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FINAL

FISCAL YEAR 1996 SITE MANAGEMENT PLAN FOR MARINE CORPS BASE, CAMP LEJEUNE, NORTH CAROLINA

CONTRACT TASK ORDER 0099

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LIST OF ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
ARARs	Applicable or Relevant and Appropriate Requirements
AST	Aboveground Storage Tank
AWQC	Ambient Water Quality Criteria
Baker	Baker Environmental, Inc.
bgs	Below Ground Surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
DDE	dichlorodiphenyldichloroethylene
DDT	diphenyltrichloroethane
DoN	Department of the Navy
ESD	Explanation of Significant Difference
ESE	Environmental Science and Engineering, Inc.
FSSG	Field Service Support Group
IAS	Initial Assessment Study
IRA	Interim Remedial Action
IRP	Installation Restoration Program
LANTDIV	Naval Facilities Engineering Command, Atlantic Division
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MCL	Maximum Contaminant Level
MEB	Marine Expeditionary Brigade
NAICP	Navy Assessment and Control of Installation Pollutants
NC DEHNR	North Carolina Department of Environment, Health and Natural Resources
NC	North Carolina
NCP	National Oil and Hazardous Substances Pollution Control Contingency Plan

LIST OF ACRONYMS AND ABBREVIATIONS
(Continued)

NPL	National Priorities List
OU	Operable Unit
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyls
PCE	tetrachloroethene
POL	petroleum, oil, lubricant
RA	Risk Assessment
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SMP	Site Management Plan
SRIG	Surveillance, Reconnaissance, and Intelligence Group
STP	Sewage Treatment Plant
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCE	trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TCRA	Time Critical Removal Action
TPH	total petroleum hydrocarbon
µg/L	Microgram per Liter
µg/kg	Microgram per Kilogram
USEPA	United States Environmental Protection Agency
UST	underground storage tank
WAR	Water and Air Research

1.0 INTRODUCTION

This report presents the Fiscal Year 1996 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 1996 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) for the Atlantic Division, Naval Facilities Engineering Command (LANTDIV).

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 MCB Camp Lejeune: Marine Corps Base owns all the real estate, operates entry-level formal training schools, and provides support and training for tenant commands; Headquarters Nucleus, II Marine Expeditionary Force (II MEF) coordinates operational planning for Fleet Marine Commands; 2d Marine Division (2d MAR DIV) is the ground combat element of the Force; 2d Force Service Support Group (2d FSSG) is the service and support element of the Force; 2d Surveillance, Reconnaissance and Intelligence Group (2d SRIG) obtains, produces, and releases information and intelligence during planning and execution of exercises and combat operations; 6th Marine Expeditionary Brigade (6th MEB) provides the planning staff for the Fleet Marine Force associated with Maritime Prepositioning Ships Squadron-I; the Naval Hospital and the Naval Dental Clinic provide primary medical and dental care to Marines and sailors stationed at Camp Lejeune and medical care to their families.

The Marine Corps Air Station (MCAS), New River, and Camp Geiger are considered as a single urban area possessing two separate missions and supported by two unrelated groups of personnel. The MCAS, New River encompasses 2,772 acres and is located in the northwestern section of the Complex and lies approximately five miles south of Jacksonville. The Air Station includes air support activities, troop housing, and personnel support facilities, all of which immediately surround the aircraft operations and maintenance areas.

Camp Geiger, located directly north of MCAS, New River contains a mixture of troop housing, personnel support, and training uses.

The installation currently covers approximately 236 square miles and 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 City of Jacksonville, North Carolina is located immediately northwest of the facility. The western and northwestern boundaries are U.S. Route 17 and State Route 24, respectively. 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.

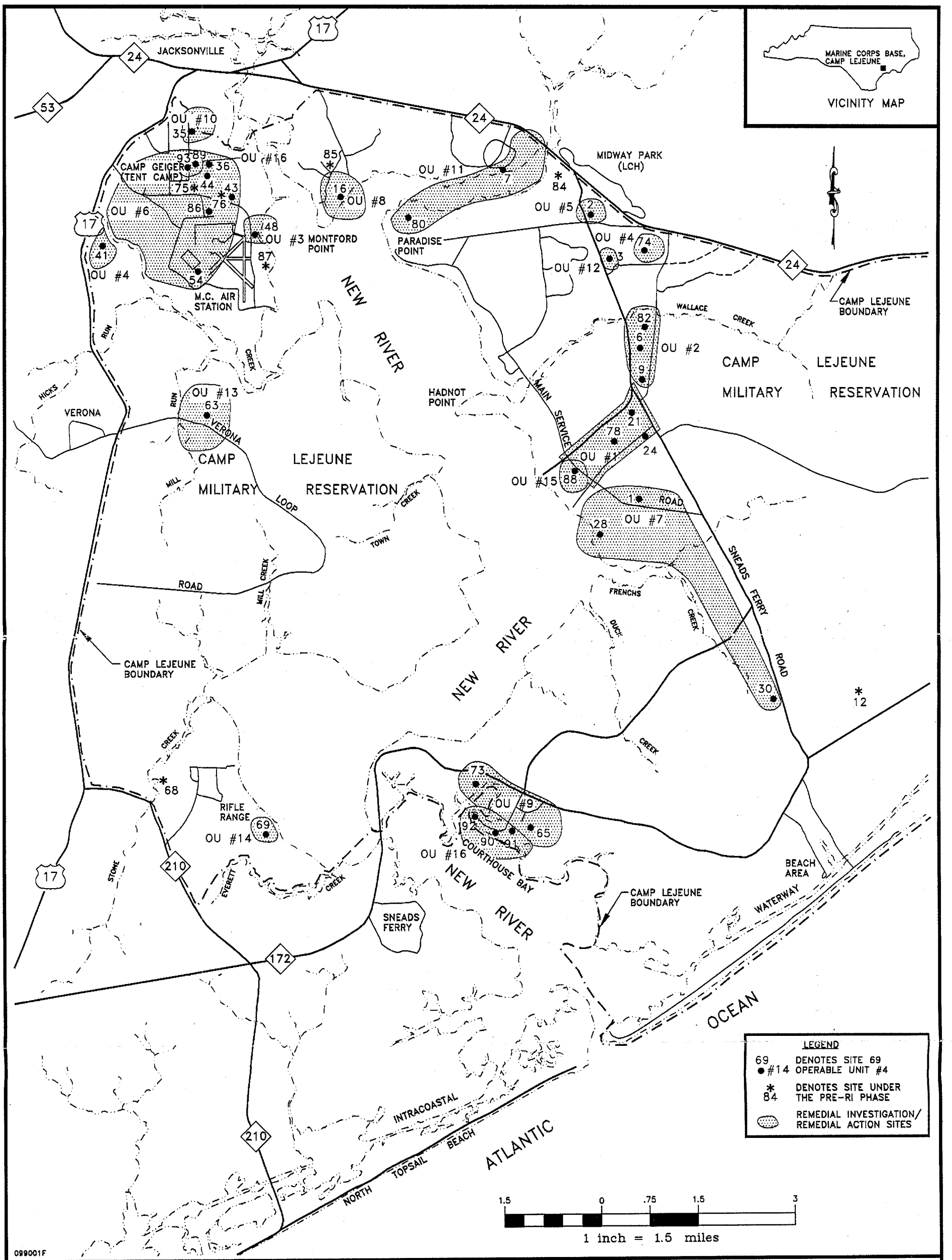

FIGURE 1-1
OPERABLE UNITS AND SITE LOCATIONS AT
MARINE CORPS BASE CAMP LEJEUNE

MARINE CORPS BASE, 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 Amendments 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 objectives 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, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 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 NCP, CERCLA, and SARA, under the terms and conditions of the FFA. Since then, additional sites have been 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 1996 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 primary documents, as specified in the FFA, to be submitted during Fiscal Year 1996. In addition, the SMP identifies Installation Restoration activities projected for the next five-year period (1996-2000).

1.4 Site Changes Since the Signing of the 1991 Federal Facilities Agreement

The FFA identified 23 sites where Remedial Investigation/Feasibility Study (RI/FS) activities are to be conducted. Since that time, two sites (Sites 22 and Site 45) have been relisted as UST sites and will not require an RI/FS at this time. In addition, Site 87 (formerly Site A) and Site 68 will require a Pre-Remedial Investigation prior to undertaking, if necessary, RI/FS activities.

Based on the results of Site Inspections conducted at MCB Camp Lejeune during the period 1991-1993, the following sites have been included under the RI/FS phase:

- 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)
- Site 82 (VOC Disposal Area at Piney Green Road)

Based on findings from UST investigations conducted at MCB Camp Lejeune during 1994, the following sites have been included under the RI/FS phase:

- 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)

As of September 1995, a total of 41 sites are included under the IRP at MCB, Camp Lejeune. Of these sites, a total of 21 sites still require RI/FS activities, and a total of 8 sites still require Pre-Remedial Investigation activities.

1.5 Recommended Amendments to the 1991 Federal Facilities Agreement

LANTDIV, MCB Camp Lejeune, EPA Region IV, and the North Carolina DEHNR are currently assessing the need to formally amend the FFA. Upon amending the FFA, a summary of the major changes will be outlined in this section of the SMP.

TABLE 1-1

SITES INCLUDED UNDER THE INSTALLATION RESTORATION PROGRAM FOR FISCAL YEAR 1996 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(2)	Original Base Dump
12 (2)	Exposure Ordnance Disposal
16	Montford Point Burn Dump
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
43	Agan Street Dump
44	Jones Street Dump
45 (1)	Campbell Street Underground AVGAS Storage and Adjacent JP Fuel Farm at Air Station
48	MCAS New River Mercury Dump Site
54	Crash Crew Fire Training Burn Pit
63	Verona Loop Dump
65	Engineer Area Dump
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 Curtis Road Site
87(2)	MCAS Officer's Housing Area (formerly Site A)
78	Hadnot Point Industrial Area
80	Paradise Point (Golf Course Maintenance Area)
82	VOC Disposal Area at Piney Creek Road
84(2)	Building 45 Area
85(2)	Camp Johnson Battery Dump

TABLE 1-1 (Continued)

SITES INCLUDED UNDER THE INSTALLATION RESTORATION PROGRAM FOR FISCAL YEAR 1996 MCB CAMP LEJEUNE, NORTH CAROLINA

Site No.	Site Description
86	Tank Area AS419-AS421 at MCAS
88	Building 25, Base Dry Cleaners
89	STC-868
90	Building BB-9
91	Building BB-51
92	Building BB-46
93	TC-942

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) Pre-Remedial Investigations (Pre RIs) will initially be conducted. The Pre-RIs will determine the need to conduct an RI/FS.

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 1996. Section 4.0 also includes schedules for those Operable Units that will be studied in Fiscal Years 1996-1999 and specific target submittal dates for draft primary and secondary documents for Fiscal Year 1996 through 2000. Ongoing and/or planned Pre-Remedial Investigation activities are presented in Section 5.0. Ongoing and/or planned removal actions are discussed in Section 6.0 (Removal/Interim Remedial Actions). References are provided in Section 7.0.

2.0 OPERABLE UNITS

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 (OUs) 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."

This section identifies the OUs at MCB Camp Lejeune where IRP activities are or will be implemented. Anticipated project start-up dates for these activities are also identified. The project start-up dates coincide with the priority of the OUs 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 33 current IRP sites be grouped into 16 OUs for the purposes of proceeding with RI/FS activities (see Table 2-1). These Operable Units are depicted in Figure 1-1 and are described below.

2.2 Operable Unit Descriptions

This section describes the operable units at MCB Camp Lejeune.

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 within Site 78, between Ash Street and Sneads Ferry Road on Center Road. In 1950 and 1951, an on-site pit, located in the northern portion of the site, 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 21 was 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. 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.

TABLE 2-1

OPERABLE UNITS FOR MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA
FISCAL YEAR 1996
MCB, 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 geographically located in the same area.
	9	Firefighting Training Pit at Piney Green Road	
	82	Piney Green Road VOC Area	
3	48	MCAS New River Mercury Dump Site	Unique characteristics of the site involving the disposal of mercury.
4	41	Camp Geiger Dump Near Former Trailer Park	Unique characteristics of the site involving the disposal of chemical wastes generated on the base.
	74	Mess Hall Grease Disposal Area	
5	2	Former Nursery/Day Care Center	Unique characteristic of materials used at the site (pesticides).
6	36	Camp Geiger Area Dump near Sewage Treatment Plant	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.
	43	Agan Street Dump	
	44	Jones Street Dump	
	54	Crash Crew Fire Training Burn Pit	
	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	

TABLE 2-1 (Continued)

OPERABLE UNITS FOR MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA
FISCAL YEAR 1996
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit No.	Site No(s).	Site Name(s)	Primary Reasons for OU Selection
8	16	Montford Point Burn Dump	Isolated site which requires additional investigation.
9	65	Engineer Area Dump	Geographic proximity with similar contaminant histories involving POL and metals.
	73	Courthouse Bay Liquids Disposal Area	
10	35	Camp Geiger Area Fuel Farm	Accelerated cleanup necessary to abate impacts to Brinson Creek.
11	7	Tarawa Terrace Dump	Geographic proximity. Both sites are located in the Northeast Creek Watershed.
	80	Paradise Point (Golf Course Maintenance Area)	
12	3	Old Creosote Plant	Isolated site with unique waste source.
13	63	Verona Loop Dump	Isolated site which requires additional investigation.
14	69	Rifle Range Chemical Dump	Isolated site with unique waste source.
15	88	Building 25, Base Dry Cleaners	Isolated site which requires additional investigation.
16	89	STC - 868	Unique characteristics of the site.
	90	Building BB-9	Similar histories all sites are former USTs where VOCs were detected in the groundwaters.
	91	Building BB-51	
	92	Building BB-46	
	93	TC-942	

Site 24 - Industrial Area Fly Ash Dump

Site 24 is located south and east of the intersection of Birch and Duncan Streets. 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 100 acres in size, the site lies adjacent to upstream portions of Cogdels Creek.

An RI/FS was conducted at Site 24 during 1993-1994. Based on the results of this study, no areas of concern were required for remediation.

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

The establishment of MCB Camp Lejeune began in the early 1940s with the construction of the HPIA. The HPIA, which covers approximately 590 acres, is comprised of approximately 75 buildings/facilities. These include maintenance shops, gas stations, administrative offices, printing shops, warehouses, storage yards, and other similar industrial facilities. 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.

An interim remedial action RI/FS was conducted at this site with respect to the shallow groundwater aquifer in 1992. Based on this study, an interim remedial action groundwater treatment system was designed. Implementation of the treatment system was initiated in 1995.

An RI/FS has been completed at Site 78 during 1993-1994. The results of this investigation indicated that organics (e.g., solvents and fuel-related compounds) and inorganics have impacted the groundwater at several areas within the site. In addition, a limited area of soil was found to be impacted by pesticides.

2.2.2 Operable Unit No. 2 (Sites 6, 9, and 82)

Operable Unit No. 2 consists of Site 6 (Storage Lots 201 and 203), Site 9 (Fire Fighting Training Pit at Piney Green Road), and Site 82 (Piney Green Road VOC Area). 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 Bearhead Creeks. Lot 201 is estimated to be approximately 25 acres in size, and Lot 203 is approximately 46 total acres. The area between the storage lots and surrounding these lots is primarily wooded. However, random disposal areas in the woods have been documented.

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. 4,4'-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.

Based on the results of the RI/FS, four soil areas of concern (AOCs) were identified for remediation. These AOCs exhibited pesticides, PCBs, and PAH contamination.

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. Based on the RI/FS, no areas of concern were identified.

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. A ravine, which is filled with debris in various sections, bisects the site. This site is bounded on the north by Wallace Creek and to the south by Storage Lot 203. The site is therefore a reasonable source of the observed VOCs in groundwater and Wallace Creek.

Based on the RI/FS, two soil areas of concern were identified. The AOCs exhibited pesticide/PAH contamination (Ravine Area) and VOCs (Site 82). In addition, shallow and deep groundwater exhibited VOC contamination.

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 AS-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 AS-804 (former 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. Building AS-804 is currently being used as an administrative office and classroom for nuclear, biological, and chemical warfare training.

Based on the RI/FS, no areas of concern were identified.

2.2.4 Operable Unit No. 4 (Sites 41 and 74)

Operable Unit No. 4 is comprised of Site 41 (Camp Geiger Dump Near Former Trailer Park) and Site 74 (Mess Hall Grease Pit Disposal Area). These sites are described below.

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 reportedly 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 105 mm 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). (Pesticides, PCBs, solvents, and chemical agent training kits were reportedly disposed of at Site 69.) No other information concerning drum content is available. Based on an estimated fill depth of 5 feet, the total estimated volume of waste of the site is approximately 110,000 cubic yards.

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. One internal memorandum indicated that drums which

were supposed to be taken to Site 69 were instead taken to Site 74. (Pesticides, PCBs, solvents, and chemical agent training kits were reportedly disposed of at Site 69.)

2.2.5 Operable Unit No. 5 (Site 2)

Operable Unit No. 5 consists of 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 4,4'-DDE, 4,4'-DDD, 4,4'-DDT, and chlordane. Based on these results, the day-care activities were moved to another location. Building 712 is currently being used as a personnel office for non-appropriated funding personnel.

Based on the results of the RI/FS, elevated levels of pesticides were detected in soil near the mixing pads. In addition, a plume consisting of low levels of ethylbenzene and toluene was present in the shallow aquifer.

2.2.6 Operable Unit No. 6 (Sites 36, 43, 44, 56, and 86)

Site 36 - Camp Geiger Area Dump

The Camp Geiger Area Dump (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 in the northwestern portion of MCB, Camp Lejeune, approximately 3 miles southwest of Jacksonville, North Carolina.

During an initial assessment of potential sites at MCB, Camp Lejeune, Site 36 was estimated to be approximately 1.5 acres in size. Based upon a review of aerial photographs and observations recorded during the RI scoping site visit, however, the size of the site was adjusted to include nearly 20 acres. The site is comprised primarily of open fields and wooded areas with dense under story. A gravel road bisects the site and provides access to Jack's Point Recreation Area, located approximately one-quarter mile east of the study area. The site is bordered to the north by Brinson Creek, to the east by woods, to the south by an unnamed tributary to the New River, and to the west by an improved (i.e., coarse gravel) road. Further to the west of the improved road lies an abandoned railroad right-of-way, once part of the Seaboard Coastline Railroad.

From the late 1940s to the late 1950s, Site 36 was used for the disposal of municipal wastes and mixed industrial wastes, including garbage, waste oils, solvents, and hydraulic fluids from the air station. Disposal records indicate that all waste solvents and oils were burned at this site. Previous investigations have indicated that most of this material was initially burned and then buried. However, unburned material was also reportedly buried.

According to interviews conducted by Water and Air Research, Inc. (WAR) during the Initial Assessment Study (IAS), less than five percent of all waste hydrocarbon material generated at the air station was disposed of at Site 36. The remaining waste oil was reportedly used for dust control on roads or went directly into storm drains (WAR, 1983).

During a site visit conducted in March, 1994, scattered debris (i.e., trees, glass, and metal), buried wire, and general litter was noted on-site. In addition, a few partially buried containers and 55-gallon drums and several mounds of construction debris were located in a swampy area southwest of the former dump. Fifty-five gallon drums containing unidentifiable material and 5-gallon pails labeled with "alkaline material" and "lubrication oil" were found south of the area where the unnamed tributary crosses the main access road.

A Site Inspection (SI) was performed by WAR in 1984. Additional investigations were conducted in 1986 and 1987 by Environmental Science and Engineering, Inc. (ESE). Levels of cadmium, chromium, lead, and phenols were detected in the groundwater (i.e., at both downgradient and upgradient wells) during the 1984 investigation. These levels exceeded federal and state groundwater criteria. Trans-1,2-dichloroethene (i.e., 2 µg/L), was detected at a low concentration, in the upgradient well only. The surface water and sediment from Brinson Creek and the unnamed tributary were also sampled. Trace levels of trans-1,2-dichloroethane, lead, and total phenols were detected in surface water and sediment. Chromium, lead, oil and grease, and phenols were detected in sediment.

The most recent sampling event included investigations of the following environmental media: background surface and subsurface soil, on-site surface and subsurface soil, shallow and deep groundwater, and surface water and sediment from Brinson Creek and the unnamed tributary. In addition, aquatic organisms were collected from Brinson Creek. A preliminary review of the laboratory data indicates the presence of organic solvent constituents in the groundwater (i.e., trichloroethane [TCE], 1,2-dichloroethene [1,2-DCE], and 1,1,2,2-tetrachloroethene [1,1,2,2-PCE]) and soil, pesticides and PCBs in the surface soil, and metals, namely lead, in the soil and sediment.

Site 43 - Agan Street Dump

The Agan Street Dump (Site 43) is comprised of approximately 11 acres and is located within the operations area of Marine Corps Air Station (MCAS) New River, 2 miles west of the main entrance. There is vehicle access to the site via Agan Street, from Curtis Road. Site 43 is located at the northern terminus of Agan Street, adjacent to an abandoned sewage disposal facility. The site is bordered to the north by Edwards Creek, to the east and south by Strawhorn Creek, and to the west by Agan Street and the former sewage disposal facility. Strawhorn Creek discharges into Edwards Creek at Site 43. Edwards Creek then discharges into the New River approximately 2,000 feet north of the study area, near Site 36.

Much of the study area is heavily vegetated with dense under story and trees greater than three inches in diameter. Marsh areas prone to flooding line both Strawhorn and Edwards Creeks. An improved gravel loop road provides access to the main portion of the study area, other unimproved paths extend outward from this road. Presently, Site 43 is unrestricted.

Reportedly, municipal waste, fiberglass and sewage treatment plant sludge were dumped on the ground surface at Site 43; however, it is not known exactly how long Site 43 was officially used as a dump (Halliburton/NUS, 1991). It has also been reported that other solid wastes may have been disposed at this site. The particular types and quantities of these wastes, however, are not known.

Baker conducted an SI at Site 43 in 1991. Soil samples contained polynuclear aromatic hydrocarbons (PAHs) and inorganic concentrations exceeding twice the base-specific background levels. Groundwater samples did not contain PAHs; however, they did contain carbon disulfide.

Inorganics were also detected in groundwater and surface water at concentrations exceeding state and federal criteria. Sediment contained PAHs at locations downgradient from soil sample locations exhibiting PAH contamination at the confluence of Edwards Creek and at Strawhorn Creek. The presence of PAHs in sediment samples confirms the presence of PAHs in soil, as sediment contamination may be caused by surface runoff. Pesticides were also detected in sediment samples; however, there were no pesticides present in soil samples. Recent investigations indicate the presence of PAHs in soil.

Based on preliminary analytical data from the RI (conducted from February through May, 1995), a small area within the central portion of the site is impacted by PAHs in the soil.

Site 44 - Jones Street Dump

The Jones Street Dump (Site 44) encompasses approximately 5 acres and is situated within the operations area of MCAS New River. There is vehicle access to the site via Baxter Street, from Curtis Road. Site 44 is located at the northern terminus of Baxter Street, behind base housing units along Jones Street. The site is partially surrounded by a six-foot chain-link fence, and a portion of the site lies to the east of the fenced compound. 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 of Site 44.

A majority of the site is comprised of a gently dipping open field that slopes toward Edwards Creek. The field is covered with high grass, weeds, and small pine trees that are less than two inches in diameter. Surrounding the open field is a mature wooded area with dense understory.

The Jones Street Dump reportedly operated in the 1950's. Site 44 served as a dump for municipal waste and various debris. It has also been reported that some potentially hazardous materials may have been disposed at this site. The particular types and quantities of these wastes, however, are not known.

WAR conducted an IAS at Site 44 in 1983. This study produced evidence that construction debris and small quantities of potentially hazardous waste were disposed at the dump.

Baker conducted an SI at Site 44 in 1991. Soil samples contained low levels of PAHs and specific pesticides (i.e., 4,4'-DDE and 4,4'-DDD). Inorganics were detected in soil samples at concentrations exceeding twice the base-specific background levels. Groundwater contained inorganics at concentrations exceeding state and federal criteria. Low concentrations of PAHs were detected in one well, and toluene and ethylbenzene were detected in another well at concentrations below state and federal standards. Surface water samples contained inorganics at low levels. Sediment samples contained trace levels of pesticides and semivolatiles, as well as slightly elevated concentrations of copper, lead and zinc.

Based on preliminary analytical data from the RI (Conducted form February through May, 1995), there does not appear to be significant impact to soil and groundwater at the site.

Site 54 - Crash Crew Fire Training Burn Pit

The 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 is approximately 50 feet in diameter and is situated at the center of this 1.5 acre site. An 8,000-gallon underground storage tank (UST) lies to the northwest of the burn pit. Fire training exercises are conducted within the burn pit using JP-type fuel, which is stored in the nearby UST. An oil and water separator, located approximately 100 feet to the southeast of the burn pit, is used for temporary storage and collection of the spent fuel.

An improved gravel surface surrounds the burn pit, the remaining portion of the site is comprised of maintained lawn area. The ground surface slopes away from the central portion of the study area toward the south, southwest, and southeast. Two drainage ditches lead away from the burn pit area toward the south, on either side of an improved road. During periods of heavy precipitation, the ditches serve as channels for surface water runoff.

Site 54 has served as a fire training burn pit since the mid-1950s. Waste fuels, oils, and solvents were used to simulate fire conditions that would result from aircraft crashes. Fire training at Site 54 was originally conducted on the ground surface, within a bermed area. In 1975 a lined burn pit was constructed (WAR, 1983). The same burn pit remains in operation today, however, only JP-type fuels are currently used during training exercises.

The site media (i.e, soil, groundwater, surface water, and sediment) were previously investigated by WAR in 1983, and by ESE in 1986 and 1987. POL contamination was noted in the soil at depth. The 1984 groundwater results indicated levels of chromium, oil and grease, and phenols. In later studies, these same chemicals were detected in the groundwater; no VOCs were detected. Total phenols were found in surface water. Chromium, lead, oil and grease, and total phenols were detected in sediment.

During a site visit conducted in March, 1994, fuel odor and residue on standing water were observed in the pit. A stressed vegetated area, which may have been used as a burn area, was identified southwest of the burn pit. Broken glass and metal debris were scattered on the ground along Perimeter Road. A small spill area was also noted in this area.

Based on preliminary analytical data from the RI (conducted in February through May, 1995), groundwater in the southern portions of the burn pit area is impacted by benzene, toluene, ethylbenzene, and xylenes (BTEX), and 1,2-DCE. In addition, PAHs were detected in soil samples collected along the southern portion of the burn pit.

Site 86 - Tank Area AS419-AS421 at MCAS

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. Concrete pylons, upon which electric and steam overhead utilities are mounted, line the northern, western, and southern boundaries of the site. Campbell Street borders the site to the north and Foster Street lies adjacent to the east. Immediately to the south of the study area is Building AS-502, the MCAS fire station. The entrance road to the fire station borders the study area to the west.

The ground surface at Site 86 gently slopes to the south, toward a drainage ditch and culvert. Storm water drains that are located along Campbell Street receive runoff from only the northernmost portion of the study area. Stormwater from Site 86 eventually discharges into the New River, which lies approximately three quarters of a mile to the east.

Site 86 served as a storage area for petroleum products from 1954 to 1988. In 1954, three 25,000-gallon above ground storage tanks (ASTs) were installed within an earthen berm. Additionally, a small pump house was constructed to transfer fuel oil to and from the ASTs. The three tanks were reportedly used for No.6 fuel oil storage until 1979. From 1979 to 1988 the tanks were then used for temporary storage of waste oil (O'Brien & Gere, 1992). The three tanks were emptied in 1988 and are believed to have been removed in 1992. Today, the former location of the tanks is grass-covered and only a very slight depression remains.

A preliminary site investigation was conducted in 1990 by Dewberry and Davis. Several VOCs were found in the subsurface soil, including chloroform, methylene chloride, 1,1,1-trichloroethane (TCA), and 1,1,2-trichlorofluoroethane. These detections were attributed to localized surface spills. In 1992, O'Brien and Gere conducted a site assessment, investigating soil and groundwater at this site. Soil samples were analyzed for TPH and TCLP compounds. Most of the samples showed detections that did not exceed regulatory criteria for these parameters.

In the groundwater, several organic compounds were found: benzene, toluene, 1,1-dichloroethane (1,1-DCA), 1,2-DCE, TCE, tetrachloroethene (PCE), chloroethane, and TCA. The detections of benzene, TCE, and PCE exceeded North Carolina groundwater criteria in a few samples. Toluene and TCA were detected below the state groundwater criteria. There are no criteria available for chloroethane, 1,1-DCA, and 1,2-DCE.

Baker conducted the latest investigation at this site in 1995, addressing soil and groundwater. A preliminary assessment of the analytical data indicated the presence of VOCs (i.e., TCE, 1,2-dichloroethane [1,2-DCA], 1,2-DCE, benzene, and PCE) in soil and groundwater.

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

Operable Unit No. 7 consists of Site 1 (French Creek Disposal Area), Site 28 (Hadnot Point Burn Dump), and Site 30 (Sneads Ferry Road Fuel Tank Sludge Area). These three 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.

Pesticides appear to be the most prevalent contaminants within soils at Site 1. Pesticides were detected, at low concentrations. The pesticide 4,4'-DDT was the most prevalent. Aroclor 1254 and 1260 were each detected once within the subsurface sample set.

Volatile compounds were not found in surface soils and were detected in only four subsurface samples scattered throughout the site.

Inorganic elements were the most prevalent among potential contaminants in groundwater at Site 1 and were found distributed throughout the site. Concentrations of TAL total metals were generally higher in shallow groundwater samples than in samples obtained from the deeper aquifer.

Positive detections of VOCs and SVOCs in groundwater were limited to the northern portion of the study area. The volatile compound trichloroethene was detected in samples obtained from three of the shallow monitoring wells.

Site 28 - Hadnot Point Burn Dump

The Hadnot Point Burn Dump is located east of the Mainside Sewage Treatment Plant 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 form 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.

Several semivolatile contaminants were identified in both surface and subsurface soil samples, primarily from the western disposal area. A majority of SVOCs detected in soil samples were PAH compounds, most probably resulting from combustion of waste material or refuse.

Inorganic elements 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. In general, elevated metal concentrations were limited to soils obtained from the western portion of the study area.

Pesticides appear to be the most widely scattered contaminants within soils at Site 28. In general, higher concentrations of pesticides more frequently detected, were limited to the western portion of the study area.

PCB contaminants, were detected in soil samples obtained from borings at Site 28.

Based upon their wide dispersion, infrequent detection, and low concentration, the occurrence of volatile compounds in soils at Site 28 does not appear to be the result of past disposal practices.

Inorganic elements were the most prevalent and widely distributed contaminants in groundwater at Site 28 and were found distributed throughout the site.

Semivolatile compounds were detected in five of ten shallow groundwater samples obtained from the western portion of the study area.

Volatile organic contaminants in groundwater were limited to the central western portion of the study area.

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.

The volatile organic compound 1,1,1-trichloroethane was detected in two surface soil samples retained from Site 30. The VOC 1,1,1-trichloroethane was detected at estimated concentrations of 2 J and 3 J µg/kg from soil borings 30-SB06 and 30-SB07, respectively. No other positive detections of volatile or semivolatile organic compounds were observed among surface soil samples.

None of the positive detections of priority pollutant metals exceeded base-specific (i.e., MCB, Camp Lejeune) background levels for surface soil.

The VOC 1,1,1-trichloroethane was detected at an estimated concentration of 2J µg/kg in a subsurface soil sample, located near the center of the suspected disposal area. No other positive detections of volatile or semivolatile organic compounds were observed among subsurface soil samples.

Chloroform was the only VOC or SVOC identified in the groundwater obtained from three shallow monitoring wells.

Total metals were positively identified in the three surface water samples collected from French Creek. Lead and mercury were the only metals identified at concentrations in excess of either NOAA chronic screening values or NCWQS. No other total metal concentrations were in excess of screening values.

Volatile organic compounds were not detected among the six sediment samples retained for analysis from French Creek. No TAL metal concentrations among the six sediment samples exceeded NOAA ER-L screening values.

2.2.8 Operable Unit No. 8 (Site 16)

Operable Unit No. 8 is the former Montford Point Burn Dump (Site 16) located southwest of the intersection of Montford Landing Road and Wilson Drive. Site 16 was opened about 1958 and was closed in 1972, although unauthorized dumping subsequently occurred. Limited information is available concerning operations of the burn dump. Records indicate a small amount of oil disposal is suspected. Asbestos material dumped on the surface has been removed from this 4-acre site.

Based on results of the RI, conducted in 1994 pesticides and PCBs were frequently detected in the surface soil. Pesticide, PCB, and semivolatile contaminants were detected in the subsurface soil. Groundwater samples collected during the initial round of sampling indicated levels of benzene in one shallow monitoring well at a concentration exceeding the North Carolina Water Quality Standard (NCWQS) and Federal Maximum Contaminant Level (MCL). Second round groundwater samples were absent of organic contamination.

2.2.9 Operable Unit No. 9 (Sites 65 and 73)

Operable Unit No. 9 consists of Site 65 (Engineer Area Dump) and Site 73 (Courthouse Bay Liquids Disposal Area). These sites are described below.

Site 65 - Engineer Area Dump

Site 65 is located in the Courthouse Bay area of MCB Camp Lejeune. The Courthouse Bay area ranges in elevation from about 45 feet to sea level. The terrain at Site 65 is relatively flat with an average elevation of 40 feet within the site area. Site 65 is a local high elevation area.

The Engineer Area Dump is approximately four to five acres in size. Two separate disposal areas have been reported: a battery acid disposal area and a liquids disposal area. The types of liquids which have been disposed are reported 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.

The Site 65 area is no longer used for dumping. The area is currently heavily wooded with a marshy area south of two ponds. A large open area abuts the dump to the east. This area is currently used for heavy equipment training exercises.

There are two small ponds situated east of Site 65 and the adjoining heavy equipment training area. A small intermittent stream runs from the southwest into the west pond. The ponds do not have specific surface water outlets, but appear to drain to a marsh area. Stormwater runoff from Site 65 and the surrounding areas eventually drains into Courthouse Bay.

There is one small building existing on Site 65. The nearest facilities are Buildings BB-201, BB-239, and BB-237 located on an access road off of Poe Road. These facilities are used to store and transfer waste oil, diesel fuel, kerosene, and product POL as part of the Camp Lejeune Engineer School located west of Site 65.

Previous studies performed at Site 65 include an SI conducted by Baker in 1993. Results of the SI identified several metals in groundwater at levels above state or federal criteria. Pesticides were detected at low levels in soil (surface and subsurface) and surface water while low levels of PAHs were detected in surface soils. A single detection of PCBs was identified in a subsurface soil sample.

Baker conducted an RI at Site 65 in 1995. The findings from that investigation are being developed. Current data indicates that this site has limited contamination and will probably be dealt with under a no action scenario.

Site 73 - Courthouse Bay Liquids Disposal Area

The Courthouse Bay Liquids Disposal Area is located within an active amphibious vehicle maintenance facility located along the northwest shore 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.

Six previous environmental investigations were performed at Site 73 to date including two site-wide studies and four UST-focused studies. Results to date have identified low levels of chlorinated organics in shallow perimeter groundwater wells and petroleum hydrocarbons in soil and groundwater samples obtained from the vicinity of the USTs.

A RI was conducted at Site 73 in 1995 by Baker. The findings from that investigation are being developed. Preliminary data indicate volatile contamination in the shallow and deep groundwater. A second phase of the RI is planned for 1996 to complete the delineation of the volatile contamination.

2.2.10 Operable Unit No. 10 (Site 35)

Site 35, the dismantled Camp Geiger Area Fuel Farm is located immediately north of the intersection of G and Fourth Streets, approximately 400 feet southwest of Brinson Creek. The Fuel Farm consisted primarily of five 15,000-gallon above ground storage tanks (ASTs) and associated underground distribution lines, a pumphouse, a fuel loading/unloading pad, distribution island, and an oil/water separator.

The ASTs were erected in 1945 as part of the original Camp Geiger construction. Originally, the Fuel Farm was used to store and dispense No. 6 fuel oil. At a later unknown date the facility was converted to store and dispense gasoline, diesel fuel, and kerosene to government vehicles and underground storage tanks that were in use at Camp Geiger. The Fuel Farm was active until it was decommissioned in the spring of 1995 to make way for the construction of a six-lane highway.

During the active life of the Fuel Farm several releases of fuel have occurred. sometime during 1957-58, according to Camp Lejeune fire Department, a substantial release of fuel occurred at the exact volume of product released was never determined, but the magnitude of the spill was estimated to be in the thousand of gallons. To control the release, interceptor trenches were dug and the fuel was ignited.

There is 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. This facility was demolished in the 1960s.

In 1990 jet or diesel fuel was discovered in a drainage channel immediately north of the Fuel Farm. The source of this release was believed to be an unauthorized discharge from an unidentified tanker truck. Approximately 20 cubic yards of contaminated soil were removed.

During 1993-94 an Interim RI and a comprehensive RI were conducted at the site. The Interim RI identified elevated levels of petroleum hydrocarbon contamination in soils at three locations adjacent to the Fuel Farm. The Comprehensive RI conducted in 1994, identified multiple plumes of fuel and solvent related groundwater contamination in the surficial aquifer in an area adjacent to the Fuel Farm. A Supplemental Groundwater RI to investigate solvent related groundwater contamination in this area is proposed for January 1996.

2.2.11 Operable Unit No. 11 (Sites 7 and 80)

Operable Unit No. 11 consists of Site 7 (Tarawa Terrace Dump) and Site 80 (Paradise Point Golf Course Maintenance Area). These sites are described below.

Site 7 - Tarawa Terrace Dump

Tarawa Terrace Dump is a former dump located east of the water treatment plant between Tarawa Boulevard and Northeast Creek. The site is approximately 5 acres and access is not restricted. 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, spiractor (water treatment plant filter media), and household trash are known to have been disposed. A site inspection was completed for this site, pesticides and PCBs were the main contaminants of concern detected.

Based on findings of the RI conducted in 1994-1995, pesticides and semivolatile compounds were detected sporadically in the surface soil across the site. However, no pesticides or SVOCs were detected in the groundwater. Surface water and sediment samples collected from the on-site tributaries and North East Creek exhibited low levels of pesticide contamination.

Site 80 - Paradise Point Golf Course Maintenance Area

The study area of this site consists of a 1-acre area at the back of the machine shop (Building 1916) and the maintenance 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 maintenance wash area around the back of the machine shop.

In addition to the machine shop, which is a potential source of waste oils, the potential inadvertent disposal of excess pesticides and herbicides behind the machine shop may also have contributed to potential contamination in this area. The maintenance 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. Results of the site inspection conducted for this site indicated elevated levels of volatiles in groundwater and pesticides/PCBs in the soils. The soil mounds behind Building 1916 are excavated soils generated during the construction of golf course ponds in 1987 and 1988. It was reported that waste was disposed on these soils.

Based on findings of the RI conducted in 1994, pesticides were detected in the surface soil throughout the site. Pesticides were detected in the subsurface soil less frequently and at lower concentrations than surface soil. Pesticides were detected in one shallow monitoring well. This site may require a removal action due to the elevated pesticide levels in soil.

2.2.12 Operable Unit No. 12 (Site 3)

Operable Unit No. 12 consists only of 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 on-site 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. Elevated levels of PAHs were detected in soil samples collected during a site inspection conducted at this site.

Based on the findings of the RI conducted in 1995, semivolatile contaminants were prevalent in the surface and subsurface soil. The highest concentrations of semivolatile contaminants were detected in the northeastern portion of the site, the central portion of the old treatment area, and southern portion of the site along the railroad spur. Benzene and semivolatile contaminants were detected in groundwater at concentrations greater than the NCWQS and/or Federal MCLs.

2.2.13 Operable Unit No. 13 (Site 63)

The Verona Loop Dump (Site 63) is located along Verona Loop Road, approximately one and one-half mile east of Highway 17. The site is located south of Marine Corps Air Station, New River.

The Verona Loop Dump is approximately three to four acres in size. The site is primarily wooded except for the haul roads formerly used to take debris to the dump. The site is bordered by Verona Loop Road to the south, an intermittent stream to the east, and woods to the north and south. The site is situated in a relatively flat area with an elevation of approximately 45 to 50 feet above mean sea level (msl). The area surrounding the disposal area, however, is hilly for the Camp Lejeune area. The site area slopes downward (i.e., west to east) toward an intermittent stream, which is at an elevation of about 20 feet msl. The area north of the site gradually increases in elevation.

Site 63 is no longer used for disposal. The area is heavily wooded. Approximately one mile north of the site is the advanced infantry training school. Ammo supply magazines are located approximately one-half mile east of the site. The only use of the land is for recreational hunting and training. In the vicinity of Site 63, infantry training is periodically conducted. Although hunting is permitted, a permit/pass must be obtained.

Based on the results of a site inspection, elevated levels of total metals were observed in shallow groundwater. An RI is planned to begin in October of 1995 at this site.

2.2.14 Operable Unit No. 14 (Site 69)

The Rifle Range Chemical Dump (Site 69) 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. 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. The materials were disposed of in trenches or pits that were between 6 to 20 feet deep. At least 12 different disposal events have been documented. Based on the RI/FS, conducted in 1994-1995, shallow and deep groundwater are contaminated with VOCs.

2.2.15 Operable Unit No. 15 (Site 88)

Building 25 is within a highly visible and densely populated area of MCB Camp Lejeune. Barracks, office buildings, and other occupied structures are adjacent to Building 25 in each direction. Aboveground and underground utilities are directly adjacent to Building 25 and more specifically within the immediate vicinity of the USTs.

The underground storage tanks were reportedly installed in the 1940s and have been used in conjunction with dry cleaning operations. The capacity for two of the USTs have been reported as 1,000 gallons, the volumes of the remaining USTs are unknown. There are two known solvents that have occupied the USTs: 1) varsol (a petroleum based product), and 2) perchloroethylene. Varsol was used from the 1940s until the 1970s when the dry cleaners switched over to using tetrachloroethene (PCE), which used until the late 1980s when the tanks were taken out of service. Currently, the facility is still using PCE in its cleaning process; however, the solvent is contained in aboveground tanks and within the confines of Building 25.

Five of the USTs were identified during excavation and sampling activities previously conducted at the site. During these activities, samples were obtained from the excavated soil and submitted for laboratory analysis. Unconfirmed analytical data indicated that concentrations of trichloroethene and tetrachloroethene (PCE) exceeded RCRA characteristic levels and would require management and disposal as a hazardous waste, if excavated and discarded. Subsequent to sampling, the excavation was backfilled and compacted to surface grade and seeded and mulched.

2.2.16 Operable Unit No. 16 (Sites 89, 90, 91, 92, 93)

<u>Site 89 - STC-868</u>

The STC-868 site is located near the intersection of G and 8th Streets in the Camp Geiger area, MCB, Camp Lejeune. The STC-868 site, a steel 550-gallon waste oil tank, was installed in 1983 and removed in 1993. Based on elevated levels of both Total Petroleum Hydrocarbons (TPH) and oil and grease at the time of removal, a release is suspected to have occurred. STC-868 was located between Building STC-867, a roofed contaminated soil storage facility, and an elevated wash rack. Two monitoring wells, presumably associated with Building STC-867, are present east and west of the STC-868 excavation.

<u>Site 90 - Building BB-9</u>

Building BB-9 is currently operating a steam generation and heat plant. Adjacent to the building were three 1,000 gallon steel USTs used to store heating oil for the steam plant. All three tanks were excavated and permanently closed in March 1993. The former tank basin currently remains unpaved.

The following are five potential contaminant sources in the immediate vicinity:

1) Subject tank basin (former heating oil UST system and ancillary lines).

2) Active concrete oil/water separator for stormwater run-off from active above ground storage tank (AST) pad (PS #3).

3) Active AST and ancillary lines. The AST pad contains three tanks of unknown capacity reported to store #2 Diesel fuel.

4) Active AST pad with two 250 gallon tanks and ancillary lines for solvent storage.

5) Active 250 gallon AST supplies dry cleaning fluid. This source is located inside Building BB-16 and is not sited in Figure 2.1 because its exact location within the building is not known.

Three USTs adjacent to Building BB-9 were permanently closed in March 1993. According to previous documents, soil contamination was noted during the tank removal activities; however, there was no information documenting the collection of soil or groundwater to confirm or estimate the extent of the impact.

No corrective action has been performed to date other than permanent closure of the UST system.

Site 90 - Building BB-51

Building BB-51 was constructed and is currently used, as an instruction building for the Marine Corps Engineering School on base. Two USTs, both constructed of steel with a 300-gallon capacity, were reportedly used to store waste oil at the facility. The tanks were located in an unpaved area on the edge of the treeline, approximately 200 feet east of Building BB-51. Much of the area around Building BB-51 is unpaved and wooded.

The following are ten potential sources for subsurface impact in the area:

Potential sources for Building BB-51 are:

1) Subject tank basin previously fitted with two steel, 300-gallon capacity USTs. The USTs were reportedly used to store waste oil. Any associated product piping and venting lines are also suspect.

2) Active vehicle storage area.

3) Bermed petroleum, oil, and lubricants area. An inactive UST at this location has been removed. No evidence of a release was found in a subsequent investigation.

4) Active lube-oil drum storage area.

5) Active vehicle/equipment wash pad.

6) Active AST of unknown capacity located south of Building BB-51, used to store waste oil.

7) Active AST of unknown capacity, used to store antifreeze.

8) Active AST of unknown capacity located near Building BB-239, used to store kerosene.

9) Active AST of unknown capacity located near Building BB-237, used to store kerosene.

10) Dispensing islands observed south of the project site, near Building BB-237. Fuel oil USTs are suspected to exist in this area.

11) Active temporary storage area of hazardous/potentially hazardous materials.

The USTs located near Building BB-51 were reportedly used to store waste oil. The tanks were excavated and removed on August 18, 1992. No information was available on the age or condition of the tanks at removal. Soil samples collected during the UST closure were analyzed and revealed concentrations of total petroleum hydrocarbons (TPH) of oil and grease.

Other than the removal of the USTs, no additional corrective action has been performed to date.

Site 92 - Building BB-46

Building BB-46, which is used as a bot house, is located on Front Street in the Courthouse Bay area of MCB, Camp Lejeune. The UST was a 1,000-gallon steel tank used to store regular gasoline for retail use. The UST located west of Building BB-46 was installed in 1980, deactivated in 1989, and removed on January 6, 1994. A groundwater sample taken during UST closure activities indicated elevated levels of benzene, toluene, ethylbenzene, and xylene (BTEX) present in the subsurface.

Site 93 - Building TC-942

Building TC-942 is located northwest of the intersection of "E" and 10th streets in the Camp Geiger Area of MCB, Camp Lejeune. UST-942 was located several feet from the southwest corner of Building TC-942. It had a capacity of 550-gallons and was utilized for used oil storage. The UST was closed by removal on December 18, 1993. The closure report indicates that no visual evidence of contamination was observed; however, laboratory results for soil samples taken below the UST (approximately six feet below ground surface [bgs]) detected an oil and grease concentration of 584 mg/kg.

3.0 OPERABLE UNIT SCOPE OF WORK

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

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

During Fiscal Year 1992, an interim remedial action Record of Decision (ROD) was signed for the remediation of the shallow aquifer at Site 78 (HPIA). Remedial design activities were subsequently initiated in August 1992 and completed in August 1993. Interim remedial action construction was initiated in February 1994, and start-up of the treatment system began in December 1994.

During Fiscal Year 1993, RI/FS Project Plans for Operable Unit (OU) No. 1 were initiated and completed. The RI/FS commenced in April 1993 and completed in August 1994. A Final ROD was signed in Fiscal Year 1994. Remedial design activities for soil remediation and final groundwater remediation were initiated in June 1994 and were completed in February 1995. Soil remedial action construction was initiated in May 1995.

An Explanation of Significant Difference (ESD) was submitted in July 1995. The ESD was prepared in order to explain the modification to the soil cleanup level developed for PCBs. The ESD has been signed and incorporated into the Administrative Record.

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

The RI/FS at OU No. 2 was initiated in July 1992 and completed in September 1993 with the signing of a Final ROD. Remedial design activities for the remediation of soil and groundwater were initiated in January 1994, and completed in September 1994. Remedial action construction was initiated in December 1994. Soil remediation was completed in March 1995. Construction of the groundwater extraction system was initiated in December 1994 and is scheduled for completion by November 1995.

During Fiscal Year 1995, quarterly groundwater monitoring began in July and will continue throughout 1996.

A Time-Critical Removal Action (TCRA) was initiated in Fiscal Year 1993. The removal action addressed surficial drums, stained soils (beneath the drums), and buried drums at two areas within the operable unit. The removal action was completed in April 1994.

Operable Unit No. 3 (Site 48)

A "no action" ROD for Site 48 was signed in September 1993. There are no other IR activities associated with this site. Site 48 will be delisted from the IR program.

Operable Unit No. 4 (Sites 41 and 74)

RI/FS Project Plans for OU No. 4 were initiated in April 1993 and finalized in December 1993. The RI/FS was initiated in December 1993 and completed in May 1995. The ROD was signed in the forth quarter of FY95. Remedial design activities are limited since Institutional Controls will be administered as part of the ROD.

Operable Unit No. 5 (Site 2)

RI/FS Project Plans for OU No. 5 were initiated in June 1992 and completed in March 1993. The RI/FS was initiated in April 1993 and completed in September 1994 with the signing of the ROD. A Time-Critical Removal Action (TCRA) was initiated in January 1994 (Plans and Specifications). The TCRA involved the excavation and off-site treatment of pesticide-contaminated soil and concrete. Institutional controls, including groundwater monitoring, are being implemented as part of the Final ROD. Quarterly groundwater monitoring was initiated in 1995 and will continue throughout 1996.

Operable Unit No. 6 (Sites 36, 43, 44, 54, and 86)

RI/FS Project Plans for OU No. 6 were initiated in March 1994 and were completed in December 1994. The RI/FS began in March 1995 and is scheduled for completion in September 1996.

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

RI/FS Project Plans for OU No. 7 were initiated in March 1993 and finalized in December 1993. The RI/FS phase began in March 1994 and is anticipated to be completed in November 1995. Quarterly groundwater monitoring is scheduled to begin in January 1996.

Operable Unit No. 8 (Site 16)

The RI/FS activities at OU No. 8 were initiated in February 1994 with the preparation of RI/FS Project Plans. The RI/FS Project Plans were completed in September 1994. The ecological portion of the RI/FS was conducted in June 1994. The soil and groundwater phase of the RI/FS phase at Site 16 began in October 1994 and is scheduled for completion in March 1996.

Operable Unit No. 9 (Sites 65 and 73)

RI/FS Project Plans for OU No. 9 were initiated in March 1994 and finalized in March 1995. The RI/FS began in March 1995. The initialed scheduled completion date of October 1996 has been modified to October 1997 due to the additional investigation needs at Site 73.

Operable Unit No. 10 (Site 35)

RI/FS Project Plans for OU No. 10 were initiated in April 1993 and finalized in December 1993. The RI/FS phase began in March 1994 and were completed in July 1995. Remedial design activities began in August 1995.

An Interim Remedial Action (IRA) RI/FS was initiated in June 1993 to address petroleum-contaminated soils. The IRA RI/FS was completed in August 1994, and the IRA ROD (soil) was signed in September 1994. The design phase was initiated in July 1994 and completed in December 1994. Remediation of the petroleum contaminated soil is scheduled to begin in May 1995 and completed in September 1995.

Operable Unit No. 11 (Sites 7 and 80)

Preparation of RI/FS Project Plans was initiated in February 1994 and completed in September 1994. The ecological portion of the RI/FS was conducted in June 1994. The soil and groundwater portion of the RI/FS began in October 1994. Additional soil and groundwater investigations were conducted at Site 80 in June and July 1995. The RI/FS phase at Sites 7 and 80 is scheduled for completion in June 1996.

Operable Unit No. 12 (Site 3)

Preparation of RI/FS Project Plans was initiated in February 1994 and completed in September 1994. The RI/FS was initiated in September 1994 and is schedule for completion in June 1996. Additional soil and groundwater investigations were conducted in June and July 1995.

Operable Unit No. 13 (Site 63)

RI/FS Project Plans were initiated in January 1995. The Final RI/FS Project Plans are scheduled to be submitted in September 1995. The RI/FS was initiated in August 1995 and is scheduled for completion in January 1997.

Operable Unit No. 14 (Site 69)

RI/FS Project Plans for OU No. 14 were prepared as part of OU No. 4 (Site 69 was recently removed from OU No. 4 and identified as a separate OU). The Project Plans were finalized in December 1993. The RI/FS was initiated in December 1993 but will not be completed until the results of the treatability study are available. A treatability study to evaluate the in well aeration technology was initiated in February 1995 and is expected to be completed by September 1996. The FS will then proceed using the results of the treatability study in the evaluation process. The FS is projected to be completed in January 1997 with the signing of the ROD. The remedial design phase for the remediation of groundwater will be initiated in January 1977.

Operable Unit No. 15 (Site 88)

RI/FS Project plans have not been initiated for this site. Project Plans are scheduled to be initiated in May 1996 after the completion of UST removal, sampling, and closure.

Operable Unit No. 16 (Sites 89, 90, 91, 92, and 93)

RI/FS Project Plans were initiated in August 1995. The Final RI/FS Project Plans are scheduled to be submitted in May 1996.

Summary

Various IRP activities were either initiated or completed in Fiscal Year 1995 at all of the 16 operable units at MCB Camp Lejeune.

IRP activities will continue at 15 of these Operable Units through Fiscal Year 1996. No activities were conducted at Operable Unit No. 3 (Site 48) since this operable unit received a "No Action"

Record of Decision in Fiscal Year 1993. Table 3-1 summarizes the ongoing and planned activities associated with Operable Units 1 through 16 for Fiscal Years 1996 through 2000.

TABLE 3-1

SUMMARY OF OPERABLE UNIT IRP ACTIVITIES
FOR FISCAL YEAR 1996
MCB, CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site No.	Activity	Scheduled Start Up	Actual Start Up	Scheduled Completion	Actual Completion
1	78	Interim Remedial Action RI/FS, PRAP and ROD	FY 91	FY 91	FY 92	FY 92
		Interim Remedial Action Design	FY 92	FY 92	FY 94	FY 93
		Interim Remedial Action	FY 94	FY 94	FY 94	--
1(3)	21, 24 and 78	RI/FS Project Plans	FY 92	FY 92	FY 93	FY 93
		RI/FS, PRAP and ROD	FY 93	FY 93	FY 94	FY 94
		Remedial Design	FY 94	FY 94	FY 95	FY 95
		Remedial Action	FY 95	FY 95	FY 96	--
2(3)	6, 9, and 82	RI/FS Project Plans	FY 91	FY 91	FY 92	FY 92
		RI/FS, PRAP and ROD	FY 92	FY 92	FY 94	FY 93
		Remedial Design	FY 94	FY 94	FY 95	FY 94
		Remedial Action	FY 95	FY 95	FY 96	--
		Time-Critical Removal Action	FY 93	FY 93	FY 94	FY 94
3	48	RI/FS Project Plans	FY 91	FY 91	FY 92	FY 92
		RI/FS, PRAP and ROD(2)	FY 92	FY 92	FY 94	FY 93
4(3)	41 and 74	RI/FS Project Plans	FY 93	FY 93	FY 94	FY 94
		RI/FS, PRAP and ROD(5)	FY 94	FY 94	FY 95	FY 95
5	2	RI/FS Project Plans	FY 92	FY 92	FY 93	FY 93
		RI/FS, PRAP and ROD(2)	FY 93	FY 93	FY 94	FY 94
		Time-Critical Removal Action(4)	FY 94	FY 94	FY 95	FY 95
6(3)	36, 43, 44, 54, and 86	RI/FS Project Plans	FY 94	FY 94	FY 95	FY 95
		RI/FS, PRAP and ROD	FY 95	FY 95	FY 96	--
		Remedial Design/Remedial Action (1)	FY 96	--	FY 97	--
7	1, 28 and 30	RI/FS Project Plans	FY 93	FY 93	FY 94	FY 94
		RI/FS, PRAP and ROD	FY 94	FY 94	FY 95	--
		Remedial Action (5)	FY 95	--	FY 96	--
8	16	RI/FS Project Plans	FY 94	FY 94	FY 94	FY 94
		RI/FS, PRAP and ROD	FY 94	FY 94	FY 96	--
9(3)	65 and 73	RI/FS Project Plans	FY 94	FY 94	FY 95	FY 95
		RI/FS, PRAP and ROD	FY 95	FY 95	FY 98	--
		Remedial Design/Remedial Action (1)	FY 98	--	FY 99	--

TABLE 3-1 (Continued)

SUMMARY OF OPERABLE UNIT IRP ACTIVITIES
FISCAL YEAR 1996
MCB CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site No.	Activity	Scheduled Start Up	Actual Start Up	Scheduled Completion	Actual Completion
10	35	RI/FS Project Plans	FY 93	FY 93	FY 94	FY 94
		RI/FS, PRAP, and ROD	FY 94	FY 94	FY 96	--
		Remedial Design/Remedial Action[1]	FY 97	--	FY 98	--
		Interim Remedial Action (Soil) RI/FS, PRAP, and ROD	FY 93	FY 93	FY 94	FY 94
		Interim Remedial Action Design (Soil)	FY 94	FY 94	FY 95	FY 95
		Interim Remedial Action (Soil)	FY 95	FY 95	FY 95	--
		Interim FS/PRAP (Shallow Groundwater)	FY 95	FY 95	FY 95	FY 95
		Interim ROD (Shallow Groundwater)	FY 95	FY 95	FY 95	FY 95
11	7 and 80	RI/FS Project Plans	FY 94	FY 94	FY 94	FY 94
		RI/FS, PRAP and ROD	FY 94	FY 94	FY 96	--
		Remedial Design/Remedial Action	FY 97		FY 97	
12	3	RI/FS Project Plans	FY 94	FY 94	FY 94	FY 94
		RI/FS, PRAP and ROD	FY 94	FY 94	FY 96	--
		Remedial Design/Remedial Action	FY 96	--	FY 97	--
13[3]	63	RI/FS Project Plans	FY 95	FY 95	FY 96	FY 95
		RI/FS, PRAP and ROD	FY 96	FY 95	FY 96	--
		Remedial Design/Remedial Action [1]	FY 97	--	FY 97	--
14[3]	69	RI/FS Project Plans	FY 93	FY 93	FY 94	FY 94
		RI/FS, PRAP, and ROD	FY 94	FY 94	FY 97	--
		Treatability Study	FY 95	FY 95	FY 97	--
		Remedial Design/Remedial Action	FY 97	--	FY 98	--
15	88	RI/FS Project Plans	FY 96	--	FY 97	--
		RI/FS, PRAP, and ROD	FY 97	--	FY 98	--
		Remedial Design/Remedial Action	FY 98	--	--	--
16	89, 90, 91, 92, and 93	RI/FS Project Plans	FY 95	FY 95	FY 96	--
		RI/FS, PRAP, and ROD	FY 96	--	FY 98	--
		Remedial Design/Remedial Action	FY 97	--	--	--

Notes:

(1) Remedial construction activities must commence within 15 months following the Record of Decision.
(2) No action ROD.
(3) Amended schedule from FY 1995 Site Management Plan.
(4) Assumes RAC contractor had post-construction submittals in FY 95.
(5) No remedial design or construction required under the Institutional Control Alternative.

4.0 SITE MANAGEMENT SCHEDULES

The purpose of this section is to present project schedules for each of the 14 Operable Units for Fiscal Years 1996 through 2000. These schedules are adjusted annually in the Site Management Plan.

Operable Units and sites that will be active during Fiscal Year 1996 are summarized below.

Operable Unit	Site	Fiscal Year 1996 Activities
1	78	Complete remedial construction; continue Interim Remedial Action of the shallow aquifer (containment)
1	21, 24 and 78	Soil remediation (Sites 21 and 78); shallow groundwater remediation (source control)
2	6, 9 and 82	Long-term operation of groundwater remediation
3	48	No action (delisted)
4	41 and 74	Initiate Remedial Design and institutional controls
5	2	Long-term groundwater monitoring
6	36, 43, 44, 54, and 86	Complete RI/FS; Initiate Remedial Design
7	1, 28, and 30	Initiate Remedial Design
8	16	Complete RI/FS
9	65 and 73	Complete RI/FS; Initiate Remedial Design
10	35	Complete Interim Remedial Action Design for shallow groundwater; Complete RI/FS (groundwater)
11	7 and 80	Complete RI/FS
12	3	Complete RI/FS; Initiate Remedial Design
13	63	Initiate RI/FS
14	69	Complete RI/FS and TS; Initiate Remedial Design
15	88	Initiate RI/FS Project Plans
16	89, 90, 91, 92, and 93	Complete RI/FS Project Plans; Initiate RI/FS

The project schedules for these Operable Units are depicted on Tables 4-1 through 4-15. The project schedules include: a detailed listing of Fiscal Year 1996 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 FY96 deliverables by Operable Unit are summarized on Table 4-16. Table 4-17 provides a list of deliverables by month associated with Fiscal Year 1996 IRP deliverables.

The project schedules for the 16 Operable Units reflect Government review times specified in the FFA and Navy/Marine Corps turnaround times. These review durations are as follows.

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

- 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.

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. 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 RD/RA 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 ROD.

Table 4 - 1
Remedial Design/Remedial Action Site Management Schedule
Operable Unit No. 1 (Sites 21, 24, and 78), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Procure Remedial Contractor	57ed	2/9/95	4/7/95
Mobilize	28ed	4/7/95	5/5/95
Conduct Soil Remedial Action	183ed	5/5/95	11/4/95
Soil Remediation Report	72ed	11/4/95	1/15/96
Submit Soil Remediation Report	0ed	1/15/96	1/15/96
Quarterly Monitoring Report Period 01	60ed	7/10/95	9/8/95
Quarterly Monitoring Report Period 02	90ed	7/11/95	10/9/95
Prepare Quarterly Monitoring Report 02	60ed	10/9/95	12/8/95
Quarterly Monitoring Report Period 03	90ed	10/10/95	1/8/96
Prepare Quarterly Monitoring Report 03	60ed	1/8/96	3/8/96
Quarterly Monitoring Report Period 04	90ed	1/9/96	4/8/96
Prepare Quarterly Monitoring Report 04	60ed	4/8/96	6/7/96
Quarterly Monitoring Report Period 05	90ed	4/9/96	7/8/96
Prepare Quarterly Monitoring Report 05	60ed	7/8/96	9/6/96
Quarterly Monitoring Report Period 06	90ed	7/9/96	10/7/96

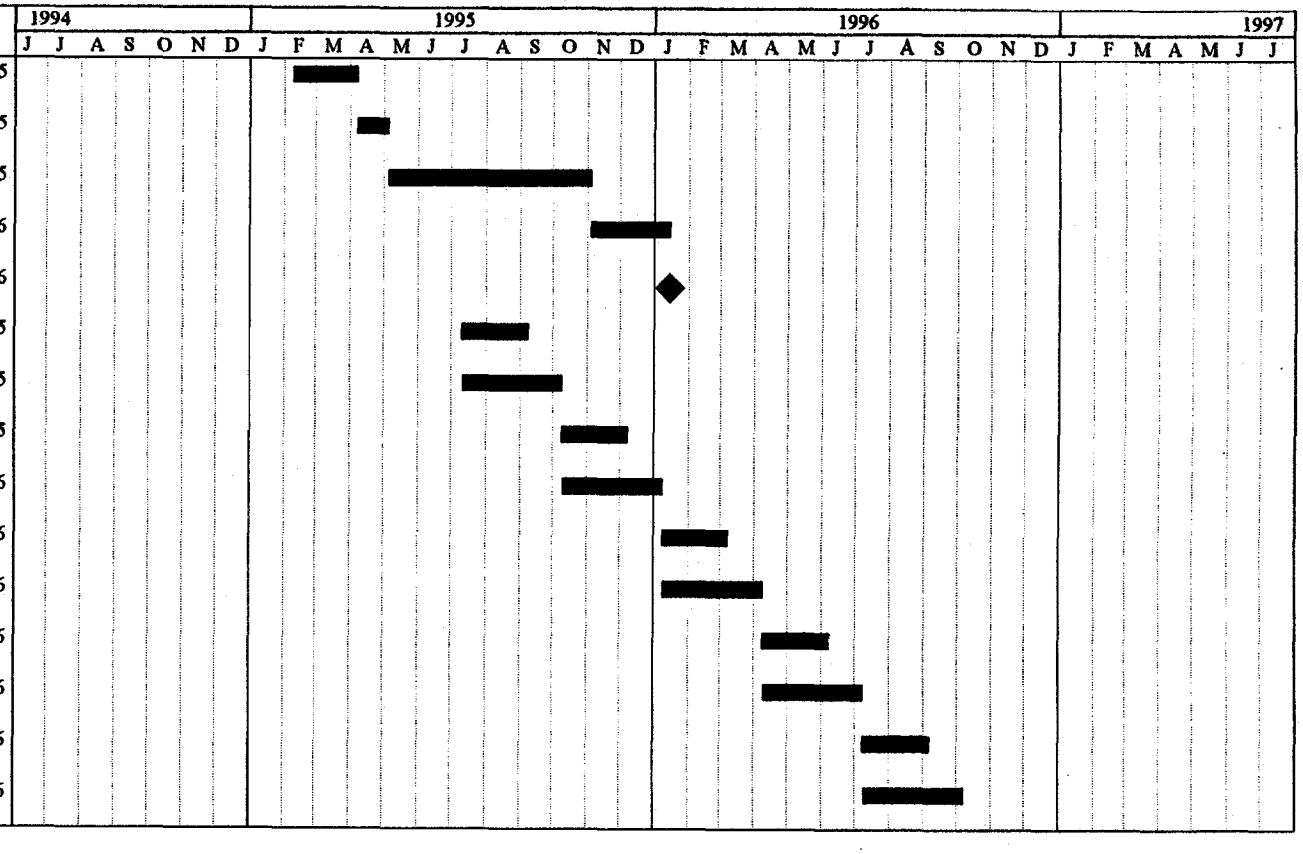

Table 4 - 2
Remedial Design/Remedial Action Site Management Schedule
Operable Unit No. 2 (Sites 6, 9, and 82), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Construct Phase I and II Groundwater Remediation System (on-going)	117ed	10/1/95	1/26/96
Submit Construction Closeout Report SVE System	0ed	6/30/95	6/30/95
Plant Performance Testing and Training/Turnover	120ed	12/1/95	3/30/96
Submit Construction Closeout Report/Initial O & M	62ed	3/30/96	5/31/96
Quarterly Monitoring Period No. 01	90ed	4/1/96	6/30/96
Quarterly Monitoring Sampling	5ed	4/9/96	4/14/96
Prepare Quarterly Monitoring Report No. 01	60ed	4/14/96	6/13/96
Quarterly Monitoring Period No. 02	90ed	7/1/96	9/29/96
Quarterly Monitoring Sampling	5ed	7/9/96	7/14/96
Prepare Quarterly Monitoring Report No. 02	60ed	7/14/96	9/12/96
Quarterly Monitoring Period No. 03	90ed	10/1/96	12/30/96
Quarterly Monitoring Sampling	5ed	10/8/96	10/13/96
Prepare Quarterly Monitoring Report No. 03	60ed	10/13/96	12/12/96
Quarterly Monitoring Period No. 04	90ed	12/31/96	3/31/97
Quarterly Monitoring Sampling	5ed	1/7/97	1/12/97
Prepare Quarterly Monitoring Report No. 04	60ed	1/12/97	3/13/97
Quarterly Monitoring Period No. 05	90ed	3/1/97	5/30/97
Quarterly Monitoring Sampling	5ed	3/4/97	3/9/97
Prepare Quarterly Monitoring Report No. 05	60ed	3/9/97	5/8/97

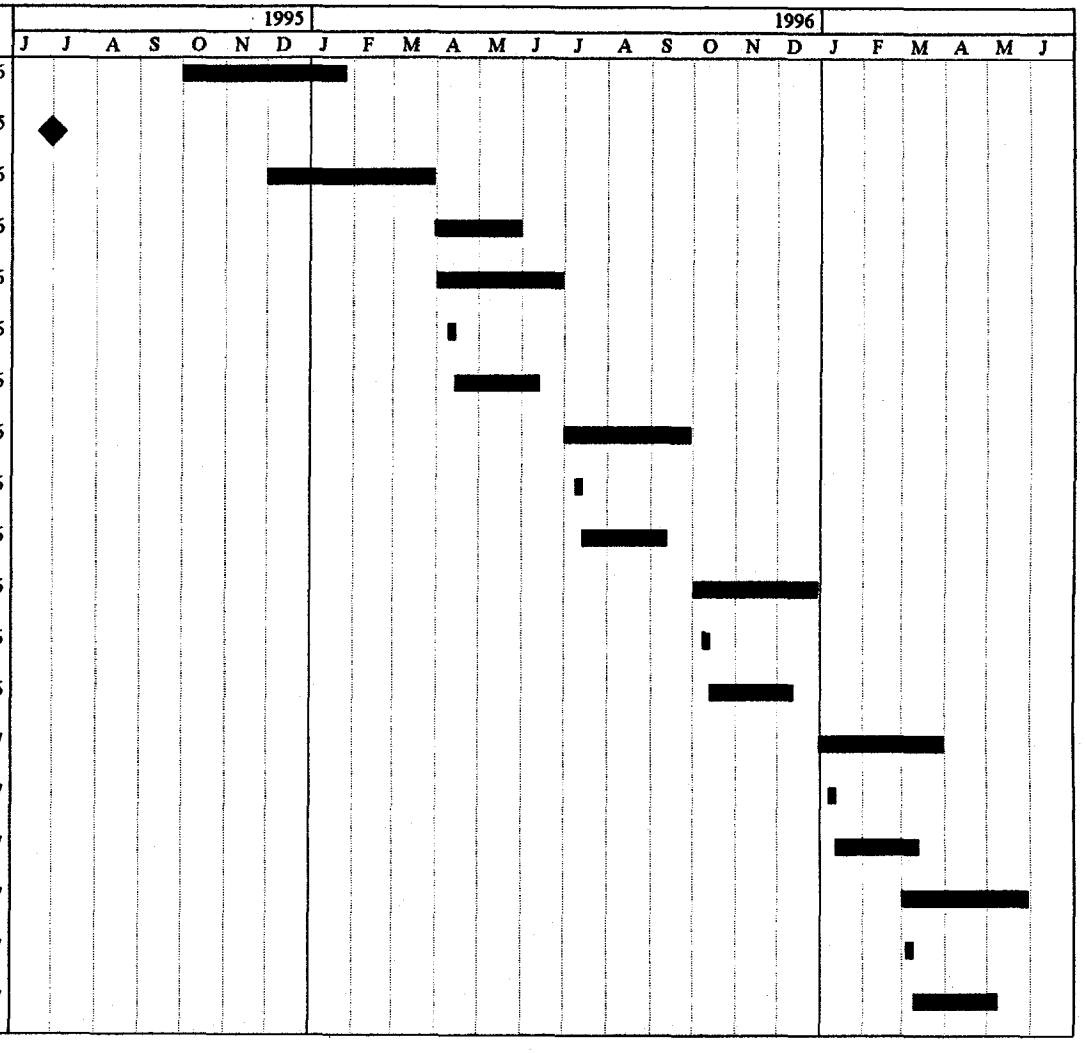

Table 4 - 3
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 4 (Sites 41and 74), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
REMEDIAL DESIGN PHASE	**210ed**	**11/1/95**	**5/29/96**
Prepare Draft Monitoring Project Plans	30ed	11/1/95	12/1/95
Government Review	60ed	12/1/95	1/30/96
Prepare Final Monitoring Project Plans	30ed	1/30/96	2/29/96
Procure O & M Contractor	90ed	2/29/96	5/29/96
REMEDIAL ACTION PHASE	**242ed**	**6/1/96**	**1/29/97**
Quarterly GW Monitoring Period No. 01	91ed	6/1/96	8/31/96
Prepare Quarterly Monitoring Report No. 01	60ed	8/31/96	10/30/96
Quarterly GW Monitoring Period No. 02	90ed	9/1/96	11/30/96
Prepare Quarterly Monitoring Report No. 02	60ed	11/30/96	1/29/97

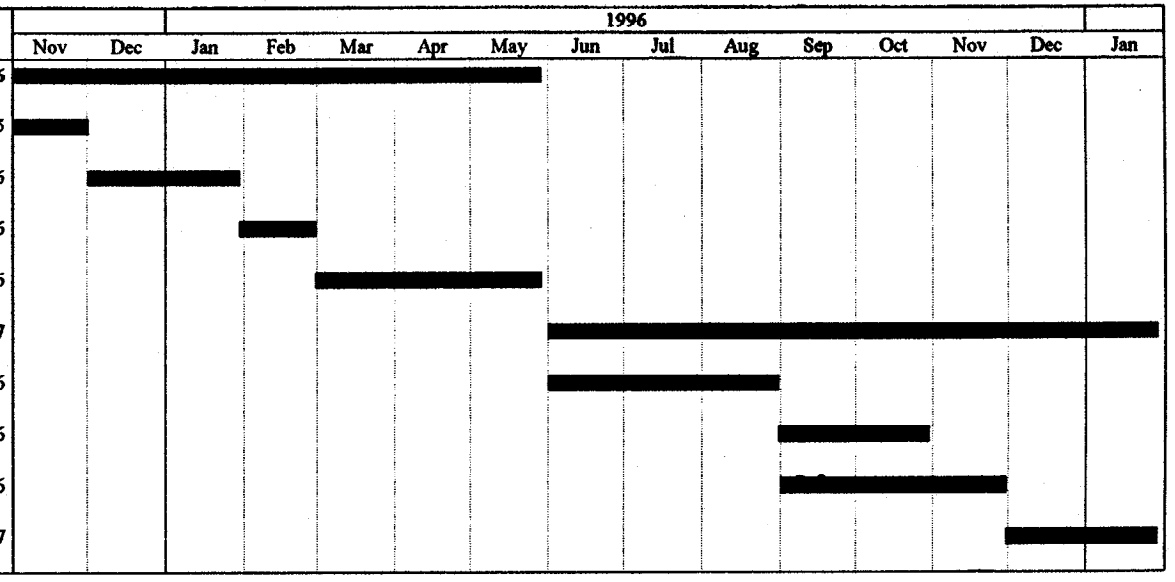

Table 4 - 4
Remedial Design/Remedial Action Site Management Schedule
Operable Unit No. 5 (Site 2), MCB Camp Lejeune, North Carolina

Activity	Days	Start	Finish
Prepare Quarterly Monitoring Report 01	21ed	8/1/95	8/22/95
Quarterly Monitoring Report Period 02	90ed	8/2/95	10/31/95
Prepare Quarterly Monitoring Report 02	21ed	10/31/95	11/21/95
Quarterly Monitoring Report Period 03	90ed	11/1/95	1/30/96
Prepare Quarterly Monitoring Report 03	21ed	1/30/96	2/20/96
Quarterly Monitoring Report Period 04	90ed	1/31/96	4/30/96
Prepare Quarterly Monitoring Report 04	21ed	4/30/96	5/21/96
Quarterly Monitoring Report Period 05	90ed	5/1/96	7/30/96
Prepare Quarterly Monitoring Report 05	21ed	7/30/96	8/20/96
Quarterly Monitoring Report Period 06	90ed	7/31/96	10/29/96
Prepare Quarterly Monitoring Report 06	21ed	10/29/96	11/19/96

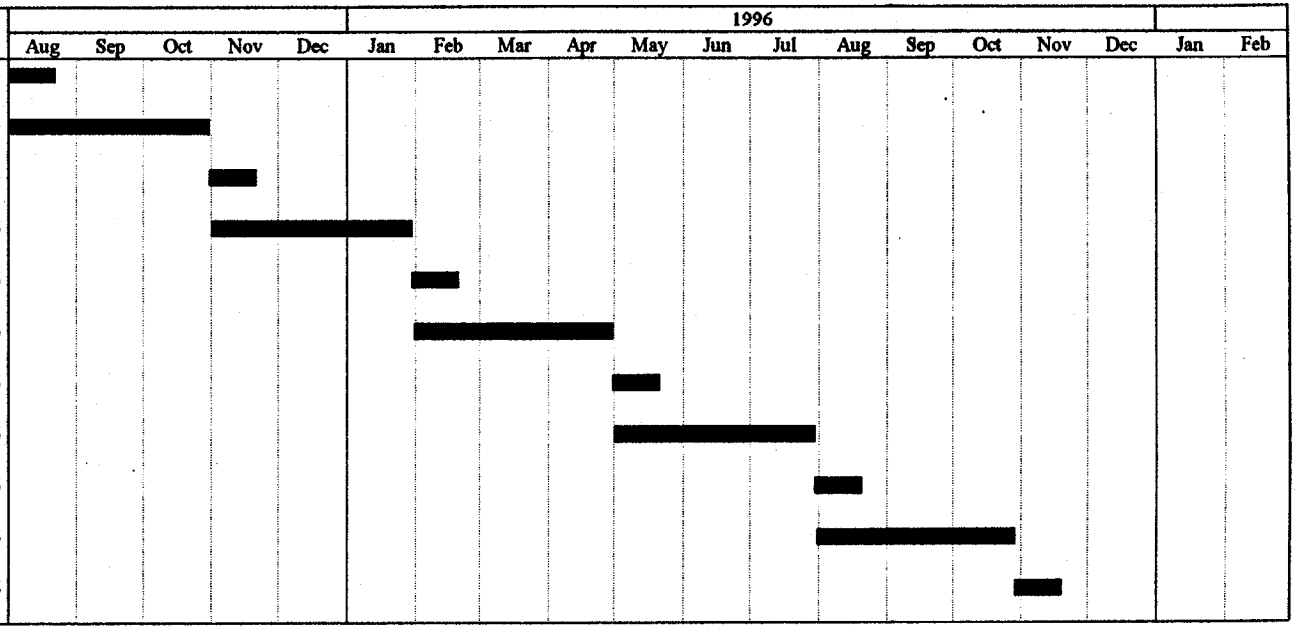

Table 4 - 5
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 6 (Sites 36, 43, 44, 54, and 86), MCB Camp Lejeune, North Carolina

Activity	Days	Start	Finish
Submit Final RI/FS Project Plans	0ed	12/5/94	12/5/94
Notice to Proceed	0ed	1/4/95	1/4/95
Mobilization/Subcontractor Procurement	30ed	1/18/95	2/17/95
Field Investigation	65ed	2/20/95	4/26/95
Sample Analysis/Validation	100ed	2/20/95	5/31/95
Data Evaluation	135ed	5/15/95	9/27/95
Risk Assessment	135ed	5/15/95	9/27/95
RI Meeting	0ed	9/12/95	9/12/95
Draft RI	156ed	5/15/95	10/18/95
Comment Period	60ed	10/18/95	12/17/95
Draft Final RI Report	46ed	12/17/95	2/1/96
Comment Period	30ed	2/1/96	3/2/96
Final RI	23ed	3/2/96	3/25/96
FS Meeting	0ed	10/23/95	10/23/95
Draft FS/PRAP	50ed	12/10/95	1/29/96
Comment Period	60ed	1/29/96	3/29/96
Draft Final FS/PRAP	53ed	3/29/96	5/21/96
Comment Period	30ed	5/21/96	6/20/96
Final FS/PRAP	15ed	6/20/96	7/5/96
Public Comment Period	31ed	7/12/96	8/12/96
Draft ROD	49ed	2/9/96	3/29/96
Comment Period	60ed	3/29/96	5/28/96

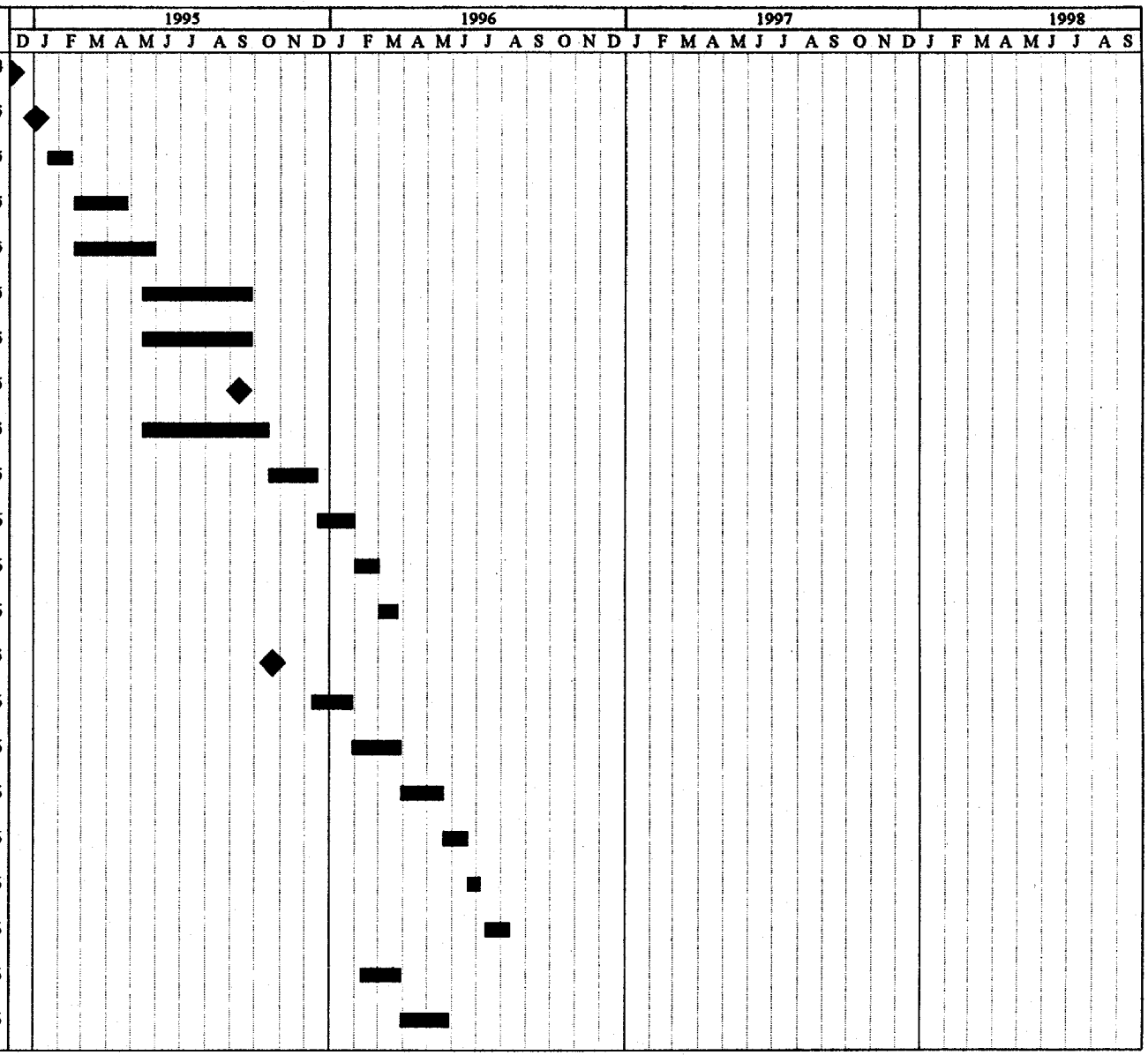

Table 4 - 5
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 6 (Sites 36, 43, 44, 54, and 86), MCB Camp Lejeune, North Carolina

Activity	Days	Start	Finish
Draft Final ROD	23ed	5/28/96	6/20/96
Comment Period	30ed	6/20/96	7/20/96
Final ROD	60ed	7/20/96	9/18/96
Remedial Design	380ed	8/1/96	8/16/97
Procure RA Contractor	70ed	8/16/97	10/25/97
Initiate Remedial Action	0ed	10/25/97	10/25/97

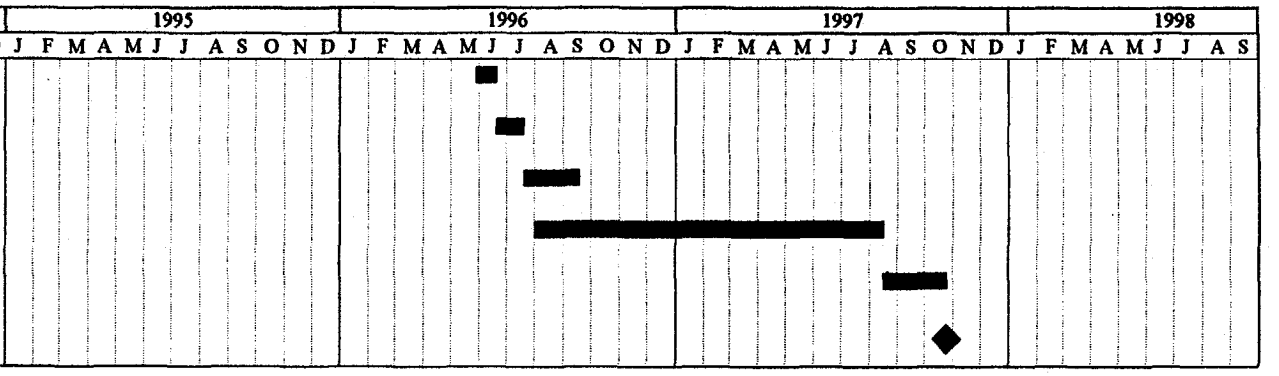

Table 4 - 6
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 7 (Sites 1, 28, and 30), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Notice to Proceed	0ed	2/25/94	2/25/94
Field Investigation	63ed	3/14/94	5/16/94
Sample Analysis/Validation	119ed	3/14/94	7/11/94
Data Evaluation	28ed	7/11/94	8/8/94
Risk Assessment	49ed	8/8/94	9/26/94
Draft RI	116ed	9/26/94	1/20/95
Comment Period	59ed	1/21/95	3/21/95
RI Meeting	0ed	4/13/95	4/13/95
Final RI	31ed	5/30/95	6/30/95
Draft FS	81ed	11/21/94	2/10/95
Comment Period	59ed	2/11/95	4/11/95
Draft PRAP/ROD	47ed	2/11/95	3/30/95
Comment Period	25ed	3/31/95	4/25/95
Final FS	38ed	6/6/95	7/14/95
Public Comment Period	34ed	7/15/95	8/18/95
Final PRAP	22ed	6/22/95	7/14/95
Final ROD	82ed	8/18/95	11/8/95
Supplemental RA Report	45ed	9/18/95	11/2/95
Draft Monitoring Plan	60ed	10/27/95	12/26/95
Comment Period	60ed	12/26/95	2/24/96
Draft Final Monitoring Plan	30ed	2/24/96	3/25/96
Comment Period	30ed	3/25/96	4/24/96
Final Monitoring Plan	30ed	4/24/96	5/24/96

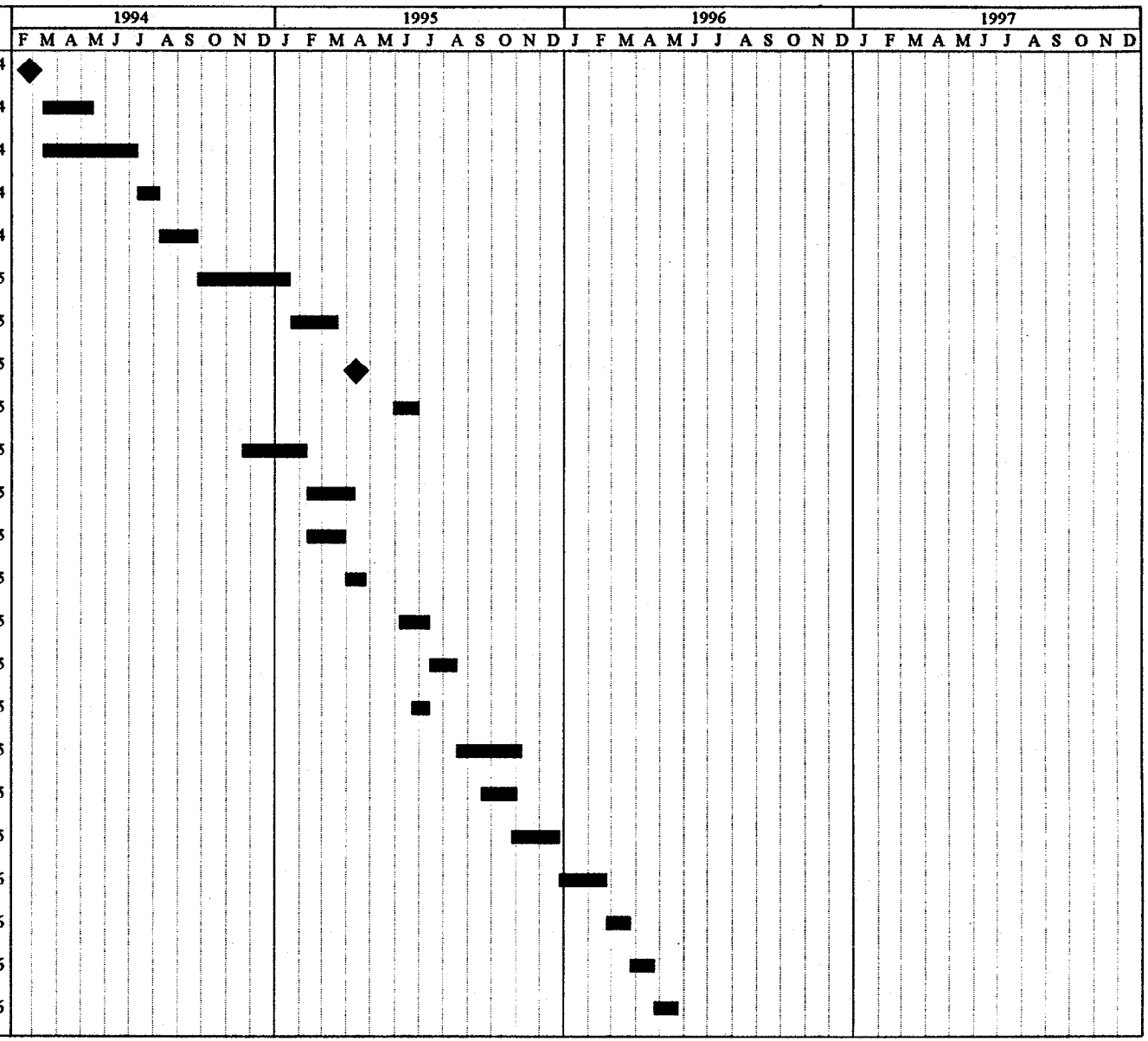

Table 4 - 6
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 7 (Sites 1, 28, and 30), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Procure FSC Contract	32ed	5/30/96	7/1/96
Quarterly Monitoring Period No. 01	90ed	7/1/96	9/29/96
Quarterly Monitoring Sampling	5ed	7/9/96	7/14/96
Quarterly Monitoring Report No. 01	60ed	7/15/96	9/13/96
Quarterly Monitoring Period No. 02	90ed	10/1/96	12/30/96
Quarterly Monitoring Sampling	5ed	10/8/96	10/13/96
Quarterly Monitoring Report No. 02	60ed	10/14/96	12/13/96
Quarterly Monitoring Period No. 03	90ed	12/31/96	3/31/97
Quarterly Monitoring Sampling	5ed	1/7/97	1/12/97
Quarterly Monitoring Report No. 03	60ed	1/13/97	3/14/97
Quarterly Monitoring Period No. 04	90ed	3/1/97	5/30/97
Quarterly Monitoring Sampling	5ed	3/4/97	3/9/97
Quarterly Monitoring Report No. 04	60ed	3/10/97	5/9/97
Quarterly Monitoring Period No. 05	90ed	6/1/97	8/30/97
Quarterly Monitoring Sampling	5ed	6/10/97	6/15/97
Quarterly Monitoring Report No. 05	60ed	6/16/97	8/15/97

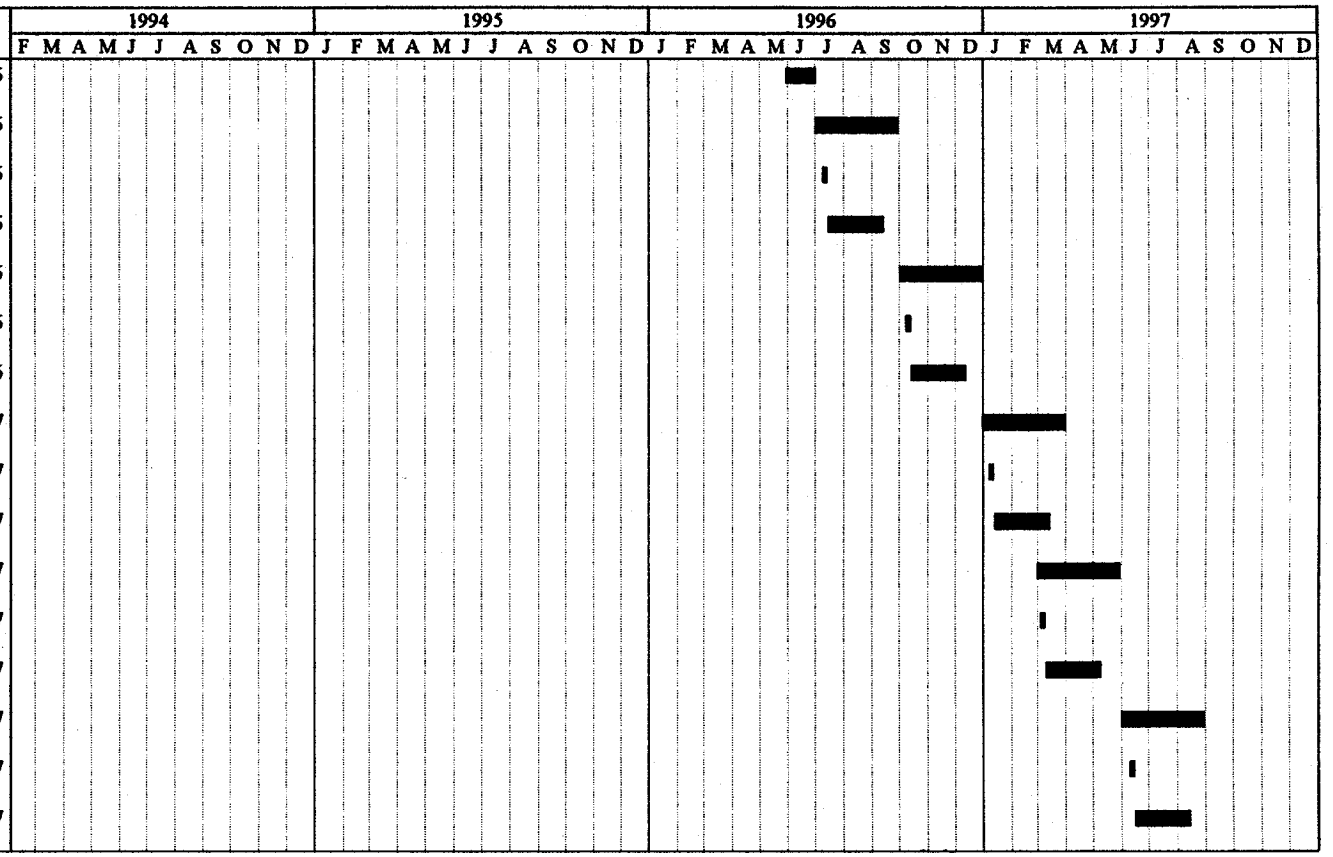

Table 4 - 7
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 8 (Site 16), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Notice to Proceed	0ed	6/17/94	6/17/94
Ecological Field Investigation	10ed	6/20/94	6/30/94
Environmental Field Investigation	79ed	10/17/94	1/4/95
Sample Analysis/Validation	222ed	6/22/94	1/30/95
Data Evaluation	28ed	1/30/95	2/27/95
Risk Assessment	77ed	1/30/95	4/17/95
Preliminary Draft Meeting	0ed	5/3/95	5/3/95
Comment Period	30ed	5/1/95	5/31/95
Draft RI Report	30ed	5/31/95	6/30/95
Comment Period	60ed	6/30/95	8/29/95
Draft Final RI Report	60ed	8/29/95	10/28/95
Comment Period	30ed	10/28/95	11/27/95
Final RI	30ed	11/27/95	12/27/95
Comment Period	28ed	5/31/95	6/28/95
Draft PRAP	30ed	6/28/95	7/28/95
Comment Period	60ed	7/28/95	9/26/95
Draft Final PRAP	60ed	9/26/95	11/25/95
Comment Period	30ed	11/25/95	12/25/95
Final PRAP	30ed	12/25/95	1/24/96
Public Comment Period	31ed	1/31/96	3/2/96
Comment Period	28ed	6/24/95	7/22/95
Draft ROD	27ed	7/22/95	8/18/95

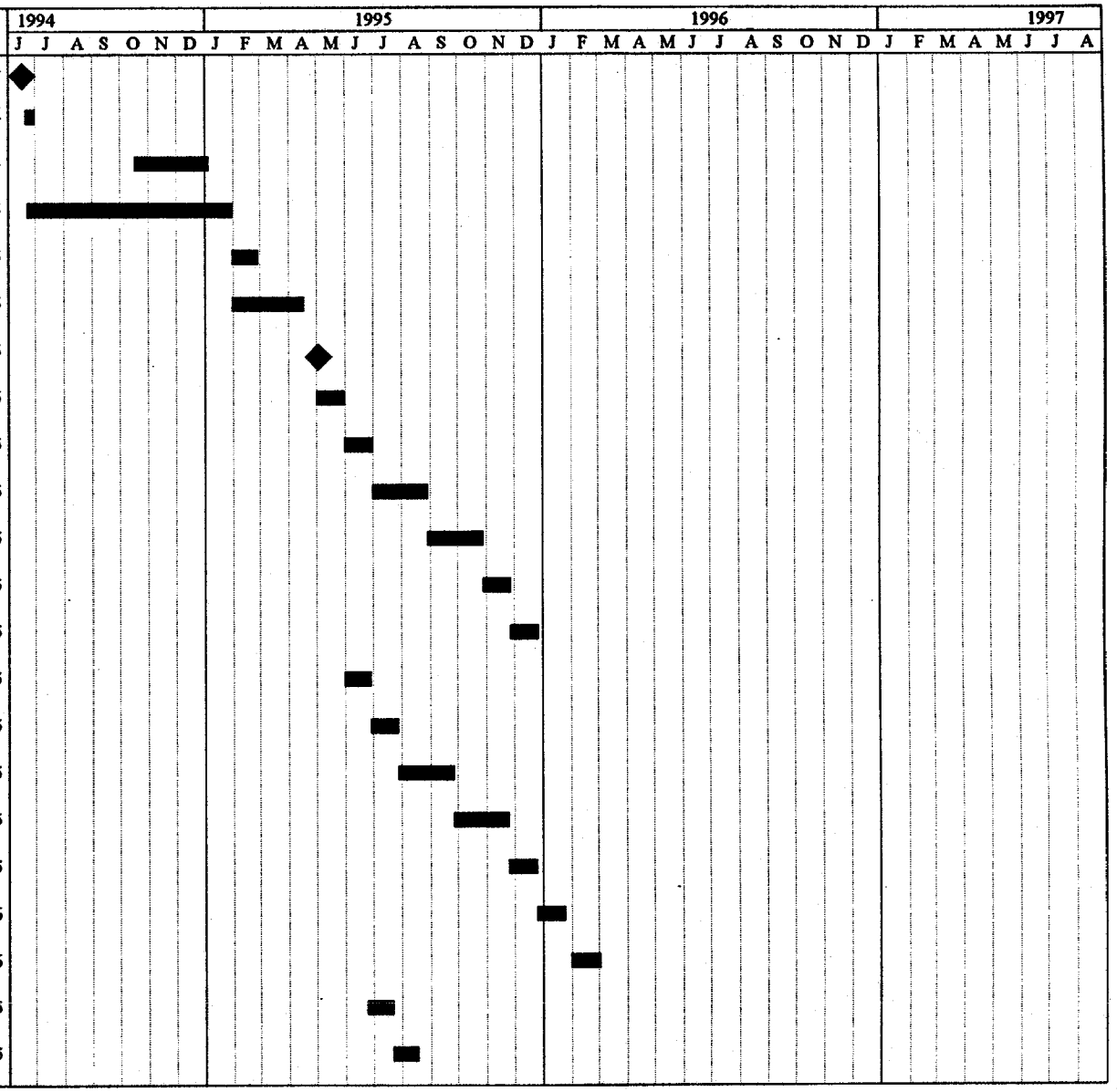

Table 4 - 7
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 8 (Site 16), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Comment Period	60ed	8/18/95	10/17/95
Draft Final ROD	60ed	10/17/95	12/16/95
Comment Period	30ed	12/16/95	1/15/96
Final ROD	60ed	1/15/96	3/15/96

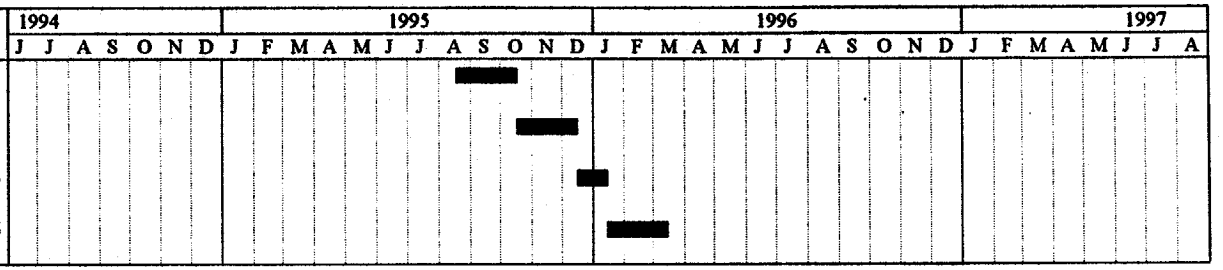

Table 4 - 8
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 9 (Sites 65 and 73), MCB, Camp Lejeune, North Carolina

Task	Days	Start	Finish
Notice to Proceed	0ed	2/27/95	2/27/95
Mobilization	34ed	2/27/95	4/2/95
Environmental Field Investigation	59ed	4/3/95	6/1/95
Sample Analysis/Validation	103ed	4/5/95	7/17/95
Data Management	28ed	7/17/95	8/14/95
Data Evaluation	140ed	7/1/95	11/18/95
Risk Assessment	99ed	8/7/95	11/14/95
RI Meeting	0ed	10/9/95	10/9/95
Draft RI Site 65	140ed	7/1/95	11/18/95
Mobilization	21ed	1/8/96	1/29/96
Additional Site 73 Investigation	60ed	1/29/96	3/29/96
Sample Analysis/Validation	137ed	1/30/96	6/15/96
Data Evaluation	61ed	6/1/96	8/1/96
Risk Assessment	121ed	6/1/96	9/30/96
RI Meeting	0ed	9/9/96	9/9/96
Draft RI Site 73	92ed	7/1/96	10/1/96
Comment Period	60ed	10/1/96	11/30/96
Draft Final RI Sites 65 and 73	62ed	1/16/97	3/19/97
Comment Period	30ed	3/18/97	4/17/97
Final RI Sites 65 and 73	30ed	4/17/97	5/17/97
Remedial Alt Screen/Evaluation	49ed	11/17/96	1/5/97
FS Meeting	0ed	1/5/97	1/5/97

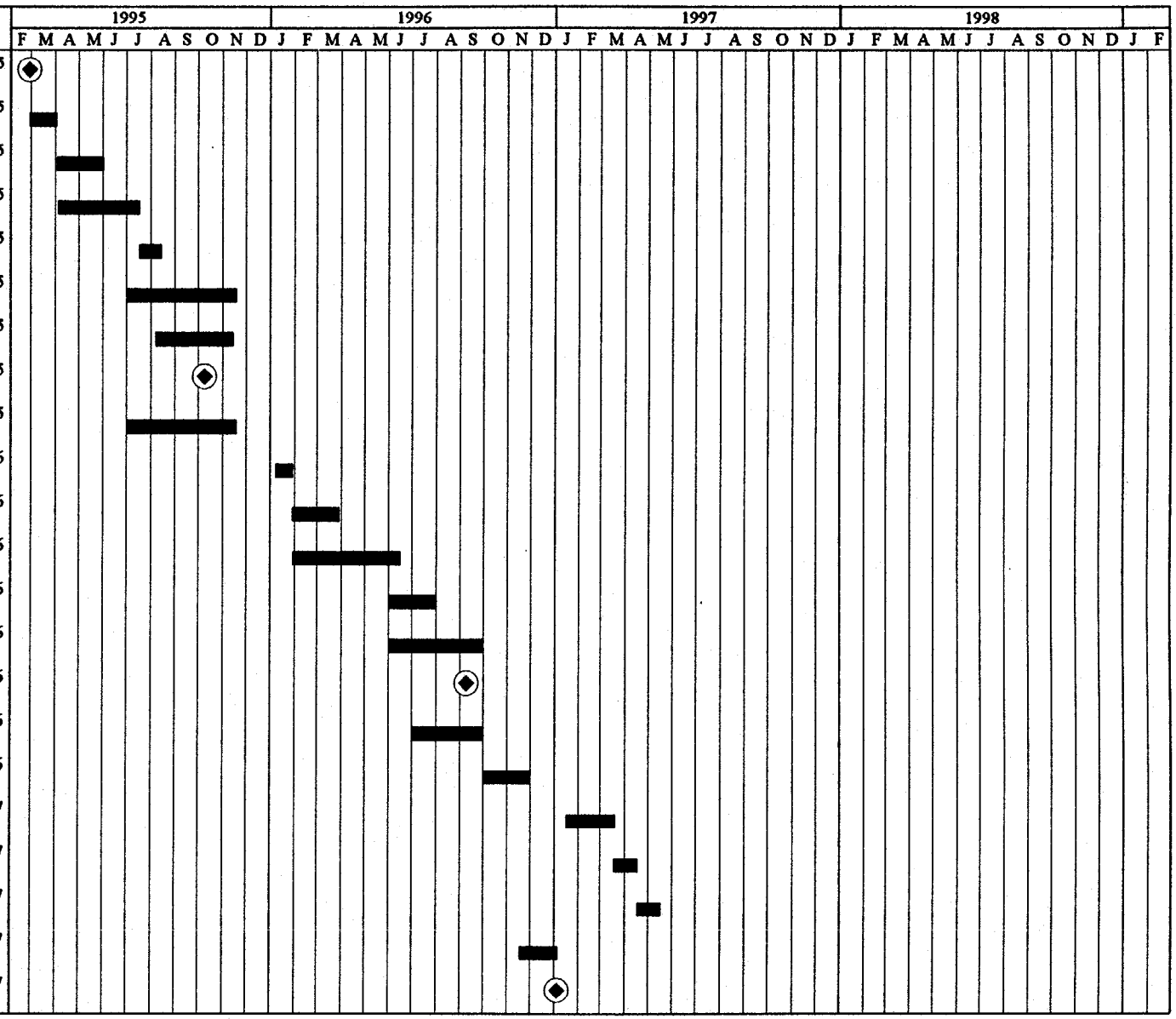

Table 4 - 8
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 9 (Sites 65 and 73), MCB, Camp Lejeune, North Carolina

Task	Days	Start	Finish
Draft FS/PRAP	42ed	1/5/97	2/16/97
Comment Period	60ed	2/16/97	4/17/97
Draft Final FS/PRAP	60ed	4/16/97	6/15/97
Comment Period	30ed	6/14/97	7/14/97
Final FS/PRAP	30ed	7/23/97	8/22/97
Public Comment Period	30ed	8/21/97	9/20/97
Public Meeting	0ed	8/27/97	8/27/97
Draft ROD	30ed	4/26/97	5/26/97
Comment Period	60ed	5/15/97	7/14/97
Draft Final ROD	30ed	7/23/97	8/22/97
Comment Period	30ed	8/21/97	9/20/97
Final ROD	14ed	9/19/97	10/3/97
Remedial Design	380ed	8/3/97	8/18/98
Procure RA Subcontractor	70ed	8/18/98	10/27/98
Initiate RA	0ed	10/27/98	10/27/98

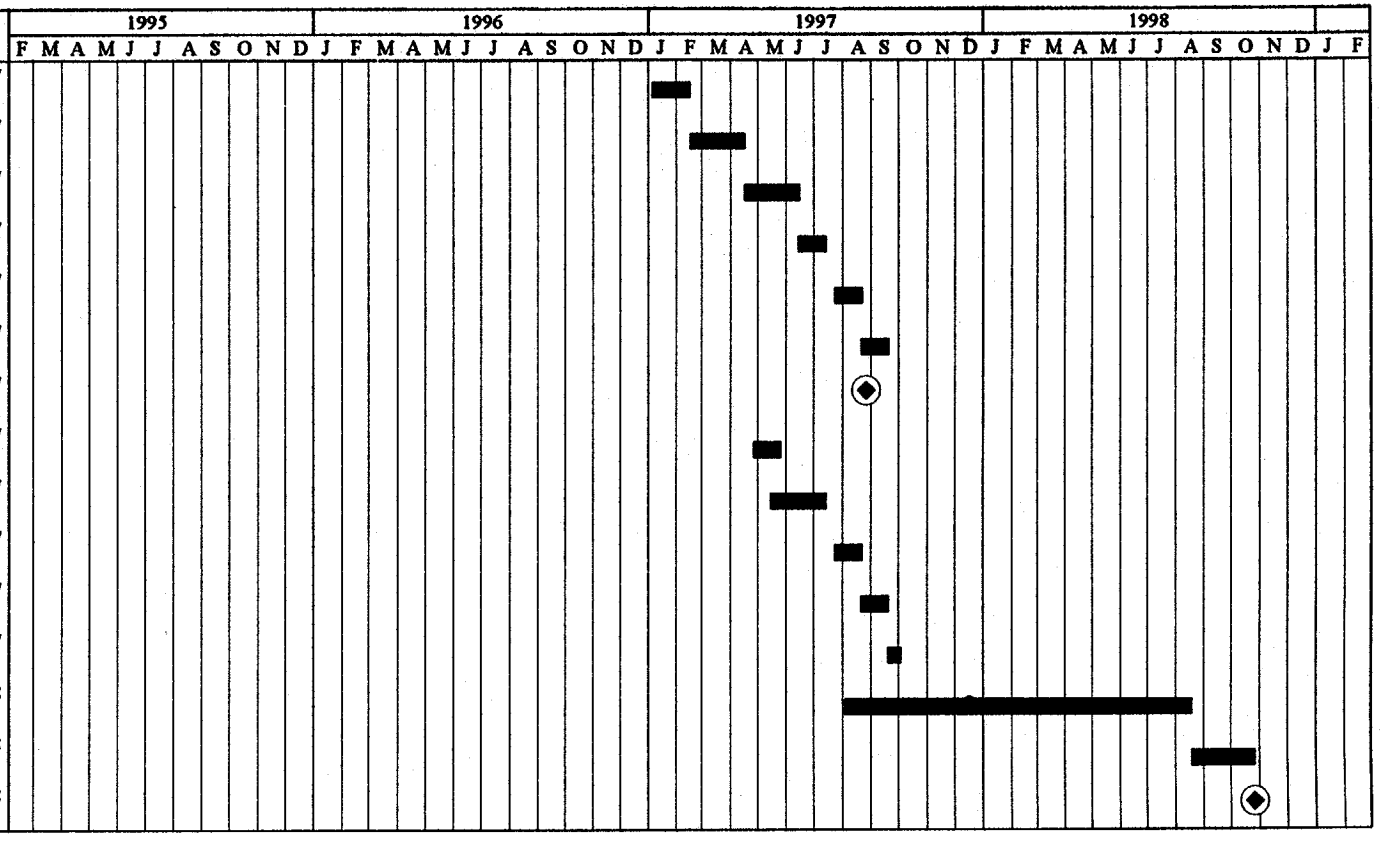

Table 4 - 9
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 10 (Sites 35), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Notice to Proceed	0ed	3/14/94	3/14/94
Field Investigation	42ed	4/11/94	5/23/94
Sample Analysis/Validation	84ed	4/11/94	7/4/94
Data Evaluation	21ed	7/4/94	7/25/94
Risk Assessment	70ed	7/25/94	10/3/94
Draft RI Report	28ed	10/3/94	10/31/94
Comment Period	60ed	10/31/94	12/30/94
Draft Final RI Report	60ed	12/30/94	2/28/95
Comment Period	30ed	2/28/95	3/30/95
Final RI Report	30ed	3/30/95	4/29/95
Draft Interim FS/PRAP (Shallow GW)	28ed	10/31/94	11/28/94
Comment Period	60ed	11/28/94	1/27/95
Draft Final Interim FS/PRAP (Shallow GW)	60ed	1/27/95	3/28/95
Comment Period	30ed	3/28/95	4/27/95
Final Interim FS/PRAP (Shallow GW)	30ed	4/27/95	5/27/95
Public Comment Period	30ed	5/10/95	6/9/95
Interim ROD (Shallow GW)	185ed	1/5/95	7/9/95
Draft Interim ROD (Shallow GW)	21ed	1/5/95	1/26/95
Comment Period	60ed	1/26/95	3/27/95
Draft Final Interim ROD (Shallow GW)	60ed	3/27/95	5/26/95
Comment Period	30ed	5/26/95	6/25/95
Final Interim ROD (Shallow GW)	14ed	6/25/95	7/9/95

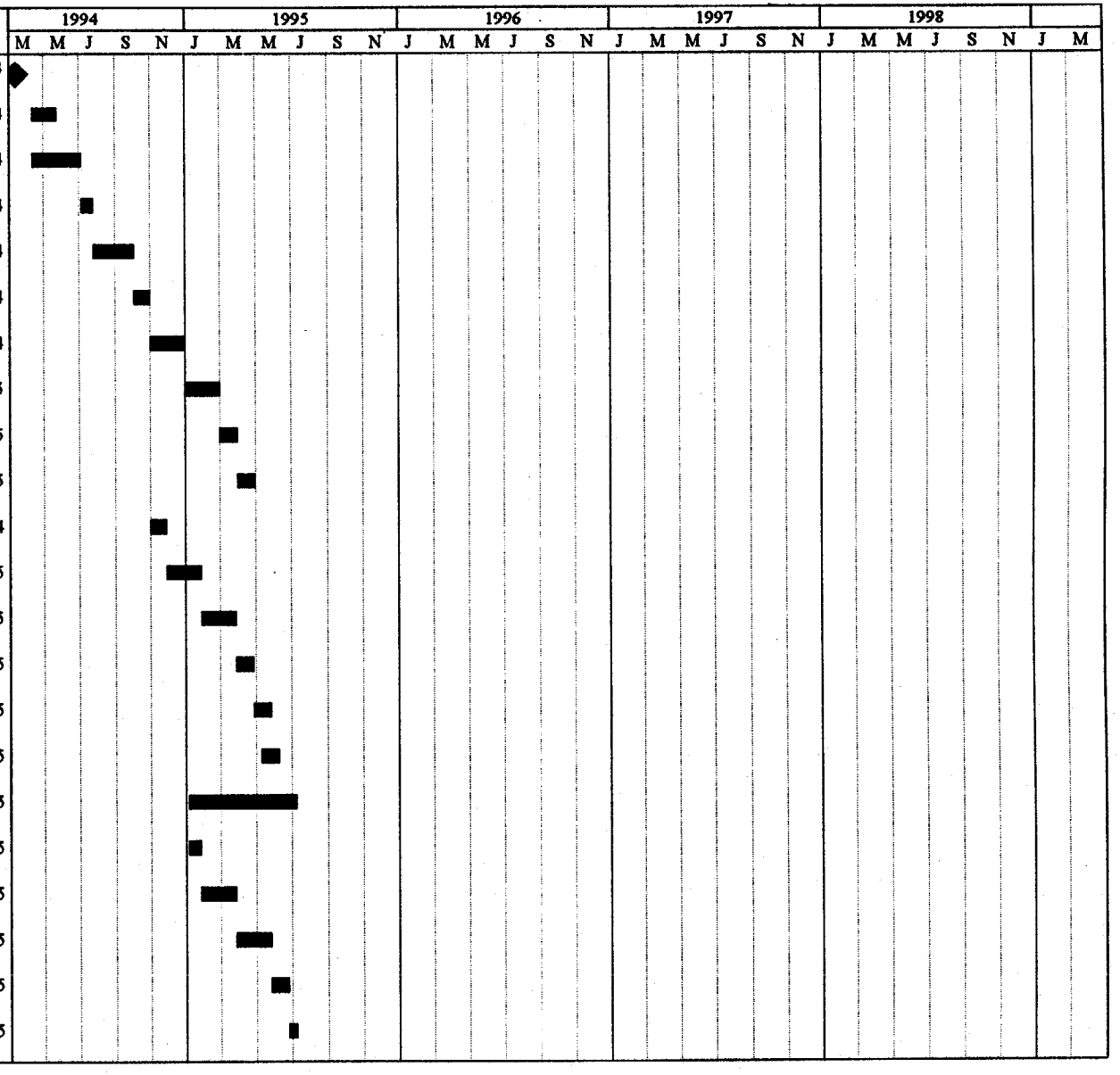

Table 4 - 9
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 10 (Sites 35), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Notice to Proceed (Sup. GW Invest.)	0ed	12/18/95	12/18/95
SGI Field Work (Inc. Mob./Demob.)	52ed	1/2/96	2/23/96
SGI Sample Analysis/Validation	90ed	1/10/96	4/9/96
SGI Data Management	21ed	4/8/96	4/29/96
SGI Data Evaluation	84ed	2/26/96	5/20/96
SGI Meeting	0ed	5/19/96	5/19/96
Draft SGI Report	50ed	4/29/96	6/18/96
Comment Period	30ed	6/17/96	7/17/96
Draft Final SGI Report	28ed	7/16/96	8/13/96
Comment Period	30ed	8/12/96	9/11/96
Final SGI Report	28ed	9/10/96	10/8/96
Remedial Alt. Screening/Evaluation	30ed	6/17/96	7/17/96
Draft FS/PRAP	21ed	7/15/96	8/5/96
Comment Period	29ed	8/13/96	9/11/96
Draft Final FS/PRAP	30ed	9/11/96	10/11/96
Comment Period	30ed	10/8/96	11/7/96
Final FS/PRAP	28ed	11/6/96	12/4/96
Public Comment Period	30ed	11/26/96	12/26/96
Draft ROD	21ed	9/11/96	10/2/96
Comment Period	31ed	10/8/96	11/8/96
Draft Final ROD	28ed	11/6/96	12/4/96
Comment Period	30ed	11/27/96	12/27/96

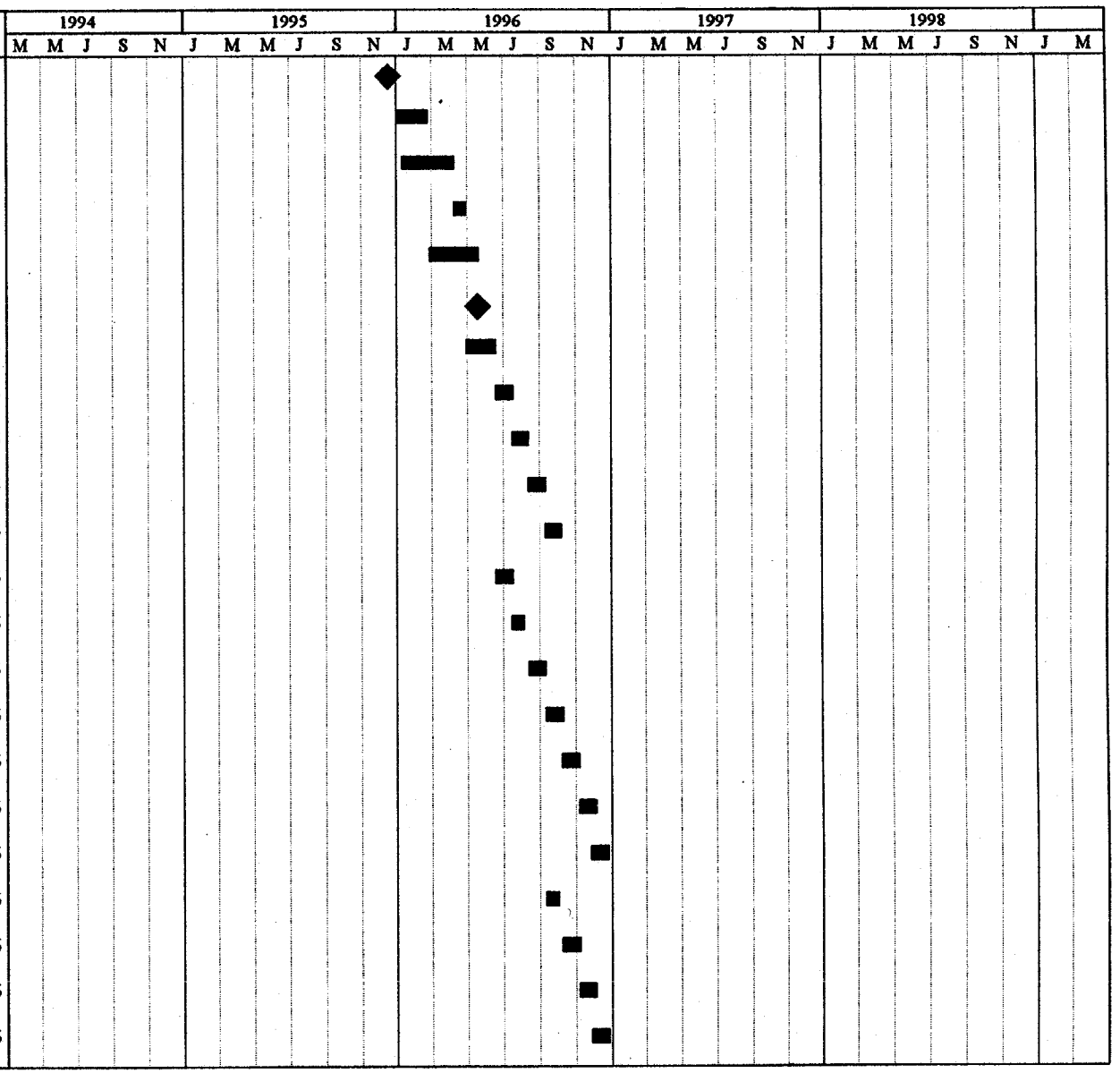

Table 4 - 9
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 10 (Sites 35), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Final ROD	21ed	12/26/96	1/16/97
RA Design	396ed	1/16/97	2/16/98
Procure RA Subcontractor	40ed	7/3/97	8/12/97
Prepare RA Project Plans	188ed	8/12/97	2/16/98
RA Construction	150ed	4/16/98	9/13/98
Post Interim RA Report	60ed	9/13/98	11/12/98
Notice to Proceed (Int. Design/Shal. GW)	0ed	7/1/95	7/1/95
Field Data Gathering	15ed	7/10/95	7/25/95
Laboratory Analysis/Validation	56ed	7/17/95	9/11/95
Data Management	14ed	9/11/95	9/25/95
Draft 90% Interim Design (Shal. GW)	84ed	2/28/96	5/22/96
Comment Period	30ed	5/20/96	6/19/96
Final 100% Interim Design (Shal. GW)	30ed	6/18/96	7/18/96
Comment Period	30ed	7/18/96	8/17/96
Revised Final 100% Interim Design (Shal. GW)	14ed	8/16/96	8/30/96
Procure Interim RA (Shal. GW) Subcontractor	40ed	8/30/96	10/9/96
Prepare Interim RA Project Plans (Shal. GW)	81ed	10/9/96	12/29/96
Interim RA Construction (Shal. GW)	90ed	12/29/96	3/29/97
Post Interim RA Report (Shal. GW)	60ed	3/29/97	5/28/97

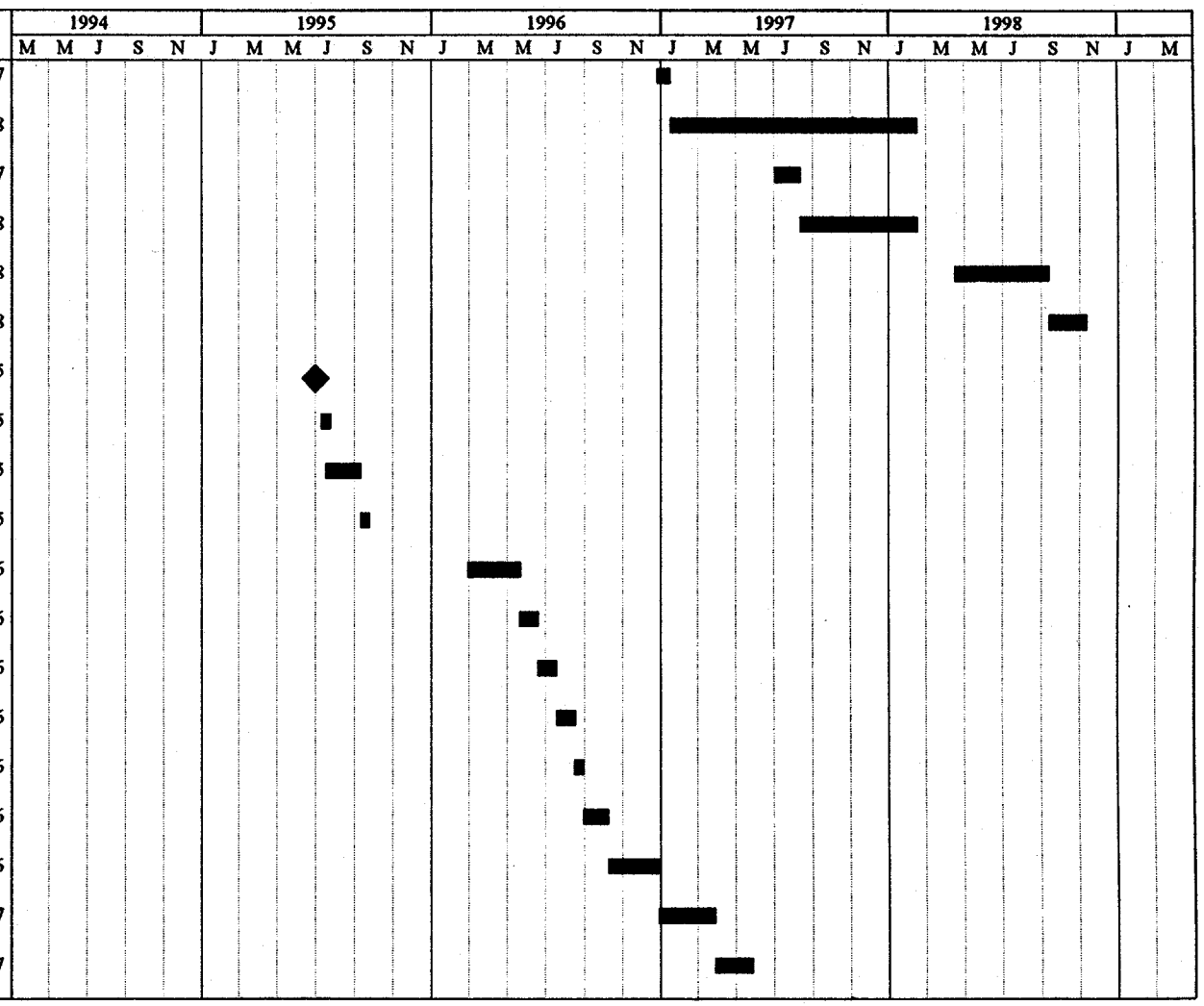

Table 4 - 10
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 11 (Sites 7 and 80), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Notice to Proceed	0ed	6/17/94	6/17/94
Ecological Field Investigation	10ed	6/20/94	6/30/94
Environmental Field Investigation	79ed	10/17/94	1/4/95
Sample Analysis/Validation	222ed	6/22/94	1/30/95
Data Evaluation	28ed	1/30/95	2/27/95
Risk Assessment	77ed	1/30/95	4/17/95
Preliminary Draft Meeting	0ed	5/3/95	5/3/95
Draft RI Report Site 7	58ed	5/3/95	6/30/95
Comment Period	60ed	6/30/95	8/29/95
Additional Field Investigation	30ed	6/12/95	7/12/95
Sample Analysis/Validation	80ed	6/12/95	8/31/95
Draft RI Report Site 80	39ed	9/1/95	10/10/95
Comment Period	60ed	10/10/95	12/9/95
Draft Final RI Sites 7 and 80	60ed	12/9/95	2/7/96
Comment Period	30ed	2/7/96	3/8/96
Final RI Sites 7 and 80	30ed	3/8/96	4/7/96
Draft FS/PRAP Sites 7 and 80	31ed	10/10/95	11/10/95
Comment Period	60ed	11/10/95	1/9/96
Draft Final FS/PRAP Sites 7 and 80	60ed	1/9/96	3/9/96
Comment Period	30ed	3/9/96	4/8/96
Final FS/PRAP Sites 7 and 80	30ed	4/8/96	5/8/96
Public Comment Period	31ed	5/15/96	6/15/96

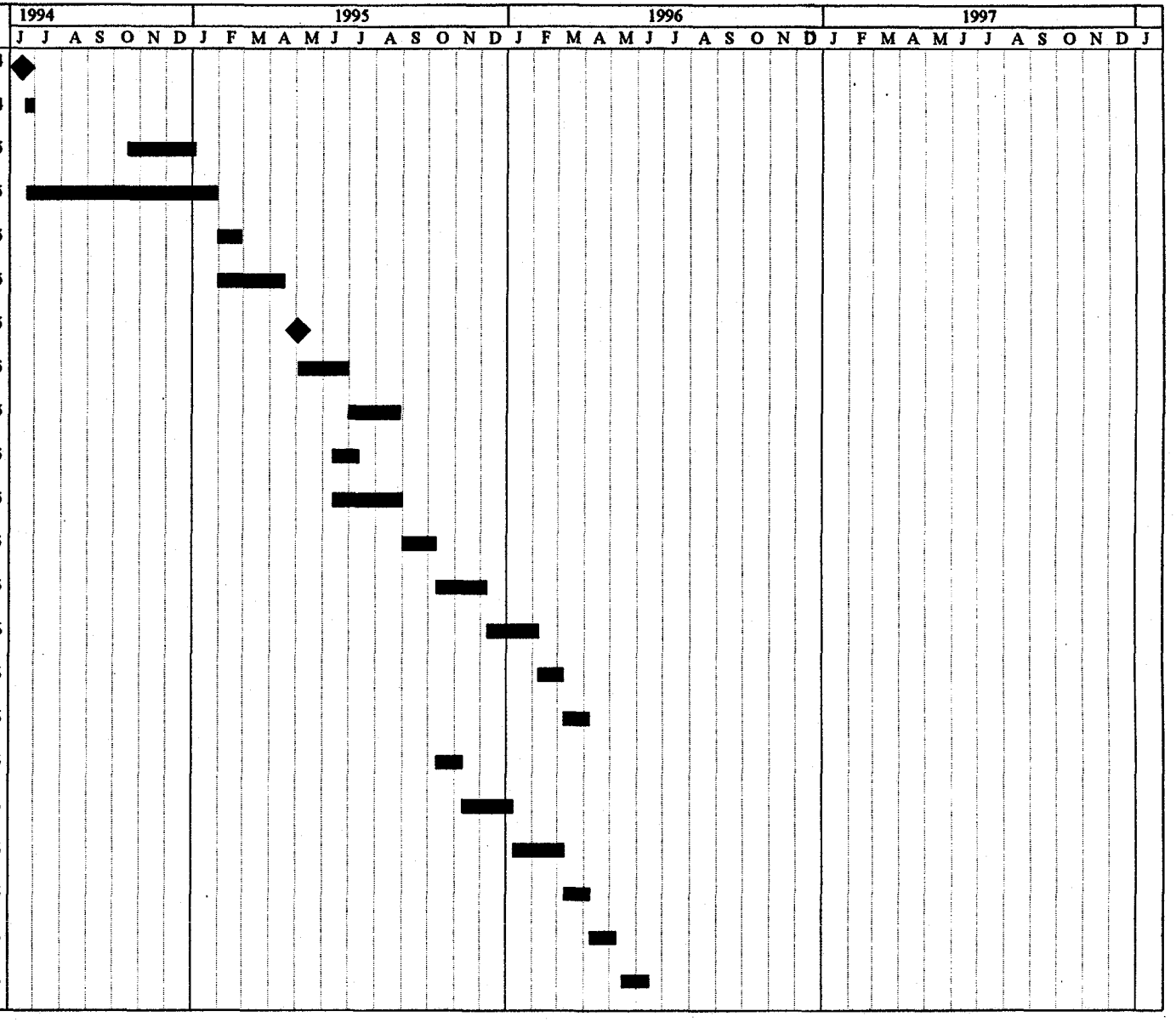

Table 4 - 10
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 11 (Sites 7 and 80), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Draft ROD Sites 7 and 80	27ed	11/4/95	12/1/95
Comment Period	60ed	12/1/95	1/30/96
Draft Final ROD Sites 7 and 80	60ed	1/30/96	3/30/96
Comment Period	30ed	3/30/96	4/29/96
Final ROD Sites 7 and 80	60ed	4/29/96	6/28/96
Remedial Design	380ed	5/1/96	5/16/97
Procure RA Contractor	70ed	7/13/97	9/21/97
Initiate RA	0ed	9/21/97	9/21/97

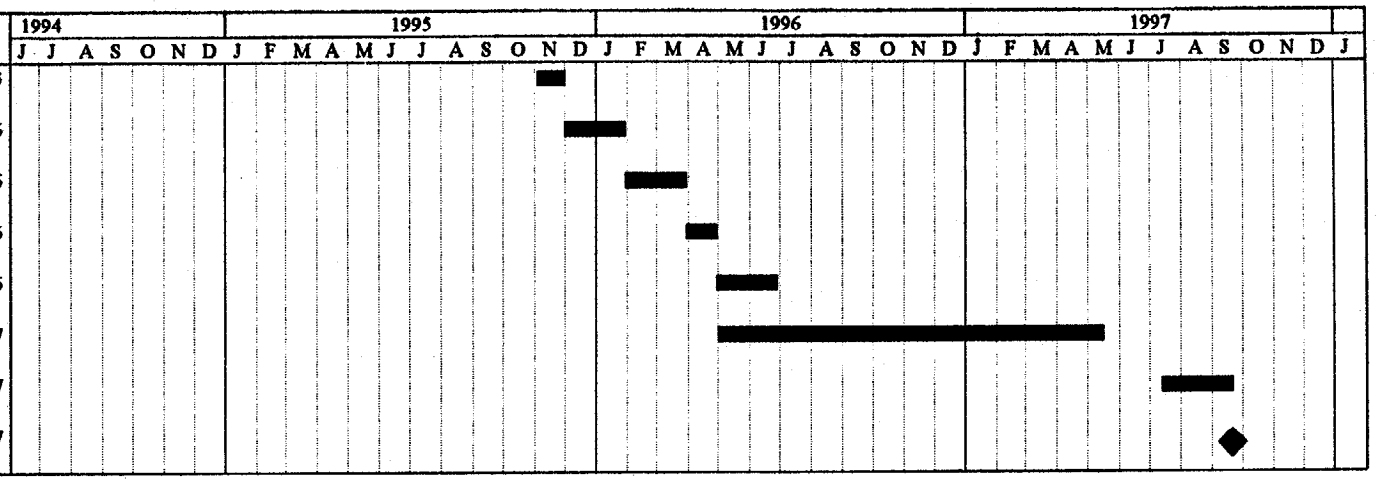

Table 4 - 11
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 12 (Site 3), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Notice to Proceed	0ed	6/17/94	6/17/94
Ecological Field Investigation	10ed	6/20/94	6/30/94
Environmental Field Investigation	79ed	10/17/94	1/4/95
Sample Analysis/Validation	222ed	6/22/94	1/30/95
Data Evaluation	28ed	1/30/95	2/27/95
Risk Assessment	77ed	1/30/95	4/17/95
Preliminary Draft Meeting	0ed	5/3/95	5/3/95
Phase II Field Investigation	30ed	6/12/95	7/12/95
Sample Analysis/Validation	80ed	6/12/95	8/31/95
Phase III Investigation	6ed	10/9/95	10/15/95
Sample Analysis/Validation	70ed	10/9/95	12/18/95
Draft RI Report	30ed	12/18/95	1/17/96
Comment Period	60ed	1/17/96	3/17/96
Draft Final RI Report	60ed	3/17/96	5/16/96
Comment Period	30ed	5/16/96	6/15/96
Final RI	30ed	6/15/96	7/15/96
Draft FS/PRAP	31ed	1/17/96	2/17/96
Comment Period	60ed	2/17/96	4/17/96
Draft Final FS/PRAP	60ed	4/17/96	6/16/96
Comment Period	30ed	6/16/96	7/16/96
Final FS/PRAP	30ed	7/16/96	8/15/96
Public Comment Period	31ed	8/22/96	9/22/96

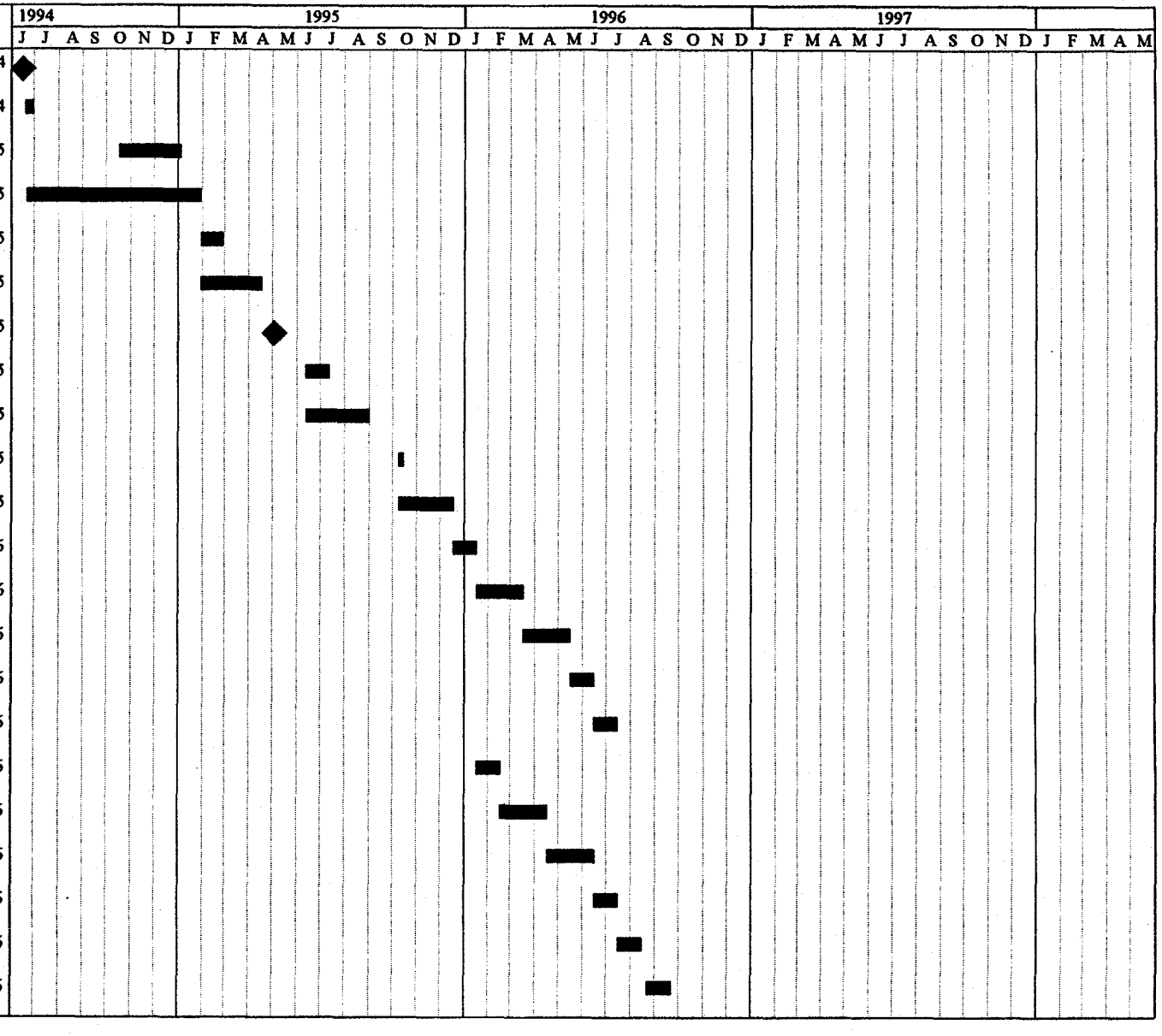

Table 4 - 11
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 12 (Site 3), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Draft ROD	27ed	6/22/96	7/19/96
Comment Period	60ed	7/19/96	9/17/96
Draft Final ROD	60ed	9/17/96	11/16/96
Comment Period	30ed	11/16/96	12/16/96
Final ROD	60ed	12/16/96	2/14/97
Remedial Design	380ed	2/14/97	3/1/98
Procure RA Contractor	70ed	3/1/98	5/10/98
Initiate RA	0ed	5/10/98	5/10/98

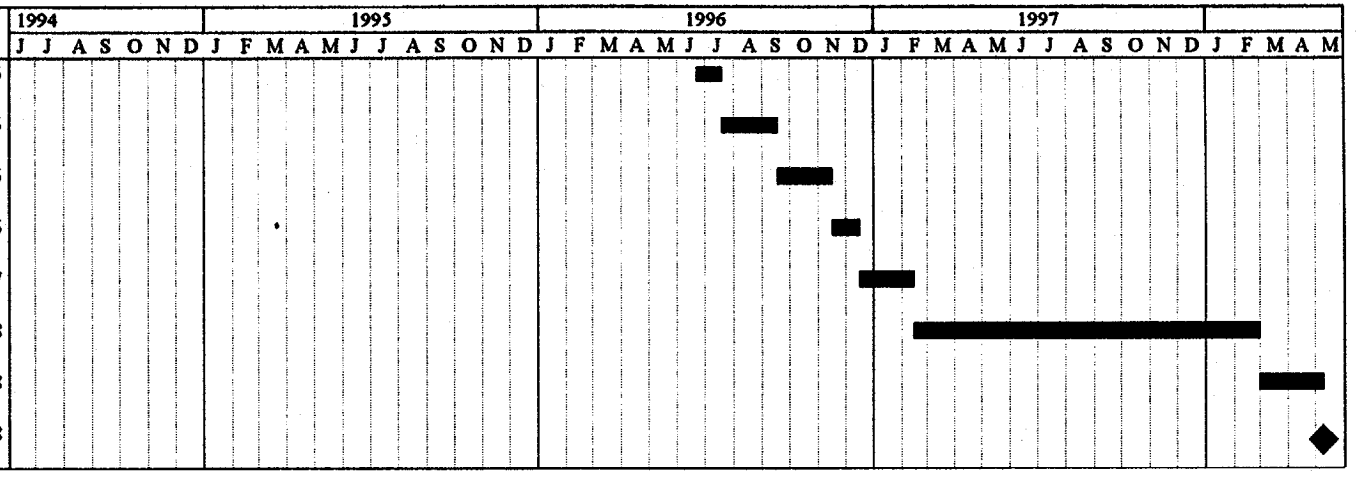

Table 4 - 12
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 13 (Site 63), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Prepare Draft RI/FS Project Plans	28ed	4/13/95	5/11/95
Submit Draft RI/FS Project Plans	0ed	5/11/95	5/11/95
Agency Review	60ed	5/11/95	7/10/95
Prepare Final RI/FS Project Plans	60ed	7/10/95	9/8/95
Submit Final RI/FS Project Plans	0ed	9/8/95	9/8/95
Notice to Proceed	0ed	7/30/95	7/30/95
Mobilization	30ed	9/30/95	10/30/95
Environmental Field Investigation	17ed	10/30/95	11/16/95
Sample Analysis/Validation	90ed	11/1/95	1/30/96
Data Evaluation	28ed	1/30/96	2/27/96
Risk Assessment	36ed	2/27/96	4/3/96
RI/FS Review Meeting	0ed	3/15/96	3/15/96
Draft RI Report	50ed	2/27/96	4/17/96
Comment Period	60ed	4/17/96	6/16/96
Draft Final RI Report	30ed	6/17/96	7/17/96
Comment Period	30ed	7/17/96	8/16/96
Final RI	30ed	8/16/96	9/15/96
Draft FS/PRAP	30ed	4/17/96	5/17/96
Comment Period	60ed	5/17/96	7/16/96
Draft Final FS/PRAP	29ed	7/16/96	8/14/96
Comment Period	33ed	8/14/96	9/16/96
Final FS/PRAP	29ed	9/16/96	10/15/96

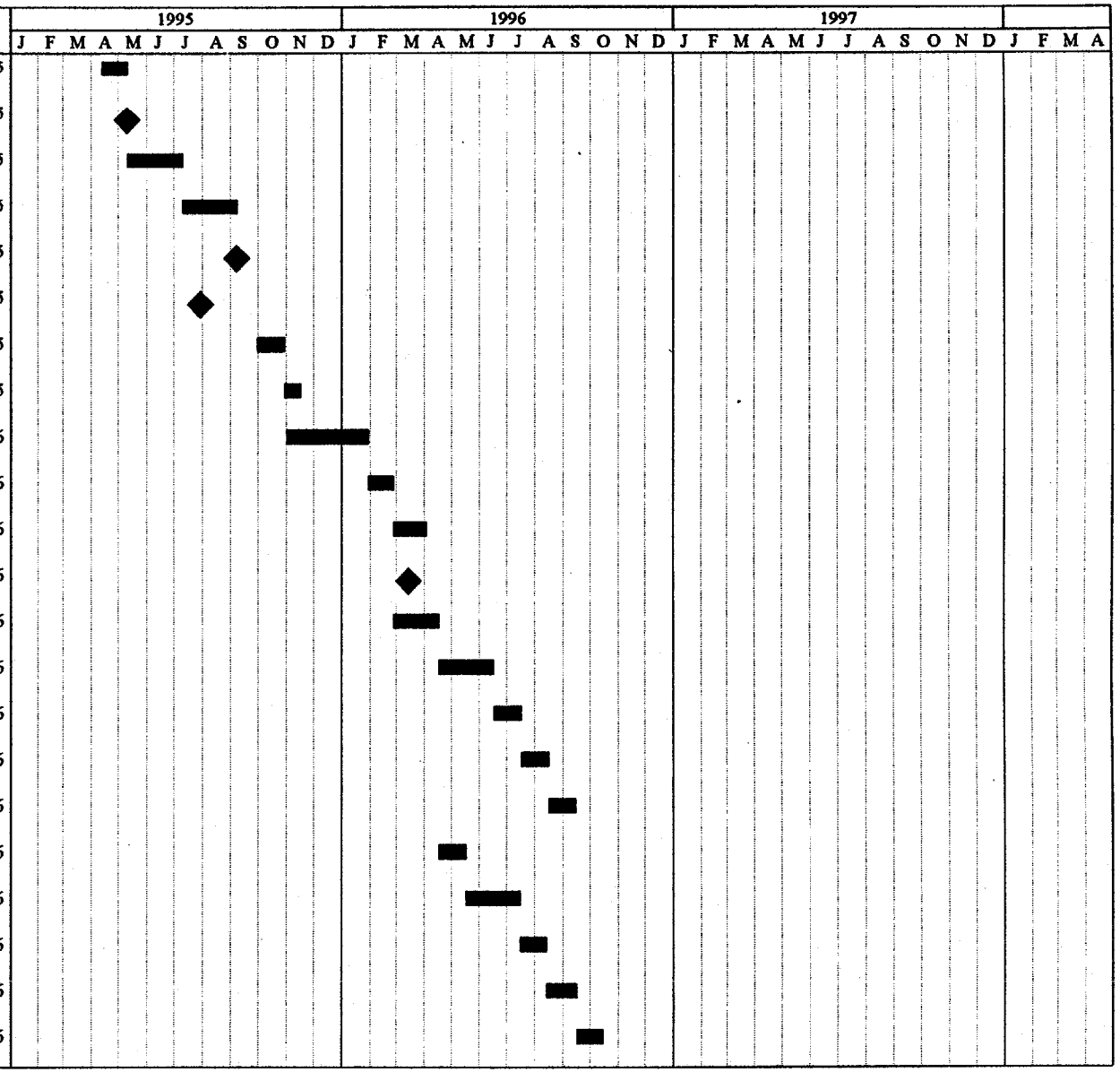

Table 4 - 12
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit No. 13 (Site 63), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Draft ROD	30ed	5/17/96	6/16/96
Comment Period	60ed	6/16/96	8/15/96
Draft Final ROD	30ed	8/15/96	9/14/96
Comment Period	30ed	9/14/96	10/14/96
Public Comment Period	30ed	10/14/96	11/13/96
Final ROD	30ed	11/13/96	12/13/96

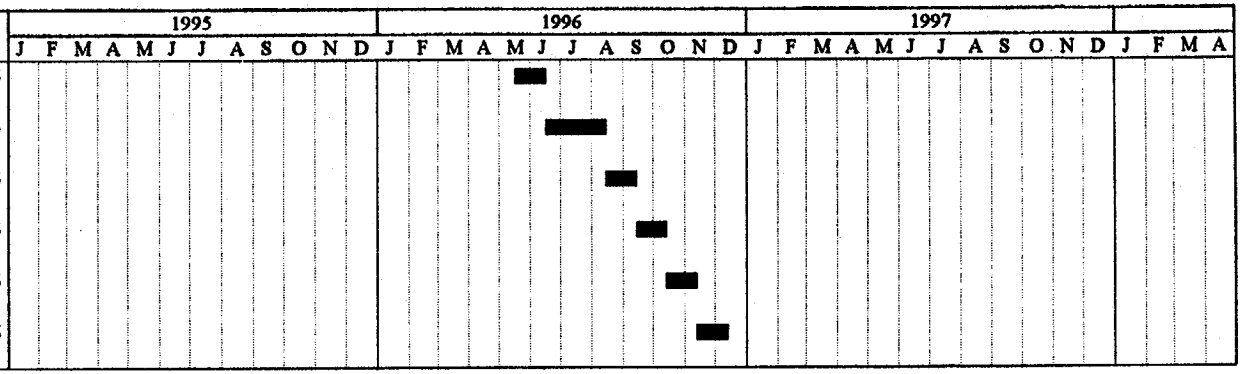

Table 4 - 13
Remedial Design/Remedial Action Site Management Schedule
Operable Unit No. 14 (Site 69), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
SITE 69 TREATABILITY STUDY	**453ed**	**2/20/95**	**5/18/96**
Draft Work Plan	46ed	2/20/95	4/7/95
Final Work Plan	21ed	8/11/95	9/1/95
Treatability Study	228ed	11/13/95	6/28/96
Draft Report	39ed	6/19/96	7/28/96
Government Review	30ed	7/31/96	8/30/96
Final Report	29ed	8/31/96	9/29/96
SITE 69 RI/FS	**633ed**	**5/6/95**	**1/28/97**
Draft Final RI	48ed	5/6/95	6/23/95
Final RI	23d	9/4/95	10/4/95
Draft Final FS	31ed	7/28/96	8/28/96
Final FS	30ed	9/28/96	10/28/96
Draft PRAP/ROD	31ed	8/28/96	9/28/96
Final PRAP	31ed	10/28/96	11/28/96
Public Comment Period	30ed	11/28/96	12/28/96
Final ROD	31ed	12/28/96	1/28/97
SITE 69 DESIGN	**380ed**	**1/1/97**	**1/16/98**
Prepare Draft RD Work Plan	35ed	1/1/97	2/5/97
Submit Draft RD Work Plan to Agencies	0ed	2/5/97	2/5/97
Agency Review	60ed	2/5/97	4/6/97
Prepare Final RD Work Plan	30ed	4/6/97	5/6/97
Submit Final RD Work Plan	0ed	5/6/97	5/6/97

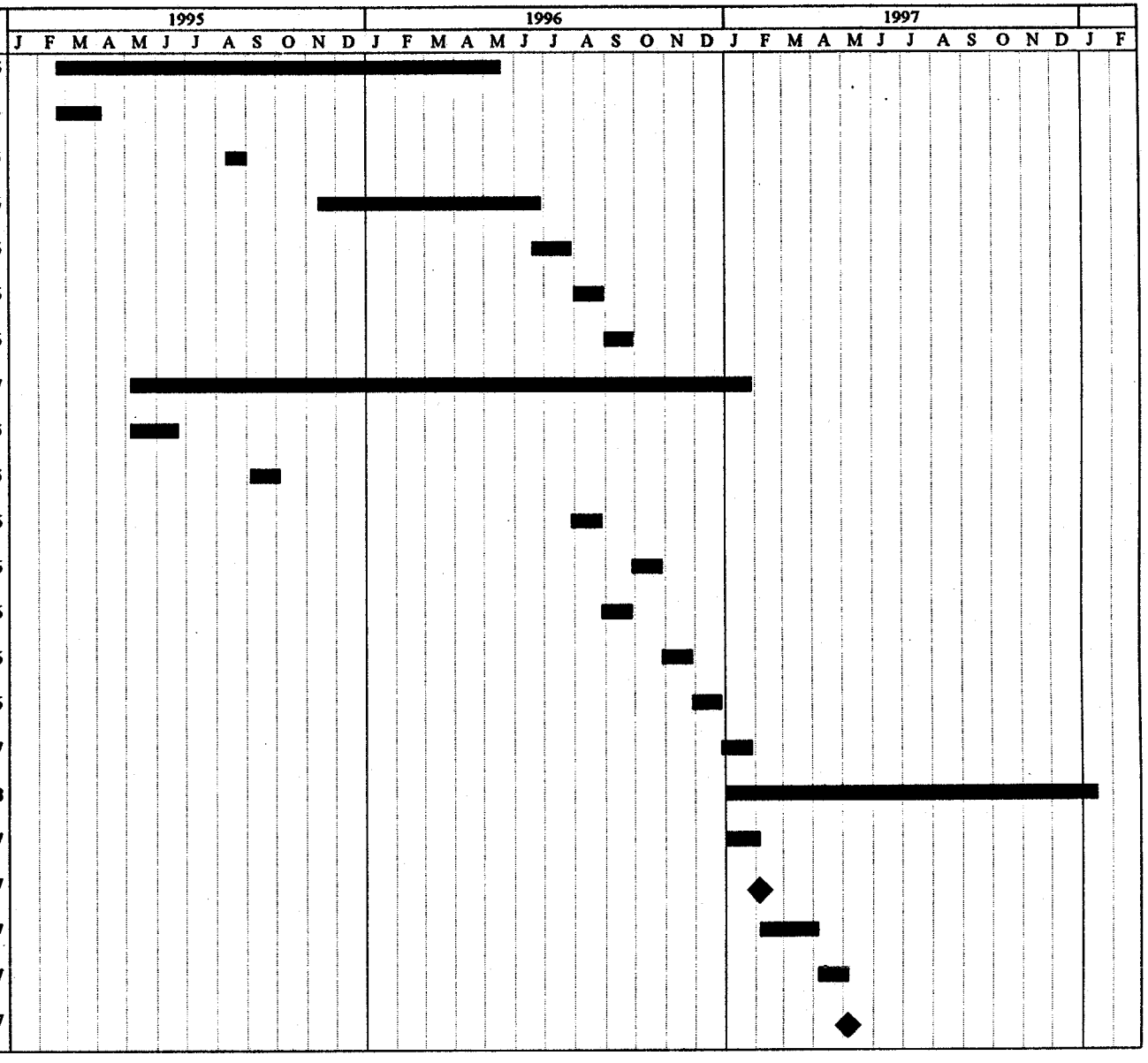

Table 4 - 13
Remedial Design/Remedial Action Site Management Schedule
Operable Unit No. 14 (Site 69), MCB Camp Lejeune, North Carolina

Task	Days	Start	Finish
Prepare 60% Design/Draft Design Report/Draft RA	60ed	5/6/97	7/5/97
Submit 60% Design/Draft Design Report/Draft RA	0ed	7/5/97	7/5/97
Agency Review	60ed	7/5/97	9/3/97
Prepare 100% Design/Draft Design Report/Draft RA	21ed	9/3/97	9/24/97
Submit 100% Design/Draft Design Report/Draft RA	0ed	9/24/97	9/24/97
Agency Review	30ed	9/24/97	10/24/97
Prepare Revised Final Design/Final Design Report/Final RA Work	14ed	10/24/97	11/7/97
Submit Revised Final Design/Final Design Report/Final RA Work	0ed	11/7/97	11/7/97
Procure Remediation Contractor	70ed	11/7/97	1/16/98
Begin Construction (Mobilization)	0ed	1/16/98	1/16/98

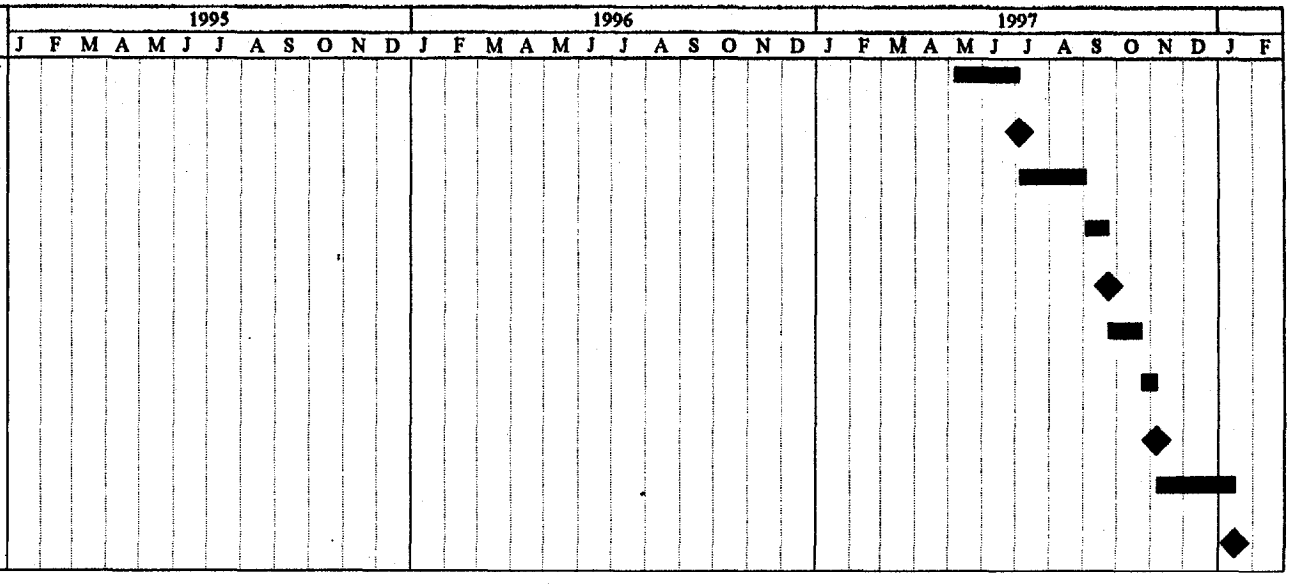

Table 4 - 14
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit 15 (Site 88), MCB Camp Lejeune, North Carolina

Task	Duration	Start	Finish
Notice to Proceed	0ed	5/15/96	5/15/96
RI/FS Project Plans	271ed	5/15/96	2/10/97
Site Visit	0ed	5/18/96	5/18/96
Prepare Draft Sample Stragtegy Plan	21ed	5/18/96	6/8/96
LANTDIV Scoping Meeting	0ed	6/25/96	6/25/96
Prepare Final Strategy Plan	14ed	6/26/96	7/10/96
EPA Scoping Meeting	0ed	7/15/96	7/15/96
Prepare Draft RI/FS Project Plans	58ed	7/16/96	9/12/96
Submit Draft RI/FS Project Plans	0ed	9/12/96	9/12/96
Agency Review	60ed	9/12/96	11/11/96
Prepare Draft Final RI/FS Project Plans	30ed	11/11/96	12/11/96
Submit Draft Final RI/FS Project Plans	0ed	12/11/96	12/11/96
Agency Review	30ed	12/11/96	1/10/97
Prepare Final RI/FS Project Plans	30ed	1/10/97	2/9/97
Submit Final RI/FS Project Plans	0ed	2/10/97	2/10/97

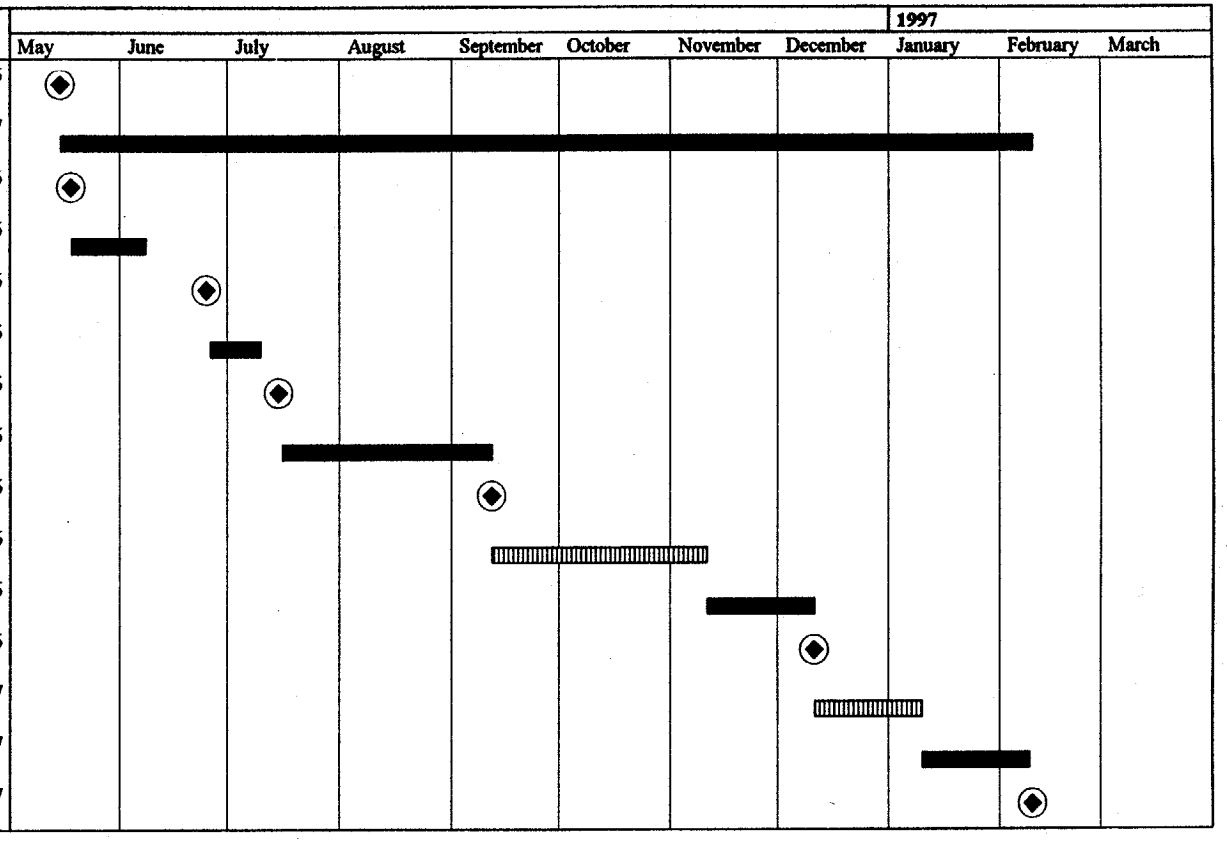

Table 4 - 15
Remedial Investigation/Feasibility Study Site Management Schedule
Operable Unit 16, (Sites 89, 90, 91, 92, and 93), MCB Camp Lejeune, North Carolina

Task	Duration	Start	Finish
RI/FS Project Plans	299ed	9/1/95	6/26/96
Site Visit	2ed	9/6/95	9/8/95
Prepare Draft Sample Stragtegy Plan	35ed	9/11/95	10/16/95
LANTDIV Scoping Meeting	0ed	10/18/95	10/18/95
Prepare Final Strategy Plan	13ed	10/18/95	10/31/95
EPA Scoping Meeting	0ed	11/15/95	11/15/95
Prepare Draft RI/FS Project Plans	58ed	10/31/95	12/28/95
Submit Draft RI/FS Project Plans	0ed	12/28/95	12/28/95
Agency Review	60ed	12/28/95	2/26/96
Prepare Draft Final RI/FS Project Plans	21ed	2/28/96	3/20/96
Submit Draft Final RI/FS Project Plans	0ed	3/20/96	3/20/96
Agency Review	30ed	3/20/96	4/19/96
Prepare Final RI/FS Project Plans	21ed	4/19/96	5/10/96
Submit Final RI/FS Project Plans	0ed	5/10/96	5/10/96

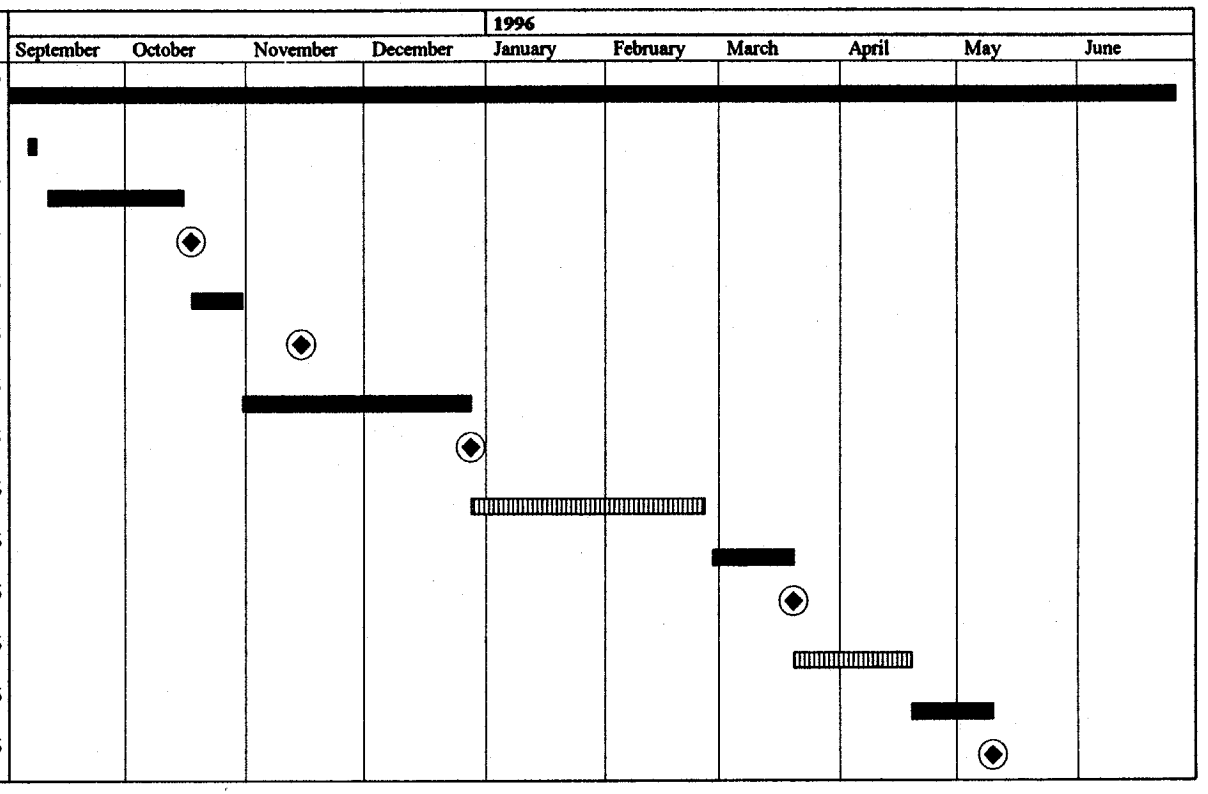

TABLE 4-16

PRIMARY AND SECONDARY DOCUMENT SUBMITTALS PER OPERABLE UNIT
FOR FISCAL YEAR 1996
MCB CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site	Activity	Primary Document Submittals	Anticipated Submittal Date
1	21, 24, and 78	Remedial Action	Soil Remediation Report Quarterly Monitoring Report Quarterly Monitoring Report Quarterly Monitoring Report Quarterly Monitoring Report	January 15, 1996 December 8 1995 March 8, 1996 June 7, 1996 September 6, 1996
2	6, 9, and 82	Remedial Action	Final Construction Closeout Report Quarterly Monitoring Report Quarterly Monitoring Report	May 31, 1996 June 13, 1996 September 12, 1996
4	41 and 74	Remedial Action	Draft Monitoring Project Plans Final Monitoring Project Plans	December 1, 1995 February 29, 1996
5	2	Remedial Action	Quarterly Monitoring Report Quarterly Monitoring Report Quarterly Monitoring Report Quarterly Monitoring Report	November 21, 1995 February 20, 1996 May 21, 1996 August 20, 1996
6	36, 43, 44, 54, and 86	Remedial Investigation/ Feasibility Study	Draft RI Report Draft Final RI Final RI Draft FS/PRAP Draft Final FS/PRAP Final FS/PRAP Draft ROD Draft Final ROD Final ROD	October 18, 1995 February 1, 1996 March 25, 1996 January 29, 1996 May 21, 1996 July 5, 1996 March 29, 1996 June 20, 1996 September 18, 1996
7	1, 28, and 30	Remedial Investigation/ Feasibility Study Remedial Action	Final ROD Supplemental Remedial Action Report Draft Monitoring Plan Draft Final Monitoring Plan Final Monitoring Plan Quarterly Monitoirng Report	November 8, 1995 November 2, 1995 December 26, 1995 March 25, 1996 May 24, 1996 September 13, 1996

TABLE 4-16 (Continued)

PRIMARY AND SECONDARY DOCUMENT SUBMITTALS PER OPERABLE UNIT
FOR FISCAL YEAR 1996
MCB CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site	Activity	Primary Document Submittals	Anticipated Submittal Date
8	16	Remedial Investigation/ Feasibility Study	Draft Final RI Final RI Report Draft Final PRAP Final PRAP Draft ROD Draft Final ROD Final ROD	October 28, 1995 December 27, 1995 November 25, 1995 January 24, 1996 August 18, 1995 December 16, 1995 March 15, 1996
9	65 and 73	Remedial Investigation/ Feasibility Study	Draft RI Site 65	November 18, 1995
10	35	Remedial Investigation/ Feasibility Study	Draft SGI Report Draft Final SGI Report Draft FS/PRAP	June 18, 1996 August 13, 1996 August 5, 1996
10	35	Remedial Action/ Remedial Design	Draft 90% Interim Design (Shallow GW) Final 100% Interim Design (Shallow GW) Revised Final 100% Interim Design (Shallow GW)	May 22, 1996 July 18, 1996 August 30, 1996
11	7 and 80	Remedial Investigation/ Feasibility Study	Draft RI (Site 80) Draft Final RI (Site 7 and 80) Final RI (Site 7 and 80) Draft FS/PRAP (Sites 7 and 80) Draft Final FS/PRAP (Sites 7 and 80) Final FS/PRAP (Sites 7 and 80) Draft ROD (Sites 7 and 80) Draft Final ROD (Sites 7 and 80) Final ROD (Sites 7 and 80)	October 10, 1995 February 7, 1996 April 7, 1996 November 10, 1995 March 9, 1996 May 8, 1996 December 1, 1995 March 30, 1996 June 28, 1996
12	3	Remedial Investigation/ Feasibility Study	Draft RI Draft Final RI Final RI Draft FS/PRAP Draft Final FS/PRAP Final FS/PRAP Draft ROD	January 17, 1996 May 16, 1996 July 15, 1996 February 17, 1996 June 16, 1996 August 15, 1996 July 19, 1996

TABLE 4-16 (Continued)

PRIMARY AND SECONDARY DOCUMENT SUBMITTALS PER OPERABLE UNIT
FOR FISCAL YEAR 1996
MCB CAMP LEJEUNE, NORTH CAROLINA

Operable Unit	Site	Activity	Primary Document Submittals	Anticipated Submittal Date
13	63	Remedial Investigation/ Feasibility Study	Draft RI Draft Final RI Final RI Draft FS/PRAP Draft Final FS/PRAP Draft ROD Draft Final ROD	April 17, 1996 July 17, 1996 September 15, 1996 May 17, 1996 August 14, 1996 June 16, 1996 September 14, 1996
14	69	Remedial Investigation/ Feasibility Study	Final RI Draft Treatability Study Report Draft Final FS Draft PRAP/ROD Final Treatability Study Report	October 4, 1995 July 28, 1996 August 28, 1996 September 12, 1996 September 29, 1996
15	88	Remedial Investigation/ Feasibility Study	Sample Strategy Plan Draft Project Plan	July 10, 1996 September 12, 1996
16	89, 90, 91, 92, and 93	Remedial Investigation Feasibility Study	Sample Strategy Plan Draft Project Plan Draft Final Project Plan Final Project Plan	October 31, 1995 December 28, 1995 March 20, 1996 May 10, 1996

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.

TABLE 4-17

PRIMARY AND SECONDARY DOCUMENT SUBMITTALS BY MONTH AND OPERABLE UNIT FOR FISCAL YEAR 1996 MCB, CAMP LEJEUNE, NORTH CAROLINA

Anticipated Submittal Date	Operable Unit	Sites	Primary Document Submittal
October 4, 1995	14	69	Final RI Report
October 10, 1995	11	80	Draft RI Report
October 18, 1995	6	36, 43, 44, 54, and 86	Draft RI Report
October 28, 1995	8	16	Draft Final RI Report
October 31, 1995	16	89, 90, 91, 92, and 93	Sample Strategy Plan
November 2, 1995	7	1, 28, 30	Supplemental Remedial Action Report
November 8, 1995	7	1, 28, 30	Final ROD
November 10, 1995	11	7 and 80	Draft FS/PRAP
November 18, 1995	9	65 and 73	Draft RI (Site 65)
November 21, 1995	5	2	Quarterly Monitoring Report
November 25, 1995	8	16	Draft Final PRAP
December 1, 1995	11	7 and 80	Draft ROD
December 1, 1995	4	41 and 74	Draft Monitoring Project Plan
December 8, 1995	1	21, 24, and 78	Quarterly Monitoring Report
December 28, 1995	16	89, 90, 91, 92, and 93	Draft Project Plan
January 15, 1996	1	21, 24, and 78	Soil Remediation Report
January 17, 1996	12	3	Draft RI
January 24, 1996	8	16	Final PRAP
January 24, 1996	6	36, 43, 44, 54, and 86	Draft FS/PRAP
February 1, 1996	6	36, 43, 44, 54, and 86	Draft Final RI
February 7, 1996	11	7 and 80	Draft Final RI
February 17, 1996	12	3	Draft FS/PRAP
February 20, 1996	5	2	Quarterly Monitoring Report
February 29, 1996	4	41 and 74	Final Monitoring Project Plan

TABLE 4-17 (Continued)

PRIMARY AND SECONDARY DOCUMENT SUBMITTALS BY MONTH AND OPERABLE UNIT
FOR FISCAL YEAR 1996
MCB, CAMP LEJEUNE, NORTH CAROLINA

Anticipated Submittal Date	Operable Unit	Sites	Primary Document Submittal
March 8, 1996	1	21, 24, and 76	Quarterly Monitoring Report
March 9, 1996	11	7 and 80	Draft Final FS/PRAP
March 15, 1996	8	16	Final ROD
March 20, 1996	16	89, 90, 91, 92, and 93	Draft Final Project Plan
March 25, 1996	7	1, 28, and 30	Draft Final Monitoring Plan
March 25, 1996	6	36, 43, 44, 54, and 86	Final RI
March 29, 1996	6	36, 43, 44, 54, and 86	Draft ROD
March 30, 1996	11	7 and 80	Draft Final ROD
April 7, 1996	11	7 and 80	Final RI
April 17, 1996	13	63	Draft RI
May 16, 1996	12	3	Draft Final RI
May 21, 1996	5	2	Final FS/PRAP
May 21, 1996	6	36, 43, 44, 54, and 86	Final FS/PRAP
May 22, 1996	10	35	Final Project Plan
May 24, 1996	7	1, 28, and 30	Draft FS/PRAP
May 31, 1996	2	6, 9, and 82	Final Construction Closeout Report
June 7, 1996	1	21, 24, and 78	Quarterly Monitoring Report
June 13, 1996	2	6, 9, and 82	Quarterly Monitoring Report
June 16, 1996	13	63	Draft ROD
June 16, 1996	12	3	Draft Final FS/PRAP
June 18, 1996	10	35	Draft SGI Report
June 20, 1996	6	36, 43, 44, 54, and 86	Draft Final ROD
June 28, 1996	11	7 and 80	Final ROD
July 5, 1996	6	36, 43, 44, and 86	Final FS/PRAP
July 10, 1996	15	88	Sample Strategy Plan
July 15, 1996	12	3	Final RI
July 17, 1996	13	63	Draft Final RI
July 18, 1996	10	35	Final 100% Interim Design (Shallow GW)
July 19, 1996	12	3	Draft ROD
July 28, 1996	14	69	Draft Treatability Study

TABLE 4-17 (Continued)

PRIMARY AND SECONDARY DOCUMENT SUBMITTALS BY MONTH AND OPERABLE UNIT
FOR FISCAL YEAR 1996
MCB, CAMP LEJEUNE, NORTH CAROLINA

Anticipated Submittal Date	Operable Unit	Sites	Primary Document Submittal
August 5, 1996	10	35	Draft FS/PRAP
August 13, 1996	10	35	Draft Final SGI Report
August 14, 1996	13	63	Draft Final FS/PRAP
August 15, 1996	12	3	Final FS/PRAP
August 18, 1996	80	16	Draft ROD
August 20, 1996	5	2	Quarterly Monitoring Report
August 28, 1996	14	69	Draft Final FS
August 30, 1996	10	35	Revised Final 100% Interim Design
September 6, 1996	1	21, 24, and 78	Quarterly Monitoring Report
September 12, 1996	15	88	Draft Project Plan
September 12, 1996	2	6, 9, and 82	Quarterly Monitoring Report
September 13, 1996	7	1, 28, and 30	Quarterly Monitoring Report
September 14, 1996	13	63	Draft Final ROD
September 15, 1996	13	63	Final RI
September 18, 1996	6	36, 43, 44, 54, and 86	Final ROD
September 28, 1996	14	69	Draft PRAP/ROD
September 29, 1996	14	69	Final Treatability Study

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.

5.0 PRE-REMEDIAL INVESTIGATIONS

5.1 Introduction

This section identifies Fiscal Years 1996 through 2000 IRP activities for sites scheduled for Pre-Remedial Investigations (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 Federal Facilities Agreement 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 (e.g., Sites 3, 7, 43, 44, 54, 63, 65, 80, and 82 were added to this SMP as RI/FS sites in Fiscal Year 1994).

5.2 Sites

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

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

5.2.1 Site 10 - Original Base Dump

Site 10 covers approximately 5 to 10 acres. It was operated prior to 1950 and was mainly used for disposal of construction debris and as a 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 obtained skin rashes by contacting a heavy oily material which may have been at the site.

5.2.2 Site 12 - Explosive Ordnance Disposal (G-4A)

Site 12 covers approximately 8 to 10 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.

5.2.3 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 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.

TABLE 5-1

REPORTED DISPOSAL SITES REQUIRING PRE-REMEDIAL INVESTIGATIONS
MCB CAMP LEJEUNE, NORTH CAROLINA

Site No.	Site Description	Dates Used	Material Deposited
10	Original Base Dump	Pre-1950	Construction debris
12	Exposure Ordnance Disposal (EOD) (G-4)	Early 1960s	Ordnance burned or exploded, colored smokes, white phosphorus
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)
84	Building 45 Area	1940s - Unknown	Capacitors, transformers, and construction debris
85	Camp Johnson Battery Dump	1950s	Batteries, charcoal canisters
87	MCAS Officer's Housing Area	Unknown	Potential hospital wastes

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.

5.2.4 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 seventy-five to one hundred 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.

5.2.5 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.

5.2.6 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.

5.2.7 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.

5.2.8 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 Fiscal Year 1992 and Fiscal Year 1993, Pre-Remedial Investigations were initiated by preparing 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. The Final Reports were submitted in Fiscal Year 1994 for Sites 43, 44, 63, and 65. The other Reports were never finalized due to funding. It should be noted that finalization of these reports is not problematic since all Pre-RI sites are being investigated as part of an RI/FS. Based on the results, all nine sites were added to the list of RI/FS sites due to either soil or groundwater contamination.

Pre-Remedial Investigations at Sites 12, 68, 75, 76, 84, 85, and 87 began in Fiscal Year 1994 with the preparation of Project Plans. In Fiscal Year 1996, the field investigations will be initiated. During Fiscal Year 1996, Project Plans will also be initiated for Site 10.

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

Tables 5-2 and 5-3 depict the tentative schedule for Pre-Remedial Investigations. Based on the results of the Pre-RIs, future RI/FS activities may be implemented. A summary of Fiscal Year 1996 deliverables is given in Table 5-4.

Table 5 - 2
Pre-Remedial Investigations Site Management Schedule
Sites 12, 68, 75, 76, 84, 85, and 87 MCB, Camp Lejeune, North Carolina

Task	Days	Start	Finish
Notice to Proceed	0ed	12/1/95	12/1/95
Mobilization	33ed	12/1/95	1/3/96
Field Investigation	48ed	1/3/96	2/20/96
Data Analysis/Validation	100ed	2/20/96	5/30/96
Data Evaluation	21ed	5/30/96	6/20/96
Prepare Draft Reports	30ed	6/20/96	7/20/96
Submit Draft Reports	0ed	7/20/96	7/20/96
Agency Review	60ed	7/20/96	9/18/96
Prepare Draft Final Reports	60ed	9/18/96	11/17/96
Submit Draft Final Reports	0ed	11/17/96	11/17/96
Agency Review	30ed	11/17/96	12/17/96
Prepare Final Reports	30ed	12/17/96	1/16/97
Submit Final Reports	0ed	1/16/97	1/16/97
RI/FS Project Plans	150ed	4/1/97	8/29/97
Prepare Draft Project Plans	60ed	4/1/97	5/31/97
Submit Draft Project Plans	0ed	5/31/97	5/31/97
Agency Review	30ed	5/31/97	6/30/97
Prepare Draft Final Project Plans	30ed	6/30/97	7/30/97
Submit Draft Final Project Plans	0ed	7/30/97	7/30/97
Agency Review	30ed	7/30/97	8/29/97
Prepare Final Project Plans	30ed	8/29/97	9/28/97
Submit Final Project Plans	0ed	8/29/97	8/29/97

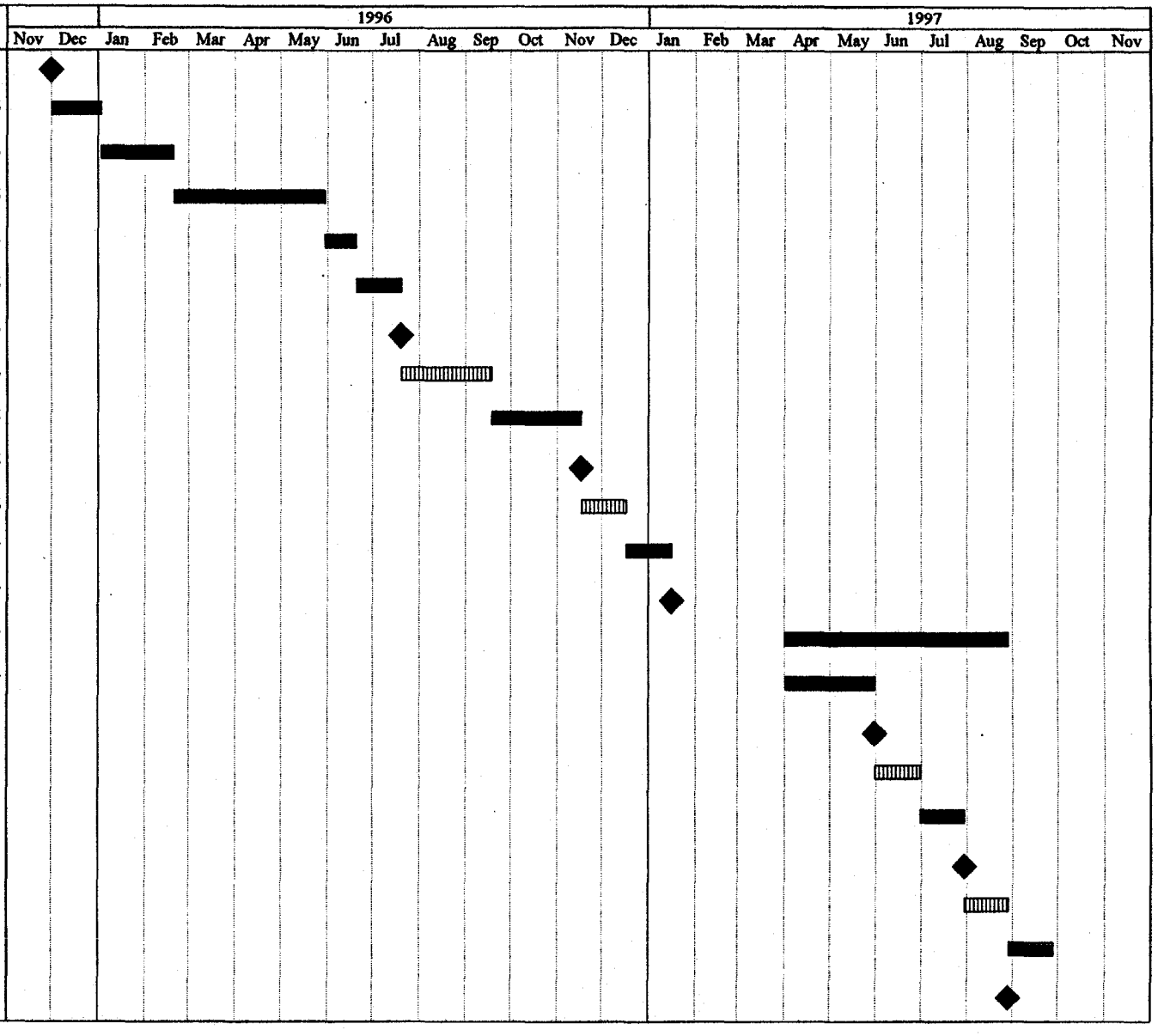

Table 5 - 3
Pre-Remedial Investigations Site Management Schedule
Sites 10, MCB, Camp Lejeune, North Carolina

Task	Days	Start	Finish
SI Project Plans	215ed	5/1/96	12/2/96
Prepare Preliminary Draft Project Plans	62ed	5/1/96	7/2/96
Submit Preliminary Draft Project Plans	0ed	7/2/96	7/2/96
LANTDIV Review	28ed	7/2/96	7/30/96
Prepare Draft Project Plans	30ed	7/30/96	8/29/96
Submit Draft Project Plans	0ed	8/29/96	8/29/96
Agency Review	60ed	8/29/96	10/28/96
Prepare Draft Final Project Plans	60ed	10/28/96	12/27/96
Submit Draft Final Project Plans	0ed	12/27/96	12/27/96
Agency Review	30ed	12/27/96	1/26/97
Prepare Final Project Plans	30ed	1/26/97	2/25/97
Submit Final Project Plans	0ed	2/25/97	2/25/97

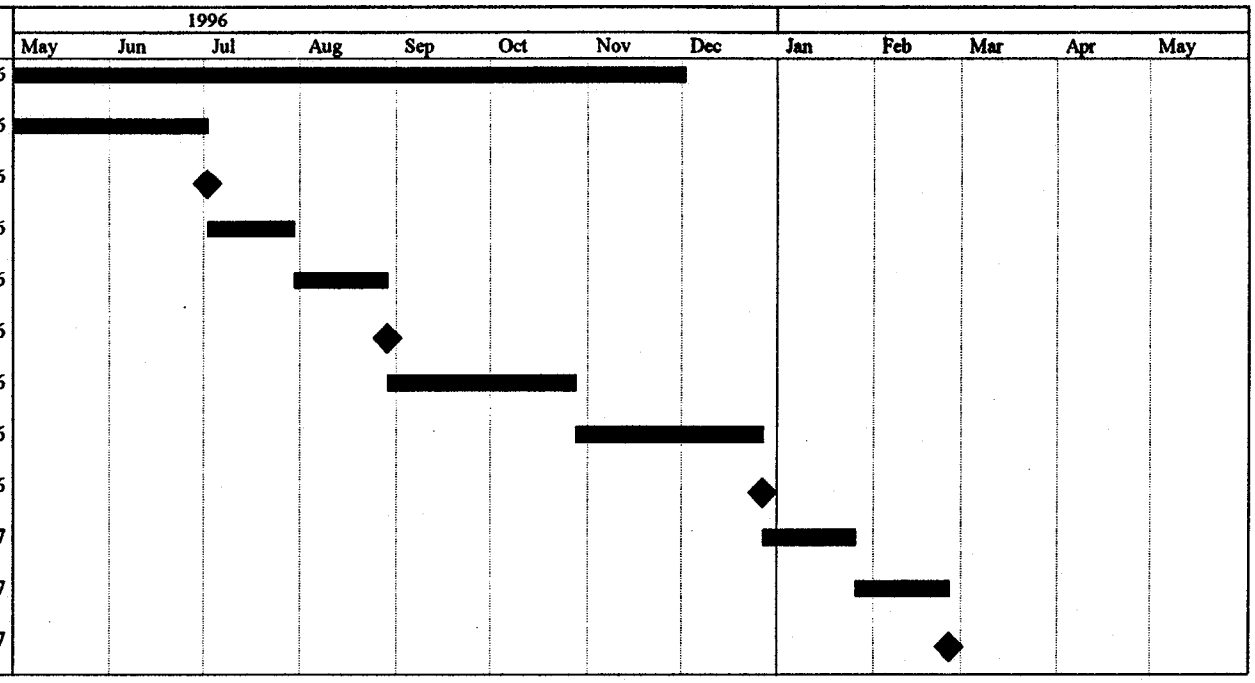

TABLE 5-4

SUMMARY OF FISCAL YEAR 1996 SUBMITTALS FOR PRE-REMEDIAL INVESTIGATION IRP SITES MCB, CAMP LEJEUNE, NORTH CAROLINA

Sites	Submittal Documents	Anticipated Submittal Date
12, 68, 75, 84, 85, and 87	Draft Pre-RI Reports	July 20, 1996
10	Draft Project Plans	August 29, 1996

6.0 REMOVAL/INTERIM REMEDIAL ACTIONS

Removal actions are taken to prevent immediate and substantial harm to human health. Examples are fencing, removal of aboveground 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.

To date, a time-critical removal action (TCRA) was conducted at Site 2 to remove approximately 1,500 cubic yards of soil contaminated with pesticides. The contaminated soils were adjacent to the former pesticide mixing area. The mixing area is located behind an administrative building along Holcomb Boulevard. Another TCRA was initiated at Site 6 during Fiscal Year 1994 to remove surface drums and buried drums at two areas of concern.

An Interim Remedial Action (IRA) design for the remediation of the shallow aquifer at Site 78 (Hadnot Point Industrial Area) was completed in Fiscal Year 1993 (August 1993). Construction of the remediation system, which will pump and treat groundwater on site, then discharge the effluent to the Hadnot Point Industrial Area Sewage Treatment Plant (STP), was completed in December 1994.

An IRA design for the remediation of contaminated soil at Site 35 was initiated in July 1994. The design was completed in December 1994, and the construction phase was initiated in May 1995. Construction activities, which will involve excavation and treatment of TPH-contaminated soil, are scheduled to be completed in July 1995.

Access restriction measures were installed at Site 82 during Fiscal Year 1994. Access restrictions were completed for Sites 41, 43, and 44 during Fiscal Year 1995.

A debris removal action for Operable Unit No. 6 (Site 43) was performed June 1995.

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

7.0 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.