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FINAL

PROPOSED REMEDIAL ACTION PLAN FOR OPERABLE UNIT NO. 3 (SITE 48)

MARINE CORPS AIR STATION, NEW RIVER, JACKSONVILLE, NORTH CAROLINA

CONTRACT TASK ORDER 0133

Prepared For:

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

Under the:

LANTDIV CLEAN Program
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Prepared By:

BAKER ENVIRONMENTAL, INC.
Coraopolis, Pennsylvania

JUNE 18, 1993

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LIST OF ACRONYMS AND ABBREVIATIONS

Baker	Baker Environmental, Inc.
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CRDL	Contract Required Detection Limit
DoN	Department of the Navy
EPIC	Environmental Photographic Interpretation Center
ESE	Environmental Science and Engineering, Inc.
IAS	Initial Assessment Study
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
µg/kg	microgram per kilogram
µg/L	microgram per liter
mg/kg	milligram per kilogram
NBC	Nuclear, Biological, and Chemical
N.C. DEHNR	North Carolina Department of Environment, Health, and Natural Resources
NPL	National Priorities List
PAH	polynuclear aromatic hydrocarbons
PRAP	Proposed Remedial Action Plan
RA	Risk Assessment
RI	Remedial Investigation
ROD	Record of Decision
TCE	Trichloroethene
USEPA	United States Environmental Protection Agency
WAR	Water and Air Research

PROPOSED REMEDIAL ACTION PLAN

Introduction

This Proposed Remedial Action Plan (PRAP) is issued to describe the Marine Corps Base (MCB) Camp Lejeune and the Department of the Navy's (DoN's) preferred remedial action for Operable Unit No. 3 at Marine Corps Air Station (MCAS), New River. Operable Unit No. 3 consists of one site, Site 48, the MCAS Mercury Dump.

The MCB Camp Lejeune/DoN are issuing this PRAP as part of its public participation responsibility under Section 117(a) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the Federal Facilities Agreement between the DoN, United States Environmental Protection Agency (USEPA) Region IV, and the North Carolina Department of Environment, Health, and Natural Resources (NC DEHNR).

The MCB Camp Lejeune/DoN, with the assistance of USEPA Region IV and the NC DEHNR, will select a remedy for Site 48 only after the public comment period has ended and the information submitted during this time has been reviewed and considered. The Final Record of Decision (ROD) may recommend a different remedial action than is presented in this plan depending upon new information or public comments.

This PRAP briefly summarizes information that can be found in greater detail in the Remedial Investigation (RI) Report prepared for Site 48 and other documents referenced in the RI Report. The DoN encourages the public to review these other documents in order to gain a more comprehensive understanding of the site. The administrative record file, which contains the information upon which the selection of the remedial action will be based, is available for public review at the MCB Camp Lejeune Central Library (Building 1220) and at the Onslow County Library in Jacksonville, North Carolina. The public is invited to review and comment on the administrative record.

Site Description and Background

The study area, Operable Unit No. 3 (Site 48) is one of a total of 12 operable units located within MCB Camp Lejeune and MCAS New River. Figure 1 shows the location of the site. In general, Site 48 is bordered by Longstaff Road to the west, an intermittent tributary of the New River to the north, the New River to the east, and Building AS-811 to the south (see Figure 2). The study area covers approximately 4 acres. The site is actually located within the MCAS.

Buildings AS-804, AS-805, and AS-807 are located within the Site 48 study area boundary. Building AS-804 was constructed in 1955 and was used as the Administration Office and Photographic Laboratory from 1955 to 1990. The building was vacant for a few months in 1990, but is currently being used as the Nuclear, Biological, and Chemical (NBC) instruction classroom. The use of the other two buildings on the site are not known.

During the ten year period between 1956 and 1966, mercury was reportedly drained from delay lines of radar units and periodically disposed at Site 48. Approximately one gallon of mercury per year was reportedly hand-carried and dumped or buried in small quantities at random areas around Building AS-804. The general disposal area was thought to be a 100- to 200-foot wide corridor extending from the rear of Building AS-804 to the bank of the New River. Review of aerial photographs recently received from the USEPA Environmental Photographic Interpretation Center (EPIC) appear to indicate that the disposal activities may have occurred at other areas within the site (north and west of Building AS-804). The aerial photographs date back to 1956.

Previous Investigations

In 1983, an Initial Assessment Study (IAS) was conducted at MCB Camp Lejeune and MCAS New River by Water and Air Research (WAR), a consulting firm. The study identified a number of areas within MCB Camp Lejeune and MCAS New River, including Site 48, as potential sources of contamination.

In 1984, Environmental Science and Engineering, Inc. (ESE) conducted a Confirmation Study at Site 48 which focused on the potential source areas identified in the IAS. The Confirmation Study consisted of collecting a limited number of soil samples and sediment samples which

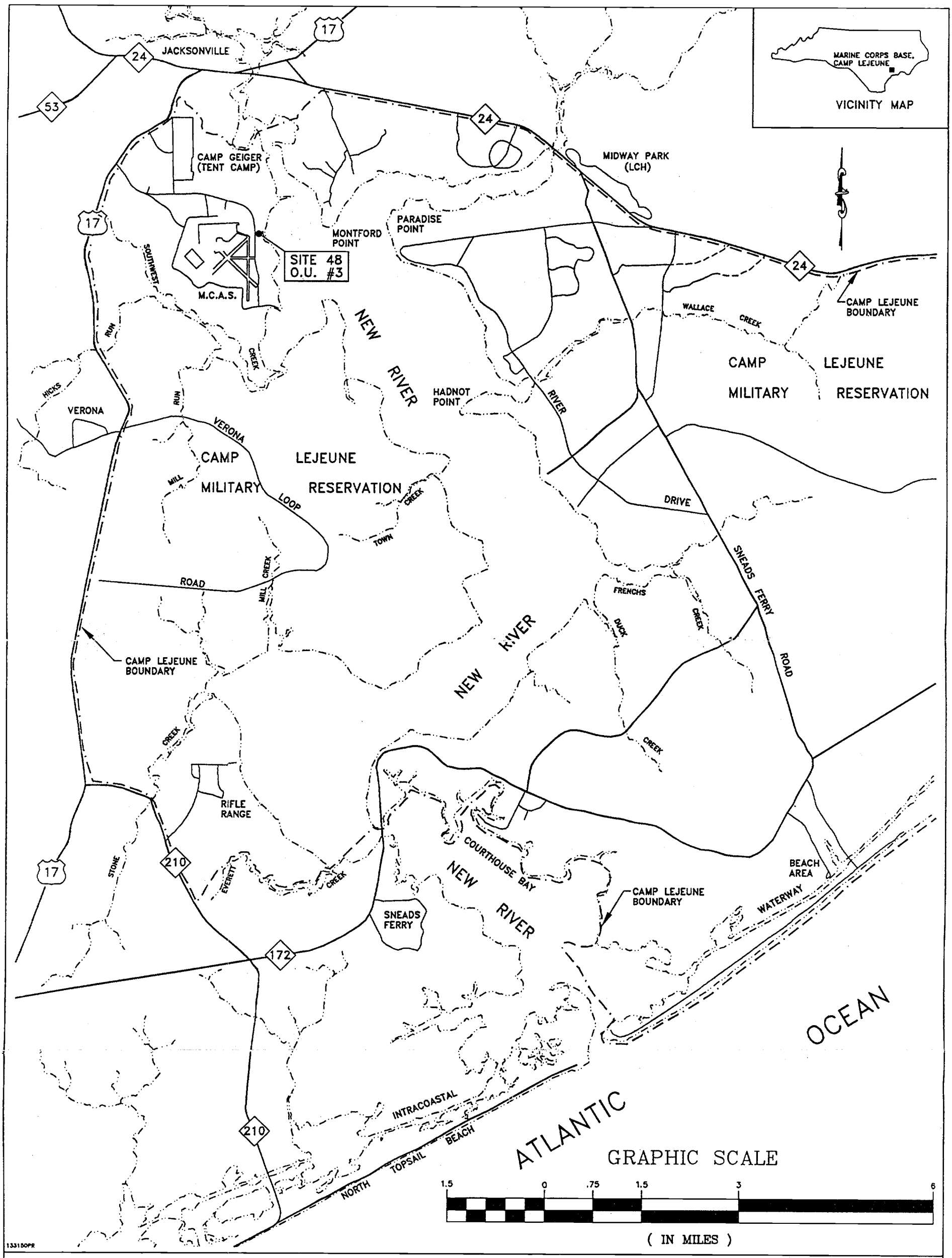

FIGURE 1
LOCATION MAP
OPERABLE UNIT No. 3, SITE 48
PROPOSED REMEDIAL ACTION PLAN
MARINE CORPS AIR STATION, NEW RIVER
JACKSONVILLE, NORTH CAROLINA

SOURCE: U.S.G.S. WATER-RESOURCES INVESTIGATIONS REPORT 89-4096

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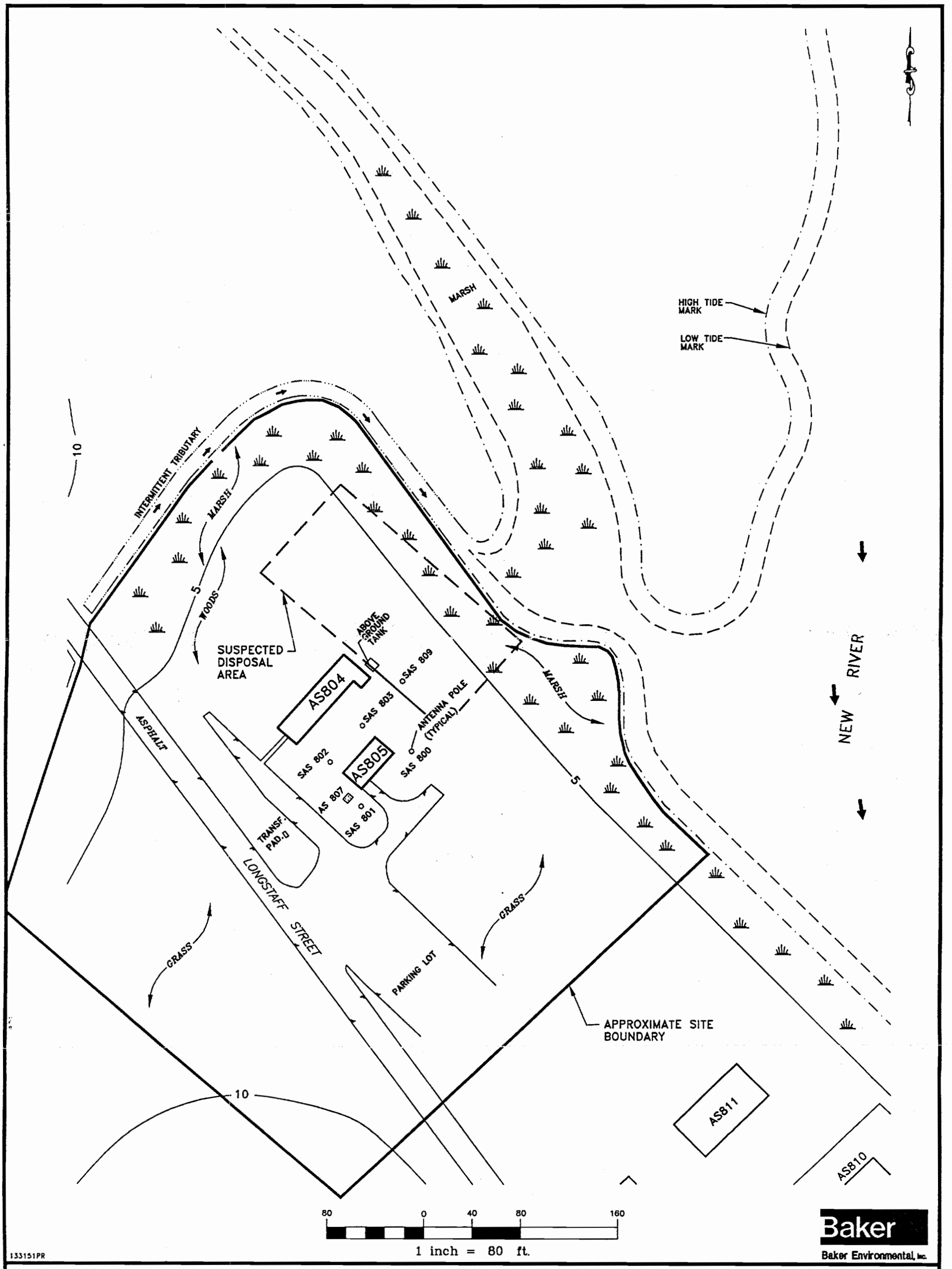


FIGURE 2
SITE PLAN
OPERABLE UNIT No. 3, SITE 48
PROPOSED REMEDIAL ACTION PLAN

MARINE CORPS AIR STATION, NEW RIVER
JACKSONVILLE, NORTH CAROLINA

SOURCE: LANTDIV, FEB. 1992

were analyzed for mercury. The results of this sampling indicated that low levels of mercury were detected in both media.

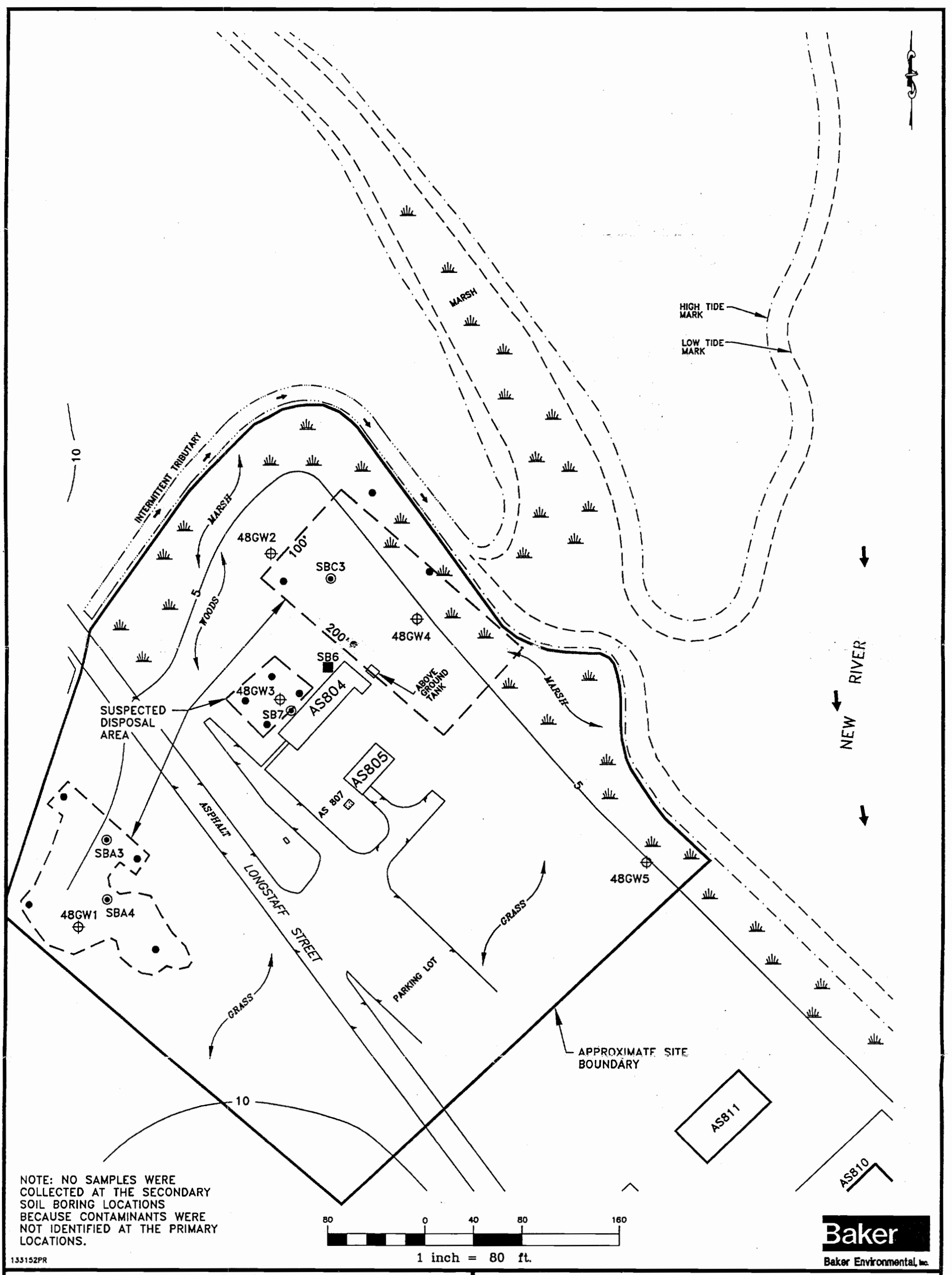
On October 4, 1989, Camp Lejeune was placed on the National Priorities List (NPL). The DoN, the USEPA, and the NC DEHNR entered into a Federal Facilities Agreement on February 13, 1991.

A Supplemental Characterization Investigation was conducted at Site 48 in January 1991 by ESE. This investigation consisted of surface water and sediment sampling and analysis. Mercury, the primary contaminant of concern, was not detected in any sample collected during this investigation.

In 1991, ESE prepared a Site Assessment Report for the site. The assessment was based on the results of the IAS, the Confirmation Study, and the Supplemental Characterization Investigation. No additional sampling was conducted. A preliminary risk evaluation for the site was also included in the site assessment. The risk evaluation did not indicate that mercury was a contaminant of concern at the site. The risk evaluation results indicated that the only potential contaminants of concern appeared to be cadmium, copper, nickel, and silver in surface water. The risk evaluation indicated that the detected concentrations of these four metals of concern may be representative of background levels for the area.

Baker Environmental, Inc. (Baker) conducted an RI for Site 48 during 1992 and 1993 in accordance with the requirements of the Federal Facilities Agreement. The field program at Site 48 was initiated to characterize potential environmental impacts and threats to human health resulting from previous mercury disposal activities. Soil, groundwater, surface water, and sediment samples were collected during the RI. Figure 3 identifies the soil boring and groundwater sampling locations. Figure 4 identifies the surface water and sediment sampling locations. A summary of contaminants detected per media and their detected concentration range are presented on Table 1.

As shown on Table 1, the primary suspected contaminant of concern, mercury, was not detected in any media sampled. The parameters detected in the surface soil samples included pesticides and inorganics. These parameters do not appear to be site related. In addition, the detected concentrations do not pose a threat to human health or the environment. The detected parameters in the subsurface soil samples were inorganics. The contaminant levels of the inorganics detected in both the surface and subsurface soil samples were generally



LEGEND

- 48GW1 ⊕ SHALLOW GROUNDWATER MONITORING WELL
- SBC3 ◉ SOIL BORING (PRIMARY LOCATION)
- SB6 ■ SHELBY-TUBE/GRAIN SIZE SAMPLE BORING
- ● SOIL BORING (SECONDARY LOCATION)

SOURCE: LANTDIV, FEB. 1992

FIGURE 3
SOIL BORING AND MONITORING WELL SAMPLING LOCATION MAP
PROPOSED REMEDIAL ACTION PLAN

MARINE CORPS AIR STATION, NEW RIVER
JACKSONVILLE, NORTH CAROLINA

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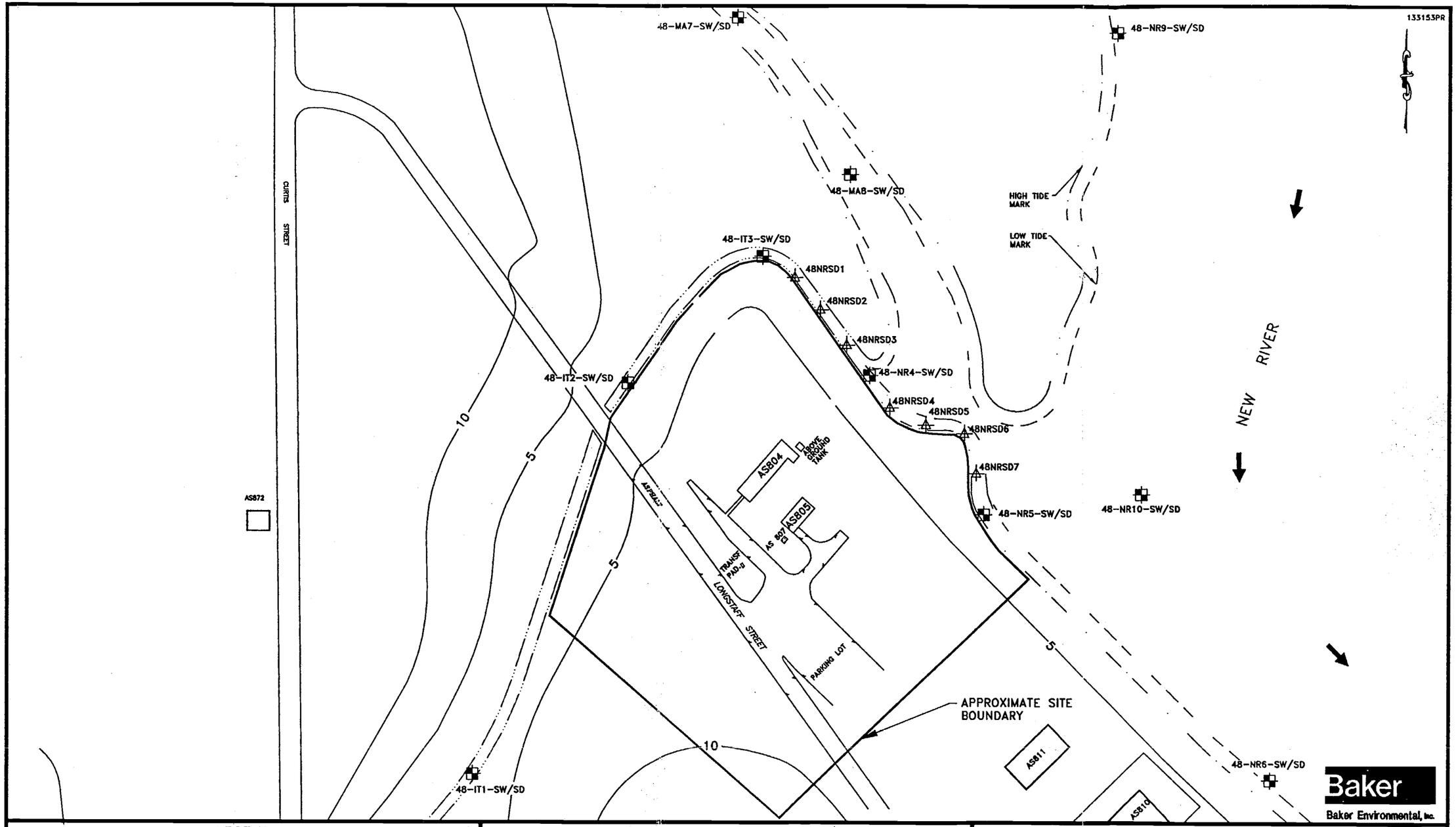

LEGEND

SEDIMENT SAMPLING STATION

SURFACE WATER/SEDIMENT SAMPLING LOCATION

SOURCE: LANTDIV, FEB. 1992

120 0 60 120 240

1 inch = 120 ft.

FIGURE 4
SURFACE WATER AND SEDIMENT SAMPLING LOCATIONS
PROPOSED REMEDIAL ACTION PLAN

MARINE CORPS AIR STATION, NEW RIVER
JACKSONVILLE, NORTH CAROLINA

TABLE 1

SUMMARY OF DETECTED PARAMETERS PER MEDIA
SITE 48
PROPOSED REMEDIAL ACTION PLAN, CTO-0133
MARINE CORPS AIR STATION, NEW RIVER, JACKSONVILLE, NORTH CAROLINA

Detected Parameter	DETECTED CONCENTRATION RANGE				
	Surface Soils	Subsurface Soils	Groundwater	Surface Water	Sediments
Organics:	(µg/kg)	(µg/kg)	(µg/L)	(µg/L)	(µg/kg)
4,4'-DDE	12	ND	ND	ND	4.7J - 149
4,4'-DDD	3.6	ND	ND	ND	17J - 32
4,4'-DDT	7.4J	ND	ND	ND	8.3J
Acetone	6J - 9J	10J - 220J	ND	ND	ND
Methylene Chloride	ND	ND	12J	ND	ND
Trichloroethene	ND	ND	1.0	ND	ND
Phenol	ND	ND	1J - 3J	ND	ND
Acenaphthene	ND	ND	2J	ND	ND
Bis (2-ethylhexyl) Phthalate	ND	ND	1J - 2J	ND	ND
Toluene	ND	ND	ND	3J	ND
Total Xylenes	ND	ND	ND	2J - 4J	ND
Carbon Disulfide	ND	ND	ND	ND	3J
Phenanthrene	ND	ND	ND	ND	100J
Fluoranthene	ND	ND	ND	ND	57J - 160J
Pyrene	ND	ND	ND	ND	56J - 120J
Benzo (a) Anthracene	ND	ND	ND	ND	72J
Chrysene	ND	ND	ND	ND	62J
Benzo (b) Fluoranthene	ND	ND	ND	ND	73J
Benzo (a) Pyrene	ND	ND	ND	ND	65J - 180J
Indeno (1,2,3-cd) Pyrene	ND	ND	ND	ND	44J
Benzo (g,h,i) Perylene	ND	ND	ND	ND	46J

Notes: ND = Not Detected above the Contract Required Detection Limit (CRDL)
µg/kg = microgram per kilogram
mg/kg = milligram per kilogram
µg/L = microgram per liter
J = value is estimated

TABLE 1 (Continued)

SUMMARY OF DETECTED PARAMETERS PER MEDIA
SITE 48
PROPOSED REMEDIAL ACTION PLAN, CTO-0133
MARINE CORPS AIR STATION, NEW RIVER, JACKSONVILLE, NORTH CAROLINA

Detected Parameter	DETECTED CONCENTRATION RANGE				
	Surface Soils	Subsurface Soils	Groundwater	Surface Water	Sediments
Inorganics:	(mg/kg)	(mg/kg)	(µg/L)	(µg/L)	(mg/kg)
Aluminum	3,560 - 28,000	730 - 24,400	382J - 6830J	365 - 2,070J	502J - 17,200
Arsenic	2.5J - 3.4J	2.4J - 4.6J	ND	ND	4.2 - 19.3
Cadmium	1.1J - 3.6J	1.1J - 4.4J	ND	ND	1.4J - 5.6J
Calcium	1190J - 26,800J	ND	30,600 - 115,000	40,000J - 69,700J	1320 - 7910
Chromium	7.3 - 37.3	3.2 - 32.8	17.5	ND	6.1 - 23.5
Copper	5.6J	31.5	ND	3JB - 4JB	5.9J - 42.5
Iron	2,320 - 24,200	371 - 37,400J	1,900 - 11,900	298 - 3,650	801 - 40,100
Lead	8.7J - 23.7J	2.7 - 32.3	ND	3J	2.2 - 86.2
Magnesium	1,200	ND	ND	55,800 - 173,000J	1030 - 4,330
Manganese	5.4J - 14.9J	5.7J - 15.6J	38.1J - 585	15.5J - 48J	4J - 69.4
Mercury*	ND	ND	ND	ND	ND
Potassium	1,240	ND	ND	19,300 - 66,000	ND
Sodium	ND	64.3J - 75.6J	5,750 - 8,760	485,000	1740J - 7,390
Vanadium	18.8J - 53.9J	15.4J - 44.3J	ND	ND	15.4 - 104
Zinc	9.8 - 24.8	5.6 - 7.7	30.3	ND	13.4 - 73.2

Notes: ND = Not Detected above the Contract Required Detection Limit (CRDL)
µg/kg = microgram per kilogram
mg/kg = milligram per kilogram
µg/L = microgram per liter
J = value is estimated

* Listed since it is the primary contaminant of concern at Site 48.

similar. The contaminant levels detected in the soil samples were either similar to background levels or else were detected infrequently at low levels. In addition, these compounds are not a result from previous disposal activities at the site.

In general, the groundwater samples contained low levels of organics including trichloroethene (TCE), phenol, acenaphthalene, and two common laboratory contaminants: methylene chloride and bis-(2-ethylhexyl) phthalate. In addition, groundwater samples contained inorganics such as aluminum, calcium, chromium, iron, manganese, sodium and zinc. Manganese was the only parameter detected at elevated levels (above State drinking water standards); however, elevated levels of manganese are reportedly present throughout MCB Camp Lejeune and MCAS New River and, therefore, may be naturally occurring in the environment.

With respect to the surface water samples collected at Site 48, two fuel-related compounds (toluene and xylene) were detected at low levels. Since these two constituents were also present in the New River upstream of the site, their presence is not likely related to previous waste disposal activities at Site 48. In addition, inorganics such as aluminum, calcium, iron, lead, magnesium, manganese, potassium, and sodium were detected in the surface water. The detected inorganics were not at elevated levels.

The detected organics found in the sediment samples included pesticides and polynuclear aromatic hydrocarbons (PAHs). Only one surface soil sample exhibited low levels of pesticides. Detected inorganics included: aluminum, arsenic, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, sodium, vanadium, and zinc. Based on the results of the RAs, the detected concentrations of the above-mentioned compounds do not pose a threat to human health or the environment.

The results of the benthic macroinvertebrate study and fish study conducted as part of the RI did not indicate adverse impacts to the ecology of the New River or marsh. The results of these studies were comparable to the White Oak River, which was included in the study as a reference station.

Fish and crab samples collected for chemical analysis did not exhibit mercury. Low levels of pesticides and inorganics were present in fish.

Based on this analytical data, no source areas of contamination have been identified at Site 48. The detected organic compounds were identified in only a few samples per media and at relatively low concentrations. Although various inorganic compounds were detected at the site in all of the media, no specific areas of concern have been noted. As stated previously, the expected contaminant of concern, mercury, was not detected in any sampled media at the site.

Since there were some contaminants detected at Site 48, a baseline risk assessment was conducted as part of the RI to identify media that are receiving or may be receiving site-related contamination. The results of the RA will discussed later in this PRAP.

Scope and Role of Action

The proposed remedial action identified in this plan is the "No Action Alternative". This decision is the only remedial action identified for Site 48; no other future actions are planned for the site. No previous removal or interim actions have been conducted. Operable Unit No. 3 encompasses all of the media at Site 48.

Note that Operable Unit No. 3 is one of 12 operable units at MCB Camp Lejeune. Separate investigations are being conducted for the other 11 operable units. Therefore, this PRAP is only applicable for Operable Unit No. 3 (Site 48).

Summary of Site Risks

During the RI, a baseline human health risk assessment (RA) and a baseline ecological RA were conducted to evaluate the actual or potential risks to human health or the environment resulting from the presence of contaminants identified at Site 48. A summary of the results of the baseline RAs is presented below.

Human Health Risk Assessment

The baseline human health RA evaluated the potential for chemicals to affect human health, both now and in the future, under a no action scenario. The baseline RA identified chemicals of concern and corresponding environmental concentrations at the site with respect to the physical characteristics of the study area. This information was used to estimate the extent of potential exposure to hypothetical receptors. Finally, theoretical chemical intakes were

determined for each receptor and each potential exposure route and combined with the most recent toxicological data to inferentially estimate the potential human health effects.

The components of the baseline RA include identification of chemicals of concern; the exposure assessment; the toxicity assessment; risk characterization; and uncertainty analysis.

Human receptors at Operable Unit No. 3 (Site 48) could be potentially exposed to contaminants of concern in more than one medium and through multiple exposure pathways associated with each medium. Under current and future land use conditions, Site 48 does not pose an unacceptable risk to any potential receptor group by USEPA or NC DEHNR standards. This is primarily because of the types of contaminants on site as well as the low concentration present in each medium. Therefore, the quantitative RA concluded that the existing use and potential future use of the site would not pose a threat to human health or the environment.

Ecological Risk Assessment

The Ecological RA conducted at Site 48 consisted of: evaluating fish and benthic macroinvertebrates for population statistics, and collecting fish and crabs for tissue analysis. The study was conducted in the New River and in the marsh area north of Site 48. The results of the Ecological RA indicated that the ecology in the New River and the marsh area appeared to be healthy. No mercury was detected in any fish or crab samples. Pesticides and several inorganics were detected in the fish samples. Based on the RA, the detected levels of these compounds do not pose a threat to human health or the environment. The results from the Ecological RA indicated that the ecology of the New River and marsh area appears to be healthy and is comparable to other similar waters (i.e., the White Oak River).

Risk Assessment Conclusions

Based on the results of the RI and the human health and ecological RAs, the current and future land uses at Site 48 are protective of human health and the environment. The environmental quality at Site 48 is good. Based on current data, neither soil nor groundwater were impacted from the disposal of mercury at the site.

The ecology of the study area appears to be healthy. Contaminants detected in surface water and sediment do not appear to be related to Site 48.

No further environmental investigations are recommended for this site. The sampling and analysis performed is sufficient to characterize the site and develop conclusions with respect to potential impacts to the public health and the environment.

No remedial response actions are justifiable at Operable Unit No. 3 since the site media pose no current or potential adverse impacts to public health or the environment.

Description of the "No Action" Preferred Alternative

The preferred alternative for Site 48 is the No Action Alternative. This alternative will consist of leaving the site as is. No additional sampling or monitoring will be necessary since the conditions at the site are protective of human health and the environment.

COMMUNITY PARTICIPATION

A critical part of the selection of a remedial action alternative is community involvement. The following information is provided to solicit the community's input into the selection of the remedy for Site 48.

Public Comment Period

The public comment period will begin on June 21, 1993, and end on July 21, 1993, for the Proposed Remedial Action Plan for Site 48. Written comments should be sent to the following address:

Commander
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street (Bldg. N-26)
Norfolk, Virginia 23511-2699
Attn: Ms. Linda Berry, Code 1823

A Public Meeting will be held at the Tarawa Terrace No. 1 Elementary School Gym-natorium, Tarawa Boulevard, at 7:00 p.m. on June 21, 1993. The purpose for this meeting will be to answer questions and accept public comments on the proposed plan or remedy for Site 48. In addition, this meeting will provide an overview of the site characterization.

The meeting will be transcribed, and a copy of the transcript will be made available to the public through the information repository. A responsiveness summary will be prepared at the conclusion of the comment period to summarize significant comments, criticisms, and new relevant information submitted to MCB Camp Lejeune/DoN during the comment period. In addition, the summary will include the responses to each issue/question raised. After the Record of Decision (ROD) is signed, MCB Camp Lejeune/DoN will publish a notice of availability of the ROD (including the Responsiveness Summary) in the newspaper, and place a copy of the ROD in the information repository.

Information Repositories

A collection of information, including the administrative record, is available to the community at the following locations:

Onslow County Library
58 Doris Avenue East
Jacksonville, NC 28540
(919) 455-7350

Hours:
M-Th: 9:00 a.m.- 9:00p.m.
F-Sa: 9:00 a.m.- 6:00p.m.
Closed Sunday

MCB Camp Lejeune Central Library
Building 1220
Marine Corps Base
Camp Lejeune, NC 28542
(919) 451-5724

Hours:
M-Th: 9:00 a.m.-10:00p.m.
F: 9:00 a.m.- 4:30 p.m.
Sa-Su: 10:00 a.m.- 10:00 p.m.

IF YOU HAVE ANY QUESTIONS ABOUT SITE 48,
PLEASE CONTACT ONE OF THE FOLLOWING:

Commanding General
AC/S EMD, (IRD)
Marine Corps Base
PSC Box 20004
Camp Lejeune, North Carolina 28542-0004
Attention: Mr. Neal Paul
(919)451-5874

Commander
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, Virginia 23511-2699
Attention: Ms. Linda Berry, Code 1823
(804) 445-8637

Remedial Project Manager
U.S. EPA, Region IV
345 Courtland Street, NE
Atlanta, GA 30365
Attention: Ms. Michelle Glenn
(404) 347-3016

N.C. Department of Environment, Health, and Natural Resources
Division of Solid Waste Management
Superfund Section
P.O. Box 27687
Raleigh, North Carolina 27611-7687
Attention: Mr. Peter Burger
(919) 733-2801

Community Information Line
Public Affairs Office
Marine Corps Base
Camp Lejeune, North Carolina 28542
(919) 451-5782

MAILING LIST

If you are not on the mailing list and would like to receive future publications pertaining to Site 48, please fill out, detach, and mail this form to:

Commanding General
AC/S EMD (IRD)
Marine Corps Base
PSC Box 20004
Camp Lejeune, NC 28542-0004
(919) 451-5874

Name _____

Address _____

Affiliation _____

Phone (____) _____