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**FINAL**  
**- FISCAL YEAR 1993**  
**SITE MANAGEMENT PLAN FOR**  
**MARINE CORPS BASE, CAMP LEJEUNE,**  
**NORTH CAROLINA**  
**CONTRACT TASK ORDER 0099**  
**BYRON BRANT'S COPY**

*Prepared For:*

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

*Under:*

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## LIST OF ACRONYMS

CERCLA	.....	Comprehensive Environmental Response, Compensation, and Liability Act
DEHNR	.....	Department of Environment, Health, and Natural Resources
EPA	.....	Environmental Protection Agency
FFA	.....	Federal Facility Agreement
FS	.....	Feasibility Study
FY	.....	Fiscal Year
HPIA	.....	Hadnot Point Industrial Area
IAS	.....	Initial Assessment Study
IRA	.....	Interim Remedial Action
IRP	.....	Installation Restoration Program
MCAS	.....	Marine Corps Air Station
MCB	.....	Marine Corps Base
NACIP	.....	Navy Assessment and Control of Installation Pollutants
NPL	.....	National Priorities List
OU	.....	Operable Unit
PCB	.....	Polychlorinated Biphenyl
POL	.....	Petroleum, Oil, and Lubricants
PRAP	.....	Proposed Remedial Action Plan
RA	.....	Remedial Action
RCRA	.....	Resource Conservation and Recovery Act
RD	.....	Remedial Design
RI	.....	Remedial Investigation
ROD	.....	Record of Decision
SI	.....	Site Inspection
SMP	.....	Site Management Plan
TS	.....	Treatability Study
VOC	.....	Volatile Organic Compound
WTP	.....	Water Treatment Plant or Wastewater Treatment Plant

## 1.0 INTRODUCTION

This report presents the Fiscal Year 1993 update of the Site Management Plan (SMP) for Marine Corps Base (MCB) Camp Lejeune, North Carolina (Installation). The purpose of the SMP is to present the planned activities to be conducted at the Installation during fiscal year 1993 and to provide projection for long-term progress at the facility in accordance with the Department of the Navy's Installation Restoration Program (IRP). This report has been prepared by Baker Environmental, Inc. (Baker) in response to the Request for Proposal for Contract Task Order 0099 (CTO 0099) by the Atlantic Division, Naval Facilities Engineering Command (LANTDIV), dated February 6, 1992.

### 1.1 Description of the Facility

MCB Camp Lejeune is located in Onslow County, North Carolina (see Figure 1-1). There are six major Marine Corps, and two Navy Commands aboard Camp Lejeune: Marine Corps Base owns all the real estate, operates entry-level formal training schools, and provides logistics and training support for tenant commands; II Marine Expeditionary Force (II MEF) conducts operational planning for Fleet Marine Commands; 2d Marine Division is the Ground Combat Service and Support Element of II MEF; 2d Surveillance, Reconnaissance and Intelligence Group obtains, produces and releases information and intelligence during planning and execution of exercises and combat operations; 2d Marine Expeditionary Brigade is a Reserve Marine Air-Ground Task Force (MAGTF); the Naval Hospital and Naval Dental Center provide primary medical and dental care to Marines and sailors stationed at Camp Lejeune and medical care to their families.

The facility currently covers approximately 170 square miles and is bisected by the New River. The Atlantic Ocean forms the southeastern boundary of the facility. The City of Jacksonville is located immediately northwest of the facility. Within 15 miles are three large, publicly-owned tracts of land: Croatian National Forest, Hoffman Forest, and Camp Davis Forest. The remaining land use surrounding the facility is agricultural. Estuaries along the coast support commercial fishing. Tourism and residential resort areas have stimulated the regional economy. The facility is located in the Atlantic Coastal Plain on generally flat topography.

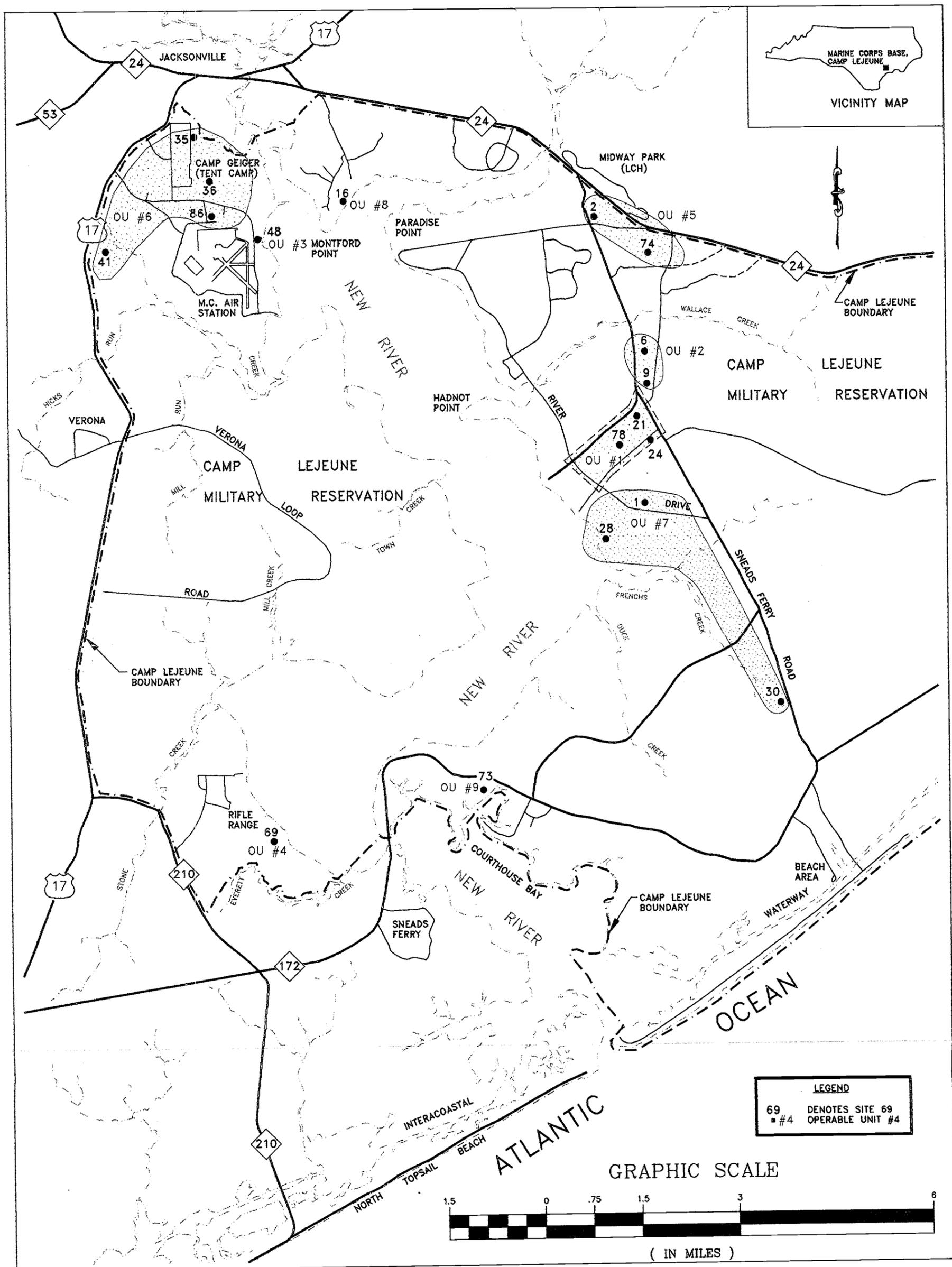


FIGURE 1-1  
 OPERABLE UNITS AND SITE LOCATIONS AT  
 MCB CAMP LEJEUNE, NORTH CAROLINA

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## 1.2 Environmental History of the Facility

The facility has been actively involved in various environmental investigation and remediation programs since 1983, beginning with the Navy Assessment and Control of Installation Pollutants (NACIP) Program. The first study conducted under the NACIP to investigate potentially hazardous sites at MCB Camp Lejeune was an Initial Assessment Study (IAS). This study, which was conducted in 1983, identified areas of concern that may potentially cause threats to human health and the environment as a result of past storage, handling, and/or 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 pose an immediate threat to human health or the environment, 22 sites warrant further investigation to assess long-term impacts. During preliminary investigation of the AOCs, an additional AOC (Site 78, Hadnot Point Industrial Area) was identified. Subsequent sampling and monitoring activities of these sites have been initiated since 1984.

The Department of Navy's Installation Restoration Program (IRP) was initiated in 1986 following the legislation of the Superfund Amendment and Reauthorization Act (SARA). The IRP, 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) effective October 4, 1989 (54 Federal Register 41015, October 4, 1989). Following the listing of MCB Camp Lejeune on the NPL, a Federal Facilities Agreement (FFA) between the United States Environmental Protection Agency Region IV (EPA), the North Carolina Department of Environment, Health, and Natural Resources (DEHNR), and the Department of the Navy was signed in February 1991. The purposes of the FFA are:

- To ensure that the 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 the public health, welfare and the environment;
- To establish a procedural framework and schedule for developing, implementing and monitoring appropriate response actions at MCB Camp Lejeune in accordance with

CERCLA and the National Contingency Plan and EPA policy relevant to remediation at MCB Camp Lejeune; and

- To facilitate cooperation, exchange of information and participation of the Parties in such action.

The FFA covers 23 sites at MCB Camp Lejeune. These sites are required to be investigated in accordance with the National Contingency Plan (NCP), CERCLA, and SARA, under the terms and conditions of the FFA. Additional sites could potentially be added, based on the conclusions and recommendations identified by Site Inspections of other existing or newly-identified sites throughout MCB Camp Lejeune.

### **1.3 Purpose of the Site Management Plan**

This Fiscal Year 1993 Site Management Plan (SMP) is one of the primary documents identified in the FFA. The SMP documents the decisions and evaluations made during the project planning and scoping process for MCB Camp Lejeune. The SMP includes proposed deadlines for completion of draft primary documents, as specified in the FFA, to be submitted during the next fiscal year (i.e., 1993). The draft SMP must be submitted to the Parties of the FFA no later than June 1 of each year.

### **1.4 Anticipated Amendments to the Federal Facilities Agreement**

The FFA identified 23 sites where RI/FS activities are to be conducted (see Table 1-1). Since that time, two sites (Sites 22 and Site 45) will be investigated as UST sites and will not require an RI/FS at this time. In addition, Site "A", and Sites 54 and 68 will require a Site Inspection prior to undertaking, if necessary, RI/FS activities. Also, the Hadnot Point Industrial Area (Site 78) and Tank Area AS419 (Site 86) are or will be undergoing RI/FS activities and need to be identified as such in the FFA (the FFA does not include Site 78 or Site 86). With these amendments, a total of 18 sites will require RI/FS activities.

### **1.5 Major Amendments/Changes to the Fiscal Year 1992 Site Management Plan**

The Fiscal Year 1992 SMP for MCB Camp Lejeune (NUS, 1992) identifies 18 sites requiring RI/FS activities. This listing has since been revised to delete Site 22 (Industrial Area Tank Farm) since this site will be investigated/remediated in accordance with the regulations

**TABLE 1-1**

**IRP AREAS OF CONCERN/SITES COVERED BY THE 1991 FFA**

<u>Site No.</u>	<u>Site Description</u>
1	French Creek Liquids Disposal Area
2	Former Nursery/Day-Care Center
6	Storage Lots 201 and 203
9	Fire Fighting Training Pit at Piney Green Road
16	Montford Point Burn Dump (1958-1972)
21	Transformer Storage Lot 140
22 (1)	Industrial Area Tank Farm
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
45 (1)	Campbell Street Underground AVGAS Storage and Adjacent JP Fuel Farm at Air Station
48	MCAS New River Mercury Dump Site
54 (2)	Crash Crew Fire Training Burn Pit
68 (2)	Rifle Range Dump
69	Rifle Range Chemical Dump
73	Courthouse Bay Liquids Disposal Area
74	Mess Hall Grease Pit Area
75 (2)	MCAS Basketball Court Site
76 (2)	MCAS Curtin Road Site
A (2)	MCAS (H) Officer's Housing Area

Note: Other specific locations may be added to the above list upon identification of the need to perform an RI/FS at those locations resulting in the corresponding modification to the Scope of Work Primary Document (described in the Federal Facilities Agreement).

- (1) UST Petroleum Site (UST Petroleum Investigation/Corrective Action Regulations).
- (2) Site Inspections will initially be conducted. The SI will determine the need to conduct an RI/FS.

appropriate for petroleum underground storage tank sites. In addition, this Fiscal Year 1993 SMP addresses Operable Units as opposed to individual sites. Nine Operable Units have been identified for MCB Camp Lejeune.

#### **1.6 Format of the Site Management Plan**

This SMP consists of seven sections. Section 1.0 (Introduction) explains the history of environmental activities at MCB Camp Lejeune, the purpose of the FFA, and the purpose of the SMP. Section 2.0 (Operable Units) describes the Operable Units at MCB Camp Lejeune that will be addressed in the SMP. A summary of ongoing and planned activities associated with these Operable Units is outlined in Section 3.0 (Operable Unit Scope of Work). Section 4.0 (IRP Management Schedules) provides estimated (and amended) schedules for conducting CERCLA activities for each Operable Unit. Detailed schedules are provided for those Operable Units that are active or will be initiated in Fiscal Year 1993. Section 4.0 also includes schedules for those Operable Units that will be studied in Fiscal Years 1994-1997 and specific target submittal dates for draft primary and secondary documents for Fiscal Year 1993 through 1997. Ongoing and planned Site Inspection (SI) activities are presented in Section 5.0 (Site Inspection Activities). Ongoing and planned removal actions are discussed in Section 6.0 (Removal/Interim Remedial Actions). References are provided in Section 7.0.

## **2.0 OPERABLE UNITS**

This section identifies the Operable Units at MCB Camp Lejeune where IRP activities are or will be implemented. Anticipated project startup dates for these activities are also identified. The project startup dates coincide with the priority of the Operable Units with respect to their potential for groundwater contamination, proximity to receptors, contaminants verified, and potential ecological impacts.

### **2.1 Operable Unit Determination**

In accordance with guidance provided in the NCP, the Navy/Marine Corps has recommended that the 18 current IRP sites be grouped into nine Operable Units (OU) for the purposes of proceeding with RI/FS activities (see Table 2-1). As defined in the NCP, an "Operable Unit means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site."

Using this definition, the Navy/Marine Corps evaluated the 18 RI/FS sites and recommended that they be grouped into 9 OUs. For additional information regarding this recommendation, refer to the "Draft Operable Unit Evaluation Report, Marine Corps Base, Camp Lejeune, North Carolina," (Baker, 1992).

These Operable Units are depicted in Figure 1-1 and described below.

### **2.2 Operable Unit Descriptions**

This section describes the operable units at MCB Camp Lejeune where RI/FS and remediation activities are or will be conducted.

TABLE 2-1

RECOMMENDED OPERABLE UNITS FOR  
MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA

Operable Unit No.	Site No(s).	Site Name(s)	Primary Reasons for OU Selection
1	21	Transformer Storage Lot 140	Sites are geographically located in the same area.
	24	Industrial Area Fly Ash Dump	
	78	Hadnot Point Industrial Area	
2	6	Storage Lots 201 and 203	Sites are located near each other.
	9	Firefighting Training Pit at Piney Green Road	Sites are currently undergoing RI/FS activities (development of RI/FS Project Plans).
3	48	MCAS New River Mercury Dump Site	Unique characteristics of the site involving the disposal of mercury, which is highly toxic and bioaccumulates.
4	69	Rifle Range Chemical Dump	Unique characteristics of the site involving the disposal of chemical wastes generated on the base.
5	2	Former Nursery/Day Care Center	Similar characteristics of materials disposed (pesticides).
	74	Mess Hall Grease Disposal Area	Sites are located near each other.
6	35	Camp Geiger Area Fuel Farm	Similar characteristics of materials disposed (POL, waste oils, solvents) and contaminants detected (metals, VOCs, O&G). Sites are located in the Brinson Creek and Tank Creek watershed.
	36	Camp Geiger Area Dump near Sewage Treatment Plant	
	41	Camp Geiger Dump near Former Trailer Park	
	86	Tank Area AS419-AS421 at Marine Corps Air Station	
7	1	French Creek Liquids Disposal Area	Sites are located near each other and are located in the French Creek watershed. Similar contaminants detected (metals, O&G).
	28	Hadnot Point Burn Dump	
	30	Sneads Ferry Road Fuel Tank Sludge Area	
8	16	Montford Point Burn Dump	Isolated site which requires additional site investigation.
9	73	Courthouse Bay Liquids Disposal Area	Isolated site.

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

Operable Unit No. 1 consists of Site 21 (Transformer Storage Lot 140), Site 24 (Industrial Area Fly Ash Dump), and Site 78 (Hadnot Point Industrial Area). These sites are described below.

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

Site 21 is located between Ash Street and Sneads Ferry Road on Center Road. A transformer oil pit was located in the northeastern end of Lot 140 across the railroad tracks from Building 702. The entire lot is approximately 220 feet by 890 feet with the dimensions of the pit measuring 25 to 30 feet long by 6 feet wide by 8 feet deep.

Lot 140 was used from 1958 to 1977, for pesticide mixing and as a cleaning area for pesticide application equipment. The mixing area for the pesticides is believed to have been the southeast corner of the lot. Pesticide contamination possibly occurred as a result of small spills, washout, and excess disposal. In 1977, before activities were moved to a different location, washout was estimated to be about 350 gallons per week of overland discharge.

In 1950 and 1951, an onsite pit was used as a drainage receptor for oil from transformers. Sand was occasionally placed in the pit when oil was found standing in the pit bottom. The total quantity of oil drained in this manner is unknown.

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

Site 24 is located south and east of the intersection of Birch and Duncan Streets. Four separate disposal locations were investigated as potential areas of contamination. 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. Approximately 20 to 25 acres in size, the site lies adjacent to upstream portions of Cogdels Creek.

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

The Hadnot Point Industrial Area (HPIA) is located on the east side of the New River. The HPIA is defined as that 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.

The establishment of MCB Camp Lejeune began in the late 1930s with the construction of the HPIA. Water supply for the base was furnished by wells that tapped a potable aquifer 50 to 300 feet below the base. In 1941, a water treatment system, including 21 water supply wells, was placed on-line at HPIA. The system serviced most of the base until the 1950s, when additional wells and treatment facilities were installed because of the expanding needs of the base. Today, eight water treatment facilities and over 160 water supply wells serve the MCB at Camp Lejeune.

The HPIA is comprised of approximately 75 buildings/facilities. These include maintenance shops, gas stations, administrative offices, commissaries, snack bars, warehouses, storage yards, and a dry cleaning facility. A steam plant and training facility occupy the southwest portion of HPIA. In addition, numerous underground storage tanks, stormwater drains, and oil/water separators are present.

A transformer storage yard (Site 21) and a petroleum UST fuel tank farm (Site 22) are located within the northern portion of HPIA.

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

Operable Unit No. 2 consists of Site 6 (Storage Lots 201 and 203) and Site 9 (Fire Fighting Training Pit at Piney Green Road). These sites are described below.

#### **Site 6 - Storage Lots 201 and 203**

Storage Lots 201 and 203 are located on Holcomb Boulevard between Wallace and Bear head Creeks. Lot 201 is estimated to be approximately 25 acres in size, and Lot 203 is approximately 46 total acres.

These lots have a long history of various uses, including disposal and storage. The land surface is flat and unpaved, and surface soils have been moved about as a result of regrading and equipment movement. The site was and still is used to store hazardous materials. DDT is reported to have been disposed of at Lot 203 when it served as a waste disposal area in the 1940s. Transformers containing PCBs have also been stored at this site. No spills or leaks have been reported.

### **Site 9 - Firefighting Training Pit at Piney Green Road**

This 2-acre site is located between Piney Green Road and Holcomb Boulevard, south of Bearhead Creek. This AOC has been used for firefighting training exercises from the 1960s to the present. Until 1981, the fire training activities were carried out in an unlined pit. Flammable liquids, including used oil, solvents, and contaminated fuels (nonleaded), were burned in the pit. An oil-water separator has been installed at the site as a means of pollution control.

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

Operable Unit No. 3 is the Marine Corps Air Station (MCAS) Mercury Dump (Site 48). The MCAS New River Mercury Dump Site is located on Longstaff Road next to Building 804. The disposal area was utilized from 1956 to 1966 and covers a 100- to 200-foot wide corridor extending from the rear of Building 804 (photo lab) to the edge of the New River. These dimensions correlate with an area of approximately 20,000 square feet. Metallic mercury was periodically drained from the delay lines of the radar units and disposed of at this AOC. Approximately 1 gallon per year of mercury was deposited over a 10-year period, amounting to more than 1,000 pounds total. The best information available indicates that the material was carried by hand and dumped or buried in small quantities at randomly selected spots.

#### **2.2.4 Operable Unit No. 4 (Site 69)**

Operable Unit No. 4 is the Rifle Range Chemical Dump (Site 69). The Rifle Range Chemical Dump is located approximately 9,000 feet east of the intersection of Range Road and Sneads Ferry Road, north of Everett Creek. The site is an estimated 6 acres in size, containing approximately 93,000 cubic yards of material. Available records indicate the site was active from the early 1950s until 1976. It is reported that the site was utilized as a disposal area for all chemical wastes generated on the base. The list of materials disposed of at the site include the following materials: pentachlorophenol, DDT, trichloroethylene, malathion, diazinon, lindane, gas cylinders, HTH, PCBs, drums that appeared to contain training agent consisting of chloroacetophenone (CN) gas, all other hazardous materials generated or used on the base, and chemical agent test kits for chemical warfare, which contain no agent substances. material was disposed of in trenches or pits that were between 6 to 20 feet deep. At least 12 different disposal events have been documented.

### **2.2.5 Operable Unit No. 5 (Sites 2 and 74)**

Operable Unit No. 5 consists of Site 2 (Former Nursery/Day Care Center) and Site 74 (Mess Hall Grease Disposal Area). These sites are described below.

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

From 1945 to 1958 this building was used for the storing, handling, and dispensing of pesticides. The building at this location was later used as a children's day-care center. Chemicals known to have been used include chlordane, DDT, diazinon, and 2,4-D. Chemicals known to have been stored on site include dieldrin, lindane, malathion, silvex, and 2,4,5-TP. Areas of suspected contamination are the fenced playground, mixing pad, wash pad, and railroad drainage ditch. Contamination is believed to have occurred as a result of small spills, washout, and excess disposal. A preliminary soil sampling investigation conducted at this site in 1982 indicated the presence of DDE, DDD, DDT, and chlordane. Based on these results, the day-care activities were moved to another location.

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

The Mess Hall Grease Disposal Area is located in a wooded area approximately 1/2 mile east of Holcomb Boulevard in the northeast portion of Camp Lejeune. The Pest Control Area is located approximately 20 to 50 yards south of the grease pit and 75 yards east of Supply Well 654. The disposal area north of the dirt access road is approximately 3 acres in size. The grease pit measured 135 feet long, 30 feet wide, and 12 feet deep. The total size of the Pest Control Area has been estimated at 100 feet by 100 feet. Available information indicates the site was active from the early 1950s until 1960. Disposal activities at the site included the placement of mess hall grease and some waste food into a pit. Records indicate that there was at least one unsuccessful attempt to burn the grease using a more volatile substance. The material was washed out of the pit in 1954, when Hurricane Hazel passed through the area. Use of the pit was discontinued at this time. No estimates regarding the quantity of grease disposed of at the site have been made.

Drums and pesticide-soaked bags were dumped near the grease pit. Detailed information regarding the contents of the drums is not available. Personnel involved with disposal of the drums were not informed of the drum's contents or origin. It is speculated that the drums may have contained pesticides and/or transformer oil containing PCBs. Best estimates indicate

that approximately 500 gallons of pesticides were released from the deposition of the bags. Approximately 2,200 gallons of pesticides, contained in drums, were deposited at the site. It is estimated that 1,100 gallons of PCB-containing oil were buried at the site.

#### **2.2.6 Operable Unit No. 6 (Sites 35, 36, 41, and 86)**

Site 35 (Camp Geiger Area Fuel Farm), Site 36 (Camp Geiger Area Dump Near the Sewage Treatment Plant), Site 41 (Camp Geiger Dump Near Former Trailer Park), and Site 86 (Tank Area AS419-AS421 at Marine Corps Air Station) will be investigated as an Operable Unit. These sites are described below.

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

Camp Geiger Area Fuel Farm is located north of the intersection of G and Fourth Streets, approximately 400 feet southwest of Brinson Creek. This 2,500-square-foot site was used in 1957 and 1958 for storing and pumping fuel. Gas was released to the soil through a leak in an underground line near an above-ground storage tank and tank pad. The Camp Lejeune Fire Department has estimated the amount of fuel released to be in the thousands of gallons. Exact quantities released cannot be determined because the records were destroyed. The spill migrated east and northeast toward and into Brinson Creek. Fuel at the surface of the shallow aquifer was disposed of by digging holes to the water table and igniting the fuel. Fuel which contaminated Brinson Creek was also ignited and burned.

##### **Site 36 - Camp Geiger Area Dump near Sewage Treatment Plant (STP)**

The Camp Geiger Area Dump is located east of the Camp Geiger STP approximately 200 feet on the south side of Brinson Creek, downstream of Site 35. An unnamed ditch is located less than 100 feet southeast of the filled area. Site 36 was used for the disposal of municipal wastes and mixed industrial wastes including garbage, trash, waste oils, solvents, and hydraulic fluids from the air station from the late 1940s to the late 1950s. Most of the material was first burned and then buried. However, some unburned material was buried. According to interviews conducted during the IAS process, less than 5 percent of all hydrocarbons used at the air station were disposed of at the site. The remainder was used for dust control on roads or went directly into storm drains. A conservative estimate of the quantities used for dust control is 700 to 1,000 gallons per week. A smaller but undetermined amount was washed down the storm drains. Using a 5 percent estimate for dumping over the 9 years of operation,

approximately 25,000 gallons of material could have been disposed of in the landfill areas. If it is assumed that this amount was split between this site and the trailer park dump (Site 41), 10,000 to 15,000 gallons of solvents and oils may have been placed into Site 36. The records state that all waste solvents and oils were burned after disposal at this site.

The site covers about 25,000 square feet and rises about 10 to 12 feet above grade. Based on an average depth of fill of 15 feet, the estimated volume of the disposal area is 14,000 cubic yards. These estimates are based on map and photographic information only. No field measurements have been performed for this purpose.

#### **Site 41 - Camp Geiger Dump near Former Trailer Park**

The Camp Geiger Dump is located south of the terminus of Robert L. Wilson Boulevard and south of the abandoned trailer park. The area lies between an unnamed creek and Tank Creek. This 30-acre disposal area was operated from 1946 to 1970, and was used as an open burn dump that received mixed industrial waste, commercial waste, construction debris, waste oils, solvents from the air station, garbage, trash, asphalt, concrete, old batteries, Mirex, and ordnance. The size estimate for Site 41 is based on map and photographic information. Field estimates have been made, but no field measurements were performed.

Based on interviews with MCAS New River and Camp Lejeune personnel, it is estimated that 10,000 to 15,000 gallons of waste oils and solvents were disposed of at this site. Most of these wastes were probably burned. The number of old lead-containing batteries disposed of is assumed to be relatively small. Tons of Mirex in bags were disposed of in 1964. The disposed quantity of ordnance is estimated to include thousands of mortar shells. At least one case of grenades and one 105mm howitzer shell were also reported to have been disposed of within the filled area. In the mid-1960s over a 1- to 2-year period, at least two waste disposal incidents occurred during which two truckloads of drummed wastes were unloaded at the site. These wastes were described as being similar to those disposed of at the Rifle Range Chemical Dump (Site 69). No other information concerning drum content was obtained. Based on an estimated fill depth of 5 feet, the total estimated volume of the site is approximately 110,000 cubic yards.

## **Site 86 - Tank Area AS419 - AS421 at Marine Corps Air Station**

Site 86 is located at Marine Corps Air Station, New River, North Carolina, on the southwest corner of Foster Street and Campbell Street. Two hundred feet to the south is the Marine Corps Air Station fire station. The taxiway is located approximately 800 feet to the south of the site. Office buildings, aircraft hangers, machine shops and a commissary are located in close proximity to the site.

The site consists of an area which was once occupied by three aboveground storage tanks (AGSTs), each with a 25,000 gallon capacity. The tanks were surrounded by an earthen berm and a pump house. It has been reported that the tanks were used to store No. 6 fuel oil and waste oil. The tanks have been removed.

In November 1990, a soil and groundwater investigation of the area was completed. Total petroleum hydrocarbons (TPH) were detected in only one out of 22 surface soil samples above 10 ppm (124 ppm). The location and depth of soils containing TPH concentrations above the North Carolina action level of 10 ppm suggest the source to be from localized surficial spills. Although the soil only reflects minor problems associated with surficial product spills, groundwater was found to be contaminated with trichloroethene (TCE) above the MCL. For this reason, this site has been included with other CERCLA sites at MCB Camp Lejeune. The source of the TCE in groundwater is unknown.

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

Operable Unit No. 7 will consist of Site 1 (French Creek Disposal Area), Site 28 (Hadnot Point Burm Dump), and Site 30 (Sneads Ferry Road Fuel Tank Sludge Area). These sites are described below.

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

This site is located on both the north and south sides of Main Service Road at the western edge of the Gun Park Area and Force Troops Complex. The total area for the site is approximately 7 to 8 acres. Site 1 has been used by many different Marine organizations since the 1940s. Liquid wastes from vehicle maintenance activities were poured on the ground as part of routine operations.

Batteries and used battery acid were also disposed of at this location. Suspected quantities of waste are estimated to be 5,000 to 20,000 gallons of waste petroleum, oil, and lubricants (POL) and 1,000 to 10,000 gallons of battery acid.

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

The Hadnot Point Burn Dump is located east of the Mainside Sewage Treatment Plant is on both sides of Cogdels Creek. A variety of solid wastes, including mixed industrial waste, trash, garbage, oil-based paint, and refuse, was burned and subsequently covered with dirt on this 23-acre disposal area, which was in operation from 1946 to 1971. Upon its closure in 1971, the surface was graded, and grass was planted. The volume of fill is estimated at 185,000 to 379,000 cubic yards. Since the waste was burned, no approximation of the remaining amount of specific substances can reasonably be made. The site is currently used as a recreational area, including a stocked fishing pond.

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

The Sneads Ferry Road Fuel Tank Sludge Area is located along a tank trail that intersects Sneads Ferry Road from the west, about 6,000 feet south of the intersection with Marines Road. The site is located approximately 1,500 feet east of French Creek. In 1970, sludge from fuel storage tanks storing leaded gasoline (containing tetraethyl lead and related compounds) and tank washout waters were disposed of at the site by a private contractor. It is estimated that, at a minimum, 600 gallons of sludge or tank bottom deposits were dumped at the site. Two 12,000-gallon tanks were pumped out while the type of fuel stored was changed. The 600-gallon estimate is based on tank capacity below the tank outflow ports. Additional washout water may also have been present. Additional information suggests that the site had also been used for similar wastes from other tanks. Composition of the sludge and/or washout is unknown and may vary from containing substantial amounts of tetraethyl lead to containing mostly cleaning compounds.

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

Operable Unit No. 8 is the Montford Point Burn Dump (Site 16). Site 16 was opened about 1958 and was closed in 1972, although unauthorized dumping subsequently occurred. The site contains building debris, garbage, tires, and waste oils. The quantity of these wastes is not

known, but only a small amount of oil disposal is suspected. Materials reportedly have been dumped on the surface and included asbestos insulation material for pipes. The asbestos on the surface has been removed from this 4-acre site.

#### **2.2.9 Operable Unit No. 9 (Site 73)**

Operable Unit No. 9 is the Courthouse Bay Liquids Disposal Area (Site 73). The Courthouse Bay Liquids Disposal Area is located on both sides of Courthouse Road approximately 200 feet northwest of Courthouse Bay. This AOC was used from 1946 until 1977. Available information indicates that disposal activities occurred within a 13-acre area. 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.

### **3.0 OPERABLE UNIT SCOPE OF WORK**

The purpose of this section is to summarize ongoing, completed, and planned IRP activities.

Remedial Investigation/Feasibility Study Project Plans for Sites 6, 9, 48, and 69 were initiated in Fiscal Year 1991 (July 31, 1991) and finalized in Fiscal Year 1992 (May 1992). The RI/FS was initiated during Fiscal Year 1992 (July 29, 1992) and will most likely be completed in Fiscal Year 1993. Remedial Design/Remedial Action activities associated with Sites 6, 9, 48, and 69 will be initiated in Fiscal Year 1994.

An Interim Remedial Action RI/FS for the Shallow Aquifer at the Hadnot Point Industrial Area (Site 78) was initiated in Fiscal Year 1991 (July 23, 1991) and completed in Fiscal Year 1992 (May 1992). (The HPIA is one of three sites which comprise Operable Unit No. 1.). Remedial Design activities associated with the shallow aquifer at the HPIA were initiated in Fiscal Year 1992 (August 1992). In addition, RI/FS Project Plans for Operable Unit No. 1 (Sites 21, 24, and 78) and Operable Unit No. 5 (Sites 2 and 74) were initiated in Fiscal Year 1992 and are planned for completion in Fiscal Year 1993. Remedial Investigation/Feasibility Study Project Plans for Operable Unit No. 7 (Sites 1, 28 and 30) and Operable Unit No. 8 (Site 16) will be initiated in Fiscal Year 1993 and completed in Fiscal Year 1994.

In summary, various IRP activities were either initiated or completed in Fiscal Year 1992 at five of the nine operable units at MCB Camp Lejeune. IRP activities will continue at all five of these Operable Units and two new Operable Units (No. 7 and No. 8) in Fiscal Year 1993. IRP activities at the remaining two Operable Units (Nos. 6 and 9) will begin in Fiscal Year 1994. Table 3-1 summarizes the ongoing and planned activities associated with Operable Units 1 through 5. Table 3-2 identifies planned startups for all other Operable Units and sites for Fiscal Years 1993 through 1997.

TABLE 3-1

ACTIVE OPERABLE UNIT IRP ACTIVITIES

Operable Unit	Site No.	Activity	Planned Start Up	Actual Start Up	Planned Completion	Actual Completion
1	78	Interim Remedial Action RI/FS, PRAP and ROD Interim Remedial Action Design/Action (1)	FY 91 FY 92	FY 91 FY 92	FY 92 FY 94(2)	FY 92 --
1	21, 24 and 78	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 92 FY 93 FY 94	FY 92 -- --	FY 93 FY 94 FY 96(2)	-- -- --
2	6 and 9	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 91 FY 92 FY 94	FY 91 FY 92 --	FY 92 FY 94 FY 95(2)	FY 92 -- --
3	48	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 91 FY 92 FY 94	FY 91 FY 92 --	FY 92 FY 94 FY 95(2)	FY 92 -- --
4	69	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 91 FY 92 FY 95	FY 91 FY 92 --	FY 92 FY 95 FY 96(2)	FY 92 -- --
5	2 and 74	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 92 FY 93 FY 95	FY 92 -- --	FY 93 FY 95 FY 96(2)	-- -- --

(1) Remedial construction activities must commence within 15 months following the Record of Decision.

(2) Final Remedial Action Work Plans to be completed and construction activities initiated.

TABLE 3-2

UPCOMING FY 93-97 OPERABLE UNIT IRP ACTIVITIES

Operable Unit	Site No.	Activity	Planned Start Up	Planned Completion
6	35, 36, 41, and 86	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 94 FY 95 FY 96	FY 95 FY 96 FY 97(2)
7	1, 28 and 30	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 93 FY 94 FY 95	FY 94 FY 95 FY 96(2)
8	16	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 93 FY 94 FY 95	FY 94 FY 95 FY 97(2)
9	73	RI/FS Project Plans RI/FS, PRAP and ROD Remedial Design/Remedial Action (1)	FY 94 FY 95 FY 96	FY 95 FY 96 FY 97(2)

(1) Remedial construction activities must commence within 15 months following the Record of Decision.

(2) Final Remedial Action Work Plans to be completed and construction activities initiated.

#### 4.0 SITE MANAGEMENT SCHEDULES

The purpose of this section is to present project schedules for each of the nine Operable Units for Fiscal Years 1993 through 1997. These schedules are adjusted annually in the Site Management Plan.

Operable Units and sites that will be active during Fiscal Year 1993 are summarized below.

Operable Unit	Site	Fiscal Year 1993 Activities
1	78	Interim RD/RA for the Shallow Aquifer
1	21, 24 and 78	Complete RI/FS Project Plans; and Initiate RI/FS
2	6 and 9	Continue RI/FS (complete in FY 94)
3	48	Complete RI/FS, PRAP, and ROD
4	69	Complete Phase I RI/FS
5	2 and 74	Complete RI/FS Project Plans; and Initiate RI/FS
7	1, 28, and 30	Initiate RI/FS Project Plans
8	16	Initiate RI/FS Project Plans

The remaining two Operable Units (6 and 9) will not experience any IRP activities until Fiscal Year 1994.

The project schedules for these Operable Units are depicted on Tables 4-1 through 4-10. The project schedules include: a detailed listing of Fiscal Year 1993 activities for each Operable Unit; the duration (in calendar days) of each IRP activity; the deliverables (e.g., RI/FS Project Plans, RA Work Plans, etc.); and submittal dates. In addition, the project schedules include all activities through completion of the Remedial Design (RD) and startup of the Remedial Action. A listing of deliverables associated with Fiscal Year 1993 IRP activities are summarized on Table 4-11.

The project schedules for the nine Operable Units reflect Government review times specified in the FFA and Navy/Marine Corps turnaround times. These durations are as follows.

- Draft Primary Documents: 60 days to review and 60 days to prepare and submit the Draft Final document.



**Table 4-2: Site Management Schedule**  
 Sites 21, 24, and 78 (Operable Unit No. 1) - MCB Camp Lejeune, NC

Task	Days	Start	Finish	1993					1994					1995					1996																	
				J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
RI/FS Project Plans	296d	6/4/92	3/27/93	[Solid black bar]																																
Prepare Prelim. Draft RI/FS Proj. Plans	80d	6/4/92	8/23/92	[Solid black bar]																																
Submit Prelim. Draft RI/FS Proj. Plans	0d	8/23/92	8/23/92	[Diamond marker]																																
LANTDIV Review	15d	8/23/92	9/7/92	[Small square marker]																																
Prepare Draft RI/FS Project Plans	21d	9/7/92	9/28/92	[Small square marker]																																
Submit Draft RI/FS Project Plans	0d	9/28/92	9/28/92	[Diamond marker]																																
Agency Review	60d	9/28/92	11/27/92	[Solid black bar]																																
Prepare Draft Final RI/FS Project Plans	60d	11/27/92	1/26/93	[Solid black bar]																																
Submit Draft Final RI/FS Project Plans	0d	1/26/93	1/26/93	[Diamond marker]																																
Agency Review	30d	1/26/93	2/25/93	[Small square marker]																																
Prepare Final RI/FS Project Plans	30d	2/25/93	3/27/93	[Small square marker]																																
Submit Final RI/FS Project Plans	0d	3/27/93	3/27/93	[Diamond marker]																																
RI/FS, PRAP, and ROD (1)	536d	3/27/93	9/14/94	[Solid black bar]																																
Remedial Design (2)	397d	9/14/94	10/16/95	[Solid black bar]																																
Procure RA Contractor (2)	60d	10/16/95	12/15/95	[Solid black bar]																																
Begin Remedial Action (2)	0d	12/15/95	12/15/95	[Diamond marker]																																

4-3

- (1) The Schedule is an estimation and will be established following the submittal of Final RI/FS Project Plans.
- (2) Remedial Design (RD) duration (15 months) is based on Section 120(e)(2) of CERCLA. Actual RD Schedule will be established following the RI/FS.

Table 4-3: Site Management Schedule  
 Sites 6 and 9 (Operable Unit No. 2) - MCB Camp Lejeune, NC

Task	Days	Start	Finish	1993												1994												1995											
				J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	
RI/FS	529d	7/29/92	1/9/94	[Solid black bar]																																			
Notice to Proceed/Mobilization	30d	7/29/92	8/28/92	[Solid black bar]																																			
Field Investigation	78d	8/28/92	11/14/92	[Solid black bar]																																			
Data Analysis/Validation	134d	8/28/92	1/9/93	[Solid black bar]																																			
Data Evaluation	91d	11/14/92	2/13/93	[Solid black bar]																																			
Risk Assessment	42d	2/13/93	3/27/93	[Solid black bar]																																			
Prepare Preliminary Draft RI/FS and PRAP	60d	2/13/93	4/14/93	[Solid black bar]																																			
Submit Preliminary Draft RI/FS and PRAP	0d	4/14/93	4/14/93	[Diamond]																																			
LANTDIV Review	30d	4/14/93	5/14/93	[Solid black bar]																																			
Prepare Draft RI/FS and PRAP	30d	5/14/93	6/13/93	[Solid black bar]																																			
Submit Draft RI/FS and PRAP	0d	6/13/93	6/13/93	[Diamond]																																			
Agency Review	60d	6/13/93	8/12/93	[Solid black bar]																																			
Prepare Draft Final RI/FS and PRAP	60d	8/12/93	10/11/93	[Solid black bar]																																			
Submit Draft Final RI/FS and PRAP	0d	10/11/93	10/11/93	[Diamond]																																			
Agency Review	30d	10/11/93	11/10/93	[Solid black bar]																																			
Prepare Final RI/FS and PRAP	30d	11/10/93	12/10/93	[Solid black bar]																																			
Prepare Final RI/FS and PRAP	0d	12/10/93	12/10/93	[Diamond]																																			
Public Comment Period	30d	12/10/93	1/9/94	[Solid black bar]																																			

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**Table 4-7: Site Management Schedule**  
 Sites 35, 36, 41, and 86 (Operable Unit No. 6) - MCB Camp Lejeune, NC

Task	Days	Start	Finish	1994				1995				1996				1997																
				J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
RI/FS Project Plan (1)	300d	3/1/94	12/26/94	██████████				██████████																								
RI/FS, PRAP, and ROD (2)	536d	12/26/94	6/14/96					██																								
RD/RA (3)	457d	6/14/96	9/14/97									██				██																

- (1) RI/FS Project Plans include the preparation of a Preliminary Draft, Draft, Draft Final, and Final RI/FS Work Plan, Sampling and Analysis Plan, and Health and Safety Plan. Government review times are based on the FFA. Notice to proceed (March 1, 1994) is an estimation.
- (2) RI/FS, PRAP, and ROD duration is based on similar projects (e.g., same as Operable Unit No. 2) and include Government review times specified in the FFA for Primary and Secondary documents.
- (3) Remedial Design (RD) duration is approximately 15 months. Section 120(e)(2) of CERCLA requires that remedial action (i.e., construction activities) begin 15 months following the ROD.

Table 4-8: Site Management Schedule  
 Sites 1, 28, and 30 (Operable Unit No. 7) - MCB Camp Lejeune, NC

Task	Days	Start	Finish	1993				1994				1995				1996			
				F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
RI/FS Project Plans	300d	3/1/93	12/26/93	[Gantt bar from March 1993 to December 1993]															
Prepare Prelim Draft RI/FS Proj Plans	60d	3/1/93	4/30/93	[Gantt bar from March 1993 to April 1993]															
Submit Prelim Draft RI/FS Proj Plans	0d	4/30/93	4/30/93	[Milestone diamond at April 30, 1993]															
LANTDIV Review	30d	4/30/93	5/30/93	[Gantt bar from April 30, 1993 to May 1993]															
Prepare Draft RI/FS Proj Plans	30d	5/30/93	6/29/93	[Gantt bar from May 1993 to June 1993]															
Submit Draft RI/FS Proj Plans	0d	6/29/93	6/29/93	[Milestone diamond at June 29, 1993]															
Agency Review	60d	6/29/93	8/28/93	[Gantt bar from June 29, 1993 to August 1993]															
Prepare Draft Final RI/FS Proj Plans	60d	8/28/93	10/27/93	[Gantt bar from August 1993 to October 1993]															
Submit Draft Final RI/FS Proj Plans	0d	10/27/93	10/27/93	[Milestone diamond at October 27, 1993]															
Agency Review	30d	10/27/93	11/26/93	[Gantt bar from October 27, 1993 to November 1993]															
Prepare Final RI/FS Project Plans	30d	11/26/93	12/26/93	[Gantt bar from November 1993 to December 1993]															
Submit Final RI/FS Project Plans	0d	12/26/93	12/26/93	[Milestone diamond at December 26, 1993]															
RI/FS, PRAP, and ROD (1)	536d	12/26/93	6/15/95	[Gantt bar from December 1993 to June 1995]															
Remedial Design (2)	397d	6/15/95	7/16/96	[Gantt bar from June 1995 to July 1996]															
Procure RA Contractor (2)	60d	7/17/96	9/15/96	[Gantt bar from July 1996 to September 1996]															
Begin Remedial Action	0d	9/15/96	9/15/96	[Milestone diamond at September 15, 1996]															

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- (1) The Schedule is an estimation and will be established following the submittal of Final RI/FS Project Plans.
- (2) Remedial Design (RD) duration (15 months) is based on Section 120(e)(2) of CERCLA. Actual RD Schedule will be established following the RI/FS.



**Table 4-10: Site Management Schedule**  
 Sites 73 (Operable Unit No. 9) - MCB Camp Lejeune, NC

Task	Days	Start	Finish	1994					1995					1996					1997												
				M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
RI/FS Project Plans (1)	300d	4/1/94	1/26/95	██████████					██████████																						
RI/FS, PRAP, and ROD (2)	536d	1/26/95	7/15/96						██																						
RD/RA (3)	457d	7/15/96	10/15/97											██					██												

- (1) RI/FS Project Plans include the preparation of a Preliminary Draft, Draft, Draft Final, and Final RI/FS Work Plan, Sampling and Analysis Plan, and Health and Safety Plan. Government review times are based on the FFA. Notice to proceed (March 1, 1994) is an estimation.
- (2) RI/FS, PRAP, and ROD duration is based on similar projects (e.g., same as Operable Unit No. 2) and include Government review times specified in the FFA for Primary and Secondary documents.
- (3) Remedial Design (RD) duration is approximately 15 months. Section 120(e)(2) of CERCLA requires that remedial action (i.e., construction activities) begin 15 months following the ROD.

TABLE 4-11

PRIMARY AND SECONDARY DOCUMENT SUBMITTALS  
FOR FISCAL YEAR 1993  
MCB CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site	Activity	Primary (P) or Secondary (S) Document	Anticipated Submittal Date
1	78	RD/RA	Draft RD Work Plan (P)	September 29, 1992
			Draft Treatability Study (TS) Work Plan (P)	September 29, 1992
			Draft TS Sampling and Analysis Plan (SAP) and Health and Safety Plan (HASP) (S)	September 29, 1992
			Draft Final RD Work Plan (P)	January 27, 1993 <sup>(1)</sup>
			Draft Final TS Work Plan (P)	January 27, 1993 <sup>(1)</sup>
			Draft Final TS Sampling and Analysis Plan (SAP) and Health and Safety Plan (HASP) (S)	January 27, 1993 <sup>(1)</sup>
			Final RD Work Plan (P)	March 28, 1993 <sup>(2,3)</sup>
			Final TS Work Plan (P)	March 28, 1993 <sup>(2,3)</sup>
			Final TS Sampling and Analysis Plan (SAP) and Health and Safety Plan (HASP) (S)	March 28, 1993 <sup>(2,3)</sup>
			Draft TS Report (S)	May 30, 1993
			Draft Final TS Report (S)	September 27, 1993
			Final TS Report (S)	November 26, 1993 (FY 94) <sup>(2,3)</sup>
			30 Percent Design Report (P)	May 30, 1993
			90 Percent Design Report (P)	September 27, 1993 <sup>(2,3)</sup>
			Final Design Report (P)	November 26, 1993 (FY 94)
			Draft RA Work Plan (P)	May 30, 1993
			Draft Final RA Work Plan (P)	September 27, 1993
Final RA Work Plan (P)	November 26, 1993 (FY 94) <sup>(2,3)</sup>			

**TABLE 4-11**  
**(Continued)**  
**PRIMARY AND SECONDARY DOCUMENT SUBMITTALS**  
**FOR FISCAL YEAR 1993**  
**MCB CAMP LEJEUNE, NORTH CAROLINA**

Operable Unit	Site	Activity	Primary (P) or Secondary (S) Document	Anticipated Submittal Date
1	21, 24 and 78	RI/FS Project Plans	Draft RI/FS Work Plan (P) Draft RI/FS SAP and HASP (S) Draft Final RI/FS Work Plan (P) Draft Final RI/FS SAP and HASP (S) Final RI/FS Work Plan (P) Final RI/FS SAP and HASP (S)	September 28, 1992 (FY 92) September 28, 1992 (FY 92) January 26, 1992 <sup>(1)</sup> January 26, 1992 <sup>(1)</sup> March 27, 1993 <sup>(2,3)</sup> March 27, 1993 <sup>(2,3)</sup>
2	6 and 9	RI/FS	Draft RI/FS and PRAP (P) Draft Final RI/FS and PRAP (P) Draft Record of Decision (ROD) (P)	June 13, 1993 October 11, 1993 <sup>(1)</sup> August 2, 1993
3	48	RI/FS	Draft RI/FS and PRAP (P) Draft Final RI/FS and PRAP (P) Draft Record of Decision (ROD) (P)	May 13, 1993 September 10, 1993 <sup>(1)</sup> August 28, 1993
4	69	RI/FS	Interim RI and Draft Phase II RI/FS Project Plans (P) Draft Final Phase II RI/FS Phase II Project Plans (P) Final Phase II RI/FS Phase II Project Plans (P)	February 18, 1993 June 18, 1993 <sup>(1)</sup> August 17, 1993 <sup>(2,3)</sup>
5	2 and 74	RI/FS Project Plans	Draft RI/FS Work Plan (P) Draft RI/FS SAP and HASP (S) Draft Final RI/FS Work Plan (P) Draft Final RI/FS SAP and HASP (S) Final RI/FS Work Plan (P) Final RI/FS SAP and HASP (S)	September 30, 1992 (FY 92) September 30, 1992 (FY 92) January 26, 1993 <sup>(1)</sup> January 26, 1993 <sup>(1)</sup> March 27, 1993 <sup>(2,3)</sup> March 27, 1993 <sup>(2,3)</sup>

**TABLE 4-11**  
**(Continued)**  
**PRIMARY AND SECONDARY DOCUMENT SUBMITTALS**  
**FOR FISCAL YEAR 1993**  
**MCB CAMP LEJEUNE, NORTH CAROLINA**

Operable Unit	Site	Activity	Primary (P) or Secondary (S) Document	Anticipated Submittal Date
6	35, 36, 41, and 86	No IRP activities are planned for Fiscal Year 1993		Not Applicable
7	1, 28, and 30	RI/FS Project Plans	Draft RI/FS Work Plan (P) Draft RI/FS SAP and HASP (S) Draft Final RI/FS Work Plan (P) Draft Final RI/FS SAP and HASP (S)	June 29, 1993 June 29, 1993 October 27, 1993 (FY 94) October 27, 1993 (FY 94)
8	16	RI/FS Project Plans	Draft RI/FS Work Plan (P) Draft RI/FS SAP and HASP (S)	August 29, 1993 <sup>(1)</sup> August 29, 1993 <sup>(1)</sup>
9	73	No IRP activities are planned for Fiscal Year 1993		Not Applicable

Notes:

- (1) Submittal of Draft Final Reports are based on a Government review period of 60 days. The actual submittal date will be in proportion to the increase or decrease of review calendar days.
- (2) Draft Final Reports are Final if no Government comments are received within 30 days.
- (3) Based on a Government review period of 30 days.

- **Draft Final Primary Documents: 30 days to review and 30 days to finalize. Draft Final documents will become final if no comments are received within 30 days unless an extension is requested in accordance with the FFA.**

The FFA does not address Preliminary Draft Documents, which are prepared by the Navy/Marine Corps Contractor for internal review only (reviewed only by the Navy/Marine Corps). The duration for reviewing Preliminary Draft Primary documents is 30 days. The duration for revising the Preliminary Draft document to a Draft Primary document is also 30 days.

Tables 4-1 through 4-6 reflect active or ongoing CERCLA Operable Units. Tables 4-7 through 4-10 reflect Operable Units that will begin CERCLA investigations/studies in Fiscal year 1993 or 1994.

Project schedules for some RI/FS or RD/RA activities have been estimated at this time until the RI/FS Project Plans are completed or until the RI/FS is completed. For example, Operable Units No. 1 and 5 are currently in the Project Plan stage. Therefore, the schedule for RI/FS activities is only an estimation since the field investigation duration is unknown at this time.

In addition, the project schedule for Remedial Design activities cannot be established until the RI/FS is completed. For remedial design activities, a project duration of 15 months has been established since Section 120(e)(2) of CERCLA requires that remedial action activities begin within 15 months following the Record of Decision.

## **5.0 SITE INSPECTION**

### **5.1 Introduction**

This section identifies Fiscal Year 1993-1997 IRP activities for sites scheduled for Site Inspections (SIs). It is important to note that these SI sites are not required to adhere to the same reporting requirements as defined in the Camp Lejeune Federal Facilities Agreement for RI/FS sites. If these sites warrant further investigation based on the SI results, they will be added to the FFA list of RI/FS sites.

### **5.2 Sites**

The list of sites at MCB Camp Lejeune that require Site Inspections to determine whether additional RI/FS activities are needed is shown in Table 5-1.

Table 5-2 lists the SI sites along with the priority for work (fiscal year project start). These sites were prioritized according to the same criteria as the Operable Units (i.e., potential for groundwater contamination, proximity to receptors, contaminants verified, and potential for aquatic stress).

Following are brief descriptions of the sites where SIs are being conducted or are scheduled to be performed.

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

The old creosote plant operated from 1951 to 1952 to supply treated lumber during construction of the railroad on the base. The facility was located approximately 800 feet east of Building 613, on the opposite side of Holcomb Boulevard. Logs were cut into railroad ties at the onsite sawmill, then pressure treated with hot creosote stored in a railroad tank car. There is no indication of creosote disposal on site, and records show that creosote remaining in the pressure chamber at the end of a treatment cycle was stored for future use. Upon completion of the railroad, the plant and mill were dismantled and sold. The only site features remaining are concrete pads and the boiler chimney.

TABLE 5-1

DISPOSAL SITES REQUIRING SITE INSPECTIONS  
MCB CAMP LEJEUNE, NORTH CAROLINA

Site No.	Site Description	Dates Used	Material Deposited
3(1)	Old Creosote Plant	1951-1952	Trash, general debris
7(1)	Tarawa Terrace Dump	Unknown - 1972	Construction debris, STP filter sand, household trash
12(1)	Exposure Ordnance Disposal (EOD) (G-4)	Early 1960s	Ordnance burned or exploded, colored smokes, white phosphorus
43(1)	Agan Street Dump	Unknown	Boards, trash, WTP sludge, fiberglass
44(2)	Jones Street Dump	1950s	Debris, cloth, boards, old paint cans
54	Crash Crew Fire Training Burn Pit	1950s - Present	Contaminated fuels, oil spills
63	Verona Loop Dump	Unknown	Bivouac wastes
65(1)	Engineer Area Dump	Pre-1958 to 1972	Burn area dump, construction debris
68	Rifle Range Dump	1942-1972	Solvents, WTP sludge, construction materials
75	MCAS Basketball Court Site	Early 1950s	Training agents (CN, CNC, CNB, and/or CNS)
76	MCAS Curtis Road Site	1949	Training agents (CN, CNC, CNB, and/or CNS)
80(3)	Paradise Point (Golf Course Pesticide Area)	Unknown	Pesticides, waste oil
82(3)	Piney Green Road VOC Area	Unknown	Unknown
84	Building 45 Area	1940s - Unknown	Capacitors, transformers, and construction debris
85	Camp Johnson Battery Dump	1950s	Batteries, charcoal canisters
A	MCAS Officer's Housing Area	Unknown	Unknown

- (1) Requires further field investigation/sampling to justify previous "no action" decision documented in the IAS Report (1983) as per the EPA RFA.
- (2) To be studied because of Camp Lejeune's concern of the potential for environmental contamination.
- (3) Potentially new site.

TABLE 5-2

SI SITES  
MCB CAMP LEJEUNE, NORTH CAROLINA

Sites		Prioritization Criteria				Fiscal Year (Project Start)
		Groundwater Contamination Potential	Proximity to Receptors	Contaminants Verified	Aquatic Stress Potential	
No.	Description					
3	Old Creosote Plant	X				1991
7	Tarawa Terrace Dump		(b)			1991
12	Explosive Ordnance Disposal (G-4)	X				1993
43	Agan Street Dump	X	(b)			1991
44	Jones Street Dump	X	(b)			1991
54	Crash Crew Fire Training Burn Pit	X	(a)	X		1991
63	Verona Loop Dump	X				1991
65	Engineer Area Dump	X		X	X	1991
68	Rifle Range Dump	X				1993
75	MCAS Basketball Court Site	X	(b)			1993
76	MCAS Curtis Road Site	X	(b)			1993
80	Paradise Point (Golf Course Pesticide Area)	X	(a,b,c)		X	1991
82	Piney Green Road VOC Area	X		X	X	1991
84	Building 45 Area	X	(a, b)		X	1993
85	Camp Johnson Battery Dump	X				1993
A	MCAS Officer's Housing Area	X	(b)		X	1993

- (a) Workers on base
- (b) Residential areas
- (c) Recreational areas

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

Tarawa Terrace Dump is a landfill located east of the sewage treatment plant between Tarawa Boulevard and Northeast Creek. Its size is estimated at 5 acres. The landfill was closed in 1972, but the years of operation are not known. As far as is known, no hazardous materials were disposed of in this facility. Only construction debris, sewage treatment plant filter media, and household trash are known to have been disposed.

### **5.2.3 Site 12 - Explosive Ordnance Disposal (G-4)**

Site 12 covers approximately 300 acres. During the early 1960s, ordnance was disposed of by burning or exploding when it was found to be inert, unserviceable, or defective. Materials disposed of included ordnance, colored smokes, and white phosphorous. Any undestroyed residues were typically less than 1 pound.

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

The Agan Street Dump is about 20 acres in size and is located near the old wastewater treatment plant. Boards, trash, fiberglass, and wastewater treatment plant sludge were disposed of on the ground surface. The years of operation are unknown.

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

The Jones Street Dump is approximately 5 acres. It is located behind base housing on Jones Street. The dump was in operation in the 1950s, and received mainly debris, cloth, boards, and paint cans. However, small quantities of hazardous materials may also have been disposed of in the fill.

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

This 1.5-acre site within MCAS New River is located adjacent to the southwest end of Runway 5-23 near Building 3614. This AOC is believed to have been used in the mid-1950s for crash crew training and continues into the present. Contaminated fuels (principally JP-type and possibly leaded fuels) and waste fuels were used in the training exercises. Originally, the training was conducted on the ground surface with the area surrounded by a berm. Later, a burn pit was used which was lined in approximately 1975.

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

The Verona Loop Dump is estimated to be between 3 and 4 acres. It is believed that bivouac wastes were disposed of at this site, but the years of operation are not known. It is not believed that hazardous waste was disposed of at this site.

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

The Engineer Area Dump is 4 to 5 acres in size. Two separate disposal areas were identified: a battery acid disposal area and a liquids disposal area. The types of liquids involved are believed to be petroleum, oil, and lubricant products. In addition, the dump was used to burn construction debris. The dump was in operation from before 1958 until 1972.

### **5.2.9 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 fill lies within a 30- to 40-acre area that showed, in aerial photographs, signs of previous disturbance. However, this disturbance may be related to logging activities. 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. An estimated 2,000 gallons of waste solvents were reportedly deposited.

This currently inactive landfill was utilized as a disposal facility for a period of 30 years from 1942 to 1972. The major concern is the potential for waste solvents to affect the groundwater quality beneath the site. Organic compounds were identified in the potable supply wells RR-45 and RR-97. Even though these wells are located upgradient from the site, it was suspected that continuous pumping of the wells may have drawn contaminants to the wells.

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

The MCAS Basketball Court Site is located along the north side of Curtis Road. This AOC 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 being within 500 feet of the alleged disposal site.

#### **5.2.11 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 dumpsite 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.

#### **5.2.12 Site 80 - Paradise Point Golf Course**

The study area of this site consists of a 1-acre area at the back of the machine shop and the truck wash area at the Paradise Point Golf Course. The site contains an area of bare, hummocky soil, with a large soil mound. There are areas of dead and/or dying vegetation in the vicinity of the soil mound. In addition, there are unvegetated areas where soils have been disturbed. A drainage ditch runs from the truck wash area around the back of the machine shop.

In addition to the machine shop, which is a potential source of waste oils, the routine application of pesticides and herbicides on the golf course and the potential inadvertent disposal of excess pesticides and herbicides behind the machine shop may also have contributed to potential contamination in this area. The truck wash area consists of a concrete pad and sumps that collect washwater from the sprayers, but prior to the construction of this pad, the disposition of washwater may have been completely uncontrolled. The presence of dead vegetation indicates that, at a minimum, waste herbicides may have been disposed of

behind the machine shop. There is no indication that other chemicals have been used or disposed of in this area.

#### **5.2.13 Site 82 - Piney Green Road VOC Area**

The Piney Green Road VOC Area is a forested area between Lot 203 and Wallace Creek and appears to have been used as a disposal area at some point in the past. It is estimated to be 30 acres. There is visual evidence of debris piles and small depressions as identified by ES&E in the Site Summary Report, June 1990. This area is bounded on the northwest by Wallace Creek and is therefore a reasonable source of the observed VOCs in Wallace Creek.

#### **5.2.14 Site A - MCAS (H) Officer's Housing Area**

The MCAS (H) Officers' Housing Area site 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.

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

The Building 45 Area site is located adjacent to Highway 24 and Northeast Creek just prior to the main entrance to MCB Camp Lejeune. The property and structure was purchased by the Marine Corps in 1942. Prior to 1942, this area was owned and operated by Tidewater Electric Company. MCB Camp Lejeune has no records concerning their operation and use of this area. Behind the building there is evidence of construction debris in the wooded area. This debris consist of concrete rubble, old power guide wires, and a recently removed capacitor.

#### **5.2.16 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.

### **5.3 Scope of Work**

During FY 1991, SIs were initiated by preparing SI Project Plans (Work Plan, Sampling and Analysis Plan, and Health and Safety Plan) and conducting the field investigations for Sites 3, 7, 43, 44, 54, 63, 65, 80, and 82. Based on the results of the SIs, future RI/FS activities may be implemented for potentially contaminated sites. The SI Reports (Draft, Draft Final, and Final) will be submitted in Fiscal Year 1993. Additional SIs will be initiated at Sites A, 12, 68, 75, 76, 84, and 85 in FY 1993.

Most of the sites have been previously investigated in various stages of the NACIP Program, and there have been no sites identified that pose immediate threats to human health and the environment.

### **5.4 Site Management Schedules**

Figure 5-1 shows the tentative schedule for site inspections. Based on the results of the SI, future RI/FS activities may be implemented. A summary of Fiscal Year 1993 deliverables is given in Table 5-3.

FIGURE 5-1

SITE MANAGEMENT SCHEDULES FOR  
SITE INSPECTION SITES  
MCB CAMP LEJEUNE, NORTH CAROLINA

Sites	SI Activity	FY 1991				FY 1992				FY 1993				FY 1994				FY 1995		Duration (days)	Estimated Calendar Days	
		10/1/90	1/1/91	4/1	7/1	10/1	1/1/92	4/1	7/1	10/1	1/1/93	4/1	7/1	10/1	1/1/94	4/1	7/1	10/1	1/1/95			4/1
3, 7, 43, 44, 54, 63, 65, 80, and 82	Project Plans <sup>(1)</sup>	██████████																			243	Oct. 1, 1990 - May 31, 1991
	Field Investigations <sup>(2)</sup>			██████████																	92	May 31 - Aug. 31, 1991
	SI Reports <sup>(3)</sup>					██████████	██████████	██████████	██████████	██████████	██████████										577	Aug. 31, 1991 - March 31, 1993
A, 12, 75, 68, and 76	Project Plans <sup>(1)</sup>										██████████	██████████	██████████								282	Feb. 1, 1993 - Nov. 10, 1994
	Field Investigations <sup>(2)</sup>													██████████							90	Nov. 11, 1993 - Feb. 9, 1994
	SI Reports <sup>(3)</sup>														██████████	██████████	██████████				386	Feb. 9, 1994 - March 2, 1995

- (1) Project Plans include the preparation of Preliminary Draft, Draft, Draft Final, and Final SI Work Plan, Sampling and Analysis Plan, and Health and Safety Plan. Government review times are: 30 days for the Preliminary Draft Project Plans (LANTDIV review only); 60 days for the Draft Project Plans; and 30 days for the Draft Final Project Plans.
- (2) Field investigation durations do not include laboratory analysis, data validation, or data evaluation.
- (3) SI Report durations include: 28 days for laboratory analysis; 28 days for data validation; 30 days for data evaluation; preparation of Preliminary Draft (60 days), Draft (60 days), Draft Final (60 days), and Final (30 days) SI Reports; Government review times of 30 days for Preliminary Draft (LANTDIV only); 60 days for Draft SIs; and 30 days for Draft Final SIs.

**TABLE 5-3**

**SUMMARY OF FISCAL YEAR 1993 SUBMITTALS  
FOR SITE INSPECTION IRP SITES  
MCB CAMP LEJEUNE**

Sites	Submittal Documents	Submittal Date
3, 7, 43, 44, 54, 63, 65, 80 and 82 <sup>(1)</sup>	Draft Site Inspection (SI) Reports Draft Final SI Reports Final SI Reports <sup>(3)</sup>	October 2, 1992 January 30, 1993 <sup>(2)</sup> March 31, 1993 <sup>(4)</sup>
A, 12, 68, 75, 76, 84, and 85	Preliminary Draft SI Project Plans <sup>(5)</sup> Draft SI Project Plans Draft Final SI Project Plans Final SI Project Plans <sup>(3)</sup>	March 15, 1993 <sup>(6)</sup> May 14, 1993 <sup>(7)</sup> September 11, 1993 <sup>(2)</sup> November 10, 1993 <sup>(4)</sup> (FY 94)

- (1) SI Reports will be submitted for each individual site.
- (2) Based on a 60-day Government review period and 60-day period to revise reports; actual submittal date will be in proportion to the increase or decrease in review days.
- (3) Draft Final will become Final if no comments are received by the Government within 30 days.
- (4) Based on a 30 day government review period and a 30-day period to finalize reports; actual submittal date will be in proportion to the increase or decrease in review days.
- (5) Submitted to LANTDIV only.
- (6) Based on a February 3, 1993 notice to proceed.
- (7) Based on a 30-day review period by LANTDIV and 30-day period to revise Project Plans.

## **6.0 REMOVAL/INTERIM REMEDIAL ACTIONS**

Removal actions are taken to prevent immediate and substantial harm to human health. Examples are fencing, removal of above-ground drums, and removal of buried drums, if identified during geophysical surveys. Interim remedial actions are conducted to prevent a potential release of contaminants and/or further migration of contaminants.

One removal action was performed in FY 1990. A fence was installed around the perimeter of Site 69. An additional removal action will be conducted at Site 6. Specifically, this removal action will result in the removal of the existing DDT drums visible above-ground at Lot 203. This removal action was initiated in the third quarter of FY 1992.

An Interim Remedial Action (IRA) design for the remediation of the shallow aquifer at Site 78 (Hadnot Point Industrial Area) was initiated in Fiscal Year 1992. This IRA will be to pump and treat groundwater at the Hadnot Point Industrial Area Sewage Treatment Plant (STP). Construction activities for this IRA are anticipated to begin in Fiscal Year 1994.

The Navy will continue to identify possible removal/interim remedial actions as site investigations proceed.

## **7.0 REFERENCES**

**Baker, 1992. Final Remedial Investigation/Feasibility Study Work Plan for Sites 6, 9, 48, and 69 at MCB Camp Lejeune, May 18, 1992.**

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

**Camp Lejeune Federal Facility Agreement. February, 1991.**

**NUS, 1991. Final Site Management Plan for Marine Corps Base Camp Lejeune, North Carolina, Fiscal Year 1992. January, 1991.**