Site 90 (BB-9)
- Site 91 (BB-51)
- Site 92 (BB-46)

In Fiscal Year 2000, the Installation Restoration Division, Environmental Management Department at MCB, Camp Lejeune identified 20 additional potential sites that may require further investigation. The 20 sites consist of six laundry/dry cleaning facilities, an eight-vehicle maintenance shop, five automobile hobby shops, and one furniture repair shop. These sites are listed in the "Plants Account

Facilities Inventory Listing of Buildings and Structures, 30 June 1990, Marine Corps Base, Camp Lejeune, North Carolina." These sites are located at buildings within the HPIA, Monfort Point, Tarawa Terrace, Camp Geiger, and the Air Station. Based on the review of historical information, eight of the sites were removed from further actions in the second quarter of Fiscal Year 2002. Accordingly, Preliminary Assessments will be completed in Fiscal Year 2002 for the remaining 12 sites.

In June 2001, the initial Land Use Control Implementation Plan (LUCIP) maps for OUs 1, 2, 4, 5, 7, 8, 12, 13, and 14 were completed in accordance with the Land Use Control Action Plan (LUCAP) for the Base. The maps will be updated on an annual basis to modify the boundaries as needed. Table 1-3 provides a summary of the LUCIP boundaries based on the June 2001 maps.

### **1.5 Federal Facilities Agreement**

As noted in Section 1.2, a FFA was signed for Camp Lejeune in 1989. This agreement was created under CERCLA Section 120 (page 2) and was signed by the Navy, the USEPA and the state of North Carolina. At the present time, there are no specific requirements to amend the FFA. If, however, amendments to the FFA are necessary, a summary of the changes will be outlined in this section of the SMP.

### **1.6 Site Management Plan Format**

The Fiscal Year 2002 SMP for MCB, Camp Lejeune consists of six sections. Section 1.0 describes the purpose of the SMP and the overall history of environmental program activities at MCB, Camp Lejeune, and the FFA. Section 2.0 describes the history and current status of each Operable Unit (OU) and each Pre-RI site at MCB, Camp Lejeune. A summary of ongoing and planned activities associated with each OU and each Pre-RI site is provided in Section 3.0. Also provided within Section 3.0 of the SMP are schedules for conducting CERCLA activities and specific target submittal dates for Fiscal Year 2002 documents. Previous, ongoing, and planned removal actions are presented in Section 4.0. Additional activities conducted as part of the Resource Conservation and Recovery Act (RCRA) at solid waste management units (SWMUs) located throughout MCB, Camp Lejeune are presented in Section 5.0. Lastly, references are provided in Section 6.0.

## **2.0 OPERABLE UNITS**

As defined in the NCP, an "Operable Unit" is an incremental step toward comprehensively addressing site problems. This portion of a remedial response action is devised to either eliminate or mitigate a release, threat of a release, or pathway of exposure. The cleanup of a particular site may be divided into a number of operable units, depending on the complexity of the problems associated with the site. OUs may address geographical portions of a site, specific site problems, initial phases of an action, or may consist of any set of actions performed over time in different parts of a site. In accordance with guidance provided in the NCP, the Navy and Marine Corps have recommended that 35 of the 42 IR Program sites be grouped into 21 OUs to proceed with RI/FS activities. Seven sites (10, 12, 68, 75, 76, 85, and 87) are in or were previously in the Pre-RI phase and have not been assigned to OUs. In Fiscal Year 2001, Site 73 was removed from OU No. 9 and a new OU, 21, was created for this site. Each of the 21 OUs is listed in Table 2-1 and their locations are depicted in Figure 1-1.

Section 2.0 of the SMP identifies each of the 21 OUs at MCB, Camp Lejeune where IR Program activities have been implemented or will be implemented in the future. Anticipated project start and completion dates for IR and RCRA Programs are also identified. The project start dates reflect the priority of each OU based on the potential releases of contamination, proximity to receptors, contaminants verified, and potential ecological impacts as well as the availability of funding. A summary of IR Program activities since inception is provided in Table 2-2.

The Long-Term Monitoring (LTM) program at MCB, Camp Lejeune has been in operation since 1995 under the IR Program. Sites 2, 24, and 78 were the original sites included in the program. Four sites have been permanently removed from LTM since 1995 (Sites 1, 24, 28 and 74). Today, 17 sites are included in the LTM program of which nine sites have signed Record of Decisions (RODs) or Interim RODs (IROD). LTM is also being performed at the other non-ROD sites to collect post-RI data in support of the final remedy. Table 2-3 provides a summary of sites currently in the LTM program.

### **2.1 Operable Unit No. 1 (Sites 21, 24, and 78)**

An IROD was signed on September 23, 1992 for the shallow aquifer. The Final ROD for OU No. 1 was signed on September 15, 1994.

#### **2.1.1 Site 21 - Transformer Storage Lot 140**

Site 21 is located within Site 78, between Ash Street and Sneads Ferry Road on Center Road. In 1950 and 1951, a pit, located in the northern portion of the site, was used as a drainage receptor for oil from transformers. Site 21 was also used from 1958 to 1977 for pesticide mixing and as a cleaning area for pesticide application equipment. The mixing area for the pesticides was in the southern portion of the site.

The Remedial Investigation (RI) conducted at Site 21 concluded that soils within portions of the site were impacted by pesticides and polychlorinated biphenyls (PCBs). A soil removal action was implemented at Site 21 to remove pesticide and PCB contaminated soil. Initial excavation in three AOCs was performed during Fiscal Year 1995. A Land Use Control Implementation Plan (LUCIP) that restricts development and use of groundwater is in place. No additional remedial actions are planned for Site 21.

### **2.1.2 Site 24 - Industrial Area Fly Ash Dump**

Site 24 is located south and east of the intersection of Birch and Duncan Streets, adjoining Site 78. Approximately 100 acres in size, the site lies adjacent to upstream portions of Cogdels Creek. Site 24 was used for the disposal of fly ash, cinders, solvents, used paint stripping compounds, sewage sludge, and water treatment sludge from the late 1940s to 1980.

An RI/FS was conducted at Site 24 during 1993-1994. Due to elevated pesticide (heptachlor epoxide) levels in groundwater, a monitoring program was implemented in 1995. After four consecutive quarterly sampling periods without any pesticide detections, the monitoring program at Site 24 was discontinued. Land and aquifer use controls were implemented through a LUCIP that was completed during Fiscal Year 2001. No additional remedial actions are planned for Site 24. A final monitoring report will be completed in Fiscal Year 2002 to serve as an interim document before a final closeout report is prepared for the entire OU.

### **2.1.3 Site 78 - Hadnot Point Industrial Area**

The Hadnot Point Industrial Area (HPIA) is the area bounded by Holcomb Boulevard to the west, Sneads Ferry Road to the north, Louis Street to the east, and the Main Service Road to the south. A former transformer storage lot (Site 21), the HPIA fuel farm (formerly Site 22), an active service station (Site 94) and various other potential source areas are located within HPIA. The HPIA is comprised of approximately 590 acres and includes maintenance shops, gas stations, administrative offices, printing shops, warehouses, storage yards, and other similar industrial facilities.

An interim remedial action RI/FS was conducted at Site 78 concerning the shallow groundwater aquifer in 1992. Based on this initial study, an interim remedial action groundwater extraction and treatment system was installed in 1995. An RI/FS was completed at Site 78 in 1994. The results of this investigation indicated that organics (e.g., solvents and fuel-related compounds) had impacted the groundwater within certain areas of the study area.

Separate groundwater extraction and treatment systems were constructed in the northern (also referred to as Site 78 North) and southern (also referred to as Site 78 South) portions of Site 78. Groundwater extraction and treatment operations and monitored natural attenuation (MNA) of the groundwater are currently ongoing in the northern area. Operations at the south plant were discontinued in January 2000; however, MNA of groundwater is ongoing at the southern area. Land and aquifer use controls were implemented through a LUCIP that was completed during Fiscal Year 2001.

During Fiscal Year 2002, pump and treat operations at the northern plant will continue along with monitoring at both Sites 78 North and South. Extensive studies will be ongoing at Sites 78 North and South to further evaluate natural attenuation as a potential remedial action. In addition, treatability studies will be completed at OU No. 1 to further characterize and initiate remedial activities in the groundwater "hot spot" areas. After completion of the treatability studies, an amended ROD will be prepared. The target completion date of the Amended ROD is Fiscal Year 2004.

## **2.2 Operable Unit No. 2 (Sites 6, 9, and 82)**

The Final ROD for OU No. 2 was signed on September 24, 1993.

### **2.2.1 Site 6 (Storage Lots 201 and 203) and Site 82 (Piney Green Road VOC Area)**

Sites 6 and 82 adjoin one another and comprise over 200 acres. The sites are bounded by Wallace Creek to the north, Site 9 to the south, Piney Green Road to the east, and Holcomb Boulevard to the west. Prior to the late 1980s, much of the northern area (i.e., Storage Lot 203 and Site 82) was reportedly used for storage, disposal, and handling of potentially hazardous waste and materials. During the initial site reconnaissance in 1991, soil mounds were noted throughout the northern portion of the sites. Currently, Lot 201 is used for equipment staging and much of the former wooded areas have been converted to open storage. Most of Lot 203 remains an open field that is used on occasion by the DRMO and for vehicle parking. The groundwater extraction and treatment operations building, and contractor field offices are located on the northeastern portion of Lot 203.

An RI/FS at OU No. 2 was initiated during August 1992 and completed in September 1993 with the Final ROD. Several AOCs were identified during the investigation. Soil and groundwater sampling conducted during the RI revealed elevated levels of VOCs. Chlorinated solvents in groundwater were found as deep as 240 feet below ground surface. Groundwater remains contaminated with solvents such as trichloroethene (TCE), 1,2-dichloroethene, and vinyl chloride.

A time-critical removal action (TCRA) was conducted for the removal of the debris and soil in 1994. Twenty drums of dichlorodiphenyl trichloroethane (DDT) were removed and contaminated soil was excavated during the removal action. Another TCRA was conducted in 1995 and 1996 to remove drums, batteries, and communications wire. The soil was contaminated with petroleum, oil, and lubricants (POLs). In addition, a soil vapor extraction system (SVE) was in operation at Site 82 for six months in 1996 to remediate residual soil contamination in the vadose zone.

Construction of a groundwater extraction and treatment system was initiated in December 1994 and full-scale operation of the treatment system began in July 1996. Groundwater from both the surficial and Castle Hayne aquifers are being treated by this system at Site 82. Operation of the plant is expected to continue in Fiscal Year 2002.

During Fiscal Year 1997, a monitoring program was initiated. Monitoring and recovery wells and surface water and sediment are sampled on a semiannual basis. Monitoring and treatment system evaluation reports provided on a semiannual and annual basis during Fiscal Year 2002.

The ROD also includes institutional controls as part of the selected remedy. These controls include land and aquifer use controls that were implemented through a LUCIP that was completed in Fiscal Year 2001.

### **2.2.2 Site 9 - Fire Fighting Training Pit at Piney Green Road**

Site 9 is located immediately south of Site 6 and west of Piney Green Road. The area encompasses approximately 2.6 acres. The fire training area consists of a concrete-lined pit with an oil and water separator. There were four 500-gallon aboveground storage tanks (ASTs) located near the training area that are no longer present. The pit has been used for training since the early 1960s. Until 1981, the training exercises were conducted in an unlined pit (the pit is now asphalt-lined). Flammable liquids including heating oil, solvents, and fuels are used as accelerants during the training exercises.

Soil and groundwater samples collected during the RI in 1992 did not reveal extensive contamination. Accordingly, no remedial actions were required at this site based on the RI findings.

During Fiscal Year 2000, the new POL Fire Training Simulator was completed. The new training facility will employ a petroleum source for burning operations. During the installation of the new facility, POL contaminated soils were excavated and removed from the site. No additional remedial actions are planned for Site 9.

### **2.3 Operable Unit No. 3 (Site 48)**

The Final ROD for OU No. 3 was signed on September 10, 1993.

#### **2.3.1 Site 48 - MCAS Mercury Dump**

Site 48 is located within Marine Corps Air Station (MCAS), New River. The site is bounded by Longstaff Road to the west and to the east by the New River. An unnamed tributary to the New River borders the site to the north. The site includes approximately four flat acres and consists of Building AS-804 and a lawn area behind the building. During the late 1950s to the mid-1960s, Building AS-804 was used for developing photographs. Mercury was drained from radar units and disposed in small quantities behind the building. It was reported that approximately one gallon of mercury per year over a ten-year period was disposed in this manner. Building AS-804 is currently used as a classroom training facility.

During the 1992 RI/FS, historical aerial photographs were obtained and evaluated in order to identify the suspected disposal area(s). A geophysical investigation was also performed to identify the presence of mercury. The geophysical investigation did not reveal anything associated with mercury disposal. A soil and groundwater investigation was conducted, focusing on the anomalies identified in the aerial photographs. The results of this study did not identify mercury in either soil or groundwater.

The RI concluded that the absence of mercury at Site 48 was most likely due to washout of the area and periodic flooding during severe storms because of its proximity to the New River. No additional remedial actions are planned for Site 48.

### **2.4 Operable Unit No. 4 (Sites 41 and 74)**

The Final ROD for OU No. 4 was signed on December 5, 1995.

#### **2.4.1 Site 41 - Camp Geiger Dump Near Former Trailer Park**

Site 41 is located within the Camp Geiger area of MCB, Camp Lejeune and is comprised of approximately 30 acres. The site is situated between Highway 17 to the west, Tank Creek to the south, an unnamed tributary to the north, and an unimproved road to the east. From 1946 to 1970, the area was used as an open burn dump. Construction debris, POL wastes, mirex (a pesticide), solvents, batteries, ordnance, and chemical training agents were reportedly disposed at Site 41. The debris was reported to be burned and graded over with soils.

An RI/FS was initiated in December 1993 and completed in May 1995. Results of the RI indicated that the site contains a significant amount of buried construction debris. Analytical results indicated that surface soil in the central portion of the study area was contaminated with polynuclear aromatic hydrocarbon (PAH) compounds, most likely the result of previous burning activities. Groundwater samples obtained from the site exhibited chromium, iron, lead, and manganese above North Carolina 2L Water Quality Standards (NCWQSS) for groundwater. The human health risk assessment concluded that there were no risks to human health because groundwater in this area is not used as a potable supply. The ecological risk assessment concluded that potential adverse impacts to ecological receptors were low due to the low levels of contamination in soil, sediment, and surface water.

A groundwater reclassification and surface water variance were requested due to the nature of potential contamination that could not feasibly be remediated. In August 1997, a letter from NC DENR Wilmington Regional Office informed MCB, Camp Lejeune that, based on limited site contamination, the groundwater reclassification and surface water variance were no longer required.

The selected remedy for Site 41 includes groundwater and surface water monitoring, and aquifer and land use controls prohibiting development of the site. These controls were implemented through a LUCIP that was completed in Fiscal Year 2001. Groundwater, surface water, and sediment monitoring will continue on a semiannual basis in Fiscal Year 2002.

#### **2.4.2 Site 74 - Mess Hall Grease Disposal Area**

Site 74 is located approximately one-half mile east of Holcomb Boulevard in the northeast section of MCB, Camp Lejeune just north of Henderson Pond. During the early 1950s through the early 1960s, grease from the mess hall was reportedly taken to the area and disposed in trenches. It was also reported that drums containing PCBs and "pesticide soaked bags" were taken to the site and buried. Chemical warfare materials (CWM), similar to the types documented at Site 69, also were reportedly taken to Site 74.

A RI was conducted at Site 74 in conjunction with Site 41. Historical aerial photographs of Site 74 depict extensive trenching operations. Results of the RI did not indicate widespread contamination. Some pesticides were detected in soil at the former pest control area, and one monitoring well exhibited low levels of a pesticide. Based on the results of the human health and ecological risk assessments, Site 74 possesses no unacceptable risks.

The selected remedy for Site 74 includes land use controls prohibiting the development of the site, restrictions on the use of the groundwater as a potable supply, and groundwater monitoring. Monitoring was discontinued in July 1998 because detected metal concentrations are indicative of naturally occurring metals in the presence of acidic soils. The decision to restrict development of the site is based on the potential presence of buried CWM near the grease pit disposal area. The Army Corps of Engineers will be involved with issues in the future regarding the CWM. These land use controls were implemented through a LUCIP that was completed in Fiscal Year 2001.

A final monitoring report will be completed in Fiscal Year 2002 to serve as an interim document before a final closeout report is prepared for the OU.

#### **2.5 Operable Unit No. 5 (Site 2)**

The Final ROD for OU No. 5 was signed on September 15, 1994.

##### **2.5.1 Site 2 - Former Nursery/Day Care Center**

Site 2 is located at the intersection of Holcomb and Brewster Boulevards, just inside the main gate of MCB, Camp Lejeune. From 1945 to 1958 an on-site building (No. 712) was used for the storing, handling, and dispensing of pesticides. This building was later used as a day care center for children. Chemicals known to have been used at Site 2 include chlordane, 4,4'-DDT, diazinon, and 4,4'-dichlorodiphenyldichloroethane (DDD). Chemicals known to have been stored at this site include dieldrin, lindane, malathion, and silvex. A preliminary soil sampling investigation conducted in 1982 indicated the presence of pesticides. Based on these results, the day care center was moved to another location. Building 712 is currently being used as a personnel office for non-appropriated funding personnel.

An RI/FS was initiated in April 1993 and completed in September 1994. Based on results of the RI/FS, elevated levels of pesticides were detected in soil near the former mixing pads. In addition, a plume consisting of low levels of ethylbenzene and toluene was present in the shallow aquifer. Ethylbenzene and toluene are known constituents in petroleum based pesticides similar to what was used on Site 2. Contamination of site environmental media was believed to be the result of small spills, washout, and excess disposal.

A TCRA was initiated in January 1994. The TCRA involved the excavation and off-site treatment of pesticide-contaminated soil and concrete. A total of 1,049 tons of pesticide contaminated soils were excavated and sent for off-site disposal.

Institutional controls and groundwater monitoring were implemented at Site 2. Aquifer and land use controls were implemented through a LUCIP that was completed in Fiscal Year 2001. A groundwater monitoring program for volatile organics was initiated in 1995 and will continue on a semiannual basis in Fiscal Year 2002.

## **2.6 Operable Unit No. 6 (Sites 36, 43, 44, and 54)**

A Final ROD is anticipated to be signed for OU No. 6 during Fiscal Year 2002.

### **2.6.1 Site 36 - Camp Geiger Dump Area**

Site 36 is located approximately 1,000 feet east of Camp Geiger and 500 feet west of the New River, adjacent to the Camp Geiger Sewage Treatment Plant (STP). Camp Geiger is situated directly north of MCAS, New River, and approximately three miles southwest of Jacksonville, North Carolina. Site 36 was originally estimated to be approximately 1.5 acres in size. However, based upon a review of aerial photographs and observations recorded during a site scoping visit, the size of the site was adjusted to include nearly 20 acres. The site was reported to have been used for the disposal of mixed industrial wastes including trash, waste oils, solvents, and hydraulic fluids. Some of the materials were burned before burial. The dump was active from the late 1940s to the late 1950s.

A RI field investigation at Site 36 commenced during February 1995 and continued through May 1995. Additional monitoring wells were installed and a second round of groundwater samples was collected in July of 1995. Additional soil borings and two sediment samples were collected in October of 1995. The RI indicated that positive detections of organic compounds in groundwater were limited to the northern and western portions of the study area. The presence of volatile compounds was confirmed by results of the second groundwater sampling round. In addition, PCBs were detected among soil samples obtained from the western portion of the site. A limited number of volatile and pesticide compounds were also detected among surface water and sediment samples.

Removal of the PCB-contaminated soil was completed during Fiscal Year 1998 as part of a Non-Time Critical Removal Action. The PCB impacted area was located in the northwestern region of the site at the intersection of two dirt roads.

Site 36 was placed in the monitoring program in 1998. Groundwater samples have been collected at this site on a quarterly basis since that time. Surface water samples from Brinson Creek are also collected under the monitoring program. Monitoring will continue through the Fiscal Year 2001.

Three temporary groundwater monitoring wells were installed and sampled (for TCE only) in June 2000 to determine if contaminants were migrating off of Base property. The data indicated non-

detectable levels of TCE in all three wells. In addition, groundwater elevation data from the temporary wells confirmed that groundwater within the surficial aquifer discharges into Brinson Creek. It was determined that the creek is serving as a "drain" where shallow groundwater on both sides of the creek discharge and, therefore, contaminants are not migrating off Base property.

The Final ROD is anticipated to be signed in Fiscal Year 2002 and will include MNA for groundwater and removal actions for several PAH and pesticide impacted soil areas. Institutional controls will be implemented through a LUCIP and will be included in the Final ROD. A LUCIP will be implemented for intrusive activities in areas where lead impacted soil exceeded the EPA Action Level of 400 ppm. Monitoring of the groundwater, surface water, and sediment will continue in Fiscal Year 2002.

### **2.6.2 Site 43 - Agan Street Dump**

Site 43 is comprised of approximately 11 acres and is located within the operations area of MCAS, New River, and two miles west of the main entrance. The site is bordered to the north by Edwards Creek and to the east and south by Strawhorn Creek. The Agan Street Dump reportedly received inert material such as construction debris (i.e., fiberglass and lumber) and trash. Sludge from a former sewage disposal facility, located adjacent to the study area, and was also dumped onto the ground surface of Site 43. It is not clear when disposal operations took place.

The RI field investigation commenced in February 1995 and continued through May 1995. Positive detections of semivolatile organic compounds (SVOCs) among soil samples obtained at Site 43 were primarily limited to a cleared portion of the study area adjacent to the gravel access road. In general, higher concentrations of pesticides were observed in samples obtained from a small portion of the study area with partially buried containers. No other organic compounds were detected among groundwater samples obtained from the shallow and deep aquifers.

A surficial metallic debris removal action was performed during July 1995. Approximately 7.3 tons of metallic debris was removed for recycling recovery.

The Final ROD is anticipated to be signed in Fiscal Year 2002 for Site 43 and will include a removal action of PAH impacted soils.

### **2.6.3 Site 44 - Jones Street Dump**

Site 44 encompasses approximately 5 acres and is located at the northern terminus of Baxter Street, behind base housing units along Jones Street within the New River operations area. The site is bordered to the north and west by Edwards Creek, to the south by base housing units along Jones Street, and to the east by woods and an unnamed tributary to Edwards Creek. Edwards Creek flows east from the study area toward Site 43, which is located about 2,000 feet to the east. Site 44 was reportedly in operation during the 1950s. Although the quantity of waste is not known, debris, cloth, lumber, and paint cans were reportedly disposed of at the site.

A RI field investigation at Site 44 commenced in February 1995 and continued through May 1995. A total of four semivolatile contaminants, including two PAH compounds, were identified during the soil investigation at Site 44. The pesticides 4,4'-dichlorodiphenyldichroethylene (DDE), 4,4'-DDD, and 4,4'-DDT were the most widely distributed compounds in the soil. Inorganics were the most prevalent and widely distributed constituents in groundwater at Site 44. Positive detections of organic compounds were limited to two monitoring wells. A total of six VOCs were detected among the 13 surface water samples obtained from Edwards Creek. VOCs were not detected in any of the ten sediment samples obtained from Edwards Creek.

The occurrence of VOCs among the limited groundwater and surface water samples obtained from the study area was traced to Site 89, located upgradient of Site 44.

No additional remedial action or monitoring will be required for Site 44. The ROD for Site 44 is anticipated to be approved during Fiscal Year 2002.

#### **2.6.4 Site 54 - Crash Crew Fire Training Burn Pit**

Site 54 is located near the southwest end of runway 5-23, within the operations area of MCAS, New River. The burn pit investigated during the RI was approximately 50 feet in diameter and was situated at the center of this 1.5 acre site. Fire training exercises were conducted within the burn pit using JP-type fuel, which was stored in a nearby UST. An oil and water separator, located approximately 100 feet to the southeast of the burn pit, was used for temporary storage and collection of the spent fuel. Site 54 has served as a fire training burn pit since the mid-1950s. Originally, fire training was conducted on the ground surface within a bermed area. In 1975, a lined burn pit was constructed and this pit was used until 1999. Conversion of the burn pit to a training area that employs clean-burning fuels with operational and engineering controls started August 2000. During the installation, POL contaminated soils was removed. The new training facility was completed in Fiscal Year 2001.

A RI field investigation for Site 54 commenced in February 1995 and continued through May 1995. Soil borings were completed to assess the suspected impact of burn pit operations and were utilized for the installation of monitoring wells. SVOCs were identified in both surface and subsurface soil samples from the southern and southwestern portions of the study area. Positive detections of organic compounds were limited to portions of the study area immediately adjacent to the burn pit or UST and extending southwest of the burn pit. The presence of volatile and semivolatile compounds in soil samples obtained from this portion of the study area is consistent with former site operations. Both volatile and semivolatile organic compounds were also detected in groundwater samples obtained from the same portion of the study area.

Site 54 was placed in the monitoring program in 1998. Groundwater samples have been collected at this site on a quarterly basis since that time. Sampling was temporarily suspended in Fiscal Year 2001 following the soil removal action. Monitoring may be completed in Fiscal Year 2002.

The Final ROD is anticipated to be signed in Fiscal Year 2002. Currently, a no further action ROD is anticipated pending the results of the Post-RI monitoring in October 2001.

#### **2.7 Operable Unit No. 7 (Sites 1, 28, and 30)**

The Final ROD for OU No. 7 was signed on May 16, 1996.

##### **2.7.1 Site 1 - French Creek Liquids Disposal Area**

Site 1 is located approximately one mile east of the New River and is situated along both the north and south sides of Main Service Road near the western edge of the Gun Park Area and Force Troops Complex. Site 1 had been used by several different mechanized, armored, and artillery units since the 1940s. Reportedly, liquid wastes generated from vehicle maintenance were routinely poured onto the ground surface. At times, holes were reportedly dug for waste acid disposal and then immediately backfilled. Thus, the disposal areas at Site 1 are suspected to contain POL and battery acid. The total extent of both the northern and southern disposal areas is estimated to be between seven and eight acres. The quantity of POL waste disposed at the areas is estimated to be between 5,000 and 20,000

gallons; the quantity of battery acid waste is estimated to be between 1,000 and 10,000 gallons. Site 1 continues to serve as a vehicle and equipment maintenance/staging area.

In 1994, a RI was conducted at Site 1. VOCs were not found in surface soils, but were detected in limited subsurface soil samples. Positive detections of VOCs in groundwater were limited to the northern portion of the study area. TCE was detected in samples obtained from the shallow aquifer. Vinyl chloride was also detected at concentrations that exceeded the state and federal drinking water standards.

As a result of the RI findings, institutional controls and groundwater monitoring were required for Site 1. These land and aquifer use controls were implemented through a LUCIP that was completed during Fiscal Year 2001. Monitoring was discontinued in January 2001 when site wide groundwater concentrations fell below the RA goals. A final OU closeout report will be completed in Fiscal Year 2002 to document the completion of the remedial action (monitoring).

### **2.7.2 Site 28 - Hadnot Point Burn Dump**

Site 28 is located along the eastern bank of the New River, south of the HPIA on the Mainside portion of MCB, Camp Lejeune. Site 28 is surrounded by the Hadnot Point STP to the north, wooded and marshy areas to the east and south, and the New River to the west. Cogdels Creek flows into the New River at Site 28 and forms a natural divide between the eastern and western portions of the site. A majority of the estimated 23 acres that constitute Site 28 are used for recreation and physical training exercises. Site 28 operated from 1946 to 1971 as a burn area for a variety of solid wastes generated on the Base. Reportedly, industrial waste, trash, oil-based paint, and construction debris were burned then covered with soil. In 1971, the burn dump ceased operations, and was graded and seeded with grass. The total volume of fill within the dump is estimated to be between 185,000 and 375,000 cubic yards. This estimate was based upon a surface area of 23 acres and a depth ranging from five to ten feet.

In 1994, a RI was conducted at Site 28. VOCs were found in the surface soil and subsurface soil at very low concentrations. Based upon their wide dispersion, infrequent detection, and low concentration, VOCs in soils are not a significant problem resulting from previous disposal practices.

Detections of SVOCs are related to past disposal practices. Several SVOCs were identified in both surface and subsurface soil samples, primarily from the western disposal area. Inorganics were detected in both surface and subsurface soil samples from the western portion of the study area at concentrations greater than one order of magnitude above Base-specific background levels. Inorganics were the most prevalent and widely distributed contaminants in groundwater at Site 28 and were found distributed throughout the site. Concentrations of inorganics, in samples obtained during both sampling rounds, were generally higher in shallow groundwater samples than in samples collected from the deeper aquifer.

As a result of the RI findings, institutional controls were required for Site 28. A groundwater, surface water, and sediment monitoring program for metals was established in July 1996. Based upon findings of the monitoring program, the number of wells sampled were modified since 1996 from 13 wells to four wells in 1998. In 1999, the number of wells in the monitoring program was reduced again to one.

Additional actions were taken in Fiscal Year 2001 when one new shallow well was installed in the area of the highest lead concentrations in soil found during the RI. Results from soil and groundwater sampling indicated lead concentrations in both media, but below the levels found during the RI. The

lead was determined to be at naturally high levels due to natural soil conditions. This new well was added to the monitoring program in Fiscal Year 2001. A final OU closeout report will be completed in Fiscal Year 2002 to document the completion of the remedial action (monitoring). The final LTM sampling event was completed in the fourth quarter of Fiscal Year 2001.

Land and aquifer use controls are included in the selected remedy as institutional controls. These were implemented through a LUCIP which was completed during Fiscal Year 2001.

### **2.7.3 Site 30 - Sneads Ferry Road Fuel Tank Sludge Area**

Site 30 is situated along a tank trail that intersects Sneads Ferry Road from the west, approximately 1 mile south of the intersection with Marines Road, and roughly 4-1/2 miles south of the HPIA. The majority of the Site 30 area is wooded, containing trees of less than three inches in diameter and a dense understory. Site 30 was reportedly used by a private contractor as a cleaning area for emptied fuel storage tanks from other locations. The tanks were used to store leaded gasoline. Since fuel residuals remaining in the emptied tanks were reportedly washed out at Site 30, the disposal area is suspected to contain fuel sludge and wastewater from the tank cleaning process.

In 1994, a RI was conducted at Site 30. A very limited number of VOCs were detected among surface and subsurface soil samples. No significant detections of any other potentially hazardous compounds were noted during the RI. Accordingly, no additional remedial actions were recommended and a no action ROD was prepared for Site 30.

### **2.8 Operable Unit No. 8 (Site 16)**

The Final ROD for OU No. 8 was signed on September 30, 1996.

#### **2.8.1 Site 16 - Former Montford Point Burn Dump**

Site 16 is located southwest of the intersection of Montford Landing Road and Wilson Drive in the Montford Point area of Camp Lejeune. The study area is approximately 4 acres in size and is bordered by wooded areas. Northeast Creek is approximately 400 feet southeast from the boundary of the burn dump. Limited information is available concerning the operational history of the burn dump. Trash from the surrounding housing area and buildings is suspected to have been burned and then covered with soil at Site 16. Records indicate that small amounts of waste oils were also disposed of at this site. Currently, the study area is semi-fenced and vacant.

An RI/FS at Site 16 was initiated in June 1994 and was completed in November 1994. A second round of groundwater samples were collected in February 1995. A confirmatory soil investigation was conducted in December 1995. Several pesticide contaminants were detected among soil and sediment samples obtained from the site. The pesticide levels detected at Site 16 were similar to levels detected at other areas within MCB, Camp Lejeune. Surface soil contamination also included PCBs. The detections of Aroclor 1254 and 1260 were from sampling locations across the site. PCBs were not found in the groundwater indicating that vertical migration to the water table had not occurred. Semivolatile compounds were infrequently encountered at low levels in the surface soil. Subsurface soil was relatively free of semivolatile contamination. The source of the semivolatile compounds is believed to be historical open burning. Benzene and ethylbenzene were detected in one groundwater sample collected during the first round of groundwater sampling. Volatile contaminants were absent in all groundwater samples collected as part of the second round.

Although several contaminants were detected among the various samples of environmental media, the levels were not high enough to warrant further action; however, institutional controls were established. The institutional controls at Site 16 include land and aquifer use controls which were implemented through a LUCIP completed in Fiscal Year 2001. No additional remedial actions are planned for Site 16.

## **2.9 Operable Unit No. 9 (Site 65)**

A Final ROD was signed for OU No. 9 on September 30, 2001.

### **2.9.1 Site 65 - Engineer Area Dump**

Site 65 is located in the Courthouse Bay area of MCB, Camp Lejeune and is approximately five acres in size. Two separate disposal areas have been reported at Site 65, a battery acid disposal area and a liquid disposal area. The types of liquids that have been disposed are reported to have been comprised of POL. In addition, the dump was used to burn construction debris. The dump was in operation from before 1958 until 1972.

A RI was conducted at Site 65 in 1995. Findings from the RI indicate that there were no releases of hazardous substances from the waste disposal areas that would result in a risk to human health or the environment.

In early 2001, several discarded containers were discovered in the vicinity of Site 65. The containers were heavily corroded and no materials were noted in the containers. Groundwater, soil, and surface water and sediment (from a nearby creek) were collected in April 2001 to determine if surrounding media had been impacted from potential releases. The data indicated that the various media had not been impacted from the containers.

The Final Proposed Remedial Action Plan (PRAP) and ROD were completed in Fiscal Year 2001. No additional remedial actions are planned for Site 65.

## **2.10 Operable Unit No. 10 (Site 35)**

IRODs were signed on September 15, 1994 and September 22, 1995 for soil and the shallow groundwater, respectively. A Final ROD is anticipated to be signed for OU No. 10 during Fiscal Year 2003.

### **2.10.1 Site 35 - Camp Geiger Area Fuel Farm**

Site 35 is located immediately north of the intersection of G and Fourth Streets, approximately 400 feet southwest of Brinson Creek. The Fuel Farm consisted of five 15,000-gallon ASTs and associated underground distribution lines, a pumphouse, a fueling pad, a distribution island, and an oil/water separator. The ASTs were erected in 1945 as part of the original Camp Geiger construction. The Fuel Farm was active until it was decommissioned in the spring of 1995 to make way for the construction of a highway. During the active life of the Fuel Farm several releases of fuel occurred. During 1957 and 58 approximately 1,000-gallons of fuel were released. To control the release, interceptor trenches were dug and the fuel was ignited. There is also evidence of a fuel release from an abandoned underground distribution line that supplied No. 6 fuel oil to a UST that fueled a boiler at the Mess Hall Heating Plant, located adjacent to "D" Street between Third and Fourth Streets.

During 1993 and 1994 an Interim RI and comprehensive RI were conducted at Site 35. The Interim RI identified elevated levels of petroleum hydrocarbon contamination in soils at three locations adjacent to the former fuel farm. The comprehensive RI began in March 1994 and was completed in July 1995. The comprehensive RI identified multiple plumes of fuel- and solvent-related groundwater contamination in the surficial aquifer. An Interim Feasibility Study (FS) and ROD were prepared that focused on fuel impacted soil at the site. A soil removal was conducted in 1995 and completed in the spring of 1996.

An IROD was signed in Fiscal Year 1995 for the shallow groundwater. The selected remedy addressed in the IROD was in-well aeration and off-gas adsorption. This remedy was intended to expedite the reduction of organic contaminants in the surficial aquifer.

Due to unfavorable site conditions, lack of access, and a lack of BTEX contamination in groundwater east of the proposed highway, it was recommended that an in-situ air sparging trench (approximately 100 feet in length) be constructed along the western edge of the proposed right-of-way. It was further recommended that the in-situ air sparging system be tested prior to full-scale implementation. The pilot air sparging system is currently operating and is maintained by the Remedial Action Contractor (RAC).

A Draft Natural Attenuation Evaluation (NAE) Report was prepared during Fiscal Year 2000. A Focused NAE study for the wetlands at Site 35 will be conducted in Fiscal Years 2002 and 2003 based on the recommendations of the draft report. Following NAE study, the FS, PRAP, and ROD will be completed in Fiscal Years 2003 and 2004.

Site 35 was incorporated into the monitoring program in October 1998. Quarterly monitoring, which includes groundwater and surface water and from Brinson Creek, is expected to continue in Fiscal Year 2002 as part of the Focused NAE study.

## **2.11 Operable Unit No. 11 (Sites 7 and 80)**

The Final ROD for OU No. 11 was signed on August 21, 1997.

### **2.11.1 Site 7 - Tarawa Terrace Dump**

Site 7 is approximately 5 acres in size and is situated just south of the Tarawa Terrace community center between Tarawa Boulevard and Northeast Creek. Site 7 is a former dump that was used during the construction of the base housing located in Tarawa Terrace. Precise years of operation are unknown, but it has been reported that the dump was closed in 1972. Historical records do not indicate that hazardous materials were disposed at this facility; only construction debris, water treatment plant filter media, and household trash.

The RI field program at Site 7 was conducted in 1994 and consisted of a site survey; a soil investigation that included drilling and sampling; a groundwater investigation that included monitoring well installation and sampling; a surface water and sediment investigation; a habitat evaluation; and an earthworm bioaccumulation study. The pesticides dieldrin, 4,4'-DDE, 4,4'-DDT, and 4,4'-DDD were the most prevalent pesticide contaminants among the soil and sediment samples. Semivolatile contamination were detected in the north and eastern portions of the study area. Metals were the most prevalent and widely distributed contaminants in the groundwater. None of the contaminants detected was considered to pose a threat to human health or the environment. Accordingly, no additional remedial actions are planned for Site 7.

### **2.11.2 Site 80 - Paradise Point Golf Course Maintenance Area**

Site 80 is located northwest of Brewster Boulevard within the Paradise Point Golf Course, behind Building 1916. Information regarding past maintenance procedures is unknown; however, the facility is currently operating.

The initial phase of the RI field investigation commenced in October 1994 and continued through December 1994. A subsequent soil and groundwater investigation at Site 80 commenced in June 1995 and continued through July 1995. Based upon the results of the investigations, pesticides were the predominant contaminants at Site 80. Six of the eleven pesticides detected in soils at Site 80 were in 20 of the 55 samples analyzed.

Based on the risk assessment presented in the RI report, a TCRA was performed to remove soil contaminated with pesticides. The TCRA was completed during 1996. Remedial action levels were based upon Region III Risk-Based Concentrations for industrial workers, which resulted in a ten-fold increase in the action levels for dieldrin and aldrin, the drivers of the remedial effort. Approximately 988 tons of contaminated soils were excavated from Site 80.

After completion of the TCRA, a No Action Alternative was presented in the ROD signed in August 1997. No additional remedial actions are planned for Site 80.

### **2.12 Operable Unit No. 12 (Site 3)**

The Final ROD for OU No. 12 was signed on April 3, 1997 and was amended in Fiscal Year 1999. The Amended ROD was signed on June 20, 2000.

#### **2.12.1 Site 3 - Old Creosote Plant**

Site 3 is located on the mainside portion of MCB, Camp Lejeune, approximately one mile north of Wallace Creek along Holcomb Boulevard. Site 3 encompasses approximately 5 acres, is generally flat, and is intersected by a dirt access road. Remnants of a former creosote plant, including the chimney, concrete pads, and train rails, are present in the southern portion of Site 3. The creosote plant reportedly operated from 1951 to 1952 to supply treated lumber during construction of the Camp Lejeune Railroad. The former sawmill, which supplied the cut timbers for creosote treatment, was reportedly located in the cleared area in the northern portion of the Site 3. The treated lumber was used during construction of the Camp Lejeune Railroad.

The RI field investigation commenced in September 1994 and continued through December 1994. A follow-up phase of the RI field investigation was completed in June and July of 1995. Due to volatile and PAH contamination detected within the groundwater during the first round of sampling, additional monitoring wells were installed to further define the vertical and horizontal extent of contamination. Naphthalene was the only PAH constituent detected above applicable standards in the groundwater. PAH constituents were also detected among soil samples obtained from the site. The highest concentrations of PAHs occurred in the central portion of the site, the former treatment area. Fuel constituents, such as ethylbenzene and xylene, were also detected in surface and subsurface soils at Site 3, primarily at the former treatment area in the central portion of the site.

Based on the findings of the RI/FS, the recommended alternative presented in the ROD included excavation of contaminated soil, on-site treatment of the soil, and groundwater monitoring. An Amended ROD was prepared and submitted for approval during the first quarter of Fiscal Year 1999. The Amended ROD proposed that the excavated soil be taken off-site for disposal at a permitted

facility in lieu of on-site treatment; however, due to a change in the regulatory status of creosote contaminated soils, other remediation options were considered. These options include in situ solidification, monitored natural attenuation, and removal/on site treatment/off-site disposal.

The final remedy, which included removal and disposal of the PAH impacted soils, was selected and implemented in Fiscal Year 2000. The Final Amended ROD was signed on June 20, 2000. The Amended ROD also includes a LUCIP which implement aquifer and land use controls at Site 3. Semiannual monitoring of groundwater at Site 3 will continue in Fiscal Year 2002.

## **2.13 Operable Unit No. 13 (Site 63)**

The Final ROD for OU No. 13 was signed on April 3, 1997.

### **2.13.1 Site 63 - Verona Loop Dump**

Site 63 is comprised of approximately five acres and is located nearly two miles south of the MCAS, New River operations area. Site 63 is bordered to the south by Verona Loop Road, to the east by an unnamed tributary to Mill Run, and to the west by a gravel access road. Much of the site is heavily vegetated with dense understory and trees greater than three inches in diameter. Very little information is known regarding the history or occurrence of waste disposal practices at Site 63. The study area reportedly received wastes generated during training exercises. The type of materials generated during these exercises are described only as "bivouac" wastes. Additional information suggests that no hazardous wastes were disposed of at Site 63. The years during which disposal operations may have taken place are not known. Training exercises, maneuvers, and recreational hunting are frequently conducted in the area.

The RI field investigation of OU No. 13 was completed during November 1995. The RI field program at Site 63 consisted of a site survey, a soil investigation, a groundwater investigation, a surface water and sediment investigation, and a habitat evaluation. Positive detections of SVOCs, pesticides, and metals were observed in environmental samples obtained at Site 63. Pesticide concentrations were low (i.e., less than 0.1 mg/kg) and primarily limited to within and adjacent to the suspected disposal portion of the study area. The presence of SVOCs and pesticides is most likely the result of former or ongoing activities at Site 63.

Based upon the findings presented in the RI, there are no threats to human health and the environment from the contamination at Site 63. No additional remedial action or monitoring is planned for Site 63. A LUCIP was recommended for intrusive activities and aquifer use and was implemented in Fiscal Year 2001.

## **2.14 Operable Unit No. 14 (Site 69)**

A Final Interim ROD was signed for OU No. 14 on June 29, 2000.

### **2.14.1 Site 69 - Rifle Range Chemical Dump**

Site 69 is located approximately one-quarter mile west of the New River in the Rifle Range area of MCB, Camp Lejeune. The site includes approximately 14 acres and is situated in a topographically high area. The former disposal area slopes downward in all directions from the central portion of the study area. From 1950 to 1976, the area was used to dispose of chemical wastes including PCBs, solvents, pesticides, calcium hypochlorite, and drums of "gas" that possibly contained CN (i.e., tear

gas) or other training agents. Based upon background information, chemical training agents may be buried at this site.

The RI/FS at Site 69 commenced in 1992 and, after a number of supplemental investigations, concluded in 1995. Results from the RI indicate that groundwater is contaminated with solvent constituents. The groundwater contamination is believed to be centered in the south-central portion of the site and has not migrated extensively from the disposal area. Surface soil has not been impacted by the former disposal activities; however, it is believed that the top two feet of soil may be cover material that was placed over the debris. No intrusive investigations were conducted due to the potential for encountering chemical agents. Geophysical investigations have indicated buried metallic objects near the groundwater source area. It is likely that the buried material consists of drums or canisters that contain solvents. Surface water and sediment collected from the New River, Everett Creek, and an unnamed tributary north of the site have not been impacted by the former disposal operations.

A treatability study was initiated in March 1996 to assess the effectiveness of an innovative groundwater treatment technology called in-well aeration. After two years of operation and testing, in-well aeration was determined to be ineffective at reducing the number and concentration of contaminants in the groundwater.

During Fiscal Year 2000, a Final Interim ROD that identifies MNA and institutional controls as the most feasible treatment alternatives for the groundwater aquifer was signed. The Interim ROD will be in effect until it is feasible to remove the CWM from the site, which will be done under the supervision of the Army Corps of Engineers. Institutional controls include aquifer and land use controls that will be implemented through a LUCIP. Groundwater monitoring will continue on a semiannual basis in Fiscal Year 2002.

## **2.15 Operable Unit No. 15 (Site 88)**

A Focused RI was completed for Operable Unit No. 15 (Site 88) on May 15, 1998. A revised RI will be completed in Fiscal year 2003. Site 88 was added to the monitoring program in Fiscal Year 1999.

### **2.15.1 Site 88 - Base Dry Cleaners**

Site 88 is located at the Base dry cleaners (Building 25) within a densely populated area of MCB, Camp Lejeune. Barracks, office buildings, and other occupied structures are located adjacent to Building 25. The USTs were installed in the 1940s and were used to store varsol, an early dry cleaning chemical. Tetrachloroethene replaced varsol in the 1970's and was stored in an AST. In the mid-1980's the AST was taken out of service. The USTs were removed between November 1995 and January 1996.

A Focused RI was completed that identified the limits of soil and groundwater contamination at the site. In general, contaminated soil appears to be concentrated beneath the building and the parking lot to the northwest near Building 25. Groundwater contamination extends to a depth 50 feet below ground surface and extends approximately 700 feet to the northwest. Isolated areas of free phase dense non-aqueous liquid (DNAPL) exist beneath Building 25 and areas immediately north of the building.

To address the DNAPL situation at Site 88, a partial free phase liquid recovery has been completed in addition to a pre-surfactant remediation characterization and delineation study. These studies have established the nature and extent of residual phase of DNAPL. Surfactant enhanced aquifer

remediation (SEAR) was conducted to remove the residual phase DNAPL and some free phase DNAPL. This pilot program was completed in August 1999. The Final SEAR Report was issued January 25, 2000. Post SEAR monitoring was completed in Fiscal Year 2001.

In Fiscal Year 2001, several other interim remedial actions were also initiated. The Air Force started operations of the Reductive Anaerobic Bioremediation In-Situ Treatment Technology (RABITT) pilot scale test within the dissolved portion of the plume near monitoring wells 88-MW05 and 88-MW05IW. This pilot test is anticipated to be completed in Fiscal Year 2002. In addition, the RAC started aggressive fluid vapor recovery (AFVR) activities at Site 88 by pumping free phase product monthly from six existing extraction wells.

Site 88 was added to the monitoring program in April 1999. Semiannual groundwater monitoring was discontinued in the fourth quarter of Fiscal Year 2001 and a Pre-RI sampling event is anticipated in the second or third quarter of Fiscal Year 2002. The field work for the revised RI is anticipated to begin in the fourth quarter of Fiscal Year 2002, followed by the Revised RI Report in Fiscal Year 2003. The FS, PRAP, and ROD will be completed in Fiscal Years 2003 and 2004. Building 25 is expected to be demolished in 2004.

#### **2.16 Operable Unit No. 16 (Sites 89 and 93)**

Operable Unit No. 16 consists of Site 89 (STC-868) and Site 93 (TC-942). A remedial investigation has been completed for both sites and was issued as final on June 15, 1998. Both sites were included in the monitoring program in Fiscal Year 1999.

##### **2.16.1 Site 89 - (STC-868)**

Due the presence of chlorinated solvents detected during UST investigations, Site 89 has been further characterized by a remedial investigation under the IR Program. The site is located near the intersection of G and 8th Streets in the Camp Geiger area of MCB, Camp Lejeune. A UST for waste oil was installed in 1983 and removed in 1993. UST investigations detected elevated levels of total petroleum hydrocarbon (TPH), oil and grease, and chlorinated solvents in soil and groundwater samples.

The RI was conducted in two phases in 1996 and in 1997. Activities under this investigation included the installation of temporary and permanent monitoring wells with associated soil and groundwater sampling. In addition, surface water and sediment samples were collected from Edwards Creek, which borders the southern portion of the site. The RI at Site 89 identified chlorinated solvent contamination of soil and groundwater. The majority of the groundwater contamination is located in the area of the Defense Reutilization Marketing Office (DRMO). The contaminant plume extends to approximately 50 feet below ground surface and extends approximately 1,200 feet east of the DRMO. In addition, solvents in the groundwater impacted Edwards Creek which is located along the southern boundary of Site 89.

Additional investigation activities were conducted in June/July 1999 and in October 1999. Activities included the installation of permanent monitoring wells and associated groundwater sampling, the collection of soil samples, and the collection of surface water and sediment samples. These investigations verified that the extensive amounts of chlorinated solvents had impacted the immediate and surrounding areas of Site 89.

A follow up investigation was conducted in December 1999 to further delineate the extensive soil contamination in the southern portion of Site 89. Soil samples were collected from the southern

portion of Site 89 both inside and outside the DRMO. This sampling event confirmed that extremely high levels of chlorinated solvents were impacting an extensive area within the southern portion of the site.

A TCRA was completed in Fiscal Year 2001 for the removal and treatment of vadose zone contaminants in the southern portion of the site. Low Temperature Thermal Desorption (LTTD) units were used to treat the contaminated soil and roughly 32,000 tons were treated. In addition, an aeration system was installed in Edwards Creek to assist in the remediation of VOCs in the creek. This system is anticipated to be operational through Fiscal Year 2002.

The contaminated media (soil and groundwater) that remains within the southern portion of Site 89 after the TCRA will be addressed through a follow up EE/CA and non-time critical response action. The Phase I supplemental field investigation to support the EE/CA was completed in August 2001. The Phase II supplemental field investigation is planned to be completed in the second quarter of Fiscal Year 2002, followed by the Final EE/CA. The selection of a follow-up remedial alternative and implementation of the selected remedy are expected to be completed during Fiscal Year 2003.

Site 89 was added to the monitoring program in April 1999. Groundwater monitoring, which is conducted on a semiannual basis, was temporarily suspended in Fiscal Year 2001 due to the TCRA (surface water sampling was performed); however, sampling is expected to continue in Fiscal Year 2002.

#### **2.16.2 Site 93 - (TC-942)**

Site 93 is located northwest of the intersection of "E" and 10th Streets at Camp Geiger. The site consisted of one UST that was used to store used oil. The UST was removed in December 1993. Subsequent investigations detected chlorinated solvents, and oil and grease compounds at the site. In addition, cadmium and lead were detected at concentrations exceeding state groundwater standards.

The remedial investigation identified shallow groundwater contamination in the area near the former UST. The impact to the groundwater at Site 93 is not as severe as what was discovered at Site 89. The depth, concentration, and the areal extent of contamination are much less at Site 93. Because of the significant contamination at Site 89, the completion of the evaluation of Site 93 will be done separately.

In January 2002, a supplemental investigation was completed. The investigation included the installation of Geoprobe borings and four shallow monitoring wells. A letter report documenting the field program and results will be completed in the second quarter of Fiscal Year 2002. An FS will also be completed during Fiscal Year 2002 with PRAP and IROD completion anticipated for the following fiscal year.

Site 93 was added to the monitoring program in April 1999. Groundwater monitoring is expected to continue.

#### **2.17 Operable Unit No. 17 (Sites 90, 91, and 92)**

The Final ROD was signed for OU 17 on September 30, 2001.

Operable Unit No. 17 is located in the southeast portion of MCB, Camp Lejeune in the Courthouse Bay Complex. Sites 90, 91, and 92 are all former UST program sites that have been placed on the IR Program list because contaminants not typically related to petroleum UST sites were detected. Each of

the sites was investigated under the IR Program through a Focused RI completed in April 1997. As a result of the findings of the Focused RI, additional sampling was completed in September 1999. The Final Focused RI was submitted in Fiscal Year 2000, and a "no further action" Final ROD was signed in Fiscal Year 2001.

#### **2.17.1 Site 90 - (BB-9)**

Site 90 contained three USTs used for heating oil. These tanks were removed in March 1993. Subsequent investigations confirmed the presence of soil and groundwater contamination. The Focused RI field activities detected toluene in the soil samples. Groundwater samples were collected from existing and newly installed temporary monitoring wells. The laboratory analysis of these samples only detected chloroform, which is not suspected to be a site related compound.

Additional groundwater samples were collected from permanent monitoring wells to confirm the presence or absence of chloroform. A Supplemental Groundwater Report was issued and commented on by all reviewing parties. The comments were incorporated into the Final Focused RI Report, which was completed in Fiscal Year 2001.

Three temporary wells were installed around a monitoring well that had detectable concentrations of TCE during the Supplemental Groundwater Study. These wells were installed to delineate the possible TCE plume. Samples from the three temporary wells did not contain TCE and, therefore, no further actions were required.

#### **2.17.2 Site 91 - (BB-51)**

Site 91 contained one UST that was removed in August 1992. At the time of the UST closure, TPH contamination was detected in the soil samples. The groundwater samples collected during the Focused RI detected tetrachloroethene (PCE); however, the concentrations were below state and federal standards. Additional groundwater samples were collected from permanent monitoring wells to confirm the presence or absence of suspected non-site related compounds. A supplemental groundwater report was issued and commented on by all reviewing parties. The comments were incorporated into the Final Focused RI Report.

Site 91 was placed into the monitoring program in July 2000. Site wide groundwater monitoring was completed in Fiscal Year 2001; however, monitoring of two wells is expected to continue through early Fiscal Year 2002 to close out the site.

#### **2.17.3 Site 92 - (BB-46)**

Site 92 contained one UST that was installed in 1980 and used to store gasoline. The tank was deactivated in 1989 and removed in January 1994. A subsequent site investigation identified the presence of chlorinated hydrocarbons in the groundwater. Soil and groundwater samples were collected from existing and newly installed temporary monitoring wells as part of the Focused RI. There were no volatile organic compounds detected in the soil samples. Only chloroform was detected in the groundwater samples.

Site 92 was placed into the monitoring program in July 2000. Groundwater monitoring was completed in Fiscal Year 2001.

## **2.18 Operable Unit No. 18 (Site 94)**

To date, there has been no IR Program investigations conducted at Site 94. Investigations and ongoing remedial actions at the site have been completed under the UST Program. Draft Project Plans were completed in 1998 and are awaiting comment. A RI is anticipated for Operable Unit No. 18 during Fiscal Year 2003. Additional submittals will depend on the results of the RI.

### **2.18.1 Site 94 - PCX Service Station**

Site 94 is located within the HPIA. Four gasoline USTs were reportedly installed during the 1950s northeast of Building 1613. The tanks supplied various grades of gasoline to the service station. All of the USTs were removed on January 13, 1995. Hydrocarbon contamination of the subsurface soil was confirmed at the site during the UST removal. Further investigations at the site have identified free phase hydrocarbons and chlorinated solvent related contaminants.

Dissolved purgeable aromatic constituents were identified and delineated in the area of the former UST basin and the free product plume areas. Dissolved purgeable halocarbon compounds were identified at concentrations exceeding North Carolina groundwater standards in three isolated areas, suggesting multiple sources. In addition, the vertical extent of purgeable halocarbons is at least 50 feet below ground surface. The extent of the chlorinated hydrocarbon plume is not defined. A schedule for future actions at the site has not been established yet.

## **2.19 Operable Unit No. 19 (Site 84)**

### **2.19.1 Site 84 - Building 45 Area**

Site 84, including the former powerhouse, is located approximately 200 yards south of Highway 24 one mile west of the main gate. The study area lies east of Northeast Creek. The site area is mostly wooded and vegetated. There is a small lagoon, possibly manmade, hidden by trees near the center of the site. The lagoon is roughly circular in shape with a diameter of approximately 50 feet. There are no direct access roads and access to the site is restricted by locked gates. The site is relatively flat with some minor surface mounds in the wooded areas. Overland surface water drainage is west in the direction of Northeast Creek.

The site includes a former electrical powerhouse. Transformers reportedly containing PCBs were known to have been used and possibly stored at the powerhouse. A transformer was discovered near the wooded area, east of the powerhouse. Additional transformers (approximately 20) potentially containing PCB dielectric oil were discovered near the woods, east of the powerhouse. Maintenance personnel at Building 45 have indicated that additional transformers may still be buried in areas near the lagoon. Public works has reported to have performed minor excavations in the area and did not discover any waste materials.

Baker conducted soil, groundwater, surface water and sediment sampling activities in October 1995 as part of a Site Investigation (SI). Additional sampling was performed in March 1998. Samples were analyzed for TCL PCBs only. From the results of the sampling performed at the site, it is obvious that the site has been adversely impacted by PCB contamination. PCBs have been detected at levels above 500 parts per billion (ppb) in soil collected from around the lagoon, and in surface water and sediment (above 1,000 ppb) collected from within the lagoon. A Pre-RI Screening Study was conducted in 1998 to initially characterize the site.

An EE/CA was prepared on January 15, 1999 to address the impacted soils and lagoon area. Based on delineation sampling that was conducted for the EE/CA, it was concluded that the extent of the contamination warranted an RI/FS. Two USTs have been removed from the site under the UST Program and have been followed up with soil vapor extraction/air sparging treatment.

Building 45 was partially demolished (basement is remaining) in August/September 1999. Baker conducted concrete sampling and surface water sampling at Building 45 in August 1999. Additional field activities in Fiscal Year 2000 included fencing and engineering controls to prevent intrusion into the basement.

The RI field investigation was completed in August 2001. It is anticipated that the RI/FS and PRAP/ROD documents will be completed during Fiscal Year 2002. In addition, a non-TCRA will be completed at Building 45 to remove impacted soils.

## **2.20 Operable Unit No. 20 (Site 86)**

### **2.20.1 Site 86 - Tank Area AS419-AS421**

Site 86 is located on the southwest corner of the Foster and Campbell Street intersection, within the operations area of MCAS New River. The site is comprised of a lawn area surrounded by buildings, asphalt roads, and parking lots. Site 86 served as a storage area for petroleum products from 1954 to 1988. In 1954, three 25,000-gallon ASTs were installed within an earthen berm. The three tanks were reportedly used for No. 6 fuel oil storage until 1979. From 1979 to 1988 the tanks were used for temporary storage of waste oil. The three tanks were emptied in 1988 and were removed in 1992. Today, the former location of the tanks is grass-covered and only a very slight depression remains.

The RI field investigation at Site 86 commenced in February 1995 and continued through May 1995. Volatile and semivolatile organic compounds were detected in both surface and subsurface soil samples. The majority of SVOCs detected in soil samples were PAH compounds. Based upon the initial results from the RI, additional wells were installed at Site 86 in 1997 and 1998. The groundwater monitoring wells were installed in locations to better define the limits of the identified plumes and to determine VOC contaminant migration.

Site 86 was added to the monitoring program in 1998. From 1998 through 2000 groundwater samples were collected on a quarterly basis, but have been reduced to annual monitoring in 2001. In June 2000 it was recommended that Site 86 be further evaluated based on the increasing levels of TCE, as noted during monitoring, in a downgradient intermediate well. The data also suggested that the TCE plume may be migrating as indicated by several downgradient wells. Subsequently, it was decided at the July 2000 IR Partnering Meeting that Site 86 would be permanently removed from OU No. 6 and a new OU, No. 20, would be created for this site.

Additional field work associated with the Amended RI was completed in the fourth quarter of Fiscal Year 2001 and the second quarter of Fiscal Year 2002. The Amended RI report will be completed in Fiscal year 2002. The FS is also expected to be completed in Fiscal Year 2002.

## **2.21 Operable Unit No. 21 (Site 73)**

### **2.21.1 Site 73 - Courthouse Bay Liquids Disposal Area**

Site 73 is located within an active amphibious vehicle maintenance facility located along the northwest shore of Courthouse Bay. Available information indicates that disposal activities occurred within a

13-acre area from 1946 until 1977. An estimated 400,000 gallons of waste oil were disposed of in this area. The waste oil was generated during routine vehicle maintenance. The oil drained directly on the ground surface. In addition, approximately 20,000 gallons of waste battery acid were reportedly disposed of in this area. Waste battery acid was poured into shallow hand-shoveled holes that were backfilled after disposal.

A RI was conducted at Site 73 in 1995. Findings from the RI indicated the presence of VOCs among a select number of shallow and deep groundwater samples scattered across the study area. A follow-up Phase II RI was conducted in the spring of 1996 to further delineate the extent of groundwater contamination.

An initial (Phase I) NAE field investigation at Site 73 was completed and a draft NAE report was prepared in the second quarter of Fiscal Year 1999. A Phase II Field Investigation was completed in May 2001 and provided additional data on plume characterization and natural attenuation conditions. The final NAE report was completed in the second quarter of Fiscal Year 2002. Although natural attenuation of the VOCs in groundwater was demonstrated to be a viable treatment option, the time frame to reach the clean up objectives was determined to be prohibitive. Accordingly, a Focused FS report will be prepared during the third quarter of Fiscal Year 2002 to evaluate active groundwater treatment remedies for the "hot spot" areas of the plumes.

An air sparging system will be employed as an interim measure to address an area of concentrated vinyl chloride near the bulkhead area. The system will likely be online in early Fiscal Year 2002. Quarterly monitoring will also continue in Fiscal Year 2002.

## **2.22 Pre-Remedial Investigation Sites**

This section discusses sites that have been assessed through Pre-RIs. It is important to note that these Pre-RI sites are not required to adhere to the same reporting requirements as defined in the Camp Lejeune FFA for RI/FS sites. If these sites warrant further investigation based on the Pre-RI results, the sites will be added to the FFA list of RI/FS sites.

### **2.22.1 Site 10 - Original Base Dump**

Site 10 covers approximately 5 to 10 acres. It was operated prior to 1950 and was mainly used as a construction debris and burn dump. It is located to the west of Open Storage Lot 203 along Holcomb Boulevard. This site was recently added to the IR Program when it was reported that two marines developed skin rashes after contacting a heavy oily material that may have been at the site. Project plan development for this site was completed in September 1997. This site was investigated through the completion of a SI in 1998. Results of the SI indicated minimal impact to soil, sediment, surface water, and groundwater at the site. Additional investigative activities were completed in Fiscal Year 2001 to further evaluate metals in groundwater. The Final SI Report was submitted in fiscal Year 2001 and recommended no further actions at the site.

A no further action decision document will be completed for Site 10 in Fiscal Year 2002.

### **2.22.2 Site 12 - Explosive Ordnance Disposal**

Site 12 covers approximately 8 to 10 acres. During the early 1960s, ordnance was disposed by burning or detonating when it was found to be inert, unserviceable, or defective. Materials disposed included ordnance, colored smokes, and white phosphorous. Any undestroyed residues were typically less than one pound. Baker conducted soil and groundwater sampling activities in January and

February 1996. Results indicate that neither soil nor groundwater has been significantly impacted by site activities. The initial No Action (NA) Decision Document was completed in Fiscal Year 2000 for this site. This decision document indicates that all investigations or activities for the IR Program for Site 12 are complete. Because Site 12 is an active range, it will now fall under the Navy's Active Range Program. The Final NA document was completed in Fiscal Year 2001.

#### **2.22.3 Site 68 - Rifle Range Dump**

The Rifle Range Dump is located west of Range Road approximately 2,000 feet west of the Rifle Range water treatment plant and 800 feet east of Stone Creek. This 3- to 4-acre area was used as a disposal site for various types of wastes, including garbage, building debris, waste treatment sludge, and solvents. The site was utilized as a disposal facility from 1942 to 1972. The depth of the fill area is approximately 10 feet and the amount of material deposited has been estimated to be 100,000 cubic yards.

Organic compounds were identified in potable supply wells RR-45 and RR-97 located near the site. Even though these wells are located upgradient from the site, it was suspected that continuous pumping may have drawn contaminants to the wells. Baker conducted soil, groundwater, surface water, and sediment sampling activities in January and February 1996 with additional samples collected in March 1998.

Results indicated that none of the media sampled have been significantly impacted by site activities; however, because groundwater contains excessive levels of iron and manganese, aquifer and land use restrictions are included as part of this No Further Action (NFA). A Final NFA Decision Document, which includes a LUCIP to implement aquifer and land use controls, was initiated in Fiscal Year 2000. Final concurrence for the NFA document was approved in Fiscal Year 2001.

#### **2.22.4 Site 75 - MCAS Basketball Court Site**

The MCAS Basketball Court Site is located along the north side of Curtis Road. This site was reportedly a drum burial area that was used on at least one occasion in the early 1950s. The excavation as seen in an aerial photograph was an oval shaped pit approximately 90 feet long by 70 feet wide and was sufficiently deep to have encountered the water table. An estimated 75 to 100 55-gallon drums were placed in this pit. The drums reportedly contained a chloroacetophenone tear gas solution used for training. Additional organic chemicals, such as chloroform, carbon tetrachloride, benzene, and chloropicrin, may have been present in the solution. Degradation of the drums could have resulted in the release of the suspected materials into the groundwater. This was of particular concern due to the proximity of several water supply wells in the area, two of them within 500 feet of the alleged disposal site.

Baker conducted soil and groundwater sampling activities in January and February 1996. In addition, a comprehensive geophysical survey was performed. The geophysical survey did not indicate any major subsurface anomalies that could have been the suspected drums. The initial Final NA Decision Document was completed in Fiscal Year 2000. Final concurrence for the NA document was approved in Fiscal Year 2001.

#### **2.22.5 Site 76 - MCAS Curtis Road Site**

The MCAS Curtis Road Site is located in the vicinity of and along the north side of Curtis Road. The precise location of the site is unknown, and two possible locations have been identified based on interviews and aerial photography. This alleged dump site was reportedly used as a drum disposal

area on two occasions in 1949. The estimated area of the disposal unit is 1/4 acre and approximately 25 to 75 55-gallon drums were allegedly involved. It is believed that the drums contained a chloroacetophenone tear gas agent similar to that allegedly buried in the MCAS Basketball Court Site (Site 75). Potential contaminants are chloroform, carbon tetrachloride, benzene, and chloropicrin.

Baker conducted soil and groundwater sampling activities in January and February 1996. Additional groundwater data was collected in March of 1998. In addition, a comprehensive geophysical survey was also performed. The geophysical survey did not indicate any major subsurface anomalies that could have been the suspected drums. In response to an agency comment, groundwater was sampled again in October 1999 due to previous detections of metals above screening criteria. This data showed some metals above screening criteria but within range of the natural background of groundwater at Camp Lejeune. The initial NA Decision Document was completed in Fiscal Year 2000. Final concurrence for the NA document was approved in Fiscal Year 2001.

#### **2.22.6 Site 85 - Camp Johnson Battery Dump**

The Camp Johnson Battery Dump was recently discovered off Wilson Drive in the Montford Point Area during road repairs. Decomposed batteries, which were used in military communication equipment during the Korean era, were unearthed as a roadway was being widened. Military personnel utilizing this area also discovered discarded charcoal canisters from old air purifying respirators. The discarded battery packs and charcoal canisters were observed in piles, randomly located throughout a 2 to 3 acre area.

Baker conducted soil and groundwater sampling activities in August 1995. Results indicated that soil in the vicinity of the battery disposal piles has been impacted by metals leaching from the batteries. Removal of the soil and battery packs was recommended as part of a TCRA. Based upon comments by the USEPA (Region IV), an EE/CA was completed September 10, 1999, and an Action Memorandum was completed September 17, 1999. The removal action was completed in Fiscal Year 2000 and the NFA. Decision Document will be completed in Fiscal Year 2002.

#### **2.22.7 Site 87 - MCAS Officer's Housing Area**

The MCAS Officers' Housing Area site (formerly Site A) is located on the west bank of the New River. This area was identified during the second round of sampling conducted in 1986. Waste was identified eroding out of a cut bank along the New River in the vicinity of an officers' housing area. The materials were tentatively identified as hospital wastes. Various hospital waste materials were noted, including hypodermic needles and vials of white powder that were believed to contain a chlorine-based substance. No information was available regarding the volume of the waste or the mode of disposal.

Baker conducted soil, groundwater, surface water, sediment, and test pit sampling activities in October 1995 (groundwater, soil, surface water, and sediment) and February 1996 (test pits). Results indicate that none of the media sampled has been significantly impacted by site activities. In response to an agency comment, groundwater was sampled again in October 1999 due to a previous detection of pentachlorophenol (PCP). No PCP was detected in groundwater from the October 1999 sampling event. The initial NA Decision Document was completed in Fiscal Year 2000. Final concurrence for the NA document was approved in Fiscal Year 2001.

### 3.0 SITE MANAGEMENT SCHEDULES

The purpose of this section is to present project schedules for Fiscal Years 2002 through 2004. These schedules are adjusted annually within the SMP or periodically throughout the fiscal year. The OUs and sites that will be active during Fiscal Year 2002 are summarized below.

Operable Unit	Site	Fiscal Year 2002 Activities
1	78	Groundwater pump and treatment (Site 78 North); semiannual MNA sampling of surficial aquifer (Site 78 North and South); and completion NAE studies at Sites 78 North and South. Start up of the Treatability Studies for Sites 78 North and South.
2	82	Groundwater pump and treatment; semiannual monitoring of surficial and Castle Hayne aquifers, and surface water/sediment
3	48	No action
4	41 74	Monitoring of surficial aquifer and surface water No action
5	2	Monitoring of surficial aquifer
6	36, 43, 44, and 54	Complete revised FS and PRAP; finalize ROD; semiannual MNA sampling (Site 36).
7	1 and 28	Complete OU close out report
8	16	No action
9	65	No action
10	35	Complete Phases I and II of the focused NAE field study; quarterly MNA sampling of surficial aquifer, and surface water/sediment sampling
11	7 and 80	No action
12	3	Monitoring of surficial aquifer
13	63	No action
14	69	Semiannual MNA sampling of surficial and Castle Hayne aquifers
15	88	Start Revised RI field program; complete RABITT study
16	89 93	Complete EE/CA and initiate a Treatability Study for DNAPL source area; and monitoring of surficial and Castle Hayne aquifers, and surface water/sediment. Complete FS; semiannual MNA sampling of surficial aquifer.
17	90, 91, and 92	Limited monitoring (Site 91)
18	94	No Action
19	84	Complete the Building 45 non-TCRA; complete RI, FS, PRAP, and ROD
20	86	Complete the amended RI
21	73	Initiate interim action for groundwater (vinyl chloride area); complete the NAE Study and Focused FS.

The project schedules for active OUs are presented in Tables 3-1 through 3-17. A project schedule for Pre-RI sites is presented in Table 3-18. The project schedules include a detailed listing of activities projected for Fiscal Year 2002 and beyond; the duration of each IR Program activity; the deliverables (e.g., RI/FS Project Plans); and submittal dates. A listing of deliverables projected for Fiscal Year 2002 and beyond by OU is summarized in Table 3-19. Table 3-20 provides a list of deliverables

projected, by month, for Fiscal Year 2002 and beyond. It should be noted that not all of the dates are available at this time for all future document submittals. These dates are listed as TBD (to be determined) and will be updated in future deliveries of the SMP. For the sites currently in the monitoring program, the schedules have been projected through Fiscal Year 2002, although monitoring at some of the sites will go beyond Fiscal Year 2002.

The project schedules for most of the OUs reflect government/agency review times specified in the FFA. These review durations are as follows.

- Draft Documents: 60 days to review and 60 days to prepare and submit the Final document.
- Pre-Final Documents (ROD only): 30 days to review and 30 days to finalize. Pre-Final documents will become final if no comments are received within 30 days unless an extension is requested in accordance with the FFA.
- The project schedule for Remedial Design/Remedial Action (RD/RA) activities cannot be established until the RI/FS is completed. For remedial design activities, project duration of 15 months has been established because Section 120(e)(2) of CERCLA requires that remedial action activities begin within 15 months following the ROD.
- The project schedule for sites where long-term monitoring has been implemented do not indicate a government review period. Reports submitted for a long-term monitoring event are used to document recommendations and modifications to the long-term sampling requirements. Comments will be requested to implement modifications or at the five-year review period.

#### **4.0 REMOVAL ACTIONS AND INTERIM REMEDIAL ACTIONS**

Removal actions are taken to prevent immediate and substantial harm to human health. Examples of removal actions include site-control fencing, removal of waste containers on-site, and removal of buried drums. Interim remedial actions are conducted to prevent a potential release of contaminants or to limit further migration of contaminants.

##### **4.1 Operable Unit No. 1 (Site 21)**

A soil removal action was implemented at Site 21 to remove pesticide and PCB contaminated soil. Initial excavation in three AOCs was performed during Fiscal Year 1995. A total of 811 tons of contaminated soil were removed from the site.

##### **4.2 Operable Unit No. 2 (Sites 6 and 9)**

A TCRA was conducted for the removal of the debris and contaminated soil in 1994 at Site 6. Twenty drums of DDT were removed and contaminated soil was excavated during the removal action. Another TCRA was conducted in 1995 to remove drums, batteries, and communications wire. This removal action included six AOCs of POL contaminated soil.

Contaminated POL soil was removed during excavation work for the installation of the new Spill Training Pit at Site 9. This removal action was completed in Fiscal Year 2000.

##### **4.3 Operable Unit No. 5 (Site 2)**

A TCRA was initiated in January 1994. The TCRA involved the excavation and off-site treatment of pesticide contaminated soil and concrete. A total of 1,049 tons of pesticide contaminated soils were excavated and sent for off-site disposal.

##### **4.4 Operable Unit No. 6 (Sites 36 and 54)**

During Fiscal Year 1998, a removal action was performed at Site 36. Soil contaminated with PCBs was excavated from the western-most portion of the study area. Approximately 240 tons on non-regulated and regulated PCB-contaminated soils were removed.

A total of 4,960 cubic yards (6,461 tons) of PAH impacted soils were excavated at Site 54 in Fiscal Year 2001. The impacted soil was disposed of at a soil reclamation facility. A new propane burning live fire training aircraft mock-up was constructed in an area adjacent to the soil excavation area. The new fire training system was turned over to the Base on January 9, 2001.

##### **4.5 Operable Unit No. 10 (Site 35)**

A removal action for hydrocarbon contaminated soils was performed from September 1995 to May 1996. Approximately 15,700 tons of hydrocarbon contaminated soil were shipped off-site for recycling disposal.

An interim remedial action, IAS trench, at Site 35 was installed in February 1998. Support was provided to LANTDIV throughout the 6-month trial operation phase of the IAS system. Based upon a review of this IAS data, the trial phase was extended three months so that additional evaluation of the system may be performed. The IAS system started operations in Fiscal Year 2000 and is still ongoing.

An emergency soil removal action was completed in Fiscal Year 2000 associated with a release of POL from an existing pipeline that was severed during construction of the highway 17-bypass. The impacted soils were excavated and taken to the Camp Geiger storage cell for treatment.

#### **4.6 Operable Unit No. 20 (Site 43)**

During 1995, a TCRA for surficial metallic debris at Site 43 was conducted. Project activities involved the removal of all surficial metallic debris, including empty drums, various scrap metal, and an old tank vehicle. Additionally, four drums (1400 lbs.) of hazardous materials were shipped off-site for disposal.

#### **4.7 Operable Unit No. 11 (Site 80)**

The TCRA was completed during 1996. Remedial action levels were based upon Region III Risk-Based Concentrations for industrial workers, which resulted in a ten-fold increase in the action levels for dieldrin and aldrin, the drivers of the remedial effort. Approximately 988 tons of contaminated soils were excavated from Site 80.

#### **4.8 Operable Unit No. 15 (Site 88)**

During Fiscal Year 1999, an interim action was completed at Site 88. Surfactants were employed to remediate DNAPLs from much of the contaminated portion of the shallow aquifer. Surfactants were injected into the shallow aquifer and then extracted with the contaminants. The on-site operations for the SEAR test and post-SEAR partitioning interwell tracer test (PITT) were completed in August 1999. The results of these operations were reported during Fiscal Year 2000 (January 2000).

In Fiscal Year 2001, several other interim remedial actions were also initiated. The Air Force started operations of the Reductive Anaerobic Bioremediation In-Situ Treatment Technology (RABITT) pilot scale test within the dissolved portion of the plume near monitoring wells 88-MW05 and 88-MW05IW. This pilot test is anticipated to be completed in Fiscal Year 2002. In addition, the RAC started aggressive fluid vapor recovery (AFVR) activities at Site 88 by pumping free phase product monthly from six existing extraction wells.

#### **4.9 Operable Unit No. 16 (Site 89)**

A TCRA was completed in Fiscal Year 2001 for contaminated vadose soil within the southern portion of the site. The soils were excavated and treated using a LTTD technology. An aeration system was also installed and remains operational in Edwards Creek to assist in the remediation of VOCs in the creek. In addition, new fencing was also installed in areas south of the site and along Edwards Creek minimize access to the site and creek.

A Treatability Study is anticipated to start in Fiscal year 2002 to address the DNAPL source area remaining in the southern portion of the site. Future remedial actions are also anticipated for the northern portion of the site to address potentially impacted soil and groundwater.

#### **4.10 Pre-Remedial Investigation Sites**

During Fiscal Year 2000, a removal action was completed for Site 85. Several battery piles at Site 85 were removed based on recommendations of the Final EE/CA for this site. The final close out report from this removal was submitted in February 2000.

## **5.0 RESOURCE CONSERVATION AND RECOVERY ACT SITES**

### **5.1 Program Summary**

MCB, Camp Lejeune was issued a RCRA Part B permit to operate a hazardous waste container storage facility in September 1984 for the long-term hazardous material/hazardous waste container storage facility (Buildings TP-451 and TP-463). A revised permit was issued on January 10, 1997 which included corrective actions at all Solid Waste Management Units (SWMUs). The USEPA Region IV and the NC DENR conducted an initial RCRA Facility Assessment (RFA) for the base in January 1989. MCB, Camp Lejeune took the initial RFA and expanded it to include units such as landfills, surface impoundments, waste piles, tanks, container storage, septic tanks, drain fields, waste water treatment units, and storm water conveyances.

The 1996 RFA identified 41 IR sites, 112 underground storage tank sites, and 56 SWMU sites that required confirmatory sampling or corrective measures. Based on discussions between NC DENR and the base, it was determined that 62 SWMUs needed confirmatory sampling. This total included the 7 IR sites.

The confirmatory sampling even consisting of a soil, surface water, and/or sediment investigation was conducted in September 1997. Analytical results from soil samples collected during the Phase I confirmatory sampling were initially compared to USEPA Region III Residential Risk Based Concentrations (RBCs), NC DENR Method I Category S-2 Target Concentrations, NC DENR Method I Category S-3:G-1 Target Concentrations (soil to groundwater pathway), and base background for inorganics. Based on detected inorganics and their concentrations, specifically arsenic, cadmium, lead, and mercury, NC DENR suggested that the comparison criteria/standards used for the evaluation of inorganics may not have been entirely appropriate. This suggestion was based on two main points of contention. The data gathered at MCB, Camp Lejeune during several RI studies may not adequately represent base background conditions. The second point was that it may be more prudent to establish SWMU-specific soil to groundwater target concentrations instead of using the NC DENR Method I Category S-3:G-1 Target Concentrations which are based on default values and not site-specific conditions.

A new base background study for soils was completed in Fiscal Year 2001. Soil samples were collected from various locations throughout MCB, Camp Lejeune in areas not impacted by Base activities to determine a base background concentration for inorganics. In addition, a background study was also conducted in the vicinity of the SWMUs to establish SWMU-specific background conditions. Based on this new evaluation/comparison, determinations were made as to which SWMUs require investigation as part of the Phase II Confirmatory Study Investigation. Following completion of that study, the Phase I Confirmatory Study Investigation Report was finalized in early Fiscal Year 2002. Of the 62 SWMUs, the final report identified 40 SWMUs requiring additional investigation. Moreover, six additional SWMUs were also identified since the completion of the confirmation field program, thus increasing the number to 46 SWMUs.

The Phase II Confirmation Sampling Investigation, which will focus on groundwater, is anticipated to be completed in Fiscal Year 2002. In addition, a Base wide groundwater background study will also be completed in Fiscal Year 2002.

### **5.2 Remedial Action Summary**

Removal actions or planned actions have occurred or will be occurring at several of the SWMU sites. Removal actions and/or institutional controls at SWMU 291, SWMU 299, SWMU 310, and SWMU 339 have either been completed or contracts to complete the actions have been implemented. A summary of these SWMUs are provided below.

### **5.2.1 SWMU 291 – 034 Ditch**

MCB, Camp Lejeune initiated a contract to delineate the contaminated area, remove the contaminated soil, and backfill the area to prevent surface water accumulation. This work was completed by Fiscal Year 2001 and the draft close out report was submitted.

### **5.2.2 SWMU 299 – AS 114 Aboveground Storage Tank MCAS Auto Hobby Shop**

In Fiscal Year 2000, the tank exterior and overfill containment were cleaned. Surrounding contaminated soil was removed replaced with clean soil. Procedures were also established to collect POLs in a small portable container within the shop area, which subsequently will be emptied into the AST by employees of the hobby shop. Future plans will involve relocating the AST to an adjacent concrete pad and constructing a secondary containment system.

### **5.2.3 SWMU 310 – PT33 Pond Oil Water Separator**

Concrete pad pits were removed from the site in Fiscal Year 1998. MCB, Camp Lejeune initiated a contract in Fiscal Year 2000 to delineate the contaminated area associated with the pad and remove the contaminated soil.

### **5.2.4 SWMU 339 – AS 4146 Sandblasting Area**

The Phase I SWMU Confirmation Sampling Report recommended that controls be implemented to prevent the migration of contaminated sand and grit to the storm water collection system. In Fiscal Year 2000, a high-pressure baking soda paint remover replaced the former sand blasting method. A new wash rack and associated oil/water separator has also been constructed.

### **5.2.5 SWMU 358 – Sneads Ferry Road Battery Dump**

This site was discovered on May 8, 2000. The site is located near the intersection of Main Service Road and Sneads Ferry Road, and lies northeast of the Base's soil borrow pit. The area is clear of vegetation and is primarily in a sandy geology. The SWMU was initially reported to the Environmental Compliance Division (ECD) at Camp Lejeune by a jogger who saw a few batteries. Upon inspection, ECD contacted the RCRA Branch at Camp Lejeune who then filled two 55-gallon drums with batteries. Following that action, the IR Division was alerted and began notification/remediation procedures established through the Facility's RCRA Permit. A letter of notification was sent to NC DENR and USEPA Region IV.

The SWMU encompasses an area approximately 15 feet long and 20 feet wide and extends to an estimated depth of six to eight feet. It contains an underdetermined quantity of lithium, magnesium, and nickel-cadmium batteries. Historically, battery dumps at Camp Lejeune contain 150 to 200 tons of batteries. The affected area has been fenced off and the borrowing pit operator notified to prevent any intrusive activities at the SWMU. To prevent the any further releases of contaminants to the environment, the Camp Lejeune plans on performing a RCRA Interim Measure (IM) to remove the batteries and associated soil. This action was completed in Fiscal Year 2001 and the draft close out report was submitted.

## 6.0 REFERENCES

Baker, 1992. Draft Operable Unit Prioritization Report for MCB, Camp Lejeune, North Carolina. April 24, 1992.

Camp Lejeune Federal Facility Agreement. February 1991.

ESE, 1990. Final Site Summary Report, MCB, Camp Lejeune, North Carolina. September 1990.

**Baker**

*Baker Environmental, Inc.*  
**TABLES**

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TABLE 1-1

**INSTALLATION RESTORATION PROGRAM SITES  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA**

Site No.	Site Description
1	French Creek Liquids Disposal Area
2	Former Nursery/Day-Care Center
3	Old Creosote Site
6	Storage Lots 201 and 203
7	Tarawa Terrace Dump
9	Fire Fighting Training Pit at Piney Green Road
10	Original Base Dump
12	Explosive Ordnance Disposal (EOD-1, formerly known as G-4A)
16	Montford Point Burn Dump
21	Transformer Storage Lot 140
24	Industrial Area Fly Ash Dump
28	Hadnot Point Burn Dump
30	Sneads Ferry Road - Fuel Tank Sludge Area
35	Camp Geiger Area Fuel Farm
36	Camp Geiger Area Dump near Sewage Treatment Plant
41	Camp Geiger Dump near Former Trailer Park
43	Agan Street Dump
44	Jones Street Dump
48	MCAS New River Mercury Dump Site
54	Crash Crew Fire Training Burn Pit
63	Verona Loop Dump
65	Engineer Area Dump
68	Rifle Range Dump
69	Rifle Range Chemical Dump
73	Courthouse Bay Liquids Disposal Area
74	Mess Hall Grease Pit Area
75	MCAS Basketball Court Site
76	MCAS Curtis Road Site
78	Hadnot Point Industrial Area
80	Paradise Point (Golf Course Maintenance Area)

TABLE 1-1  
(Continued)

INSTALLATION RESTORATION PROGRAM SITES  
FISCAL YEAR 2001 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Site No.	Site Description
82	VOC Disposal Area at Piney Green Road
84	Building 45 Area
85	Camp Johnson Battery Dump
86	Tank Area AS419-AS421 at MCAS
87	MCAS Officer's Housing Area (formerly Site A)
88	Building 25
89	STC-868 (Former DRMO)
90	Building BB-9
91	Building BB-51
92	Building BB-46
93	TC-942
94	Building 1613

TABLE 1-2

INSTALLATION RESTORATION PROGRAM ACTIVITIES  
 FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO 0120  
 MCB, CAMP LEJEUNE, NORTH CAROLINA

OU No.	Site No.	NFA	NFRAP	RA	TS	SI	RI	FS	PRAP	EE/CA	Design	Interim ROD	Amended ROD	ROD	ROD Action	LTM Start	LTM Stop
1	21	X												9/94	NFA		
	24	X												9/94	LTM	07/95	10/97
	78			•	\$								•	9/94 <sup>(1)</sup>	GT/LTM	07/95	★
2	6			•										9/93	GT/LTM	07/96	★
	9	X												9/93	NFA		
	82			•										9/93	GT/LTM	07/96	★
3	48	X												9/93	NFA		
4	41			•										12/95	LTM	01/97	★
	74	X												12/95	LTM	01/97	7/98
5	2			•										9/94	LTM	07/95	★
6	36			\$				•	•		\$			•		10/98	★
	43			\$				•	•		\$			•			
	44							•	•					•			
	54							•	•					•		07/98	★
7	1	X												5/96	LTM	01/96	01/01
	28	X												5/96	LTM	01/96	10/01
	30	X												5/96	NFA		
8	16	X												9/96	NFA		
9	65	X												9/01	NFA		
10	35			\$	•			\$	\$		\$		\$	\$ <sup>(2)</sup>	GT/LTM	10/98	★
11	7	X												8/97	NFA		
	80	X												8/97	NFA		
12	3			•										4/97 <sup>(3)</sup>	LTM	01/97	★
13	63	X												4/97	NFA		
14	69			•										6/00 <sup>(4)</sup>	MNA	10/98	★
15	88			\$	\$		\$	\$	\$		\$			\$		01/99	★

TABLE 1-2  
(Continued)

INSTALLATION RESTORATION PROGRAM ACTIVITIES  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO 0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

OU No.	Site No.	NFA	NFRAP	RA	TS	SI	RI	FS	PRAP	EE/CA	Design	Interim ROD	Amended ROD	ROD	ROD Action	LTM Start	LTM Stop
16	89			\$	●		\$	\$	\$	●	●			\$		04/99	★
	93			\$	\$			●	●			●				04/99	★
17	90	X												09/01	NFA		
	91	X												09/01	NFA	07/00	★
	92	X												09/01	NFA	07/00	04/01
18	94						\$	\$	\$		\$			\$			
19	84			\$			●	●	●		\$			●			
20	86				\$		●	●	●					\$			★
21	73			●				●	●					●		07/00	★
Pre-RI Sites	10		X														
	12	X															
	68		X														
	75	X															
	76	X															
	85		X													07/01	★
	87	X															

Notes:

- |  |   |  |
|--|---|--|
| EE/CA = Engineering Evaluation/Cost Analysis | RI = Remedial Investigation                 | (1) = IROD for shallow aquifer signed on September 23, 1992  |
| FS = Feasibility Study                       | ROD = Record of Decision                    | (2) = IRODs for soil and groundwater signed on September 15, 1994, and September 22, 1995, respectively. |
| GT = Groundwater Treatment                   | SI = Site Inspection                        | (3) = Amended ROD signed on June 20, 2000  |
| LTM = Long-Term Monitoring                   | TS = Treatability Study                     | (4) = IROD signed on June 29, 2000   |
| MNA = Monitored Natural Attenuation          | X = No Additional Funding Required          |  |
| NFA = No Further Action                      | ● = Currently Funded                        |  |
| NFRAP = No Further Remedial Action Plan      | ★ = LTM Fiscal Year 02 Funded List          |  |
| PRAP = Proposed Remedial Action Plan         | ▲ = Fiscal Year 02 Spending Plan Swing List |  |
| RA = Remedial Action                         | \$ = Additional Funding May be Required     |  |

**TABLE 1-3  
SUMMARY OF LUCIP BOUNDARIES  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN  
MCB CAMP LEJEUNE, NORTH CAROLINA**

Operable Unit	Sites	LUCIP Boundary	Estimated Area (Acres)	Final Submitted
1	21, 24, 78	Non-Industrial Land Use Control - Soil	0.39	June 15, 2001
		Intrusive Activities - Groundwater	49.8	June 15, 2001
		Aquifer Restriction (1000 feet)	368.5	June 15, 2001
2	6, 9, 82	Non-Industrial Land Use Control - Soil	206.7	June 15, 2001
		Intrusive Activities - Groundwater	152.4	June 15, 2001
		Aquifer Restriction (1000 feet)	485.1	June 15, 2001
4	41, 74	Non-Industrial Land Use Control - Soil (Site 41)	36.6	June 15, 2001
		Intrusive Activities - Groundwater (Site 41)	16.4	June 15, 2001
		Intrusive Activities - Soil (Site 41)	36.6	June 15, 2001
		Aquifer Restriction (500 feet - Site 41)	86.4	June 15, 2001
		Access Control Boundary (Site 41)	30	June 15, 2001
		Non-Industrial Land Use Control - Soil (Site 74)	23.8	June 15, 2001
		Intrusive Activities - Groundwater (Site 74)	13.9	June 15, 2001
		Intrusive Activities - Soil (Site 41)	23.8	June 15, 2001
		Aquifer Restriction (500 feet - Site 74)	71.2	June 15, 2001
Access Control Boundary (Site 74)	8	June 15, 2001		
5	2	Non-Industrial Land Use Control - Soil	3.2	June 15, 2001
		Intrusive Activities - Groundwater	1.8	June 15, 2001
		Aquifer Restriction (1000 feet)	31.5	June 15, 2001
6	36, 54	To be determined for final ROD	TBD	TBD
7	1, 28	Non-Industrial Land Use Control - (combined)	33.8	June 15, 2001
		Intrusive Activities - Groundwater (Site 28)	4	June 15, 2001
		Aquifer Restriction (1000 feet - combined)	171.6	June 15, 2001
8	16	Non-Industrial Land Use Control - Soil	2.1	June 15, 2001
		Intrusive Activities - Groundwater	0.69	June 15, 2001
		Aquifer Restriction (1000 feet)	60.2	June 15, 2001
12	3	Non-Industrial Land Use Control - Soil	0.14	June 15, 2001
		Intrusive Activities - Groundwater	4.1	June 15, 2001
		Aquifer Restriction (1000 feet)	85.2	June 15, 2001
13	63	Intrusive Activities - Groundwater	2	June 15, 2001
		Aquifer Restriction (1000 feet)	100.1	June 15, 2001
14	69	Non-Industrial Land Use Control - Soil	13.9	June 15, 2001
		Intrusive Activities - Groundwater	8	June 15, 2001
		Aquifer Restriction (1000 feet)	127.2	June 15, 2001
		Site Access Controls	13.9	June 15, 2001
Pre-RI Site	68	Non-Industrial Land Use Control - Soil	TBD	June 15, 2001
		Intrusive Activities - Groundwater	TBD	June 15, 2001
		Aquifer Restriction (1000 feet)	TBD	June 15, 2001

TABLE 2-1

**OPERABLE UNIT DESCRIPTIONS  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA**

Operable Unit No.	Site No(s).	Site Name(s)	Primary Reasons for OU Selection
1	21 24 78	Transformer Storage Lot 140 Industrial Area Fly Ash Dump Hadnot Point Industrial Area	Geographic location of sites.
2	6 9 82	Storage Lots 201 and 203 Firefighting Training Pit at Piney Green Road Piney Green Road VOC Area	Geographic location of sites.
3	48	MCAS New River Mercury Dump Site	Unique characteristic of suspected waste (mercury).
4	41 74	Camp Geiger Dump Near Former Trailer Park Mess Hall Grease Disposal Area.	Unique characteristic of suspected waste (chemical agents).
5	2	Former Nursery/Day Care Center	Unique characteristic of material handled at site (pesticides).
6	36 43 44 54	Camp Geiger Area Dump near Sewage Treatment Plant Agan Street Dump Jones Street Dump Crash Crew Fire Training Burn Pit	Similar characteristics of material disposed (POL, waste oils, solvents) and contaminants detected (metals, VOCs, O&G). Geographic location of sites.
7	1 28 30	French Creek Liquids Disposal Area Hadnot Point Burn Dump Sneads Ferry Road Fuel Tank Sludge Area	Geographic location of sites. Unique characteristic of suspected waste (O&G, POL, and metals).
8	16	Montford Point Burn Dump	Geographic location of site.
9	65	Engineer Area Dump	Geographic location of site.
10	35	Camp Geiger Area Fuel Farm	Accelerated cleanup necessary to abate impacts to Brinson Creek.
11	7 80	Tarawa Terrace Dump Paradise Point (Golf Course Maintenance Area)	Geographic location of sites.
12	3	Old Creosote Plant	Isolated site with unique waste source.
13	63	Verona Loop Dump	Isolated site with unique waste source.
14	69	Rifle Range Chemical Dump	Isolated site with unique waste source.
15	88	Building 25, Base Dry Cleaners	Unique characteristic of suspected waste (dry cleaning solvent).

TABLE 2-1 (Continued)

OPERABLE UNIT DESCRIPTIONS  
 FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
 MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit No.	Site No(s).	Site Name(s)	Primary Reasons for OU Selection
16	89 93	STC - 868 TC-942	Geographic location of sites and adjacent surface water body. Unique characteristic of suspected waste (solvents).
17	90 91 92	Building BB-9 Building BB-51 Building BB-46	Former UST sites with similar contamination detected groundwater.
18	94	Building 1613	Geographic location of site, within Site 78, and similar contaminants adjacent shallow groundwater plume. Former UST site.
19	84	Building 45 Area	Isolated site with unique waste (PCBs).
20	86	Tank Area AS419-AS421 at MCAS	New Operable Unit created for Site 86 due to increasing levels of VOCs. Site 86 was originally included under OU 6.
21	73	Courthouse Bay Liquids Disposal Area	Unique characteristic of suspected wastes (POL, solvents).
Pre-RI Sites	10 12 68 75 76 85 87	Original Base Dump Explosive Ordnance Disposal (formerly EOD-1, G-4A) Rifle Range Dump MCAS Basketball Court Site MCAS Curtis Road Site Camp Johnson Battery Dump MCAS Officer's Housing Area (formerly Site A)	Supplemental investigations required to confirm presence of suspected contamination.

TABLE 2-2

**SUMMARY OF OPERABLE UNIT IRP ACTIVITIES  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO - 0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA**

Operable Unit	Site No.	Activity	Scheduled Start Up	Actual Start Up	Scheduled Completion	Actual Completion	Final Submittal Date	ROD/IROD Signature Date
1	24	Final LTM Report	FY 01	FY 01	FY 02	--		
1	78	Interim Remedial Action RI	FY 91	FY 91	FY 92	FY 92	April 16, 1992	
		Interim Remedial Action FS	FY 91	FY 91	FY 92	FY 92	April 16, 1992	
		Interim Remedial Action PRAP	FY 91	FY 91	FY 92	FY 92	May 8, 1992	
		Interim Remedial Action ROD	FY 91	FY 91	FY 92	FY 92	September 23, 1992	September 23, 1992
		Interim Remedial Action Design	FY 92	FY 92	FY 94	FY 93	June 18, 1993	
1	21, 24, and 78	Project Plans	FY 92	FY 92	FY 93	FY 93	March 11, 1993	
		RI	FY 93	FY 93	FY 94	FY 94	June 23, 1994	
		FS	FY 94	FY 94	FY 94	FY 94	July 22, 1994	
		PRAP	FY 94	FY 94	FY 94	FY 94	July 22, 1994	
		ROD	FY 94	FY 94	FY 94	FY 94	September 8, 1994	September 15, 1994
		LUCIP	FY 99	FY 99	FY 00	FY 01	June 2001	
2	6, 9, and 82	Project Plans	FY 91	FY 91	FY 92	FY 92	May 18, 1992	
		RI	FY 92	FY 92	FY 94	FY 93	August 20, 1993	
		FS	FY 92	FY 92	FY 94	FY 93	August 20, 1993	
		PRAP	FY 92	FY 92	FY 94	FY 93	August 20, 1993	
		ROD	FY 92	FY 92	FY 94	FY 93	September 24, 1993	September 24, 1993
		Remedial Design	FY 94	FY 94	FY 95	FY 94	May 10, 1994	
		LUCIP	FY 99	FY 99	FY 00	FY 01	June 2001	
3	48	Project Plans	FY 91	FY 91	FY 92	FY 92	May 18, 1992	
		RI	FY 92	FY 92	FY 94	FY 93	June 21, 1993	
		PRAP	FY 92	FY 92	FY 94	FY 93	June 21, 1993	
		ROD	FY 92	FY 92	FY 94	FY 93	July 26, 1993	September 10, 1993
4	41 and 74	Project Plans	FY 93	FY 93	FY 94	FY 94	December 2, 1993	
		RI	FY 94	FY 94	FY 95	FY 95	May 8, 1995	
		FS	FY 94	FY 94	FY 95	FY 95	May 8, 1995	
		PRAP	FY 94	FY 94	FY 95	FY 95	May 8, 1995	
		ROD	FY 94	FY 94	FY 95	FY 95	October 17, 1995	December 5, 1995
		LUCIP	FY 00	FY 00	FY 00	FY 01	June 2001	
4	74	Final LTM Report	FY 01	FY 01	FY 02	--		
5	2	Project Plans	FY 92	FY 92	FY 93	FY 93	March 11, 1993	
		RI	FY 93	FY 93	FY 94	FY 94	June 14, 1994	
		FS	FY 93	FY 93	FY 94	FY 94	June 23, 1994	
		PRAP	FY 93	FY 93	FY 94	FY 94	June 23, 1994	
		ROD	FY 93	FY 93	FY 94	FY 94	September 8, 1994	September 15, 1994
		LUCIP	FY 99	FY 99	FY 00	FY 01	June 2001	

TABLE 2-2  
(Continued)

SUMMARY OF OPERABLE UNIT IRP ACTIVITIES  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO - 0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site No.	Activity	Scheduled Start Up	Actual Start Up	Scheduled Completion	Actual Completion	Final Submittal Date	ROD/IROD Signature Date
6	36, 43, 44, and 54	Project Plans	FY 94	FY 94	FY 95	FY 95	December 2, 1994	
		RI	FY 95	FY 95	FY 97	FY 96	August 22, 1996	
		FS	FY 95	FY 95	FY 97	FY 98	June 24, 1998	
		Revised FS	FY02	FY02	FY02	--	--	
		PRAP	FY 95	FY 95	FY 97	FY 98	June 18, 1998	
		Revised PRAP	FY02	FY02	FY02	--	--	
		Pre-Final ROD	FY 95	FY 96	FY 97	--	--	
		ROD	FY 95	FY 95	FY 97	--	--	
7	1, 28, and 30	Project Plans	FY 93	FY 93	FY 94	FY 94	December 15, 1993	May 16, 1996
		RI	FY 94	FY 94	FY 95	FY 96	June 29, 1995	
		FS	FY 94	FY 94	FY 95	FY 96	July 13, 1995	
		PRAP	FY 94	FY 94	FY 95	FY 96	July 13, 1995	
		ROD	FY 94	FY 94	FY 95	FY 96	December 13, 1995	
		LUCIP	FY 99	FY 99	FY 00	FY 01	June 2001	
		Final OU Close Out	FY02	FY02	FY02	--	--	
8	16	Project Plans	FY 94	FY 94	FY 94	FY 94	October 2, 1994	September 30, 1996
		RI	FY 94	FY 94	FY 96	FY 96	January 31, 1996	
		PRAP	FY 94	FY 94	FY 96	FY 96	February 15, 1996	
		ROD	FY 94	FY 94	FY 96	FY 96	April 12, 1996	
		LUCIP	FY 99	FY 99	FY 99	FY 01	June 2001	
9	65	Project Plans	FY 94	FY 94	FY 95	FY 95	March 7, 1995	September 30, 2001
		RI	FY 95	FY 95	FY 98	FY 98	November 7, 1997	
		FS	FY 95	FY 95	FY 98	FY 98	July 31, 1998	
		PRAP	FY 95	FY 95	FY 98	FY 01	July 18, 2001	
		ROD	FY 95	FY 95	FY 98	FY 01	September 30, 2001	
10	35	Project Plans	FY 93	FY 93	FY 94	FY 94	December 20, 1993	September 15, 1994  September 22, 1995
		Interim Remedial Action FS (Soil)	FY 93	FY 93	FY 94	FY 94	July 20, 1994	
		Interim Remedial Action PRAP (Soil)	FY 93	FY 93	FY 94	FY 94	July 20, 1994	
		Interim Remedial Action ROD (Soil)	FY 93	FY 93	FY 94	FY 94	September 15, 1994	
		Interim Remedial Action FS (Groundwater)	FY 95	FY 95	FY 95	FY 95	June 13, 1995	
		Interim Remedial Action PRAP (Groundwater)	FY 95	FY 95	FY 95	FY 95	June 8, 1995	
		Interim Remedial Action ROD (Groundwater)	FY 95	FY 95	FY 95	FY 95	September 22, 1995	
		RI	FY 94	FY 94	FY 95	FY 95	May 3, 1995	
		Treatability Study	FY 96	FY 96	FY 96	FY 96	May 31, 1996	
		Interim Action Remedial Design	FY 97	FY 97	FY 97	FY 97	April 14, 1997	
		FS	FY 94	FY 94	FY 97	--	--	

TABLE 2-2  
(Continued)

SUMMARY OF OPERABLE UNIT IRP ACTIVITIES  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO - 0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site No.	Activity	Scheduled Start Up	Actual Start Up	Scheduled Completion	Actual Completion	Final Submittal Date	ROD/IROD Signature Date
10 (Cont.)	35	NAE Work Plans	FY 99	FY 99	FY 99	FY 99	December 4, 1998	
		NAE Report	FY 99	FY 99	FY 01	--	--	
		Focused NAE Work Plans	FY 99	FY 99	FY 00	FY 01	January 7, 2002	
		Focused NAE Report	FY 01	--	FY 01	--	--	
		PRAP	FY 94	FY 94	FY 97	--	--	
		ROD	FY 94	FY 94	FY 97	--	--	
11	7	Project Plans	FY 94	FY 94	FY 94	FY 95	October 2, 1994	
		RI	FY 94	FY 94	FY 97	FY 96	February 6, 1996	
		PRAP	FY 94	FY 94	FY 97	FY 96	November 27, 1996	
		ROD	FY 94	FY 94	FY 97	FY 97	April 10, 1997	
11	80	Project Plans	FY 94	FY 94	FY 94	FY 95	October 2, 1994	
		TCRA Work Plan for Soils	FY 95	FY 95	FY 96	FY 96	April 10, 1996	
		TCRA Closeout Report	FY 95	FY 95	FY 96	FY 96	September 9, 1996	
		RI	FY 94	FY 94	FY 97	FY 96	April 5, 1996	
		PRAP	FY 94	FY 94	FY 97	FY 96	November 27, 1996	
		ROD	FY 94	FY 94	FY 97	FY 97	April 10, 1997	
12	3	Project Plans	FY 94	FY 94	FY 94	FY 95	October 2, 1994	
		RI	FY 94	FY 94	FY 97	FY 96	June 12, 1996	
		FS	FY 94	FY 94	FY 97	FY 96	August 14, 1996	
		PRAP	FY 94	FY 94	FY 97	FY 97	October 23, 1996	
		ROD	FY 94	FY 94	FY 97	FY 97	January 6, 1997	
		Amended ROD	FY 99	FY 99	FY 00	FY 00	July 28, 1999	
		LUCIP	FY 99	FY 99	FY 00	FY 01	June 2001	
13	63	Project Plans	FY 95	FY 95	FY 96	FY 95	September 1, 1995	
		RI	FY 96	FY 96	FY 97	FY 97	October 18, 1996	
		PRAP	FY 96	FY 96	FY 97	FY 97	November 1, 1996	
		ROD	FY 96	FY 96	FY 97	FY 97	January 21, 1996	
		LUCIP	FY 00	FY 00	FY 00	FY 01	June 2001	
14	69	Project Plans	FY 93	FY 93	FY 94	FY 94	December 2, 1993	
		RI	FY 94	FY 94	FY 97	FY 97	December 5, 1997	
		Treatability Study	FY 97	FY 97	FY 98	FY 98	January 30, 1998	
		Final RI	FY 94	FY 94	FY 97	FY 99	October 4, 1999	
		PRAP	FY 94	FY 94	FY 97	--	--	
		Pre-Final Interim	FY 94	FY 94	FY 97	FY 99	October 4, 1999	
		Final Interim ROD	FY 99	FY 99	FY 00	FY 00	June 29, 2000	
		LUCIP	FY 00	FY 00	FY 00	FY 01	June 2001	

TABLE 2-2  
(Continued)

SUMMARY OF OPERABLE UNIT IRP ACTIVITIES  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO - 0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site No.	Activity	Scheduled Start Up	Actual Start Up	Scheduled Completion	Actual Completion	Final Submittal Date	ROD/IROD Signature Date
15	88	Project Plans	FY 96	FY 96	FY 97	FY 97	February 21, 1997	
		Focused RI	FY 97	FY 97	FY 98	FY 98	May 15, 1998	
		SEAR Investigation/Demonstration	FY 98	FY 98	FY 99	FY 99	January 25, 2000	
		Amended RI	FY02	FY02	FY03	--	--	
		FS	FY 01	--	FY 02	--	--	
		PRAP	FY 01	--	FY 02	--	--	
		ROD	FY 01	--	FY 02	--	--	
		Remedial Design	FY 02	--	FY 03	--	--	
16	89	Project Plans	FY 95	FY 95	FY 97	FY 97	February 20, 1997	
		RI	FY 95	FY 96	FY 98	FY 98	June 15, 1998	
		Action Memo (Southern DRMO)	FY 00	FY 00	FY 00	FY 00	June 9, 2000	
		Remedial Design (Southern DRMO)	FY 02	--	FY 03	--	--	
		EE/CA (Southern DRMO)	FY 00	FY 00	FY 00	FY 00	June 16, 2000	
		Treatability Study (Southern DRMO)	FY 01	FY 02	FY 02	--	--	
		RI (Site-wide)	FY 03	--	FY 03	--	--	
		FS	FY 03	--	FY 03	--	--	
PRAP	FY 03	--	FY 03	--	--			
ROD	FY 03	--	FY 03	--	--			
16	93	Project Plans	FY 95	FY 95	FY 97	FY 97	February 20, 1997	
		RI	FY 95	FY 96	FY 98	FY 98	June 15, 1998	
		FS	FY 01	FY02	FY 02	--	--	
		PRAP	FY 02	--	FY 03	--	--	
		IROD	FY 02	--	FY 03	--	--	
17	90, 91, and 92	Project Plans	FY 96	FY 96	FY 97	FY 96	June 31, 1996	September 30, 2001
		Focused RI	FY 97	FY 97	FY 98	FY 01	April 27, 2001	
		PRAP	FY 98	FY 98	FY 98	FY 01	July 18, 2001	
		ROD	FY 98	FY 98	FY 98	FY 01	September 30, 2001	
18	94	Project Plans	FY 98	FY99	FY 98	--	--	
		RI	FY 99	--	FY 00	--	--	
		FS	FY 00	--	FY 00	--	--	
		PRAP	FY 00	--	FY 00	--	--	
		ROD	FY 00	--	FY 00	--	--	

TABLE 2-2  
(Continued)

SUMMARY OF OPERABLE UNIT IRP ACTIVITIES  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO - 0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site No.	Activity	Scheduled Start Up	Actual Start Up	Scheduled Completion	Actual Completion	Final Submittal Date	ROD/IROD Signature Date
19	84	SI	FY 95	FY 95	FY 99	FY 99	November 24, 1998	
		Trip Report	FY 99	FY 99	FY 99	FY 99	September 17, 1999	
		Project Plans	FY 99	FY 00	FY 00	FY 01	June 1, 2001	
		Non-TCRA Building 45	FY 02	FY 02	FY 02	FY 02	January 2, 2002	
		RI	FY 00	FY 01	FY 02	--	--	
		FS	FY 00	--	FY 02	--	--	
		PRAP	FY 00	--	FY 02	--	--	
ROD	FY 00	--	FY 02	--	--			
20	86	Initial Project Plans	FY 94	FY 94	FY 95	FY 95	December 2, 1994	
		RI	FY 95	FY 95	FY 97	FY 96	August 22, 1996	
		FS	FY 95	FY 95	FY 97	FY 98	June 24, 1998	
		PRAP	FY 95	FY 95	FY 97	FY 98	June 18, 1998	
		Amended RI	FY 00	FY 02	FY 01	--	--	
		Amended FS	FY 01	FY 02	FY 02	--	--	
		Amended PRAP	FY 01	FY 02	FY 02	--	--	
ROD	FY01	FY 02	FY 03	--	--			
21	73	Project Plans	FY 94	FY 94	FY 95	FY 95	March 7, 1995	
		RI	FY 95	FY 95	FY 98	FY 98	November 7, 1997	
		Modeling Report	FY 97	FY 97	FY 98	FY 98	April 27, 1998	
		NAE Study	FY 99	FY 99	FY 00	FY 02		
		FS	FY 02	FY 02	FY 02	--		
		PRAP	FY 03	--	FY 03	--		
ROD	FY 03	--	FY 03	--				
Pre-RI Sites	10	Project Plans	FY 96	FY 96	FY 97	FY 98	January 20, 1998	
		SI	FY 98	FY 98	FY 99	FY 01	July 13, 2001	
		NFA	FY 01	FY 01	FY 02	--	--	
	12, 68, 75, 76, 85, 87	Project Plans	FY 95	FY 95	FY 95	FY 95	January 21, 1995	
		SI	FY 95	FY 95	FY 99	FY 99	November 24, 1998	
		EE/CA (Site 85)	FY 98	FY 98	FY 99	FY 99	September 10, 1999	
		Action Memorandum (Site 85)	FY 99	FY 99	FY 99	FY 99	September 17, 1999	
		NFA Document (Site 85)	FY 00	FY 01	FY 00	FY 02	--	
		NFA Document (Site 68)	FY 98	FY 98	FY 00	FY 01	May 8, 2001	
		NA Document (Sites 12, 75, 76, 87)	FY 98	FY 98	FY 00	FY 01	May 8, 2001	

TABLE 2-2  
(Continued)

SUMMARY OF OPERABLE UNIT IRP ACTIVITIES  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO - 0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site No.	Activity	Scheduled Start Up	Actual Start Up	Scheduled Completion	Actual Completion	Final Submittal Date	ROD/IROD Signature Date
--	RCRA/SWMU Investigation	Phase I Project Plans	FY 96	FY 96	FY 97	FY 97	August 25, 1997	
		Phase I Confirmatory Sampling	FY 97	FY 97	FY 97	FY 97	September 1997	
		Phase I Report	FY 98	FY 98	FY 98	FY 02	--	
		Background Study - Soil	FY 00	FY00	FY 01	FY 01	--	
		Background Report - Soil	FY 01	FY00	FY 01	FY 02	--	
		Phase II Project Plans	FY 99	FY 99	FY 99	FY 02	--	
		Phase II Confirmatory Sampling	FY 99	FY 02	FY 99	--	--	
		Phase II Report	FY 01	--	FY 01	--	--	
		Background Study - Groundwater	FY01	FY02	FY02	--	--	
		Background Study Report - Groundwater	FY02	FY02	FY02	--	--	

**TABLE 2-3**  
**SUMMARY OF SITES AND WELLS SAMPLED IN THE LTM PROGRAM**  
**FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO 0120**  
**MCB, CAMP LEJEUNE, NORTH CAROLINA**

Site 78 NA	Site 6 & 82	Site 41	Site 2	Site 36 NA	Site 54 NA	Site 35 NA	Site 3	Site 69 NA	Site 88	Site 89	Site 93 NA	Site 91	Site 86	Site 73 NA	Site 85
<i>North</i>															
GW22	GW01	GW11	GW03	GW03	GW06	MW10S	MW02	GW01	MW01	MW02	MW02	MW05	AS428-GW06	73-MW08	MW-01
GW23	GW01D	GW11DW	GW03IW	GW09	GW07	MW10D	MW02IW	GW02	MW02	MW02IW	MW04	MW13	GW08IW	A47/3-GW08	MW-02
GW24-1	GW01DA	GW12	GW05	GW10	GW08	MW14S	MW06	GW02DW	MW02IW	MW04	MW05		GW10IW	A47/3-GW11	MW-03
GW24-2	GW01DB		GW07	GW10IW	GW09	MW14D	MW11	GW03	MW04	MW04IW			GW15DW	A47/3-GW16	MW-04
GW24-3	GW03		GW08	GW10DW	GW10	MW31A		GW03DW	MW05	MW05			GW15IW	DW03	MW-05
GW25	MW03D		GW12	GW13	GW11	MW31B		GW10	MW05IW	MW05IW			GW16IW	DW04	
GW40	GW15D			GW13IW	GW12	MW40B		GW12	MW07IW	MW06IW			GW19DW	DW05	
GW41	GW16			GW16IW	GW13	MW47A		GW12DW	MW09IW	MW08IW			GW21IW	DW06	
GW43	GW27DW			GW18		MW47B		GW13DW		MW09			GW23IW	DW10	
GW44	GW27DA			GW18IW		MW55A		GW14		MW10			GW25IW	GW46DW	
GW45	GW28S			GW19		MW55B		GW14IW		MW11			GW26IW	GW47DW	
GW46	GW28DW					MW61A		GW15		MW15			GW28IW	GW48DW	
GW47	GW30					MW62A		GW15IW		MW16			GW29IW	GW49DW	
GW48	GW32					MW63B		GW15DW		MW16IW			GW30IW	GW50DW	
<i>South</i>															
GW01	GW33					MW64B				MW17			GW31DW	MW09	
GW04-1	GW34					MW65B				MW17IW			GW31IW	MW13	
GW05	GW35D												GW32IW	MW14	
GW08	GW36D													MW15	
GW09-1	GW37D													MW16	
GW09-3	GW38D													MW27	
GW10	GW40DW													MW29	
GW11	GW41													MW35	
GW39	GW42													MW39DW	
GW42	GW43													MW40DW	
GW49	82-MW02													MW43DW	
GW50	82-MW03													MW44DW	
GW51														MW45DW	
GW52															
GW53															
GW54															
GW55															
GW56															
GW57															
GW58															
GW59															

Notes:

NA = Natural attenuation sampling conducted

Recovery wells are also sampled at Sites 78 and 82.

Surface water and sediment collected at sites 28, 35, 36, 41, and 82







Table 3-3  
 Fiscal Year 2002 Site Management Plan, CTO-0120  
 Operable Unit No. 4 (Sites 41 and 74), MCB Camp Lejeune, North Carolina

Task Name	Duration	Start	Finish	2001							2002						
				Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
LTM Field Investigation (Site 41)	6 edays	7/12/01	7/18/01		■												
Final Monitoring Report (Site 74)	45 edays	7/16/01	8/30/01		■												
Semi-Annual Monitoring Report (Site 41)	39 edays	10/1/01	11/9/01					■									
LTM Field Investigation (Site 41)	9 edays	1/7/02	1/16/02									■					
Semi-Annual Monitoring Report (Site 41)	32 edays	4/8/02	5/10/02											■			
Annual Monitoring Period (Site 41)	46 edays	4/15/02	5/31/02											■			
LTM Field Investigation (Site 41)	10 edays	7/8/02	7/18/02														■





Table 3-6  
 Fiscal Year 2002 Site Management Plan, CTO-0120  
 Operable Unit No. 7 (Sites 1 and 28), MCB Camp Lejeune, North Carolina

Task Name	Duration	Start	Finish	2001													
				Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May		
LTM Field Investigation (Site 28)	9 edays	7/9/01	7/18/01		■												
Final Monitoring Report (Site 1)	47 edays	7/15/01	8/31/01		■	■	■										
Quarterly Monitoring Report (Site 28)	26 edays	9/9/01	10/5/01				■	■									
Annual Monitoring Report (Site 28)	45 edays	8/13/01	9/27/01			■	■	■									
LTM Field Investigation (Site 28)	9 edays	10/8/01	10/17/01						■								
Quarterly Monitoring Report (Site 28)	28 edays	11/30/01	12/28/01								■	■					
Draft OU 7 Close-Out Report	30 edays	11/20/01	12/20/01								■	■					
Comment Period	116 edays	12/21/01	4/16/02									■	■	■	■	■	■
Final OU7 Close-Out Report	22 edays	4/17/02	5/9/02														■



Table 3-8  
 Fiscal Year 2002 Site Management Plan, CTO-0120  
 Operable Unit No. 12 (Site 3), MCB Camp Lejeune, North Carolina

Task Name	Duration	Start	Finish	2001												2002										
				May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov				
LTM Field Investigation	9 edays	7/9/01	7/18/01			■																				
Annual Monitoring Report	52 edays	6/1/01	7/23/01		■	■																				
Semi-Annual Monitoring Report	18 edays	10/22/01	11/9/01							■																
LTM Field Investigation	10 edays	1/7/02	1/17/02										■													
Semi-Annual Monitoring Report	25 edays	4/15/02	5/10/02												■											
Annual Monitoring Report	32 edays	5/13/02	6/14/02													■										
LTM Field Investigation	9 edays	7/8/02	7/17/02																		■					













Table 3-14  
 Fiscal Year 2002 Site Management Plan, CTO-0120  
 Operable Unit No. 20 (Site 86), MCB Camp Lejeune, North Carolina

Task Name	Duration	Start	Finish	2001												2002											
				J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D					
Supplement Field Investigation	6 edays	8/20/01	8/26/01			■																					
Letter Report	51 edays	9/10/01	10/31/01				■	■	■	■	■																
Annual Monitoring Report	38 edays	8/13/01	9/20/01			■	■	■	■	■	■																
Draft Amended RI Report	121 edays	1/20/02	5/21/02										■	■	■	■	■	■	■	■	■	■	■				
Comment Period	83 edays	5/22/02	8/13/02																								
Final Amended RI Report	36 edays	8/14/02	9/19/02																			■	■				
LTM Field Investigation	3 edays	1/7/02	1/10/02										■														
Monitoring Report	32 edays	4/22/02	5/24/02											■	■	■	■	■	■	■	■	■	■				
Draft Amended FS Report	0 edays	10/1/02	10/1/02																			◆	10/1				
Comment Period	0 edays	10/1/02	10/1/02																			◆	10/1				
Draft PRAP	0 edays	10/1/02	10/1/02																			◆	10/1				
Comment Period	0 edays	10/1/02	10/1/02																			◆	10/1				
Final Amended FS	0 edays	10/1/02	10/1/02																			◆	10/1				
Final PRAP	0 edays	10/1/02	10/1/02																			◆	10/1				
Public Meeting	0 edays	10/1/02	10/1/02																			◆	10/1				
Draft ROD	0 edays	10/1/02	10/1/02																			◆	10/1				
Comment Period	0 edays	10/1/02	10/1/02																			◆	10/1				
Draft Final ROD	0 edays	10/1/02	10/1/02																			◆	10/1				
Comment Period	0 edays	10/1/02	10/1/02																			◆	10/1				
Final ROD	0 edays	10/1/02	10/1/02																			◆	10/1				
Public Comment Period Ends	0 edays	10/1/02	10/1/02																			◆	10/1				
Design	0 edays	10/1/02	10/1/02																			◆	10/1				
RA	0 edays	10/1/02	10/1/02																			◆	10/1				

Project: CTO-0120  
 Date: 3/8/02

Task  Milestone 

Note: All task dates having a duration of 0 days are to be determined.



Table 3-16  
 Fiscal Year 2002 Site Management Plan, CTO-0120  
 Pre-RI Sites 10, 12, 68, 75, 76, 85, and 87, MCB Camp Lejeune, North Carolina

Task Name	Duration	Start	Finish	2001												2002				
				Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
Final NA/NFA Reports (Sites 12, 68, 75, 78, and 87)	152 edays	5/1/01	9/30/01		■															
Final SI Report (Site 10)	38 edays	5/1/01	7/9/01			■														
Draft NA Report (Site 10)	25 edays	6/30/01	7/25/01				■													
Comment Period	29 edays	7/26/01	8/24/01					■												
Final NA Report (Site 10)	309 edays	8/25/01	6/30/02						■											
Draft NFA Report (Site 85)	44 edays	4/9/01	5/23/01	■																
Comment Period	89 edays	5/24/01	8/21/01		■															
Final NFA Report (Site 85)	251 edays	8/22/01	4/30/02						■											

TABLE 3-17  
DOCUMENT SUBMITTALS BY OPERABLE UNIT  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Sites	Activity	Primary Document Submittal	Anticipated Submittal Date
1	78	Remedial Action	Site 78 North Draft NAE Report	July 13, 2001
		Remedial Action	Site 78 South NAE Letter Report	August 27, 2001
		Remedial Action	Semi-Annual Monitoring Report	October 26, 2001
		Remedial Action	Annual Monitoring Report	November 6, 2001
		Remedial Action	Annual Monitoring Report	November 7, 2001
		Remedial Action	Site 78 South Draft NAE Report	February 25, 2002
		Remedial Action	Semi-Annual Monitoring Report	March 29, 2002
		Remedial Action	OU1 Technology Evaluation/ Cost Analysis	April 4, 2002
		Remedial Action	Phase II SFI Work Plan	May 24, 2002
		Treatability Study	Draft Treatability Study Work Plan	November 8, 2002
Treatability Study	Final Treatability Study Work Plan	November 30, 2002		
2	6 and 82	Remedial Action	Annual Monitoring Report	November 7, 2001
		Remedial Action	Semi-Annual Monitoring Report	November 23, 2001
		Remedial Action	Semi-Annual Monitoring Report	May 17, 2002
		Remedial Action	Annual Monitoring Report	November 6, 2002
4	41 and 74	Remedial Action	Final LTM Report	August 30, 2001
		Remedial Action	Semi-Annual Monitoring Report	November 9, 2001
		Remedial Action	Semi-Annual Monitoring Report	May 10, 2002
		Remedial Action	Annual Monitoring Report	May 31, 2002
5	2	Remedial Action	Annual Monitoring Report	September 21, 2001
		Remedial Action	Semi-Annual Monitoring Report	February 22, 2002
		Remedial Action	Semi-Annual Monitoring Report	August 9, 2002
		Remedial Action	Annual Monitoring Report	August 30, 2002

TABLE 3-17 (Continued)  
 DOCUMENT SUBMITTALS BY OPERABLE UNIT  
 FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
 MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Sites	Activity	Primary Document Submittal	Anticipated Submittal Date
6	36, 43, 44 and 54	Post Remedial Investigation	Annual Monitoring Report	September 27, 2001
		Post Remedial Investigation	Monitoring Report	October 5, 2001
		Post Remedial Investigation	Monitoring Report	December 28, 2001
		Post Remedial Investigation	Monitoring Report	March 29, 2002
		Feasibility Study	Draft Revised OU6 FS Report	April 4, 2002
		Proposed Remedial Action Plan	Draft Revised OU6 PRAP	April 4, 2002
		Record of Decision	Pre-Final ROD Version 3	April 11, 2002
		Feasibility Study	Final Revised OU6 FS Report	June 6, 2002
		Proposed Remedial Action Plan	Final Revised OU6 PRAP	June 10, 2002
		Post Remedial Action	Monitoring Report	June 28, 2002
		Post Remedial Action	Annual Monitoring Report	September 13, 2002
		Record of Decision	Final ROD	July 30, 2002
7	1 and 28	Remedial Action	Final LTM Report for Site 1	August 31, 2001
		Remedial Action	Annual Monitoring Report (Site 28)	September 27, 2001
		Remedial Action	Quarterly Monitoring Report (Site 28)	October 5, 2001
		Remedial Action	Quarterly Monitoring Report (Site 28)	December 28, 2001
		Remedial Action	Draft-Final OU7 Close out Report	December 20, 2001
		Remedial Action	Final-Final OU7 Close out Report	May 9, 2002

TABLE 3-17 (Continued)  
 DOCUMENT SUBMITTALS BY OPERABLE UNIT  
 FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
 MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Sites	Activity	Primary Document Submittal	Anticipated Submittal Date
9	65	Record of Decision	Final ROD	August 24, 2001
10	35	Post Remedial Investigation	Annual Monitoring Report	September 28, 2001
		Post Remedial Investigation	Final SSP for Focused NAE Study	January 7, 2002
		Post Remedial Investigation	Semi-Annual Monitoring Report	February 8, 2002
		Post Remedial Investigation	Supplemental Report	June 27, 2002
		Post Remedial Investigation	Semi-Annual Monitoring Report	August 16, 2002
		Post Remedial Investigation	Annual Monitoring Report	September 27, 2002
		Post Remedial Investigation	Final NAE Study Report	September 22, 2003
		Feasibility Study	Draft FS Report	TBD FY04
		Feasibility Study	Final FS Report	TBD FY04
		Proposed Remedial Action Plan	Draft PRAP	TBD FY04
		Proposed Remedial Action Plan	Final PRAP	TBD FY04
		Record of Decision	Draft ROD	TBD FY04
		Record of Decision	Pre-Draft ROD	TBD FY04
		Record of Decision	Final ROD	TBD FY04

TABLE 3-17 (Continued)  
DOCUMENT SUBMITTALS BY OPERABLE UNIT  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Sites	Activity	Primary Document Submittal	Anticipated Submittal Date
12	3	Remedial Action	Annual Monitoring Report	July 23, 2001
		Remedial Action	Semi-Annual Monitoring Report	November 9, 2001
		Remedial Action	Semi-Annual Monitoring Report	May 10, 2002
		Remedial Action	Annual Monitoring Report	June 14, 2002
14	69	Remedial Action	Annual Monitoring Report	September 21, 2001
		Remedial Action	Semi-Annual Monitoring Report	February 22, 2002
		Remedial Action	Semi-Annual Monitoring Report	August 16, 2002
		Remedial Action	Annual Monitoring Report	August 30, 2002
15	88	Monitoring	Semi-Annual Monitoring Report	November 23, 2001
		Monitoring	Semi-Annual Monitoring Report	May 17, 2002
		Monitoring	Annual Monitoring Report	June 14, 2002
		Remedial Investigation/Feasibility Study	Draft Supplemental Report	April 26, 2002
		Remedial Investigation/Feasibility Study	Final Supplemental Report	May 31, 2002
		Remedial Investigation/Feasibility Study	Draft RI Project Plan	June 14, 2002
		Remedial Investigation/Feasibility Study	Final RI Project Plan	July 19, 2002
		Remedial Investigation/Feasibility Study	Draft Amended RI Report	TBD FY03
		Remedial Investigation/Feasibility Study	Final Amended RI Report	TBD FY03
		Remedial Investigation/Feasibility Study	Draft Amended FS Report	TBD FY03
		Remedial Investigation/Feasibility Study	Final Amended FS Report	TBD FY03
	Proposed Remedial Action Plan	Draft PRAP	TBD FY03	

TABLE 3-17 (Continued)  
DOCUMENT SUBMITTALS BY OPERABLE UNIT  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Sites	Activity	Primary Document Submittal	Anticipated Submittal Date
		Proposed Remedial Action Plan	Final PRAP	TBD FY03
		Record of Decision	Draft ROD	TBD FY04
		Record of Decision	Pre-Final ROD	TBD FY04
		Record of Decision	Final ROD	TBD FY04
16	89 and 93	Interim Action	Site 89 Supplemental Report	August 31, 2001
		Monitoring	Annual Monitoring Report	September 21, 2001
		Action Memorandum	Draft Site 89 Action Memo	October 14, 2001
		EE/CA	Draft Site 89 EE/CA Report	November 8, 2001
		EE/CA	Final Site 89 EE/CA Report	TBD
		Monitoring	Semi-Annual Monitoring Report	February 8, 2002
		Post Remedial Investigation	Letter Summary Report Site 93	March 29, 2002
		Feasibility Study	Draft FS Report Site 93	April 19, 2002
		Feasibility Study	Final FS Report Site 93	June 14, 2002
		Monitoring	Semi-Annual Monitoring Report	August 9, 2002
		Proposed Remedial Action Plan	Draft PRAP Site 93	TBD FY02
		Proposed Remedial Action Plan	Final PRAP Site 93	TBD FY02
		Interim Record of Decision	Draft IROD Site 93	TBD FY02
		Interim Record of Decision	Pre-Final IROD Site 93	TBD FY02
		Interim Record of Decision	Final IROD Site 93	TBD FY02
		Monitoring	Annual Monitoring Report	August 30, 2002
		Amended Remedial Investigation	Draft Amended Site 89 RI Report	TBD FY04
		Amended Remedial Investigation	Final Amended Site 89 RI Report	TBD FY04
		Amended Feasibility Study	Draft Amended Site 89 FS Report	TBD FY04
		Amended Feasibility Study	Final Amended Site 89 FS Report	TBD FY04
17	90, 91, 92	Record of Decision	Final ROD	August 24, 2001

TABLE 3-17 (Continued)  
DOCUMENT SUBMITTALS BY OPERABLE UNIT  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Sites	Activity	Primary Document Submittal	Anticipated Submittal Date
18	94	Remedial Investigation/Feasibility Study	Final Project Plans	TBD FY03
		Remedial Investigation/Feasibility Study	Draft RI Report	TBD FY03
		Remedial Investigation/Feasibility Study	Final RI Report	TBD FY03
		Feasibility Study	Draft FS Report	TBD FY03
		Feasibility Study	Final FS Report	TBD FY03
		Proposed Remedial Action Plan	Draft PRAP	TBD FY03
		Proposed Remedial Action Plan	Final PRAP	TBD FY03
		Record of Decision	Draft ROD	TBD FY04
		Record of Decision	Pre-Final ROD	TBD FY04
		Record of Decision	Final ROD	TBD FY04
19	84	Remedial Investigation	Draft RI Report	January 10, 2002
		Remedial Investigation	Building 45 NTCRA Report	January 18, 2002
		Feasibility Study	Draft FS Report	January 30, 2002
		Proposed Remedial Action Plan	Draft PRAP	March 22, 2002
		Record of Decision	Draft ROD	March 29, 2002
		Remedial Investigation	Final RI Report	April 16, 2002
		Feasibility Study	Final FS Report	April 24, 2002
		Proposed Remedial Action Plan	Final PRAP	June 6, 2002
		Record of Decision	Pre-Final ROD	June 25, 2002
		Record of Decision	Final ROD	July 30, 2002
20	86	Monitoring	Annual Monitoring Report	September 20, 2001
		Remedial Investigation	Letter Report	October 31, 2001
		Remedial Investigation	Draft Amended RI Report	May 21, 2002
		Remedial Investigation	Final Amended RI Report	September 19, 2002
		Feasibility Study	Draft FS Report	TBD FY02
		Proposed Remedial Action Plan	Draft PRAP	TBD FY02
		Record of Decision	Draft ROD	TBD FY02
		Remedial Investigation	Final RI Report	TBD FY02
		Feasibility Study	Final FS Report	TBD FY02
		Proposed Remedial Action Plan	Final PRAP	TBD FY02
		Record of Decision	Pre-Final ROD	TBD FY02
		Record of Decision	Final ROD	TBD FY 02
		Design	Draft Design Report	TBD FY03
Design	Final Design Report	TBD FY03		

TABLE 3-17 (Continued)  
DOCUMENT SUBMITTALS BY OPERABLE UNIT  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Sites	Activity	Primary Document Submittal	Anticipated Submittal Date
21	73	Post Remedial Investigation	Letter Report	August 23, 2001
		Post Remedial Investigation	Annual Monitoring Report	September 28, 2001
		Post Remedial Investigation	Quarterly Monitoring Report	October 12, 2001
		Post Remedial Investigation	Quarterly Monitoring Report	December 21, 2001
		Post Remedial Investigation	Final NAE Study Report	January 4, 2002
		Feasibility Study	Draft FS Report	TBD FY02
		Proposed Remedial Action Plan	Draft PRAP	TBD FY02
		Record of Decision	Draft ROD	TBD FY02
		Feasibility Study	Final FS Report	TBD FY02
		Proposed Remedial Action Plan	Final PRAP	TBD FY02
		Record of Decision	Pre-Final ROD	TBD FY02
Record of Decision	Final ROD	TBD FY02		
Pre-RI Sites	10 and 85	No Action Document	Final Site 10 NA Document	September 13, 2001
		No Further Action Document	Final NFA Site 85 Document	TBD FY02

TABLE 3-18  
DOCUMENT SUBMITTALS BY MONTH  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Anticipated Submittal Date	Operable Unit	Sites	Primary Document Submittal
July 13, 2001	1	78 North	Site 78 North Draft NAE Report
July 23, 2001	12	3	Annual Monitoring Report
August 23, 2001	21	73	Letter Report
August 24, 2001	9	65	Final ROD
August 24, 2001	17	90, 91, and 92	Final ROD
August 27, 2001	1	78 South	NAE Letter Report
August 30, 2001	1 and 4	24 and 74	Final Monitoring Reports
August 31, 2001	7	1	Final Monitoring Report
August 31, 2001	16	89	Supplemental Field/Tech Screening Reports
September 13, 2001	NA	10	Final NA Report
September 20, 2001	20	86	Annual Monitoring Report
September 21, 2001	5	2	Annual Monitoring Report
September 21, 2001	14	69	Annual Monitoring Report
September 21, 2001	16	89 and 93	Annual Monitoring Report
September 27, 2001	6	36 and 54	Annual Monitoring Report
September 27, 2001	7	28	Annual Monitoring Report
September 28, 2001	10	35	Annual Monitoring Report
September 28, 2001	21	73	Annual Monitoring Report
October 5, 2001	6	36 and 54	Monitoring Report
October 5, 2001	7	28	Quarterly Monitoring Report (Site 28)
October 12, 2001	21	73	Quarterly Monitoring Report (Site 73)
October 26, 2001	1	78	Semi-Annual Monitoring Report
October 30, 2001	7	1 and 28	Quarterly Monitoring Report (Site 28)
October 31, 2001	20	86	Letter Report
November 7, 2001	1	78	Annual Monitoring Report
November 7, 2001	2	6 and 82	Annual Monitoring Report
November 8, 2001	16	89	Draft EE/CA Report
November 9, 2001	4	41	Semi-Annual Monitoring Report
November 9, 2001	12	3	Semi-Annual Monitoring Report
November 23, 2001	88	15	Semi-Annual Monitoring Report
November 23, 2001	2	6 and 82	Semi-Annual Monitoring Report
December 20, 2001	7	1 and 28	Draft-Final OU7 Close out Report
December 21, 2001	21	73	Quarterly Monitoring Report
December 28, 2001	6	36 and 54	Monitoring Report
December 28, 2001	7	28	Draft-Final OU7 Close out Report

TABLE 3-18  
DOCUMENT SUBMITTALS BY MONTH  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Anticipated Submittal Date	Operable Unit	Sites	Primary Document Submittal
January 4, 2002	21	73	Final NAE Study Report
January 7, 2002	10	35	Final SSP for Focused NAE Study
January 10, 2002	19	84	Draft RI Report
January 18, 2002	19	84	Building 45 NTCRA Report
January 30, 2002	19	84	Draft FS Report
February 8, 2002	10	35	Semi-Annual Monitoring Report
February 8, 2002	16	89 and 93	Semi-Annual Monitoring Report
February 22, 2002	14	69	Semi-Annual Monitoring Report
February 22, 2002	5	2	Semi-Annual Monitoring Report
February 25, 2002	1	78 South	Site 78 South Draft NAE Report
March 22, 2002	19	84	Draft PRAP
March 29, 2002	1	78	Semi-Annual Monitoring Report
March 29, 2002	6	36 and 54	Monitoring Report
March 29, 2002	16	93	Letter Report
March 29, 2002	19	84	Draft ROD
April 4, 2002	1	78	TE/CA for OU1
April 4, 2002	6	36, 43, 44, and 54	Draft Revised FS/PRAP
April 11, 2002	6	36, 43, 44, and 54	Pre-Final ROD Version 3
April 19, 2002	16	93	Draft FS Report
April 24, 2002	19	84	Final FS Report
April 26, 2002	15	88	Draft Supplemental Report
May 9, 2002	7	28	Final-Final OU7 Close out Report
May 10, 2002	4	41	Semi-Annual Monitoring Report
May 10, 2002	12	3	Semi-Annual Monitoring Report
May 17, 2002	2	6 and 82	Semi-Annual Monitoring Report
May 17, 2002	15	88	Semi-Annual Monitoring Report
May 21, 2002	20	86	Draft Amended RI Report
May 24, 2002	1	78	Phase II SFI Work Plan
May 31, 2002	4	41	Annual Monitoring Report
May 31, 2002	15	88	Final Supplemental Report
June 14, 2002	12	3	Annual Monitoring Report
June 14, 2002	15	88	Annual Monitoring Report
June 14, 2002	15	88	Draft RI Project Plan
June 14, 2002	16	93	Final FS Report
June 25, 2002	19	84	Final PRAP/Pre-Final ROD
June 27, 2002	10	35	Supplemental Report
June 28, 2002	6	36	Monitoring Report

TABLE 3-18  
DOCUMENT SUBMITTALS BY MONTH  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Anticipated Submittal Date	Operable Unit	Sites	Primary Document Submittal
July 19, 2002	15	88	Final RI Project Plan
August 9, 2002	2	6 and 82	Semi-Annual Monitoring Report
August 9, 2002	16	89 and 93	Semi-Annual Monitoring Report
August 16, 2002	10	35	Semi-Annual Monitoring Report
August 16, 2002	14	69	Semi-Annual Monitoring Report
August 30, 2002	5	2	Annual Monitoring Report
August 30, 2002	14	69	Annual Monitoring Report
August 30, 2002	16	89 and 93	Annual Monitoring Report
September 13, 2002	6	36 and 54	Annual Monitoring Report
September 19, 2002	20	86	Final Amended RI Report
September 22, 2002	10	35	Final NAE Study Report
September 27, 2002	10	35	Annual Monitoring Report
November 6, 2002	1	78	Annual Monitoring Report
November 6, 2002	2	6 and 82	Annual Monitoring Report
TBD FY02	16	89	Final EE/CA Report
TBD FY02	16	93	Draft PRAP
TBD FY02	16	93	Final PRAP
TBD FY02	16	93	Draft ROD
TBD FY02	16	93	Pre-Draft ROD
TBD FY02	16	93	Final ROD
TBD FY02	20	86	Draft FS Report
TBD FY02	20	86	Final FS Report
TBD FY02	20	86	Draft PRAP
TBD FY02	20	86	Final PRAP
TBD FY02	20	86	Draft ROD
TBD FY02	20	86	Pre-Final ROD
TBD FY02	20	86	Final ROD
TBD FY02	20	86	Final ROD
TBD FY02	20	86	Final PRAP
TBD FY02	21	73	Draft FS Report
TBD FY02	21	73	Final FS Report
TBD FY02	21	73	Draft PRAP
TBD FY02	21	73	Final PRAP
TBD FY02	21	73	Draft ROD
TBD FY02	21	73	Pre-Final ROD
TBD FY02	21	73	Final ROD

TABLE 3-18  
DOCUMENT SUBMITTALS BY MONTH  
FISCAL YEAR 2002 SITE MANAGEMENT PLAN, CTO-0120  
MCB, CAMP LEJEUNE, NORTH CAROLINA

Anticipated Submittal Date	Operable Unit	Sites	Primary Document Submittal
TBD FY03	1	78	Site 78 North Final NAE Report
TBD FY03	15	88	Draft Amended RI Report
TBD FY03	15	88	Final Amended RI Report
TBD FY03	15	88	Draft Amended FS Report
TBD FY03	15	88	Final Amended FS Report
TBD FY03	15	88	Draft PRAP
TBD FY03	15	88	Final PRAP
TBD FY03	18	94	Final Project Plans
TBD FY03	18	94	Draft RI Report
TBD FY03	18	94	Final RI Report
TBD FY03	18	94	Draft FS Report
TBD FY03	18	94	Final FS Report
TBD FY03	18	94	Draft PRAP
TBD FY03	18	94	Final PRAP
TBD FY03	20	86	Draft Design Report
TBD FY03	20	86	Final Design Report
TBD FY04	10	35	Revised Draft FS Report
TBD FY04	10	35	Final FS Report
TBD FY04	10	35	Draft PRAP
TBD FY04	10	35	Final PRAP
TBD FY04	10	35	Draft ROD
TBD FY04	10	35	Pre-Final ROD
TBD FY04	10	35	Final ROD
TBD FY04	15	88	Draft ROD
TBD FY04	15	88	Pre-Final ROD
TBD FY04	15	88	Final ROD
TBD FY04	16	89	Draft Amended RI Report
TBD FY04	16	89	Final Amended RI Report
TBD FY04	16	89	Revised Draft FS Report
TBD FY04	16	89	Final FS Report
TBD FY04	18	94	Draft ROD
TBD FY04	18	94	Pre-Final ROD
TBD FY04	18	94	Final ROD



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**FIGURES**

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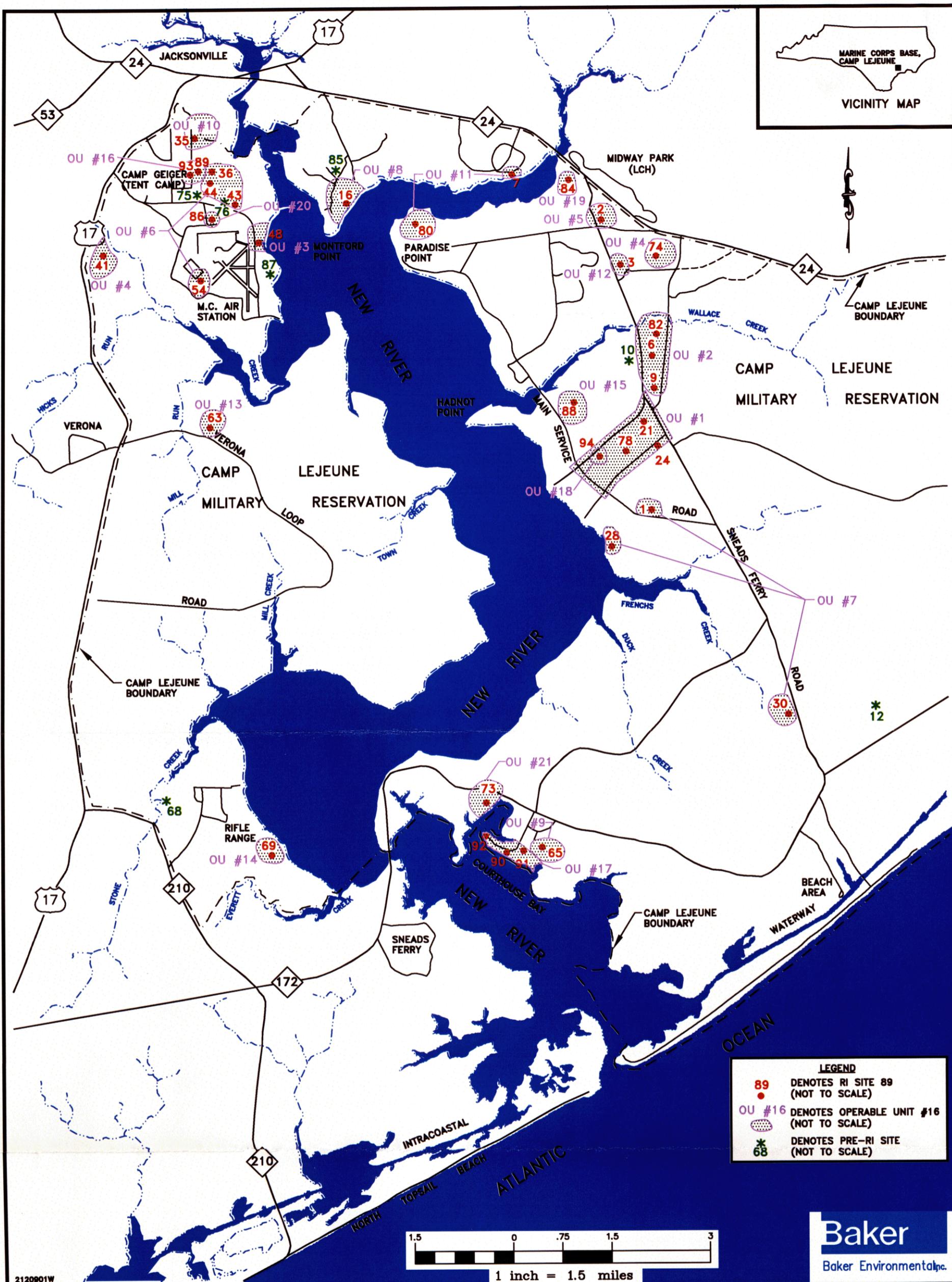


FIGURE 1-1  
 OPERABLE UNIT AND SITE LOCATION MAP  
 FISCAL YEAR 2002  
 SITE MANAGEMENT PLAN  
 CTO - 0120  
 MARINE CORPS BASE, CAMP LEJEUNE  
 NORTH CAROLINA

2120901W

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