DOC. NO. : CLEJ - 00208 - 1.01 - 11/22/82

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511

11-22-82
(Date)

MEMORANDUM

Subj: Official telephone call ~~(incoming)~~ (outgoing)

1. The following transaction was handled by telephone this date concerning the subject indicated:

Name and office of each individual engaged in call)	J. G. WALLMEYER LANTNAVFACENGCOM	Bob Alexander MCB Camp Lejeune AC-S Facilities
Date and hour of call	11-22-82 0830	
Originator of call	Wallmeyer	

Call (chargeable) (not chargeable) to appropriated funds.

Subject matter discussed: NACIP PROGRAM — Additional information/new sites; documentation of at MCB Camp Lejeune.

~~Information or instructions given or received:~~ Since on-site work was performed, 5 additional persons knowledgable of disposal at CLej have been identified and have offered the following

INTERVIEWEE

#1) 2 sites within the #69 area (RR Chemical Dump), one at ~15 drums, the other at ~ 35-40 drums. Individual related that he was informed that materials included NBC materials.

#2) Mess hall grease and vegetable matter - old sawmill area

#3) Sawmill area, ~20 drums, reportedly Transformer oil

#4) 2 sites - one TLZ OWL pesticide
- the other late '40s, early '50s, Camp Geiger - Air Station between RR Tracks and housing area - presently a basketball court

#5) Rifle Range Area - either site #68 or #69 - believed to be DDT, TCE, and Calcium Hypochlorite
Equipment operator injured - under medical treatment for 2 years - occurred 1970 - Fire and explosion

AL - requested to originate MSG from CLej to NAVENENVSA, ...

. Doc. no. CLEJ-00090-1.01-
08/11/83

FAC/REA/hf
6280
11 AUG 1983

Environmental Protection Agency, Region IV
Attn: Mr. A. Linton
345 Courtland Street
Atlanta, GA 30365

Re: Initial Assessment Study,
U.S. Marine Corps Base,
Camp Lejeune, NC

Dear Mr. Linton:

The subject report is provided for your information on previous storage, use, and disposal of chemicals and hazardous waste aboard Camp Lejeune. This study has been developed under the Navy Assessment and Control of Installation Pollutants (NACIP) Program. Initial screening has been completed for 76 potential sites to determine those sites requiring further study.

The study concludes that while none of the 76 sites pose an immediate threat to human health or the environment, 22 sites warrant further investigation to assess potential long-term impacts. A confirmation study of these sites, which are described in the enclosure, is currently underway with a target completion date of 1 October 1985. This study will include field investigations with detailed physical and chemical monitoring to confirm or deny the presence of contamination or a health hazard, and to quantify the extent of any problems that might exist. The need for performing mitigation actions or clean-up operations at these sites can then be addressed.

For further information regarding the enclosure or the continuing study, please contact Mr. Bob Alexander at 919-451-3034 or FTS 676-3034.

Sincerely,

M. G. LILLEY
Colonel, U.S. Marine Corps
Assistant Chief of Staff, Facilities
By direction of the Commanding General

Encl

Copy to: (w/o encl)
CMC (LFF-2)
COMLANTNAVFACENGCOM (114)
NAVENENVSA (112N)
CO, MCAS(H),NR (S-4)

Blind Copy to: (w/o encl)
SAFD
JPAO

FAC/REA/el
6280
2 3 DEC 1983

North Carolina Department of Natural Resources
and Community Development
Division of Environmental Management
Attn: Mr. R. Helms
P. O. Box 27687
Raleigh, NC 27611

Re: Initial Assessment Study,
U.S. Marine Corps Base,
Camp Lejeune, NC

Dear Mr. Helms:

The subject report is provided for your information on previous storage, use, and disposal of chemicals and hazardous waste aboard Camp Lejeune. This study has been developed under the Navy Assessment and Control of Installation Pollutants (NACIP) Program. Initial screening has been completed for 76 potential sites to determine those sites requiring further study.

The study concludes that while none of the 76 sites pose an immediate threat to human health or the environment, 22 sites warrant further investigation to assess potential long-term impacts. A confirmation study of these sites, which are described in the enclosure, is currently underway with a target completion date of 1 October 1985. This study will include field investigations with detailed physical and chemical monitoring to confirm or deny the presence of contamination or a health hazard, and to quantify the extent of any problems that might exist. The need for performing mitigation actions or clean-up operations at these sites can then be addressed.

For further information regarding the enclosure or the continuing study, please contact Mr. Bob Alexander at 919-451-3034.

Sincerely,

M. G. LILLEY
Colonel, U.S. Marine Corps
Assistant Chief of Staff, Facilities
By direction of the Commanding General

Encl

Copy to: (w/o encl)
CMC (LFF-2)
COMLANTNAVFACENGCOM (114)

Doc. No: CLEJ-00207-1.01-03/27/85

SUSPENSE: 19 APR 85

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511-6287

TELEPHONE NO.
(804) 444-9566
IN REPLY REFER TO:
5090
1143CFB

27 MAR 1985

Environmental Science and Engineering, Inc.
Attn: Mr. Russ Bowen
Project Manager
P. O. Box ESE
Gainsville, FL 32602

Re: Contract N62470-83-C-6106, Confirmation Study; Evaluation of Data From First Round of Verification Sample Collection and Analysis, Marine Corps Base, Camp Lejeune

Dear Mr. Bowen:

We would like to make the following comments on your interim report. Please incorporate these into your round two sampling report or the Verification Step final report, as appropriate. Our recommendations for round two sampling are described in the draft memorandum which is enclosed for your review and comment. The laboratory analysis completed to date on Camp Lejeune potable wells and water treatment plants is also enclosed for your use.

General Comments

a. Please use both sides of the page when copying your reports.

b. Please include site maps with well and sample locations.

c. For data evaluation, we would like you to use EPA Health Advisories and North Carolina groundwater and surface water quality standards/criteria (if they exist), in addition to the EPA Water Quality Criteria. Please discuss the advantages and disadvantages of each of these guidelines as compared to the Health Risk criteria.

d. Please use the 10^{-6} Health Risk Criteria for comparison if your detection limits are that low; if not, use the 10^{-5} values. (We are asking for guidance from higher authorities on which level to use for Verification Step purposes, so this policy may change).

e. Try to improve the readability of your computer-generated tables. We would like to see, in tabular form: the sample number, parameter, result of analysis, criteria exceeded, and criteria value to make comparison easier.

f. We are adopting a standardized labeling system for wells and other sampling locations at all Confirmation Study sites. Please change your numbering system for potable wells sampled to PW from GW. Also, include a cross-reference between sample numbers and building numbers of potable wells.

g. Measure groundwater level elevations to 0.01 foot accuracy.

DOC. No.: CLET-00207-1.01-03/27/85

5090
1143CFB

Specific Comments

a. Cover Sheet. Prepared for: Atlantic Division, Naval Facilities Engineering Command, Norfolk, Virginia 23511-6287.

b. Page 2-1. Discuss EPA Health Advisories and state water quality criteria/standards.

c. Page 2-3. "Information concerning expected rate and direction... is based on a relative analysis..."

d. Page 2-29. Soil sampling numbering system is confusing. Why are there two samples with the same sample numbers? Which samples were the composites from 0-1 feet and which from 1-2 feet depths? Which samples came from the same boring?

e. Page 2-34. Migration Potential. "All analytical parameters for well 22GW2 (not 22GW3) were below detection limits..."

f. Page 2-39. Objectives. "1. Locate source of TCE ... detected in deep water supply Wells Nos. 601, 602, 603 (not 604), 608 (not 609), 634, 637, and 642." Agree-b

g. Page 2-43. The IAS alluded to TCE use in three buildings in the Hadnot Point industrial area: 901, 909, and 1601. "Approximately 440 gallons of TCE were contained in a tank" (IAS, page 6-16). The IAS did not specify if the tank was underground or aboveground.

h. Page 2-43. "Samples of groundwater should be collected from ... deep water supply wells Nos. 601, ~~603~~ 602, 608 (not 609), 634, 637, 642, and Bldg. 20 Hadnot Point Water Plant (untreated influent)..." You should also include shallow wells at 634, 637, and 642 in the sampling/analysis program. (See attached draft memo).

i. Page 2-43. Your characterization step work should also address overlapping cones of depression. (See attached draft memo).

j. Page 2-44. Data Evaluation. Levels of IAs exceeded the 10^{-5} risk level in Wells 24GW4, 24GW3, 24GW5, and 24GW2. We suggest you use the drinking water standard of 50 ug/1, since your detection limits are higher than the 10^{-5} health risk level of .02 ug/1.

k. Page 2-49. Methylene chloride in Well 24GW2 exceeded the 10^{-5}, not 10^{-7}, risk level.

l. Page 2-50. Migration Potential. We disagree with the statement that no water supply wells which could affect groundwater flow rate and direction are located close to Site 24. Well 608 is within a few blocks of this site.

5090
1143CFB

m. Page 2-59.

(1) Since the surface water data was significantly different from the groundwater data at Site 28, please discuss the impact of these findings in greater detail.

(2) TCE was detected in the groundwater - Well 28GW1 at 15 ug/1.

n. Page 2-70. Data Evaluation. "The presence of contamination at Well 36GW4... may indicate that the disposal area at Site 36 extends farther to the west than originally estimated."

o. Page 2-71. Why are there two sets of results for each sample number?

p. Page 2-80. DCFM exceeded the 10^{-5} risk level at Well 41GW2, not 41GW1.

q. Page 2-83. Why are there two sets of results for each sample number?

r. Page 2-89. What do these levels of Hg in the soil/sediment mean? Should we go on to the characterization step at this site? Should we sample fish tissue, or what?

s. Page 2-109. Migration Potential. Based on your groundwater elevation data, groundwater appears to flow to the northwest, not the east and southeast as stated. Can you explain this?

t. Page 2-122. Data Evaluation. Why was the analytical method proposed for chloropicrin unsuccessful? Is there another method we can use or a similar parameter we can test for?

u. Page A-1.

(1) Include common names for trichlorofluoromethane and dichlorodifluoromethane, which are Freon 11 and 12, respectively.

(2) The acronym for Marine Corps Air Station, New River should be MCAS(H).

v. Page A-2.

(1) We suggest you use 12DCE in lieu of 12DCLEE.

(2) SNAPLs are now called EPA Health Advisories. — Sounds like "Snaplets"

w. Page B-1. Why is there no relative elevation given for some wells? Again, water level should be measured to the nearest 0.01 foot.

DOC. NO.: CLEJ-00207-1.01-03/27/85

5090
1143CFB

If you should have any questions, please call Cherryl Barnett at (804) 444-9566.

Marine Corps Base, Camp Lejeune is requested to review the enclosure and provide comments on the proposed round two effort by 19 April 1985.

Sincerely yours,

J. R. Bailey

J. R. BAILEY, P.E.
Head, Environmental Quality Branch
Utilities, Energy and Environmental Division
By direction of the Commander

Enclosure

Copy to:
Commanding General
Marine Corps Base
Camp Lejeune, NC 28542

DOC. No.: CLEJ-00201-1.01-05/24/85
JL - 3.01

UNITED STATES MARINE CORPS
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

IN REPLY REFER TO:
6280/9
FAC
24 MAY 1985

From: Commanding General, Marine Corps Base, Camp Lejeune
To: Commander, Altantic Division (Code 114), Naval Facilities Engineering Command, Norfolk, VA 23511-6287

Subj: N.A.C.I.P. PROGRAM CONFIRMATION STUDY; SECOND ROUND SAMPLING

Ref: (a) LANTDIV ltr 5090, 1143CFB dtd 27 Mar 85
(b) CG, MCB 031897 Apr 85

Encl: (1) Review Comments, N.A.C.I.P. Confirmation-Study
(2) MCAS(H), NR Suspected N.A.C.I.P. Site Description

1. We have reviewed the LANTDIV comments at reference (a) for the interim report of first round sampling results. Additional concerns of Camp Lejeune are forwarded at enclosure (1). Reference (b) requested the subject study be expedited and the characterization phase be initiated for VOC contamination in water supply wells. Reference (a) adequately addresses these concerns except as noted in enclosure (1).

2. The proposed second round sampling recommends an investigation for potential VOC sources within a one-mile radius of each contaminated well. This monitoring strategy would mean assessing potential sources outside the Camp Lejeune property boundary which may be covered by the Memorandum of Understanding between DOD and EPA, dtd 12 Aug 1983. We suggest that coordination betweent HQMC, LANTDIV, and the North Carolina environmental agencies and Camp Lejeune, be completed in the characterization process to assess these sources.

3. An additional site of potential contamination has been located at MCAS(H), New River. This site needs to be evaluated for inclusion in the N.A.C.I.P. Program. A site description is provided at enlosure (2).

4. Your continued assistance in dealing with the complex problems being addressed by the N.A.C.I.P. Program is appreciated. For additional information on this matter, contact Mr. Bob Alexander, Marine Corps Base Environmental Engineer, AV 484-3034.

B. W. ELSTON
By direction

Copy to:
CMC (LFL)
CO, MCAS(H),NR (S-4)
CO, NAVHOSP (PMU)

DOC. NO. : CLEJ-00201-1.01-05/24/85

REVIEW COMMENTS
N.A.C.I.P. CONFIRMATION STUDY INTERIM REPORT
AND SECOND ROUND SAMPLING
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

Interim Report from First Round of Verification Sampling

1. For discussion of applicable water quality criteria for drinking water, we suggest the EPA recommended maximum contaminant levels be discussed as presented in the June 12, 1984 Federal Register.

2. North Carolina Classifications and Water Quality Standards Applicable to Groundwaters, North Carolina Admin Code Sub. Chapter 2L, effective 1 September 1984, should also be referenced; a copy is attached.

3. Page 2-39, Well 603 has not been detected to contain TCE and has not been closed. Reference (b) incorrectly listed Well 603 as having been closed; wells which have been closed to date are 601, 602, 608, 634, 637, 651, 652, 653, TT-26, and TT-New Well. We concur with your recommendation for Well 603 to be resampled in the second round to include the installation of a shallow groundwater well.

PROPOSED SECOND ROUND OF SAMPLING

1. In light of the anticipated start date of July/August for second round sampling by the A/E, your recommendations on interim monitoring of water supplies are needed as requested in reference (b). Camp Lejeune laboratory facilities are anticipated to be operational on/about 1 July for limited assistance in these analyses.

2. In order to coordinate samplings of water supply wells and to provide necessary support to the A/E, request a coordination meeting between LANTDIV, the A/E, MCAS(H), New River, and Camp Lejeune be established at least two - three weeks prior to sampling date, if possible. Coordination with North Carolina Divisions of Environmental Management and Health Services must also be accomplished at that time.

3. Page 3 of Memorandum enclosed to reference (a), sub-para "u" Well No. 603 should be changed to read 608; on page 4, note that VOC's have not been detected in Well 603.

4. Request the additional site at MCAS(H), New River be evaluated as described herein.

5. Page 4 - Add Well 650 to this list of active wells involved in this study.

Enclosure (1)

DOC. NO.: CLEJ - 00201 - 1.01 - 05/24/8.

NORTH CAROLINA ADMINISTRATIVE CODE

TITLE 15

DEPARTMENT OF NATURAL RESOURCES

AND

COMMUNITY DEVELOPMENT

ENVIRONMENTAL MANAGEMENT DIVISION

SUBCHAPTER 2L

CLASSIFICATIONS AND WATER QUALITY STANDARDS

APPLICABLE TO THE GROUNDWATERS

OF

NORTH CAROLINA

SECTION .0100, .0200 AND .0300

EFFECTIVE DATE - SEPTEMBER 1, 1984

ENVIRONMENTAL MANAGEMENT COMMISSION

RALEIGH, NORTH CAROLINA

SUBCHAPTER 2L - GROUNDWATER CLASSIFICATION AND STANDARDS 1.11 1.12

SECTION .0100 - GENERAL CONSIDERATIONS 1.14

.0101 AUTHORIZATION 1.16

(a) N.C. General Statute 143-214.1 directs that the Commission develop and adopt after proper study a series of classifications and standards which will be appropriate for the purpose of classifying each of the waters of the state in such a way as to promote the policy and purposes of the act. Pursuant to this statute, the Regulations of this Subchapter establish a series of classifications and water quality standards applicable to the underground waters of the state. 1.19 1.20 1.21 1.22 1.23 1.25

(b) These Regulations and the standards they establish apply to all classified underground waters. Many common activities take place in or near shallow subsurface waters with no resulting violation of GA groundwater quality standards and it is the intention of these Regulations that those activities continue unimpeded except where specific problems are identified on a case by case basis. These activities include: 1.27 1.29 1.30 1.31 1.32

(1) the agricultural operations of applying fertilizer, herbicides, or pesticides to croplands or pastures, and the raising of livestock; 1.35 1.36

(2) silvicultural fertilizer, herbicide or pesticide application; home or commercial fertilizer, pesticide, or herbicide application; 1.38 1.39

(3) structural pest control activities when conducted according to label directions; and 1.42

(4) subsurface or surface municipal, industrial, and domestic waste disposal activities or other activities which may affect underground waters when these systems are installed and operated or conducted according to regulations established by the Departments of Human Resources, Agriculture, or Natural Resources and Community Development. 1.44 1.45 1.46 1.47 1.48

(c) As used herein, the phrase "specific problems" shall mean a set of facts or circumstances which show with a reasonable certainty that one or more of the following exists or will exist in the foreseeable future: 1.50 1.51 1.52

(1) An existing or probable violation of GA groundwater standards; 1.54 1.55

(2) The existence or probability of a violation of any other environmental standard or regulation; 1.56 1.57

(3) A threat to human life, health, or safety; 2.2

(8) Natural quality means the physical, biological and chemical quality which occurs naturally and which has not been changed by man's activities.

(9) Parts per million (ppm) and parts per billion (ppb) shall be construed to be equivalent to milligrams per liter and micrograms per liter, respectively.

(10) Point of discharge or outlet is the point of initial contact of waste with the existing soil or rock materials.

(11) Potable waters are those waters suitable for drinking, culinary and food processing purposes.

(12) Saline groundwaters are those groundwaters having a chloride concentration of more than 250 mg/l.

(13) The saturated zone is that part of the water-bearing consolidated and unconsolidated formations in which all the voids are filled with water under pressure greater than atmospheric. It does not include the capillary fringe.

(14) Subsurface means the area beneath the land surface and may or may not be part of the saturated zone.

(15) Subsurface waters are those waters occurring in the subsurface and include groundwaters and infiltration waters.

(16) Toxic substances shall mean those substances which if ingested or assimilated into any organism either directly or indirectly will cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in such organisms of their offspring).

(17) The unsaturated zone is the portion of the consolidated and unconsolidated formations between land surface and the water table. It includes the capillary fringe.

(18) Water table is the surface of the saturated zone in the unconfined water-bearing formation or material at which the pressure is atmospheric.

(19) Thermal waste for purposes of groundwater quality means discharges having a temperature which is in excess of 30 degrees Fahrenheit above or below the naturally occurring temperature of the receiving groundwater as determined by the director.

(20) Underground waters means all waters in the subsurface including infiltration and groundwaters.

(21) "Person" shall mean any individual, proprietorship, partnership, joint venture, corporation, or any other entity, or any employee, designee, agent, or representative in any official capacity empowered to act in behalf of that entity with knowledge of that entity, either express or implied.

(2) Where a statutory variance has been granted for the underground waters as provided is Paragrph (d) of this Rule.

(3) Where underground waters contain naturally occurring concentrations in excess of the standards established under Rule .0202(b) of this Subchapter whether or not restoration or treatment is feasible, but provided that restoration for naturally occurring excess concentrations may not be required of any person as a result of this designation.

(4) Where underground waters have been designated RS under Subparagraph (1) of this Paragraph, and where the source of contamination and the responsible person are identified, a compliance schedule shall be issued within 12 months of the underground waters being designated.

(d) Any person subject to the provisions of General Statute 143-215.1 may apply to the EMC for a variance from the groundwater classifications and quality standards established pursuant to these Regulations and North Carolina General Statute 143-214.1. A variance may be granted by the commission pursuant to the requirements of North Carolina General Statute 143-215.3(e). The burden of proof in any public hearing or other proceeding pursuant to North Carolina General Statute 143-215.3(e) shall be upon the applicant for a variance. No variance shall be granted to allow the discharge of waste to the subsurface or groundwaters of the state by means of wells or for an extension or expansion of the perimeter of compliance as established pursuant to the regulations of this Subchapter.

(e) Any person conducting an activity causing or significantly contributing to the violation of underground water quality standards may apply to the director for a compliance schedule. In such cases the director may authorize a compliance schedule requiring the restoration of the quality of the underground waters to the level of the standard, or to a level as close to the applicable standards hereunder as is economically and technologically feasible. In determination the structure, duration, level of compliance, and feasibility of a compliance schedule, the director shall consider the extent of any violations, the extent of any threat to human health or safety, the extent of damage to the environment, the total cost of the cleanup involved, the marginal cost of the cleanup required, further technological advances which might permit such cleanup, and the public and economic benefit of requiring such cleanup. Compliance schedules may be revised or revoked by the director if the terms of the compliance schedules are violated by the person operating thereunder, or if additional information on the extent

commission determines to be necessary when any of the following conditions occur:

(i) a violation of the standard in adjoining GA waters occurs or can be reasonably predicted to occur considering hydro-geologic conditions, modeling, or other available evidence;

(ii) an imminent hazard or threat to the public health or safety exists or can be predicted.

(3) For existing facilities, the compliance perimeter shall be established at a distance 500 feet from the point of discharge, or the property boundary, whichever is less.

(4) For new facilities, the compliance perimeter shall be established at the lesser of 250 feet from the point of discharge, or 50 feet within the property boundary.

(5) Nothing in this Rule shall be construed to prevent the commission from initiating enforcement action even when pollution occurs solely within the compliance perimeter based upon permit violations, imminent threat to the public health, safety, or the environment, or violations of any special order issued by the commission.

(i) Exemptions. The following activities shall not be subject to the regulations of this Subchapter:

(1) Upconing resulting from water use activities conducted under and in compliance with a water use permit.

(2) The use of drilling fluids as approved under the well construction regulations.

History Note: Statutory Authority G.S. 143-214; 143-214.1; 143-214.2; 143-215.3(e);
Eff. June 10, 1979;
Amended Eff. September 1, 1984;
December 30, 1983.

.0104 ANALYTICAL PROCEDURES

Tests or analytical procedures to determine compliance or non-compliance with the underground water quality standards established in Rule .0202 of this Subchapter will be in accordance with:

(1) the methods described in Standard Methods for the Examination of Water and Wastewater, fifteenth edition, 1980; and the 1981 supplement thereto;

(2) testing, monitoring, or analytical procedures required as a condition of a permit issued by the Division of Environmental Management under N.C.G.S. 143-214.1; or

SECTION .0200 - CLASSIFICATIONS AND WATER QUALITY STANDARDS

.0201 UNDERGROUND WATER CLASSIFICATIONS

The classifications which may be assigned to the underground waters will be those specified in the following series of classifications:

(1) Class GA waters; usage and occurrence:

(a) Best Usage of Waters. Existing or potential source of water supply for drinking, culinary use, and food processing without treatment, except where necessary to correct naturally occurring conditions.

(b) Conditions Related to Best Usage. This class is intended for those groundwaters in which chloride concentrations are equal to or less than 250 mg/l, considered safe for drinking, culinary use, and food processing without treatment, but which may require disinfection or other treatment when necessary to reduce naturally occurring concentrations in order not to exceed the maximum concentrations specified in Rule .0202 of this Section.

(c) Occurrence. At depths greater than 20 feet below land surface and in the saturated zone above a depth of 20 feet where these waters are a principal source of potable water supply.

(2) Class GSA waters; usage and occurrence:

(a) Best Usage. Existing or potential source of water supply for potable mineral water, culinary use, food processing, and conversion to fresh waters by treatment.

(b) Conditions Related to Best Usage. This class is intended for those groundwaters in which naturally occurring chloride concentrations are greater than 250 mg/l, and which are considered safe for potable mineral water, culinary use, and food processing without treatment but may require disinfection or other treatment when necessary to reduce naturally occurring concentrations in order not to exceed the maximum concentrations specified in Rule .0202 of this Section.

(c) Occurrence. At depths greater than 20 feet below land surface and in the saturated zone above a depth of 20 feet where these waters are a principal source of potable mineral water supply.

(3) Class GB waters; usage and occurrence:

classification would technically or economically not be feasible, or not in the best interest of the public, or for which maximum feasible restoration has been completed.

(c) Occurrence. As determined by the commission on a case by case basis.

History Note: Statutory Authority G.S. 143-214.1;
Eff. June 10, 1979.
Amended Eff. September 1, 1984;
December 30, 1983.

.0202 UNDERGROUND WATER QUALITY STANDARDS

(a) The water quality standards for the underground waters of the state are those specified in this Rule. These standards are the maximum levels of contamination that are permitted under these Regulations. It is the policy of the EMC, however, to protect and maintain the existing quality of the groundwaters where that quality is better than the assigned standards. Therefore, the increase in any constituent for which a standard is specified to a concentration of 50 percent of the standard may result in review or modification of an existing permit, requirements for additional monitoring, or issuance of a special order where a violation of standards may be predicted.

(b) Class GA Waters. The maximum allowable contaminant levels for toxic and deleterious substances are those concentrations specified in Subparagraphs (1) - (31) of this Paragraph. For substances not specified, the standard is the naturally occurring concentration as determined by the director. Synthetic, man-made, or other substances that do not naturally occur are prohibited. Where not otherwise indicated, the standard refers to the total concentration of any constituent.

(1) where naturally occurring concentrations exceed the established standard, the standard will be the naturally occurring concentration as determined by the director;
(2) total coliform: 1 per 100 milliliters;
(3) endrin: .0002 mg/1;
(4) lindane: .004 mg/1;
(5) methoxychlor: 0.1 mg/1;
(6) toxaphene: .005 mg/1;
(7) 2,4,D: 0.1 mg/1;
(8) 2,4,5,-TP Silvex .01 mg/1;
(9) total trihalomethanes: 0.10 mg/1;
(10) arsenic: .05 mg/1;
(11) barium: 1.0 mg/1;
(12) cadmium: .010 mg/1;

(15) mercury: .002 mg/1;
(16) nitrate: (as N) 10.0 mg/1;
(17) nitrite: (as N) 1.0 mg/1;
(18) selenium: .01 mg/1;
(19) silver: .05 mg/1;
(20) fluoride: 1.5 mg/1;
(21) combined radium - 226 and radium - 228: 5 pCi/1;
(22) gross alpha particle activity: 15 pCi/1;
(23) gross beta particle activity: 50 pCi/1;
(24) iron: 0.30 mg/1;
(25) manganese: .05 mg/1;
(26) pH: No increase from naturally occurring pH values in acidity below or increase in alkalinity above 7;
(27) chloride: allowable increase not to exceed 100 percent of the naturally occurring chloride concentration;
(28) color less than 15 units;
(29) phenol: not greater than 1.0 ug/1;
(30) total dissolved solids: 1000 mg/1; and
(31) thermal: not greater than 30 degrees Fahrenheit variance from the naturally occuring level as determined by the director.

(d) Class GB Waters. No increase above the naturally occurring concentration of any toxic or deleterious substance unless it can be shown, upon request, to the satisfaction of the director that the increase:

(1) will not cause or contribute to the contravention of water quality standards in adjoining waters of a different class;
(2) will not accumulate in a manner such that unusual or different hydrological conditions may cause a threat to public health or the environment; and
(3) will not cause an existing or potential water supply to become unsafe or unsuitable for its current use.

(e) Class GSB Waters. No increase above the naturally occurring concentration of any toxic or deleterious substance unless it can be shown, upon request, to the satisfaction of the director that the increase:

(1) will not cause or contribute to the contravention of water quality standards in adjoining waters of a different class;
(2) will not accumulate in a manner such that unusual or different hydrological conditions may cause a threat to public health or the environment; and
(3) will not cause an existing or potential water supply to become unsafe or unsuitable for its current use.

(f) Class GC Waters. All chemical, radioactive, biological, taste producing, odor producing, thermal, and other toxic or

SECTION .0300 - ASSIGNMENT OF UNDERGROUND WATER CLASSIFICATIONS

.0301 CLASSIFICATIONS: GENERAL

(a) Schedule of Classifications. The classifications are based on the quality, occurrence and existing or contemplated best usage of the underground waters as established in Section .0200 of this Subchapter and are assigned statewide except where supplemented or supplanted by specific classification assignments by major river basins.

(b) Classifications and Water Quality Standards. The classifications and standards assigned to the underground waters are denoted by the letters GA, GSA, GB, GSB, or GC. These classifications refer to the classifications and standards established by 15 NCAC 2L, "Classifications and Standards Applicable to the Underground Waters of North Carolina."

History Note: Statutory Authority G.S. 143-214.1;
Eff. December 30, 1983.

.0302 STATEWIDE

(a) The classifications assigned to the underground waters located within the boundaries or under the extraterritorial jurisdiction of the State of North Carolina are:

(1) Class GA Waters. Those underground waters in the state naturally containing less than 250 mg/l chloride and occurring at depths greater than 20 feet below land surface are classified GA.

(2) Class GB Waters. Those underground waters in the state naturally containing less than 250 mg/l chloride concentration and occurring between land surface and a depth of 20 feet are classified GB.

(3) Class GSA Waters. Those underground waters in the state naturally containing greater than 250 mg/l chloride concentration and occurring at depths greater than 20 feet below land surface are classified GSA.

(4) Class GSB Waters. Those underground waters in the state naturally containing greater than 250 mg/l chloride concentration and occurring between land surface and a depth of 20 feet are classified GSB.

(5) Class GC Waters. Those underground waters assigned the classification GC in Rules .0303 - .0318 of this Section.

History Note: Statutory Authority G.S. 143-214.1;
Eff. December 30, 1983.

Eff. December 30, 1983.

.0310 SAVANNAH RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: Statutory Authority G.S. 143-214.1;
Eff. December 30, 1983.

.0311 LUMBER RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: Statutory Authority G.S. 143-214.1;
Eff. December 30, 1983.

.0312 NEUSE RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: Statutory Authority G.S. 143-214.1;
Eff. December 30, 1983.

.0313 NEW-WATAUGA RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: Statutory Authority G.S. 143-214.1;
Eff. December 30, 1983.

.0314 PASQUOTANK RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: Statutory Authority G.S. 143-214.1;
Eff. December 30, 1983.

.0315 ROANOKE RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: Statutory Authority G.S. 143-214.1;
Eff. December 30, 1983.

.0316 TAR PAMLICO RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

DOC. NO.: CLET-00201-1.01-05/24/85

POTENTIAL N.A.C.I.P. SITE AT MCAS(H), NEW RIVER

SITE DESCRIPTION

Location: See Attached map.

Size: Unknown, but estimated at 50 meters in length and 50 meters in width adjacent to the shoreline.

Previously Reported: No

Activity: No known disposal of hazardous substance has occurred in this area due to its location within the MCAS(H), NR officers' housing area. Prior to the development of the area for housing in 1958, the area had been used for Marine Corps field training.

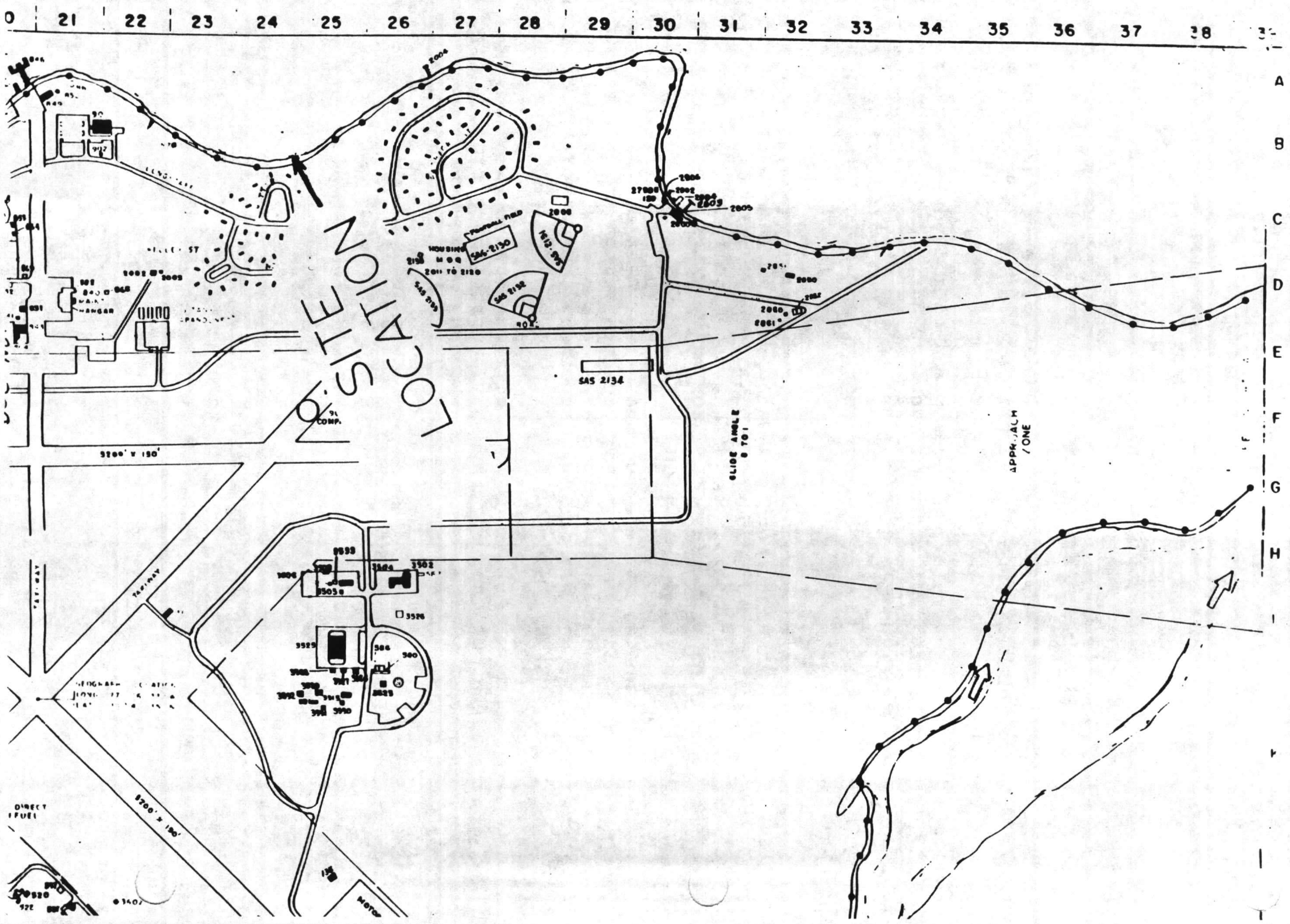
Materials Involved: Calcium hypochlorite in small glass vials and another compound (one glass vial, less than four ounces) of a brown oily liquid, for which laboratory analyses has not been received at the date of this writing. In addition a small medicine bottle was located which contained a few small tablets that have not been identified.

Quantity: An estimated 100 one to two ounce glass vials of a white powdery substance identified as calcium hypochlorite were found at the shoreline of the New River after being exposed by children digging along the eroding shoreline.

When: Late 1940s to late 1950s.

Comments: The area was immediately secured by placing fill material along the shoreline area where the vitals were located to preclude safety hazards or additional exposure to children of the housing area.

Enclosure (2)


SITE LOCATION
HOUSING
MOQ
2011 TO 2120
FOOTBALL FIELD
SAS-2130
SAS 2131
SAS 2132
SAS 2133
SAS 2134
GLIDE ANGLE
8 TO 1
APPROACH
ZONE
9200' x 150'
8700' x 150'
TAXIWAY
DIRECT
FUEL
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
A
B
C
D
E
F
G
H

DOC. NO. : CLEJ-00205-1.01-06/05/85

UNITED STATES MARINE CORPS
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

11300
FAC
5 JUN 1985

MEMORANDUM FOR THE COMMANDING GENERAL
CHIEF OF STAFF

Subj: WATER SOURCE

Encl: (1) Graphic Description of the Aquifer for Camp Lejeune and the City of Jacksonville

1. Pursuant to your telephone call on 5 June, Mr. Shriber, N.C. Division of Environmental Management, and the Camp Lejeune Natural Resources Director, Mr. Wooten, were contacted to determine if Camp Lejeune's water source had any affect on the City of Jacksonville. As depicted in the enclosure, Camp Lejeune is drawing its water from 200' to 250' and the City of Jacksonville is drawing its water from approximately 500'. The present problem with the City of Jacksonville is that for many years they were the only user of that aquifer of 500'; therefore, plenty of water was available. Recently, Onslow County tapped that aquifer for its county residents as well as Jones and Duplin Counties and other towns within that area. All of these users have overtaxed that aquifer.

2. It is the opinion of Mr. Shriber and Mr. Wooten that we are in no way affecting the aquifer that is presently used by the City of Jacksonville. As noted on the enclosure, there are several layers of clay which act as a membrane to prevent the groundwater from seeping into the middle sand aquifer.

3. The reason the City of Jacksonville, Onslow County and other towns do not use the 200' to 250' aquifer is that it requires water treatment which is very expensive to produce.

Very respectfully,

R. A. TIEBOUT
AC/S, Facilities

Drafter: Col Tiebout
Typist: H Foster

Doc. No.: CLEJ-00204-1.01-08/19/85

6280/9
FAC

AUG 19 1985

From: Commanding General, Marine Corps Base, Camp Lejeune
To: Defense Utilization and Marketing Office

Subj: REQUEST TO BURY CONCERTINA WIRE AT LOT 203

Ref: (a) DPDO-ZWM ltr dtd 22Feb85

1. Due to the ongoing studies of underground contamination at Lot 203, the reference request must be deferred until the N.A.C.I.P. study is complete. Because the data reported for many of the soil samples taken at Lot 203 indicated detectable levels of DDT and related compounds, excavations for disposal of the concertina wire should not be attempted until the N.A.C.I.P. study identifies the boundaries of the contaminated area. The study has been scheduled for completion in December, 1986.

2. An interim solution to disposal of the wire at the base land fill site may be available. Request you contact the Base Maintenance Officer, ext. 2511, for further assistance.

B. W. ELSTON
By direction

Copy to:
EMO
NREAD
EnvEngr

DOC. No.: CLEJ - 00209-1.01-11/18/85

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

NOV 18 1985

4PM-EA/WM

Commander
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511-6287

Attention: J.R. Bailey, P.E.
Environmental Quality Branch

Re: 6280/1143CFB

Dear Sir:

We have received your letter dated October 31, 1985, pertaining to Navy Assessment and Control of Installation Pollutants (NACIP) Phase I reports pertaining to Marine Corps Air Station, Cherry Point (NEESA 13-009) and Marine Corps Base, Camp Lejeune (NEESA 13-011), which you transmitted in May and August 1983, respectively.

Personnel of the U.S. Environmental Protection Agency (USEPA) have recently (October 31, to November 1, 1985) had the opportunity to visit these two installations for the purpose of familiarization with the proposed NACIP sites, and the following comments and observations are offered for your consideration in pursuing the NACIP Phase II Confirmation Studies. We hope that the delay in providing this input will not preclude its consideration.

1. General Comments Applicable to Both Studies

   a. Phase I reports generally propose analytical protocol which are heavily dependent on use of indicator parameters such as Total Valuable Organics, Total Organic Carbon and Total Organic Halides, and other physico-chemical measures in addition to specific chemical species suspected to be present from the available information on past operations. While the USEPA recognizes that such analyses are useful for preliminary screening, or detection of pollutant plumes, or for siting sampling locations, principally due to economic considerations, we feel strongly that they should not be the basis for conclusive decisions that no releases of pollutant exist at a given location.

EPA recommends that at some point in the NACIP Phase II Study, an optimally collected sample(s) of groundwater, soil and/or surface water from each site under investigation be analyzed for all 123 priority pollutants before a final decision is made in the presence or absence of any environmental release from that site.

b. In designing any confirmatory survey to identify and/or characterize environmental releases from potential uncontrolled hazardous materials disposal sites it is necessary to identify and sample representative background levels of the 123 priority pollutants at representative locations for each environmental media, soil, groundwater and surface water.

c. The NACIP Phase II studies should contain, or make reference to, sufficient geologic and hydrological data to support conclusions regarding the hydrogeology and drainage of the general area, and to provide a valid assessment of the probable direction of horizontal migration or potential for vertical migration of releases from the sites under investigation. Likewise, where vertical migration in groundwater is contemplated, the design of sampling schemes should take this into consideration.

d. Where studies indicate significant potential for release, or detect migration of pollutants, it is desirable to collect and include data or potential receptors or populations at risk of exposure in the confirmatory report.

2. <u>Comments Which Pertain Specifically to MCAS Cherry Point</u>

a. The proposals contained in the NACIP Phase I Study Report (NEESA 13-009) are acceptable, subject to the preceding general comments, however it would be highly desirable to consider the effects of pending RCRA regulation in evaluating future work at Site 10, the Old Sanitary Landfill.

b. It may prove impractical to attempt to separate the environmental effects of the sludge pits at Site 10 from the effects of other disposals throughout this landfill. Consequently, if the total area of the landfill will be regulated under a RCRA permit or post-closure order, it may be desirable to defer remedial action as the sludge pits alone until the required action for the surrounding area is defined.

3. Comments Pertaining Specifically to MCS Camp Lejeune

a. The proposals contained in the NACIP Phase I Study Report (NEESA 13-011) are acceptable, subject to the preceding general comments.

b. Based on information and preliminary data presented by MCS Camp Lejeune staff during a November 1, 1985, meeting, USEPA believes that there is sufficient data indicating potential extensive contamination of groundwater in several areas of Camp Lejeune to warrent immediate consideration of this site for inclusion on the National Priority List (NPL). Because of the potential risk to the population dependent on groundwater as a potable water supply at Camp Lejeune, USEPA recommends that further investigation at Camp Lejeune commence as expeditiously as practical; we wish to emphasize that inclusion on the NPL, if supported by available data, should enhance the priority for funding assigned to this facility.

If you have any questions, please do not hesitate to contact me at (404) 881-3776 or FTS 257-3776.

Sincerely yours,

Arthur G. Linton, P.E.
Regional Federal Facilities Coordinator
Environmental Assessment Branch
Office of Policy and Management

cc: Commander, MCAS Cherry Point
Commander, MCS Camp Lejeune
Mr. Carl Zillig, Chief of Naval Operations
LTC Warren Hull, OFA

Doc. No: CLEJ-00210
1-01-8/14/86

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: AUG 14 1986

SUBJECT: NACIP Confirmation Study, Scope of Work for Round Two Sampling and Characterization/Feasibility, Marine Corps Base, Camp Le Jeune North Carolina

FROM: Geologist, Remedial Review Team, ERRB

TO: Arthur G. Linton, Federal Facilities Coordinator

We have completed our review of the Scope of Work (SOW), and the activities scheduled for this effort appear to address all areas of concern. Specific comments are provided below.

1) We understand that PVC materials are being used in the construction of all monitor wells. A brief discussion of the rationale for using PVC (versus other materials) should be included in the report summarizing this round of sampling. (A)

2) Please refer to item 1 (v) in the SOW. While composite sampling of water supply wells is cost effective, it provides little specific information about the groundwater contamination problem. We recommend that all wells in the area around the contaminanted Hadnot Point wells be sampled individually. This will make it possible to pinpoint wells that are contributing contaminants to the water supply system, and such information could assist in tracking the movement of contaminants through the shallow aquifer. —?

3) It is not clear if there will be two two-week soil gas investigation efforts carried out or if one soil gas investigation is intended to have a dual-fold purpose.

We appreciate being given the opportunity to provide input to this Camp Le Jeune Scope of Work.

Andrew J. Puffer

Andrew J. Puffer

OPNAV 5216/144A (Rev. 8-81)
S/N 0107-LF-052-2320

Doc. No. 3 CLEJ-00651-1.01. - 10/06/86

DEPARTMENT OF THE NAVY

Memorandum

5050
FAC

DATE: 0 8 OCT 1986

FROM: Assistant Chief of Staff, Facilities, Marine Corps Base, Camp Lejeune

TO: Distribution

SUBJ: ENVIRONMENTAL SURVEY

Encl: (1) List of Buildings to be visited by Environmental Science and Engineering personnel

1. Marine Corps Base, Camp Lejeune has contracted Environmental Science and Engineering (ESE) to conduct an environmental study to determine what effect past disposal practices (POL, Solvents, etc.) may have on the Base water supply source.

Paul Conra

2. Mr. Dave Brentlinger and Mr. Joe Wittington are the ESE representatives who will be compiling the data for the study. These two representatives of ESE will be visiting the buildings listed in the enclosure. The purpose of their visit to each building is to conduct a walk-through and ask questions concerning present and past disposal methods of POL, solvents, etc.

3. Request that each unit listed in the enclosure notify key personnel of the authorized visit by ESE personnel. Visits will begin with 2d FSSG at 1300 on 8 October 1986 and proceed to other units in the sequence listed in the enclosure.

4. POC is Mr. Alexander, extension 3035/3034.

P. J. Kiriacopoulos

P. J. KIRIACOPOULOS

Distribution:
2d FSSG
2d MarDiv
CO, NH
AC/S, Log
AC/S, Trng&Ops
AC/S, Manp
RSU
DRMO
Spl Svcs Dir
CCMS
MCX
SptBn, MCB
HqBn, MCB

☆U.S. GOVERNMENT PRINTING OFFICE: 1985 — 505-012/18049

DOC NO: CLEJ-00651-1.01-10/6/86 CAMP LEJEUNE E660!

ESE
P. O. Box ESE
GAINESVILLE, FL 32602
(904) 332-3318

CALCULATED BY ______ DATE ______

CHECKED BY [signature] DATE 10-7-86

SCALE ______

INDUSTRIAL AREA

HQTRS Bn, MCB (code #25)

900 - SEE #91
1005 - OFFICE Bldg + P.B. WKS 57-86
1046 -
1400 - FIRE HSE 57-86
1403 - MC xchg + WHSE 57-86

DEFENSE PROP DISPOSAL OFFICE (code #61)

906 - SEE #91
1117 - WHSE 57-73, WHSE + ARMORY 73-86

BASE MOTOR T (code #50)

904 - CENTRAL PAINT SHOP 57-70, COM, VEH MNT 70-
1407 - MT OFFICES 57-72, GEN WHSE 72-86
1408 - EQUIP. STG 57-68, GEN WHSE 68-86

ACIS, LOGISTICS (code #60)

915 - SEE #91
1002 - FILLING STATION 57-86
1004 - PUMP STATION 57-72, PIPE 72-86
1014 - STGE 57-65, ST COU ORG/OTH 65-70, GEN WHSE
1101 - IBM 57-59, GEN WHSE 59-72, GEN. WHSE & DATA PROC 72-86
1116 - WHSE 57-86
1200 - COMMISSARY 57-86
1201 - WHSE 57-86
1212 - WHSE 57-86
1300 - Cold STGE 57-86
1301 - WHSE 57-86
1302 - Lumber STGE 57-65, ST COU ORG/OTH 65-70, GEN WHSE 70-76, AL SHOPS EXPEND 76-86
1303 - Lumber STGE 57-65, ST COU ORG/OTH 65-70, GEN WHSE 70-76, GEN STOR SHED 76-86
1305 - Lumber STGE 57-65, ST COU ORG/OTH 65-70, GEN WHSE 70-76, GEN STOR SHED 76-86
1306 - " " " GEN STOR SHED 76-86

1307 SAME AS 1306 BUT GEN WHSE 76-86
1315 Lumber Kiln 57-65, Prod FAC 65-67, ST COU ORG/OTH
1316 WHSE 57-86
1414 - SCALE HOUSE 57-86

Doc No: CLEJ-00651-1.01-10/10/86

ESE
P. O. Box ESE
GAINESVILLE, FL 32602
(904) 332-3318

JOB [illegible]
SHEET NO. 3 OF 5
CALCULATED BY ______ DATE ______
CHECKED BY [illegible] DATE 12-7-8[illegible]
SCALE ______

INDUSTRIAL AREA

AC/S Training (code #31)

919 - TRNG Bldg 65-74, Range Bldg 74-86
934 - APPL INSTR Bldg 70-
935 - " 70-
943 - GEN STG Shed 70-86
1404 - OFFICE Equip Repair 57-86
1409 - STG. Decon Bldg 57-65, ST COV org/oth 65-68, GEN. WHSE 68-74, Admin 74-86
1410 - Furn Repair 57-67, PW MAINT 67-74, Admin 74
1419 - HAZ FLAM STOR HSE 77-86

Base Maintenance (code #30)

939 - PAV/GR EQP SHED 65-86
940 - " 70-86
990 - " 77-86
1013 - STG Bldg 57-65, ST COV ORG/OTH 65-70, GEN WHSE 70-86
1102 - Equip STG 57-65, ST COV ORG/OTH 65-70, PW MAINT 70-86
1104 - " 57-65, ST COV ORG/OTH 65-70, TELE EX 70-73, PW STG 73-86
1105 - " 57-65, PW MAINT 65-72, G SPT EQUIP 72-86
1114 - " 57-65, ST COV ORG/OTH 65-70, PW MAINT 70-72, G SPT EQUIP 72-86
1127 - HAZ FLAM STOR 79-86
1141 - MTS UTL PLT 76-86
1202 - Camp MNT 57-65, PW MAINT 65-86
1203 - Equip STG 57-59, MT OPER 59-65, ST COV ORG/OTH 65-72, VEH HLD SHED 72-86
1204 - " 57-65, ST COV ORG/OTH 65-68, GEN WHSE 68-70, PW MAINT 70-86
1300 - SEE #60
1304 - Lumber STG 57-65, ST COV ORG/OTH 65-70, PW MAINT 70-86
1341 - MTS UTL PLT 77-86

Special Services (code #18)

797 - LATRINE 78-86
1106 - Hobby SHOP 57-86
1107 - " 57-86
1113 - EQUIP STG 57-65, PW MAINT 65-66, HOBBY SHOP 66-86

ESE
P. O. Box ESE
GAINESVILLE, FL 32602
(904) 332-3318

JOB [illegible]

SHEET NO. 4 OF 5

CALCULATED BY ______ DATE ______

CHECKED BY WAT DATE 10-7-86

SCALE ______

INDUSTRIAL AREA

Cmd Club Management Sys (code #71)

1006 - CAFE 57-86
1401 - BAKERY 57-72, GEN WHSE 72-86

Marine Corps Exchange (code #81)

1006 - SEE #71
1010 - BARRACKS 57-59, STGE 59-65, ST COU ORG/6TH 65-
1015 - Cold STGE 59-65, CAFE 65-86
1207 - Service Club 57-65, Xchg 65-86
1220 - REST 79-86
1402 - WHSE 57-86
1413 - MC Xchg 57-86

Support Bn, MCB (code #10)

1011 - WHSE 57-86
1041 - DISP 69-86
1042 - UPEH 74-86
1044 - SENTRY 82-86
1117 - WHSE 57-
1209 - MESS 57-65, Substnce Bldg 65-86
1318 ACD/GEN Svcs Bldg 67-86
1340 - UPEH 77-86

Naval Hospital (code #16)

1041 - SEE #10
1300 - SEE #60

ESE
P. O. Box ESE
GAINESVILLE, FL 32602
(904) 332-3318

INDUSTRIAL AREA

Reserve Support Unit, MCB (code # 40)

1111 - MC Xchg 57-65, ST[illegible] ORG[illegible] 65-86
1403 - MC Xchg 57-67, Thrift Sh 67-86

2d Marine Division (code #90)

1115 - MCX Service STA 57-65, Admin 65-72, DATA PROC 72-76, PRINTING PLANT 76-86
1140 - Admin 76-86
1205 - MT Repair 57-86
1206 - " 57-86
1208 - MC Xchg 57-65, Admin 65-86
1301 - SEE #60
1450 - AUTO ORGTL SH 81-86
1451 - HAZ FLAM STHSE 81-86

ACIS, Man Power (code #13)
1403 - SEE #40

DOC NO. CLEJ ... SHEET NO. 1 OF 5 — 76601

ESE
P. O. Box ESE
GAINESVILLE, FL 32602
(904) 332-3318

SHEET NO. 1 OF 5
CALCULATED BY ____ DATE ____
CHECKED BY [signature] DATE 10-7-86
SCALE ____

INDUSTRIAL AREA

2d Force-Service Support Group (Code #91)

900 - INSTR REPAIR
901 - ORDNANCE SH 57-67, VEH MNT 67-72, CMBT ORGTL 72-74, Field MNT 74-86
902 - ORDNANCE WHSE 57-65, CONST EQ MNT + Sm. Arms 65-86
903 - ORDNANCE WHSE 57-65, GEN WHSE 65-86
904 - ORDNANCE WHSE 57-65, GEN WHSE 65-86
905 - Signal Supply WHSE - 57-65, GEN WHSE - ELEC MNT 65-72, SAME + BAT. HQ 72-86
906 - QM WHSE 57-65, GEN WHSE 65-74, DISP/SAL/SC 74-79, GEN WHSE 79-86,
907 - QM WHSE 57-65, GEN WHSE 65-86
909 - STG Bldg 57-65, Prod FACS/other 65-67, MNT TANK AUTO 67-74, GEN WHSE + AUTO ORGTL 74-86
910 - WHSE 57-65, ST COU ORG/other 65-67, CONST EQ SHOP 67-84, WELDING 84-86
911 - ACAMP Bldg 57-65, MAINT FAC/oth 65 - TORN DOWN, Rebilt 85 HAZ FLAM STHSE
913 - WHSE 57-65, CMBT VEH MNT 65-76, Field MNT 76-86
914 - WHSE 57-86
915 - WHSE 57-86
916 - WHSE 57-76, WHSE + ARMORY 76-86
924 - LATRINE 60-86
926 - Admin 65-67, GEN. WHSE 67-86
927 - Admin 65-67, GEN WHSE 67-86
928 - AUTO VEH MNT 65-67, Admin 67-72, BAT. HQ 72-76, STGE/O/STOT MC 76-84
1012 - WHSE 57-86
1108 - WHSE 57-84
1118 - WHSE 57-86
1211 - WHSE 57-86
1308 - STORAGE 57-65, Admin. 65-66, Admin + GEN STG 66-86
1309 - STORAGE 57-67, GEN. WHSE 67-86
1310 - EQUIP. STG 57-65, AUTO VEH MNT 65-86
1311 - REPAIR SHOP 57-65, ELEC MNT + STG 65-67, GEN WHSE 67-86
1312 - REPAIR SHOP 57-65, ELEC MNT + STG 65-67, GEN WHSE 67-86
1317 - WHSE 57-86
1405 - REPAIR SHOP 57-65, COM VEH MNT 65-68, COM. VEH MNT + WHSE 68-72, COM VEH MNT + PAINT 72-
1406 - MT REPAIR 57-65, AUTO VEH MNT 65-86

Doc. No.: CLEJ-00198-1.01-03/31/87

6280/9
FAC

MAR 31 1987

Environmental Engineer

Assistant Chief of Staff, Facilities
Via: Facilities Management Officer

EPA REGION IV RECOMMENDS MCB BE ADDED TO NATIONAL PRIORITY LIST PER SUPERFUND ACT

Ref: (a) AC/S Fac ltr to JPAO 5280/9 dtd 17 Sep 86

1. Per phonecon with Mrs. Cheryl Barnett, NAVFACENGCOM (Code 114), EPA Region IV has made subject recommendation to Headquarters, EPA. We have no documentation on this decision following Region IV staff's visit in November.

2. The two biggest impacts if this happens:

a. We must prepare a Community Relations Plan - reference (a) has details.

b. EPA increases oversight of NACIP methods, report reviews, etc.

Both of these impacts will require more attention be given by MCB staff to the NACIP program.

3. Current NACIP milestones remain:

Hadnot Point Characterization Study Report (extent of pollution of groundwater supply)	- June 87
Hadnot Point Feasibility Report (remedial alternatives)	- Fall 87
Ohter NACIP Sites Verification	- Summer 88

4. I have notified JPAO and SJA of EPA's recommendation and will provide follow-up data from CMC and EPA as needed.

Very respectfully,

R. E. ALEXANDER

Doc. No.: CL&J-00196-1.01-04/03/87

6280/9

UNITED STATES MARINE CORPS
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

~~5216~~
FAC
APR 0 3 1987

MEMORANDUM FOR THE COMMANDING GENERAL
CHIEF OF STAFF

Subj: REAL PROPERTY LICENSE AGREEMENT WITH UNC-CHAPEL HILL

Encl: (1) Proposed Agreement
(2) SJA ltr 5800 SJA41 dtd 12 Feb 87
(3) Authorization to be signed by Commanding General

1. We are pursuing this agreement to assist UNC-Chapel Hill in a groundwater research project at the Tarawa Terrace Exchange Service Station as shown at enclosure (1). U.S. Environmental Protection Agency has funded UNC-CH to conduct an in-depth multi-year gasoline contaminant study.

2. In the process of reviewing the subject agreement, we have determined that your written authorization is needed to enter into this real property license. At enclosure (2), SJA indicates the authorization is needed because the subject agreement is not routine correspondence to which "By direction" authority applies.

3. As we receive many such license agreements, request authorization by the Commanding General, enclosure (3), to sign such agreements that are routine in nature rather than having to forward each to the Commanding General for signature.

Very respectfully,

T. J. DALZELL
AC/S, Facilities

Writer: Mr. Alexander, EnvEngr, FAC, X3034
Typist: M. Ballentine, 31 Mar 87; revised by Col Dalzell 2 Apr 87

DOC. NO.: CLEJ-00196-1.01-04/03/87

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542-5001

IN REPLY REFER TO
6280/12
FAC
APR 0 8 1987

Dr. Cass T. Miller
Assistant Professor
Dept of Environmental Sciences and Engineering
The University of North Carolina at Chapel Hill
Rosenau Hall 201 H
Chapel Hill, North Carolina 27514

Re: Tarawa Terrace Field Research Site

Dear Professor Miller:

We are forwarding the proposed real property license for the subject site. Request you sign the proposed license agreement and return it at your earliest convenience. We will provide a signed copy for your records. Please initial and date on the reverse side of the license agreement the portion of paragraph 10f which is not applicable to this project and which has been deleted.

Mr. Bob Alexander, Marine Corps Base Environmental Engineer, will provide any assistance you may need in conducting this research.

Sincerely,

T. J. DALZELL
Colonel, U.S. Marine Corps
Assistant Chief of Staff, Facilities
By direction of the Commanding General

Encl:
(1) Real Property License

DOC. NO. RLEJ-00196-1.01-04/03/8

LICENSE FOR NONFEDERAL USE OF REAL PROPERTY
NAVFAC 11011/29 (6-75) *(Supersedes NavDocks 2260)*

THIS LICENSE TO USE THE U.S. GOVERNMENT PROPERTY HEREIN DESCRIBED IS ISSUED BY THE DEPARTMENT OF THE NAVY TO THE LICENSEE NAMED BELOW FOR THE PURPOSE HEREIN SPECIFIED UPON THE TERMS AND CONDITIONS SET FORTH BELOW AND THE GENERAL PROVISIONS ON THE REVERSE SIDE HEREOF. BY THE EXECUTION HEREOF THE LICENSEE AGREES TO COMPLY WITH ALL SUCH TERMS, CONDITIONS AND GENERAL PROVISIONS.

LICENSE NUMBER

LIC-0-37

1. NAVAL ACTIVITY *(Property location)*
Marine Corps Base
Camp Lejeune, NC 28542

2. DATES COVERED *(Inclusive)*
FROM 1 April 1987 TO 1 April 1988

3. DESCRIPTION OF PROPERTY *(Include room and building numbers where appropriate)*

SITE AS SHOWN BY ATTACHMENT "A". (APPROXIMATELY 400 X 500 FEET)

4. PURPOSE OF LICENSE Use of site in connection with the drilling of 20 to 40 monitoring well clusters of 2 to 5 wells each ranging in depth from 20 to 100 feet and sampling of both newly constructed and existing groundwater monitoring wells at approximately monthly intervals.

5. LICENSOR
UNITED STATES OF AMERICA
DEPARTMENT OF THE NAVY

5a. LOCAL REPRESENTATIVE, DEPT. OF NAVY OFFICIAL *(Title and address)*
Commanding General, Marine Corps Base, or
Assistant Chief of Staff, Facilities, Marine Corps Base
Camp Lejeune, North Carolina 28542

6. LICENSEE *(Name and address)*
University of North Carolina at
Chapel Hill, Rosenau Hall 201 H,
Chapel Hill, NC 27514

6a. LOCAL REPRESENTATIVE *(Name and address)*
Mr. Farris W. Womack
Vice Chancellor of Business and Finance
University of North Carolina, Chapel Hill, NC

7. CASH PAYMENT BY LICENSEE (Payable in advance)
(If no cash payment is required, enter "None" under item 7a "Amount")

a. AMOUNT *(Each payment)*	b. FREQUENCY PAYMENTS DUE	c. FIRST DUE DATE	d. TO *(Title and address of local representative of the Government)*
None			

8. DEPOSIT FOR UTILITIES AND SERVICES (Payable in advance)
(If no cash payment is required, enter "None" under item 8a "Amount")

a. AMOUNT *(Each deposit)*	b. FREQUENCY PAYMENTS DUE	c. FIRST DUE DATE	d. TO *(Mailing address)*
SEE ITEM e UNDER GENERAL PROVISIONS ON REVERSE SIDE			

9. INSURANCE REQUIRED AT EXPENSE OF LICENSEE
(If any or all insurance requirements have been waived, enter "None" in a,b,c, or d as appropriate)

TYPE	MINIMUM AMOUNT	TYPE	MINIMUM AMOUNT
a. FIRE AND EXTENDED COVERAGE	$ None	c. THIRD PARTY PERSONAL INJURY PER PERSON	$ None
b. THIRD PARTY PROPERTY DAMAGE	$ None	d. THIRD PARTY PERSONAL INJURY PER ACCIDENT	$ None

10. GENERAL PROVISIONS *(See Reverse Side)* Part of General Provision 10.f has been deleted from this license prior to its execution. This license can be renewed for one additional year upon written request. (Upon written request, the licensee will supply all information derived from the research.) Applicable provisions are also shown on Attachment "B".

11. EXECUTION OF LICENSE

FOR	BY NAME AND TITLE *(Typed)*	BY SIGNATURE	DATE
DEPARTMENT OF THE NAVY	T. J. DALZELL, Col, USMC AC/S, Facilities, By direction of the Commanding General		APR 0 8 1987
LICENSEE	Mr. Farris W. Womack Vice Chancellor of Business and Finance		

If Licensee is a Corporation, Certification of signature is attached ☐

DOC. NO.: CLEJ.-00196-1.01-04/03/8

This license between Marine Corps Base, Camp Lejeune, North Carolina and the University of North Carolina at Chapel Hill (hereinafter called UNC-CH), provides for use of facilities at the Marine Corps Base in connection with the drilling of 20 to 40 monitoring well clusters of two to five wells each ranging in depth from 20 to 100 feet and sampling of both newly constructed and existing groundwater monitoring wells at approximately monthly intervals.

1. UNC-CH shall have the right to use the site as shown by exhibit "A", which is approximately 400 by 550 feet. Any use of utilities, water, electric power, signal lines, and sewer lines will be on a reimbursable basis (see paragraph 2).

2. UNC-CH shall reimburse the Marine Corps Base for the actual cost incident to the provision and use of utilities and services in accordance with applicable statutes, regulations, and instructions if any utility is used.

3. Upon termination of this license, unless otherwise provided for by prior written agreement, UNC-CH shall remove from the site all structures placed or erected by it and shall permanently abandon all wells, in accordance with Federal and State law. Well casing will be removed at ground level and the well will be filled with concrete.

4. To the extent authorized by the North Carolina Tort Claims Act, UNC-CH shall indemnify and save harmless the Government its officers, agents, servants, and employees from all liability under the Federal Tort Claims Act (62 Stat. 869, 982, 28 U.S.C. 2671-2680) or otherwise, for death or injury to all persons or loss or damage to the property resulting from the use of the site by UNC-CH.

5. Upon written request, the UNC-CH will supply the owner all information derived from the research.

6. UNC-CH shall be responsible for obtaining monitoring well construction permits from N.C. Division of Environmental Management prior to constructing wells.

7. UNC-CH shall construct all monitoring wells in accordance with applicable portions of 15 NCAC 2C (N.C. well construction standards).

8. The United States Marine Corps understands that the activities to be carried out by UNC-CH under the terms of this license are for the primary benefit of The University of North Carolina at Chapel Hill and any benefits accruing to the owner are incidental. UNC-CH is not and shall not be construed to be an agent, employee, or contractor of the owner under the terms of this license.

DOC. NO.: CLEJ-00196-1.01-04/03/87

5216
FAC
APR 06 1987

From: Commanding General, Marine Corps Base, Camp Lejeune
To: Assistant Chief of Staff, Facilities

Subj: AUTHORITY TO SIGN REAL PROPERTY LICENSE AGREEMENTS ON BEHALF OF THE COMMANDING GENERAL

1. Authorization is granted to the Assistant Chief of Staff, Facilities to sign the subject agreements on my behalf.

J. E. CASSITY

(Alex has original Memo to CG and authorization ltr in his files.)

Writer: Mr. Alexander, EnvEngr, FAC, X3034
Typist: M. Ballentine, 31 Mar 1987

DOC. NO.: CLEJ-00196-1.01-04/03/8;

UNITED STATES MARINE CORPS
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

11011

5216
FAC
APR 02 1987

MEMORANDUM FOR THE COMMANDING GENERAL
CHIEF OF STAFF

Subj: REAL PROPERTY LICENSE AGREEMENT WITH UNC-CHAPEL HILL

Encl: (1) Proposed Agreement
(2) SJA ltr 5800 SJA41 dtd 12 Feb 87
(3) Authorization to be signed by Commanding General

1. We are pursuing this agreement to assist UNC-Chapel Hill in a groundwater research project at the Tarawa Terrace Exchange Service Station as shown at enclosure (1). U.S. Environmental Protection Agency has funded UNC-CH to conduct an in-depth multi-year gasoline contaminant study.

2. In the process of reviewing the subject agreement, we have determined that your written authorization is needed to enter into this real property license. At enclosure (2), SJA indicates the authorization is needed because the subject agreement is not routine correspondence to which "By direction" authority applies.

3. As we receive many such license agreements, request authorization by the Commanding General, enclosure (3), to sign such agreements that are routine in nature rather than having to forward each to the Commanding General for signature.

Very respectfully,

T. J. Dalzell

T. J. DALZELL
AC/S, Facilities

DOC. NO.: CLEJ-00196-1.01-04/03/87

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542-5001

IN REPLY REFER TO:
11011
~~5216~~
FAC
APR 0 C 1987

From: Commanding General, Marine Corps Base, Camp Lejeune
To: Assistant Chief of Staff, Facilities

Subj: AUTHORITY TO SIGN REAL PROPERTY LICENSE AGREEMENTS ON BEHALF OF THE COMMANDING GENERAL

1. Authorization is granted to the Assistant Chief of Staff, Facilities to sign the subject agreements on my behalf.

J. E. CASSITY

DOC. NO.: CLEJ-00193-1.01-10/16/87

6280/9

5050
FAC

OCT 0 8 1987

Environmental Engineer

Assistant Chief of Staff, Facilities, Marine Corps Base, Camp Lejeune

TRIP REPORT MEETING WITH LANTDIV AND ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. REGARDING INSTALLATION RESTORATION PROGRAM 16 SEPTEMBER 1987

1. From LANTDIV, Code 114: Mr. Rakowski, Mrs. Barnette, Mr. Wallmeyer.
From ESE: Mr. Gregory, Mr. Geden, Mr. Farrell.
From MCB: Mr. Alexander.

2. The Purpose of the Meeting: To review the Installation Restoration Program status, specifically to review the proposed remedial actions for the Hadnot Point groundwater problems and to examine data collected to date on the remaining 22 contaminated sites aboard Camp Lejeune.

3. A summary of the Hadnot Point groundwater problem follows:

a. In the shallow aquifer 15 volatile organic compounds (VOC) have been identified; the four most serious compounds violate recommended State and EPA standards.

b. Two large plumes have been identified in the shallow aquifer. One includes a portion of the industrial area between Building 1700 and the Burger King extending from Holcomb Boulevard to Louis Street. The second includes the area from the fuel farm on Ash Street northeastward to Sneads Ferry Road and from Holcomb Boulevard to Louis Street on the Southeast.

c. One of the most significant issues currently being addressed is the issue of "how clean is clean". Neither State nor EPA standards are clearly defined although North Carolina has provided their Maximum Contaminant Limits for seven of the problem pollutants. (Note: State of North Carolina is proposing revised standards. We should get these and comment as needed.)

d. Recent deep well monitoring has identified an additional contaminant, methol ethyl ketone (MEK), in the deep aquifer. This new data will compound the problem of identifying groundwater treatment options for the deep aquifer because MEK is not treated with the same methods as the other pollutants identified to date.

Subj: TRIP REPORT MEETING WITH LANTDIV AND ENVIRONMENTAL SCIENCE AND ENGINEERING, INC., REGARDING INSTALLATION RESTORATION PROGRAM 16 SEPTEMBER 1987

e. ESE described a tentative list of short and long term remedial options to be presented in a report in a comparison of effectiveness and total cost.

f. Groundwater treatment options currently being examined will cause additional environmental emissions through one or all of the following media:

--Sewage treatment plant
--Air emissions
--Packaged VOC for hazardous waste disposal off base

g. We recommend pulling the pumps and equipment at the eight contaminated water supply wells in the Hadnot Point area, leaving them available for sampling only.

4. An estimated schedule of events for the Hadnot Point groundwater problem includes:

a. ESE will send a draft Remedial Investigation/ Feasibility Study Report to LANTDIV and Camp Lejeune in early October (RI/FS).

b. We will review the report ASAP and return to ESE for a final draft.

c. Upon revision, we will send the report to the State and EPA (estimated in mid November) for their review over a 30 day period. Some time within that 30 day period a briefing will be held here at Camp Lejeune with the State and EPA officials.

5. Regarding the other 22 IRP sites.

a. We recommend discontinuing work at nine sites due to the lack of documented contamination of any significance.

b. We recommend doing a Risk Analysis at six sites to determine if additional contaminants exist and/or are causing environmental problems.

c. We recommend continued monitoring and development of clean up options at seven sites and development of a change order for the ESE contract to produce a report regarding the findings at these sites. This report should be available at the end of the second quarter FY-88.

DOC. NO.: CLEJ-00193-1.01-10/16/87

Subj: TRIP REPORT MEETING WITH LANTDIV AND ENVIRONMENTAL SCIENCE AND ENGINEERING, INC., REGARDING INSTALLATION RESTORATION PROGRAM 16 SEPTEMBER 1987

6. I have discussed these findings with Mr. Hubbel, CMC LFL, and he feels that MCB and LANTDIV should discuss the release of some of this information to the public in accordance with the superfund amendments. We will need to review these regulatory requirements for public involvement with the JPAO and develop a cooperative effort in light of these rules and the possibility that Camp Lejeune sites could be named to the EPA National Priority List.

R. E. ALEXANDER

Copy to:
JPAO
SJA
NREAD
PWO
BMO

Doc. no. : CLEJ-000648-01.02-02/20/81

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune, North Carolina
UIC 67001
SITE NUMBER 6

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed? Yes, currently in operation. (Note: Prior to 1976 this operation utilized lot 140 which is described under Site #7).

   Years of operation: From 1976 To Present.

2. What is/was the name of the site (e.g., slurry pit)? Pest Control Shop, Bldg PT 37 (formerly Naval Field Research Laboratory).

3. Where is/was the site located (provide a description and give activity map coordinates)?
   On parachute tower road extension, 1 mile west of Holcomb Blvd. at map coordinates 850401.

4. Describe how the site is/was operated. From 1947 - 1976 this was a Naval Medical Field Research Laboratory. From 1976 to present this facility has been used for Insect Vector Control Shop. Pesticides and pesticide containers are managed in accordance with current regulations.

Doc. No.: CLEJ-000648-0102-02/20/81

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 5

10. Have there been any incidents or complaints concerning this site? Explain.

No.

11. How close is the site to the activity's boundaries?

Approximately 3 miles

12. Additional comments

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 5

7. Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surface waters, etc.

Soil conditions are same as site #1

Approximately 30 and 100 meters to Cogdells and Cowhead Creeks. respectively. Elevations from 10 to 30 feet.

8. Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).

Same as site #1

9. Do personnel live or work near the site? Please explain.

Only landfill personnel work in the immediate vicinity.

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 5

5. If the site was closed, briefly describe the closure procedures.

Not applicable

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin
Soil contaminated with waste oil		
Grease from Messhall greasetraps		

Doc No.: CLEJ-00648-01.02-02/20/8

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 5

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed?

In operation

Years of operation: From 1972 To Present

2. What is/was the name of the site (e.g., slurry pit)?

Base Sanitary Landfill

3. Where is/was the site located (provide a description and give activity map coordinates)?

Located on Sneads Ferry Road, 1 1/2 mile southeast of intersection with Holcomb Blvd at map coordinates 881370

4. Describe how the site is/was operated.

The site is being operated along North Carolina guidelines issued by NC Department of Human Resources

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 4

10. Have there been any incidents or complaints concerning this site? Explain.

None that compiler could identify

11. How close is the site to the activity's boundaries? 80 meters

12. Additional comments

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 4

7. Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surfacewaters, etc.

The site is located on a ridge between Tank Creek and another small unnamed tributary to Southwest Creek. Soils are baymeade with properties similar to site #1. Approximately 75 meters to adjacent streams. Elevation approximately 15-20 feet.

8. Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).

Same as site #1

9. Do personnel live or work near the site? Please explain. Yes

The site is located approximately 200 meters from the nearest residence which is located on non-military property. There are 40-60 residences and businesses within 1/2 mile of the site, all of which are located on non-military property.

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 4

5. If the site was closed, briefly describe the closure procedures. _____

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 4

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed? Closed

Years of operation: From 1946 (approximately) to 1971 (approximately)

2. What is/was the name of the site (e.g., slurry pit)? Camp Geiger Dump

3. Where is/was the site located (provide a description and give activity map coordinates)? Immediately east US Highway 17, one mile south of the intersection of Curtis Road (MCAS(H), NR) and US Highway 17, map coordinates are 732442

4. Describe how the site is/was operated. Operated as an open dump

DOE.NO.:CLEJ-000648-01.02-02/29

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 3

10. Have there been any incidents or complaints concerning this site? Explain.

No.

11. How close is the site to the activity's boundaries?

Adjacent to shoreline of New River. Approximately 4 1/2 miles to nearest non-military land area.

12. Additional comments

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 3

7. Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surface waters, etc.

Soils in the area are baymeade and pactolus with characteristics similar to site #1. The site is immediately adjacent to tidal waters at mouth of Cogdell's Creek. Elevations less than 15 ft.

8. Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).

The entire area has been stabilized. There are no observed occurrences of dying vegetation.

9. Do personnel live or work near the site? Please explain.

The site is contiguous to the Hadnot Point industrial area and near a recreational area for base residents.

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 3

5. If the site was closed, briefly describe the closure procedures. A borrow pit was established near the dump and dirt brought in and the dump site covered with dirt. Fill depth was equivalent to existing state guidelines.

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 3

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed?

Closed

Years of operation: From 1946 (approximately) to 1971 (approximately)

2. What is/was the name of the site (e.g., slurry pit)?

Hadnot Point Burn Dump

3. Where is/was the site located (provide a description and give activity map coordinates)?

Near the mouth of Cogdell's Creek at map coordinates 855364. Between Hadnot Point Sewage Treatment Plant and Cogdell's Creek.

4. Describe how the site is/was operated.

This was a dump for refuse, trash and other wastes generated throughout the industrial area at Hadnot Point and nearby housing areas. Wastes were burned and residues covered with dirt.

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 2

10. Have there been any incidents or complaints concerning this site? Explain.

No.

11. How close is the site to the activity's boundaries? 250 meters to navigable water. 2,500 meters to nearest adjacent non-military land area.

12. Additional comments

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 2

7. **Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surface waters, etc.**

The site is located at an elevation of approximately 15 feet above mean sea level. Although soils in the area have been highly modified by construction associated with the original construction of airport, the soils were originally baymeade and have same characteristics as site number 2. Distance to nearest body of water is approximately 100 meters to a small tributory of southwest creek. Distance to tidal waters is approximately 200 meters.

8. **Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).**

There is no vegetation in the immediate area (100 ft radius), however, this could easily be relateed to heat and heavy traffic. There is no observable effects beyond this distance.

9. **Do personnel live or work near the site? Please explain.**

Yes; personnel work approximately 500 feet away from site which is adjacent to end of aircraft runway in restricted access area.

DOC. NO. CLEJ-00648-0102-02/20/81

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 2

5. If the site was closed, briefly describe the closure procedures.

At this time Air Station policy is to burn only water contaminated fuels, otherwise there is no planned change in operation.

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 2

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed? In operation

Note: Use of area except for burning of water contaminated fuel is prohibited.

Years of operation: From 1975 To present

2. What is/was the name of the site (e.g., slurry pit)?

Crash crew fire training burn pit

3. Where is/was the site located (provide a description and give activity map coordinates)?

Marine Corps Air Station (H), New River at map coordinates 755428

4. Describe how the site is/was operated. Water contaminated fuels and used petroleum products have been placed into a pit and burned. Present use restricted per item (1) above.

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 1

10. Have there been any incidents or complaints concerning this site? Explain.

None

11. How close is the site to the activity's boundaries?

300 meters to shoreline and approximately 1,000 meters to adjoining tract of non-military land

12. Additional comments

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 1

7. **Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surface waters, etc.**

The site is located approximately 300 meters southwest of New River at an elevation of approximately 25 ft. above sea level. Based on soils maps developed by Soil Conservation Service, USDA, soils in the area have the following characteristics. The soil (baymeade) has a sandy surface layer approximately 2 ft thick. Below this, materials are sandy loams or loamy sands with high permeability. Depth to seasonal high water table is 3.5-5 ft. The soil has high corrosivity to concrete and low for steel.

8. **Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).**

The site is surrounded by managed forests consisting of loblolly pine and various hardwood trees and shrubs. Much of the site is covered with pine saplings. There are no apparent effects of the site on surrounding vegetation.

9. **Do personnel live or work near the site? Please explain.** No

The site is in a relatively remote location and access is restricted to authorized personnel.

Doc. No.: CLEJ-00648-01

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 1

5. If the site was closed, briefly describe the closure procedures.

Not specific

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SITE NUMBER 1

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed?
Not active

Years of operation: From unknown To approximately 1978

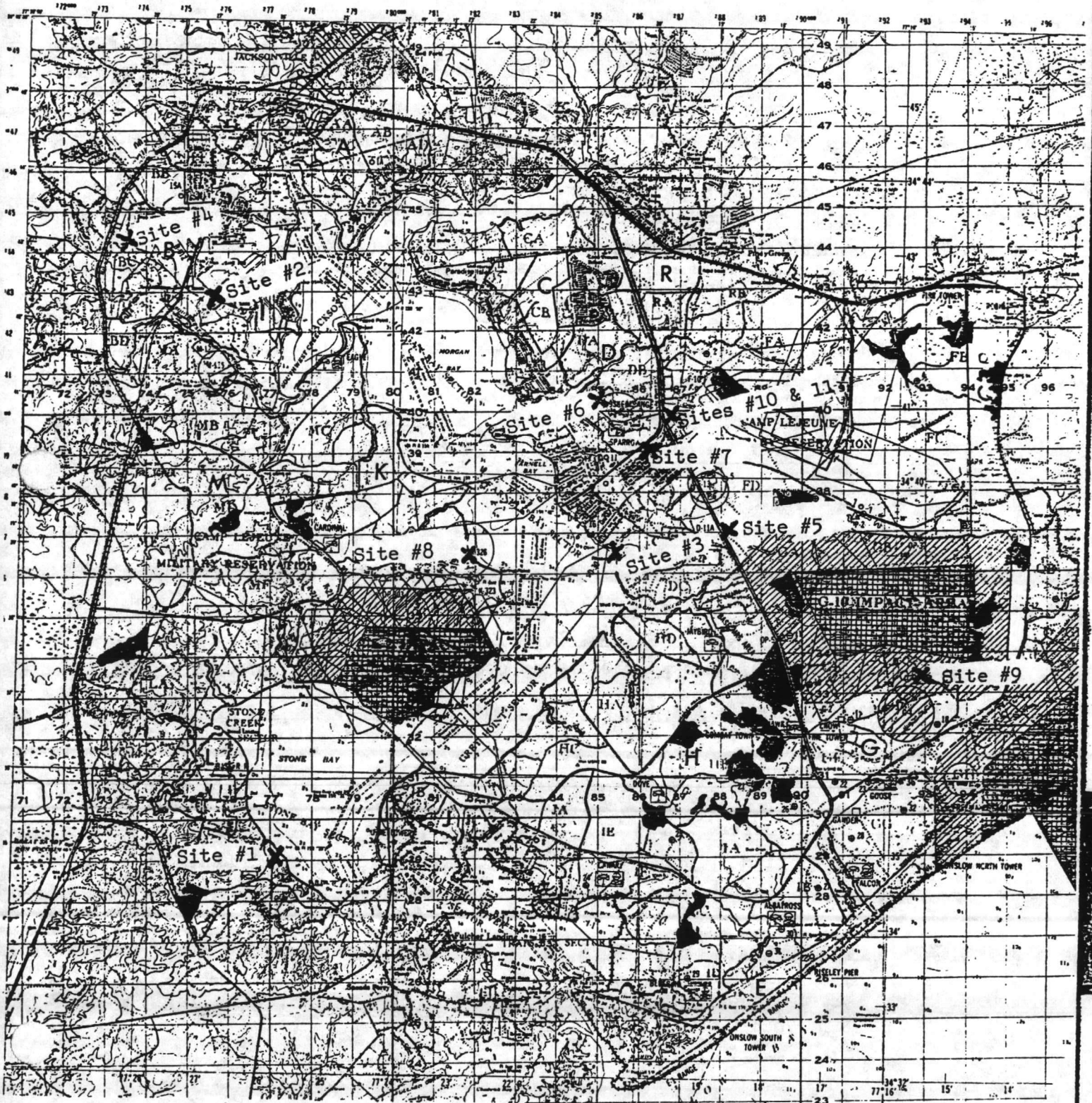
2. What is/was the name of the site (e.g., slurry pit)?
Toxic chemical dump, Rifle Range Area

3. Where is/was the site located (provide a description and give activity map coordinates)?
Approximately 3 miles east south east of the intersection of US Highway 17 and NC Highway 210 at map coordinates 770290. Aboard Marine Corps Base

4. Describe how the site is/was operated. Toxic materials were buried in containers and covered with soil. As a need arose to dispose of a material, it was taken to the site, a hole dug and the container of waste or other toxic material was placed in it and covered with dirt.

Doc. No.: CLEJ-00648-01.02-02/20181

SOUNDINGS IN METERS



Note: Sites 1, 3, 4 and 5 have existing monitoring wells and were sampled and analyzed in 1978 in cooperation with LANTDIVNAVFACENGCOM.

✖ Sites identified per MC BUL 6280 of 11 Dec 80 "Past Hazardous Waste Disposal . . ."

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

5. Are/were there any chemical or special waste disposal sites run by organizations outside the activity's fenceline which may present a current hazard to on-base personnel? Did the activity ever operate disposal sites on property which has since been excessed? Please explain.

UNKNOWN/ No evidence of sites on excessed property

6. In answering the questions in this section, was reliable information available on past operations? How far back in the past? What sources were used? Please explain.

Information based on recollection of knowledgeable personnel.

Documentation of specific items disposed was not available. The following persons furnished information: Elijah Wilson, Electric Distribution (Retired), Gene Jones & John Jordon, Public Works Dept, Hoy Burns, Technician Water Quality Control Laboratory, Percy Huffman Sewage Treatment Branch Head, LT Salamanca (Tel-0118) Explosive Ordnance Disposal, MAJ Bourque, 2d Force Service Support Group (Tel-3456), Mrs. Crawford, Plant Account (Tel-3967), R. J. Andrews,

7. ~~Additional comments~~ Base Safety Officer, Charles Peterson, Base Wildlife Manager.

Footnote #1: Records regarding explosive ordnance disposal are available at EOD (Tel-0118)

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

2. The following questions are intended to find out whether small-scale disposal of chemicals or special wastes (whether intentional or not) may have occurred at the activity. If the activity has ever run an operation listed below, check the box in column 1 (some of these operations may have been noted in section I). If a box in column 1 is checked, go to column 2 and check the box if the answer to the question in column 2 is "yes."

	Column 1		Column 2
Refuse disposal site	[X]	Did this site ever receive chemicals or special wastes?	[X]
Pest control shop	[X]	Have pesticides or pesticide rinseates ever been disposed of anywhere on a regular basis?	[X]
Firefighting training using open burning	[X]	Were substances other than oil (e.g., solvents) burned?	[X]
Ordnance operations	[X]	Were ordnance wastes ever disposed of on base?	[X]
Storage of chemical materials or special wastes in a specified area	[X]	Have these materials ever leaked or otherwise escaped confinement?	[X]

3. Section III should be completed for each disposal site identified in question 1 of this section. Section III should also be filled out for any significant disposal site identified in question 2. If the activity has NEVER disposed of chemicals or special wastes on base, completion of section III is not required.

(SEE APPENDIX A TO THIS SECTION)

4. Have any accidents involving hazardous materials ever occurred at the activity? If so, briefly describe the incidents.

Structural fire destroyed flammable materials storage warehouse (TP452) on 25 Oct 1978. Due to nature of fire a minimum of water was used to fight fire. Structure and contents were destroyed.

Radioactive beta buttons discovered while grading lot at Bldg PT-37 (See Section III, Site #6)

DOC.NO.: CLEJ-00648-01.02-02/24

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune
UIC 67001

SECTION II. DISPOSAL OF SPECIAL WASTES

This section of the fact form will ask about waste disposal sites that are or have been operated by the activity. If a disposal site(s) is identified in this section, section III should be filled out.

To complete this section (and section III, if necessary), activity records should be examined and knowledgeable activity personnel should be interviewed. Long-time activity employees will be invaluable in this effort, since they will be familiar with past disposal operations. If deemed necessary to accurately complete this section, preliminary field investigations may also be performed (however, this fact form does not warrant extensive investigations such as soil borings and waste analyses).

1. Have any of the following techniques ever been used to dispose of chemicals or special wastes on base? Do not include trash or garbage (check the appropriate boxes).

	Operations Present	Past
Solvent Pit		
Acid/Caustic Pit		
Slurry (Chemical Mixtures) Pit		
Waste Oil/Oil Sludges Pit		
Evaporating Pit		
Grease Pit		
Surface Spreading		
Open Burning (Examples: Firefighting Training, Ordnance Waste)		X
Incinerator		
Land Disposal with State Permit	X	X

Any other disposal operations?* Please explain

Lot 140 (discussed in Section III) was utilized for storage and repair of transformers. Significant quantities of oil were discharged onto the ground before awareness to PCB hazards developed.

*Do not include industrial waste treatment/pretreatment facilities that are subject to pretreatment regulations or NPDES permits. Disposal of industrial sludge should be included, however.

Appendix A to
ENCLOSURE (1)

Doc. No.: CLEJ-000648-0102-02/20/81

MCNul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune
UIC 67001

Any other industrial operations? Please list. Tactical vehicle maintenance shops

Were any industrial operations conducted in the past which have since been discontinued? If so, please list along with the year discontinued. Repair of used transformers, Lot 140, Hadnot Point, discontinued in mid 70's still used for storage awaiting disposal.

6. Additional Comments Naval Field Medical Research Laboratory was operated on base from 1947 - 1976. Site is presently used for Insect Vector Shop which is listed as Site #6 in Section III of this report

Appendix A to
ENCLOSURE (1)

Doc. No: CLET-00648-0102-02/20/:

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune

UIC 67001

SECTION I. GENERAL INFORMATION

Person compiling this information:

Name Danny Sharpe

Code BMaintDept Telephone 451-5003

1. When was the activity first established? 1941

2. Briefly describe the activity's mission. To provide housing, training facilities and logistical support for Fleet Marine Force and other units assigned to conduct specialized training as assigned.

Has this always been the activity's mission? If not, describe previous missions and when they were changed. Yes

3. Estimate the activity's equivalent population. 49,000

Equivalent Population = activity residents + 1/3 x (employees who commute in).

4. Describe the activity's location, including:

a. Location within state (e.g., northeastern corner near Podunk) Borders Atlantic Ocean in Onslow County, North Carolina, near City of Jacksonville

b. Lies in a generally rural or urban setting? rural

5. Does the activity have any of the following operations (check the appropriate boxes)?

Ship Repair		Pest Control	X
Aircraft Rework		Disaster Control	X
Aircraft Intermediate Maintenance	X	Power Generation	
Motor Vehicle Maintenance	X	DPDO Salvage Yard	X
Ordnance/Denil	X	Hospital, Dispensary	X
		Firefighting Training	X

Laboratory X What kind? Water Quality Control Laboratory

Appendix A to
ENCLOSURE (1)

Doc. No.: CLEJ-00648-01.02-02/20/8.
560 560

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO
MAIN/JIW/mkc
6240
[illegible] 1981

From: Commanding General
To: Commandant of the Marine Corps (Code LFF)

Subj: Past Hazardous Waste Disposal Sites; report of (Report Symbol DN-6280-02)

Ref: (a) MCBul 6280 of 11 Dec 1980

Encl: (1) Completed Marine Corps Activity Disposal Site Fact Form

1. In accordance with reference (a), requested information for Marine Corps Base, Camp Lejeune and Marine Corps Air Station (Helicopter), New River North Carolina has been entered on enclosure (1) and is submitted herewith.

2. If additional information is desired, please contact Mr. Jamey Sharpe, Natural Resources and Environmental Affairs Division, Base Maintenance Department, (FTS) 676-5003, (commercial) 919-451-2083.

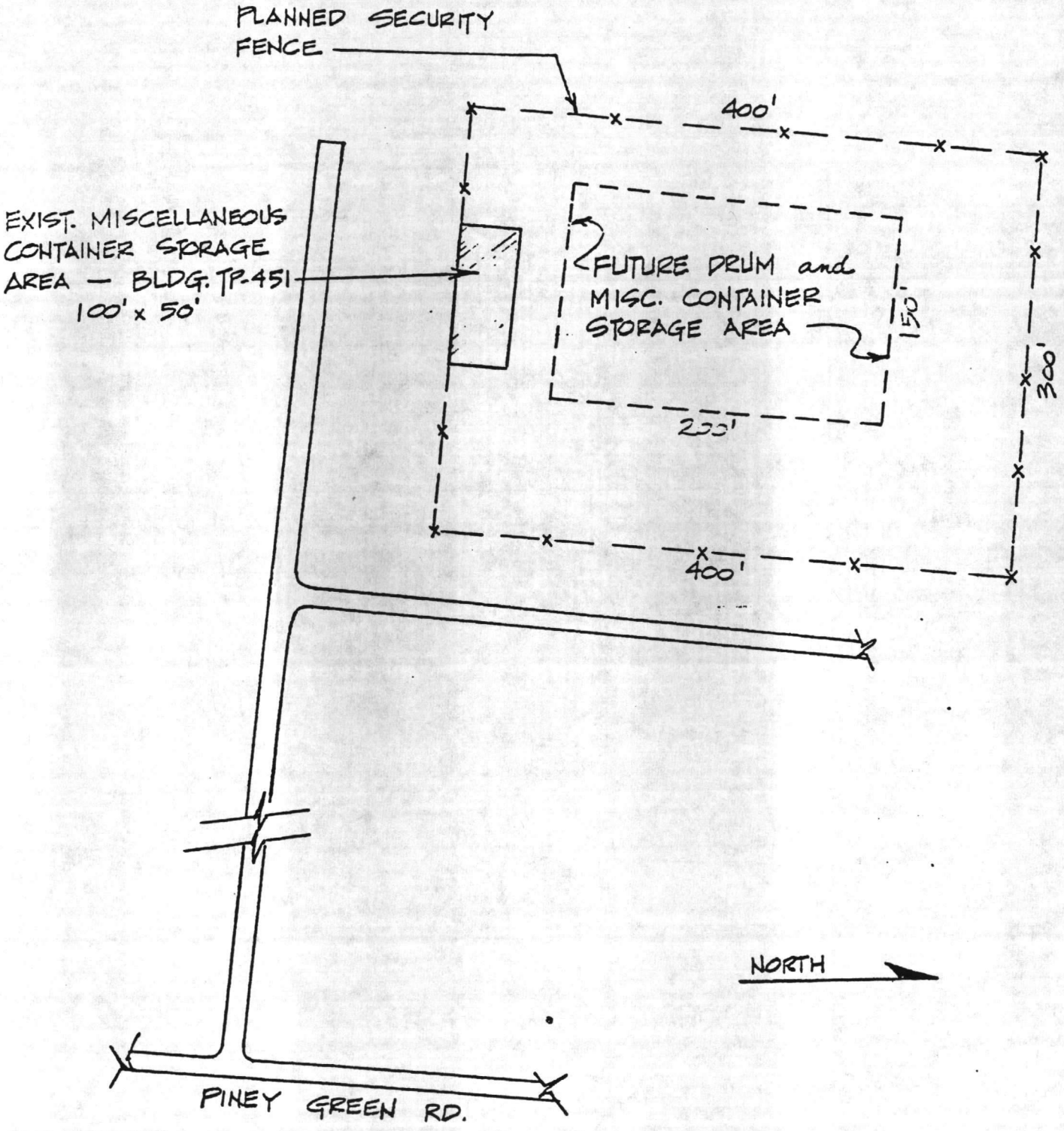
Chief of Staff

Copy to:
Cmdr, LANTNAVFACENGCOM
Cmdr, NAVRESA
CO, MCAS(H), NR

DOC. NO.: CLEJ-00263-1.02-10/31/80

FACILITY DRAWING

MARINE CORPS BASE
CAMP LEJEUNE, N.C.



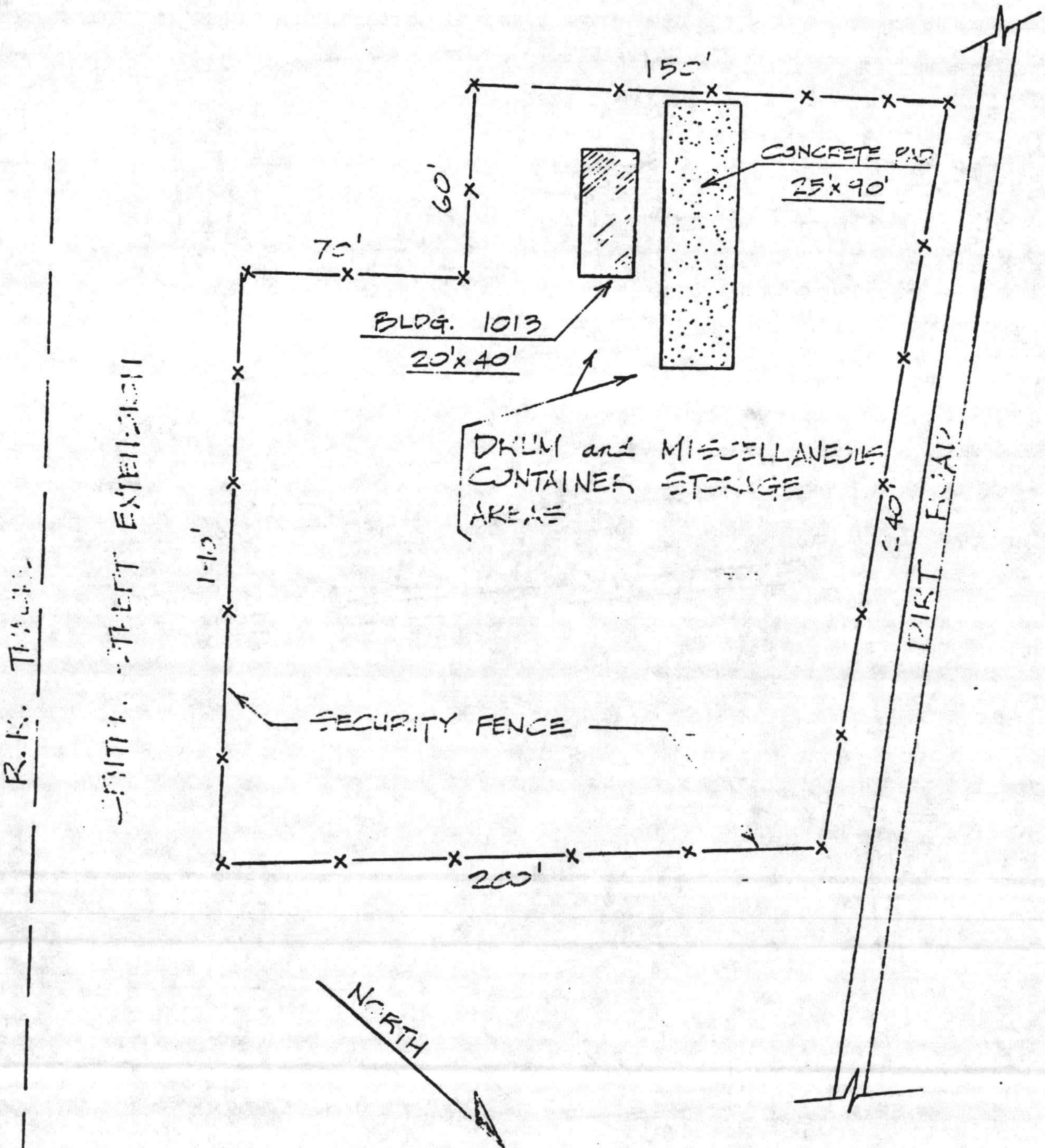
SCALE:
1" = 100'

STORAGE AREA
BLDG. TP-451

DOC. NO.

FACILITY DRAWING

MARINE CORPS BASE
CAMP LEJEUNE N.C.



SCALE:
=50'

HAZARDOUS WASTE
STORAGE AREA
LOT 140

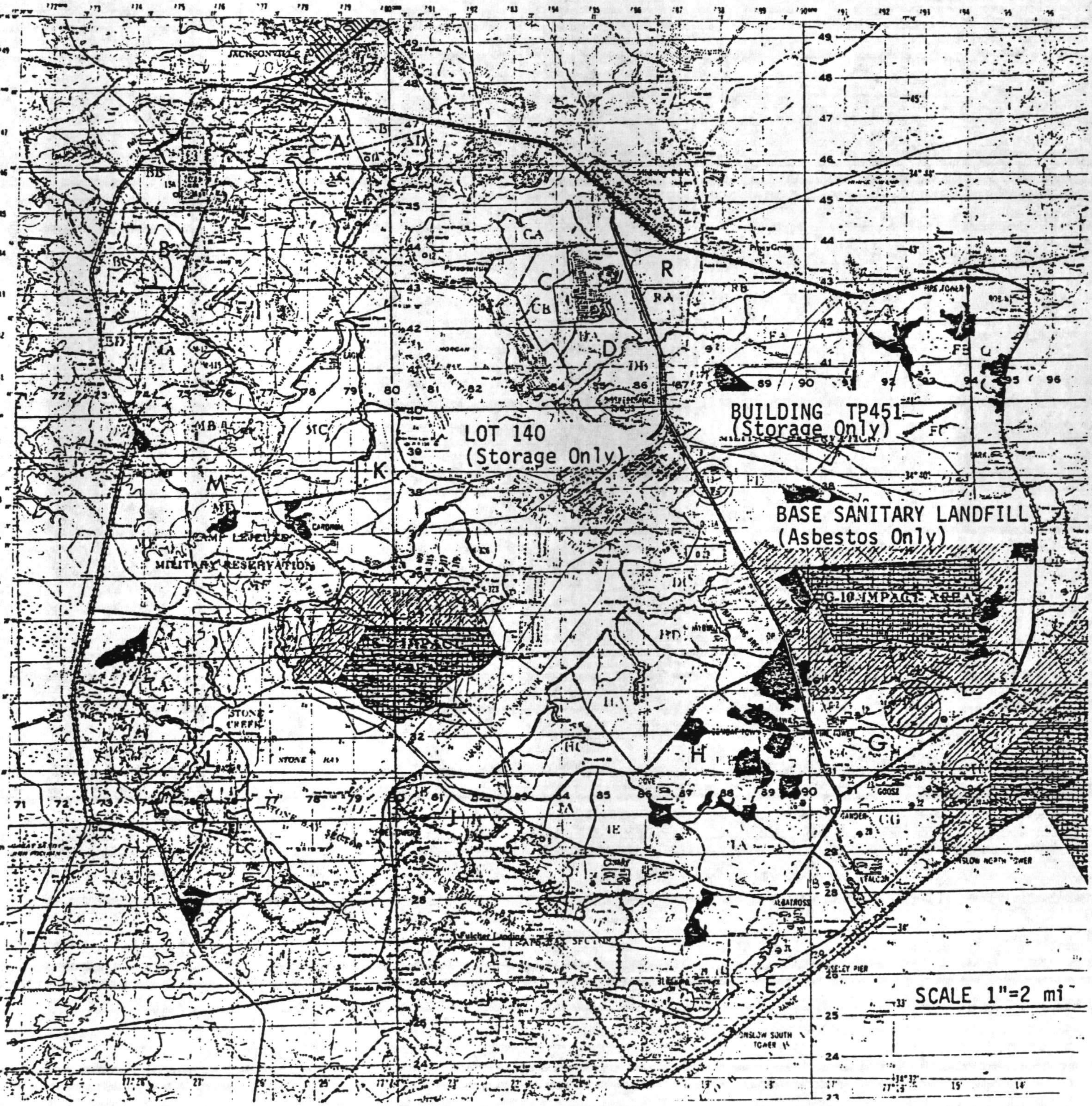
Continued from page 4.

Form Approved OMB No. 158-S80004

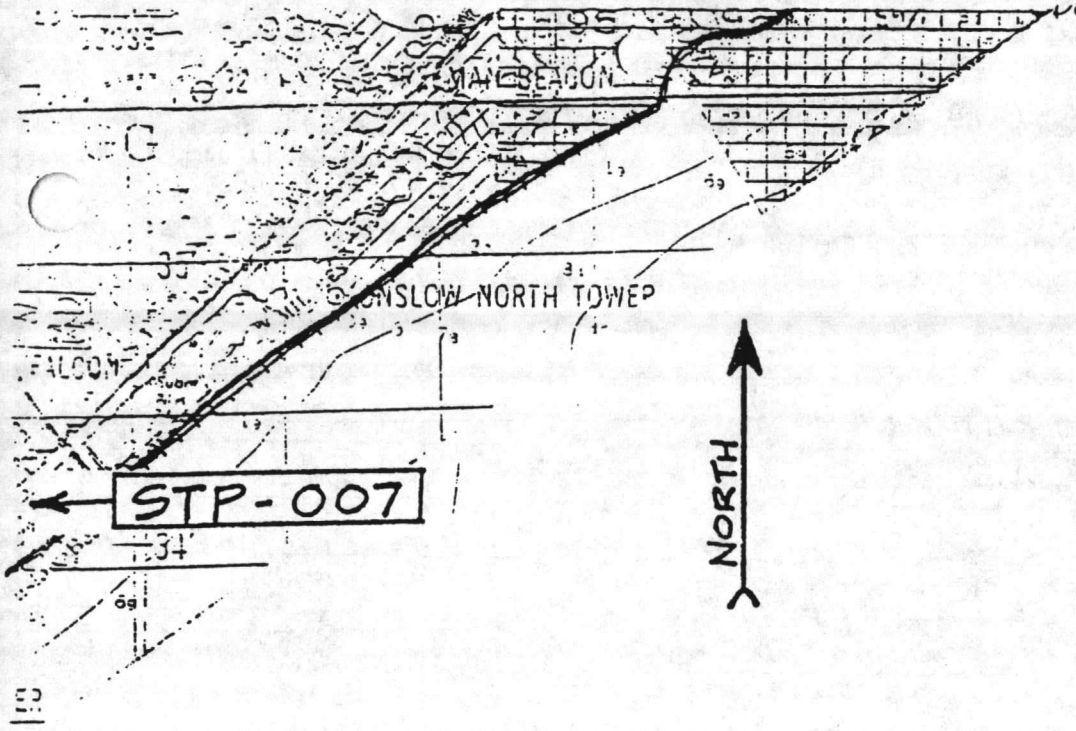
V. FACILITY DRAWING *(see page 4)*

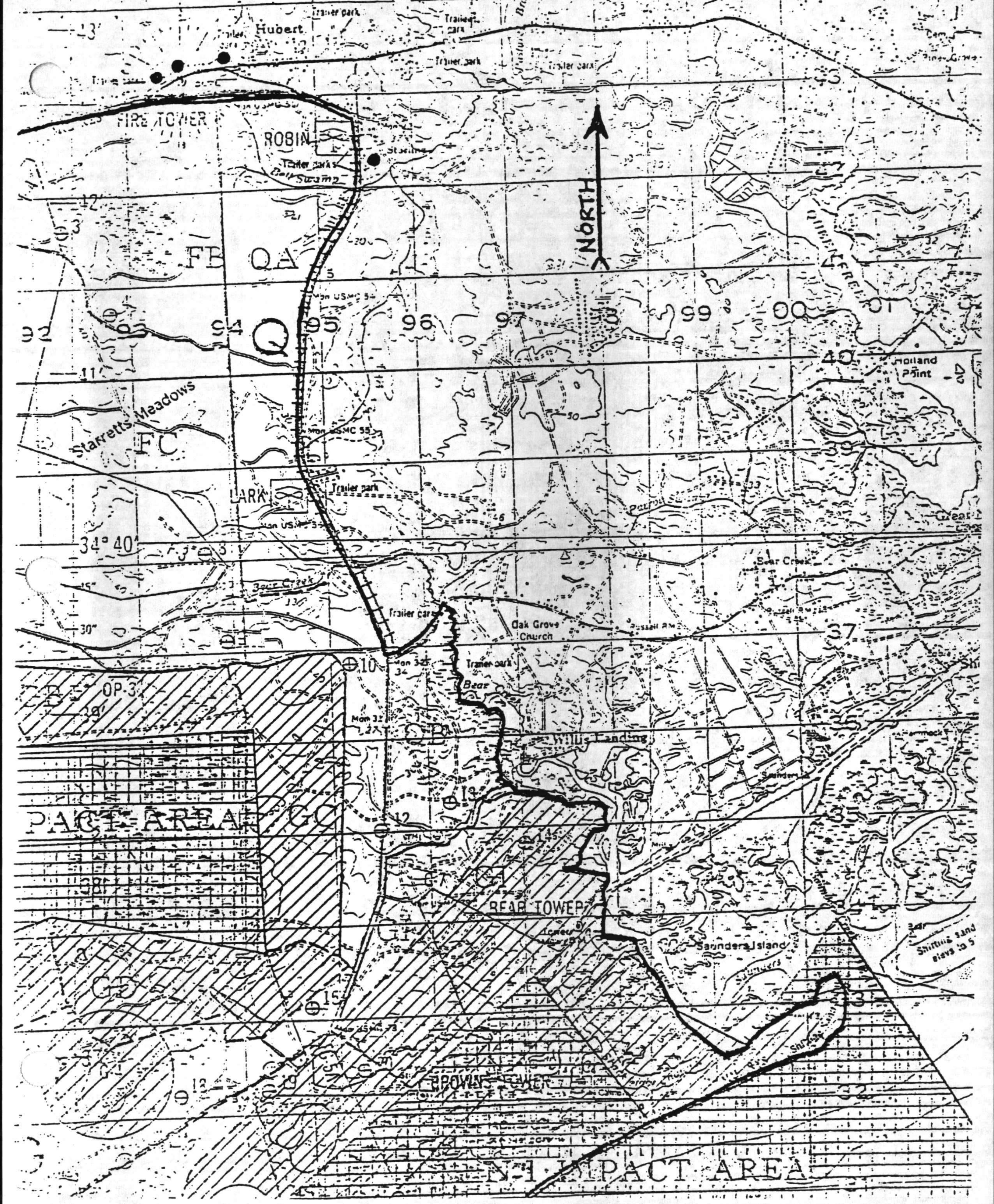
Marine Corps Base, Camp Lejeune
EPA ID No. NC 6170022580

SITE LOCATION MAP
(See Sheets 5A and 5B for Detail)

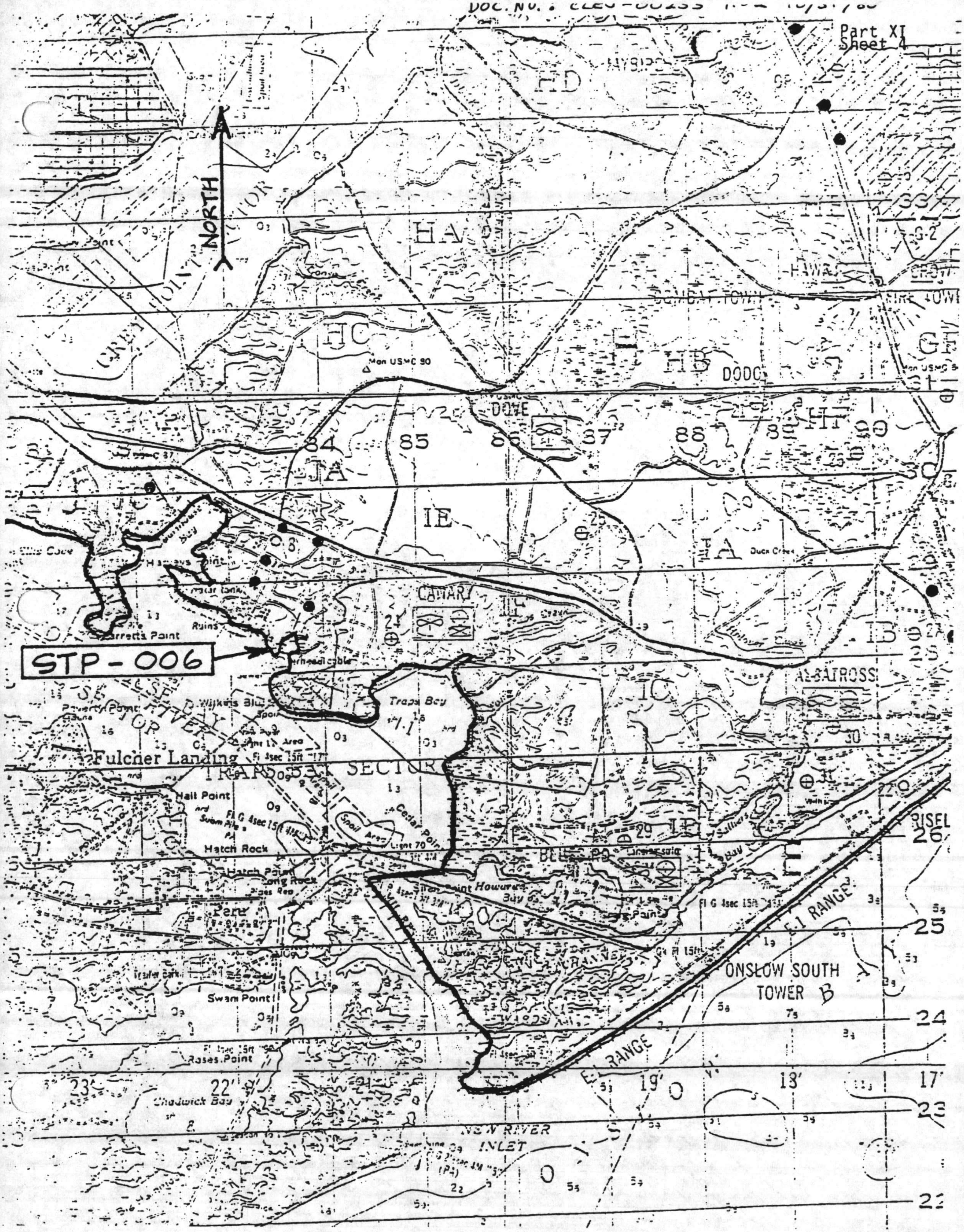


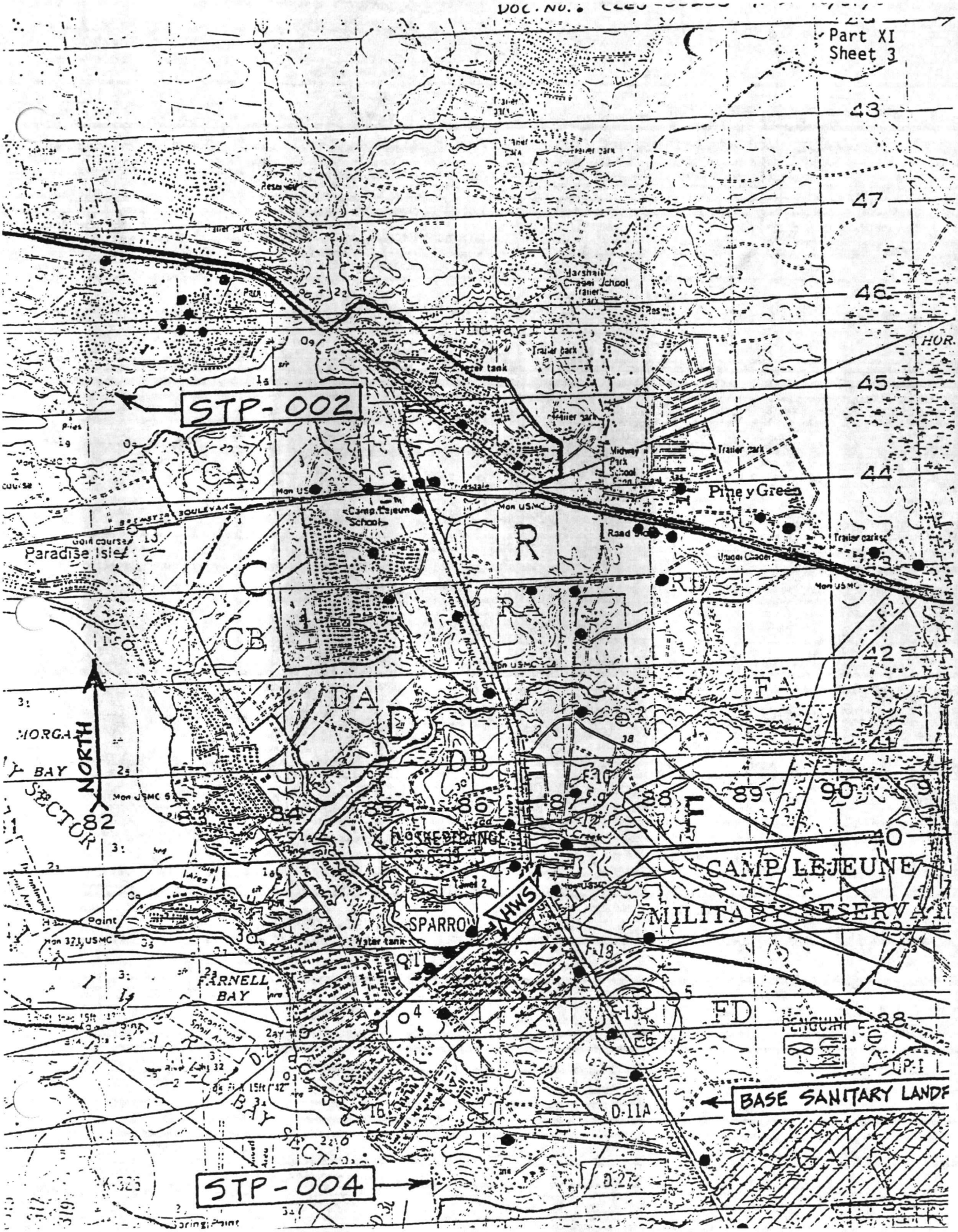
NOTE: Department of Defense is working with EPA Headquarters to develop a coordinated, workable approach on past hazardous waste disposal sites. Information will be provided when it becomes available.


MAN BEACON
NSLOW NORTH TOWER
STP-007
NORTH

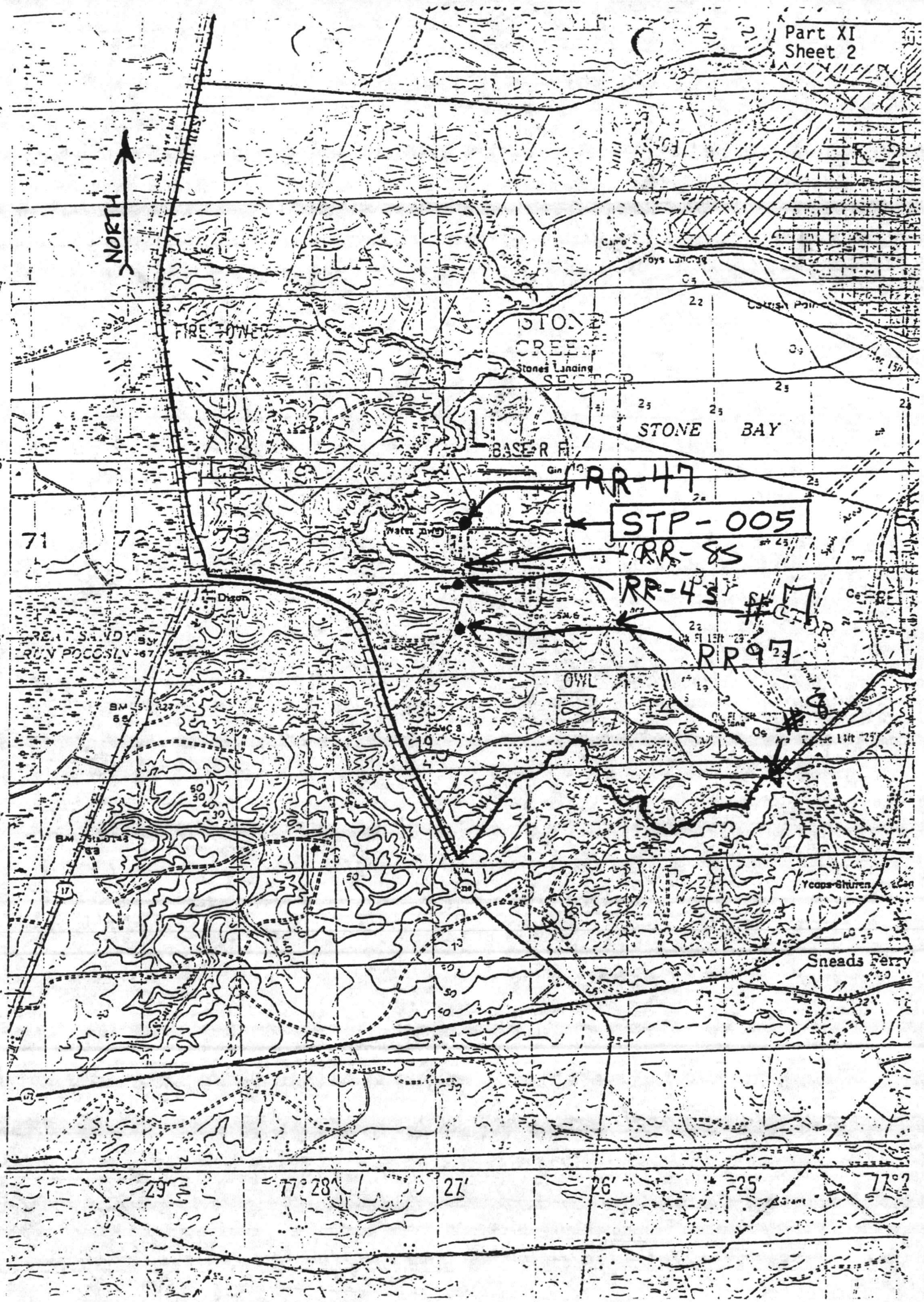

Hubert
FIRE TOWER
ROBIN
Starling
Trailer parks
Trailer park
NORTH
FB
QA
Q
92
94
95
96
97
99
00
01
40
Holland Point
39
37
35
Starretts Meadows
FC
LARK
34° 40'
Bear Creek
Oak Grove Church
OP-3
Willis Landing
PACT AREA
GC
BEAR TOWER
Saunders Island
BROWNS TOWER
N-1 IMPACT AREA
Shifting sand

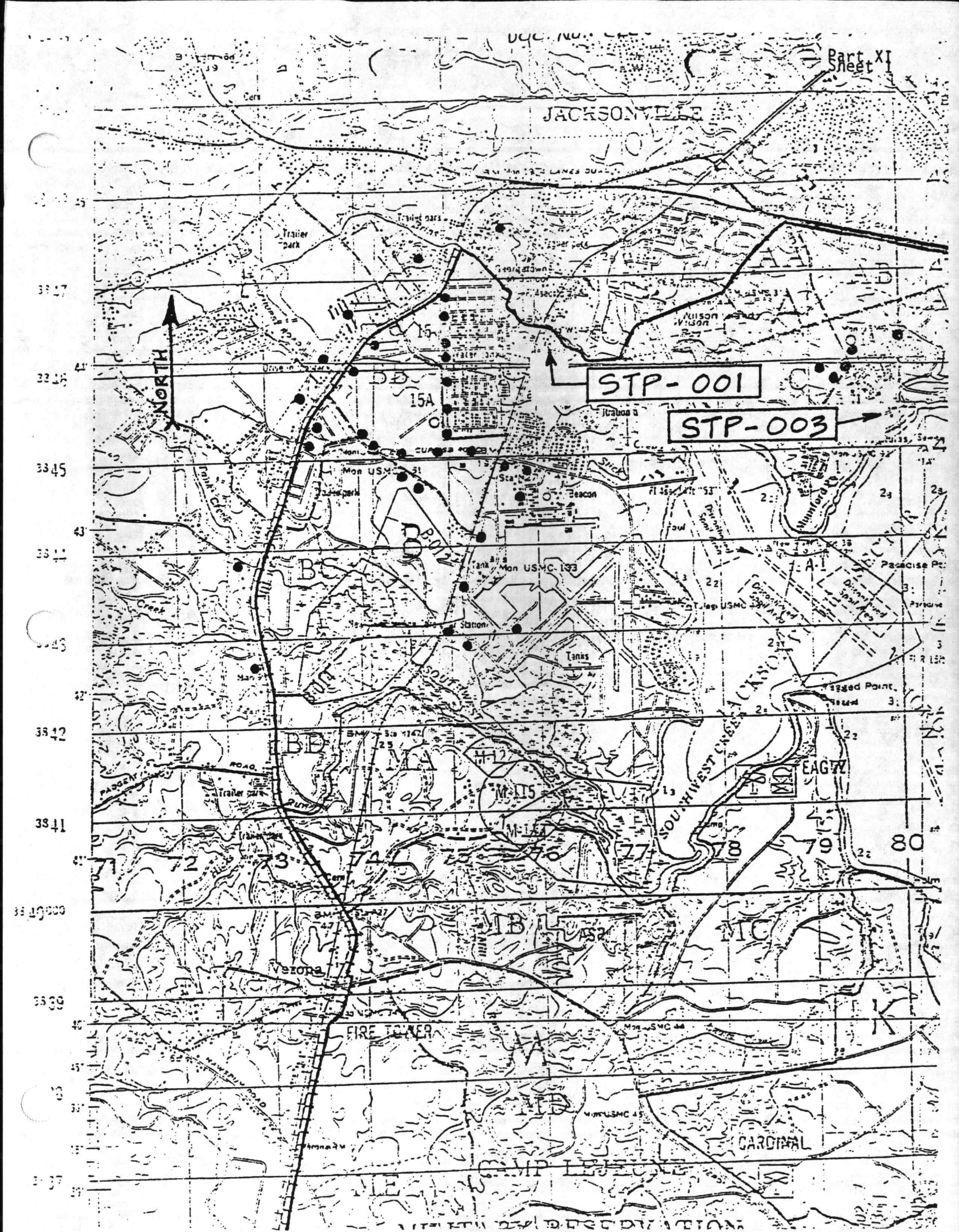
Part XI
Sheet 4




STP-002
STP-004
NORTH
SECTOR
BASE SANITARY LANDF
CAMP LEJEUNE
MILITARY RESERV
HWS
SPARROW
FARNELL BAY
MORGAN BAY
Paradise Isle
Piney Green
Camp Lejeune School
Marshall Creek School
Midway Park School
Trailer park
Water tank
Golf course
Mon USMC
Mon 321 USMC
Point
Creek
Lake
Spring Point
43
47
46
45
44
42
41
90
89
88
84
82
CA
CB
DA
DB
FA
FD
R
RB

Part XI
Sheet 2




JACKSONVILLE
NORTH
STP-001
STP-003
15
15A
Trailer park
Mon USMC 51
Mon USMC-133
Beacon
Tanks
SOUTHWEST CREEK
Paradise Pt
BD
Trailer park
Verona
FIRE TOWER
CARDINAL
CAMP LEJEUNE
71
72
73
74
75
76
77
78
79
80

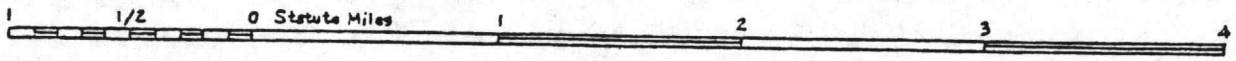
DOC. NO.: CLEJ -

Part XI, EPA Form 3510-1 (6-80)

Topographic Map
Marine Corps Base
Camp Lejeune, North Carolina

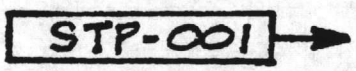
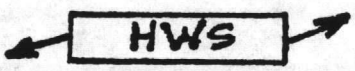
1. The attached maps were copied from the Camp Lejeune Special Map, 5th Edition, September 25, 1976, published by The Defense Mapping Agency Hydrographic Center, Washington, D. C. 20390.

2. Map Scale 1:50,000



3. Contour lines are marked in 10 feet intervals above mean high water level.

4. Symbols used to show requested information are as follows:

Symbol	Feature
	Facility Boundary
	Public Drinking Water Well
	Sewage Treatment Plant Location and NPDES ID Number
	Facility Used to Store Hazardous Waste Awaiting Transfer to Approved Off Base Disposal Facilities

DOC. NO.: CLEN-00253-1.02-10/31/80

Please print or type in the unshaded areas only (fill—in areas are spaced for elite type, i.e., 12 characters). Form Approved OMB No. 158-R0175

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F N C 6 1 7 0 0 2 2 5 8 0

LABEL ITEMS

- II. EPA I.D. NUMBER
- III. FACILITY NAME
- V. FACILITY MAILING ADDRESS
- VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill—in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold—faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X		*
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	
J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP: MARINE CORPS BASE CAMP LEJEUNE

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 DANNY SHARPE ECOLOGIST	919 451 5003

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 MARINE CORPS BASE

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 CAMP LEJEUNE	NC	28542

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 MARINE CORPS BASE

B. COUNTY NAME

ONSLOW COUNTY

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 CAMP LEJEUNE	NC	28542	

EPA Form 3510-1 (6-80)

CONTINUE ON REVERSE

DOC NO: CLCW-00848-1.02-10/31/80

JENNINGS LABORATORIES, INC.

PESTICIDES/PCB's (Continued)		DETECTION LIMITS µg/l
Aroclor 1016	None Detected	.04
Aroclor 1221	None Detected	.10
Aroclor 1232	None Detected	.10
Aroclor 1242	None Detected	.06
Aroclor 1248	None Detected	.08
Aroclor 1254	None Detected	.08
Aroclor 1260	None Detected	.15
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	None Detected	.003

METALS			DETECTION LIMITS mg/l
Antimony	0.2	mg/l	0.2
Arsenic	<0.002	mg/l	0.002
Beryllium	<0.005	mg/l	0.005
Cadmium	0.006	mg/l	0.002
Chromium	<0.02	mg/l	0.02
Copper	<0.01	mg/l	0.01
Lead	<0.005	mg/l	0.005
Mercury	<0.002	mg/l	0.002
Nickel	<0.02	mg/l	0.02
Selenium	0.008	mg/l	0.002
Silver	<0.01	mg/l	0.01
Thallium	<0.1	mg/l	0.1
Zinc	0.005	mg/l	0.005

MISCELLANEOUS		
Total Cyanides	None Detected	0.01
Asbestos (fibrous)	None Detected	
Total Phenols	None Detected	0.005

LAB# 2518

BY E. R. Compton

CHEMIST

UOC NO. ULEJ-00248-1.02-10/31/80

JENNINGS LABORATORIES, INC.

ACID EXTRACTABLE ORGANIC COMPOUNDS

		DETECTION LIMITS µg/l
Phenol	NONE DETECTED	1.4
2-Nitrophenol	None Detected	2.5
4-Nitrophenol	None Detected	2.5
2,4-Dinitrophenol	None Detected	7.0
4,6-Dinitro-o-cresol	None Detected	2.0
Pentachlorophenol	None Detected	10.0
p-Chloro-m-cresol	None Detected	.01
2-Chlorophenol	None Detected	2.0
2,4-Dichlorophenol	None Detected	2.1
2,4,6-Trichlorophenol	None Detected	3.0
2,4-Dimethylphenol	None Detected	1.7

PESTICIDES/PCB's

α-Endosulfan	None Detected	.005
β-Endosulfan	None Detected	.01
Endosulfan sulfate	None Detected	.03
α-BHC	None Detected	.002
β-BHC	None Detected	.004
δ-BHC	None Detected	.004
γ-BHC	None Detected	.002
Aldrin	None Detected	.003
Dieldrin	None Detected	.006
4,4'-DDE	None Detected	.006
4,4'-DDD	None Detected	.012
4,4'-DDT	None Detected	.016
Endrin	None detected	.009
Endrin Aldehyde	None Detected	.023
Heptachlor	None Detected	.002
Heptachlor Epoxide	None Detected	.004
Chlordane	None Detected	.04
Toxaphene	None Detected	.40

LAB # 2518

BY E. R. Douglas

CHEMIST

Doc No: UCW-00248-1.02-10/3/180

JENNINGS LABORATORIES, INC.

BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS (continued)

		DETECTION LIMIT µg/l
4-Bromophenyl phenyl ether	None Detected	1.1
bis(2-Ethylhexyl)phthalate	None Detected	.02
Di-n-octyl phthalate	None Detected	.11
Dimethyl phthalate	None Detected	.11
Diethyl phthalate	None Detected	.13
Di-n-butyl phthalate	None Detected	.02
Fluorene	None Detected	.04
Fluoranthene	None Detected	.04
Chrysene	None Detected	.04
Pyrene	None Detected	.04
Phenathrene	None Detected	.04
Anthracene	None Detected	.04
Benzo(a)anthracene	None Detected	.04
Benzo(b)fluoranthene	None Detected	.04
Benzo(k)fluoranthene	None Detected	.04
Benzo(a)pyrene	None Detected	.04
Ideno(1,2,3-c,d)pyrene	None Detected	.10
Dibenzo(a,h)anthracene	None Detected	.10
Benzo(g,h,i)perylene	None Detected	.10
4-Chlorophenyl phenyl ether	None Detected	2.2
3,3'-Dichlorobenzidine	None Detected	.04
Benzidine	None Detected	.04
Bis(2-Chloroethyl)ether	None Detected	.04
1,2-Diphenylhydrazine	None Detected	.04
Hexachlorocyclopentadiene	None Detected	.04
N-Nitrosodiphenylamine	None Detected	1.0
Acenaphthylene	None Detected	.04
Acenaphthene	None Detected	.04
Butyl benzyl phthalate	None Detected	.04
N-Nitrosodimethylamine	None Detected	.2
N-Nitrosodi-n-propylamine	None Detected	.5
bis(2-Chloroisopropyl) ether	None Detected	.9

LAB # 2518

BY E. R. Douglas
Chemist

DOC NO : CLEJ-00248-1.02-10/31/80

JENNINGS LABORATORIES, INC.

PURGEABLE ORGANICS (continued)		DETECTION LIMITS µg.
Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	None Detected	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	.005 µg/l	.005
Vinyl Chloride	.01 µg/l	.01
1,2-trans-Dichloroethylene	.006 µg/l	.006
bis(chloromethyl)ether	.003 µg/l	.003

BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS		
1,2-Dichlorobenzene	None Detected	.04
1,3-Dichlorobenzene	None Detected	.04
1,4-Dichlorobenzene	None Detected	.04
Hexachloroethane	None Detected	.001
Hexachlorobutadiene	None Detected	.001
Hexachlorobenzene	None Detected	.002
1,2,4-Trichlorobenzene	None Detected	.006
Bis(2-Chloroethoxy)methane	None Detected	.40
Naphthalene	None Detected	.04
2-Chloronaphthalene	None Detected	.04
Isophorone	None Detected	5.0
Nitrobenzene	None Detected	5.0
2,4-Dinitrotoluene	None Detected	.06
2,6-Dinitrotoluene	None Detected	.06

LAB # 2518

BY E. R. Douglas
CHEMIST

DOC NO: CLEV - 00248 - 1.02 - 10/31/80

JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for Drinking Water Analysis - Microbiological, Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for: AMERICAN OIL CHEMISTS SOCIETY

NATIONAL SOYBEAN PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER CONTROL BOARD for Analysis of Effluents for NPDES PERMITS

CERTIFIED OFFICIAL U.S.D.A. LABORATORY FOR MEAT ANALYSIS

CERTIFICATE OF ANALYSIS

TO Mr. Dave Goodwin
Building N-23 Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511

DATE October 31, 1980

SAMPLE OF WATER SAMPLES (8) - Blank made on each analysis.Bromochloromethane,

MARKED 2-bromo-1-chloropropane,1-4 dichlorobutane used as internal standard.

GC/MS calibrated with perfluorotributylamine, SIM MODE. All test run according t EPA TEST PROCEDURES.

OFFICIAL SAMPLE BY:

PURGEABLE ORGANICS		DETECTION LIMITS µg/l
Acrolein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None Detected	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	.005 µg/l	.005
1,1-Dichloroethane	.004 µg/l	.004
1,1-Dichloroethylene	.006 µg/l	.006
1,1,2-Trichloroethane	.006 µg/l	.006
1,1,2,2-Tetrachloroethane	.006 µg/l	.006
Chloroethane	.01 µg/l	.01
2-Chloroethyl vinyl ether	.08 µg/l	.08

Respectfully submitted,

JENNINGS LABORATORIES, INC.

Laboratory Analysis No 2518

E. R. Douglas

CHEMIST

SEE STANDARD METHODS A.O.A.C., ASTM, API, EPA AND NCBA USED IN ALL ANALYSIS - UNLESS OTHERWISE STATED

Doc No: CLEJ-00248-1.02-10131/80

JENNINGS LABORATORIES, INC.

PESTICIDES/PCB's (Continued)		DETECTION LIMITS µg/l
Aroclor 1016	None Detected	.04
Aroclor 1221	None Detected	.10
Aroclor 1232	None Detected	.10
Aroclor 1242	None Detected	.06
Aroclor 1248	None Detected	.08
Aroclor 1254	None Detected	.08
Aroclor 1260	None Detected	.15
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	None Detected	.003

METALS			DETECTION LIMITS mg/l
Antimony	0.2	mg/l	0.2
Arsenic	<0.002	mg/l	0.002
Beryllium	<0.005	mg/l	0.005
Cadmium	0.006	mg/l	0.002
Chromium	<0.02	mg/l	0.02
Copper	<0.01	mg/l	0.01
Lead	<0.005	mg/l	0.005
Mercury	<0.002	mg/l	0.002
Nickel	<0.02	mg/l	0.02
Selenium	0.008	mg/l	0.002
Silver	<0.01	mg/l	0.01
Thallium	<0.1	mg/l	0.1
Zinc	0.005	mg/l	0.005

MISCELLANEOUS		
Total Cyanides	None Detected	0.01
Asbestos (fibrous)	None Detected	
Total Phenols	None Detected	0.005

LAB# 2518

BY _____

CHEMIST

DOC NO: CLEJ-00248-1.02-10/31/80

JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for Drinking Water Analysis - Microbiological, Inorganic and Organic

ASBESTOS ANALYSIS – NIOSH 582

Official Referee Chemists for:
AMERICAN OIL CHEMISTS SOCIETY
NATIONAL SOYBEAN PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER CONTROL BOARD for Analysis of Effluents for NPDES PERMITS

CERTIFIED OFFICIAL U.S.D.A. LABORATORY FOR MEAT ANALYSIS

CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin
Building N-23 Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511

DATE: October 31, 1980

SAMPLE OF WATER SAMPLES (8) FOR COMPOSITE FOR PRIORITY POLLUTANT SCAN

MARKED Listed below

Samples picked up October 1, 1980

OFFICIAL SAMPLE BY: _____

EIGHT (8) SAMPLES OF WATER TO BE COMPOSITED AS PER INSTRUCTIONS:

SAMPLE MARKED	QUARTS	LOCATION	QUANTITY
#1	2	Hadnot Point Bldg 20	1552 ml
#2	1	Hadnot Point Bldg 670	708 ml
#3	1	Tarawa Terrace TT-38	452 ml
#4	1	Monford Point M-178	220 ml
#5	1	MCAS(H) Bldg 110	664 ml
#6	1	Courthouse Bay BB-190	132 ml
#7	1	Rifle Range RR-85	220 ml
#8	1	Onslow Beach BA-138	52 ml
			4000 ml

Respectfully submitted,
JENNINGS LABORATORIES, INC.

Laboratory Analysis No. 2518

E. R. Douglas
CHEMIST

OFFICIAL METHODS OF A.O.A.C., A.O.C.S., A.S.T.M., A.P.H.A., E.P.A. AND N.S.P.A. USED IN ALL ANALYSIS UNLESS OTHERWISE STATED

Doc No: CLEJ-00240-1.02-10/31/80

JENNINGS LABORATORIES, INC.

ACID EXTRACTABLE ORGANIC COMPOUNDS

		DETECTION LIMITS µg/l
Phenol	NONE DETECTED	1.4
2-Nitrophenol	None Detected	2.5
4-Nitrophenol	None Detected	2.5
2,4-Dinitrophenol	None Detected	7.0
4,6-Dinitro-o-cresol	None Detected	2.0
Pentachlorophenol	None Detected	10.0
p-Chloro-m-cresol	None Detected	.01
2-Chlorophenol	None Detected	2.0
2,4-Dichlorophenol	None Detected	2.1
2,4,6-Trichlorophenol	None Detected	3.0
2,4-Dimethylphenol	None Detected	1.7

PESTICIDES/PCB's

α-Endosulfan	None Detected	.005
β-Endosulfan	None Detected	.01
Endosulfan sulfate	None Detected	.03
α-BHC	None Detected	.002
β-BHC	None Detected	.004
δ-BHC	None Detected	.004
γ-BHC	None Detected	.002
Aldrin	None Detected	.003
Dieldrin	None Detected	.006
4,4'-DDE	None Detected	.006
4,4'-DDD	None Detected	.012
4,4'-DDT	None Detected	.016
Endrin	None detected	.009
Endrin Aldehyde	None Detected	.023
Heptachlor	None Detected	.002
Heptachlor Epoxide	None Detected	.004
Chlordane	None Detected	.04
Toxaphene	None Detected	.40

LAB # 2518

BY E. R. Dunfan

CHEMIST

VOC NO: CLW-00248-1.02-10/31/90

JENNINGS LABORATORIES, INC.

BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS (continued)

		DETECTION LIMIT ug/l
4-Bromophenyl phenyl ether	None Detected	1.1
bis(2-Ethylhexyl)phthalate	None Detected	.02
Di-n-octyl phthalate	None Detected	.11
Dimethyl phthalate	None Detected	.11
Diethyl phthalate	None Detected	.13
Di-n-butyl phthalate	None Detected	.02
Fluorene	None Detected	.04
Fluoranthene	None Detected	.04
Chrysene	None Detected	.04
Pyrene	None Detected	.04
Phenathrene	None Detected	.04
Anthracene	None Detected	.04
Benzo(a)anthracene	None Detected	.04
Benzo(b)fluoranthene	None Detected	.04
Benzo(k)fluoranthene	None Detected	.04
Benzo(a)pyrene	None Detected	.04
Ideno(1,2,3-c,d)pyrene	None Detected	.10
Dibenzo(a,h)anthracene	None Detected	.10
Benzo(g,h,i)perylene	None Detected	.10
4-Chlorophenyl phenyl ether	None Detected	2.2
3,3'-Dichlorobenzidine	None Detected	.04
Benzidine	None Detected	.04
Bis(2-Chloroethyl)ether	None Detected	.04
1,2-Diphenylhydrazine	None Detected	.04
Hexachlorocyclopentadiene	None Detected	.04
N-Nitrosodiphenylamine	None Detected	1.0
Acenaphthylene	None Detected	.04
Acenaphthene	None Detected	.04
Butyl benzyl phthalate	None Detected	.04
N-Nitrosodimethylamine	None Detected	.2
N-Nitrosodi-n-propylamine	None Detected	.5
bis(2-Chloroisopropyl) ether	None Detected	.9

LAB # 2518

BY E. R. Douglas
Chemist

Doc No: CLEU-00248 - 1.02 -10/31/80

[illegible] LABORATORIES, INC.

PURGEABLE ORGANICS (continued)		DETECTION LIMITS µg/.
Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	None Detected	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	.005 µg/l	.005
Vinyl Chloride	.01 µg/l	.01
1,2-trans-Dichloroethylene	.006 µg/l	.006
bis(chloromethyl)ether	.003 µg/l	.003

BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS		
1,2-Dichlorobenzene	None Detected	.04
1,3-Dichlorobenzene	None Detected	.04
1,4-Dichlorobenzene	None Detected	.04
Hexachloroethane	None Detected	.001
Hexachlorobutadiene	None Detected	.001
Hexachlorobenzene	None Detected	.002
1,2,4-Trichlorobenzene	None Detected	.006
Bis(2-Chloroethoxy)methane	None Detected	.40
Naphthalene	None Detected	.04
2-Chloronaphthalene	None Detected	.04
Isophorone	None Detected	5.0
Nitrobenzene	None Detected	5.0
2,4-Dinitrotoluene	None Detected	.06
2,6-Dinitrotoluene	None Detected	.06

LAB # 2518

BY E. R. Douglas
CHEMIST

DOC NO · 0200 - 00248 -1.02 - 10/31/80

JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1113 CYPRESS AVENUE • P. O. BOX 351 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1198

VA (EPA) CERTIFIED LABORATORY for Drinking Water Analysis - Microbiological, Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for AMERICAN OIL CHEMISTS SOCIETY

NATIONAL SOYBEAN PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER CONTROL BOARD for Analysis of Effluents for NPDES PERMITS

CERTIFIED OFFICIAL U.S.D.A. LABORATORY FOR MEAT ANALYSIS

CERTIFICATE OF ANALYSIS

TO Mr. Dave Goodwin
Building N-23 Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511

DATE October 31, 1980

SAMPLE OF WATER SAMPLES (8) - Blank made on each analysis. Bromochloromethane,

MARKED 2-bromo-1-chloropropane, 1-4 dichlorobutane used as internal standard.

GC/MS calibrated with perfluorotributylamine, SIM MODE. All test run according to EPA TEST PROCEDURES.

OFFICIAL SAMPLE BY:

PURGEABLE ORGANICS		DETECTION LIMITS µg/l
Acrolein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None Detected	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	.005 µg/l	.005
1,1-Dichloroethane	.004 µg/l	.004
1,1-Dichloroethylene	.006 µg/l	.006
1,1,2-Trichloroethane	.006 µg/l	.006
1,1,2,2-Tetrachloroethane	.006 µg/l	.006
Chloroethane	.01 µg/l	.01
2-Chloroethyl vinyl ether	.08 µg/l	.08

Respectfully submitted,
JENNINGS LABORATORIES, INC.

Laboratory Analysis No. 2518

E. R. Douglas
CHEMIST

DOC. NO.: CLEN - 00470 10/31/80

JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1198

VA (EPA) CERTIFIED LABORATORY for Drinking Water Analysis - Microbiological, Inorganic and Organic

ASBESTOS ANALYSIS – NIOSH 582

Official Referee Chemists for:
AMERICAN OIL CHEMISTS SOCIETY
NATIONAL SOYBEAN PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER CONTROL BOARD for Analysis of Effluents for NPDES PERMITS

CERTIFIED OFFICIAL U.S.D.A. LABORATORY FOR MEAT ANALYSIS

CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin
Building N-23 Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511

DATE: October 31, 1980

SAMPLE OF WATER SAMPLES (8) FOR COMPOSITE FOR PRIORITY POLLUTANT SCAN

MARKED Listed below

Samples picked up October 1, 1980

OFFICIAL SAMPLE BY: _____

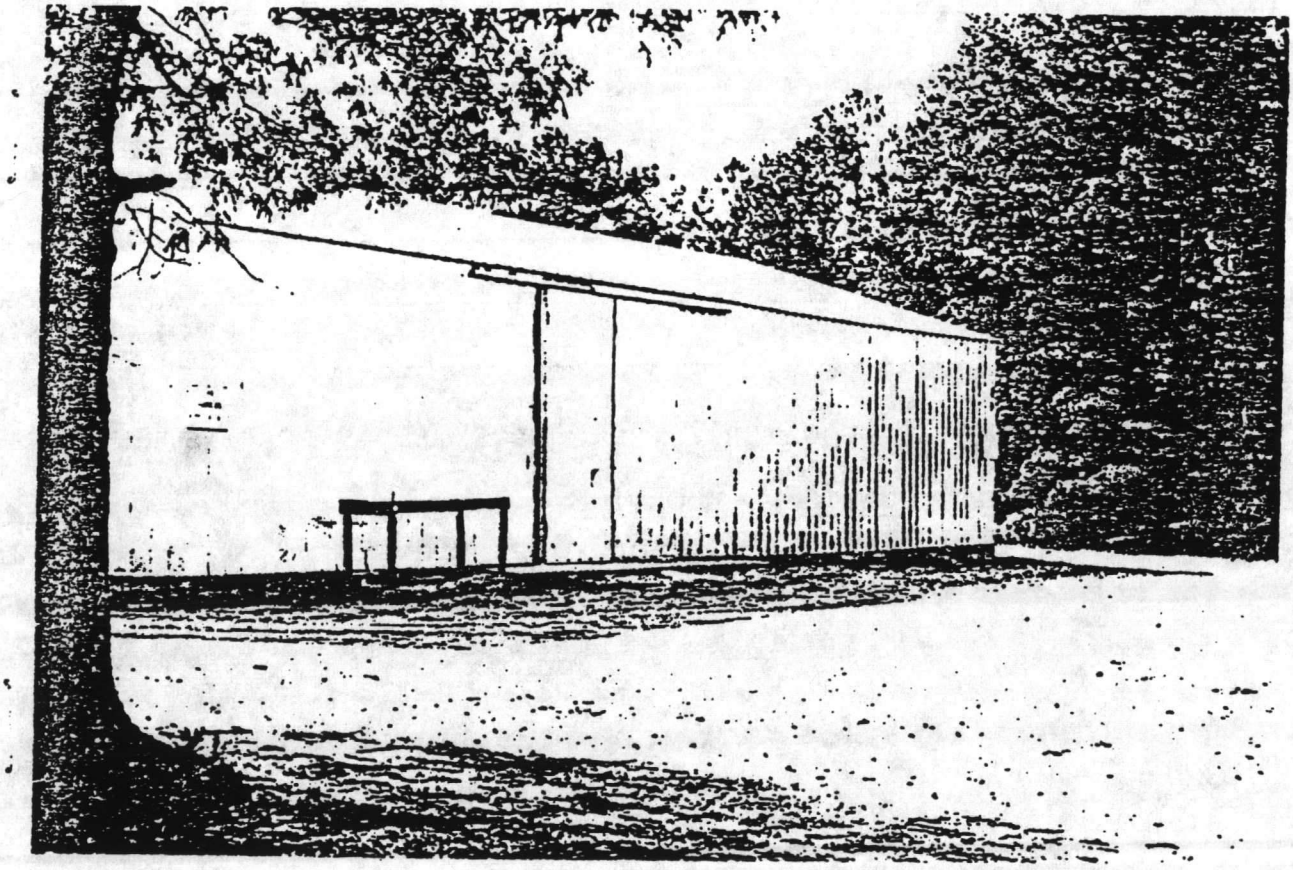
EIGHT (8) SAMPLES OF WATER TO BE COMPOSITED AS PER INSTRUCTIONS:

SAMPLE MARKED	QUARTS	LOCATION	QUANTITY
#1	2	Hadnot Point Bldg 20	1552 ml
#2	1	Hadnot Point Bldg 670	708 ml
#3	1	Tarawa Terrace TT-38	452 ml
#4	1	Monford Point M-178	220 ml
#5	1	MCAS(H) Bldg 110	664 ml
#6	1	Courthouse Bay BB-190	132 ml
#7	1	Rifle Range RR-85	220 ml
#8	1	Onslow Beach BA-138	52 ml
			4000 ml

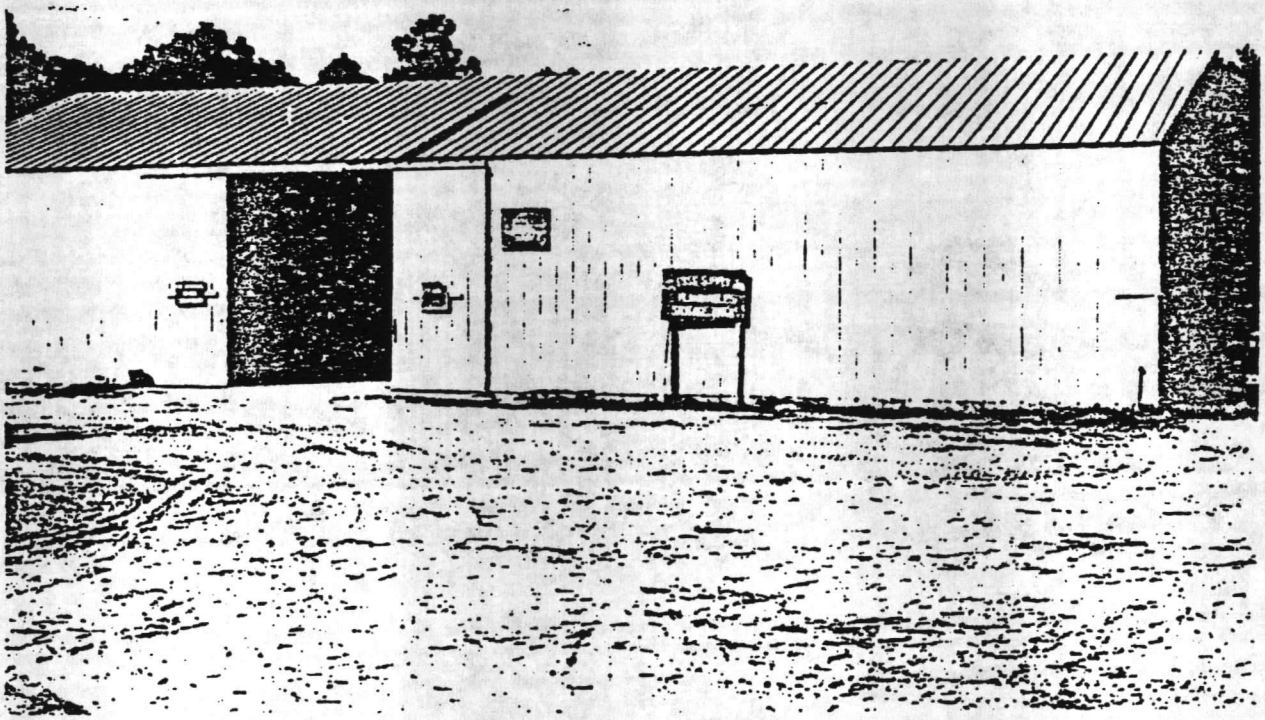
Respectfully submitted,
JENNINGS LABORATORIES, INC.

Laboratory Analysis No. 2518

E. R. Paulson
CHEMIST



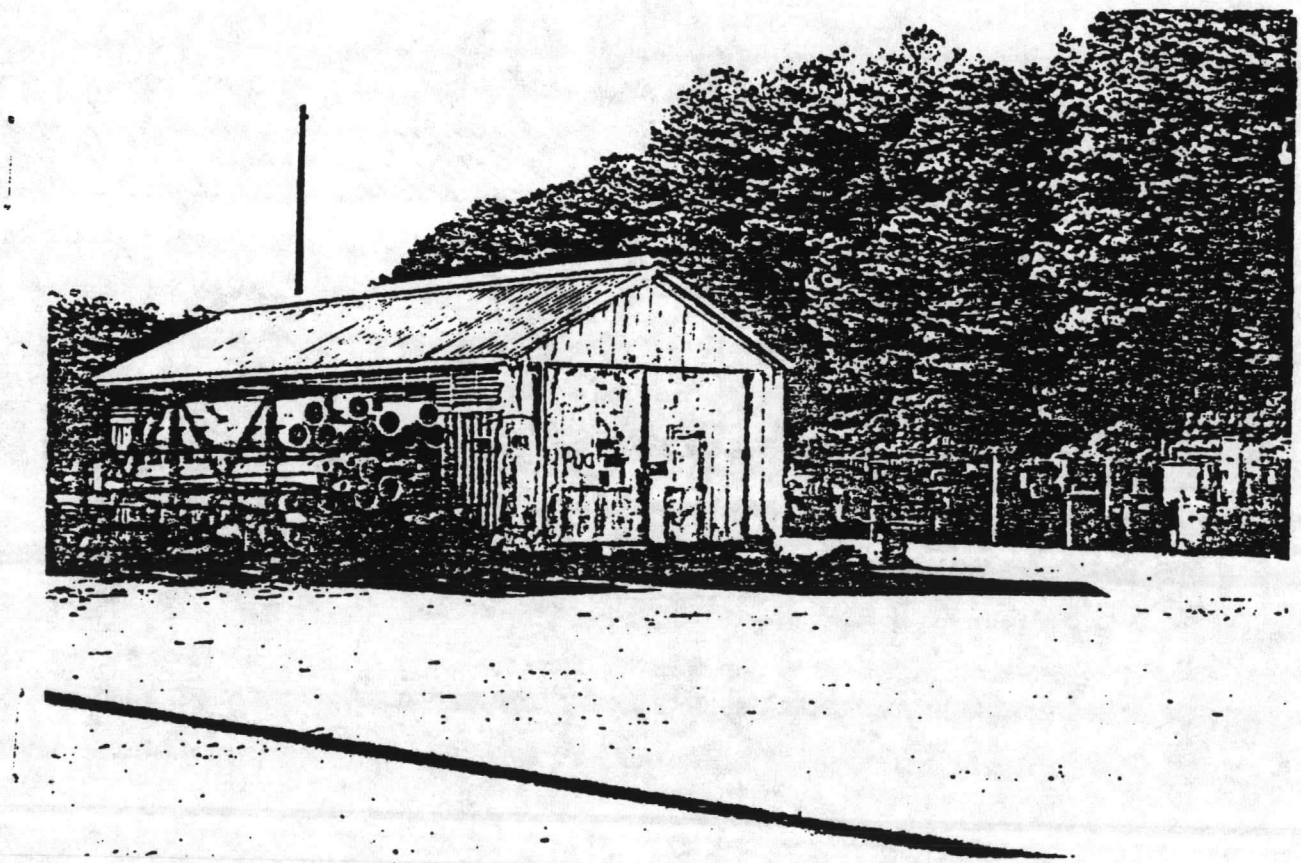
PHOTOGRAPH #3
Bldg TP-451
Taken - 26 October 1980



PHOTOGRAPH #2
Bldg TP-451
Taken - 26 October 1980

DOC. NO.: CLEJ - [illegible] 10/31/80

Part VI, EPA Form 3510-3 (6-8
Marine Corps Base, Camp Lejeu
EPA ID No. NC 6170022580



PHOTOGRAPH #1
Lot 140
Taken - 26 October 1980

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Approved OMB No. 158-S80004

FORM 3 RCRA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

F	N	C	6	1	7	0	0	2	2	5	8	0		1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

XX 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

	YR.	MO.	DAY
8	PRE- 1945		

☐ 2. NEW FACILITY *(Complete item below.)*

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

YR.	MO.	DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

☐ 1. FACILITY HAS INTERIM STATUS

☐ 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
posal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECTARES	Q

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S02	600	G	
X-2	T03	20	E	
1	S01	100000	G	
		See Note # 1 & #2		
3		on Page 4 of 5		
4	D80	10	A	
5				
6				
7				
8				
9				
10				

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

NA

IV. DESCRIPTION OF HAZARDOUS WASTES

A. **EPA HAZARDOUS WASTE NUMBER** – Enter the four–digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four–digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. **ESTIMATED ANNUAL QUANTITY** – For each **listed waste** entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each **characteristic** or **toxic contaminant** entered in column A estimate the total annual quantity of all the non–listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. **UNIT OF MEASURE** – For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. PROCESS CODES:
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non–listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non–listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non–listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K 0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2				included with above

Continued from the front.

V. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

Note #1 (From Pages 1 & 3 of 5): Asbestos is generated aboard this Facility during repair or demolition of buildings and utilities. Asbestos wastes are disposed of at the Base Sanitary Landfill in accordance with instructions provided by Solid Waste Disposal Regulations of the State of North Carolina and personnel of the North Carolina Department of Human Resources

Note #2 (From Pages 1 & 3 of 5): Sludges from base sewage treatment plants are not included because there are no industrial or manufacturing operations located aboard base. Steps are underway to analyze sludges for contents.

EPA I.D. NO. *(enter from page 1)*

											T/A	C
N	C	6	1	7	0	0	2	5	8	0		6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).* (SEE ATTACHMENT B)

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
34 40 00	77 20 00

VIII. FACILITY OWNER

☒ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
NA	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
NA	NA		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
D. B. BARKER MGEN USMC	D B Barker	31 OCT 1980

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
NA	NA	

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (*enter from page 1*)	T/A	C	FOR OFFICIAL USE ONLY		T/A	C	
W N C 6 1 7 0 0 2 2 5 8 0		1	W	DUP		2	DUP

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

LINE NO.	A. EPA HAZARD. WASTE NO. (*enter code*)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (*enter code*)	D. PROCESSES: 1. PROCESS CODES (*enter*)	D. PROCESSES: 2. PROCESS DESCRIPTION (*if a code is not entered in D(1)*)
1	F001	10500	P	S01	
2	F002	6800	P	S01	
3	F003	900	P	S01	
4	F005	1800	P	S01	
5	F017	12600	P	S01	
6	U002	100	P	S01	
7	U013	12760		See Note #1 on Page 4 of 5)	
8	U122	200	P	S01	
9	D004	1000	P	S01	
10			P	S01	
11					
12	D001	142000	P	S01	
13	D002	25000	P	S01	
14	D003	100	P	S01	
15					
16					
17				(See Note #2 on Page 4 of 5)	
18					
19					
20					
21					
22					
23					
24					
25					
26					

EPA Form 3510-3 (6-80)

CONTINUE ON REVERSE

(enter "A", "B", "C", etc. behind the "3" to identify photocopied pages)

Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☒ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☒ Other (Specify) Miscellaneous containers

Total Facility Waste Amount

cubic feet

gallons Unknown

Total Facility Area

square feet

acres 70

Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ None

See Section I Below

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Records indicate that the materials were stored on these two lots in a manner which could have resulted in discharges in excess of amounts specified in this regulation. Action is underway to determine if DDT residues are present in signfficant amounts.

Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other"

Name D. B. Barker, MAJOR GENERAL
Commanding General

Street Marine Corps Base

City Camp Lejeune State NC Zip Code 28542

Signature D. B. BARKER Date 8 JUN 1981

☒ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

Doc. No.: CLEJ-00122-1.02-06/06/81

Environmental Protection Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General

Street: Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Storage Lots 201 & 203 (Site 12)

Street: Marine Corps Base

City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources

Phone: (919) 451-5003

Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1970 To (Year): 1981

Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☒ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☐ Other (Specify)

_____

_____

_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☒ Other (Specify)

Storage sites for 10% DDT De-Lousing Materials

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0133

EPA Form 3900-1

Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. XX Other (Specify) Fire Training Pit

Total Facility Waste Amount

cubic feet

gallons Unknown

Total Facility Area

square feet

acres 1/2

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ Nor
See Section I Below

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessi hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Used oil containing undetermined amounts of degreasers and solvents were burned for fire fighting training. Accidental discharges of water and residues of above mixtures were likely to have occurred. Upgrading the site to provide pollution abatement structures is underway.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required

Name D. B. BARKER, MAJOR GENERAL
Commanding General
Street Marine Corps Base
City Camp Lejeune State NC Zip Code 28542
Signature D. B. BARKER Date 8 JUN 1981

XX ☐ Owner, Present
☐ Owner, P
☐ Transporte
☐ Operator, Presen
☐ Operator, Past
☐ Other

Doc. No.: CLEJ-00122-1.02-02/08/81

Environmental Protectio
Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General
Street: Marine Corps Base
City: Camp Lejeune State: NC Zip Code: 28542

B Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Fire fighting Training Pit (Site 11)
Street: Marine Corps Base
City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Divisi
Phone: (919) 451-5003

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1967 To (Year): Present

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☒ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☒ Unknown
11. ☐ Other (Specify)

_____
_____
_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☒ Other (Specify)

Vehicle Maintenance Shops

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0133

EPA Form 3300-1

F Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☒ Other (Specify) Flammable storage Warehouse

Total Facility Waste Amount

cubic feet

gallons

Total Facility Area

square feet

acres

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☒ Suspected ☐ Likely ☐ No

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assess hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

See Attached Map

I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

In 1977 a structural fire destroyed the flammable storage warehouse (Building TP-452) which contained stocks of flammable materials as indicated in Section E above. Records indicate that because of the nature of the fire, the structure and contents were allowed to burn. Consequently, it is the opinion of this Command that although discharges likely exceeded 55 gallons, total volume released was minor. Between 1977 and 1980, Building TP-451 was utilized as interim storage facility for flammable materials until a new facility to replace Building TP-452 was constructed. Building TP-451 is currently used as hazardous waste storage facility.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name D. B. BARKER, MAJOR GENERAL

Street Commanding General
Marine Corps Base

City Camp Lejeune State NC Zip Code 28542

Signature D. B. BARKER Date 8 JUN 1981

☒ Owner, Present
☐ Owner, P
☐ Transpor
☐ Operator, Prese
☐ Operator, Past
☐ Other

Doc. No.: CLEJ-00122-1.02-06/08/81

Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General
Street: Marine Corps Base
City: Camp Lejeune State: NC Zip Code: 28542

Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Building TP452 Site & TP-451 (Site 10)
Street: Marine Corps Base
City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Division
Phone: 451-5003

Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): Early 1970's To (Year): Present

Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. [X] Organics
2. [X] Inorganics
3. [X] Solvents
4. [ ] Pesticides
5. [ ] Heavy metals
6. [X] Acids
7. [X] Bases
8. [ ] PCBs
9. [ ] Mixed Municipal Waste
10. [X] Unknown
11. [ ] Other (Specify)

Source of Waste:
Place an X in the appropriate boxes.

1. [ ] Mining
2. [ ] Construction
3. [ ] Textiles
4. [ ] Fertilizer
5. [ ] Paper/Printing
6. [ ] Leather Tanning
7. [ ] Iron/Steel Foundry
8. [X] Chemical, General
9. [ ] Plating/Polishing
10. [ ] Military/Ammunition
11. [ ] Electrical Conductors
12. [ ] Transformers
13. [ ] Utility Companies
14. [ ] Sanitary/Refuse
15. [ ] Photofinish
16. [ ] Lab/Hospital
17. [ ] Unknown
18. [X] Other (Specify) Structural Fire of Storage Warehouse

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0138

EPA Form 8300-1

Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☒ Other (Specify) Detonation & Destruction of Ordnance

Total Facility Waste Amount

cubic feet: See Section I Below

gallons:

Total Facility Area

square feet:

acres: 40

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ None

See Section I Below

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Site is located in a restricted area of the base. Disposal of ordnance is accomplished by trained personnel. There is no information available at this time which indicates release of hazardous wastes to the environment.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name: D. B. BARKER, MAJOR GENERAL

Street: Commanding General
Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

Signature: D. B. BARKER Date: 8 JUN

☒ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

Doc. No.: CLEJ-00122-1.02-06/08/81

Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General

Street: Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: G4A Range (Site 9)

Street: Marine Corps Base

City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Divisi

Phone: (919) 451-5003

Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1974 To (Year): Present

Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☒ Other (Specify)

Ordnance

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☒ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2060-0138

EPA Form 8900-1

Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☒ Other (Specify) Detonation & Destruction of Ordnance

Total Facility Waste Amount

cubic feet See Section I Below -

gallons

Total Facility Area

square feet

acres 4

Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ Non

See Section I Below

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessin hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Site is located in a restricted area of the base. Disposal of ordnance is accomplished by trained personnel. There is no information available at this time which indicates release of hazardous wastes to the environment.

Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name D. B. BARKER, MAJOR GENERAL

Commanding General

Street Marine Corps Base

City Camp Lejeune State NC Zip Code 28542

Signature D. B. BARKER Date 8 JUN 1981

☒ Owner, Present
☐ Owner, Pa
☐ Transporte
☐ Operator, Present
☐ Operator, Past
☐ Other

Doc. No.: CLEJ-00122-1.02-06/08/81

Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General

Street: Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: K-326 Range (Site 8)

Street: Marine Corps Base

City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Divisi

Phone: (919) 451-5003

Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1974 To (Year): Present

Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☒ Other (Specify) Ordnance

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☒ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0133

EPA Form 3300-1

Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☒ Other (Specify) Used transformer storage area

Total Facility Waste Amount

cubic feet: Unknown

gallons:

Total Facility Area

square feet: 20,000

acres:

H Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☒ Likely ☐ Non

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessi hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

I Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

J Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Site is an open lot where transformers have been stored and maintenance performed. Prior to current PCB control regulation, significant quantities of transformer oils were discharged onto soil in the area. Recent soil samples of surface layer of soil (Top 6") indicated a PCB content of approximately 1 part per million.

K Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required

Name: D. B. BARKER, MAJOR GENERAL

Commanding General

Street: Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

Signature: D. B. BARKER Date: 8 JUN 19

☒ Owner, Present
☐ Owner, P
☐ Transporter
☐ Operator, Presen
☐ Operator, Past
☐ Other

Doc. No.: CLEJ-00122-1.02-06/08/81

Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General

Street: Marine Corps Base

City: Camp Lejeune, State: NC Zip Code: 28542

Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Lot 140, Hadnot Point Area (Site 7)

Street: Marine Corps Base

City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Divisic

Phone: (919) 451-5003

Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): Pre-1960 To (Year): Present

Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☒ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☐ Other (Specify)

_____

_____

_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☒ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

_____

_____

_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0138

EPA Form 8900-1

Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☒ Other (Specify) Research Laboratory

Total Facility Waste Amount

cubic feet: See Section I below

gallons:

Total Facility Area

square feet: 2500

acres:

I Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ None

See Section I

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessin hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Between 1947 and 1976, the facility carried out research on animals utilizing low-level radioactive materials. Animal carcasses contaminated with low-level radioactivity were buried on site. The area was thoroughly examined during January 1981. Five 55-gallon barrels of soil, animal residues, and 499 beta buttons (400 microcuriesper button) were collected. Materials are being disposed of in accordance with existing Department of Defense guidelines. Area believed to be decontaminated. Awaiting final determination by Navy Energy and Environmental Support Activities, Port Hueneme, California.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name: D. B. BARKER, MAJOR GENERAL

Commanding General

Street: Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

Signature: D.B. BARKER Date: 8

☒ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

EPA Notification of Hazardous Waste Site

Dec. No.: CLEJ-00122-1.0Z-06/08/81

Environmental Protection Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General

Street: Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Building Pt. 37 (Site No. 6)

Street: Marine Corps Base

City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Divisio

Phone: (919) 451-5003

Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1947 To (Year): 1976

Waste Type: Choose the option you prefer to complete

Option I: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☒ Other (Specify) Low-level radioactive wastes

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☒ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0138

EPA Form 8900-1

Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) _____

Total Facility Waste Amount

cubic feet _____

gallons Unknown

Total Facility Area

square feet _____

acres 100 total

40 used

Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ Non

See Section I below

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessir hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Disposal of hazardous wastes (except asbestos) is prohibited by Base instructions. This facility has been operated along guideline issued by the State of North Carolina. The site has been approved and an operating permit is expected to be issued during calendar year 1982. While total volume of regulated materials disposed of is likely in excess of 55 gallons, there is no available information indicating that these materials have leached from or otherwise left the site.

Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required

Name D. B. BARKER, MAJOR GENERAL

Street Commanding General
Marine Corps Base

City Camp Lejeune State NC Zip Code 28542

Signature D. B. BARKER Date 8 JUN 1981

XX ☐ Owner, Present
☐ Owner, Pa
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

Doc. No.: CLEJ-00122-1.02-06/08/81

Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General

Street: Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Base Sanitary Landfill (Site No. 5)

Street: Marine Corps Base

City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Divisic

Phone: (919) 451-5003

Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1972 To (Year): Present

Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each appiicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☒ Mixed Municipal Waste
10. ☒ Unknown
11. ☐ Other (Specify)

_____

_____

_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☒ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☒ Sanitary/Refuse
15. ☐ Photofinish
16. ☒ Lab/Hospital
17. ☒ Unknown
18. ☒ Other (Specify)

Vehicle Maintenance Shops

_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0138

EPA Form 3300-1

Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☒ Other (Specify) Open Dump

Total Facility Waste Amount

cubic feet

gallons

Total Facility Area

square feet

acres 20

Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☒ Likely ☐ Non

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessir hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Site was open dump for refuse, trash and other wastes generated aboard Marine Corps Air Station (H), New River, and Marine Corps Base, Camp Lejeune property located west of New River. Area was graded after use discontinued.

Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required

Name D. B. BARKER, MAJOR GENERAL

Street Commanding General
Marine Corps Base

City Camp Lejeune State NC Zip Code 28542

Signature D. B. BARKER Date 8 Jul

☒ Owner, Pre
☐ Owner, Pas
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

EPA Notification of Hazardous Waste Site

Doc. No.: CLEJ-00122-1.02-06/08/81

Environmental Protection Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

I Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General

Street: Marine Corps Base

City: Camp Lejeuene State: NC Zip Code: 28542

II Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Camp Geiger Dump (Site No. 4)

Street: Marine Corps Base

City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

III Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Divisi

Phone: (919) 451-5003

IV Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1946 To (Year): 1971

V Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☒ Mixed Municipal Waste
10. ☒ Unknown
11. ☐ Other (Specify)

_____

_____

_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☒ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☒ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☒ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☒ Unknown
18. ☒ Other (Specify)

Vehicle and Aircraft Maintenance Shops

_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

F Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☒ Other (Specify) Open Dump

Total Facility Waste Amount

cubic feet

gallons

Total Facility Area

square feet

acres 15

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☒ Likely ☐ Nor

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessi hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Site was dump for refuse, trash and other wastes generated throughout Hadnot Point Industrial Area, housing areas, and other areas of Base property east of New River. Materials were burned and residue covered. Area has been graded and landscaped.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name D. B. BARKER, MAJOR GENERAL

Commanding General

Street Marine Corps Base

City Camp Lejeune State NC Zip Code 28542

Signature D. B. Barker Date 8 JUN 1981

XX ☒ Owner, Present
☐ Owner, Pa
☐ Transporte
☐ Operator, Present
☐ Operator, Past
☐ Other

EPA Notification of Hazardous Waste Site

Dec. No.: CLEJ-00122-1.02-06/08/81

United States Environmental Protection Agency Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

I Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General

Street: Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

II Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Hadnot Point Burn Dump (Site No. 3)

Street: Marine Corps Base

City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

III Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Divisic

Phone: (919) 451-5003

IV Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1946 To (Year): 1971

V Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☒ Mixed Municipal Waste
10. ☒ Unknown
11. ☐ Other (Specify)

_____

_____

_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☒ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☒ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☒ Sanitary/Refuse
15. ☐ Photofinish
16. ☒ Lab/Hospital
17. ☒ Unknown
18. ☒ Other (Specify)
Vehicle Maintenance Shops

_____

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0138

EPA Form 8100-1

Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☒ Other (Specify) Burned at undetermined efficiency

Total Facility Waste Amount

cubic feet

gallons unknown

Total Facility Area

square feet

acres 1/2

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ Non

See I below

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessir hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

Waste oil containing undetermined amounts of degreasers and solvents were burned for fire fighting training. Accidental discharges of water and residues of above mixtures have occurred which likely contained quantities of solvents, degreasers, and other materials. Upgrading site to provide pollution abatement structures is underway. Current regulations prohibit discharge of any substance other than waste oil into the training pit.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person

Name D. B. BARKER, MAJOR GENERAL

Street Commanding General
Marine Corps Base

City Camp Lejeune State NC Zip Code 28542

Signature D. B. BARKER Date 8 JUN 1981

☐ Owner, Pr
☐ Owner, Pa
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☒ Other

EPA Notification of Hazardous Waste Site

Doc. No.: CLEJ-00122-1.02-06/08/81

United States Environmental Protection Agency Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General

Street: Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Fire Fighting Training Pit (Site No. 2)

Street: Marine Corps Air Station (H), New River

City: Jacksonville County: Onslow State: NC Zip Code: 28541

Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Divisi

Phone: (919) 451-5003

Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1975 To (Year): Present

Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☒ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☒ Unknown
11. ☐ Other (Specify)

_____

_____

_____

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☒ Other (Specify)

Vehicle and Aircraft Maintenance

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☒ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☒ Drums, Below Ground
9. ☒ Other (Specify) Miscellaneous containers buried undergro

Total Facility Waste Amount

cubic feet: Unknown

gallons:

Total Facility Area

square feet:

acres: 3

Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☒ Known ☐ Suspected ☐ Likely ☐ Nor

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessi hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ATTACHED MAP

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

During operation, containers of various waste chemicals and other items, as indicated in Section E above, were buried and covered with soil. The area has revegetated to trees, shrubs and other plants.

Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required

Name: D. B. BARKER, MAJOR GENERAL

Street: Commanding General, Marine Corps Base

City: Camp Lejeune State: NC Zip Code: 28542

Signature: D. B. BARKER Date: 8 JUN 1981

☒ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

Doc. No. CLEJ-C0122-1.02-06/08/81

Environmental Protection Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: Commanding General
Street: Marine Corps Base
City: Camp Lejeune State: NC Zip Code: 28542

B Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: Chemical Landfill (Site No. 1)
Street: Marine Corps Base
City: Camp Lejeune County: Onslow State: NC Zip Code: 28542

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Wooten, Julian, Dir, Natural Resources Divisi
Phone: (919) 451-5003

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1953 To (Year): 1978

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☒ Organics
2. ☒ Inorganics
3. ☒ Solvents
4. ☒ Pesticides
5. ☒ Heavy metals
6. ☒ Acids
7. ☒ Bases
8. ☒ PCBs
9. ☐ Mixed Municipal Waste
10. ☒ Unknown
11. ☒ Other (Specify)
Ordnance
(See note below)

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☒ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☒ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☒ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☒ Unknown
18. ☒ Other (Specify)
Vehicle and Aircraft Maintenance Shops

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Note:

Specific types actually in landfill unknown. However, these products were generated at base during period of operation and may be in landfill.

Form Approved
OMB No. 2000-0138

EPA Form 2300-1

ENCLOSURE (1)

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO
MAIN/DDS/th
6240
8 JUN 1981

U. S. Environmental Protection Agency (EPA)
Region IV
Sites Notification
Atlanta, Georgia 30308

Dear Sir:

Enclosed are EPA Forms 8900-1 for locations aboard Marine Corps Base, Camp Lejeune and Marine Corps Air Station (Helicopter), New River which are possibly subject to Section 103(c) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980. An intensive study of each site will be conducted by the Naval Energy and Environmental Support Activity (NEESA), Port Hueneme, California during Fiscal Year 1982.

Questions regarding these matters may be addressed to Mr. Julian Wooten, Director, Natural Resources and Environmental Affairs Division, Base Maintenance Department, telephone (919) 451-5003/2083.

Sincerely,

D. B. BARKER
MAJOR GENERAL, U. S. MARINE CORPS
COMMANDING GENERAL

Encl

Copy to:
CMC (Code LFF-2)
NEESA
LANTDIV (Code 114)

Doc No: CLEJ-00225-1.02-04/7/81

JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for Drinking Water Analysis - Microbiological, Inorganic and Organic

ASBESTOS ANALYSIS – NIOSH 582

Official Referee Chemists for:
AMERICAN OIL CHEMISTS SOCIETY
NATIONAL SOYBEAN PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER CONTROL BOARD for Analysis of Effluents for NPDES PERMITS

CERTIFIED OFFICIAL U.S.D.A. LABORATORY FOR MEAT ANALYSIS

CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin
Building N-23 Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511

DATE: April 9, 1981

SAMPLE OF WATER SAMPLES from(Test Well #15, Roadside of Chemical Dump) Test Well

MARKED #16, Creek Side of Chemical Dump)(Luke,Pool of Water)(Ens.Kalisch-Radiation Pool) taken 3/30/81 at Camp Lejeune, Marine Corps Base, North Carolina and delivered to laboratory 4/01/81

OFFICIAL SAMPLE BY: BETZ & LUKE

TEST WELL #15		
Carbon Tetrachloride	3,560	PPB
1,1 Dichloroethane	65	PPB
Chloroform	15,520	PPB
Methylene chloride	4,154	PPB

TEST WELL #16		
1,1 Dichloroethane	122	PPB
Chloroform	13,260	PPB
Carbon Tetrachloride	2,920	PPB
Methylene Chloride	20,460	PPB
1,2 Dichloroethane	154.6	PPB
1,1 Dichloroethylene	423.6	PPB
Toluene	242.	PPB

POOL OF WATER		
Carbon Tetrachloride	1,840	PP
1,1 Dichloroethane	38	PP
Chloroform	880	PP
Methylene Chloride	9,640	PP

RADIATION POOL		
Carbon Tetrachloride	1,189	PP
1,1 Dichloroethane	38	PP
Chloroform	7,380	PP
Methylene Chloride	7,693	PP

Respectfully submitted,
JENNINGS LABORATORIES, INC.

Laboratory Analysis No. #109

W. A. Jennings Jr.
CHEMIST

Doc No: CLW-00225-1.02-4/7/81

JENNINGS LABORATORIES, INC.

PESTICIDES/PCB's		DETECTION LIMITS µg/l
Aroclor 1016	None Detected	.04
Aroclor 1221	None Detected	.10
Aroclor 1232	None Detected	.10
Aroclor 1242	None Detected	.06
Aroclor 1248	None Detected	.08
Aroclor 1254	None Detected	.08
Aroclor 1260	None Detected	.15
2,3,7,8-Tetrachlorodibenzo-p-dioxin(TCDD)	None Detected	.003

METALS		DETECTION LIMITS mg/l
Antimony	<0.20	0.2
Arsenic	<0.002	0.002
Beryllium	<0.005	0.005
Cadmium	0.01	0.002
Chromium	0.11	0.02
Copper	<0.01	0.01
Lead	0.12	0.005
Mercury	<0.002	0.002
Nickel	0.09	0.02
Selenium	0.004	0.002
Silver	<0.01	0.01
Thallium	<0.10	0.1
Zinc	27.23	0.005
Barium	0.13	

MISCELLANEOUS		
Total Cyanides	<0.01	0.01
Asbestos (fibrous)	None Detected	
Total Phenols	<0.005	0.005

BY [signature]
Chemist

LAB # 109

Doc No [illegible]

JENNINGS LABORATORIES, INC.

ACID EXTRACTABLE ORGANIC COMPOUNDS		DETECTION LIMITS µg/l
Phenol	None Detected	1.4
2-Nitrophenol	None Detected	2.5
4-Nitrophenol	None Detected	2.5
2,4-Dinitrophenol	None Detected	7.0
4,6-Dinitro-o-cresol	None Detected	2.0
Pentachlorophenol	None Detected	10.0
p-Chloro-m-cresol	None Detected	.01
2-Chlorophenol	None Detected	2.0
2,4-Dichlorophenol	None Detected	2.1
2,4,6-Trichlorophenol	None Detected	5.0
2,4-Dimethylphenol	None Detected	1.7

PESTICIDES/PCB's

α-Endosulfan	None Detected	.005
β-Endosulfan	None Detected	.01
[illegible]dosulfan sulfate	None Detected	.03
α-BHC	None Detected	.002
β-BHC	None Detected	.004
δ-BHC	None Detected	.004
γ-BHC	None Detected	.002
Aldrin	None Detected	.003
Dieldrin	None Detected	.006
4,4'-DDE	None Detected	.006
4,4'-DDD	None Detected	.012
4,4'-DDT	None Detected	.016
Endrin	None Detected	.009
Endrin Aldehyde	None Detected	.023
Heptachlor	None Detected	.002
Heptachlor Epoxide	None Detected	.004
Chlordane	None Detected	.04
Toxaphene	None Detected	.40

BY W. H. Jennings

Chemist

LAB # 109

Doc No: CLtJ-00225-1.02-4/7/81

JENNINGS LABORATORIES, INC.

BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS		DETECTION LIMITS µg/l
-Bromophenyl phenyl ether	None Detected	1.1
bis(2-Ethylhexyl)phthalate	None Detected	.02
Di-n-octyl phthalate	None Detected	.11
Dimethyl phthalate	None Detected	.11
Diethyl phthalate	None Detected	.13
Di-n-butyl phthalate	None Detected	.02
Fluorene	None Detected	.04
Fluoranthene	None Detected	.04
Chrysene	None Detected	.04
Pyrene	None Detected	.04
Phenathrene	None Detected	.04
Anthracene	None Detected	.04
Benzo(a)anthracene	None Detected	.04
Benzo(b)fluoranthene	None Detected	.04
Benzo(k)fluoranthene	None Detected	.04
Benzo(a)pyrene	None Detected	.04
Ideno(1,2,3-c,d)pyrene	None Detected	.10
ibenzo(a,h)anthracene	None Detected	.10
Benzo(g,h,i)perylene	None Detected	.10
4-Chlorophenyl phenyl ether	None Detected	2.2
3,3'Dichlorobenzidine	None Detected	.04
Benzidine	None Detected	.04
Bis(2-Chloroethyl)ether	None Detected	.04
1,2-Diphenylhydrazine	None Detected	.04
Hexachlorocyclopentadiene	None Detected	.04
N-Nitrosodiphenylamine	None Detected	1.0
Acenaphthylene	None Detected	.04
Acenaphthene	None Detected	.04
Butyl benzyl phthalate	None Detected	.04
N-Nitrosodimethylamine	None Detected	.2
N-Nitrosodi-n-propylamine	None Detected	.5
bis(2-Chloroisopropyl)ether	None Detected	.9

BY _____
Chemist

LAB # 109

Doc No: CLEJ-00225-1.02-4/7/81

		DETECTION LIMITS µg/l
Chloroform	11,267.0 ppb	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	31,859.0 ppb	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-trans-Dichloroethylene	None Detected	.006
Bis(chloromethyl) ether	None Detected	.003

BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS

1,2-Dichlorobenzene	None Detected	.04
1,3-Dichlorobenzene	None Detected	.04
1,4-Dichlorobenzene	None Detected	.04
Hexachloroethane	None Detected	.001
Hexachlorobutadiene	None Detected	.001
Hexachlorobenzene	None Detected	.002
1,2,4-Trichlorobenzene	None Detected	.006
Bis(2-Chloroethoxy)methane	None Detected	.40
Naphthalene	None Detected	.04
2-Chloronaphthalene	None Detected	.04
Isophorone	None Detected	5.0
Nitrobenzene	None Detected	5.0
2,4-Dinitrotoluene	None Detected	.06
2,6-Dinitrotoluene	None Detected	.06

W. A. Jennings Jr.

LAB #

DOC. NO.: CLEV-00005-1.0A-04/01/81

JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for Drinking Water Analysis - Microbiological, Inorganic and Organic

ASBESTOS ANALYSIS – NIOSH 582

Official Referee Chemists for:
AMERICAN OIL CHEMISTS SOCIETY
NATIONAL SOYBEAN PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER CONTROL BOARD for Analysis of Effluents for NPDES PERMITS

CERTIFIED OFFICIAL U.S.D.A. LABORATORY FOR MEAT ANALYSIS

CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin
Building N-23 Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511

DATE: April 7, 1981

SAMPLE OF WATER SAMPLES from (Test Well #15, Roadside of Chemical Dump)(Test Well

MARKED #16,Creek side of Chemical Dump)(Luke,Pool of Water)(Ens.Kalisch-Radiation Pool) taken 3/30/81 at Camp Lejeune, Marine Corps Base,North Carolina and delivered to laboratory 4/01/81

OFFICIAL SAMPLE BY: BETZ & LUKE

PURGEABLE ORGANICS		DETECTION LIMITS µg/l
Acrolein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	61.75 ppb	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	2,583.0 ppb	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	43.77 ppb	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	68.92 ppb	.004
1,1-Dichloroethylene	124.0 ppb	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
2-Chloroethyl vinyl ether	None Detected	.08

Respectfully submitted,
JENNINGS LABORATORIES, INC.

Navy Laboratory Analysis No. 109

ACTIVITY Marine Corps Base, Camp Lejeune N. C.

UIC 67001

SITE NUMBER 11

10. Have there been any incidents or complaints concerning this site? Explain.

No.

11. How close is the site to the activity's boundaries?

3½ miles.

12. Additional comments

DOC. NO. CLEJ-00648-01.02-00/201

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 11

7. Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surface waters, etc.

Same as Site #10

8. Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).

None apparent.

9. Do personnel live or work near the site? Please explain. Yes.

The site is located on the fringes of the Hadnot Point Industrial Area. Military personnel are located adjacent to the site and are actively involved in training on surrounding grounds.

Appendix A to
ENCLOSURE (1)

DOC. NO. UES-0048-01.02-02/20/

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 11

5. If the site was closed, briefly describe the closure procedures. Currently being upgraded to include pollution abatement facilities. Will continue to operate.

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.
UIC 67001
SITE NUMBER 11

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed? Currently in operation.

Years of operation: From 1967 To present.

2. What is/was the name of the site (e.g., slurry pit)? Fire Fighting training Pit (Piney Green Road)

3. Where is/was the site located (provide a description and give activity map coordinates)? Between Piney Green Road and Holcomb Blvd. at map coordinates 868398 adjacent to site #10.

4. Describe how the site is/was operated. Flammable liquids poured into pit and burned. Did not have oil water separators and other pollution abatement equipment now considered as essential. Operated by Marine Corps Base Fire Department.

Doc. no.: CLEJ-000648-01.02-02/20/

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune N. C.

UIC 67001

SITE NUMBER 10

10. Have there been any incidents or complaints concerning this site? Explain.

Yes - See Section II, paragraph 4

11. How close is the site to the activity's boundaries?

Approximately 3½ miles.

12. Additional comments

Appendix A to
ENCLOSURE (1)

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 10

7. Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surface waters, etc.

Soils are Baymeade with characteristics similar to Site #1. The site is located at approximately 30 feet above sea level. Has excellent surface drainage. Approximately 250 meters to Bearhead Creek, a tributary to Wallace Creek.

8. Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).

None Observed.

9. Do personnel live or work near the site? Please explain.

The Site is located on the fringes of the Hadnot Point industrial area. Military personnel are located adjacent to the site and are actively involved in training on surrounding grounds.

ACTIVITY Marine Corps Base, Camp Lejeune N. C.

UIC 67001

SITE NUMBER 10

5. If the site was closed, briefly describe the closure procedures.

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin
All types of flammable and reactive (chemical) materials.		

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 10

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed?

In operation.

Years of operation: From Early 1970's To present.

2. What is/was the name of the site (e.g. slurry pit)?

Flammable storage warehouse, Bldg. TP-451, and 452.

3. Where is/was the site located (provide a description and give activity map coordinates)?

Between Piney Green Road and Holcomb Blvd. at map coordinates 867 398.

4. Describe how the site is/was operated.

Flammable supplies of all types were stored in Butler type Buildings. Bldg. TP 452 burned in 1977. At that time the operation moved to TP 451. TP 451 was vacated in October and will be upgraded for use for hazardous waste storage.

ACTIVITY Marine Corps Base, Camp Lejeune N. C.

UIC 67001

SITE NUMBER 9

10. Have there been any incidents or complaints concerning this site? Explain.

No.

11. How close is the site to the activity's boundaries?

3.5 miles to nearest adjoining non-military land area.

12. Additional comments

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 9

7. Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surface waters, etc.

The soils at the site are Kureb-Lakeland which are excessively drained. Water tables are below six feet. A small natural pond is located immediately beside site. Approximately 500 meters to nearest perennial stream. Subsoil materials are highly permeable.

8. Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).

Vegetation has been killed and damaged by heat and shrapnel. No apparent damage due to pollution.

9. Do personnel live or work near the site? Please explain.

No - area is restricted.

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 9

5. If the site was closed, briefly describe the closure procedures.

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin

ACTIVITY Marine Corps Base, Camp Lejeune, N.C.

UIC 67001

SITE NUMBER 9

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed?

Currently in operation.

Years of operation: From 1974 To Present.

2. What is/was the name of the site (e.g., slurry pit)?

G4A Range, Explosive Ordnance Disposal.

3. Where is/was the site located (provide a description and give activity map coordinates)?

1/2 mile northwest of Highway 172 (near G5/G5A Ranges) at map coordinates 933 335.

4. Describe how the site is/was operated.

Miscellaneous unexploded ordnance is detonated or destroyed per OP-S Vol.#1, NAVSEASYSCOM Manuals.

Doc. no.: CLEJ-00648-0102-02/20/8

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 8

10. Have there been any incidents or complaints concerning this site? Explain.

No.

11. How close is the site to the activity's boundaries?

Approximately 6 miles to nearest adjoining non-military land area.
Immediately adjacent to shoreline of navigatible waters.

12. Additional comments

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 8

7. Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surface waters, etc.

Soils and soil characteristics essentially thesame as Site #1. Elevation is approximately 10-15 feet above sea level. The site is immediately adjacent to New River.

8. Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).

None apparent. Site is surrounded by managed pine forests and drains containing typical hardwood trees and shrubs.

9. Do personnel live or work near the site? Please explain.

Site is in a remote area with restricted access.

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 8

5. If site was closed, briefly describe the closure procedures. _____

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 8

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed?

Currently in Operation.

Years of operation: From 1974 (authorized) To Present.

2. What is/was the name of the site (e.g., slurry pit)?

K-326 Range, Explosive Ordnance Disposal.

3. Where is/was the site located (provide a description and give activity map coordinates)?

500 meters north of Rhodes Point Road. (Verona Loop Area) at map coordinates 818 365.

4. Describe how the site is/was operated.

Miscellaneous unexploded ordnance is detonated or destroyed Per OP-5, Vol. 1, NAVSEASYSCOM Manuals.

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 7

10. Have there been any incidents or complaints concerning this site? Explain.
Analysis of current transformers stored in area indicate high percentage with 50-500 ppm of PCB's. Analysis of top 4" of soil indicate only 1 or less than 1 ppm of PCB.

11. How close is the site to the activity's boundaries?
4 miles to nearest adjacent land area.

12. Additional comments

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune N. C.

UIC 67001

SITE NUMBER 7

7. Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surface waters, etc.

The site is located on highly disturbed soils in a transition zone between Baymeade and Rains-Lynchburg soils. Seasonal high water tables are similar to and possibly somewhat shallower than site #1. Soil textures and other conditions are very similar. The site is approximately 300 meters from nearest stream and is on a level area at approximately 30 feet above sea level.

8. Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).

No vegetation in immediate area except weeds. No observed effects.

9. Do personnel live or work near the site? Please explain.

Yes. The area is located in an industrial area, access to lot is restricted. Vehicular and foot traffic is present on two dirt streets adjacent to lot.

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 7

5. If the site was closed, briefly describe the closure procedures.

The site is now used only for storage of transformers in accordance with Toxic Substances Control Act. Analysis of top 4" of soil in October 1980 indicated approximately 1 PPM of PCB's.

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin

Doc. no.: CLEJ-000648-01.02-02/20/8

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.
UIC 67001
SITE NUMBER 7

SECTION III. DETAILED DISPOSAL INFORMATION

This section should be completed only if active or past disposal sites were identified in section II. Section III should be completed for each site. As an example, say your activity has three sites. Make three copies of section III and complete them. Assign a number to each site (1, 2, and 3) and enter it in the upper right-hand corner.

1. Is this disposal site currently in operation or has it been closed? Open.

Years of operation: From Pre-1960 To Present.

2. What is/was the name of the site (e.g., slurry pit)? Lot 140, Hadnot Point area.

3. Where is/was the site located (provide a description and give activity map coordinates)? Located between Ash Street and Sneads Ferry Road, on Center Road extension at coordinates 863 391.

4. Describe how the site is/was operated. This area was used as a maintenance area for transformers, prior to awareness of Polychlorinate Biphenyl (PCB) hazards. Significant quantities of transformer oil were discharged onto the ground prior to the regulation of PCB's.

Doc. No.: CLEJ-00648-01.02-02/20/8

13 DEC 80

1300: Debriefing held by RASO Rep and attended by:

1. MCDONOUGH, James, C., LTJG, MSC, USN, 215-66-6127
Industrial Hygiene Officer

2. KALISCH, Bert, ENS,MSC,USNR 485-72-8407
Environmental Health Officer

3. SAURINI, Joseph HM1, USN 088-44-5748
Radiation Saftey Officer

RASO Rep made the following recommendations:

1. Store radioactive material in enclosed secure area and mark area in acoordance with Title 10 CFR part 20.

2. Contact Naval Supply Center, Norfolk, Va. for proper packaging and disposition of radioactive material.

3. Take soil samples in grids 1 thru 15.
Three from each grid one from surface, one six inches from surface and one one foot from surface.
Send samples to Port Huenneme for isotopic analysis ASAP.

4. Grids 1 thru 15 retained as restricted area pending results of isotopic analysis from Port Huenneme.

5. Area to be released by RSO.

6. RSO take wet rag survey with E140N/DT304 or HP210 probe of work sites inside Bldg Inside PT-37 compound.

11 DEC 80 Continued.

1600: Released southeren portion of grid for unrestricted use and minimized restricted area to 26' 8" east to west by 16' north to south. In the northeast portion of the compound.

1630: Set up controlled area, following Individuals were allowed entry by RASO Rep:

1. MC DONOUGH, James, C., LTJG, MSC, USN 215-66-6127
Industrial Hygiene Officer

2. KALISCH, Bert, ENS, MSC, USNR 485-72-8407
Environmental Health Officer

3. SAURINI, Joseph, HM1, USN 088-44-5748
Radiation Saftey Officer

Individuals badged by RSO, briefed on radiological control procedures for handling radioactive material, donning and removing Anti C's and conducting whole body self frisking procedures.

1700: Commenced digging in grid #1. Fifteen Beta buttons found in depths from 1 inch to 1½ feet. Soil samples taken from surface and at 1½ feet and sent to Port Huenneme for isotopic analysis. Radioactive material/storage area set aside on east side of gridded area. Radioactive storage log initiated.

1800: Commenced digging in grid #8 and recovered 25 Beta buttons and remains of 2 dogs at a depth of 2 feet. Soil immediatley adjacent to dog remains found to be contaminated. Two soil samples sent to Port Huenneme for isotopic analysis. Soil adjacent to animal remains placed in radioactive material storage container.

1900: Secured area for the day.

12 DEC 80

0800: Returned to area and commenced digging grid #2. Requested Back hoe and sifter from Base Maintenance.

1000 to 2000: utilized Back hoe and sifter to systematically extricate Beta buttons from gridded area. No further animal remains found.

A total of 499 (Fourhundred ninetynine) Beta buttons recovered. No detectable soil contamination encountered.

Radiation contamination survey conducted on grids one through fifteen, no readings above background noted.

Back hoe and sifter surveyed by RASO Rep and released for unrestricted use. Anti-C's disposed of as Radioactive Waste.

ADDENDUM : 1330: Former research site custodian interviewed by Environmental Health Officer. This revealed the location of incinerator ash dump site. Soil sample taken and sent to Port Huenneme for isotopic

Doc. no. iCLEJ-00648-01.02-02/20/81

Encs
Kolisch

15 DEC 80

List of events of 18 NOV80 thru 13 DEC80 concerning Sr 90 Beta buttons.

Finding and cleanup procedures.

18 NOV 80: First findings
First contact with Port Huenneme, Cal.
Immediatley area roped off 50' x 25'. Personnel cautioned.
Area visted by LTJG McDonough.
Navy Research and Development Command notified to find all old files from research lab. All old files lost in St. Louis.

Initial problem stated from LTJG McDonough: 7 cases of Radium 226 reflectors buried in the area.

19,20,21 NOV80: Contact with local people who worked the lab while it was in a working status.

1 DEC 80: Message received from Naval Nuclear Power Unit, Port Huenneme, Calf. From Mr Kip Rimm, Message # 012240Z. This announced a technical visit from RASO.

DEC Thru 10 DEC 80: Continued survailence of area to insure integrity of the sight.

11 DEC 80: Mr. Rimm arrived and at 0900 initiated investigation on site.
Found area adequatley secured, no health hazard to personel working in adjacent areas.
Area concerned is the north west cornerof Insect Vector Control Center, Marine Corps Base, Camp LeJeune, N.C.
Cordinents: 21degrees North Lat by 41 Degrees west Long.

0930: Preliminary Radiation/ Contamination survey made by RASO Rep.
Area roped off: 100' North to South by 25' East to West

1000: RASO Rep briefed workers and supervisors at site on the significants of the problem and insured them no health hazards existed as long as they stayed out of roped off area.

1100: Grid off area in 5' by 5' grids.
Conducted radiation survey using PRM5/S3.

1400: Advised by the foreman that on 18 NOV80, one batton had been thrown in a southwesterly direction into the woods and one northwesterly into woods by employees prior to knowledge of nature of material.
RASO Rep conducted survey of contaminated area using E140N-304 for Beta. No loose surface contamination found in gridded area.

1500: Recovered Beta buttons from woods which personel through into woods.
Buttons surveyed for loose surface contamination - none found.

1600: Surveyed incinerator and areas adjacent to gridded area.
No samples taken from incinerator and mailed to Port Huenneme for isotopic analysis.

Doc. no.: CLEJ-00648-01.02-02/20/

MCBul 6280
11 Dec 1980

ACTIVITY Marine Corps Base, Camp Lejeune, N.C.

UIC 67001

SITE NUMBER 6

10. Have there been any incidents or complaints concerning this site? Explain.

On 18 Nov 1980 Sr. 90 Beta Buttons were discovered while grading parking lot. Preventive Medicine personnel from Naval Regional Medical Center, Camp Lejeune, NC, recovered contaminant items and surveyed the area. (See Appendix A to this form).

11. How close is the site to the activity's boundaries?

3 miles to nearest adjacent land area. 500 meters to Navigatable waters.

12. Additional comments

Appendix A to
ENCLOSURE (1)

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 6

7. Describe the site's hydrogeology, including information on terrain, soils, water table depth, groundwater quality, nearby surface waters, etc.

Soils are same as Site #1. Distance to Beaver Dam Creek and Wallace Creek approximately 1500 feet. Elevation approximately 20 feet.

8. Briefly describe animal and plant life surrounding the site, including any peculiarities (e.g., dying plants).

None observed.

9. Do personnel live or work near the site? Please explain.

Only the personnel assigned to facility.

DOC. NO.: CLEJ-00648-01.02-02/20/81

ACTIVITY Marine Corps Base, Camp Lejeune, N. C.

UIC 67001

SITE NUMBER 6

5. If the site was closed, briefly describe the closure procedures. _____

6. As well as possible, describe the wastes that entered the site.

Type of Waste	Quantity	Origin

DOC. NO.: CLEJ-00242-1.02-04/16/86

and study. (4) I noticed several open electrical service panels. A standing policy should be established to close or secure these at the end of the work or shift change, especially in the water plant areas. (5) Many water systems utilizing dry feeders for fluoride prefer sodium silicofluoride (due to its cost) instead of sodium fluoride (dissolves only to 4% solution). (6) Records of operations (including total water treated, filter and softener operations, chemical feed and dosage rates, etc.) should be reported monthly for each facility to our office in Raleigh.

I understand that planning is in progress for the development of private operations contracts for the water treatment facilities. Our office, in cooperation with the NC Attorney General's office, would like to review the final contract proposal to determine the operation's responsibilities as well as the system's liabilities.

As always, I appreciate the cooperation and attitude of the Base towards the State's Water Supply Branch and regulations.

If you have any questions or wish to discuss these comments further, please contact me.

Sincerely,

J. Fred Hill
Water Plant Consultant
Water Supply Branch
Environmental Health Section

bgb

Enclosures

cc: C. E. Rundgren
M. P. Bell

DOC. NO. : ELEV - 00474-1.0a - 04/16/86

North Carolina Department of Human Resources
Eastern Regional Office • 404 Saint Andrews Drive • Greenville, N. C. 27834

James G. Martin, Governor

Phillip J. Kirk, Jr., Secretary

April 16, 1986

Commanding General
US Marine Corps Base
Camp Lejeune, NC 28542

ATTN: Utilities Director
G. S. Johnson, Jr.

Dear Sir:

I visited the potable water treatment facilities aboard USMCB Camp Lejeune on 10 and 11 April 1986. I was accompanied during this visit by Mr. B. M. Frazelle, Jr. (Water Treatment Operator Foreman). The purpose of this visit was to update our files and records concerning the facility operations, treatment capacities, and construction work in progress as well as offer any suggestions for improvements in the process or daily operation and maintenance at the treatment facilities.

The routine plant operation and equipment maintenance are well organized and carried out. I was very pleased with the expansion and upgrading work recently completed or now in progress at several facilities.

We discussed several specific plant situations including: (1) A light film on the water surface at the filters in the Holcomb Boulevard facility may be from oil lubricated well pumps. (2) The maintenance level at the Tarawa Terrace and Camp Johnson facilities has dropped below the others. This is understandable, however, considering these are to be abandoned when the Holcomb Boulevard project is completed (estimated late 1986). (3) The water flow pattern at the Onslow Beach system is different from other facilities utilizing similar treatment. Normally, water is pumped from the wells through filters then through the ion exchange softeners, not divided. Additionally, filter backwash water is usually from the treated water system, not untreated well water.

We also discussed several items which may be applicable to more than one facility. These include: (1) The filters and softeners should be inspected annually for media loss and condition as well as any structural or operational abnormalities. (2) Covers for the brine (NaCl) day tanks will reduce some of the problems with surface corrosion. Installation and operation of dehumidifiers will also help this problem. (3) The existing treatment process consisting of aeration, lime addition, sedimentation, filtration (sand media), ion exchange (softening), chlorination, and phosphate (at three plants) may be altered to reduce chemical costs while maintaining acceptable quality. An in-plant or laboratory trial of the process may prove effective, depending on more detailed water quality analysis

DOC. NO.: CLEJ-00247-1.02-10/25/85

APPENDIX II

EXECUTIVE SUMMARY

This report presents the results of an Initial Assessment Study (IAS) conducted at Marine Corps Base (MCB) Camp Lejeune and outlying fields. The purpose of an IAS is to identify and assess sites posing a potential threat to human health or the environment due to contamination from past hazardous materials operations.

Based on information from historical records, aerial photographs, field inspections, and personnel interviews, a total of 76 potentially contaminated sites were identified. Each of the sites was evaluated with regard to contamination characteristics, migration pathways, and pollutant receptors.

The study concludes that, while none of the sites pose an immediate threat to human health or the environment, 22 warrant further investigation under the Navy Assessment and Control of Installation Pollutants (NACIP) Program, to assess potential long-term impacts. A confirmation study, involving actual sampling and monitoring of the 22 sites, is recommended to confirm or deny the existence of the suspected contamination and to quantify the extent of any problems which may exist. Since the on-site survey, MCB Camp Lejeune has taken action to evaluate or mitigate Site No. 2, the Former Nursery/Day-Care Center, and Site No. 16, the Montford Point Burn Dump. The 22 sites recommended for confirmation are listed below in order of priority.

1. Rifle Range Chemical Dump, Site No. 69;
2. Storage Lots 201 and 203, Site No. 6;
3. MCAS Mercury Dumpsite, Site No. 48;
4. Former Nursery/Day-Care Center, Site No. 2;
5. Transformer Storage Lot 140, Site No. 21;
6. Camp Geiger Dump, Site No. 41;
7. Mess Hall Grease Disposal Area, Site No. 74;
8. MCAS Basketball Court Site, Site No. 75;
9. MCAS Curtis Road Site, Site No. 76;
10. Courthouse Bay Liquids Disposal Area, Site No. 73;
11. Fire Fighting Training Pit, Site No. 9;
12. Industrial Area Fly Ash Dump, Site No. 24;
13. Campbell Street Underground Avgas Storage and Adjacent JP Fuel Farm at Air Station, Site No. 45;
14. Hadnot Point Burn Dump, Site No. 28;
15. French Creek Liquids Disposal Area, Site No. 1;
16. Rifle Range Dump, Site No. 68;
17. Montford Point Burn Dump, Site No. 16 (Mitigation undertaken);
18. Industrial Area Tank Farm, Site No. 22;
19. Crash Crew Fire Training Burn Pit; Site No. 54;
20. Sneads Ferry Road--Fuel Tank Sludge Area, Site No. 30;
21. Camp Geiger Area Dump, Site No. 36;
22. Camp Geiger Area Fuel Farm, Site No. 35.

The results of the Confirmation Study will be used to evaluate the necessity of conducting mitigating actions or clean-up operations.

CREDIT: SUMMARY WAS ADAPTED FROM PAGE i, INITIAL ASSESSMENT STUDY OF MCB CAMP LEJEUNE APRIL 83 REPORT

DOC. NO.: ELET-00247-1.02-10/25/85

APPENDIX I

NAVY ASSESSMENT AND CONTROL OF INSTALLATION POLLUTANTS (NACIP) PROGRAM

Marine Corps Base
Camp Lejeune, North Carolina

The NACIP program is implemented in the following phases:

Initial Assessment Study (IAS) of the existence of potential contamination problems, which was provided to NCDEM, Raleigh, in December 1983. (Note: A copy of the IAS will be forwarded to NCDEM, Wilmington, by separate correspondence.)

Confirmation Study for onsite work to confirm, qualify, and recommend correction of contamination problems, which is currently underway.

Corrective measures to control or mitigate contamination, and to be funded under the Department of the Navy Pollution Abatement Program.

The Confirmation Study is a sequentially phased effort as described below:

Step	Description
IA	Verification of existence of contamination.
IB	Characterization of extent and rate of migration of contaminants, geohydrological, geophysical and other factors.
II	Evaluate alternatives to achieve compliance, prepare cost estimates and project effectiveness of alternatives.
III	Prepare site operation and draft Government project documentation with cost estimate satisfactory for project funding requests.

DOC. NO.: CLEJ-00247-1.02-10/25/85

APPENDICES

Additionally, DEM will continue its effort to identify the off-base source which has contaminated the two Tarawa Terrace wells. Although the Solid and Hazardous Waste Management Branch, Department of Human Resources, is not actively involved in the NACIP program, it is requested that a copy of this report (when approved) be transmitted to Mr. Bill Meyer.

Conclusions and Recommendations

The principal conclusions are as follows:

1. There are thirty-eight (38) known pollution sites that are of concern to DEM;

2. The NACIP program is designed to remedy problems only at serious hazardous waste sites;

3. Eight (perhaps nine) community supply wells have been contaminated by on-base sources;

4. Two community supply wells have been contaminated by off-base sources;

5. Another eighteen community water supply wells are in jeopardy of being contaminated by on-base sources.

6. In part because of the contamination problem, the Marine Corps occasionally experiences problems in meeting peak water demand at the MCB.

Given the actual and potential severity of the quality problems at the MCB, the following recommendations are offered for consideration:

1. Require the Marine Corps to initiate confirmatory studies at sixteen sites that are not NACIP priority sites, but are sites of concern to DEM;

2. At priority sites 2, 6, 9, 21, 22, 54, 68, 69, 74 and 76, where confirmatory studies have been performed, require the Marine Corps to expand the study so that the presence or absence of a plume can be confirmed;

3. At sites where significant contamination is discovered present in the Water Table Aquifer, require the Marine Corps to conduct confirmatory studies in the underlying Tertiary Sand Aquifer;

4. At sites where significant contamination is documented, require the Marine Corps to define the direction and velocity of plume movement;

5. Request the Marine Corps to submit a revised schedule of work which realistically specifies when these technical evaluations will be completed;

6. Request that the Marine Corps explain what circumstances mandate corrective measures at a pollution site, and in fact what activities constitute remedial actions.

Groundwater Resources Situation

Currently, the MCB extracts for use an average of 8.30 million gallons per day of groundwater from 103 wells. Except for the Rifle Range System, these wells are exposed to the Tertiary Sand Aquifer: at the Rifle Range the wells are exposed to the Tertiary Limestone Aquifer. Over all the MCB, the well depths range from 100 to 200 feet.

The Tertiary Sand Aquifer is highly vulnerable to contamination from pollution sources. Because the confining beds between the Water Table Aquifer and Tertiary Sand Aquifer are discontinuous (or absent), and because many sites are located close to active wells, the probability that potable water supplys can be contaminated is high. That this has happened already attests to the vulnerability of the aquifer for pollution.

The Marine Corps now experiences occasional problems in meeting peak water demand at the MCB. In part that is because ten (contaminated) wells were removed from the system, and in part because expansion of the MCB has resulted in increased demands for water. To evaluate the adequacy of the groundwater system to meet its long term demand, the Marine Corps is negotiating a quantity-related study with the United States Geological Survey.

17. MCAS Mercury Dump, Site No. 48

18. Hadnot Point Burn Dump, Site No. 28

19. Montford Point Burn Dump, Site No. 16

20. Courthouse Bay Liquid Disposal Area, Site No. 73

Priority is based on a consideration of the toxicity of the waste, the probability of groundwater quality violations, the proximity of the site to community water supply wells, and the proximity of the site to surface waters.

The data do not suggest that any of the contaminant plumes from the 38 sites have migrated off the MCB. However, it is probable that in one case a contaminant plume(s) from a day cleaner(s) migrated onto the base and resulted in the contamination of two community water supply wells.

Eight (perhaps nine) community water supply wells at the MCB already have been impacted by these (and other unknown) waste sources. Additionally, another eighteen (18) wells are in jeopardy of being impacted.

It is evident, therefore, that DEM must commit the resources necessary to assure that the Marine Corps resolves its groundwater quality problems.

Discussion

The principal objective of the NACIP program is to correct the worst case hazardous waste sites at the MCB. Consequently, the NACIP program can not comply with DEM's mandate to remediate all significant sources of groundwater pollution. Broader in scope, the 15 NCAC 2L regulations allow for the management of non-hazardous as well as hazardous sites. After applying the 2L regulations to the 73 sites, there are thirty-eight sites that are of concern to DEM.

Table 1 summarizes the characteristics of each site. In order of priority, DEM is most concerned about the following sites:

1. Rifle Range Chemical Dump, Site No. 69
2. Camp Geiger Dump, Site No. 41
3. Industrial Area Tank Farm, Site No. 22
4. Storage Lots 201 and 203, Site No. 6
5. Transformer Storage Lot 140, Site No. 21
6. Former Day Care Center, Site No. 2
7. Mess Hall Grease Disposal Area, Site No. 74
8. MCAS Basketball Court Site, Site No. 75
9. MCAS Curtis Road Site, Site No. 76.
10. Fire Fighting Training Pit, Site No. 9
11. Base Sanitary Landfill, Site No. 29
12. Original Base Dump, Site No. 10
13. Campbell Street Avgas-JP Fuel Farm, Site No. 45
14. MCAS Direct Refuel Depot, Site No. 52
15. Camp Geiger Area Fuel Farm, Site No. 35
16. Rifle Range Dump, Site No. 68

standards have been established for these constituents, the Marine Corps nevertheless discontinued use of the contaminated wells during December 1984.

Believing that the ten contaminated wells obviated violations of 15 NCAC 2L regulations, DEM issued the MCB a notice of violation (NOV) to that effect on May 15, 1985. This NOV (see Appendix III) required the Marine Corps to submit to DEM a plan of action (with a schedule of compliance) that would: 1) identify the source(s) of contamination, 2) define the geometry of the plumes, 3) define the quality attributes of the plume(s), 4) project the future impacts of the source(s), and 5) propose remedial actions to restore the polluted groundwaters to GA standards. The Marine Corps response to this NOV was simply to expedite the implementation of the NACIP program: a copy of the 19 July 1985 response is Appendix IV.

Contamination of two of the ten wells on the MCB is related to civilian sources. The organic solvents present in the two wells at Tarawa Terrace I probably originate from nearby dry cleaner(s). During April 1985, DEM initiated a study to identify the source(s) of this plume(s), and while the field study is completed, the analytical studies are not, so no conclusions are yet possible.

DOC. NO.: CLEJ-00242-1.02-04/16/86

and study. (4) I noticed several open electrical service panels. A standing policy should be established to close or secure these at the end of the work or shift change, especially in the water plant areas. (5) Many water systems utilizing dry feeders for fluoride prefer sodium silicofluoride (due to its cost) instead of sodium fluoride (dissolves only to 4% solution). (6) Records of operations (including total water treated, filter and softener operations, chemical feed and dosage rates, etc.) should be reported monthly for each facility to our office in Raleigh.

I understand that planning is in progress for the development of private operations contracts for the water treatment facilities. Our office, in cooperation with the NC Attorney General's office, would like to review the final contract proposal to determine the operation's responsibilities as well as the system's liabilities.

As always, I appreciate the cooperation and attitude of the Base towards the State's Water Supply Branch and regulations.

If you have any questions or wish to discuss these comments further, please contact me.

Sincerely,

J. Fred Hill

J. Fred Hill
Water Plant Consultant
Water Supply Branch
Environmental Health Section

bgb

Enclosures

cc: C. E. Rundgren
M. P. Bell

DOC. NO.: CLCV - 0049-N6a - 04/16/86

North Carolina Department of Human Resources

Eastern Regional Office • 404 Saint Andrews Drive • Greenville, N. C. 27834

James G. Martin, Governor

Phillip J. Kirk, Jr., Secretary

April 16, 1986

Commanding General
US Marine Corps Base
Camp Lejeune, NC 28542

ATTN: Utilities Director
G. S. Johnson, Jr.

Dear Sir:

I visited the potable water treatment facilities aboard USMCB Camp Lejeune on 10 and 11 April 1986. I was accompanied during this visit by Mr. B. M. Frazelle, Jr. (Water Treatment Operator Foreman). The purpose of this visit was to update our files and records concerning the facility operations, treatment capacities, and construction work in progress as well as offer any suggestions for improvements in the process or daily operation and maintenance at the treatment facilities.

The routine plant operation and equipment maintenance are well organized and carried out. I was very pleased with the expansion and upgrading work recently completed or now in progress at several facilities.

We discussed several specific plant situations including: (1) A light film on the water surface at the filters in the Holcomb Boulevard facility may be from oil lubricated well pumps. (2) The maintenance level at the Tarawa Terrace and Camp Johnson facilities has dropped below the others. This is understandable, however, considering these are to be abandoned when the Holcomb Boulevard project is completed (estimated late 1986). (3) The water flow pattern at the Onslow Beach system is different from other facilities utilizing similar treatment. Normally, water is pumped from the wells through filters then through the ion exchange softeners, not divided. Additionally, filter backwash water is usually from the treated water system, not untreated well water.

We also discussed several items which may be applicable to more than one facility. These include: (1) The filters and softeners should be inspected annually for media loss and condition as well as any structural or operational abnormalities. (2) Covers for the brine (NaCl) day tanks will reduce some of the problems with surface corrosion. Installation and operation of dehumidifiers will also help this problem. (3) The existing treatment process consisting of aeration, lime addition, sedimentation, filtration (sand media), ion exchange (softening), chlorination, and phosphate (at three plants) may be altered to reduce chemical costs while maintaining acceptable quality. An in-plant or laboratory trial of the process may prove effective, depending on more detailed water quality analysis

DOC. NO.: CLEJ-00247-1.02-10/25/85

APPENDIX II

EXECUTIVE SUMMARY

This report presents the results of an Initial Assessment Study (IAS) conducted at Marine Corps Base (MCB) Camp Lejeune and outlying fields. The purpose of an IAS is to identify and assess sites posing a potential threat to human health or the environment due to contamination from past hazardous materials operations.

Based on information from historical records, aerial photographs, field inspections, and personnel interviews, a total of 76 potentially contaminated sites were identified. Each of the sites was evaluated with regard to contamination characteristics, migration pathways, and pollutant receptors.

The study concludes that, while none of the sites pose an immediate threat to human health or the environment, 22 warrant further investigation under the Navy Assessment and Control of Installation Pollutants (NACIP) Program, to assess potential long-term impacts. A confirmation study, involving actual sampling and monitoring of the 22 sites, is recommended to confirm or deny the existence of the suspected contamination and to quantify the extent of any problems which may exist. Since the on-site survey, MCB Camp Lejeune has taken action to evaluate or mitigate Site No. 2, the Former Nursery/Day-Care Center, and Site No. 16, the Montford Point Burn Dump. The 22 sites recommended for confirmation are listed below in order of priority.

1. Rifle Range Chemical Dump, Site No. 69;
2. Storage Lots 201 and 203, Site No. 6;
3. MCAS Mercury Dumpsite, Site No. 48;
4. Former Nursery/Day-Care Center, Site No. 2;
5. Transformer Storage Lot 140, Site No. 21;
6. Camp Geiger Dump, Site No. 41;
7. Mess Hall Grease Disposal Area, Site No. 74;
8. MCAS Basketball Court Site, Site No. 75;
9. MCAS Curtis Road Site, Site No. 76;
10. Courthouse Bay Liquids Disposal Area, Site No. 73;
11. Fire Fighting Training Pit, Site No. 9;
12. Industrial Area Fly Ash Dump, Site No. 24;
13. Campbell Street Underground Avgas Storage and Adjacent JP Fuel Farm at Air Station, Site No. 45;
14. Hadnot Point Burn Dump, Site No. 28;
15. French Creek Liquids Disposal Area, Site No. 1;
16. Rifle Range Dump, Site No. 68;
17. Montford Point Burn Dump, Site No. 16 (Mitigation undertaken);
18. Industrial Area Tank Farm, Site No. 22;
19. Crash Crew Fire Training Burn Pit; Site No. 54;
20. Sneads Ferry Road--Fuel Tank Sludge Area, Site No. 30;
21. Camp Geiger Area Dump, Site No. 36;
22. Camp Geiger Area Fuel Farm, Site No. 35.

The results of the Confirmation Study will be used to evaluate the necessity of conducting mitigating actions or clean-up operations.

CREDIT: SUMMARY WAS ADAPTED FROM PAGE i, INITIAL ASSESSMENT STUDY OF MCB CAMP LEJEUNE, APRIL 85 REPORT

DOC. NO. : ELET-00247-1.02-10/25/83

APPENDIX I

NAVY ASSESSMENT AND CONTROL OF INSTALLATION POLLUTANTS (NACIP) PROGRAM

Marine Corps Base
Camp Lejeune, North Carolina

The NACIP program is implemented in the following phases:

Initial Assessment Study (IAS) of the existence of potential contamination problems, which was provided to NCDEM, Raleigh, in December 1983. (Note: A copy of the IAS will be forwarded to NCDEM, Wilmington, by separate correspondence.)

Confirmation Study for onsite work to confirm, qualify, and recommend correction of contamination problems, which is currently underway.

Corrective measures to control or mitigate contamination, and to be funded under the Department of the Navy Pollution Abatement Program.

The Confirmation Study is a sequentially phased effort as described below:

Step	Description
IA	Verification of existence of contamination.
IB	Characterization of extent and rate of migration of contaminants, geohydrological, geophysical and other factors.
II	Evaluate alternatives to achieve compliance, prepare cost estimates and project effectiveness of alternatives.
III	Prepare site operation and draft Government project documentation with cost estimate satisfactory for project funding requests.

DOC. NO.: CLET-00247-1.02-10/25/85

APPENDICES

Additionally, DEM will continue its effort to identify the off-base source which has contaminated the two Tarawa Terrace wells. Although the Solid and Hazardous Waste Management Branch, Department of Human Resources, is not actively involved in the NACIP program, it is requested that a copy of this report (when approved) be transmitted to Mr. Bill Meyer.

Conclusions and Recommendations

The principal conclusions are as follows:

1. There are thirty-eight (38) known pollution sites that are of concern to DEM;

2. The NACIP program is designed to remedy problems only at serious hazardous waste sites;

3. Eight (perhaps nine) community supply wells have been contaminated by on-base sources;

4. Two community supply wells have been contaminated by off-base sources;

5. Another eighteen community water supply wells are in jeopardy of being contaminated by on-base sources.

6. In part because of the contamination problem, the Marine Corps occasionally experiences problems in meeting peak water demand at the MCB.

Given the actual and potential severity of the quality problems at the MCB, the following recommendations are offered for consideration:

1. Require the Marine Corps to initiate confirmatory studies at sixteen sites that are not NACIP priority sites, but are sites of concern to DEM;

2. At priority sites 2, 6, 9, 21, 22, 54, 68, 69, 74 and 76, where confirmatory studies have been performed, require the Marine Corps to expand the study so that the presence or absence of a plume can be confirmed;

3. At sites where significant contamination is discovered present in the Water Table Aquifer, require the Marine Corps to conduct confirmatory studies in the underlying Tertiary Sand Aquifer;

4. At sites where significant contamination is documented, require the Marine Corps to define the direction and velocity of plume movement;

5. Request the Marine Corps to submit a revised schedule of work which realistically specifies when these technical evaluations will be completed;

6. Request that the Marine Corps explain what circumstances mandate corrective measures at a pollution site, and in fact what activities constitute remedial actions.

Groundwater Resources Situation

Currently, the MCB extracts for use an average of 8.30 million gallons per day of groundwater from 103 wells. Except for the Rifle Range System, these wells are exposed to the Tertiary Sand Aquifer: at the Rifle Range the wells are exposed to the Tertiary Limestone Aquifer. Over all the MCB, the well depths range from 100 to 200 feet.

The Tertiary Sand Aquifer is highly vulnerable to contamination from pollution sources. Because the confining beds between the Water Table Aquifer and Tertiary Sand Aquifer are discontinuous (or absent), and because many sites are located close to active wells, the probability that potable water supplys can be contaminated is high. That this has happened already attests to the vulnerability of the aquifer for pollution.

The Marine Corps now experiences occasional problems in meeting peak water demand at the MCB. In part that is because ten (contaminated) wells were removed from the system, and in part because expansion of the MCB has resulted in increased demands for water. To evaluate the adequacy of the groundwater system to meet its long term demand, the Marine Corps is negotiating a quantity-related study with the United States Geological Survey.

17. MCAS Mercury Dump, Site No. 48

18. Hadnot Point Burn Dump, Site No. 28

19. Montford Point Burn Dump, Site No. 16

20. Courthouse Bay Liquid Disposal Area, Site No. 73

Priority is based on a consideration of the toxicity of the waste, the probability of groundwater quality violations, the proximity of the site to community water supply wells, and the proximity of the site to surface waters.

The data do not suggest that any of the contaminant plumes from the 38 sites have migrated off the MCB. However, it is probable that in one case a contaminant plume(s) from a day cleaner(s) migrated onto the base and resulted in the contamination of two community water supply wells.

Eight (perhaps nine) community water supply wells at the MCB already have been impacted by these (and other unknown) waste sources. Additionally, another eighteen (18) wells are in jeopardy of being impacted.

It is evident, therefore, that DEM must commit the resources necessary to assure that the Marine Corps resolves its groundwater quality problems.

Discussion

The principal objective of the NACIP program is to correct the worst case hazardous waste sites at the MCB. Consequently, the NACIP program can not comply with DEM's mandate to remediate all significant sources of groundwater pollution. Broader in scope, the 15 NCAC 2L regulations allow for the management of non-hazardous as well as hazardous sites. After applying the 2L regulations to the 73 sites, there are thirty-eight sites that are of concern to DEM.

Table 1 summarizes the characteristics of each site. In order of priority, DEM is most concerned about the following sites:

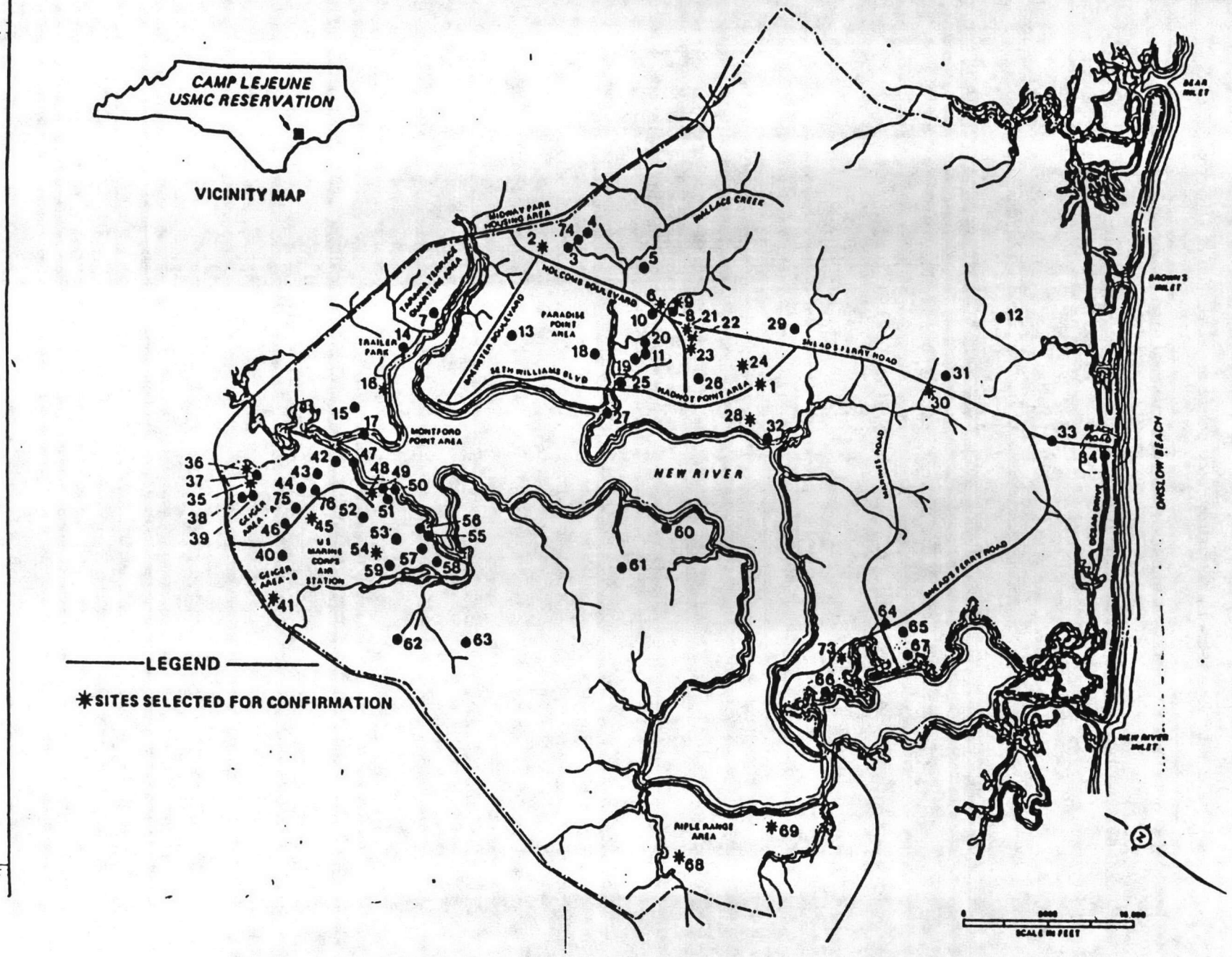
1. Rifle Range Chemical Dump, Site No. 69
2. Camp Geiger Dump, Site No. 41
3. Industrial Area Tank Farm, Site No. 22
4. Storage Lots 201 and 203, Site No. 6
5. Transformer Storage Lot 140, Site No. 21
6. Former Day Care Center, Site No. 2
7. Mess Hall Grease Disposal Area, Site No. 74
8. MCAS Basketball Court Site, Site No. 75
9. MCAS Curtis Road Site, Site No. 76.
10. Fire Fighting Training Pit, Site No. 9
11. Base Sanitary Landfill, Site No. 29
12. Original Base Dump, Site No. 10
13. Campbell Street Avgas-JP Fuel Farm, Site No. 45
14. MCAS Direct Refuel Depot, Site No. 52
15. Camp Geiger Area Fuel Farm, Site No. 35
16. Rifle Range Dump, Site No. 68

standards have been established for these constituents, the Marine Corps nevertheless discontinued use of the contaminated wells during December 1984.

Believing that the ten contaminated wells obviated violations of 15 NCAC 2L regulations, DEM issued the MCB a notice of violation (NOV) to that effect on May 15, 1985. This NOV (see Appendix III) required the Marine Corps to submit to DEM a plan of action (with a schedule of compliance) that would: 1) identify the source(s) of contamination, 2) define the geometry of the plumes, 3) define the quality attributes of the plume(s), 4) project the future impacts of the source(s), and 5) propose remedial actions to restore the polluted groundwaters to GA standards. The Marine Corps response to this NOV was simply to expedite the implementation of the NACIP program: a copy of the 19 July 1985 response is Appendix IV.

Contamination of two of the ten wells on the MCB is related to civilian sources. The organic solvents present in the two wells at Tarawa Terrace I probably originate from nearby dry cleaner(s). During April 1985, DEM initiated a study to identify the source(s) of this plume(s), and while the field study is completed, the analytical studies are not, so no conclusions are yet possible.

FIGURE 1: MAP THAT SHOWS THE LOCATION OF ALL THE INVENTORIED SOURCES OF GROUNDWATER POLLUTION, CAMP LEJEUNE MARINE CORPS BASE, ONSLOW CO.



CREDIT: FIG. 1 WAS ADAPTED FROM FIG. 2-1 OF THE INITIAL ASSESSMENT STUDY OF [illegible]

DOC. NO.: CLEJ-00247-1.02-10/25/8

Chronology of Events

The initial assessment study was performed at the MCB from February 1982 to February 1983. Conducted by consultants with Water and Air Research, Inc., the study emphasized groundwater contamination sites. The findings and recommendations were incorporated into an April 1983 document titled Initial Assessment Study of Marine Corps Base Camp Lejeune North Carolina. Although seventy-three (73) contamination sites were identified at the MCB, the investigators concluded that further studies could be justified only at twenty-two (22) priority sites. Figure 1 shows the location of these 73 sites, and Appendix II provides an executive summary of the report.

During July 1984, confirmation studies were begun at eighteen (18) priority sites. The results of these groundwater studies were documented in a report provided to the Marine Corps in February 1985: as the Marine Corps disagrees with the conclusions in this report, it will not release a copy of it to any outside agency. Recently, however, the Marine Corps did agree to provide DEM copies of the technical data for review and interpretation.

As part of this confirmation study, it was recommended that volatile organic analyses (VOA) samples be collected from any community water supply well that is located proximal to a priority site. In July 1984, solvents and gasoline were discovered present in well HP-602, and expanded quality studies eventually verified the presence of organic contaminants in ten (10) wells. The organic contaminants included: tetrachloroethylene, trichloroethylene, dichloroethylene, methylene chloride, 1,1 - dichloroethane, benzene, toluene, and dichlorobenzene. Although no safe drinking water

Background

The framework whereby the Marine Corps can remediate groundwater pollution at problem sites is the NACIP program. This acronym stands for "Naval Assessment and Control of Institutional Pollutants". Begun in September 1980, the NACIP program is the Navy's "superfund" program (federal installations are exempt from CERCLA coverage).

The NACIP program, broadly defined, mandates the identification, study, and correction of pollution problems caused by past disposal practices of hazardous materials. Specifically, it consists of three phases: 1) the first phase requires the identification and prioritization of problem sites at the base (initial assessment study), 2) the second phase (confirmation study) authorizes technical studies at the priority sites to define the severity of the contamination problem, and 3) the third phase specifies remedial actions (corrective measures) at documented problem sites. Appendix I provides a detailed explanation of the NACIP program in progress at the MCB.

TABLE 1: A LIST OF SOURCES AT CAMP LEJEUNE THAT ARE OF CONCERN TO D.E.M.

SITE NUMBER	SITE NAME	DESCRIPTION OF SOURCE	WASTE TYPE	SIZE (ACRES)	QUANTITY MAXIMUM	DATES USED	NACIP PRIORITY SITE?
69	RIFLE RANGE CHEMICAL DUMP	LANDFILL	CHEMICAL WASTES, PESTICIDES, PCB, SOLVENTS	6	93,000 YD³	1950-1976	1
73	COURTHOUSE BAY LIQUID DISPOSAL AREA	INTENTIONAL SPILLS	POL BATTERY ACID	13	400,000 GAL 20,000 GAL	1946-1977	10
74	MESS HALL GREASE PIT AREA	LANDFILL	PESTICIDES, PCBs (TRANSFORMER OIL)	1/10	40, 20 DRUMS	EARLY 1950s-1963	7
75	MCAS BASKET BALL COURT SITE	LANDFILL	"CN" GAS IN SOLUTION (CHLOROACETOPHENONE), VARIOUS SOLVENTS	1/10	100 DRUMS		8
76	MCAS CURTIS ROAD SITE	LANDFILL	"CN" GAS IN SOLUTION, VARIOUS SOLVENTS	1/4	100 DRUMS	1949	9

DOC. NO.: CLEJ-[illegible]

TABLE 1: A LIST OF SOURCES AT CAMP LEJEUNE THAT ARE OF CONCERN TO D.E.M.

SITE NUMBER	SITE NAME	DESCRIPTION OF SOURCE	WASTE TYPE	SIZE (ACRES)	QUANTITY (MAXIMUM)	DATES USED	NACIP PRIORITY SITE
45	CAMPBELL STREET AVGAS - JP FUEL FARM	UNDERGROUND LEAKS	AVGAS AND JP FUEL	3	100,000 GAL	1978	13
48	MCAS NEW RIVER MERCURY DUMP	INTENTIONAL SPILLS	ELEMENTAL MERCURY	1/2	1000 LBS	1956-1966	3
52	MCAS DIRECT REFUEL DEPOT	UNDERGROUND LEAKS	AVGAS AND JP FUEL	3	UK	1971	NO
53	MCAS WAREHOUSE BLDG 3525 AREA AND ROADWAYS	INTENTIONAL SPILLS (DUST CONTROL)	WASTE OIL, JP FUEL, PAINT THINNER	3 MILES	UK	1970-1975	NO
54	CRASH CREW FIRE TRAINING BURN PIT	UNLINED SURFACE IMPOUNDMENT (LINED 1975)	WASTE OILS, FUELS SOLVENTS	1 1/2	500,000 GAL	MID-1950s-PRESENT	19
64	MARINES ROAD-SNEADS FERRY ROAD MOGAS SPILL	UNINTENTIONAL SPILL	MOGAS	1	UK	1975	NO
66	AMTRAC LANDING SITE AND STORAGE AREA	INTENTIONAL SPILLS	OIL, POL, BATTERY ACID	UK	UK	1950s-PRESENT	NO
69	RIFLE RANGE DUMP	LANDFILL	SOLID WASTE, SOLVENTS	4	50,000 YD^3	1942-1972	16

DOC. NO.: CLEJ-00247-1.02-1925/03

TABLE 1: A LIST OF SOURCES AT CAMP LEJEUNE THAT ARE OF CONCERN TO D.E.M.

SITE NUMBER	SITE NAME	DESCRIPTION OF SOURCE	WASTE TYPE	SIZE (ACRES)	QUANTITY (MAXIMUM)	DATES USED	MACIP PRIORITY SITE?
25	BASS INCINERATOR	LANDFARM ?	BOTTOM ASH	UK	UK	1940-1960	NO
26	COAL STORAGE AREA	STOCKPILE	STOCKPILE RUNOFF	3	UK	PRESENT	NO
28	HADNOT POINT BURN DUMP	LANDFILL	SOLID WASTE INDUSTRIAL WASTE	23	870,000 YD³	1946-1971	14
29	BASS SANITARY LANDFILL	LANDFILL	SOLID WASTE	30	UK	1972-PRESENT	NO
30	SCRAPS FED BY ROAD--FUEL TANK SLUDGE AREA	LANDFARM	GASOLINE TANK BOTTOM SLUDGE	UK	600 GAL	1970	20
35	CAMP GEIGER AREA FUEL FARM	UNDER-GROUND LEAKS	FUELS	1/10	UK	1957-1958	22
36	CAMP GEIGER DUMP AREA	LANDFILL	SOLID WASTE	1/2	UK	LATE 1950s LATE	21
	CAMP GEIGER DUMP AREA		WASTE OIL		25,000 GAL	1960s	
	CAMP GEIGER DUMP AREA		SOLVENTS		15,000 GAL		
37	CAMP GEIGER AREA OPEN DUMP	OPEN DUMP	SOLID WASTE	4	UK	1950-1951	NO
41	CAMP GEIGER DUMP	LANDFILL	SOLID WASTE, INDUSTRIAL WASTE, POL, SOLVENTS, PESTICIDES, ORDNANCE, BATTERIES	30	110,000 YD³	1946-1970	6

TABLE 1: A LIST OF SOURCES AT CAMP LEJEUNE THAT ARE OF CONCERN TO D.E.M.

SITE NUMBER	SITE NAME	DESCRIPTION OF SOURCE	WASTE TYPE	SIZE (ACRES)	QUANTITY (MAXIMUM)	DATES USED	FACILITY PRIORITY SITE
15	MONTFORD POINT DUMP	LANDFILL	SOLID WASTE	4	UK	1948-1958	NO
16	MONTFORD POINT BURN DUMP	LANDFILL	SOLID WASTE	4	UK	1958-1972	17
18	WATKIN VILLAGE (E) SITE	LANDFILL	SOLID WASTE	1	UK	1976-1978	NO
19	NAVAL RESEARCH LAB - DUMP	LANDFILL	SOLID WASTE, LOW LEVEL RADWASTE	3	UK	1956-1960	NO
20	NAVAL RESEARCH LAB INCINERATOR	UNDEFINED	BOTTOM ASH	1/2	UK	1956-1960	NO
21	TRANSFORMER STORAGE LOT 1140	SLOPS, LEAKS, SPILLS	PESTICIDES	4	1000 GAL	1958-1977	5
21	TRANSFORMER STORAGE LOT 1140	SURFACE IMPOUNDMENT	TRANSFORMER OIL (PCB)		11,000 GAL	1950-1951	
22	INDUSTRIAL AREA TANK FARM	UNDER-GROUND LEAKS	GAS AND DIESEL FUEL	4	50,000 GAL	1940s-PRESENT	18
24	INDUSTRIAL FLY ASH DUMP	LANDFARM	FLY ASH	25	31,500 TONS	1940s-1980	12
	INDUSTRIAL FLY ASH DUMP	LANDFARM	SLUDGES FROM WTP AND STP		UK		
	INDUSTRIAL FLY ASH DUMP	INTENTIONAL SPILLS	VARIOUS ORGANICS (SOLVENTS, STRIPPERS, VARNISHES, LACQUERS)		45,000 GAL		

DOC. NO.: CLEJ-00271-1.02-1/20/83

TABLE 1: A LIST OF SOURCES AT CAMP LEJEUNE THAT ARE OF CONCERN TO D.E.M.

SITE NUMBER	SITE NAME	DESCRIPTION OF SOURCE	WASTE TYPE	SIZE (ACRES)	QUANTITY (MAXIMUM)	DATES USED	NACI PRIORITY SITE
1	FRENCH CR. LIQUID DISPOSAL AREA	INTENTIONAL SPILLS	USED BATTERY ACID, POL ("POL" IS PETROLEUM, OILS, AND LUBRICANTS)	7	5,000 GAL 20,000 GAL	LATE 1940s MID 1970s	15
2	FORMER DAY CARE CENTER	SLOPS, LEAKS, SPILLS	PESTICIDES	1/7	UK	1945-1948	4
3	ABANDONED CREOSOTE PLANT	SLOPS, LEAKS, SPILL	CREOSOTE	2	UK	1951-1952	NO
[illegible]	STORAGE LOTS 201 AND 203 STORAGE	SLOPS, LEAKS, SPILLS	PESTICIDES, TRANSFORMER OIL (PCB)		UK	1940s PRESENT	2
6	STORAGE LOTS 201 AND 203	LANDFILL	PESTICIDES	UK	UK	UK	YES
6	STORAGE LOT 203	LANDFILL	SOLID WASTE	UK	UK	UK	NO
7	TARAWA TERRACE DUMP	LANDFILL	SOLID WASTE	2	UK	CLOSED IN 1972	NO
9	FIRE FIGHTING TRAINING PIT	UNLINED SURFACE IMPOUNDMENT (LINED LATE 60s)	USED OILS, SOLVENTS, CONTAMINATED FUELS	1	30,000 GAL/YEAR	1960s-PRESENT	11
10	ORIGINAL BASE DUMP	LANDFILL	SOLID WASTE	10	UK	PRE-1950	NO
1[illegible]	PEST CONTROL SHOP	SLOPS, SPILLS, LEAKS	PESTICIDES	2	UK	1982-PRESENT	NO
11	PEST CONTROL SHOP	LANDFILL	LOW LEVEL RADWASTE		UK	1976-1982	NO

DOC. NO.: CLEJ-00247-1.02-10/25/8

APPENDIX IV

MILESTONE CHART

Milestone	Day
Government Issuance of Change Order	0
Submit POA&M and Safety/Contingency Plan for Characterization Effort	10
Government Approval of POA&M and Safety/Contingency Plan	17
Initiate Characterization On-Site Investigations for Hadnot Point Industrial Area	45
Initiate Round Two Sampling, Verification Step	45
Initiate Potable Well Sampling	45
Submit Report with Round Two Results, Potable Well Results	125
Return of Government Comments	155
Complete Characterization On-Site Investigation	260
Submit Preliminary Report with Hadnot Point Characterization Step Results	290
Return of Government Comments	320
Submit Characterization Step Draft Report for Hadnot Point	350
Submit Preliminary Feasibility Step Report for Hadnot Point	380
Return of Government Comments	410
Submit Feasibility Step Draft Report for Hadnot Point	440

DOC. NO.: CLEJ-00241-1.02-1423/05

APPENDIX IV

SCOPE OF WORK FOR ADDITIONAL SOIL BORINGS,
MCAS (H) NEW RIVER FUEL PIPELINE INVESTIGATION

1. Perform 23 soil borings to depths of 10' at the locations shown in Attachment A. (The attached sketch is from a 1983 Soil and Materials Engineering Study which was forwarded to you on 8 February 1984). A drill rig will be required for this effort, since previous attempts at hand augering have been unsuccessful. Note the presence or absence of fuel by visual inspection during the drilling. After a period of 24 hours, measure and record the depth to water or fuel in each borehole; sample the liquid and note the presence or absence of fuel and the thickness of the fuel lens.

2. Prepare a separate report on this investigation, to include boring logs and sketches, and submit three copies to this Command and three copies to MCB Camp Lejeune.

3. This investigation should be completed within ninety days of contract award.

APPENDIX IV

Perform aquifer testing to determine aquifer characteristics and rate and direction of ground water and contaminant flow. Potable water wells shall be evaluated for various well pumping combinations. Access holes will be drilled, threaded and removable plugs installed in the tops of all potable wells to provide a means of logging the depths of the water levels in the wells. The elevations of these plug holes above mean-sea-level shall be accurately determined by surveying. The method described in Attachment C or another commonly used method/model, as approved by the EIC, shall be used to determine the flow characteristics and contaminant profiles of the aquifers under study.

Within 30 days of completion of the Characterization Step on-site investigation, submit the Step IB preliminary report of the study results. The report should include: a description of all sampling and chemical analytical methods used; a presentation and evaluation of the analytical and geotechnical data; an assessment of actual/potential migration; detailed surveyed site plan with surface elevations, well locations (horizontal and vertical) and water levels (0.01 ft. accuracy) in all wells; the location and levels of suspected contaminant plumes and/or contaminant sources; known toxicological information on contaminants found, and current standards/criteria for acceptable levels of contaminants found, including those issued/published by EPA, CDC, NIOSH, OSHA, State and local regulatory/health agencies, and/or any other established regulatory/advisory agencies as approved by the EIC. Requirements for preliminary and draft report submissions for Step IB are outlined in Section 3.

b. Conduct Step II Feasibility for the Hadnot Point industrial area. Specify and evaluate five each interim and long-term feasible alternatives for cleanup of contaminated aquifers; include projected effectiveness and cost estimate for each alternative in your evaluation.

Within 30 days of submission of the characterization step draft report, submit a preliminary report of the feasibility study. Preliminary and draft report submission requirements for Step II are outlined in Section 3.

3. Preliminary and Draft Confirmation Study Reports

In accordance with the completion dates established for each step, furnish the EIC with five copies and the activity with five copies of the preliminary report. Within 30 days, the Government will review and provide comments to the contractor via the EIC. Present EIC/Activity debriefing at the activity during the Government review period. Address the comments, and within 30 days provide five copies of the draft report to the EIC and five copies of the draft report to the activity for issuance to the regulatory agencies for their review.

Present the findings of the draft report for each study step to EPA Region IV and to the North Carolina Division of Environmental Management. These briefings shall be held at each agency's office as arranged by the EIC and in consort with the activity representative.

elevations and water levels (0.01 ft. accuracy) in all wells; boring logs; a detailed surveyed site plan showing the location of suspected contaminant sources, wells, etc.; known toxicity information on contaminants found; current standards/criteria for acceptable levels of contaminants found, including those issued/published by EPA, CDC, NIOSH, OSHA, State and local regulatory/health agencies and/or any other established regulatory/advisory agencies as approved by the EIC; and recommendations for immediate site clean up or third round monitoring. Government comments and recommendations will be made via the EIC within 30 calendar days after receipt of the progress report.

2. Characterization/Feasibility Step Efforts

a. In accordance with the original scope of work, conduct Step IB, Characterization, for the Hadnot Point industrial area (bounded by Sneads Ferry Road, Codgels Creek, the New River, and Wallace Creek) and for the deep potable water aquifer influenced by wells serving the Hadnot Point treatment plant. The pump houses for these wells are numbered:

601	613	633	642
602	614	634	650
603	615	635	651
606	616	636	652
608	620	637	653
609	621	638	654
610	626	639(2)	655
611	627	640	LCH-4006
612	632	641	LCH-4007

The objectives of the characterization step are as follows:

1. Locate source of VOCs detected in deep water supply wells 601, 602, 608, 634, 637, and 642.

2. Determine concentration of detected parameters in source area(s).

3. Determine aquifer characteristics: transmissivity, hydraulic conductivity, permeability, storage coefficients and degree of confinement for both deep and shallow aquifers.

4. Determine rate and direction of groundwater and contaminant flow for the deep potable water supply aquifer influenced by wells listed above, and for the shallow aquifer in the Hadnot Point industrial area.

Conduct an extensive physical survey and document review for activities within the industrial area to identify potential sources of contamination. Perform a soil gas investigation to delineate the source areas; install additional wells to verify findings. We estimate fourteen additional shallow wells may be required in this area, including seven which will form pairs with potable wells 601, 602, 603, 608, 634, 637, and 642. Perform an estimated three rounds of sampling at the seventeen Site 22 shallow wells at 60-day intervals; add xylene, MEK, MIBK, and EDB to the round one verification step parameters.

APPENDIX IV

r. Site 75, MCAS Basketball Court: Resample three shallow wells and analyze for VOA, chloropicrin, and dioxin.

s. Site 76, MCAS Curtis Road: Resample two shallow wells and analyze for VOA, chloropicrin, and dioxin.

t. Site A, MCAS (H) Officers Housing Area: Install three shallow wells along the perimeter of the site described in Attachment A. Sample wells twice at a 60-day interval; analyze for VOA, O&G, and free chlorine. Sample surface water and sediment and analyze for free chlorine (SW only), O&G, and VOA.

u. For all existing wells: Install two additional protective bollards and fill with concrete. Pour 5' x 5' concrete pad around well and bollards; paint well bollards day-glo orange. Use monitoring well construction specifications, Attachment B, for installation of new wells.

v. Sample all potable wells on MCB Camp Lejeune and MCAS New River (approx. 100). Composite samples from a maximum of ten wells serving the same water treatment plant (except for "contaminated" wells listed below) and analyze for priority pollutants, all the Safe Drinking Water Act (SDWA) parameters and xylene, MEK, MIBK, and EDB. If any parameter(s) from the composite exceed(s) regulatory limits or suggested guidelines for potable water, analyze samples for only that (those) parameters from the individual wells in the composite to pinpoint the source of contamination. For cost estimating purposes, include VOA analysis on only 20 individual wells. Scope and analysis to be adjusted as needed by the EIC pending composite sample results. These "contaminated" wells have been shut down by MCB Camp Lejeune: 601, 602, 608, 634, 637, 651, 652, 653, TT26, and TT New. Sample these wells individually and analyze for priority pollutants, SDWA parameters, xylene, MEK, and MIBK.

w. For the contaminated wells TT26, TTNew, 651, 652, and 653, conduct an extensive physical survey and document review to identify potential sources of contamination. Perform a soil gas investigation within a one-mile radius of each well to delineate potential contamination source areas; install additional shallow wells (up to six per potable well for cost estimating purposes) to verify findings. Perform two rounds of sampling at these wells; analyze samples for volatile organics, xylene, MEK, and MIBK.

x. Close out contaminated wells at Sites 36, 41, and 68 in accordance with state regulations (15 NCAC 2C). Submit an abandonment report including round one data and evaluation for these wells, to MCB Camp Lejeune for forwarding to the appropriate state agency.

y. Within 80 days of initiation of the on-site verification investigations, evaluate all data generated with the two sampling events and discuss quantitatively whether contamination has the potential to or is presently affecting the environment or human health. Present the findings as part of the monthly progress reports. Furnish the EIC with two copies and the activity with three copies of the progress report with the study results. The report should include: a description of all sampling and chemical analytical methods used; a presentation and evaluation of the analytical data; an assessment of actual/potential contamination and migration; ground level

APPENDIX IV

i. Site 35, Camp Geiger Area Fuel Farm: Install three shallow two-inch wells in locations directed by the EIC. Sample twice at a 60-day interval. Sample surface water and sediments from Brinson Creek in two locations; analyze all samples for Pb, VOA, EDB, xylene, and O&G.

j. Site 36, Camp Geiger Area Dump: Install new upgradient well; sample twice at a 60-day interval. Resample four shallow wells; sample surface water and sediments from Brinson Creek and unnamed creek south of site in two locations. Analyze all samples for parameters listed in round one, o,m,p-xylene, MEK, MIBK, EDB, and hexavalent Cr.

k. Site 41, Camp Geiger Dump: Resample four shallow wells. Add new upgradient wells and sample twice at a 60-day interval. Sample surface water and sediment from Tank Creek in two locations and unnamed creek in two locations and analyze all samples for parameters listed in round one plus dioxin, o,m,p-xylene, MEK, MIBK, and hexavalent Cr.

l. Site 45, Campbell Street Underground Fuel Storage Area: Install new well south of fuel farm; sample twice at 60-day interval. Resample three shallow wells and surface water/sediment from the drainage ditch in two locations. Analyze water samples for Pb, O&G, VOA, EDB, and xylene. Sample soil in six locations along perimeter of fuel farm and avgas storage. Composite 5' borings into 3 samples, 0-1', 1-3', and 3-5', analyze soil and sediment samples for Pb, O&G.

m. Site 54, Crash Crew Fire Training Burn Pit: Install one upgradient and one downgradient well at site and sample twice at a 60-day interval. Resample Well 54GW1, drainage ditch surface water and sediments in three locations and analyze for round one parameters, o,m,p-xylene, MEK, MIBK, EDB, and hexavalent Cr.

n. Site 68, Rifle Range Dump: Resample three shallow wells and analyze for round one constituents plus o,m,p-xylene, MEK, MIBK, and EDB.

o. Site 69, Rifle Range Chemical Dump: Resample eight shallow wells and three surface water locations. Sample surface water and sediments from two unnamed guts southeast of site. Analyze all samples for parameters listed in round one plus dioxin, o,m,p-xylene, MEK, MIBK, and EDB.

p. Site 73, Courthouse Bay Liquid Disposal Area: Relocate Well 73GW4 closer to Courthouse Bay to allow for construction activities in that area. Install new upgradient well and sample twice at a 60-day interval. Resample four shallow wells and sample Courthouse Bay surface water and sediments in three locations. Analyze all samples for parameters listed in round one, o,m,p-xylene, MEK, MIBK, EDB, and hexavalent Cr.

q. Site 74, Grease Pit and Pest Control Area: Install a third well west of site; sample twice at a 60-day interval. Resample two shallow wells and analyze all samples for OCP, OCH, PCBs, dioxin, and VOA.

DOC. NO.: CLEJ-0021-1.02-10/25/85

APPENDIX IV

NAVY ASSESSMENT AND CONTROL OF INSTALLATION POLLUTANTS (NACIP) PROGRAM

Marine Corps Base
Camp Lejeune, North Carolina

SCOPE OF WORK FOR ROUND TWO SAMPLING AND CHARACTERIZATION/FEASIBILITY, N62470-83-C-6106

1. Verification Step Efforts

a. Site 1, French Creek Liquids Disposal Area: Sample and test surface water and sediments in two locations on Cogdels Creek; sample and test the six shallow wells. Add o,m,p-xylene, MEK, MIBK, EDB, and hexavalent Cr to the analytical parameters for round one.

b. Site 2, Former Nursery/Day Care Center: Sample and test Well 2GW1. Sample soil at four locations in the vicinity of sample 2S4; sample surface water and sediment from the drainage ditch in two locations; install four shallow two-inch wells in locations directed by the EIC. Sample new wells twice at an interval of 60 days. Analyze each sample for OCP, OCH, dioxin, and VOA.

c. Site 6, Storage lots 201 and 203: Install eight shallow two-inch wells in locations directed by the EIC. Sample wells twice at a 60-day interval. Sample surface water and sediment from Bearhead and Wallace Creeks adjacent to the site. Analyze all samples for DDT-R and VOA.

d. Site 9, Fire Fighting Training Pit: Resample and test the two shallow wells. Install a third well in a location directed by the EIC and sample twice at a 60-day interval. Analyze all samples for o,m,p-xylene, MEK, MIBK, EDB and hexavalent Cr in addition to round one parameters.

e. Site 21, Transformer Storage Lot 140: Sample soil at eight locations around perimeter of site, including two samples from drainage ditch. Sample four depths at each location (0-1', 1-3', 3-5', and at 5') and analyze for OCP, OCH, PCB, dioxin. Resample well GW21-1 and analyze for VOA, OCP, OCH, PCB, dioxin, xylene, MEK, MIBK, EDB, and oil and grease.

f. Site 24, Industrial Area Fly Ash Dump: Install two downgradient wells in locations directed by the EIC. Sample new wells twice at a 60-day interval. Sample five shallow wells, existing surface water locations and two new surface water/sediment locations on tributaries to Cogdels Creek and analyze all samples for metals A, VOA, and hexavalent Cr.

g. Site 28, Hadnot Point Burn Dump: Install new upgradient well and sample twice at a 60 day interval. Sample three existing shallow wells, New River surface water and sediments in four locations, and one new surface water/sediment location in Cogdels Creek near new upgradient well. Analyze all samples for round one parameters, dioxin, o,m,p-xylene, MIBK, MEK, and hexavalent Cr.

h. Site 30, Combat Town Training Area: Install another well downgradient and sample twice at a 60-day interval. Sample shallow well, surface water/sediment in French Creek and analyze all samples for same parameters as listed for round one plus xylene, MEK, MIBK, and EDB.

APPENDIX IV

6280/9
FAC

For additional information on this matter, please feel free to contact Mr. Bob Alexander, MCB Environmental Engineer at 919-451-3034.

Sincerely,

R. A. TIEBOUT
Colonel, U. S. Marine Corps
Assistant Chief of Staff, Facilities
By direction of the Commanding General

Encl:
(1) Plan of Action
(2) NACIP Info
(3) Milestone Chart

Copy to:
CMC (LFL) (w/o maps to Encl (2))
LANTNAVFACENGCOM (Code 114) (w/o Encl)
CO, NavHosp (PMU) (w/o maps to Encl (2))
N.C. Div of Health and Svcs, Greenville (w/o maps to Encl (2))

DOC. NO.: CLEW-00247-1.02-1425/85

APPENDIX IV

UNITED STATES MARINE CORPS
Marine Corps Base
Camp Lejeune, North Carolina 28542-5001

IN REPLY REFER TO
6280/9
FAC
19 JUL 1985

N. C. Department of Natural Resources
and Community Development
Division of Environmental Management
Attn: Mr. Charles Wakild
Wilmington Regional Office
7225 Wrightsville Ave.
Wilmington, NC 28405-3696

RECEIVED
JUL 25 1985
WILMINGTON REGIONAL OFFICE
DEM

Re: Notice of Violation
Groundwater Classification
and Standards

Dear Mr. Wakild:

As stated in our letter of 5 June 1984, the plan of action to address groundwater contamination is provided in Enclosure (1). The plan implements the Navy Assessment and Control of Installation Pollutants (NACIP) program at Camp Lejeune.

The plan of action includes the verification step, characterization step, and feasibility study efforts. A brief description of these phases of the NACIP study is provided in Enclosure (2).

Contract negotiations continue for the detailed program of onsite groundwater monitoring and development of engineering reports. Upon completion of these negotiations, we anticipate the onsite study to begin in mid-September. Prior to starting field work, a coordination meeting with your office will be conducted.

The plan recommends a characterization effort for the contaminated wells, including two wells of the Tarawa Terrace system. This effort includes an investigation for potential VOC sources within a one-mile radius of each contaminated well. The study will assess potential sources outside the Camp Lejeune property boundary. Thus, your assistance in coordinating these efforts with the City of Jacksonville will be appreciated.

Enclosure (3) provides a milestone chart for the plan of action. From the anticipated start date in September, 1985, the projected completion dates for the characterization step and feasibility study are September and December, 1986, respectively. Of course, the final schedule as established during the contract negotiations will be provided to your office.

This Command appreciates the continued technical assistance provided by Mr. Shiver as well as the laboratory support. We believe the enclosed plan will provide clear answers to complex gound-water questions. We solicit your views and mutual support in implementing the plan.

DOC. NO.: CLEJ-00241-1.02-10/23/85

APPENDIX III

3. Excluding those organic compounds which are classed as trihalomethanes, the presence of any other organic compound in GA classified groundwater (at the perimeter of compliance) constitutes a violation of standards (either by definition and/or as determined by the director).

These violations to 15 NCAC 2L therefore require that the Marine Corps submit to the Division of Environmental Management within thirty (30) days after receipt of this letter a plan of action which contains the following elements:

1. The source(s) of contamination are identified;

2. The horizontal and vertical geometry of the contaminant plume(s) are determined;

3. The quality characteristics of the contaminant plume(s) are satisfactorily defined;

4. The future impacts of these source(s) are projected;

5. Appropriate remedial actions are proposed to restore those polluted groundwaters to GA standards.

Of course, this plan of action must include a schedule which specifies when the investigative phases will begin and end and when the proposed remedial actions will begin.

If you have questions, or need assistance, please do not hesitate to call Mr. Rick Shiver at the phone number shown on the letterhead.

Your cooperation in this matter is appreciated.

Sincerely,

Charles Wakild
Regional Supervisor

CW/RS/sbm

cc: Mr. L.P. Benton
Mr. Perry Nelson
Central Files
Wilmington Regional Office

DOC. NO.: CLEJ-00247-1.02-10/25/85

APPENDIX III

State of North Carolina
Department of Natural Resources and Community Development
Wilmington Regional Office

James G. Martin, Governor
CERTIFIED MAIL
RETURN RECEIPT REQUESTED

S. Thomas Rhodes, Secretary
DIVISION OF ENVIRONMENTAL MANAGEMENT

May 15, 1985

Major General L.H. Buehl
Commanding General
United States Marine Corps
Marine Corps Base
Camp Lejeune, NC 28542

Subject: Notice of Violation
Groundwater Classification
and Standards
Source(s) of Groundwater Pollution
Camp Lejeune Marine Corps Base (MCB)
Onslow County

Dear General Buehl:

As you know, recent studies performed as prescribed by stage 2 of the NAVCIP program have revealed that ten of the base's community water supply wells contain organic contaminants.

Specifically, the contaminated wells include: HP-601, HP-602, HP-603, HP-608, HP-634, HP-637, HP-642, HP-651, TT-26, and new TT. The organic contaminants include: tetrachloroethylene, trichloroethylene, 1,2-trans-dichloroethylene, methylene chloride, vinyl chloride, 1, 1 - dichloroethane, benzene, toluene, and dichlorobenzene. All the impacted wells are exposed to the Tertiary Sand Aquifer somewhere between 50 and 200 feet below land surface.

A copy of the North Carolina Groundwater Classification and Standards (15 NCAC 2L) is enclosed for your reference. In this instance, the regulations apply as follows:

1. The impacted wells are exposed to GA classified groundwater, which is defined as fresh (and usable) groundwater that occurs at depths greater than 20 feet below land surface.

2. The source(s) of contamination are such that violations of standards have occurred at the perimeter of compliance, or the sources are such that it can be reasonably predicted that violations of standards will occur at the perimeter of compliance. For existing sources, the perimeter of compliance is located 500 feet from the point of discharge, or the property boundary, whichever is less.

7225 Wrightsville Avenue, Wilmington, NC 28403-3696 • Telephone 919-256-4161

DOC. NO.: CLEJ-00247-1.02-10/25/85

DIVISION OF ENVIRONMENTAL MANAGEMENT

October 8, 1985

MEMORANDUM

To: Perry Nelson

From: Chuck Wakild CW

Subject: Mr. Larry Fitzpatrick's Inquiry
Groundwater Quality Problems
Camp Lejeune Marine Corps Base
Onslow County

Enclosed for your review and approval is a staff report titled "An Assessment of Groundwater Pollution Sources at the Marine Corps Base, Camp Lejeune, Onslow County". It was written by Rick Shiver.

Please review this information and give careful consideration to the recommendations contained in the report. I anticipate considerable public attention will be focused on this problem and how we deal with it. We should develop a course of action we think appropriate and discuss it with Camp Lejeune.

I promised Mr. Fitzpatrick a briefing on this matter. If you concur, I would like to give him a copy of this report at Thursday's EMC meeting.

If you have any questions call me or Rick.

CW/RSS/sf

cc: L. P. Benton
Paul Wilms
Wilmington Regional Office
Central Files

DOC.NO.: CLEJ-00247-1.02-10/25/85

State of North Carolina
Department of Natural Resources and Community Development
Division of Environmental Management
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
S. Thomas Rhodes, Secretary

R. Paul Wilms
Director

October 25, 1985

Mr. Larry Fitzpatrick
141 Brookview Court
Jacksonville, N.C. 28540

Dear Mr. Fitzpatrick:

The attached report on groundwater pollution at Camp Lejeune was prepared by Rick Shiver of our Wilmington Regional Office. I hope it will be helpful to you.

You may note that our recommendations regarding future investigations or corrective action are "requested" when normally they would be "required". This is because there is some question as to the extent of our authority to correct groundwater pollution on federal installations under the Water and Air Resources Act (GS 143). The Oil Pollution and Hazardous Substances Control Act seems clearly to exclude discharges due to negligence on federal property from our jurisdiction.

We are now in the process of requesting the Attorney General to address these questions and provide us with their opinion of our legal authority on these properties.

Central office groundwater staff are in agreement with Rick's conclusions and recommendations and are taking immediate steps to implement them.

Should you wish to be kept informed periodically on progress at Camp Lejeune, please give me a call at (919) 733-5083.

Sincerely,

Perry F. Nelson, Chief
Groundwater Section

PFN/tfa

Attachment:

cc: Paul Wilms
Chuck Wakild

DOC. NO.: CLEJ-00250-1.02-12/06/8

TELEPHONE CONVERSATION RECORD
MCBCL 1305 8

DATE
6 December 1984

TIME (Begin - Terminate)
12:00-12:20

TO: Chief of Staff

ORIGINATOR
(Name, Title, Location & Telephone Number Charged)
Mr. R. E. Alexander
AC/S, Facilities
484-3034

PERSON CALLED
(Name, Title, Location & Telephone Number Charged)
Mr. Jim Bailey
Chief, LANTDIV Envir Ofc

NOTIFY - NAME	ACTION	INFO	INITIAL

COMMENTS

SUBJECT
Monitoring of Hadnot Point
Water Supply System

COST OF CALL *(MCB Units Only)*
☐ CHARGEABLE TO STATION ALLOTMENT ☐ NOT CHARGEABLE TO STATION ALLOTMENT

SUMMARY OF CONVERSATION

1. I returned Mr. Bailey's call of this a.m. and he indicated that data had been phoned in from the laboratory analysis of Well No. 602 and additional wells. The analysis was completed of samples collected and shipped on 3 December 1984 by NREAD staff in response to a request by Mr. Rakowski, LANTDIV manager of the N.A.C.I.P. Confirmation Study.

2. Mr. Bailey informed me that benzene was confirmed in Well No. 602, from which pumping has been stopped. Trichloroethylene (TCE) was also found in Well No's. 602, 601, 603, 608, and in the finished water at Bldg 20, the Hadnot Point Water Plant. TCE levels at Well No. 603 were so low as not to be of concern at the present time. The test for benzene in the Bldg 20 finished water revealed no detectable level. Well No. 634 was also examined and revealed no detectable levels of volatile organic compounds.

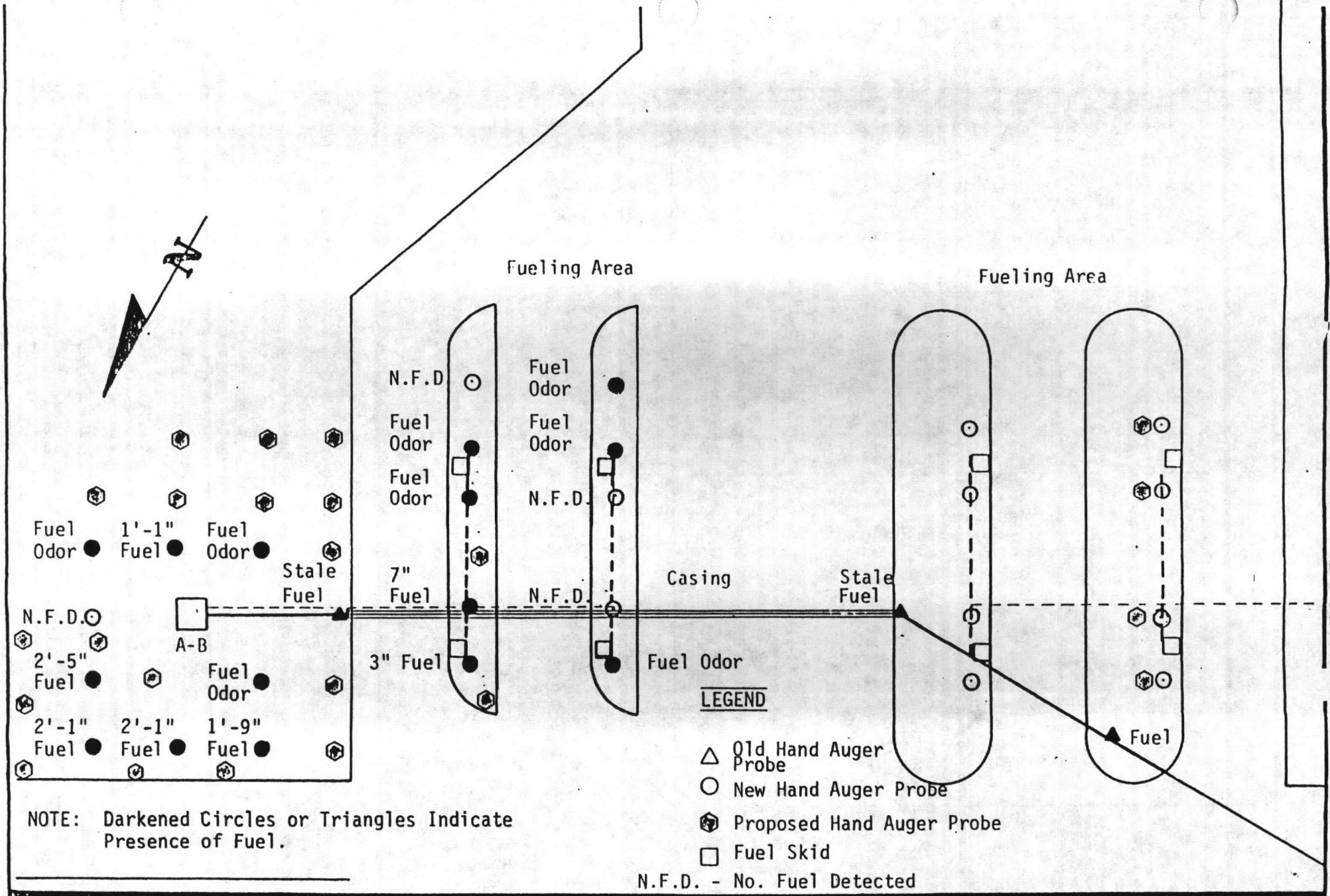
3. Mr. Bailey and I agreed that confirmation testing should be initiated as soon as possible at these and other nearby wells in the system. Samples of finished and raw water samples at Bldg 20 should also be analyzed until further notice. Resampling of Wells 601, 603, and 608 should also be completed to confirm detection of these compounds.

4. Mr. Bailey stated that a message was forthcoming which described a plan of action to address the problem. The plan would include additional sampling of the system and wells to pinpoint the areas contaminated.

NOTE: After briefing Col LILLEY and LtCol FITZGERALD, at about 1430, I advised Mr. Cone, BMAIN to shut down Wells 601 and 608.

COPIES TO:

SIGNATURE

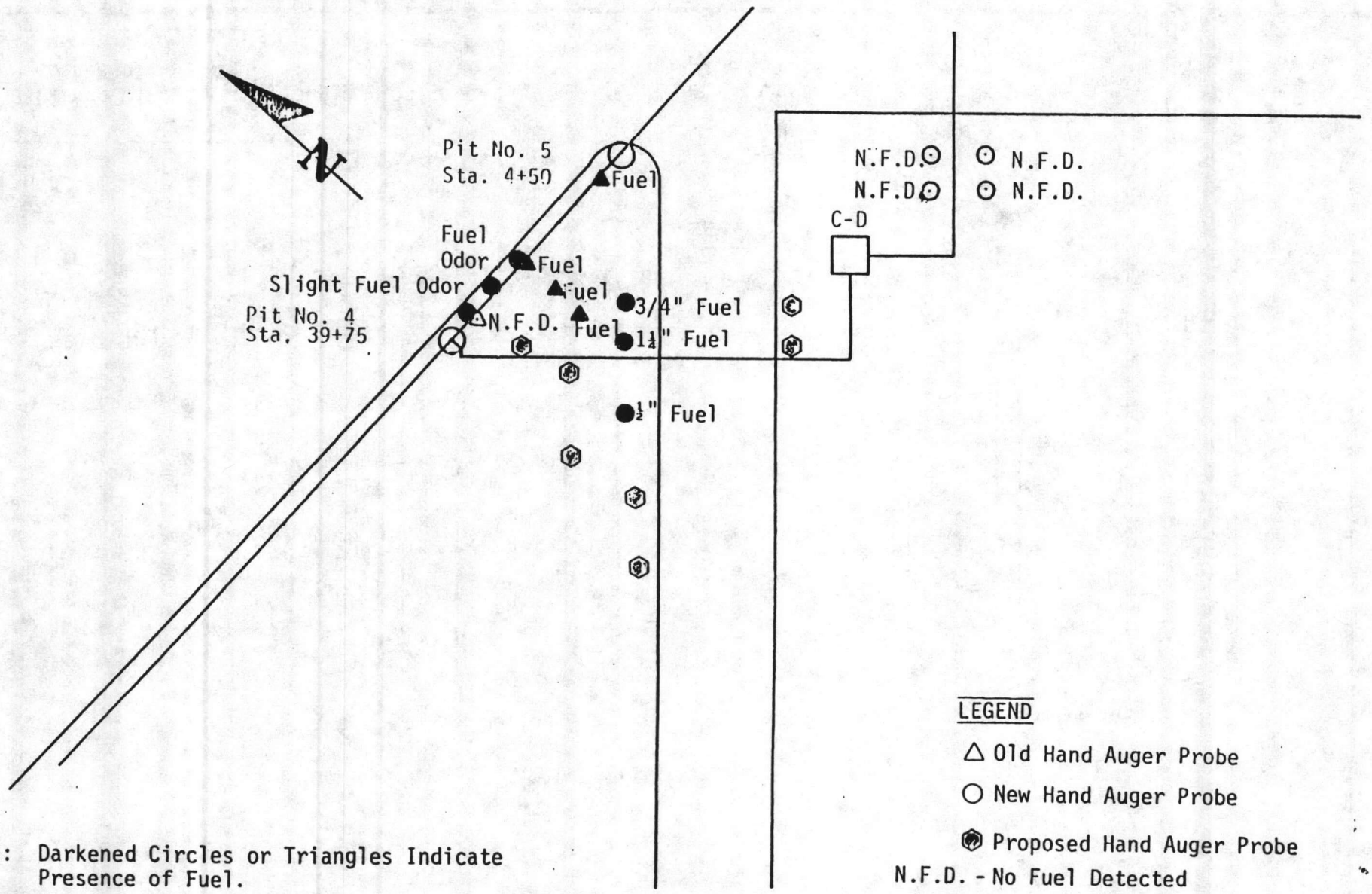


NOTE: Darkened Circles or Triangles Indicate Presence of Fuel.

DOC.No.:CLEJ-00232-1.02-12/07/83

PROJECT	SOIL & MATERIAL ENGINEERS, INC.	SCALE: 1" = 100'
Fuel Pipeline Investigation Camp LeJeune Jacksonville, North Carolina	RALEIGH, NORTH CAROLINA	JOB NO: 051-83-354-A
		FIG NO: 8

SM-B1

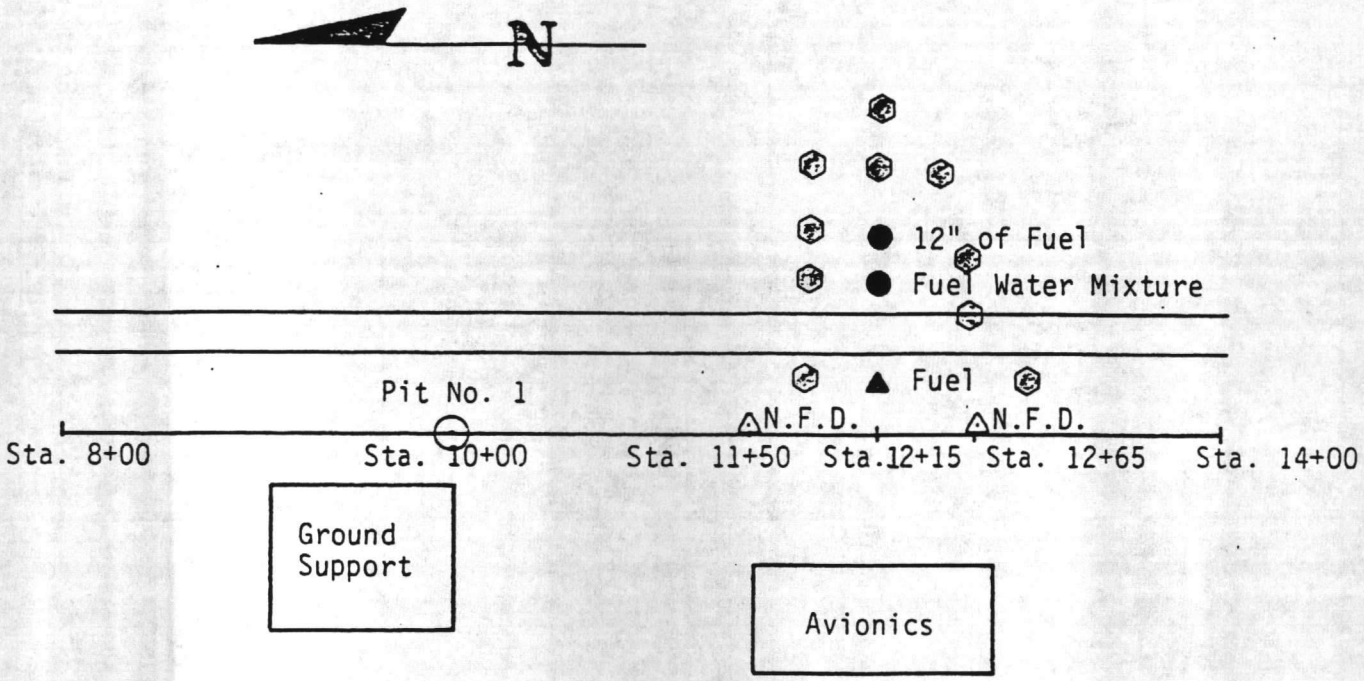


NOTE: Darkened Circles or Triangles Indicate Presence of Fuel.

DOC.No.:CLEJ-00232-1.02-12/07/83

DUNCAN-PARNELL, INC., RALEIGH 281

PROJECT	SOIL & MATERIAL ENGINEERS, INC.	SCALE: 1" = 100'
Fuel Pipeline Investigation Camp LeJeune Jacksonville, North Carolina	RALEIGH, NORTH CAROLINA	JOB NO: 051-83-354-A
		FIG NO: 7



LEGEND

△ Old Hand Auger Probe

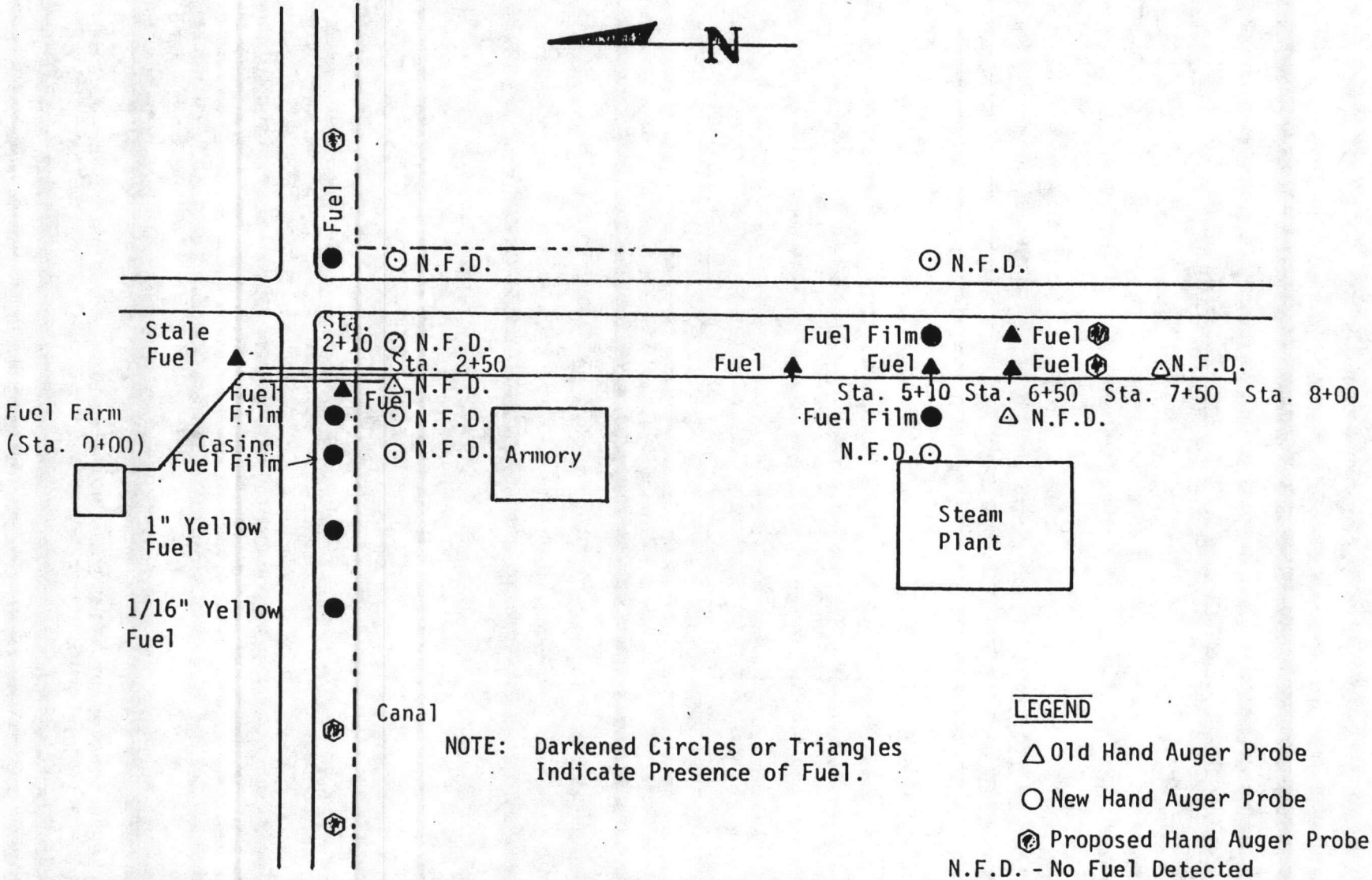
○ New Hand Auger Probe

⊛ Proposed Hand Auger Probe

N.F.D. - No Fuel Detected

NOTE: Darkened Circles or Triangles Indicate Presence of Fuel.

PROJECT	SOIL & MATERIAL ENGINEERS, INC. RALEIGH, NORTH CAROLINA	SCALE: 1" = 100'
Fuel Pipeline Investigation Camp LeJeune		JOB NO: 051-83-354-A



NOTE: Darkened Circles or Triangles Indicate Presence of Fuel.

LEGEND

△ Old Hand Auger Probe

○ New Hand Auger Probe

⬡ Proposed Hand Auger Probe

N.F.D. - No Fuel Detected

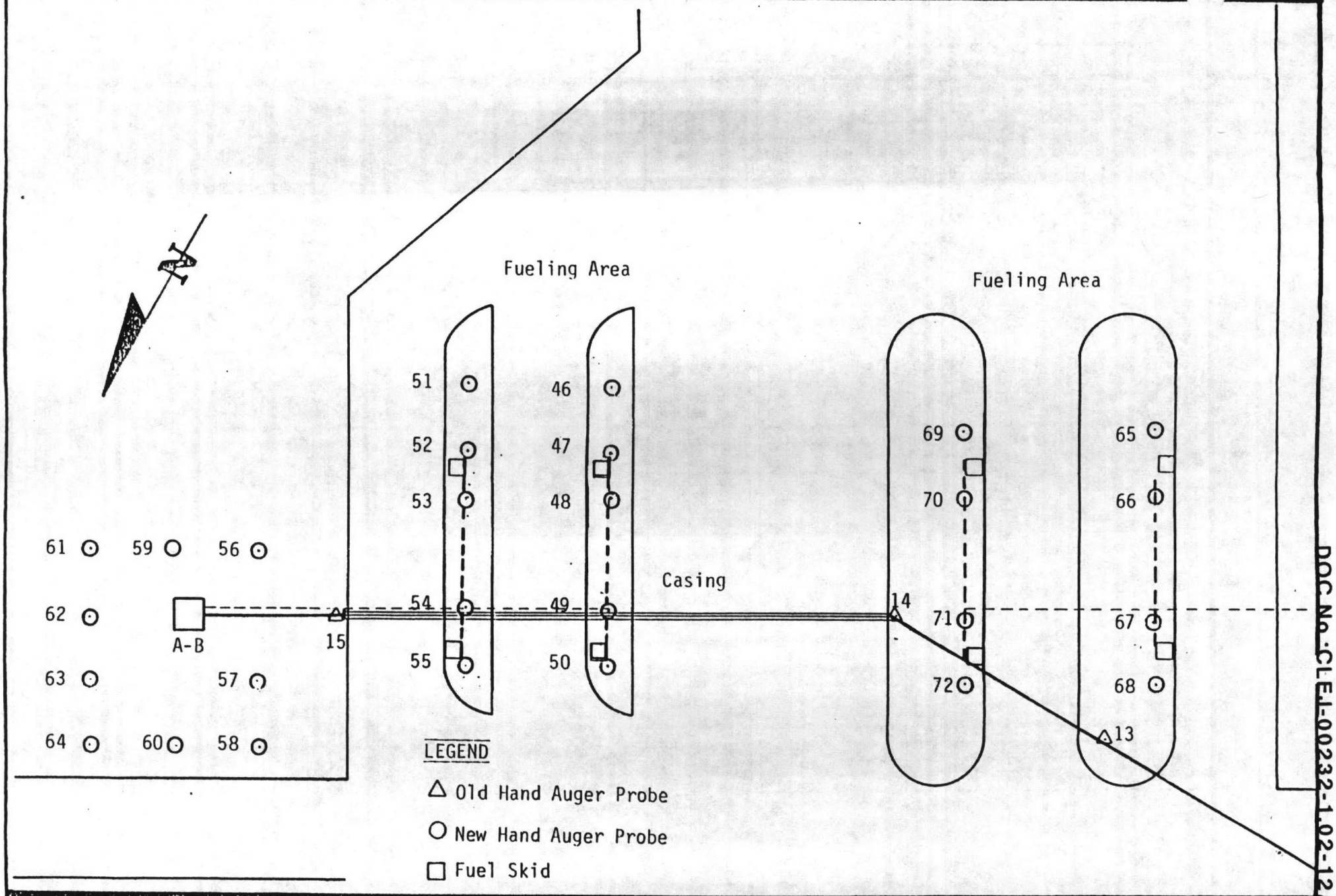
PROJECT

Fuel Pipeline Investigation
Camp Lejeune
Jacksonville, North Carolina

SOIL & MATERIAL ENGINEERS, INC.
RALEIGH, NORTH CAROLINA

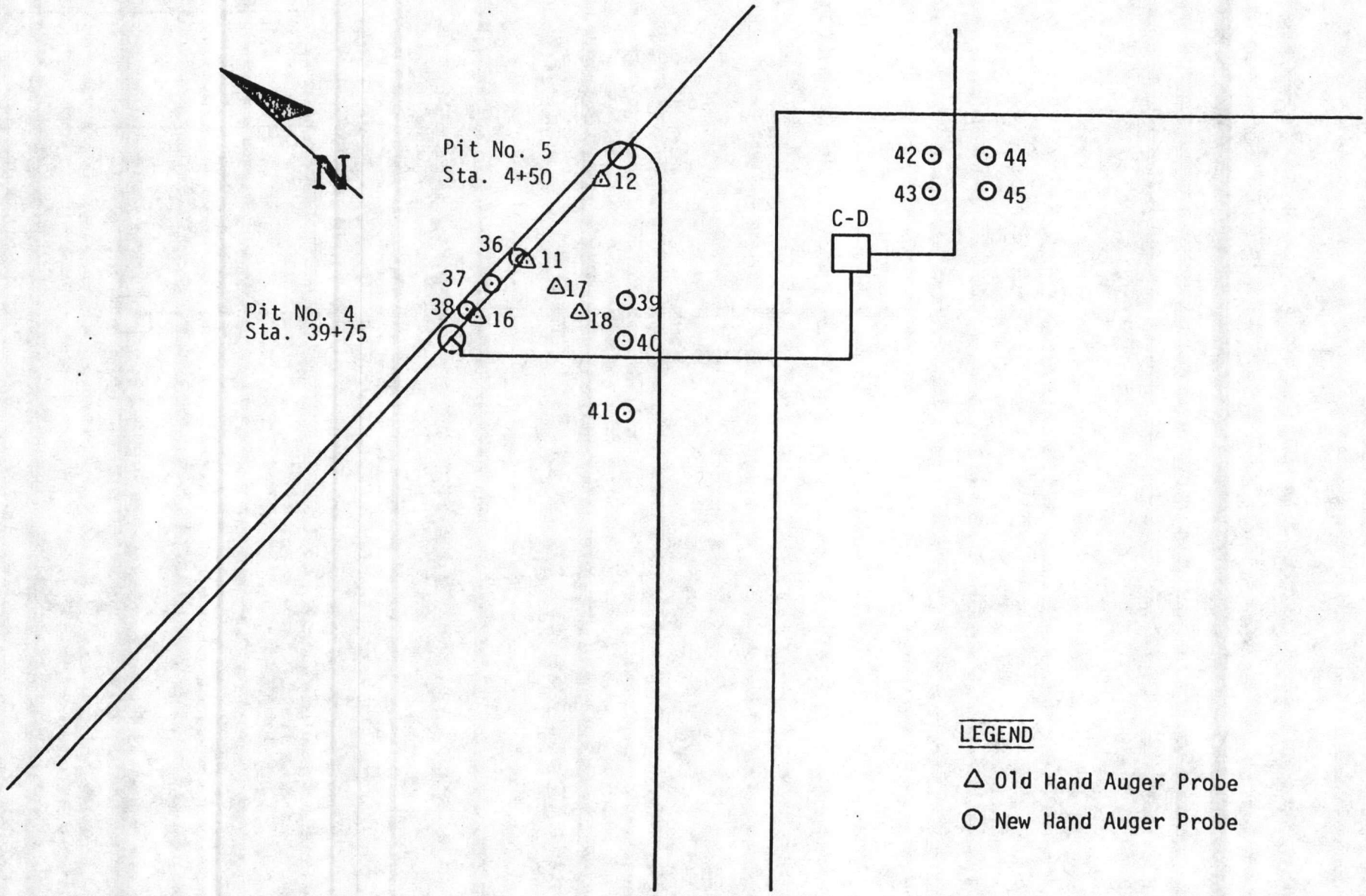
SCALE:	1" = 100'
JOB NO:	051-83-354-A
FIG NO:	5

DOC.No.:CLEJ-00232-1.02-12/07/83



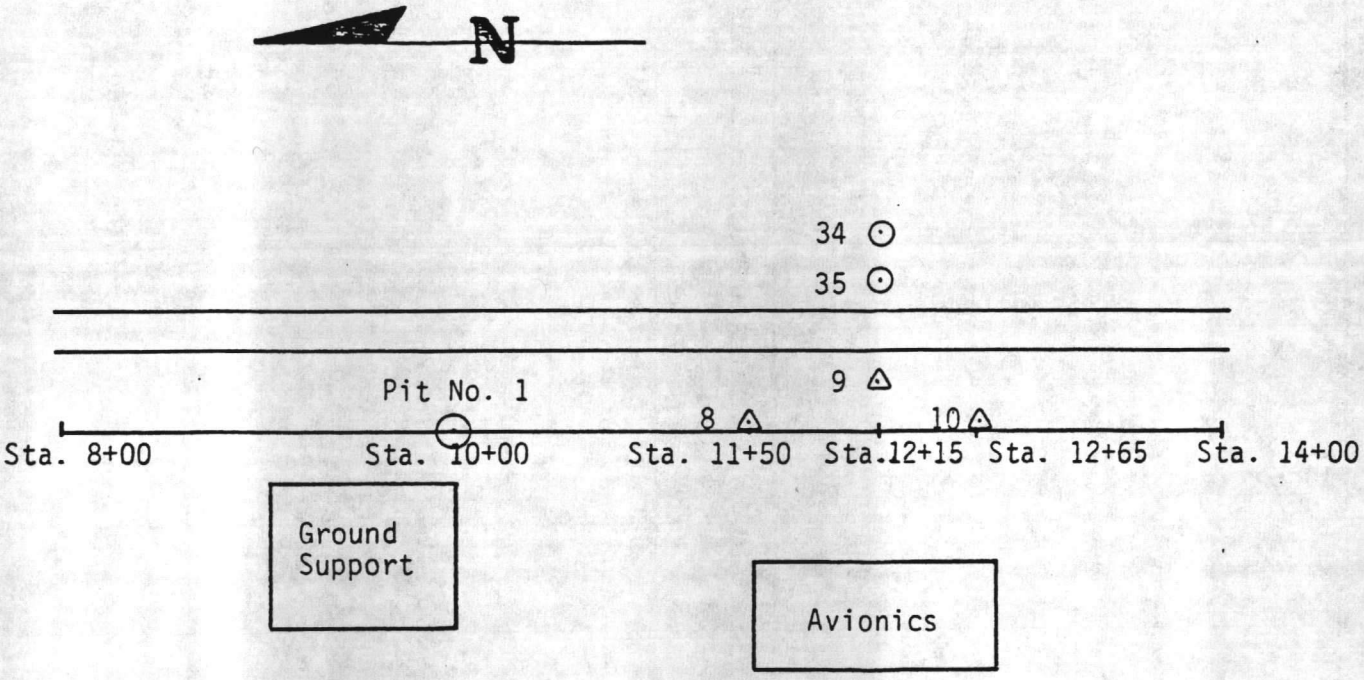
DOC No: CLEJ-00232-1.02-12/07/83

PROJECT Fuel Pipeline Investigation Camp LeJeune Jacksonville, North Carolina	SOIL & MATERIAL ENGINEERS, INC. RALEIGH, NORTH CAROLINA	SCALE: 1" = 100' JOB NO: 051-83-354-A FIG NO: 4



PROJECT Fuel Pipeline Investigation Camp LeJeune Jacksonville, North Carolina	SOIL & MATERIAL ENGINEERS, INC. RALEIGH, NORTH CAROLINA	SCALE: 1" = 100' JOB NO: 051-83-354-A FIG NO: 3

DOC.No.:CLEJ-00232-1.02-12/07/83

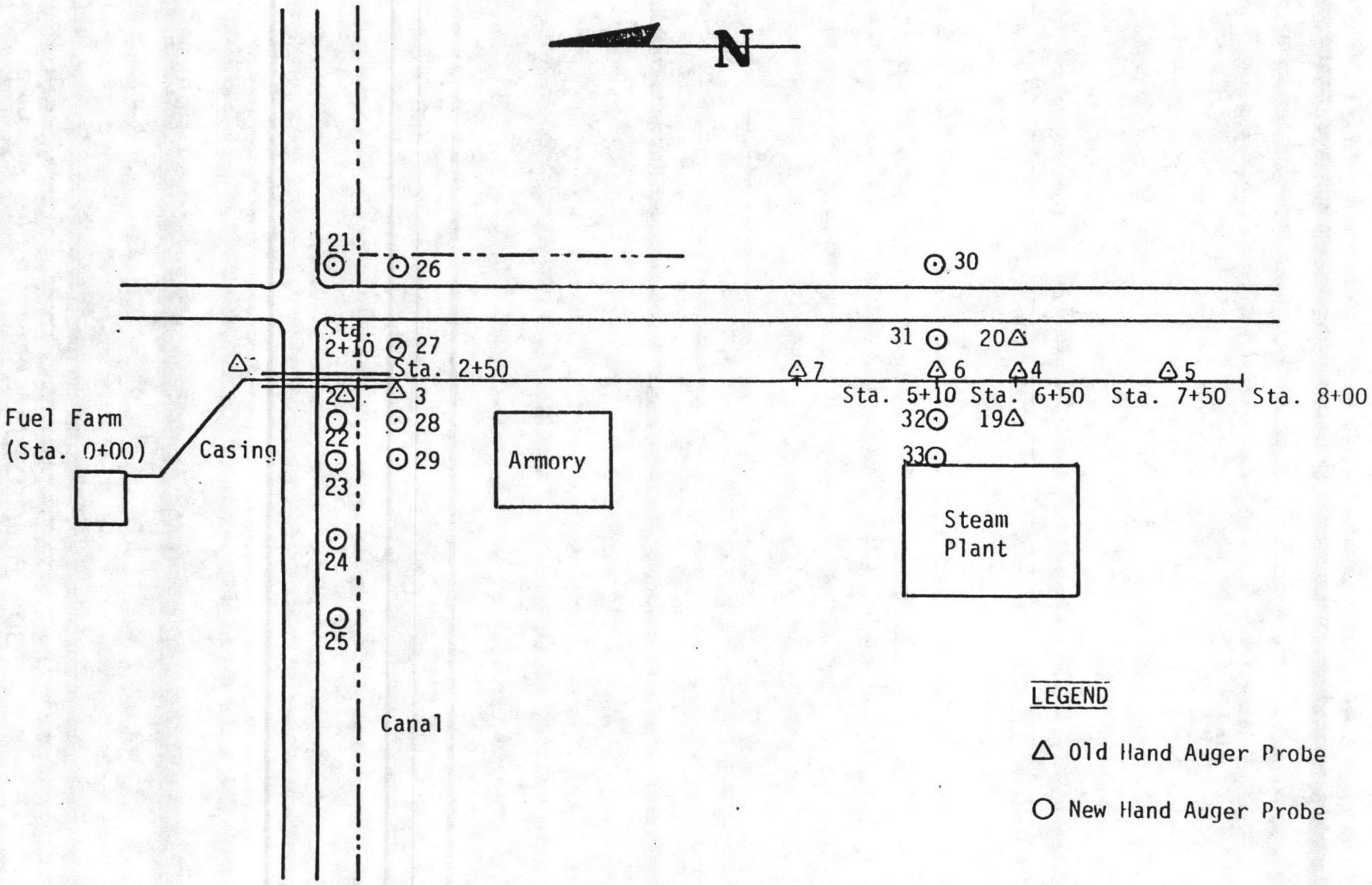


LEGEND

△ Old Hand Auger Probe

○ New Hand Auger Probe

PROJECT	SOIL & MATERIAL ENGINEERS, INC. RALEIGH, NORTH CAROLINA	SCALE: 1" = 100'
Fuel Pipeline Investigation Camp LeJeune		JOB NO: 051-83-354-A
		FIG. NO: 2



PROJECT	SOIL & MATERIAL ENGINEERS, INC.	SCALE: 1" = 100'
Fuel Pipeline Investigation Camp LeJeune Jacksonville, North Carolina	RALEIGH, NORTH CAROLINA	JOB NO: 051-83-354-A
		FIG NO: 1

DOC.No.:CLEJ-00232-1.02-12/07/83

HA-64	0 -0.5'	Dark Brown Silty Fine Sand - Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.5'-1.6'	Orange-Brown and Gray Slightly Silty Fine SAND
	1.6'-2.2'	Orange and Gray Silty Clayey Fine SAND
	2.2'-4.1'	Orange and Gray Mottled Silty CLAY with Fine SAND
	4.1'-7.5'	Gray and Brown Slightly Silty Slightly Clayey Fine SAND (Fuel Odor)
	7.5'-8.5'	Tan Slightly Silty Fine SAND (Strong Fuel Odor)
	8.5'-10.2'	Gray Slightly Silty Fine SAND (Fuel)
	10.2'	Boring Terminated at 10.2'-Fuel Level Measured at 6'-10" after 24 hours Caved in at 8'-11",2'-1" of Fuel Measured above Cave-In
HA-65 Through HA-72		
STA.(See Fig. No.4)	0'	(Soil Cement) Several unsuccessful attempts were made to penetrate through the soil cement layer at the designated locations with a hand auger and a pickax

HA- 61	0 -1.5'	Brown Silty Fine SAND-Topsoil with Grass Root Mat
STA.(See Fig. No.4)	1.5'-2.0	Gray Slightly Silty Fine SAND
	2.0'-3.0'	Gray and Orange-Brown Slightly Clayey Silty Fine SAND
	3.0'-4.0'	Gray and Orange-Brown Mottled Silty CLAY with Fine Sand
	4.0'-5.3'	Gray Slightly Silty Fine SAND with Trace of Small Gravel
	5.3'-6.0'	Light Gray and Orange-Brown Slightly Silty Fine SAND
	6.0'-10.0'	Light Gray Slightly Silty Fine SAND (Slightly Stale Fuel Odor)
	10.0'	Boring Terminated at 10.0'-Water Level Measured at 7'-10" after 24 hours Caved in at 8'-2"-Slightly Stale Fuel Odor in Water Sample
HA- 62	0 -1.0'	Dark Brown Silty Fine SAND-Topsoil with Grass Root Mat
STA.(See Fig. No.4)	1.0'-2.0'	Orange-Brown and Tan Slightly Silty Fine SAND
	2.0'-4.0'	Orange and Gray Clayey Silty Fine SAND
	4.0'-5.0'	Orange and Gray Mottled Silty CLAY with Fine SAND
	5.0'-6.0'	Gray Slightly Clayey Slightly Silty Fine SAND
	6.0'-7.0'	Gray and Orange-Brown Slightly Silty Fine SAND
	7.0'-8.3'	Dark Gray Slightly Silty Slightly Clayey Fine SAND
	8.3'-9.0'	Gray Slightly Silty Slightly Clayey Fine SAND with Trace of Coarse Sand and Small Gravel
	9.0'-10.3'	Gray Slightly Silty Fine SAND
	10.3'	Boring Terminated at 10.3'-Water Level Measured at 8'-9" after 24 hours Caved in at 9'-5"
HA- 63	0 -1.2'	Brown Silty Fine SAND-Topsoil with Grass Root Mat
STA.(See Fig. No.4)	1.2'-1.5'	Orange Sandy Clayey SILT
	1.5'-3.8'	Orange and Gray Mottled Silty Clay with Fine SAND
	3.8'-5.5'	Orange-Brown and Gray Slightly Silty Slightly Clayey Fine SAND (Fuel Odor)
	5.5'-7.0'	Gray Slightly Silty Fine SAND (Strong Fuel Odor)
	7.0'-10.0'	Light Gray Slightly Silty Fine SAND (Fuel)
	10.0'	Boring Terminated at 10.0'-Fuel Level Measurement at 6'-2" after 24 hours Caved in at 8'-7",2'-5" of Fuel Measured above Caved-In

HA- 58	0 -0.5'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.5'-2.3'	Orange-Brown and Tan Slightly Silty Fine SAND (Fill)
	2.3'-2.5'	Brown Silty Fine SAND (Fill)
	2.5'-3.5'	Dark Gray Slightly Clayey Silty Fine SAND
	3.5'-5.5'	Dark Brown Silty Fine SAND
	5.5'-7.5'	Dark Blue-Gray Sandy Silty CLAY (Slightly Stale Fuel Odor)
	7.5'-8.5'	Blue-Gray Silty Clayey Fine SAND with Coarse Sand and Small Gravel (Fuel Odor)
	8.5'-10.3'	Gray Slightly Silty Fine SAND with Coarse Sand (Fuel)
	10.3'	Boring Terminated at 10.3'-Fuel Level Measured at 8'-6" after 24 hours 1'-9" of Fuel Measured above Bottom of Borehole
HA- 59	0 -0.9'	Dark Gray Silty Fine SAND-Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.9'-2.0'	Brown and Tan Silty Fine SAND (Fill)
	2.0'-2.5'	Orange-Brown and Tan Slightly Silty Fine SAND (Fill)
	2.5'-5.5'	Gray Slightly Silty Slightly Clayey Fine SAND (Fuel Odor)
	5.5'-9.5'	Light Gray Slightly Silty Fine SAND (Strong Fuel Odor)
	9.5'	Boring Terminated at 9.5'-Fuel Level Measured at 6'-8" after 24 hours Caved in at 7'-9", 1'-1" of Fuel Measured above Cave-In
HA-60	0 -0.3'	Dark Brown Silty Fine SAND-Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.3'-1.5'	Orange-Brown and Tan Slightly Silty Slightly Clayey Fine SAND
	1.5'-2.4'	Dark Gray and Brown Slightly Clayey Silty Fine SAND
	2.4'-3.5'	Gray Slightly Clayey Silty Fine SAND
	3.5'-4.0'	Gray and Brown Clayey Silty Fine SAND
	4.0'-4.7'	Gray and Brown Mottled Silty CLAY with Fine SAND
	4.7'-7.0'	Gray and Brown Slightly Silty Slightly Clayey Fine SAND (Fuel Odor)
	7.0'-10.2'	Light Gray Slightly Silty Fine SAND (Fuel)
	10.2'	Boring Terminated at 10.2' uel Level Measured at 7'-4" after 24 hours Caved in at 9'-5", 2'-1" of Fuel Measured above Cave-In

HA-55	0 -0.4'	Dark Brown Fine Sandy SILT - Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.4'-1.5'	Tan Silty Fine SAND (Fill)
	1.5'-2.3'	Orange-Brown and Tan Silty Fine SAND (Fill)
	2.3'-3.5'	Gray and Light Brown Slightly Clayey Silty Fine SAND (Fill)
	3.5'-4.5'	Dark Brown Fine Sandy SILT - Original Topsoil
	4.5'-5.0'	Brown Fine Sandy SILT
	5.0'-6.5'	Gray Silty Slightly Clayey Fine SAND (Slight Stale Fuel Odor)
	6.5'-7.0'	Gray and Brown Sandy Silty CLAY (Slight Stale Fuel Odor)
	7.0'-9.0'	Gray and Brown Silty Slightly Clayey Fine SAND (Strong Fuel Odor)
	9.0'-10.3'	Light Gray Slightly Silty Fine SAND (Strong Fuel Odor)
	10.3'	Boring Terminated at 10.3' - Fuel Level Measured at 10'-0" after 24 hours 3" of Fuel Measured above Bottom at Borehole
HA-56	0 -1.0'	Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA.(See Fig.No.4)	1.0'-2.0'	Orange-Brown and Tan Silty Fine SAND
	2.0'-3.5'	Orange-Brown and Gray Mottled Silty CLAY with Fine Sand (Slightly Stale Fuel Od
	3.5'-4.5'	Orange-Brown and Gray Mottled Slightly Clayey Slightly Silty Fine SAND (Stale Fuel Odo
	4.5'-6.0'	Light Gray Slightly Silty Fine SAND (Stale Fuel Odor)
	6.0'-7.0'	Brownish Gray Silty Fine SAND (Fuel Odor)
	7.0'-8.0'	Dark Gray Silty Fine SAND (Fuel Odor)
	8.0'-8.5'	Dark Blue-Gray Silty Fine SAND with Coarse Sand and Gravel (Fuel Odor)
	8.5'-9.0'	Dark Gray Silty Fine SAND (Strong Fuel Odor)
	9.0'-10.3'	Light Gray Slightly Silty Fine SAND (Fuel)
	10.3'	Boring Terminated at 10.3' - Fuel Level Measured at 6'-4" after 24 hours 1'-11" of Fuel Measured above Water Level
HA-57	0 -0.4'	Brown Sandy SILT - Topsoil with Grass Root Mat
STA.(See Fig.No.4)	0.4'-1.1'	Orange-Brown and Gray Slightly Clayey Silty Fine SAND
	1.1'-4.5'	Brown and Gray Sandy SILT with Clay (Slightly Stale Fuel Odor)
	4.5'-6.5'	Blue-Gray and Brown Sandy Silty CLAY (Strong Fuel Odor)
	6.5'-7.5'	Blue-Gray and Brown Slightly Clayey Silty Fine SAND with Coarse Sand and Grav (Strong Fuel Odor)
	7.5'-10.3'	Light Gray Slightly Silty Fine SAND (Fuel)
	10.3'	Boring Terminated at 10.3' - Fuel Level Measured at 7'-11" after 24 hours 2'-4" of Fuel Measured above Bottom of Borehole

HA- 52	0 -1.0'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA.(See Fig. No.4)	1.0'-1.5'	Orange and Tan Slightly Silty Fine SAND (Fill)
	1.5'-2.5'	Tan and Gray Silty Fine SAND (Fill) (Slightly Stale Fuel Odor)
	2.5'-3.5'	Dark Gray Silty Fine SAND - Original Topsoil
	3.5'-5.0'	Gray Silty Fine SAND
	5.0'-7.0'	Gray and Brown Silty CLAY with Fine Sand Seams (Strong Fuel Odor)
	7.0'-8.0'	Gray Silty Clayey Fine SAND (Strong Fuel Odor)
	8.0'-10.3'	Light Gray Slightly Silty Slightly Clayey Fine SAND (Strong Fuel Odor)
	10.3'	Boring Terminated at 10.3' - Water Level Measured at 10'-2" after 24 hours Strong Fuel Odor in Water Sample
HA-53	0 -0.4'	Dark Brown Fine Sandy SILT - Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.4'-1.0'	Gray and Orange-Brown Silty Fine SAND with Clay (Fill)
	1.0'-2.5'	Orange and Tan Slightly Silty Fine SAND (Fill)
	2.5'-3.0'	Dark Gray Silty Fine SAND - Original Topsoil
	3.0'-4.0'	Gray Slightly Silty Fine SAND
	4.0'-5.0'	Gray and Brown Slightly Silty Slightly Clayey Fine SAND
	5.0'-5.5'	Gray and Brown Mottled Silty Clayey Fine SAND
	5.5'-6.5'	Gray and Brown Mottled Silty CLAY with Fine Sand Seams
	6.5'-10.3'	Gray Slightly Clayey Slightly Silty Fine SAND (Slight Fuel Odor)
	10.3'	Boring Terminated at 10.3' - Water Level Measured at 10'-2" after 24 hours Slightly Stale Fuel Odor in Water Sample
HA- 54	0 -0.6'	Dark Brown Fine Sandy SILT - Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.6'-2.0'	Gray and Orange-Brown Silty Fine SAND with Clay (Fill)
	2.0'-3.3'	Gray and Light Brown Slightly Clayey Slightly Silty Fine SAND (Fill)
	3.3'-5.0'	Gray Silty Fine SAND
	5.0'-9.0'	Gray Slightly Clayey Slightly Silty Fine SAND (Strong Fuel Odor)
	9.0'-10.3'	Light Gray Slightly Silty Fine SAND (Fuel)
	10.3'	Boring Terminated at 10.3' - Fuel Level Measured at 9'-9" after 24 hours 7" of Fuel Measured above Bottom of Borehole

HA-48	0 -0.5'	Dark Gray Silty Fine SAND - Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.5'-3.5'	Dark Gray and Brown Silty Fine SAND
	3.5'-5.5'	Brown Silty Fine SAND
	5.5'-6.0'	Tan Silty Fine SAND
	6.0'-8.0'	Gray Silty CLAY
	8.0'-9.3'	Gray Slightly Silty Slightly Clayey Fine SAND
	9.3'	Boring Terminated at 9.3" - Water Level Measured at 6'-7" after 24 hours.
HA-49	0 -0.5'	Dark Gray Silty Fine SAND - Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.5'-1.0'	Orange-Brown and Tan Slightly Silty Fine SAND (Fill)
	1.0'-3.5'	Dark Gray Silty Fine SAND
	3.5'-4.2'	Brown Silty Fine SAND
	4.2'-5.5'	Gray and Brown Slightly Clayey Silty Fine SAND
	5.5'-8.0'	Gray Silty Clayey Fine SAND with Roots
	8.0'-10.3'	Gray Slightly Silty Slightly Clayey Fine SAND
	10.3'	Boring Terminated at 10.3' - Water Level Measured at 6'-6" after 24 hours
HA-50	0 -0.5'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.5'-0.9'	Orange-Brown and Tan Slightly Silty Fine SAND (Fill)
	0.9'-5.0'	Dark Gray Silty Fine SAND with Roots
	5.0'-6.5'	Gray Silty Fine SAND
	6.5'-7.0'	Gray Slightly Clayey Silty Fine SAND (Slightly Stale Fuel Odor)
	7.0'-7.5'	Gray Silty CLAY with Fine SAND (Slightly Stale Fuel Odor)
	7.5'-9.5'	Gray Slightly Clayey Silty Fine SAND
	9.5'-10.0'	Light Gray Silty Clayey Fine SAND
	10.0'-10.3'	Light Gray Silty CLAY with Fine SAND
	10.3'	Boring Terminated at 10.3' - Water Level Measured at 10.0' after 24 hours No Fuel Odor in Water Sample
HA-51	0 -0.5'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA.(See Fig. No.4)	0.5'-1.0'	Orange-Brown and Tan Slightly Silty Fine SAND (Fill)
	1.0'-7.5'	Gray Slightly Clayey Silty Fine SAND
	7.5'-9.0'	Gray Silty Clayey Fine SAND
	9.0'-10.0'	Light Gray Slightly Silty Slightly Clayey Fine SAND
	10.0'	Boring Terminated at 10.0' - Water Level Measured at 9'-6" after 24 hours.

HA-44	0 -1.0'	Dark Brown Silty Fine SAND (Fill)
STA.(See Fig. No.3)	1.0'-3.0'	Gray and Brown Clayey Silty Fine SAND
	3.0'-4.0'	Gray and Brown Mottled Silty Clay with Fine Sand
	4.0'-4.5'	Gray Clayey Silty Fine SAND
	4.5'-5.2'	Gray Slightly Silty Fine SAND
	5.2'-6.5'	Gray and Orange-Brown Slightly Clayey Slightly Silty Fine SAND
	6.5'-8.5'	Light Gray Slightly Silty Fine SAND
	8.5'-9.0'	Gray and Orange Slightly Clayey Slightly Silty Fine SAND
	9.0'-10.4'	Greenish-Gray Slightly Silty Fine SAND with Trace of Coarse Sand
	10.4'	Boring Terminated at 10.4' - Water Level Measured at 8'-5" after 24 hours
HA-45	0 -1.0'	Dark Gray Silty Fine SAND (Fill)
STA.(See Fig. No.3)	1.0'-2.5'	Gray and Orange-Brown Silty Fine SAND
	2.5'-4.0'	Gray and Orange-Brown Mottled Silty CLAY with Fine Sand
	4.0'-5.5'	Gray Slightly Clayey Silty Fine SAND
	5.5'-6.0'	Gray Slightly Silty Fine SAND
	6.0'-9.5'	Light Gray and Orange Mottled Slightly Silty Fine SAND
	9.5'-10.4'	Light Gray Slightly Clayey Slightly Silty Fine SAND
	10.4'	Boring Terminated at 10.4' - Water Level Measured at 8'-9" after 24 hours
HA-46	0 -3.0'	Dark Brown Silty Fine SAND (Slightly Stale Fuel Odor)
STA.(See Fig. No.4)	3.0'-4.5'	Gray Silty Fine SAND with Silty Clay Seams and Roots (Stale Fuel Odor)
	4.5'-7.0'	Gray Silty Slightly Clayey Fine SAND (Stale Fuel Odor)
	7.0'-8.0'	Gray and Brown Mottled Silty CLAY with Fine Sand (Stale Fuel Odor)
	8.0'-9.5'	Gray Silty Clayey Fine SAND (Slight Fuel Odor)
	9.5'-10.0'	Dark Gray Silty Clayey Fine SAND (Slight Fuel Odor)
	10.0'	Boring Terminated at 10.0' - Water Level Measured at 7'-5" after 24 hours
		Slight Fuel Odor in Water Sample
HA-47	0 -2.0'	Dark Brown Silty Fine SAND (Slightly Stale Fuel Odor)
STA.(See Fig. No.4)	2.0'-3.0'	Gray Slightly Silty Fine SAND (Slight Fuel Odor)
	3.0'-4.5'	Dark Gray Silty Fine SAND with Roots (Slight Fuel Odor)
	4.5'-6.0'	Gray Silty Clayey Fine SAND with Roots (Slight Fuel Odor)
	6.0'-8.0'	Gray and Orange-Brown Mottled Silty CLAY with Fine SAND (Slight Fuel Odor)
	8.0'-10.4'	Gray Silty Clayey Fine SAND (Slight Fuel Odor)
	10.4'	Boring Terminated at 10.4' - Water Level Measured at 8'-6" after 24 hours
		Slight Fuel Odor in Water Sample

HA-40	0 -0.8'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA.(See Fig. No.3)	0.8'-3.5'	Gray and Orange Slightly Silty Fine SAND (Fill)
	3.5'-4.5'	Orange and Gray Mottled Silty CLAY with Fine SAND (Fuel Odor)
	4.5'-7.4'	Orange and Gray Mottled Silty Clayey Fine SAND (Fuel Odor)
	7.4'	Boring Terminated at 7.4' - Water Level Measured at 6'-7" after 14 hours 1¼" of Fuel Measured on Water Sample
HA-41	0 -1.0'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA.(See Fig. No.3)	1.0'-4.0'	Dark Gray Slightly Clayey Silty Fine SAND (Fill) (Fuel Odor)
	4.0'-5.0'	Gray and Orange-Brown Mottled Silty CLAY with Fine Sand Seams (Fuel Odor)
	5.0'-6.5'	Gray and Orange-Brown Mottled Slightly Clayey Slightly Silty Fine SAND (Strong Fuel Od
	6.5'-7.4'	Gray Slightly Clayey Slightly Silty Fine Sand
	7.4'	Boring Terminated at 7.4' - Water Level Measured at 6'-10" after 24 hours ½" of Fuel Measured on Water Sample
HA-42	0'-1.7'	Brown and Gray Silty Fine Sand (Fill)
STA.(See Fig. No.3)	1.7'-3.0'	Orange-Brown and Gray Slightly Clayey Slightly Silty Fine SAND
	3.0'-4.5'	Gray and Orange-Brown Mottled Silty CLAY with Fine SAND
	4.5'-5.5'	Gray Slightly Clayey Slightly Silty Fine SAND
	5.5'-6.5'	Orange and Gray Slightly Clayey Slightly Silty Fine SAND
	6.5'-8.0'	Light Gray Slightly Silty Fine SAND
	8.0'-8.5'	Orange and Gray Slightly Silty Fine SAND
	8.5'-10.4'	Orange and Gray Slightly Clayey Slightly Silty Fine SAND
	10.4'	Boring Terminated at 10.4' - Water Level Measured at 9.0' after 24 hours
HA-43	0 -0.8'	Dark Brown Fine Sandy SILT (Fill)
STA.(See Fig. No.3)	0.8'-3.0'	Gray and Orange-Brown Slightly Clayey Silty Fine SAND
	3.0'-4.5'	Gray and Orange-Brown Mottled Silty CLAY with Fine SAND
	4.5'-5.5'	Gray and Slightly Clayey Slightly Silty Fine SAND
	5.5'-6.5'	Gray Slightly Silty Fine SAND
	6.5'-7.5'	White Fine SAND
	7.5'-8.5'	Light Gray and Orange Slightly Silty Fine SAND
	8.5'-10.4'	Light Gray Slightly Clayey Slightly Silty Fine SAND
	10.4'	Boring Terminated at 10.4' - Water Level Measured at 8'-9" after 24 hours.

HA-36	0 -0.8'	Dark Brown and Dark Gray Silty Fine SAND - Topsoil with Grass Root Mat
STA 40+50	0.8'-4.0'	Orange and Tan Slightly Silty Fine SAND (Fill)
5' Lt.	4.0'-6.5'	Gray Slightly Clayey Silty Fine SAND (Fuel Odor)
	6.5'-10.4'	Light Gray Slightly Silty Slightly Clayey Fine SAND (Strong Fuel Odor)
	10.4'	Boring Terminated at 10.4' - Water Level Measured at 9'-3" after 24 hours Fuel Odor in Water Sample
HA-37	0 -0.5'	Dark Brown and Dark Gray Silty Fine SAND - Topsoil with Grass Root Mat
STA. 40+25	0.5'-2.8'	Brown Silty Fine SAND (Fill)
5' Lt.	2.8'-3.5'	Orange and Tan Slightly Silty Fine SAND (Fill)
	3.5'-5.0'	Orange and Tan Slightly Clayey Silty Fine SAND
	5.0'-5.5'	Orange-Brown and Gray Silty CLAY with Fine Sand Seams
	5.5'-10.4'	Gray and Orange Mottled Slightly Clayey Slightly Silty Fine SAND (Slight Stale Fuel Odor)
	10.4'	Boring Terminated at 10.4' - Water Level Measured at 9'-1" after 24 hours No Fuel Odor in Water Sample
HA-38	0 -0.8'	Dark Brown Silty Fine SAND (Fill)
STA. 40+00	0.8'-1.8'	Dark Brown and Gray Slightly Clayey Silty Fine SAND (Fill)
5' Lt.	1.8'-3.5'	Orange-Brown and Tan Slightly Silty Fine SAND (Fill)
	3.5'-4.5'	Gray Slightly Clayey Silty Fine SAND
	4.5'-6.0'	Gray and Brown Mottled Silty CLAY with Fine Sand Seams
	6.0'-10.4'	Gray and Brown Mottled Slightly Clayey Slightly Silty Fine SAND (Slight Stale Fuel Odor)
	10.4'	Boring Terminated at 10.4' - Water Level Measured at 8'-9" after 24 hours No Fuel Odor in Water Sample
HA-39	0-2.0'	Dark Brown Silty Fine SAND with Thin Silty Clay Layers (Fill)
STA.(See Fig.No.3)	2.0'-3.5'	Orange and Light Gray Slightly Clayey Slightly Silty Fine SAND (Fill)
	3.5'-5.0'	Gray and Orange Mottled Silty CLAY with Fine Sand Seams (Fuel)
	5.0'-7.4'	Gray and Orange Mottled Slightly Clayey Slightly Silty Fine SAND (Fuel Odor)
	7.4'	Boring Terminated 7.4' - Water Level Measured at 6'-11"after 24 hours 3/4"of Fuel Measured on Water Sample

HA-32	0 -1.0'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA. 6+00	1.0'-1.5'	Tan and Yellow Slightly Silty Fine SAND (Fill)
25' Rt.	1.5'-3.0'	Tan and Light Gray Slightly Silty Fine SAND
	3.0'-3.5'	Dark Brown and Gray Clayey SILT with Fine Sand and Organic Matter
	3.5'-6.5'	Dark Gray Silty CLAY with Fine Sand and Organic Matter (Fuel Odor)
	6.5'-7.3'	Dark Gray Silty CLAY with Organic Matter (Fuel Odor)
	7.3'	Boring Terminated at 7.3' - Water Level Measured at 6'-2" after 24 hours
		Fuel Odor in Water Sample - Fuel Film noticed on Water
HA-33	0 -1.0'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA. 6+00	1.0'-1.5'	Tan and Yellow Slightly Clayey Silty Fine SAND
50' Rt.	1.5'-3.5'	Tan and Light Gray Slightly Silty Fine SAND (Wet Sand)
	3.5'-4.0'	Dark Brown and Gray Clayey SILT with Fine Sand and Organic Matter
	4.0'-5.0'	Dark Gray Silty CLAY with Organic Matter
	5.0'	Boring Terminated at 5.0' - Water Level Measurement at 2'-10" after 24 hours
		Caved in at 3.0' after 24 hours.
HA-34	0 -0.5'	Dark Brown and Dark Gray Fine Sandy SILT - Topsoil with Grass Root Mat
STA. 12+15	0.5'-3.0'	Brown and Gray Fine Sandy SILT
100'Lt.	3.0'-4.0'	Gray Slightly Clayey Silty Fine SAND
	4.0'-5.5'	Gray and Brown Mottled Silty CLAY with Fine Sand (Fuel Odor)
	5.5'-10.4'	Blue-Gray Slightly Sandy CLAY with Organic Matter (Fuel)
	10.4'	Boring Terminated at 10.4' - Fuel Level Measured at 9'-5" after 24 hours
		12" of Fuel Measured above Bottom of Borehole.
HA-35	0 -0.5'	Dark Brown Fine Sandy SILT - Topsoil with Grass Root Mat
STA. 12+15	0.5'-2.0'	Gray and Orange-Brown Silty Fine SAND
75' Lt.	2.0'-4.0'	Orange-Brown and Gray Silty CLAY with Fine Sand (Fuel Odor)
	4.0'-5.0'	Gray and Brown Silty CLAY (Fuel Odor)
	5.0'-7.3'	Gray Silty CLAY (Fuel)
	7.3'	Boring Terminated at 7.3' - Water Level Measured at 4'-1" after 24 hours
		Strong Fuel Odor in Water Sample (Fuel Water Emulsion)

HA-28	0 - 0.2'	Dark Brown Topsoil with Grass Root Mat
STA.2+50	0.2'-2.0'	Gray and Tan Silty Fine SAND (Fill)
25' Rt.	2.0'-3.0'	Gray and Brown Slightly Clayey Fine Sandy SILT
	3.0'-3.5'	Orange-Brown and Gray Fine Sandy Silty CLAY
	3.5'-4.4'	Orange-Brown Silty CLAY with Fine Sand Seams
	4.4'-5.0'	Orange and Gray Mottled Silty CLAY with Fine Sand
	5.0'-6.5'	Gray Fine Sandy Silty CLAY
	6.5'	Boring Terminated at 6.5' - Water Level Measured at 5'-3" after 24 hours
HA-29	0 -0.3'	Dark Brown Topsoil with Grass Root Mat
STA. 2+50	0.3'-1.2'	Gray Silty Fine SAND
50' Rt.	1.2'-3.0'	Gray and Tan Slightly Clayey Fine Sandy SILT
	3.0'-4.0'	Gray and Brown Mottled Silty CLAY with Fine Sand and Organic Matter
	4.0'-6.0'	Gray Fine Sandy Silty CLAY with Organic Matter
	6.0'-7.3'	Blue-Gray Silty CLAY
	7.3'	Boring Terminated at 7.3' - Water Level Measured at 5'-3" after 24 hours
HA-30	0 -0.6'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA.6+00	0.6'-1.0'	Gray and Tan Silty Fine SAND (Fill)
75' Lt.	1.0'-3.0'	Dark Gray and Dark Brown Slightly Clayey Fine Sandy SILT
	3.0'-3.5'	Gray Slightly Clayey Silty Fine SAND
	3.5'-4.5'	Gray and Brown Mottled Silty CLAY with Fine Sand
	4.5'-7.0'	Gray Silty CLAY
	7.0'	Boring Terminated at 7.0' - Water Level Measured at 3'-2" after 24 hours
HA-31	0 -1.0'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA. 6+00	1.0'-1.5'	Tan and Yellow Slightly Silty Fine SAND (Fill)
25' Lt.	1.5'-3.5'	Dark Brown and Gray Clayey SILT with Fine Sand and Organic Matter
	3.5'-6.5'	Dark Gray and Brown Silty CLAY with Organic Matter (Fuel Odor)
	6.5'-7.3'	Dark Gray Silty CLAY with Organic Matter (Fuel Odor)
	7.3'	Boring Terminated at 7.3' - Water Level Measured at 5'-1" after 24 hours
		Fuel Odor in Water Sample - Fuel Film Noticed on Water

HA-24	0 -0.8'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA. 2+10	0.8'-2.5'	Tan and Brown Slightly Silty Fine SAND (Fill)
100' Rt.	2.5'-3.0'	Dark Brown Silty Fine SAND - Old Topsoil
	3.0'-4.0'	Gray Slightly Clayey Silty Fine SAND
	4.0'-6.5'	Gray and Brown Mottled Silty CLAY with Fine Sand (Fuel Odor)
	6.5'-7.3'	Gray Silty CLAY with Organic Matter (Fuel)
	7.3'	Boring Terminated at 7.3' - Water Level Measured at 5'-0" after 24 hours 1" of Yellow Fuel Measured on Water Sample
HA-25	0 -0.6'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA.2+10	0.6'-4.5'	Dark Brown and gray Fine Sandy SILT with Roots
150'Rt.	4.5'-7.0'	Gray and Brown Silty CLAY with Fine Sand (Fuel Odor)
	7.0'-7.3'	Gray Silty CLAY (Fuel)
	7.3'	Boring Terminated at 7.3' - Water Level Measured at 5'-6" after 24 hours 1/16" of Yellow Fuel Measured on Water Sample
HA-26	0 -0.5'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA. 2+50	0.5'-1.0'	Tan Slightly Silty Fine SAND (Fill)
75'Lt.	1.0'-2.0'	Gray and Brown Slightly Clayey Silty Fine SAND
	2.0'-4.5'	Gray and Orange-Brown Mottled Fine Sandy Silty CLAY
	4.5'-5.5'	Gray Silty CLAY with Fine Sand
	5.5'-7.0'	Blue-Gray Silty CLAY
	7.0'-7.3'	Blue-Gray Clayey Fine to Medium SAND
	7.3'	Boring Terminated at 7.3' - water level measured at 3'-11" after 24 hours.
HA-27	0 -0.3'	Dark Brown Silty Fine SAND - Topsoil with Grass Root Mat
STA.2+50	0.3'-1.2'	Dark Gray and Brown Slightly Clayey Fine Sandy SILT
20' Lt	1.2'	Boring Terminated at 1.2' - (Soil Cement) Seven Other Unsuccessful Attempts Were Made in the General Area to Penetrate Through the Soil Cement Layer with a Hand Auger

HA-21	0-2.0'	Dark Brown Very Silty Fine SAND (Fill)
STA. 2+10	2.0'-3.1'	Orange-Brown and Gray Fine Sandy SILT
75' Lt.	3.1'-5.6'	Orange-Brown and Gray Fine Sandy Silty CLAY (Fuel Odor)
	5.6'-8.0'	Gray Fine Sandy Silty CLAY (Strong Fuel Odor)
	8.0'-9.0'	Gray Silty Clayey Fine SAND (Fuel)
	9.0'	Boring Terminated at 9.0'-Water Level Measured at 5'-10" after 24 hours Strong Fuel Odor in Water Sample (Fuel Water emulsion)
HA-22	0-0.5'	Dark Brown Very Silty Fine SAND-Topsoil with Grass Root Mat
STA. 2+10	0-5'-2.0'	Brown Silty Fine SAND (Fill)
25' Rt.	2.0'-3.5'	Orange-Brown and Gray Slightly Clayey Fine Sandy SILT
	3.5'-4.0'	Orange-Brown and Gray Clayey SILT with Fine Sand (Fuel Odor)
	4.0'-6.0'	Gray and Brown Mottled Silty CLAY with Fine Sand Seams (Fuel)
	6.0'-7.3'	Gray Silty CLAY (Fuel)
	7.3'	Boring Terminated at 7.3'-Water Level Measurement at 5'-3" after 24 hours Strong Fuel Odor in Water sample - Fuel Film Noticed on Water
HA-23	0-0.9'	Dark Brown Silty Fine SAND-Topsoil with Grass Root Mat
STA. 2+10	0.9'-2.8'	Tan and Light Brown Slightly Silty Fine SAND (Fill)
50' Rt	2.8'-3.5'	Gray Slightly Clayey Silty Fine SAND
	3.5'-4.0'	Gray and Brown Clayey Silty Fine SAND
	4.0'-6.0'	Gray and Brown Mottled Silty CLAY with Fine Sand (Fuel Odor)
	6.0'-7.3'	Gray Slightly Sandy Silty CLAY (Fuel)
	7.3'	Boring Terminated at 7.3'-Water Level Measured at 5'-1" after 24 hours Strong Fuel Odor in Water Sample-Fuel Film Noticed on Water

HA-17	0-1.8'	Dark Brown Silty Fine SAND (Fill)
	1.8'-3.7'	Light Gray-Brown Silty Fine SAND (Some Fuel)
Sta. 42+50	3.7'-5.5'	Gray and Orange Fine Sandy Silty CLAY with Sand Seams (Fuel)
25' Rt. of ℄	5.5'-6'	Gray and Light Brown Slightly Clayey Fine SAND (Wet) (Fuel)
	6'	Boring Terminated at 6'
HA-18	0-1.7'	Dark Brown Silty Fine SAND (Fill)
	1.7'-3.5'	Light Gray-Brown Silty to Clayey Fine SAND
Sta. 42+50	3.5'-5'	Gray Fine Sandy Silty CLAY with Fine Sand Seams (Fuel)
50' Rt. of ℄	5'-6'	Gray Slightly Clayey to Clayey Fine SAND (Fuel)
	6'	Boring Terminated at 6'
HA-19	0-1.5'	Gray and Brown Slightly Silty Fine SAND (Fill)
	1.5'-2'	Dark Brown Fine Sandy Clayey SILT - Old Topsoil
Sta. 6+50	2'-6'	Brown to Gray Fine Sandy Silty CLAY with Some Fine Sand Seams
25' Rt. of ℄	6'	Boring Terminated at 6'
HA-20	0-1.3'	Gray and Brown Silty Fine SAND (Fill)
	1.3'-2'	Dark Brown Fine Sandy Clayey SILT with Roots - Old Topsoil
Sta. 6+50	2'-4'	Dark Gray to Gray Fine Sandy Silty CLAY (Fuel at 4')
25' Lt. ℄	4'	Boring Terminated at 4'

HA-12	0-1'	Brown Silty to Very Silty Fine SAND (Fill)
	1'-3.5'	Gray Slightly Clayey Silty Fine SAND (Fuel at 3')
Sta. 43+25	3.5'-5.5'	Gray Fine Sandy Silty CLAY (Fuel)
	5.5'-6'	Gray Clayey Fine SAND (Fuel)
	6'	Boring Terminated at 6'
HA-13	0-1.5'	Gray Silty SAND with Rocks - Soil Cement (Fill)
	1.5'-3'	Brown Clayey Fine SAND (Fill)
Sta. (See Plans)	3'-5'	Gray Fine Sandy Silty CLAY
	5'-6'	Gray Clayey Fine SAND (Fuel)
	6'	Boring Terminated at 6' - Water Level Measured at 5.3'
HA-14	0-1.5'	Gray Very Silty SAND with Some Rocks - Soil Cement (Fill)
	1.5'-4'	Brown Silty Fine SAND (Fill)
Sta. (See Plans)	4'-7'	Gray SILT to Clayey Fine SAND (Fill)
	7'-8.5'	Orange and Gray Silty Fine SAND (Fill) (Somewhat Stale Fuel)
	8.5'	Boring Terminated at 8.5' - Water Level Measured at 4.8'
HA-15	0-2.5'	Brown Silty Fine SAND with Some Clay Peds (Fill)
	2.5'-5.5'	Gray-Brown Silty to Clayey Fine SAND (Fill)
Sta. (See Plans)	5.5'-7'	Gray Clayey Fine SAND (Some Stale Fuel)
	7'	Boring Terminated at 7' - Hit Something at 7'
HA-16	0-2'	Dark Brown Silty Fine SAND with Some Roots (Fill)
	2'-4.5'	Light Brown Silty Fine SAND with Some Clay Peds (Fill)
Sta. 42+00	4.5'-6.5'	Gray Fine Sandy Silty CLAY
	6.5'-7'	Gray and Orange Clayey Fine SAND (Wet)
	7'	Boring Terminated at 7'

HA-6	0-0.5'	Brown Very Silty Fine SAND (Fill)
	0.5'-2'	Light Brown to Gray Silty Fine SAND (Fill) (Fuel)
Sta. 6+00	2'-4'	Dark Brown Fine Sandy Clayey SILT (Fuel)
	4'	Boring Terminated at 4' - Water Level Measured at 2.1' after 24 Hours
HA-7	0-2'	Dark Brown Fine Sandy SILT with Roots
	2'-4'	Dark Gray to Gray Fine Sandy Silty CLAY
Sta. 5+10	4'	Boring Terminated at 4' - Water Level Measured at 1.7' after 24 Hours
HA-8	0-2'	Dark Brown Very Silty Fine SAND (Fill)
	2'-3.5'	Gray-Brown Silty Fine SAND (Fill)
Sta. 11+50	3.5'-4.5'	Gray Clayey Fine SAND
	4.5'-5'	Gray Silty CLAY
	5'	Boring Terminated at 5' - Water Level Measured at 2.8' after 24 Hours
HA-9	0-1'	Gray-Brown Silty Fine SAND with Roots
	1'-1.5'	Brown Fine Sandy SILT with Roots
Sta. 12+15	1.5'-2'	Gray Clayey Fine SAND
25' Lt. of ℄	2'-3.5'	Gray with Orange Fine Sandy Silty CLAY (Fuel)
	3.5'	Boring Terminated at 3.5' - Water Level Measured at 3" after 24 Hours
HA-10	0-2'	Dark Brown Fine Sandy SILT
	2'-3.5'	Gray-Brown Fine Sandy SILT
Sta. 12+65	3.5'-5'	Gray Fine Sandy Silty CLAY
	5'	Boring Terminated at 5' - Water Level Measured at 3.3' after 24 Hours
HA-11	0-2'	Brown Silty to Very Silty Fine SAND (Fill)
	2'-3.5'	Gray Silty to Clayey Fine SAND (Some Fuel)
Sta. 42+50	3.5'-5.5'	Gray Fine Sandy Silty CLAY (Some Fuel)
	5.5'-6.5'	Gray and Orange Clayey Fine SAND (Fuel)
	6.5'	Boring Terminated at 6.5'

TABLE I

SUMMARY OF HAND AUGER PROBES

Boring No.	Depth	Description
HA-1	0-0.8'	Dark Brown Very Silty Fine SAND - Topsoil
	0.8'-1.8'	Tan Silty Fine to Medium SAND
Sta. 1+75	1.8'-3.0'	Dark Gray Fine Sandy Clayey SILT with Fine Sand Seams
	3'-5'	Gray Fine Sandy Silty CLAY (Stale Fuel)
	5'	Boring Terminated at 5' - Water Level Measured at 2.8' after 24 Hours
HA-2	0-0.5'	Dark Brown Very Silty Fine SAND with Roots - Topsoil
	0.5'-2.7'	Brown Silty Fine SAND
Sta. 2+15	2.7'-4'	Gray and Dark Gray Fine Sandy Silty CLAY (Fuel)
	4'	Boring Terminated at 4' - Water Level Measured at 2'8" after 24 Hours
HA-3	0-0.1'	Dark Brown Topsoil
	0.1'-3'	Orange-Brown Fine Sandy SILT
Sta. 2+50	3'-4'	Gray and Orange Fine Sandy Silty CLAY
	4'	Boring Terminated at 4' - Water Level Measured at 3.2' after 24 Hours
HA-4	0-1.5'	Brown Silty Fine SAND with Some Rocks (Fill)
	1.5'-3'	Dark Brown Fine Sandy Clayey SILT with Roots (old Topsoil)
Sta. 6+50	3'-4'	Gray Fine Sandy Silty CLAY (Fuel)
	4'	Boring Terminated at 4' - Dry after 24 Hours
HA-5	0-1'	Light Brown Silty Fine SAND (Fill)
	1'-2'	Dark Brown Fine Sandy Clayey SILT with Roots
Sta. 7+50	2'-4'	Gray Fine Sandy Silty CLAY
	4'	Boring Terminated at 4' - Water Level Measured at 1.1' after 24 Hours

volumetric extent of the contamination is beyond the scope of this Phase 1 investigation.

Recommendation for Further Investigation

The hand auger probes and fuel measurements indicate that some fuel contamination exists in all four areas. The contamination in Area 1 appears to be limited to the area immediately adjacent to the canal. The major amount of fuel found in Area 2 is across White Street from the pipeline, indicating either movement of fuel beneath the street or a fuel spill unrelated to pipeline leakage. The fuel leakage in Area 3 appears to be fairly limited in area but probably extends somewhat below the concrete aprons and taxiways. The major area of fuel contamination found appears to be in the Rapid Jet area, where measured fuel thicknesses of 1 to 2 feet were typical.

It should be noted that, due to the relative unit weights and viscosities of hydrocarbon fuels and water, the measured fuel thickness in boreholes and wells frequently exceeds the fuel thickness in the soil matrix. The fuel may enter the borehole at a more rapid rate than water, exaggerating the measured fuel thickness.

Based on the results of this Phase I inventory, additional investigation appears to be warranted to further delineate the extent of fuel contamination in these areas. Suggested locations of additional probes are shown on Figures 5 through 8.

It has been a pleasure working with you on this phase of the project. We will contact you shortly regarding the scheduling of the Phase 2 investigation.

Sincerely,
Soil & Material Engineers, Inc.

Phil Rahn, Geologist

Ernest F. Parker, Jr., P.E.

EFP/pjc

probes. At each probe location, the engineer noted the presence and depth of fuel by both visual and odor examinations. After a period of 24 hours, the engineer measured and recorded the water or fuel level below the ground surface in each probehole. Where water or fuel accumulated in the probehole, a sample was retrieved with a 3/4-inch inside diameter clear tube by placing the tube to the bottom of the probehole and sealing off the tube at the bottom. The sample retrieved was noted for the presence of fuel by both visual and odor examination. If fuel was visible in the sample, the thickness of fuel was measured and recorded. The absence or presence of fuel at each probe location and the thickness of any fuel measured are described on Table 1 and summarized on Figures 5 through 8.

At hand auger probe locations HA-27 and HA-65 through HA-72, little or no penetration could be made with the hand auger. Therefore, no information is available for these areas at this time.

Subsurface Conditions

In general, the soil conditions encountered between station 0+00 and 12+15 consisted of 3 to 4 feet of silty sands much of this material being redeposited fill. Underlying the sands are clayey silts which undergo a transition to silty clays within one to two feet. The pipeline apparently lies on the clayey silt or silty clay soil and is located 3 to 5 feet below the ground surface.

The soils between stations 39+75 and 50+00 generally consist of 3 to 5 feet of brown to gray silty fine sand (fill), with a 1 to 2 foot layer of gray fine sandy silty clay or fine sandy clayey silt occurring at most of the probes. The basal portion of the probes generally consist of 3 to 6 feet of white, orange, and gray silty to clayey sand with traces of course sand and gravel.

Twenty-hours hour groundwater levels in the hand auger probes ranged from 3 feet to below the depth to which the auger probes were advanced.

Evidence of fuel contamination during probing or subsequent accumulation of fuel in the probehole (at approximately 24 hours) is presented in Figures 5 through 8. Areas of accumulation include 100 feet west of Station 2+10 and Station 6+50, 100 feet east of Station 12+15, and 50 feet south of Stations 37+75 and 52+00. Assessing the

SOIL & MATERIAL ENGINEERS INC. ENGINEERING-TESTING-INSPECTION

3109 Spring Forest Road, Box 58069, Raleigh, NC 27658-8069, Phone (919) 872-2660

December 7, 1983

Resident Officer In Charge of Construction
Naval Facilities Engineering Command
Jacksonville Area
Camp LeJeune, NC 28542

Reference: Leaked Fuel Inventory
Direct Fueling Pipeline
Marine Corps Naval Air Station
Camp LeJeune, North Carolina
S&ME Job No. 051-83-354-A

Gentlemen:

Soil & Material Engineers, Inc. has completed the first phase of the authorized inventory of JP-5 fuel leaked from the direct fueling pipeline at the Marine Corps Naval Air Station, Camp Lejeune, North Carolina. The pipeline extends from the tank farm on White Street to the Rapid-Jet flightline fueling stations, a distance of about one mile.

This inventory is the result of an earlier investigation of leakage from the pipeline (S&ME Job No. 057-83-128). As a part of that study, 20 hand auger probes were performed to evaluate the possibility that significant quantities of fuel had leaked from the pipeline. The hand auger records from those probes are attached (Table 1, HA-1 through HA-20). These hand auger probes identified four areas where fuel contamination was indicated, warranting further study. This report covers the first phase of the inventory of fuel contamination in these areas.

Field Exploration

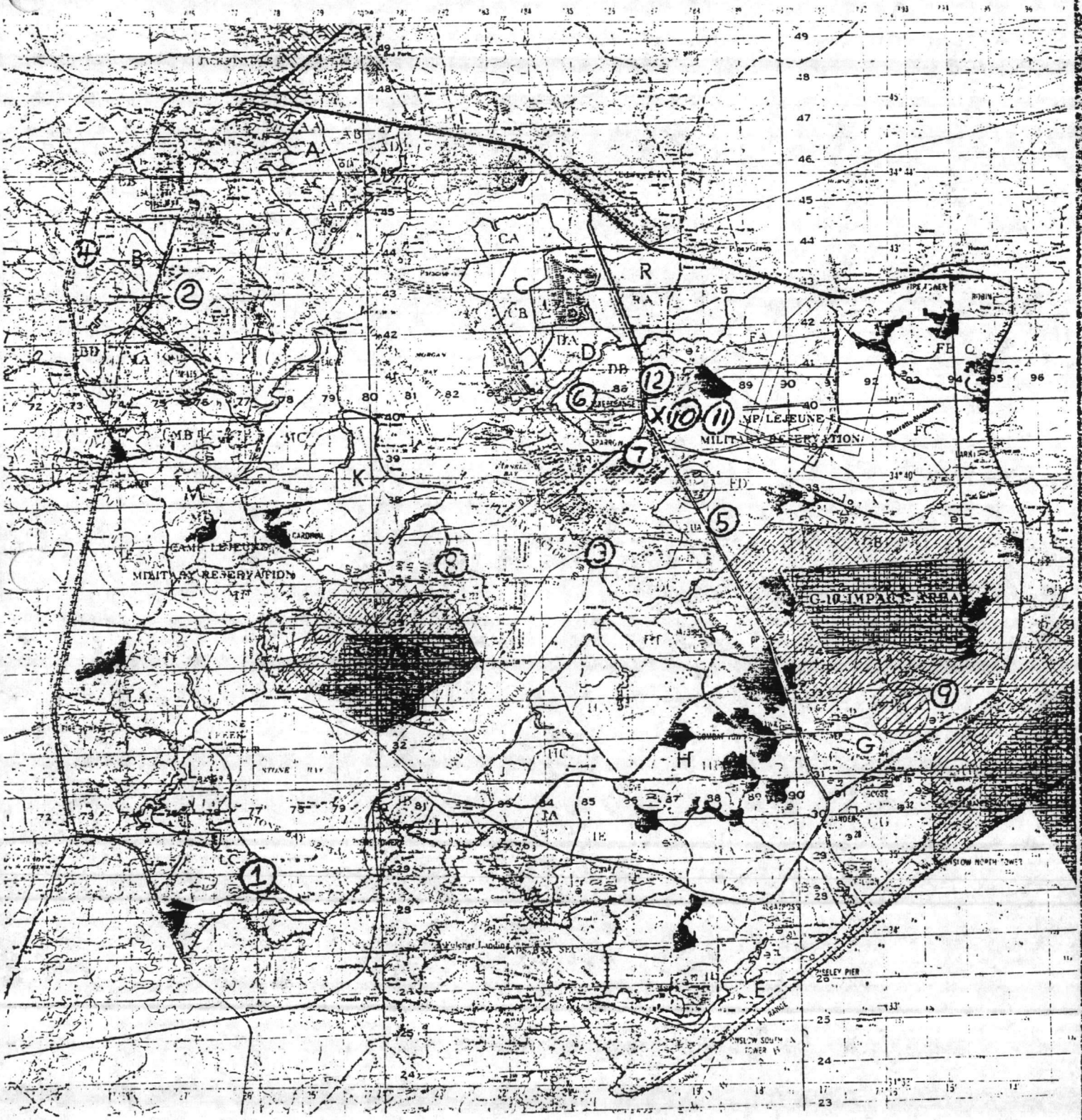
The probes were performed by an engineer using a 3-inch diameter hand auger. The probes were generally extended to depths ranging between 6.5 to 10.4 feet below the ground surface, depending on soil and groundwater conditions encountered. The engineer maintained a field log of each hand auger probe, including a visual description of the soils encountered (see Table I). No samples were retained from the hand auger

Leaked Fuel Inventory
Direct Fueling Pipeline
Marine Corps Naval Air Station
Camp LeJeune, North Carolina

S&ME Job No. 051-83-354-A

Doc. No.: CLEJ-00122-1.02-04/08/81

SOUNDINGS IN METERS



DIVISION OF HEALTH SERVICES
WELL INFORMATION

WELL NO. ________ ID NO. ________

1) WELL SITE: Owned or controlled (100' radius)? OK - ALL WELLS

Sources of pollution/distance · controlled by USMC

Adequate slope? ________ Flooding? ________

2) WELL HOUSE: Free of stored materials? yes

Properly drained? ________ Freeze protection? ________

Condition of house OK Locked? yes

3) WELL: Diameter varied Type const. ________ Yield (GPM) varied Storage at well ________

Properly sealed? ________ Properly vented? ________

Casing depth ________ Well depth ________ Meter Available? @ WTP

Concrete slab adequate? ________ Aux Eng @ 7 wells

Size of blow-off ________ Sample tap available yes

4) PUMP: Capacity Max 400 gpm Min 50 Avg 164 Type pump Vert Turb (High Service 2 @ 1000 gpm, 1 @ 500 gpm)

Height above floor (pump/casing) ________ Is pump leaking? Boosters 2 @ 125 gpm, 2 @ 750 gpm, 3 @ 700 gpm

5) TREATMENT: Is this a central treatment facility? yes (one of eight)

Chlorinator: Type W & T gas (T-cont.) Capacity 1 @ 200 ppd In Service? yes

Spare parts or unit? spare w/200 ppd Proper ventilation? yes Gas Mask? Air pack: Repair kit; Alarms.

Recarbonation ~~Aeration~~: Type Natural Gas (Submerged Burner) Condition OK

Filter(s): Type gravity (No Rate Controls) 3 ea Media Sand & Anthracite

Size 17'x23' Rate (gpm/ft^2) ________ Head loss B/W @ 2.5 - 3.0 or 48 hrs

Type controls B/W controls only Condition OK w/surface wash

Comments filter rate changes based on C.O.H. filter overflow thru recarb. unit

Softeners: Type Spiractors No. 2 Media Sand - Catalyst

Size — Rate (gpm/ft^2) 1200 gpm ea Head loss —

Type controls uses hydrated lime Condition OK (Bulk storage)

Comments Lime slaker - spare unit

Other treatment (Describe): ________

Process Wastewater treatment (Describe): To San. Swr

6) REMARKS AND RECOMMENDATIONS Aux generator @ WTP

DIVISION OF HEALTH SERVICES

WELL NO. ______ "WELL INFORMATION" ID NO. ______

1) WELL SITE: Owned or controlled (100' radius)? OK - ALL Wells

Sources of pollution/distance CONTROLLED by USMC

Adequate slope? ______ Flooding? ______

2). WELL HOUSE: Free of stored materials? yes

Properly drained? ______ Freeze protection? ______

Condition of house OK Locked? yes

3) WELL: Diameter VARIED Type const. GRAVEL Yield (GPM) VARIED Storage at well NO

Properly sealed? ______ Properly vented? ______

3 Wells → Casing depth ______ Well depth ______ Meter Available? @ WTP

Concrete slab adequate? ______ [illegible] @ [illegible] wells

Size of blow-off ______ Sample tap available yes

4) PUMP: Capacity MIN 40 gpm. MAX 200 AVG 115 Type pump VERT TURB. (service pumps - 1250 gpm (w/aux) 1000 gpm 500 gpm)

Height above floor (pump/casing) ______ Is pump leaking? ______

5) TREATMENT: Is this a central treatment facility? yes (one of eight)

Chlorinator: Type W&T gas (150#) Capacity 10/30 ppd In Service? yes

Spare parts or unit? spare unit (50 ppd) Proper ventilation? yes Gas Mask? AIR PACK; REPAIR KIT, Cl_2 ALERT.

Aerator: Type NONE Condition ______

Filter(s): Type NONE No. ______ Media ______

Size ______ Rate (gpm/ft^2) ______ Head loss ______

Type controls ______ Condition ______

Comments ______

Softeners: Type ION EXCHANGE No. 2 Media Na ZEOLITE

Size 72" Ø Rate (gpm/ft^2) 180 ea Head loss ± 10

Type controls — Condition fair (some leaks)

Comments Regen. @ 1048 HG — BULK SALT TANK w/ day tank inside WTP

Other treatment (Describe): Phosphate - BIF [illegible] pump (2 gal/[illegible] gal H_2O) (ORTHO PO_4 1.0 mg/l)

Process wastewater treatment (Describe): disch. to SAN. SWR.

6) REMARKS AND RECOMMENDATIONS ① valves leaking at softener ② to be [illegible] [illegible] [illegible]

DIVISION OF HEALTH SERVICES
WELL INFORMATION

WELL NO. ______ ID NO. ______

1) WELL SITE: Owned or controlled (100' radius)? OK - ALL wells

Sources of pollution/distance sites controlled by usmc

Adequate slope? ______ Flooding? ______

2) WELL HOUSE: Free of stored materials? yes

Properly drained? ______ Freeze protection? ______

Condition of house OK Locked? yes

3) WELL: Diameter varies Type const. gravel Yield (GPM) 111 → 236 Storage at well two-

all 9 Properly sealed? yes Properly vented? ______

wells Casing depth ______ Well depth ______ Meter Available? ______

wells Concrete slab adequate? ______ Size ______

Size of blow-off ______ Sample tap available Aux on @ 2 wells

4) PUMP: Capacity Min 111 Max gpm 236 Avg 141 Type pump VERT TURB.

Height above floor (pump/casing) — High Service Pumps ~~Is pump lubricated~~? 1200 gpm (w/aux pwr) 750 gpm; 850 gpm; 500 gpm

5) TREATMENT: Is this a central treatment facility? yes (1 of 8) operating 18

Chlorinator: Type W&T gas Capacity 50 ppd In Service? yes

Spare parts or unit? spare unit Proper ventilation? yes Gas Mask? AIR pack; Repair Kit & Alert.

Aerator: Type NONE Condition ______

Filter(s): Type PRESSURE No. 6 Media SAND

Size 84" Ø Rate (~~gpm/ft²~~) 127 gpm ea Head loss ±5-10 lbs

Type controls ______ Condition ______

Comments BACKWASHED daily - Access openings in filter sides

Softeners: Type SPIRACTOR No. 1 Media SAND-catalyst

Size 1.0 MGD Rate (gpm/ft²) — Head loss —

Type ~~controls~~ Hydrated lime - BAGS Condition mixer motor noisy

Comments ______

Other treatment (Describe): NaF - in line softener before SATURATOR - meter on fill line W&T 747 pump

Process Wastewater treatment (Describe): discharge to [illegible]

6) REMARKS AND RECOMMENDATIONS [illegible]

DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH SERVICES
WELL INFORMATION

WELL NO. ______ ID NO. ______

1) WELL SITE: Owned or controlled (100' radius)? OK - All wells

Sources of pollution/distance none - controlled by USMC

Adequate slope? ______ Flooding? ______

2) WELL HOUSE: Free of stored materials? yes

Properly drained? ______ Freeze protection? yes

Condition of house OK Locked? yes

3) WELL: Diameter varies Type const. gravel Yield (GPM) varies Storage at well ______

Properly sealed? ______ ~~Properly vented?~~ ← TOTAL 756 gpm

4 wells Casing depth ______ Well depth ______ Meter Available? yes

Concrete slab adequate? ______ Aux drive @ 2 wells

Size of blow-off ______ Sample tap available yes

4) PUMP: Capacity MIN 104 MAX gpm 300 AVG 189 Type pump VERT TURB (high service in WTP)

Height above floor (pump/casing) ______ Is pump leaking? ______

5) TREATMENT: Is this a central treatment facility? yes (one of eight)

Chlorinator: Type W&T gas (150# cyl) Capacity 18/100 ppd In Service? yes (main system)

Spare parts or unit? spare - @ 30 ppd Proper ventilation? yes Gas Mask? AIRPACK; alert; REPAIR KIT

Aerator: Type Permutit forced draft Condition fan ok - detention tank @ unit

Filter(s): Type Pressure (Permutit No. 3 Media SAND

Size 96" Ø Rate (gpm/ft²) 134 gpm ea Head loss 5#

Type controls Multiports Condition OK - all controls not automatic

Comments B/W ea 3rd day

Softeners: Type Permutit No. 2 Media Na Zeolite

Size 120" Ø Rate (gpm/ft²) 128 gpm ea Head loss 5-8#

Type controls multiport Condition OK

Comments Regenerate @ 1100 MG, Brine dry tank inside WTP

Other treatment (Describe): Lime feed for pH control & Fe reduction

Process Wastewater treatment (Describe): dischg to SAN-SWR

6) REMARKS AND RECOMMENDATIONS ______

DIVISION OF HEALTH SERVICES

WELL NO. _____ *WELL INFORMATION* ID NO. _____

1) WELL SITE: Owned or controlled (100' radius)? OK - ALL WELLS

Sources of pollution/distance CONTROLLED by USMC

Adequate slope? _____ Flooding? _____

2) WELL HOUSE: Free of stored materials? yes

Properly drained? _____ Freeze protection? yes

Condition of house _____ Locked? yes

3) WELL: Diameter VARIES Type const. _____ Yield (GPM) VARIES Storage at well _____

Properly sealed? _____ ~~Properly vented?~~ TOTAL 777 gpm

- wells Casing depth _____ Well depth _____ Meter Available? @ WTP

Concrete slab adequate? _____ Size _____

Size of blow-off _____ Sample tap available yes

4) PUMP: MVN Capacity 104 MAX gpm 260 AVG 155 Type pump VERT TURB

Height above floor (pump/casing) _____ ~~Is pump leaking?~~ hi service pumps 2@500 gpm 1@750 w/AUX. drive

5) TREATMENT: Is this a central treatment facility? yes (one of eight)

Chlorinator: Type W&T Capacity 15/100 ppd In Service? yes

Spare parts or unit? SPARE 100 ppd Proper ventilation? yes Gas Mask? AIR PACK; AKRT; REPAIR KIT

Aerator: Type PERMUTIT FORCED DRAFT Condition fan OK - detention tank

Filter(s): Type PERMUTIT - PRESSURE No. 6 Media _____

Size 96" ⌀ Rate (gpm/ft²) 94 gpm ea Head loss ±5 #

Type controls MULTIPORT Condition OK

Comments BACKWASHED daily

Softeners: Type PERMUTIT No. 4 Media Na Zeolite

Size 72" ⌀ Rate (gpm/ft²) 102 gpm ea Head loss 5 #

Type controls MULTIPORT Condition OK

Comments REGENERATED @ 1100 hrs

Other treatment (Describe): Lime (Hydrated to slurry & pump - pH control for Fe Reduction)

Process Wastewater treatment (Describe): Phosphate NOT in service
→ settling pond - discharge to ditch

6) REMARKS AND RECOMMENDATIONS

(1) 2 zinc day tanks inside bldg, should have cover

(2) Lime & POL NOT necessary together (Should perform in-plant trials to determine if lime may be discontinued)

DIVISION OF HEALTH SERVICES

WELL NO. _____ *WELL INFORMATION* ID NO. _____

1) WELL SITE: Owned or controlled (100' radius)? OK - ALL wells

Sources of pollution/distance CONTROLLED by USMC

Adequate slope? _____ Flooding? _____

2) WELL HOUSE: Free of stored materials? yes

Properly drained? _____ Freeze protection? _____

Condition of house OK Locked? yes

3) WELL: Diameter VARIES Type const. GRAVEL Yield (GPM) VARIES Storage at well _____

Properly sealed? _____ ~~Properly vented?~~ TOTAL 369 gpm

2 wells Casing depth _____ Well depth _____ Meter Available? yes

Concrete slab adequate? _____ ~~Size~~ AW @ 1 well

Size of blow-off _____ Sample tap available yes

4) PUMP: Capacity MAX 210 MIN gpm 154 AVG HP 125 Type pump VERT TURB

Height above floor (pump/casing) _____ ~~Is pump locking?~~ service pump's 1 @ 1000 gpm (1 w/ AUX drive) 1 @ 750 1 @ 300

5) TREATMENT: Is this a central treatment facility? yes (one of eight)

Chlorinator: Type W&T gas (150#) Capacity 10/30 ppd In Service? yes

Spare parts or unit? spare 1 @ 50 ppd Proper ventilation? yes Gas Mask? AIR PACK; ALERT; Repair KIT

Aerator: Type PRESSURIZED - in line unit Condition OK - uses AIR COMPRESSOR

Filter(s): Type Calgon (Pressure units) No. 2 Media Sand

Size 48" ø Rate (gpm/ft²) 37 gpm ea Head loss ± 5#

Type controls Manual cycle Condition OK

Comments Backwashed at .030 MG - Uses Raw water for B/W

Softeners: Type Calgon No. 2 Media Na Zeolite

Size 42" ø Rate (gpm/ft²) 75 gpm ea Head loss ± 5#

Type controls Manual cycle Condition OK - New Resin in 1977

Comments Regenerated @ .080 MG

Other treatment (Describe): _____

Process wastewater treatment (Describe): Settling pond - pumped to ditch

6) REMARKS AND RECOMMENDATIONS ① Should use TREATED WATER for B/W ② Flow pattern should be changed - NOW split thru filters & softeners - Should all be thru filters then softener (± EXTEND RESIN life ③ Relocation in dist. system)

DIVISION OF HEALTH SERVICES

WELL NO. _____ *WELL INFORMATION* ID NO. _____

1) WELL SITE: Owned or controlled (100' radius)? OK - all wells

Sources of pollution/distance CONTROLLED by USMC

Adequate slope? _____ Flooding? _____

2) WELL HOUSE: Free of stored materials? yes

Properly drained? _____ Freeze protection? _____

Condition of house OK Locked? yes

3) WELL: Diameter VARIES Type const. GRAVEL Yield (GPM) VARIES Storage at well NO

Properly sealed? ~~Properly vented?~~ TOTAL - 7224 gpm

35 wells

Casing depth _____ Well depth _____ Meter Available? @ WTP

Concrete slab adequate? ~~Size~~ MIX @ 18 wells

Size of blow-off _____ Sample tap available _____

4) PUMP: Capacity MAX 450 MIN 105 AVG 350 Type pump VERT TURB (service pumps 1@3000 gpm 3@1500 gpm (2 w/auxpwr)

Height above floor (pump/casing) _____ Is pump leaking? _____

5) TREATMENT: Is this a central treatment facility? yes (one of eight)

Chlorinator: Type WET gas Capacity 50/200 ppd In Service? yes

Spare parts or unit? spare unit (200 ppd) Proper ventilation? yes Gas Mask? AIRPK, Repair Kit Cl2 ALERT

~~Aeration~~ CARBONATION Type PROPANE GAS - BURNER SUBMERGED Condition NEW - 85

Filter(s): Type GRAVITY No. 5 Media SAND - ANTHRACITE

Size 350 ft² ea Rate (gpm/ft²) 2.0 Head loss B/W @ 5 ft.

Type controls NEW Condition GOOD

Comments SURFACE WASH ea. filter

Softeners: Type SPIRACTORS No. 5 Media SAND - catalyst

Size HYDRATED Lime SLOT Rate (~~gpm/ft²~~) 1.0 MGD ea Head loss _____

6 feed pumps

Type controls 1000 # Lime / MG H2O Condition _____

Comments _____

Other treatment (Describe): WET NaF - GRAVIMETRIC (New '85)

Process Wastewater treatment (Describe): New - B/W to holding BASIN ① sludge to SAN SEWR ② Supnat. to RAW water

6) REMARKS AND RECOMMENDATIONS

Maintains pH @ 8.8 for STABILITY

DEPARTMENT OF HUMAN RESOURCES
DIVISION OF HEALTH SERVICES
WELL INFORMATION

WELL NO. _____ ID NO. _____

1) WELL SITE: Owned or controlled (100' radius)? OK - All wells

Sources of pollution/distance NONE - controlled by USMC

Adequate slope? _____ Flooding? _____

2) WELL HOUSE: Free of stored materials? yes

Properly drained? yes Freeze protection? yes

Condition of house OK Locked? yes

3) WELL: Diameter VARIES Type const. gravel Yield (GPM) VARIES Storage at well NO

Properly sealed? _____ Properly vented? Total 1300 gpm

wells Casing depth _____ Well depth _____ Meter Available? @ WTP

Concrete slab adequate? _____ Size 2w ea. @ 4 wells

Size of blow-off _____ Sample tap available _____

4) PUMP: Capacity Min 133 Max gpm 350 Avg 225 Type pump VERT TURBINE (usual)

Height above floor (pump/casing) _____ ~~Is pump leaking?~~ High serv. pumps 2@700 gpm 2@1500 gpm (Aux avail. on each)

5) TREATMENT: Is this a central treatment facility? yes (one of eight)

Chlorinator: Type W&T gas Capacity 1@50 2@100 operated @ 35ppd In Service? yes

Spare parts or unit? 3 units Proper. ventilation? yes Gas Mask? yes; Repair kit & alert system

Aerator: Type NONE Condition _____

Filter(s): Type gravity No. 2 Media RAPID SAND

Size 18 x 20' Rate (gpm/ft^2) 2.0 usual Head loss —

Type controls ROBERTS- Condition good

Comments all controls & meters OK; surface sweeps in each

Softeners: Type SPIRACTOR No. 2 Media catalyst (SAND)

Size 700 gpm (ea) Rate (gpm/ft^2) — Head loss —

Type ~~controls~~ HYDRATED lime - Bulk Condition good

Comments _____

Other treatment (Describe): NaF with gravimetric feeder - calibrated ea shift

Process Wastewater treatment (Describe): Settling pond - discharge to ground surface.

6) REMARKS AND RECOMMENDATIONS ① Oil film on filters may be from oil lubricated pumps - s/b careful. ② Be careful with NaF (most use Na_2SiF_6)

Location of Closed Drinking Water Wells at MCB CLNC.,
24 July 86.

Drinking Water Well Number	Location
601 (renumbered to be 660)	Corner of Holcomb Blvd and Dogwood St
602	Corner of Holcomb Blvd and Ash St.
608	In area behind Steam Plant at the end of Michael Road.
634	On Snead's Ferry Road across road from Bldgs. 903 and 904.
637	Corner of Holcomb Blvd and Parachute Tower Road (Outdoor Theater)
651	Corner of Old Piney Green Rd and Old Bear Cre
652	On Lyman Rd. (on left) about ½ mile from Snead's Ferry Rd.
653 (was numbered ~~Remember~~ 619)	On Old Piney Green Road (on right) 0.4 mile N of Wallace Creek.
T-26	Corner of Jarvine Blvd and Tarawa Blvd.
TT-NEW	On Tarawa Blvd (on right) between TT No. Elementary School and Peleliu Drive

CLEJ-00228-1.02-07/24/86

TABLE 1. CLEAN MAINSIDE WELLS

WELL BLDG # / SAMPLE DATE(S)	FOR VOCs JAN 85	FEB 85	APR 85	CHLORIDE mg/L JUL 85	FOR VOCs JAN 86	Nov 86 NICIP # 2	FLUORIDE mg/L SEP 87	
606	ND			16	ND	ND	0.22 C	ND = NONE DETECTED
609	ND			OUT OF SERVICE	ND	ND	0.12 C	
610		ND		14	ND	ND	0.16 C	□ = NOT COLLECTED
617	ND			12				
613	ND			14	ND	ND	0.22 C	C = COLLECTED
614	ND			18				
616	ND			14	ND	ND	0.20 C	
620	ND			12	ND	ND	0.20 C	
621	ND			14				
622						ND	0.23 C	
627	ND			12				
628						ND	0.14 C	
629					13-ND / 17-ND	ND	0.14 C	
632	ND			12		ND	0.12 C	
635	ND			12	ND	ND	0.26 C	
638	ND			12	ND	ND	0.18 C	
639 OLD	ND			12			OUT OF SERVICE	
639 NEW	ND			14	ND	ND		
640	ND			12	ND	ND	0.16 C	
641	ND			10	ND		0.16 C	
643	ND			34		ND	0.28 C	
644	ND			16		ND	0.22 C	
646	ND			10			0.21 C	
647	ND			18		ND	0.18 C	
648	ND			22		ND	0.20 C	

(LLJ-00228-1.02-07/24/86

TABLE 1. CLEAR MAINSIDE WELLS CONT.

SAMPLE DATE(S) / WELL BLDG #	FOR VOCs JAN 85	FEB 85	APR 85	CHLORIDES mg/L JUL 85	JAN 86	NOV 86 NACIP #2	FLUORIDE mg/L SEP 87
649		ND		16		ND	C 0.20
650	ND			16		ND	C 0.18
654		ND		OUT OF SERVICE	ND	ND	C 0.26
655	ND			12	ND	ND	OUT OF SERVICE
661					ND	ND	C 0.13
662					ND	ND	C 0.18
LCH 4006			ND	10			
LCH 4007	ND			12	ND		C 0.23
4009					ND	ND	C 0.19
NEW NUMBERS							
607						ND	C 0.15
663							C 0.16
705							C 0.17
709							C 0.31
710							C 0.21
711							C 0.18
5199							C 0.16

CLCS-00228-1102-01/24/86

TABLE 2 CONTAMINATED MAINSIDE WELLS

SAMPLE DATE — VOCs [illegible]

WELL BLDG #	CHEMICAL	30 NOV 84	4 DEC 84	10 DEC 84	13 DEC 84		16 JAN 85	4 FEB 85	[illegible] 7 JUL 85	14+17 JAN 86	4,5+6 NOV 86	12 NOV 86	[illegible] 87	[illegible]
601	DCE		88	99			8.8	74	NOT COLLECTED			ND		NOT COLLECTED
SHUT DOWN	TCE		210	230			26	38				ND		
12/6/84	PCE		5.0	4.4			ND	1.5				ND		
	METHYLENE CHLORIDE		ND	10			ND	ND				N[illegible]		
	BUTANE							8.4						
	PENTANE							2.2						
	2-METHYL BUTANE							3.1						
					[illegible]	[illegible]								
602	DCE	630		380	230	110			NOT COLLECTED			14		NOT COLLECTED
[illegible] DOWN	TCE	1600		540	340	300						2.2		
11/30/84	PCE	24		ND	ND	ND						ND		
	BENZENE	120		720	230	ND						50		
	1,1-DICHLOROETHYLENE	2.4		ND	ND	ND						ND		
	TOLUENE	5.4		ND	12	ND						ND		
	VINYL CHLORIDE	18		ND	ND	ND						ND		
	1,1-DICHLOROETHANE	ND		ND	ND	34						ND		
	1,2-DICHLOROETHANE	ND		ND	ND	ND						ND		
	2-CHLOROETHYLVINYL ETHER					9.8						ND		
603	TCE		4.6	ND			ND			ND	ND			F[illegible] 0.16
	METHYLENE CHLORIDE		ND	7.0			ND			ND	ND			
608	DCE		5.4	2.4				ND				8.5		NOT COLLECTED
SHUT DOWN	TCE		110	13				9.0				66		
1[illegible]/84	BENZENE		3.7	4.0				1.6				ND		
	METHYLENE CHLORIDE		ND	14				ND				ND		
623	CHLOROMETHANE								ND	ND				F[illegible] 0.25

CCC - 00028-1.02-07/24/86

WELL BLDG #	CHEMICAL	30 NOV 84	4 DEC 84	6 DEC 84	13 DEC 84	16 JAN 85	4 FEB 85	[illegible] 85	[illegible]	[illegible]	12 FEB 86	17 FEB 87	[illegible]
633	1,1,1-TRICHLORO ETHANE					ND			3 / ND	ND			F- 0.18
	CHLORIDES							14					
634	DCE		ND	2.3		700					2.9		
SHUT DOWN	TCE		ND	ND		10					ND		
12/14/84	METHYLENE CHLORIDE		ND	130		1300					ND		
	VINYL CHLORIDES		ND	ND		6.8					ND		
636	VOCs					ND			ND				F-
	ACETONE					88							0.15
	2-BUTANOL					37							
	CHLORIDES							10					
637 SHUT DOWN 12/14/84	METHYLENE CHLORIDE		ND	270		ND							
642	METHYLENE CHLORIDE		ND	38		ND				ND			F-
	CHLORIDES							18					0.16
	1,1,1-TRICHLORO ETHANE		ND			ND			3	ND			
645	BENZENE						ND			20		270	
SHUT DOWN	1,2-DICHLORO ETHANE						ND			ND		4	
11/86	ETHYL BENZENE						ND			ND		8	
	TOLUENE						ND			4.5		15	
	XYLENES						ND			ND		24	
	ACETONE									ND		15	
	CHLORIDES							13					

DOC. NO. CLEG-00034-1.02-06/11/87

(804) 445-1814

5090
1142CFB

11 JUN 1987

From: Commander, Atlantic Division, Naval Facilities Engineering Command
To: Commanding General, Marine Corps Base, Camp Lejeune

Subj: NACIP SITE 6; PROPOSED WAREHOUSE CONSTRUCTION BY DEFENSE REUTILIZATION AND MARKETING SERVICE, FY-90

Ref: (a) MARCORB Camp Lejeune ltr 6280/9 FAC of 20 Apr 87

Encl: (1) CNO ltr 5090 Ser 451/7U393392 of 14 Apr 87
(2) Excerpt from Site Suitability Assessment, Proposed Brig Expansion, NAVSTA Norfolk. Prepared by Malcolm Pirnie, Inc., June 84

1. In reference (a), you requested guidance on the feasibility of constructing a warehouse on Lot 203. This site was included in the Installation Restoration (formerly NACIP) program because of documented evidence of hazardous materials disposal. We can summarize the data collected to date under the IR program as follows:

a. Lot 203 served as a waste disposal area in the 1940s. Subsequently, it was used for storage of scrap metal and other items, including DDT and PCB transformers.

b. The eastern end of the proposed warehouse overlaps a former DDT storage area. Soil samples collected in the vicinity in August 1984 detected DDT and its isomers in concentrations up to 80 ppb. However, a monitoring well (6GW4) installed in the fall of 1986 did not detect DDT in the groundwater.

c. Trichloroethylene contamination has been confirmed in well 651, located northeast of Lot 203. Although the storage lot is a potential source of the solvent, none was detected in the shallow well, 6GW4, located east of the proposed project site.

2. Based on the analytical results to date, we do not believe the contamination is severe enough to preclude construction on this site. We do recommend the following guidelines be followed for construction on any site suspected of containing hazardous materials:

a. Sample soil in any areas to be excavated (for foundations, utilities, etc.) to the proposed depth of excavation. Analyze each sample for metals using the EP toxicity test. For this particular site, we would also recommend analysis for PCBs.

b. If the soil fails the EP toxicity test it must be handled and disposed of as a hazardous waste. If not, it should be retained on site (within the confines of the storage lot). If PCBs are detected, EPA Region IV should be consulted to determine the regional policy for cleanup of PCB spills.

Subj: NACIP SITE 6; PROPOSED WAREHOUSE CONSTRUCTION BY DEFENSE REUTILIZATION AND MARKETING SERVICE, FY-90

c. If surface soil staining or the soil borings indicates oil and grease contamination, water from dewatering operations should be pumped through an oil/water separator prior to discharge.

d. Project specifications should indicate that this is a former waste disposal area and should include provisions for dealing with buried containers that may turn up during excavation and precautions for minimizing personnel exposure. Enclosure (2) is a summary of potential construction problems and recommendations prepared for another project planned for a similar site.

3. These recommendations may be further refined when more information becomes available under the IR program and as the project scope is better defined. It may be appropriate at this time to submit a formal letter to state environmental agencies to obtain their concurrence on the proposed site usage. Enclosure (1) mandates that we keep state and local authorities informed as to planned actions at a site.

4. Our point of contact for the IR program is Cherryl Barnett.

J. R. BAILEY
By direction

Copy to:
CMC (LFL) (w/ encl (2))

Blind Copy to: (w/o encl)
09A2131 (w/ reference (a))
11S
114
114S
09BS
Doc #1555Z/lac

Doc. No.: CLEJ-00261-1.02-10/08/87

6280/9

5050
FAC

OCT 0 8 1987

Environmental Engineer

Assistant Chief of Staff, Facilities, Marine Corps Base, Camp Lejeune

TRIP REPORT MEETING WITH LANTDIV AND ENVIRONMENTAL SCIENCE AND ENGINEERING, INC. REGARDING INSTALLATION RESTORATION PROGRAM 16 SEPTEMBER 1987

1. From LANTDIV, Code 114: Mr. Rakowski, Mrs. Darnette, Mr. Wallmeyer.
From ESE: Mr. Gregory, Mr. Geden, Mr. Farrell.
From MCB: Mr. Alexander.

2. The Purpose of the Meeting: To review the Installation Restoration Program status, specifically to review the proposed remedial actions for the Hadnot Point groundwater problems and to examine data collected to date on the remaining 22 contaminated sites aboard Camp Lejeune.

3. A summary of the Hadnot Point groundwater problem follows:

a. In the shallow aquifer 15 volatile organic compounds (VOC) have been identified; the four most serious compounds violate recommended State and EPA standards.

b. Two large plumes have been identified in the shallow aquifer. One includes a portion of the industrial area between Building 1700 and the Burger King extending from Holcomb Boulevard to Louis Street. The second includes the area from the fuel farm on Ash Street northeastward to Sneads Ferry Road and from Holcomb Boulevard to Louis Street on the Southeast.

c. One of the most significant issues currently being addressed is the issue of "how clean is clean". Neither State nor EPA standards are clearly defined although North Carolina has provided their Maximum Contaminant Limits for seven of the problem pollutants. (Note: State of North Carolina is proposing revised standards. We should get these and comment as needed.)

d. Recent deep well monitoring has identified an additional contaminant, methol ethyl ketone (MEK), in the deep aquifer. This new data will compound the problem of identifying groundwater treatment options for the deep aquifer because MEK is not treated with the same methods as the other pollutants identified to date.

/ed

bj: TRIP REPORT MEETING WITH LANTDIV AND ENVIRONMENTAL SCIENCE AND ENGINEERING, INC., REGARDING INSTALLATION RESTORATION PROGRAM 16 SEPTEMBER 1987

e. ESE described a tentative list of short and long term remedial options to be presented in a report in a comparison of effectiveness and total cost.

f. Groundwater treatment options currently being examined will cause additional environmental emissions through one or all of the following media:

--Sewage treatment plant
--Air emissions
--Packaged VOC for hazardous waste disposal off base

g. We recommend pulling the pumps and equipment at the eight contaminated water supply wells in the Hadnot Point area, leaving them available for sampling only.

4. An estimated schedule of events for the Hadnot Point groundwater problem includes:

a. ESE will send a draft Remedial Investigation/ Feasibility Study Report to LANTDIV and Camp Lejeune in early October (RI/FS).

b. We will review the report ASAP and return to ESE for a final draft.

c. Upon revision, we will send the report to the State and EPA (estimated in mid November) for their review over a 30 day period. Some time within that 30 day period a briefing will be held here at Camp Lejeune with the State and EPA officials.

5. Regarding the other 22 IRP sites.

a. We recommend discontinuing work at nine sites due to the lack of documented contamination of any significance.

b. We recommend doing a Risk Analysis at six sites to determine if additional contaminants exist and/or are causing environmental problems.

c. We recommend continued monitoring and development of clean up options at seven sites and development of a change order for the ESE contract to produce a report regarding the findings at these sites. This report should be available at the end of the second quarter FY-88.

Subj: TRIP REPORT MEETING WITH LANTDIV AND ENVIRONMENTAL SCIENCE AND ENGINEERING, INC., REGARDING INSTALLATION RESTORATION PROGRAM 16 SEPTEMBER 1987

6. I have discussed these findings with Mr. Hubbel, CMC LFL, and he feels that MCB and LANTDIV should discuss the release of some of this information to the public in accordance with the superfund amendments. We will need to review these regulatory requirements for public involvement with the JPAO and develop a cooperative effort in light of these rules and the possibility that Camp Lejeune sites could be named to the EPA National Priority List.

R. E. ALEXANDER

Copy to:
JPAO
SJA
NREAD
PWO
BMO