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345 COURTLAND STREET  
ATLANTA, GEORGIA 30365

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JUN 19 1987

REF: 4WD-RM

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Captain W. J. Green, Jr.  
Commanding Officer  
U.S. Naval Air Station, Jacksonville  
Box 5  
Jacksonville, Florida 32212

Re: Issuance of HSWA Permit for: U.S. Naval Air Station  
Jacksonville, EPA ID NO. FL6 170 024 412

Dear Captain Green:

Enclosed is the Resource Conservation and Recovery Act (RCRA) permit to cover those portions of the 1984 Hazardous and Solid Waste Amendments (HSWA) that affect your facility. This permit, together with the permit issued by the State of Florida on June 12, 1987, constitutes a full RCRA permit.

Issuance of this permit is in accordance with 40 CFR §124.15. The permit is effective June 19, 1987, as no comments were received during the public comment period.

The applicable RCRA regulations in effect at the time of permit issuance and referenced in the permit shall be complied with throughout the life of the permit, unless the permittee requests modification of the permit in response to future amendments of the regulations.

If there are any questions concerning the permit, please contact Mr. Warner Cribb of my staff at 404/347-3433.

Sincerely yours,

*George L. Herlow*

Patrick M. Tobin, Director  
Waste Management Division

Enclosure

cc: Satish Kastury, FDER, Tallahassee  
Robert McVety, FDER, Tallahassee  
Ashwin Patel, FDER, Jacksonville

U.S. Naval Air Station  
Jacksonville, Florida



Identification Number FL6 170 024 412  
Permit Number FL6 170 024 412

# Permit

Pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 USC §6901 et seq., commonly known as RCRA) and regulations promulgated thereunder by the U. S. Environmental Protection Agency (EPA) (codified and to be codified in Title 40 of the Code of Federal Regulations), a permit is issued to the U.S. Naval Air Station (hereafter called the Permittee), located in Jacksonville, Florida, latitude 30° 14' 29" North and longitude 81° 40' 29" West. This permit requires the Permittee to determine whether there have been any releases of hazardous waste or hazardous constituents from any solid waste management unit(s) at the facility regardless of the time at which waste was placed in such unit and to develop appropriate corrective action for any such releases. The permit also requires the Permittee to certify annually that on-site generation of hazardous waste is minimized to the extent practical. This permit, in conjunction with Hazardous Waste Permit to be issued by the State of Florida, constitutes the RCRA permit for this facility.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (including those in any attachments) and applicable regulations contained in 40 CFR Parts 260 through 264, 270, and 124 as specified in the permit and statutory requirements of RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984, P.L. 98-616, (the RCRA amendments). Applicable regulations are those which are in effect on the date of issuance of this permit in accordance with 40 CFR §270.32(c). Nothing in this permit shall preclude the Regional Administrator from reviewing and modifying the permit at any time during its term.

This permit is based on the assumption that the information and reports submitted to date, and subsequent to issuance of this permit, are accurate. Any inaccuracies found in this information may be grounds for termination or modification of this permit in accordance with 40 CFR §§270.41, 270.42 and 270.43 and potential enforcement action. The Permittee must inform EPA of any deviation from or changes in the information in the application which would affect the Permittee's ability to comply with the applicable regulations or permit conditions.

This permit is effective as of June 19, 1987, and shall remain in effect until June 19, 1987 unless revoked and reissued, or terminated under 40 CFR §§270.41 and .43 or continued in accordance with §270.51(a).

June 19, 1987  
Date

George L. Harlow  
Signature  
for Patrick M. Tobin  
Director, Waste Management Division

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PART I - STANDARD CONDITIONS

I.A. EFFECT OF PERMIT

Compliance with this permit and the Florida hazardous waste permit constitutes compliance, for purposes of enforcement, with Subtitle C of RCRA. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought or taken under Section 3013 or Section 7003 of RCRA, Sections 106(a), 104 or 107 of the Comprehensive Environmental Response, Compensation, and Liability Action of 1980 (42 U.S.C. 9601 et seq., commonly known as CERCLA), or any other law providing for protection of public health or the environment.

I.B. PERMIT ACTIONS

This permit may be modified, revoked or reissued, or terminated for cause as specified in 40 CFR §§270.41, 270.42 and 270.43. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

I.C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

I.D. DUTIES AND REQUIREMENTS

I.D.1. Duty to Comply

The Permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance other than noncompliance authorized by an emergency permit, constitutes a violation of RCRA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

I.D.2. Duty to Reapply

If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee shall submit a complete application for a new permit at least 180 days before this permit expires.

I.D.3. Permit Expiration

If the state does not have RCRA hazardous waste permitting authority under 40 CFR Part 271 for the 1984 RCRA Amendments, this permit and all conditions herein will remain in effect beyond the permit's expiration date, as specified in §270.51, if the Permittee has submitted a timely, complete application in accordance with §270.10(c) and, through no fault of the Permittee, the Regional Administrator has not issued a new permit with an effective date under §124.15 on or before the expiration date of the previous permit.

If the state does have RCRA hazardous waste permitting authority under 40 CFR Part 271 for the 1984 RCRA Amendments and if the Permittee has submitted a timely and complete application under applicable state law and regulations, the terms and conditions of this permit continue in force beyond the expiration date of the permit, but only until the effective date of the state's issuance or denial of a state RCRA permit.

I.D.4. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

I.D.5. Duty to Mitigate

In the event of noncompliance with the permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment.

I.D.6. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of a backup or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of the permit.

I.D.7. Duty to Provide Information

The Permittee shall furnish to the Regional Administrator, within a reasonable time, any relevant information which the Regional Administrator may request to determine whether cause exists for

modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

I.D.8. Inspection and Entry

The Permittee shall allow the Regional Administrator, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

- I.D.8.a. Enter at reasonable times upon the Permittee's premises where a regulated activity is located or conducted, or where records must be kept under the conditions of this permit;
- I.D.8.b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- I.D.8.c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- I.D.8.d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.

I.D.9. Monitoring and Records.

- I.D.9.a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261. Laboratory methods must be those specified in the most recent edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846 or Standard Methods of Wastewater Analysis.
- I.D.9.b. The Permittee shall retain at the facility records of all monitoring information, including all calibration and maintenance records, records of all data used to prepare documents required by this permit, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report or record, or until corrective action is completed, whichever date is later. These periods may be extended by request of the Regional Administrator at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.
- I.D.9.c. Records of monitoring information shall specify:
  - I.D.9.c.i. The dates, exact place, and times of sampling or measurements;

- I.D.9.c.ii. The individuals who performed the sampling or measurements;
- I.D.9.c.iii. The dates analyses were performed;
- I.D.9.c.iv. The individuals who performed the analyses;
- I.D.9.c.v. The analytical techniques or methods used; and
- I.D.9.c.vi. The results of such analyses.

I.D.10. Reporting Planned Changes

The Permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility and to the solid waste management units which are the subjects of the RCRA permit.

I.D.11. Anticipated Noncompliance

The Permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

I.D.12. Transfer of Permits

This permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to 40 CFR §270.41(b)(2) or §270.42(d). Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Parts 264 and 270, the 1984 RCRA Amendments, and this permit.

I.D.13. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

I.D.14. Twenty-four Hour Reporting of Hazards

The Permittee shall report to the Regional Administrator any release from a solid waste management unit which may endanger human health or the environment not previously reported. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the circumstances. This report shall include the following:

- I.D.14.a. Information concerning the release of any hazardous waste or hazardous constituents which may endanger public drinking water supplies.
- I.D.14.b. Information concerning the release or discharge of any hazardous waste or hazardous constituents, or of a fire or explosion

at the facility, which could threaten the environment or human health outside the facility. The description of the occurrence and its cause shall include:

- I.D.14.b.i. Name, address, and telephone number of the owner or operator;
- I.D.14.b.ii. Name, address, and telephone number of the facility;
- I.D.14.b.iii. Date, time, and type of incident;
- I.D.14.b.iv. Name and quantity of materials involved;
- I.D.14.b.v. The extent of injuries, if any;
- I.D.14.b.vi. An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable and;
- I.D.14.b.vii. Estimated quantity and disposition of recovered material that resulted from the incident.

A written report shall also be provided to the Regional Administrator within 15 days of the time the Permittee becomes aware of the circumstances. The written report shall contain a description of the release and its cause; the periods of release (including dates and times if known); whether the release has been corrected; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the release.

I.D. 15. Other Noncompliance

The Permittee shall report all other instances of releases or noncompliance not otherwise required to be reported above at the time any other reports as required by this permit are submitted. The reports shall include the information listed in Condition I.D.14. as appropriate.

I.D.16. Other Information

Whenever the Permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in any document(s) submitted to the Regional Administrator, the Permittee shall promptly submit such facts or information.

I.E. SIGNATORY REQUIREMENT

I.E.1. Certification

All applications, reports, or information submitted to the Regional Administrator shall be signed and certified in accordance with 40 CFR §270.11.

I.F. CONFIDENTIAL INFORMATION

The Permittee may claim confidential any information required to be submitted by this permit in accordance with 40 CFR §270.12.

I.G. DEFINITIONS

For purposes of this permit, terms used herein shall have the same meaning as those in RCRA and 40 CFR Parts 124, 260, 261, 264 and 270, unless this permit specifically provides otherwise; where terms are not defined in the regulation, the permit, or EPA guidances or publications, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

- I.G.1. Hazardous constituents for purposes of this permit are those substances listed in 40 CFR Part 261 Appendix VIII and include hazardous constituents released from solid waste and hazardous constituents that are reaction by-products.
- I.G.2. Solid Waste Management Unit for purposes of this permit includes, but is not limited to, any landfill, surface impoundment, waste pile, land treatment unit, incinerator, injection well, tank (including storage, treatment, and accumulation tanks), container storage unit, wastewater treatment unit, including all conveyances and appurtenances used in waste management or storm water handling, elementary neutralization unit, transfer station, and recycling unit from which hazardous constituents might migrate, irrespective of whether the units were intended for the management of solid and/or hazardous wastes.
- I.G.3. Release for purposes of this permit includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of any hazardous waste or hazardous constituents.
- I.G.4. Contamination for purposes of this permit refers to the presence of any hazardous constituent in a concentration which exceeds the naturally occurring concentration of that constituent in the immediate vicinity of the facility (in areas not affected by the facility).
- I.G.5. Corrective action, for purposes of this permit, may include "corrective action" as provided in 40 CFR §264.100 and/or other remedial activities for any media until otherwise defined in 40 CFR §264.101.

Part II - Solid Waste Management Units

II.A. Applicability

The Conditions of this Part apply to:

II.A.1. The solid waste management units listed in Attachment D, "Potential Contamination Sites at NAS Jacksonville" (from the Initial Assessment Study of Naval Air Station and Naval Fuel Depot, Jacksonville, Florida).

- RCRA Regulated Hazardous Waste Units (For any past, present or future releases of hazardous waste or hazardous constituents not otherwise addressed by 40 CFR Part 264 or this permit.)

II.A.2. Any additional solid waste management units discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means.

II.B. RCRA Facility Assessment (RFA)

II.B.1. The Permittee shall notify the Regional Administrator of any additional solid waste management unit(s) discovered during the course of groundwater monitoring, field investigations, environmental audits or other means within fifteen (15) days of discovery.

II.B.2. The Permittee shall prepare a solid waste management unit assessment plan and a proposed schedule of implementation and completion for any additional solid waste management unit which is discovered subsequent to the issuance of this permit and is not listed under Condition II.A.1. above, and is known or suspected to have releases of hazardous waste or releases of hazardous constituents to the environment. The plan shall include methods and specific actions as necessary to determine whether a prior or continuing release of hazardous waste or hazardous constituents has occurred at each solid waste management unit. The plan must also include, at a minimum, the following information for each unit:

- (1) Type of unit
- (2) Location of each unit on a topographic map of appropriate scale
- (3) General dimensions and capacities
- (4) Function of unit
- (5) Dates that the unit was operated
- (6) Description of the wastes that were placed in the unit
- (7) Description of any known releases or spills (to include groundwater data, soil analyses, and/or surface water data)

II.C. RCRA Facility Investigation (RFI)

- II.C.1. The Permittee shall prepare a solid waste management unit investigation plan (RFI) for those units listed in Condition II.A.1. which includes schedules of implementation and completion of specific actions necessary to determine the nature and extent of releases and the potential pathways of contaminant releases to the air, land, surface water, and groundwater. The Permittee must provide documentation that a release is not probable if a unit listed in Condition II.A.1. is not included in the RFI plan. Such deletions of a unit from the RFI are subject to the approval of the Regional Administrator.
- II.C.2. The Permittee shall prepare a solid waste management unit RFI plan for those units identified under Condition II.B. which includes schedules of implementation and completion of specific actions necessary to determine the nature and extent of releases indicated by the assessment, and the potential pathways of contaminant releases to the air, land, surface water, and groundwater. The Permittee must provide documentation that a release is not probable if a unit identified under Condition II.B. is not included in the RFI plan.
- II.C.3. The RCRA Facility Investigation Plan (RFI) shall meet the requirements of Attachment A at a minimum. The RFI shall be conducted in accordance with the approved RFI Plan and Attachment A. The Permittee shall provide written sufficient justification for any omissions or deviations from the minimum requirements of Attachment A. Such omissions or deviations are subject to the approval of the Regional Administrator.
- II.C.4. Reports and plans completed under the Navy Assessment and Control of Installation Pollutants (NACIP) program may be submitted and will be considered in meeting the requirements of Condition II.C. and D. The Regional Administrator will notify the Permittee if additional information is needed to meet these requirements.

II.D. RCRA Facility Investigation Reporting Requirements

II.D.1. Progress Reports

If the time required to complete the RFI is greater than 180 days, the Permittee shall provide the EPA with signed, quarterly progress reports (90 day intervals) beginning ninety (90) days from implementation of the approved plan containing:

- a. A description of the portion of the RFI completed;
- b. Summaries of findings;
- c. Summaries of all changes made in the RFI during the reporting period;
- d. Summaries of all problems or potential problems encountered during the reporting period;
- e. Projected work for the next reporting period; and
- f. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

## II.D.2. Imminent Hazard Report

The Permittee shall report any imminent or existing hazard to public health or the environment from the present or past release of hazardous constituents to the Regional Administrator in accordance with condition I.D.14.

## II.D.3. RFI Report

The Permittee shall prepare a RCRA Facility Investigation Report. The RCRA Facility Investigation Report shall be developed in draft form for U. S. EPA review. The RCRA Facility Investigation Report shall be developed in final format within thirty (30) days of receipt of EPA comments on the Draft RCRA Facility Investigation Report.

The RFI Report shall include an analysis and summary of all facility investigations of solid waste management units and their results. The summary shall include a report on the type and extent of contamination at the facility, including sources and migration pathways, and a description of actual or potential receptors. The report shall also describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative for the area. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e. g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support a Corrective Action Study, if necessary.

All reports must be signed and certified in accordance with 40 CFR §270.11.

Three (3) copies of all reports shall be provided by the Permittee to U. S. EPA at the following address:

Mr. James H. Scarbrough, P. E., Chief	Environmental Protection Agency
Residuals Management Branch	Region IV,
Waste Management Division	345 Courtland Street, N. E.
	Atlanta, Georgia 30365

## II.E. Corrective Action Plan

II.E.1. The Regional Administrator shall review the final reports on the remedial investigations conducted under Condition II.C. and notify the Permittee of the need for further investigative actions and/or the need for corrective action as required under §264.101(a).

II.E.2. Upon determination that corrective action is needed, the Permittee shall submit to the Regional Administrator, a corrective action plan in accordance with a schedule to be determined by the Regional Administrator. The proposed corrective action plan must include a description of the corrective measures to be taken at each unit, a schedule of implementation and completion, and a cost estimate for completion of corrective action.

II.E.3. If the Permittee at any time determines that the solid waste management unit investigation or corrective action plans required under Conditions II.C. or II.D. no longer satisfy the requirements of §264.101 or this permit for prior or continuing releases of hazardous waste or hazardous constituents from solid waste management units, he must submit an amended plan(s) to the Regional Administrator within ninety (90) days of such determination.

II.F. Schedules of Compliance

- II.F.1. The Permittee shall submit the RFA Plan(s) required under Condition II.B.2. to the Regional Administrator within sixty (60) days of the notification required under Condition II.B.1.
- II.F.2. The Permittee shall submit the RFI plan required by Condition II.C.1. and the associated documentation to the Regional Administrator within ninety (90) days of the effective date of this permit.
- II.F.3. The Permittee shall submit the RCRA Facility Investigation Plan(s) required under Condition II.C.2. within one hundred and fifty (150) days of submission of the plan required under Condition II.B.1.
- II.F.4. All plans and schedules shall be subject to approval by the Regional Administrator prior to implementation. The Permittee shall revise all submittals and schedules as specified by the Regional Administrator.
- II.F.5. If the time required to complete any RFA or RFI is more than 180 days, the schedule shall specify interim dates for the submission of quarterly reports of progress.
- II.F.6. The results of all plans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submittals may be granted by the Regional Administrator based on the Permittee's demonstration that sufficient justification for the extension exists.

II.G. Permit Modification

If required to develop a corrective action plan under II.E., the Permittee shall apply for a permit modification pursuant to §270.41 to incorporate the plan into the permit.

II.H. Interim Measures

- II.H.1. The Permittee may conduct interim measures to contain, remove or treat contamination resulting from the release of hazardous constituents from a Solid Waste Management Unit in order to protect public health and the environment upon approval by the Regional Administrator. Such interim measures may be conducted concurrently with investigations required under the terms of this permit.

- II.H.2. The Permittee shall submit to the Regional Administrator a description and a schedule of implementation of any proposed interim measures for approval prior to implementation.
- II.H.3. The Permittee shall include information on all plans and schedules for interim measures in reports required under Condition II.D. For interim measures conducted during the term of this permit this shall include:
- a. A description of measures implemented;
  - b. Summaries of results;
  - c. Summaries of all problems encountered during the reporting period;
  - d. Summaries of accomplishments and/or effectiveness of interim measures to date; and
  - e. Copies of all relevant reports, inspection records, laboratory/monitoring data, etc. in accordance with Condition I.D.9.
- II.H.4. The Permittee shall give notice to the Regional Administrator as soon as possible of any planned changes, reduction or additions to the interim measures.
- II.H.5. Interim measures implemented for releases of hazardous constituents shall be reviewed in accordance with Condition II.F. and included as part of the corrective action plan required under §264.101 as appropriate. Final approval of the interim measures shall be in accordance with Condition II.G. as a permit modification in pursuant to §270.41.

### PART III - WASTE MINIMIZATION

The following condition is pursuant to 40 CFR §264.73(b)(9):

#### WASTE MINIMIZATION CERTIFICATION

The permittee shall be required to certify no less often than annually that the permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the permittee to be economically practicable and the proposed method of treatment, storage or disposal is that practicable method currently available to the permittee which minimizes the present and future threat to human health and the environment.

Facility Submission Summary

A summary of the planned reporting requirements contained in the RCRA SWMU Permit is presented below:

<u>Facility Submission Requirements</u>	<u>Due Date</u>
RFI Workplan for SWMU(s) identified at time of permit issuance in Condition II.A.1.	ninety (90) days after effective date of permit
Progress Reports on RFI (and interim measures as appropriate)	Quarterly, beginning 90 days from implementation of RFI plan*
Draft RFI Report	ninety (90) days after RFI completion
Final RFI Report	thirty (30) days after EPA comments on Draft RFI Report
Corrective Action Plan	Upon notification from R.A.

The above reports must be signed and certified in accordance with 40 CFR §270.11.

\*This applies to RFI plans that are for more than 180 days.

ATTACHMENT A

RCRA Facility Investigation Requirements

ATTACHMENT A

I. RFI WORKPLAN REQUIREMENTS

The Permittee shall prepare a RCRA Facility Investigation (RFI) Workplan that meets the requirements of Part II of this document. This Workplan shall also include the development of the following plans, which shall be prepared concurrently:

A. Project Management Plan

The Permittee shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules, and personnel. The Project Management Plan will also include a description of qualifications of persons performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RCRA Facility Investigation.

B. Sampling and Analysis Plan

The Permittee shall prepare a plan to document all monitoring procedures: sampling, field measures and sample analysis performed during the investigation to characterize the environmental setting, source, and release of hazardous constituents, so as to ensure that all information and data are valid and properly documented.

1. Sampling/Field Measurements

The sampling section of the Sampling and Analysis Plan shall be in accordance with Characterization of Hazardous Waste Sites A Methods Manual Volume II. Available Sampling Methods, EPA-600/4-83-040, and at a minimum discuss:

- a. Selecting appropriate sampling locations, depths, etc.;
- b. Obtaining all necessary ancillary data;
- c. Determining conditions under which sampling should be conducted;
- e. Determining which media are to be sampled (e.g., groundwater, air, soil, sediment, etc.);
- f. Determining which parameters are to be measured and where;
- g. Selecting the frequency of sampling and length of sampling period;
- h. Selecting the types of samples (e.g., composites vs. grabs) and number of samples to be collected.
- i. Documenting field sampling operations and procedures, including:
  - i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, preservatives, and adsorbing reagents);
  - ii) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;

- iii) Documentation of specific sample preservation method;
- iv) Calibration of field instruments;
- v) Submission of field-biased blanks, where appropriate;
- vii) Potential interferences present at the facility;
- iii) Construction materials and techniques, associated with monitoring wells and piezometers;
- ix) Field equipment listing and sampling containers;
- x) Sampling order; and
- xi) Decontamination procedures.

J. Selecting appropriate sample containers;

K. Sampling preservation; and

i. Chain-of-custody, including:

i) Standardized field tracking reporting forms to establish sample custody in the field prior to shipment; and

ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

## 2. Sample Analysis

Sample Analysis shall be conducted in accordance with SW-846: "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods"

The sample analysis section of the Sampling and Analysis Plan shall specify the following:

a. Chain-of-custody procedures, including:

i) Identification of a responsible party to act as sampling custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and

iii) Specification of laboratory sample custody procedures for sample handling, storage, and dispersment for analysis.

b. Sample storage;

c. Sample preparation methods;

d. Analytical procedures, including:

- i) Scope and application of the procedure;
  - ii) Sample matrix;
  - iii) ~~Potential~~ interferences;
  - iv) Precision and accuracy of the methodology; and
  - v) Method detection limits.
- e. Calibration procedures and frequency;
  - f. Data reduction, validation and reporting;
  - g. Internal quality control checks, laboratory performance and systems audits and frequency, including:
    - i) Method blank(s);
    - ii) Laboratory control sample(s);
    - iii) Calibration check samples(s);
    - iv) Replicate sample(s);
    - v) Matrix-spiked sample(s);
    - vii) Control charts;
    - viii) Surrogate samples;
    - ix) Zero and span gases; and
    - x) Reagent quality control checks.
  - h. Preventive maintenance procedures and schedules;
  - i. Corrective action (for laboratory problems); and
  - j. Turnaround time.

C. Data Management Plan

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include the following:

- a. Unique sample or field measurement code;

- b. Sampling or field measurement location and sample or measurement type;
- c. Sampling or field measurement raw data;
- d. Laboratory analysis ID number;
- e. Property or component measured; and
- f. Result of analysis (e.g. concentration).

2. Tabular Displays

The following data shall be presented in tabular displays:

- a. Unsorted (raw) data;
- b. Results for each medium, or for each constituent monitored;
- c. Data reduction for statistical analysis, as appropriate;
- d. Sorting of data by potential stratification factors (e. g., location, soil layer, topography); and
- e. Summary data

3. Graphical Displays

The following data shall be presented in graphical formats (e. g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

- a. Display sampling location and sampling grid;
- b. Indicate boundaries of sampling area, and area where more data are required;
- c. Display geographical extent of contamination;
- d. Illustrate changes in concentration in relation to distances from the source, time, depth or other parameters; and
- e. Indicate features affecting intramedia transport and show potential receptors.

## II. RCRA Facility Investigation (RFI) Requirements

### RCRA Facility Investigation:

The Permittee shall conduct those investigations necessary to: characterize the facility (Environmental Setting); define the source (Source Characterization); define the degree and extent of release of hazardous constituents (Contamination Characterization); and identify actual or potential receptors.

The investigations should result in data of adequate technical content and quality to support the development and evaluation of the corrective action plan if necessary. The information contained in a RCRA Part B permit application and/or RCRA Section 3019 Exposure Information Report may be referenced as appropriate.

All sampling and analyses shall be conducted in accordance with the Sampling and Analysis Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

#### A. Environmental Setting

The Permittee shall collect information to supplement and/or verify Part B information on the environmental setting at the facility. The Permittee shall characterize the following as they relate to identified sources, pathways and areas of releases of hazardous constituents from Solid Waste Management Units.

##### 1. Hydrogeology

The Permittee shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

- a. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting ground-water flow beneath the facility, including:
  - i) Regional and facility specific stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;
  - ii) Structural geology: description of local and regional structural features (e. g., folding, faulting, tilting, jointing, etc.);
  - iii) Depositional history;
  - iv) Regional and facility specific ground-water flow patterns; and
  - v) Identification and characterization of areas and amounts of recharge and discharge.
- b. An analysis of any topographic features that might influence the ground water flow system.
- c. Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (i. e., the

aquifers and any intervening saturated and unsaturated units), including:

- i) Hydraulic conductivity and porosity (total and effective);
  - ii) Lithology, grain size, sorting, degree of cementation;
  - iii) An interpretation of hydraulic interconnections between saturated zones; and
  - iv) The attenuation capacity and mechanisms of the natural earth materials (e. g., ion exchange capacity, organic carbon content, mineral content etc.).
- e. Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring including:
- i) Water-level contour and/or potentiometric maps;
  - ii) Hydrologic cross sections showing vertical gradients;
  - iii) The flow system, including the vertical and horizontal components of flow; and
  - iv) Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.
- f. A description of manmade influences that may affect the hydrology of the site, identifying:
- i) Local water-supply and production wells with an approximate schedule of pumping; and
  - ii) Manmade hydraulic structures (pipelines, french drains, ditches, etc.).

## 2. Soils

The Permittee shall conduct a program to characterize the soil and rock units above the water table in the vicinity of contaminant release(s). Such characterization may include, but not be limited to, the following types of information as appropriate:

- a. Surface soil distribution;
- b. Soil profile, including ASTM classification of soils;
- c. Transects of soil stratigraphy;
- d. Hydraulic conductivity (saturated and unsaturated);
- e. Relative permeability;
- f. Bulk density;
- g. Porosity;
- h. Soil sorptive capacity;
- i. Cation exchange capacity (CEC);
- j. Soil organic content;
- k. Soil pH;
- l. Particle size distribution;

- m. Depth of water table;
- n. Moisture content;
- o. Effect of stratification on unsaturated flow;
- p. Infiltration;
- q. Evapotranspiration;
- r. Storage capacity;
- s. Vertical flow rate; and
- t. Mineral content.

### 3. Surface Water and Sediment

The Permittee shall conduct a program to characterize the surface water bodies in the vicinity of the facility. Such characterization may include, but not be limited to, the following activities and information:

- a. Description of the temporal and permanent surface water bodies including:
  - i) For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;
  - ii) For impoundments: location, elevation, surface area, depth, volume, freeboard, and construction and purpose;
  - iii) For streams, ditches, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, flooding tendencies (i. e., 100 year event), discharge point(s), and general contents.
  - iv) Drainage patterns; and
  - v) Evapotranspiration.
- b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients ( $\text{NH}_3$ ,  $\text{NO}_3^-/\text{NO}_2^-$ ,  $\text{PO}_4^{3-}$ ), chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.
- c. Description of sediment characteristics including:
  - i) Deposition area;
  - ii) Thickness profile; and
  - iii) Physical and chemical parameters (e. g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.)

### 4. Air

The Permittee shall provide information characterizing the climate in the vicinity of the facility. Such information may include, but not be limited to:

- a. A description of the following parameters:
  - i) Annual and monthly rainfall averages;
  - ii) Monthly temperature averages and extremes;
  - iii) Wind speed and direction;
  - iv) Relative humidity/dew point;
  - v) Atmospheric pressure;
  - vi) Evaporation data;
  - vii) Development of inversions; and
  - viii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence.  
(i. e. Hurricanes)
- b. A description of topographic and manmade features which affect air flow and emission patterns, including:
  - i) Ridges, hills or mountain areas;
  - ii) Canyons or valleys;
  - iii) Surface water bodies (e. g. rivers, lakes, bays, etc.);
  - iv) Buildings.

B. Source Characterization

For those sources from which releases of hazardous constituents have been detected the Permittee shall collect analytic data to completely characterize the wastes and the areas where wastes have been placed, to the degree that is possible without undue safety risks, including: type, quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e. g., facility security, and engineering barriers). This shall include quantification of the following specific characteristics, at each source area:

1. Unit/Disposal Area Characteristics:
  - a. Location of unit/disposal area;
  - b. Type of unit/disposal area;
  - c. Design features;
  - d. Operating practices (past and present)
  - e. Period of operation;
  - f. Age of unit/disposal area;
  - g. General physical conditions; and
  - h. Method used to close the unit/disposal area.

2. Waste Characteristics:

- a. Type of wastes placed in the unit;
  - i) Hazardous classification (e. g., flammable, reactive, corrosive, oxidizing or reducing agent);
  - ii) Quantity; and
  - iii) Chemical composition.
- b. Physical and chemical characteristics such as;
  - i) Physical form (solid, liquid, gas);
  - ii) Physical description (e. g., powder, oily sludge);
  - iii) Temperature;
  - iv) pH;
  - v) General chemical class (e. g., acid, base, solvent);
  - vi) Molecular weight;
  - vii) Density;
  - viii) Boiling point;
  - ix) Viscosity;
  - x) Solubility in water;
  - xi) Cohesiveness of the waste; and
  - xii) Vapor pressure.
- c. Migration and dispersal characteristics of the waste such as;
  - i) Sorption capability;
  - ii) Biodegradability, bioconcentration, biotransformation;
  - iii) Photodegradation rates;
  - iv) Hydrolysis rates; and
  - v) Chemical transformations.

The Permittee shall document the procedures used in making the above determinations.

C. Characterization of Releases of Hazardous Constituents

The Permittee shall collect analytical data on groundwater, soils, surface water, sediment, and subsurface gas contamination in the vicinity of the facility in accordance with the sampling and analysis

plan as required above. These data shall be sufficient to define the extent, origin, direction, and rate of movement of contamination. Data shall include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Permittee shall address the following types of contamination at the facility:

1. Groundwater Contamination

The Permittee shall conduct a groundwater investigation to characterize any plumes of contamination detected at the facility. This investigation shall at a minimum provide the following information:

- a. A description of the horizontal and vertical extent of any plume(s) of hazardous constituents originating from the facility;
- b. The horizontal and vertical direction of contamination movement;
- c. The velocity of contaminant movement;
- d. The horizontal and vertical concentration profiles of hazardous constituents in the plume(s);
- e. An evaluation of factors influencing the plume movement; and
- f. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations (e. g., well design, well construction, geophysics, modeling, etc.).

2. Soil Contamination

The Permittee shall conduct an investigation to characterize the contamination of the soil and rock units above the saturated zone in the vicinity of any contaminant release. The investigation may include the following information:

- a. A description of the vertical and horizontal extent of contamination;
- b. A description of appropriate contaminant and soil chemical properties within the contaminant source area and plume. This may include contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidative and other factors that might affect contaminant migration and transformation;
- c. Specific contaminant concentrations;
- d. The velocity and direction of contamination movement; and
- e. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations.

### 3. Surface Water and Sediment Contamination

The Permittee shall conduct a surface water investigation to characterize contamination in surface water bodies resulting from releases of hazardous constituents at the facility.

The investigation may include, but not be limited to, the following information:

- a. A description of the horizontal and vertical extent of any plume(s) originating from the facility, and the extent of contamination in underlying sediments;
- b. The horizontal and vertical direction of contaminant movement;
- c. The contaminant velocity;
- d. An evaluation of the physical, biological and chemical factors influencing contaminant movement;
- e. An extrapolation of future contaminant movement; and
- f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations, etc.

### 4. Air Contamination

The Permittee shall conduct an investigation to characterize gaseous releases of hazardous constituents into the atmosphere or any structures or buildings. This investigation may provide the following information:

- a. A description of the horizontal and vertical direction and velocity of contaminant movement;
- b. The rate and amount of the release; and
- c. The chemical and physical composition of the contaminants(s) released including horizontal and vertical concentration profiles.

The Permittee shall document the procedures used in making the above determinations.

### D. Potential Receptors

The Permittee shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical analysis of biological samples and/or data on observable effects in ecosystems may also be obtained as appropriate. The following characteristics shall be identified:

1. Current local uses and planned future uses of groundwater:
  - a. Type of use (e. g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial); and

- b. Location of ground water users, to include withdrawal and discharge wells, within one mile of the impacted area.

The above information should also indicate the aquifer or hydrogeologic unit used and/or impacted for each item.

2. Current local uses and planned future uses of surface waters directly impacted by the facility:
  - a. Domestic and municipal (e. g., potable and lawn/gardening watering);
  - b. Recreational (e. g. swimming, fishing);
  - c. Agricultural;
  - d. Industrial; and
  - e. Environmental (e. g., fish and wildlife propagation).
3. Human use of or access to the facility and adjacent lands, including but not limited to:
  - a. Recreation;
  - b. Hunting;
  - c. Residential;
  - d. Commercial; and
  - e. Relationship between population locations and prevailing wind direction.
4. A general description of the biota in surface water bodies on, adjacent to, or affected by the facility.
5. A general description of the ecology within and adjacent to the facility.
6. A general demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age; sex; and sensitive subgroups.
7. A description of any known or documented endangered or threatened species near the facility.

ATTACHMENT B

RCRA Facility Assessment, Visual  
Site Inspection of August 7, 1986

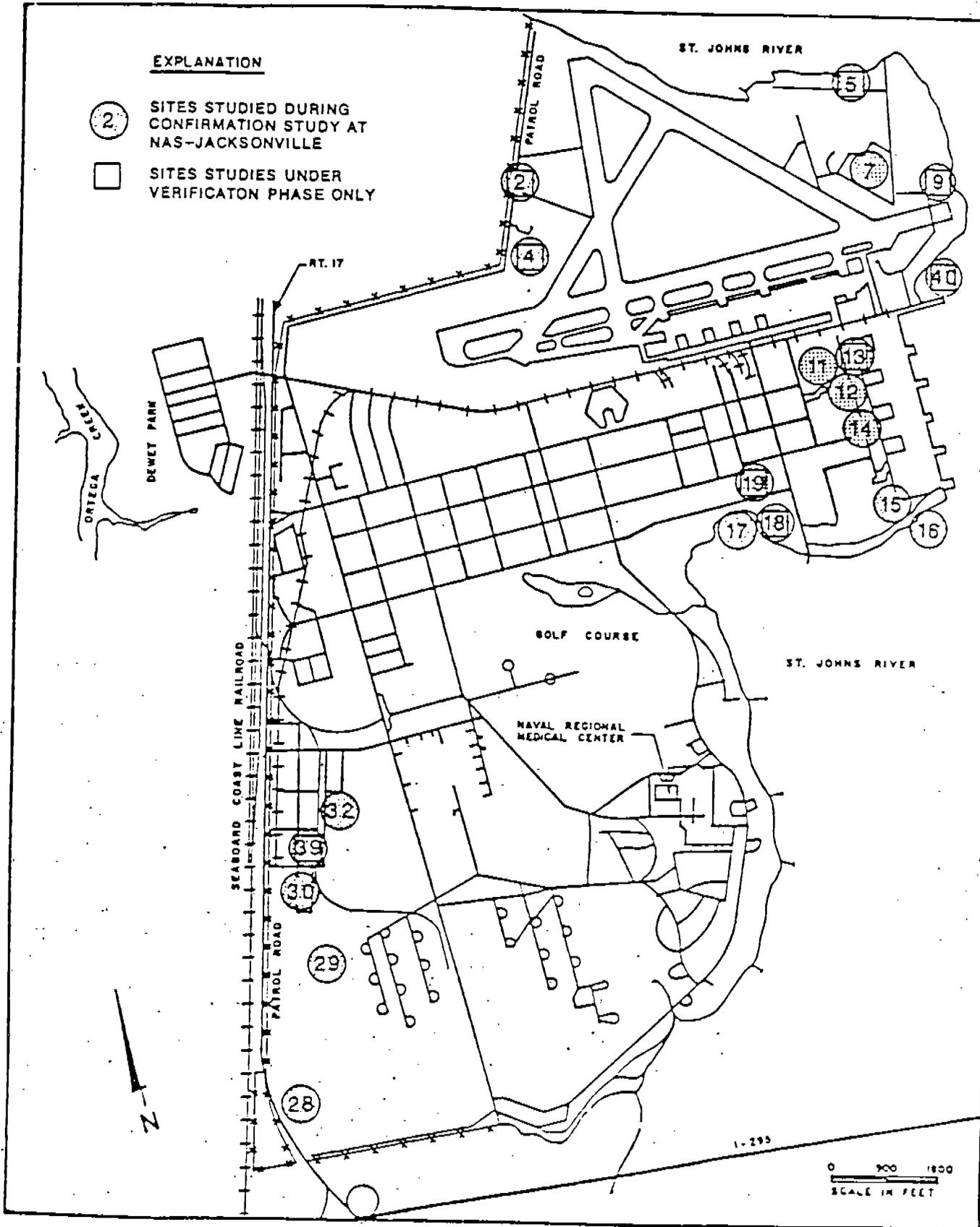


TABLE 5. CURRENT STATUS OF ALL SITES IDENTIFIED AT THE HAS AND HFD

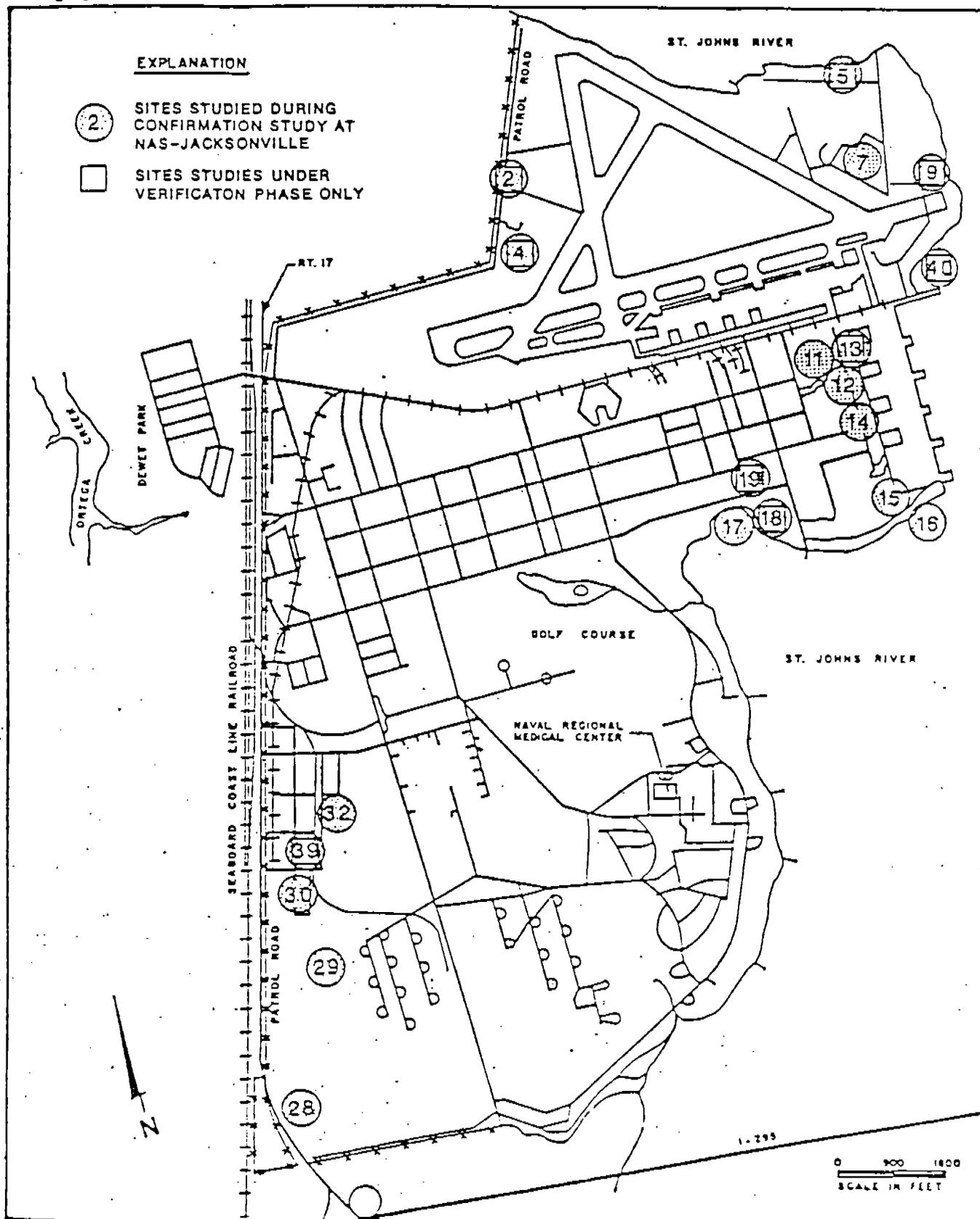
SITE NO.	IDENTIFIED BY	VERIFICATION RECOMMENDED BY	CHARACTERIZATION RECOMMENDED BY	REMEDIAL ACTION RECOMMENDED BY	CURRENT STATUS
<u>HAS</u>					
1	IAS <sup>1/</sup>	- <sup>2/</sup>	-	-	-
2	IAS	FDER <sup>3/</sup>	-	-	-
3	IAS	-	-	-	-
4	IAS	IAS	-	-	-
5	IAS	HAS-JAX	-	-	-
6	IAS	-	-	-	-
7	IAS	HAS-JAX	HAS-JAX	Characterization	RA Design <sup>4/</sup>
8	IAS	-	-	-	-
9	IAS	IAS	-	-	-
10	IAS	-	-	-	-
11	IAS	IAS	Verification	Characterization	RA Design
12	IAS	IAS	Verification	Characterization	RA Design
13	IAS	FDER	-	-	-
14	IAS	IAS	Verification	Characterization	RA Design
15	IAS	IAS	Verification	Characterization	RA Design
16	IAS	IAS	Verification	Characterization	RA Design
17	IAS	IAS	-	-	Closure Plan submitted
18	IAS	FDER	-	-	-
19	IAS	IAS	-	-	Tanks to be properly abandoned by the Navy
20	IAS	-	-	-	-
21	IAS	-	-	-	-
22	IAS	-	-	-	-
23	IAS	-	-	-	-
24	IAS	-	-	-	-
25	IAS	-	-	-	-
26	HAS-JAX	Prior to NACIP	-	HAS-JAX	Remedial action underway
27	IAS	-	-	-	-
28	IAS	HAS-JAX	Verification	Characterization	-
29	IAS	IAS	Verification	-	-
30	IAS	IAS	Verification	Characterization	Sediment removal
31	IAS	-	-	-	-
32	IAS	FDER	Verification	-	-
33	IAS	-	-	-	-
34	IAS	-	-	-	-
35	IAS	-	-	-	-
36	IAS	-	-	-	-
37	IAS	-	-	-	-
38	IAS	-	-	-	-
39	HAS-JAX	HAS-JAX	-	-	-
40	HAS-JAX	HAS-JAX	-	-	-
<u>HFD</u>					
1	IAS	-	-	-	-
2	IAS	-	-	-	-
3	IAS	-	-	-	-
4	IAS	-	-	-	-
5	IAS	IAS	Verification	-	-

1/ IAS = Initial Assessment Study Team

2/ - = Not recommended or no further investigation

3/ FDER = Florida Department of Environmental Regulation

4/ RA Design = Remedial Action Design



SITE NO. 7 - GAS HILL

Site Description

This site is currently used as a fuel storage facility for NAS-JAX and NAS-Cecil Field, storing both jet fuel (JP-5) and aviation gasoline (AVGAS-130).

Characterization Study

Work Performed:

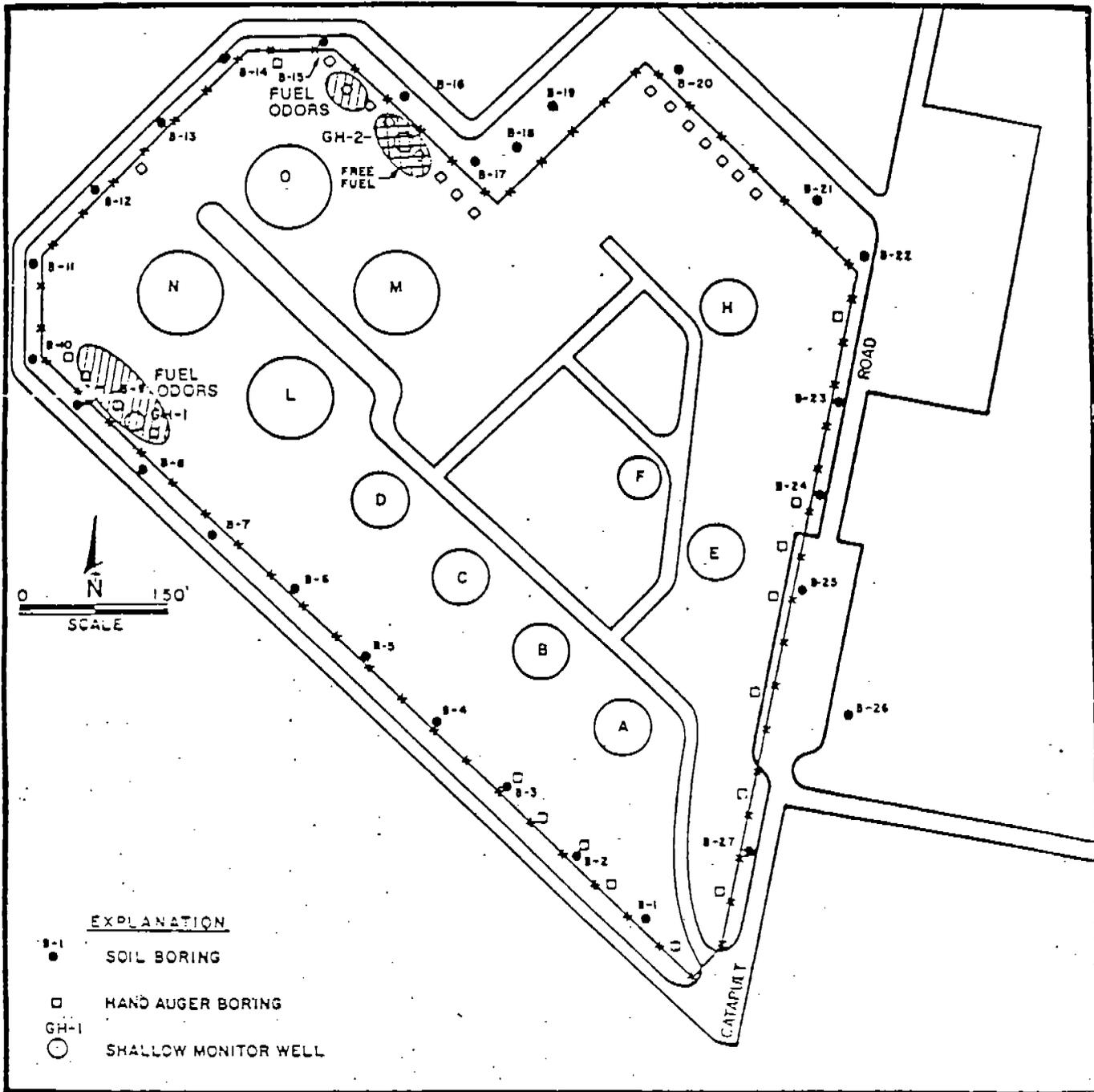
- o Installed 27 exploratory soil borings around facility.
- o Constructed 2 piezometers to determine depth of water and presence or absence of free floating hydrocarbons.

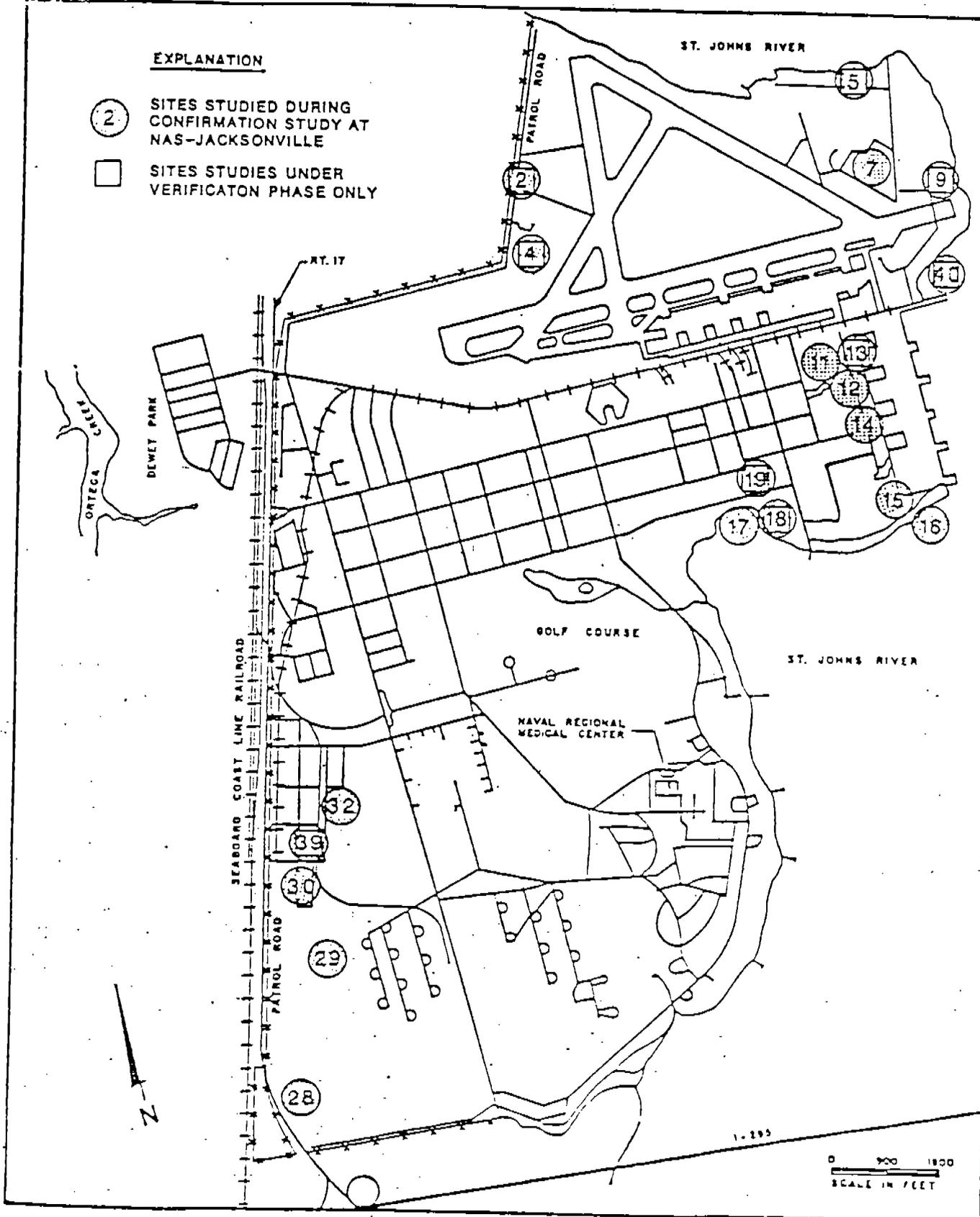
Findings:

- o Hydrocarbon odors were present in soil above the water table at two areas around Gas Hill.
- o Free floating hydrocarbons were detected in one piezometer on the north side of Gas Hill.

Recommendations:

- o Installation of large diameter recovery well equipped with two pump recovery system.
- o Soil removed during construction of well to remain on site.
- o Ground-water discharged from well to be spray irrigated on site to increase soil flushing action.





SITE NOS. 11, 12, 14, 15, 16. NARF AREA

Site Description

Site No. 11 (Hanger Building 101): This site consists of the main hanger section of Building 101 where disposal of a total of 2000 gallons of solvents into industrial sewer lines may have been disposed of over a 40-year period.

Site No. 12 (Old Test Cell Building): The old test cell was used for storage of various chemicals in 55-gallon drums, some of which reportedly developed leaks.

Site No. 14 (Battery Shop): The battery shop contains a seepage pit where approximately 100 gallons of waste acids from lead-acid batteries were disposed of annually.

Site No. 15 (Solvent and Paint Sludge Disposal Area): This site was used as a disposal area for an estimated 2000 gallons annually of solvents and paint sludges.

Site No. 16 (Storm Sewer Discharge): The storm sewer that drains the NARF area has repeatedly contained JP-5 and other hydrocarbons at the outfall in the St. Johns River. Various other chemicals were reportedly disposed of in the storm sewer system over the years.

Verification Study

Work Performed:

- o Installed seven monitor wells (NARF-1, NARF-2, NARF-3, NARF-4, NARF-5, NARF-6, NARF-B-1).
- o Analyzed ground water for VOCs, TOC, cyanides, and metals.
- o Collected three soil samples at Site No. 15 and analyzed for EP Toxicity of metals.
- o Measured water-levels in wells.

Findings:

- o Shallow ground-water at site has primarily been affected by VOCs. Four compounds comprised nearly 80% of all the VOC detections (TCE, Trans-1,2-DCE, 1,1-DCE, and 1,1,1 TCA).
- o Relatively high levels of VOCs were found primarily in two areas; near Site No. 15 and east of Hanger Building 101.

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- o TOC concentrations ranged from <1 mg/l (NARF-2) to 9.5 mg/l (NARF-6).
- o Metal concentrations all below laboratory detection limits.
- o Cyanide ranged from below lab detection limits to 0.071 mg/l.
- o Soil analysis indicated non-hazardous wastes.
- o Shallow ground-water flow appears to be impeded by the presence of the sea wall along the St. Johns River. Flow direction is predominantly eastward although slight variations occur near the north and south ends of the sea wall.

### Characterization Study

#### Work Performed:

- o Installed ten shallow monitor wells (NARF9-18) and two deep monitor well (NARFD-1 AND NARFD-2) in each of the two areas that previously exhibited high VOC concentrations in the ground-water.
- o Collected ground-water samples from twelve (12) new wells and six (6) wells installed previously.
- o Analyzed ground-water samples for only VOCs (14 wells) and complete EPA priority pollutant scan (4 wells).
- o Measured water-levels in wells.
- o Performed laboratory permeability tests on sediments encountered during drilling deep wells.

#### Findings:

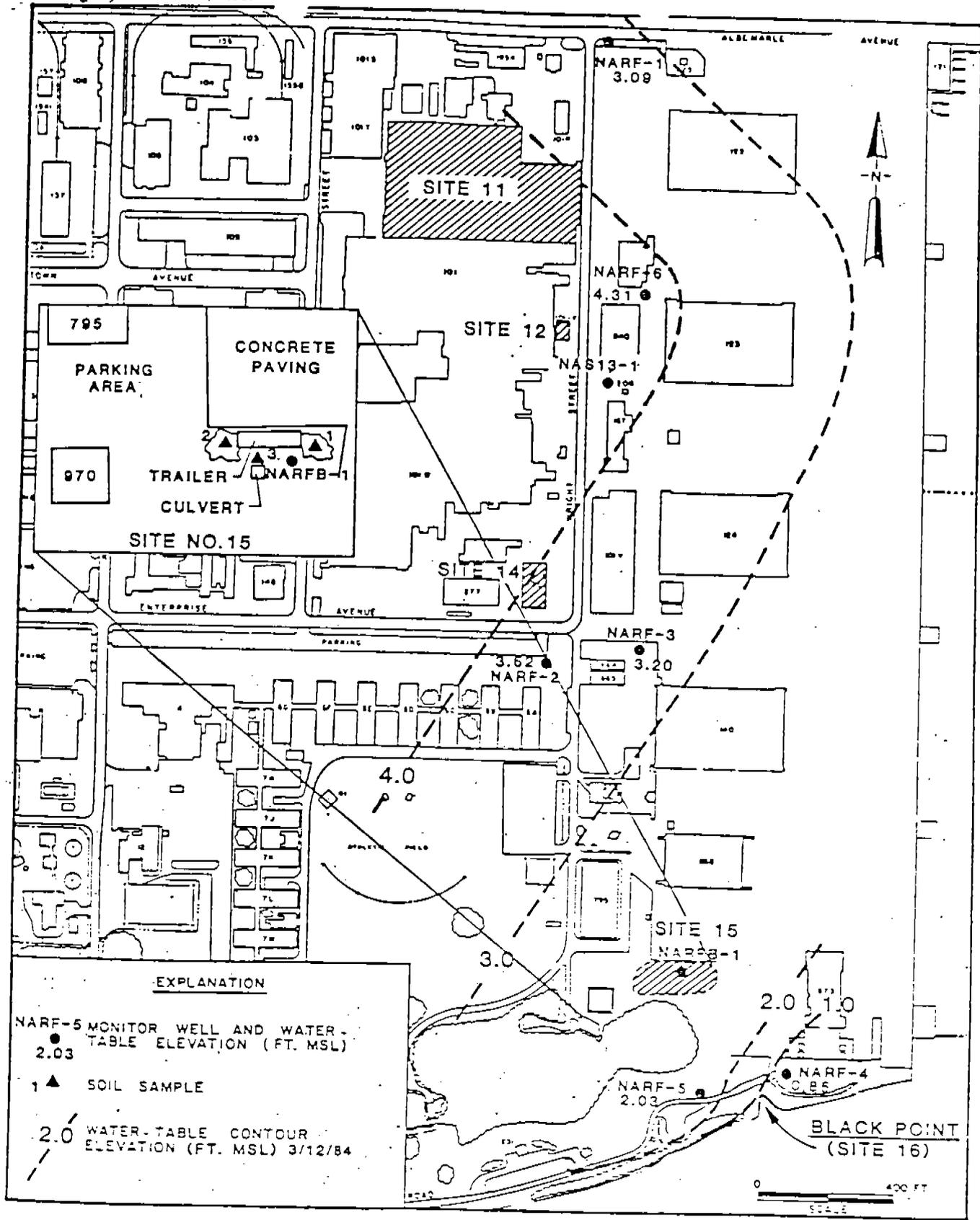
- o Lithologic logs from deep wells show that a low permeability confining zone (approximately 21 feet thick) is present at well D-1 but not at D-2.
- o Nearly all water-quality samples were found to contain VOCs in concentrations ranging from trace levels to several tens of ug/l (micrograms per liter). High levels of VOCs were found at NARF B-1 (Site No. 15).
- o In the four wells (B-1, D-1, D-2 and 6) which were tested for other priority pollutants, only one compound, 2,4 dimethyl phenol (5.1 ug/l) was detected (NARFB-1) above laboratory detection limits. The metal concentrations were all below laboratory detection limits.

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- o Shallow ground-water flow direction is primarily to the east and appears to be influenced by sea wall.
- o Water-level elevations show that there is an upward hydraulic gradient in the northern portion of the NARF and a very slight downward gradient in the southern portion. Vertical permeabilities in the sediments at D-1 were  $1.23 \times 10^{-6}$  cm/sec (centimeter per second) at 32-34 ft and  $3.08 \times 10^{-8}$  at 70-72 ft below land surface. A permeability of the clayey material below the screen at D-2 was  $1.37 \times 10^{-6}$  at 62-64 ft.

Recommendations:

- o All NARF wells in which contaminants have been detected should be resampled for VOCs. Wells include B-1, D-1, D-2, 2,4,5,6,9,10,11,13,13-1,14,16,17.
- o Either repair or abandon NARF-1 due to vehicular damage to the well.
- o Sample water-supply wells in the vicinity for VOCs.
- o Install large-diameter interceptor well at Site No. 15. Conduct a pumping test to determine hydraulic characteristics of aquifer. Analyze water-quality samples from test to determine disposal alternatives for recovered water.



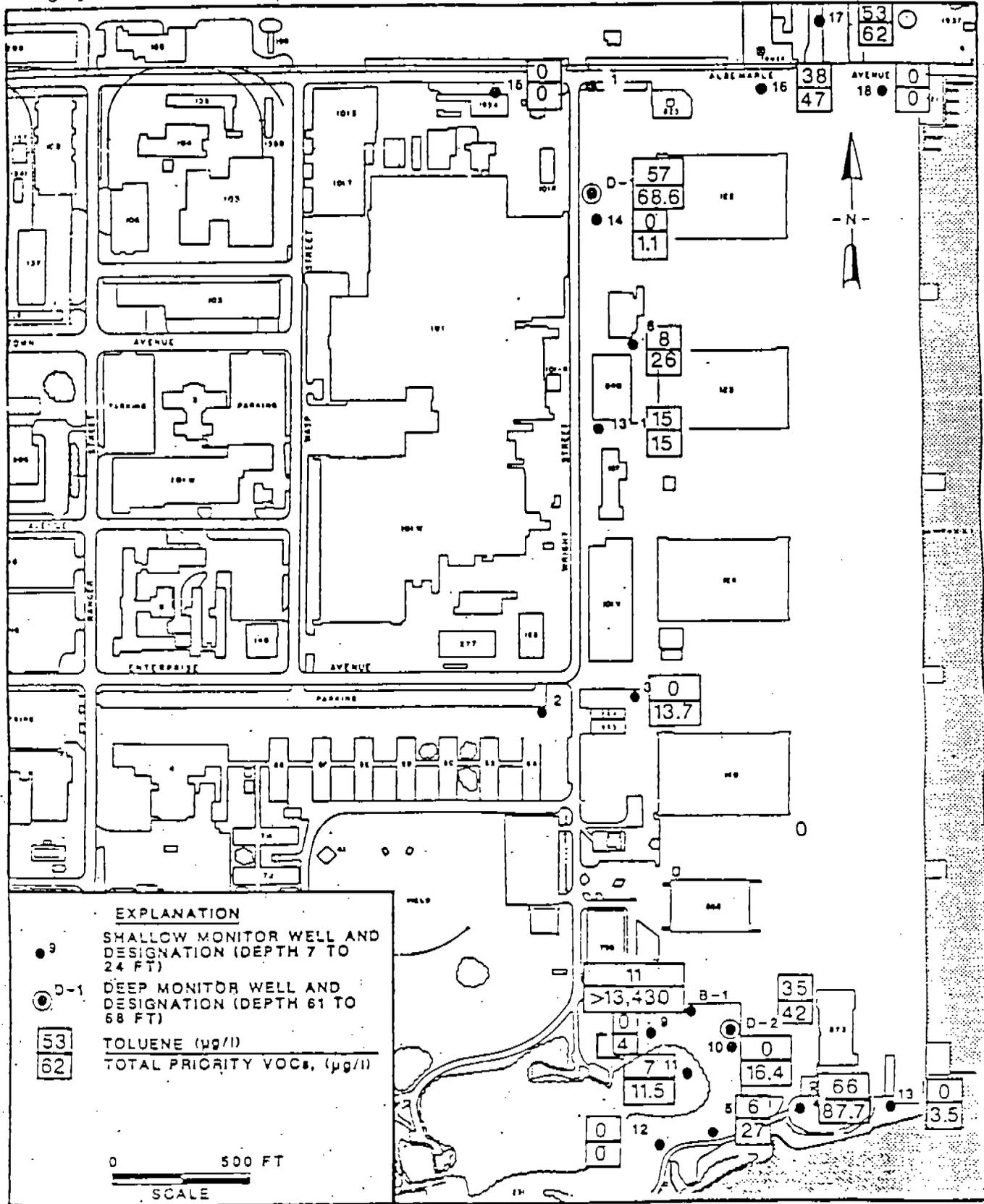
**EXPLANATION**

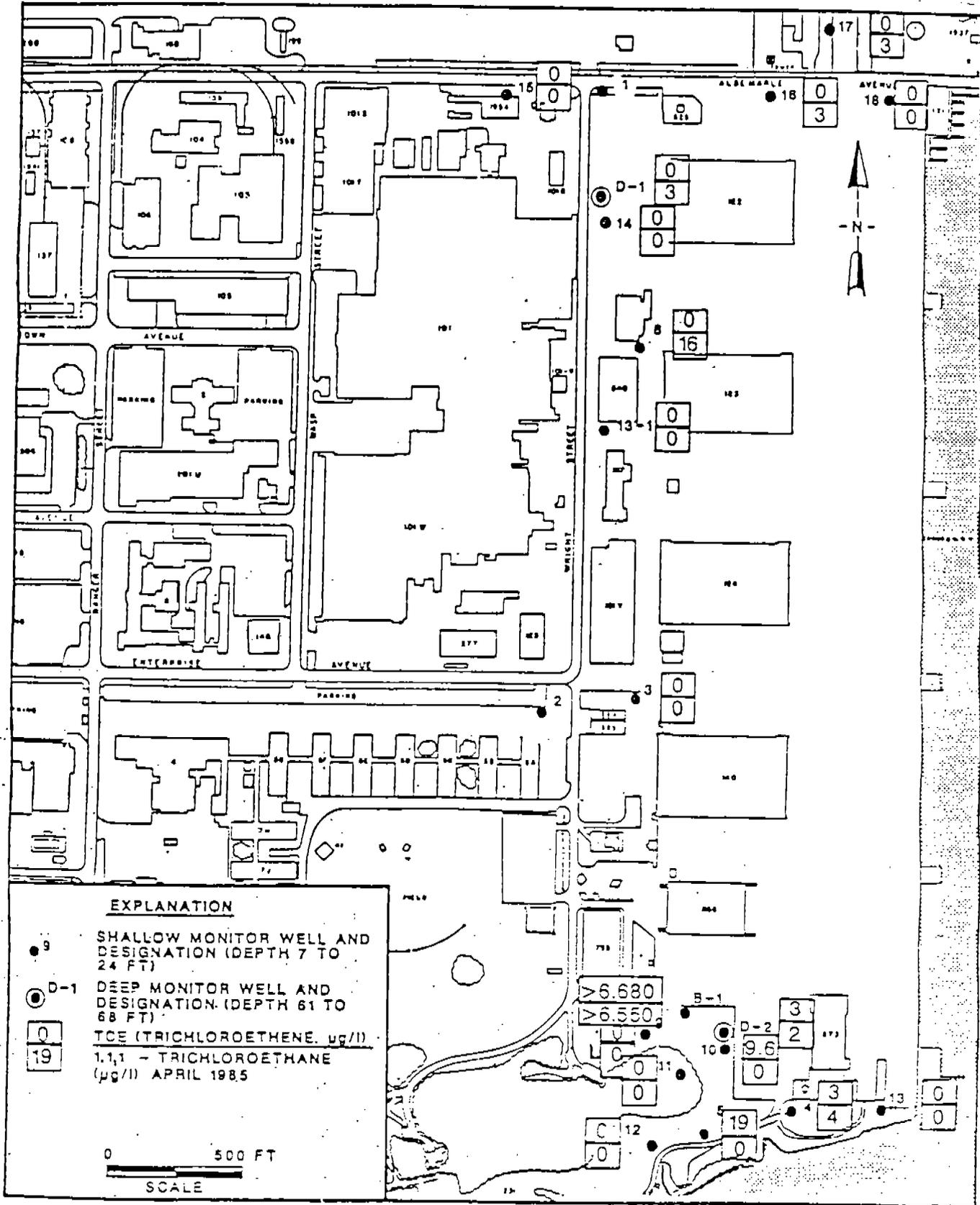
● NARF-5 MONITOR WELL AND WATER-TABLE ELEVATION (FT. MSL) 2.03

▲ SOIL SAMPLE

--- 2.0 WATER-TABLE CONTOUR ELEVATION (FT. MSL) 3/12/84







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SITE 11, 12, 14, 15, 16. VERIFICATION STUDY

Results of Chemical Analyses of Ground-Water Samples,  
Existing Wells

Compound	NARF-1	NARF-2	NARF-3	NARF-4	NARF-5	NARF-6	NARF-B1
<u>VOLATILES, ug/l</u>							
Vinyl chloride	-	-	-	270	-	-	-
Methylene chloride	0.6	-	1.8	-	-	-	-
1,1-dichloroethene	0.3	-	0.2	12	-	16	53,500
Trans-1,2-dichloroethene	0.4	-	2.2	1470	7.6	190	8,000
1,1,1-trichloroethane	0.7	-	0.5	6.2	-	22	25,500
Trichloroethene	23	3.9	6.1	170	4.9	6.0	155,300
Tetrachloroethene	-	-	-	1.8	-	-	480
Chloroform	-	-	-	-	-	5.5	-
<u>TOTAL VOLATILES</u>	<u>25.0</u>	<u>3.9</u>	<u>10.8</u>	<u>1930</u>	<u>12.5</u>	<u>239.5</u>	<u>242,780</u>
<u>TOTAL ORGANIC CARBON, mg/l</u>	3.9	<1.0	3.3	6.6	3.2	9.5	-
<u>CYANIDE, mg/l</u>	0.007	0.010	0.071	<0.005	<0.005	<0.005	<0.005
<u>METALS, mg/l</u>	-	-	-	-	-	-	-
<u>FIELD PARAMETERS</u>							
pH	11.88	5.51	6.07	6.81	6.17	6.35	6.73
Specific Conductance (umhos/cm)	2010	70	360	610	550	400	610
Temperature (°C)	29	28	31	26	27	30	28

Results of Chemical Analyses of Soil Samples

Compound	NAS 15-1	NAS 15-2	NAS 15-3
<u>HP TOXICITY, mg/l</u>			
Barium	0.1	0.3	0.3
Cadmium	0.15	0.041	-
Lead	1.66	-	-
Chromium	-	0.02	-

- = none detected

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SITE NOS. 11, 12, 13, 14, 15, 16. CHARACTERIZATION STUDY

Results of Chemical Analyses of Ground-Water Samples,  
Existing Wells

Compound	NARF D-1	NARF D-2	NARF B1	NARF-3	NARF-4	NARF-5
<u>VOLATILES, ug/l</u>						
Toulene	57	35	11	-	66	6
1,1,1-Trichloroethane	3	2	>6500	-	4	-
Carbon Tetrachloride	2	2	2	-	2	2
Bromo dichloromethane	6.6	-	4	-	7	-
Trichloroethane	-	3	>6680	-	3	19
1,1,2-trichloroethane	-	-	170	13.7	-	-
cis-1,3-dichloropropane	-	-	-	6	-	-
Ethyl benzene	-	-	4	-	-	-
1,2 dichloroethane	-	-	-	-	5.7	-
<u>TOTAL VOLATILES</u>	<u>68.6</u>	<u>42</u>	<u>13337</u>	<u>19.7</u>	<u>87.7</u>	<u>27</u>
<u>BASE NEUTRAL EXTRACTABLES, ug/l</u>						
	-	-	-			
<u>ACID EXTRACTABLES, ug/l</u>						
2,4 - dimethyl phenol	-	-	5.1	-	-	-
<u>PESTICIDES/PCBS, ug/l</u>						
	-	-	-			
<u>METALS, mg/l</u>						
Barium	0.10	0.07	0.18			
Zinc	0.04	0.02	0.03			
<u>FIELD PARAMETERS</u>						
pH	7.51	8.55	6.41	6.68	7.21	6.91
Specific Conductance (umhos/cm)	320	240	360	160	225	210
Temperature (°C)	23	22	22	25	20	21

- = none detected

GERAGHTY & MILLER, INC.

SITE NOS. 11, 12, 13, 14, 15, 16. CHARACTERIZATION STUDY (Cont'd)

Results of Chemical Analyses of Ground-Water Samples,  
Existing Wells

Compound	NARF-6	NARF-9	NARF-10	NARF-11	NARF-12	NARF-13
<u>VOLATILES, ug/l</u>						
Toluene	8	-	-	7	-	-
1,1,1-trichloroethane	16	-	-	-	-	-
Carbon tetrachloride	2	-	-	-	-	-
Chloroform	-	2	-	2	-	-
Bromodichloromethane	-	2	-	2.5	-	-
1,1 - dichloroethene	-	-	1.3	-	-	-
1,2-dichloroethane	-	-	5.5	-	-	-
Trichloroethene	-	-	9.6	-	-	-
Trans-1,2-dichloroethene	-	-	-	-	-	-
<u>TOTAL VOLATILES</u>	<u>26</u>	<u>4</u>	<u>16.4</u>	<u>11.5</u>	<u>0</u>	<u>3.5</u> <u>3.5</u>
<u>BASE NEUTRAL</u>						
<u>EXTRACTABLES, ug/l</u>	-	-	-	-	-	-
<u>ACID EXTRACTABLES, ug/l</u>	-	-	-	-	-	-
<u>PESTICIDES/PCBS, ug/l</u>	-	-	-	-	-	-
<u>METALS, mg/l</u>						
Barium	0.10	-	-	-	-	-
Zinc	0.02	-	-	-	-	-
<u>FIELD PARAMETERS</u>						
pH	6.69	6.86	6.49	7.12	6.95	6.91
Specific Conductance (umhos/cm)	200	320	255	200	275	340
Temperature (°C)	24	21	21	20	20	22

- = none detected

GERAGHTY & MILLER, I.C.

SITE NOS. 11, 12, 13, 14, 15, 16. CHARACTERIZATION STUDY (Cont'd)

Results of Chemical Analyses of Ground-Water Samples,  
Existing Wells

Compound	NARF13-1	NARF-14	NARF-15	NARF-16	NARF-17	NARF-18
<u>VOLATILES, ug/l</u>						
Toluene	15	-	-	38	53	-
1,1-dichloroethane	-	1.1	-	-	-	-
1,1,1-trichloroethane	-	-	-	3	3	-
Bromodichloromethane	-	-	-	6	6	-
<u>TOTAL VOLATILES</u>	<u>15</u>	<u>1.1</u>	<u>0</u>	<u>47</u>	<u>62</u>	<u>0</u>
<u>FIELD PARAMETERS</u>						
pH	6.71	7.42	6.85	7.45	7.30	6.87
Specific Conductance (umhos/cm)	240	580	600	490	300	370
Temperature (°C)	24	23	21	23	22	24

- = none detected

SITE NO. 19. OLD GAS STATION

Site Description

The old gasoline service station (Building 48) contains four underground storage tanks which were abandoned by the Base Fire Department by filling with water. No hydrocarbons were observed discharging from the tank at the time of abandonment. The station is currently being used as a garden center.

Verification Study

Work Performed:

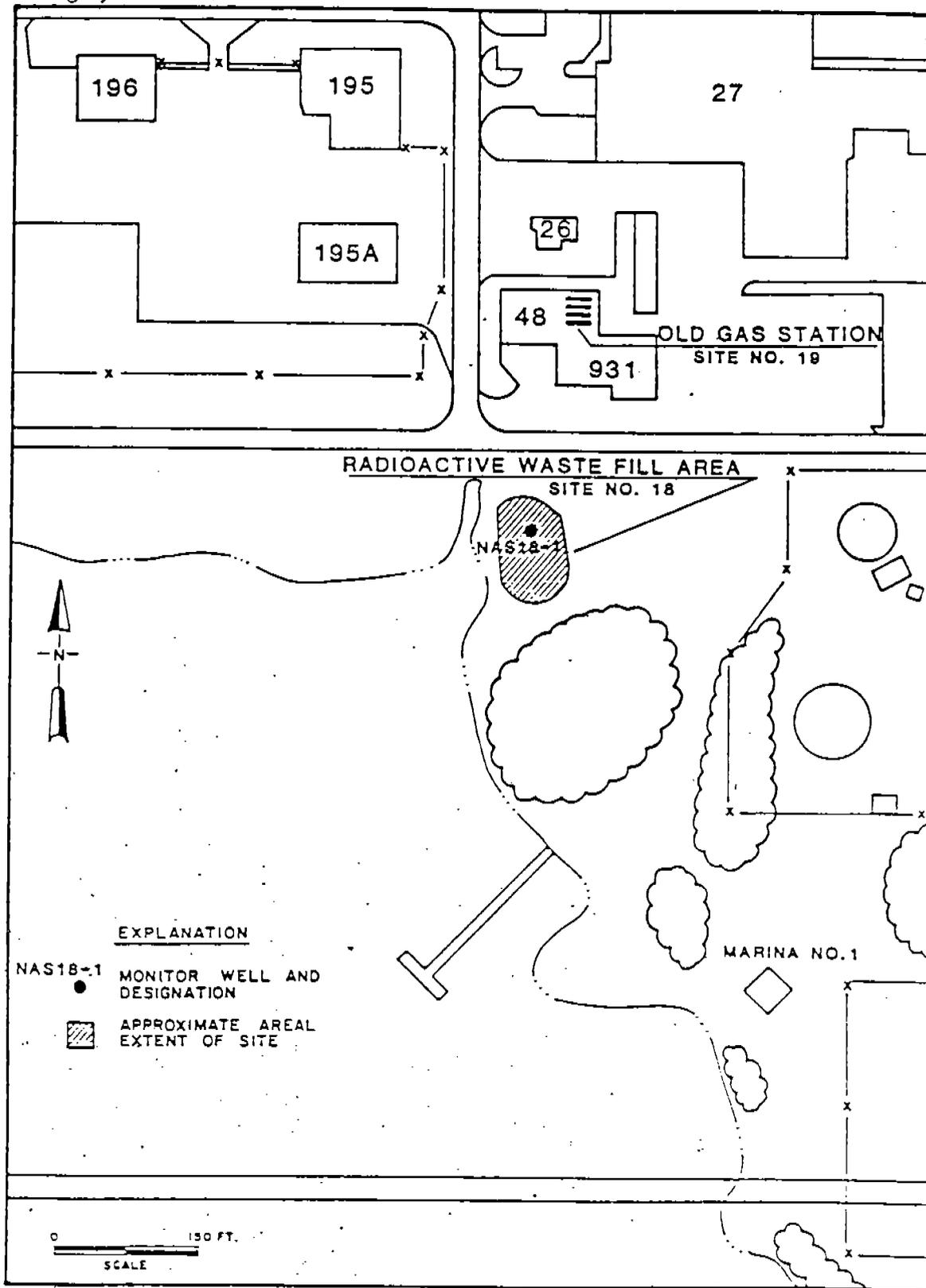
- o Site visit was made to locate tanks.

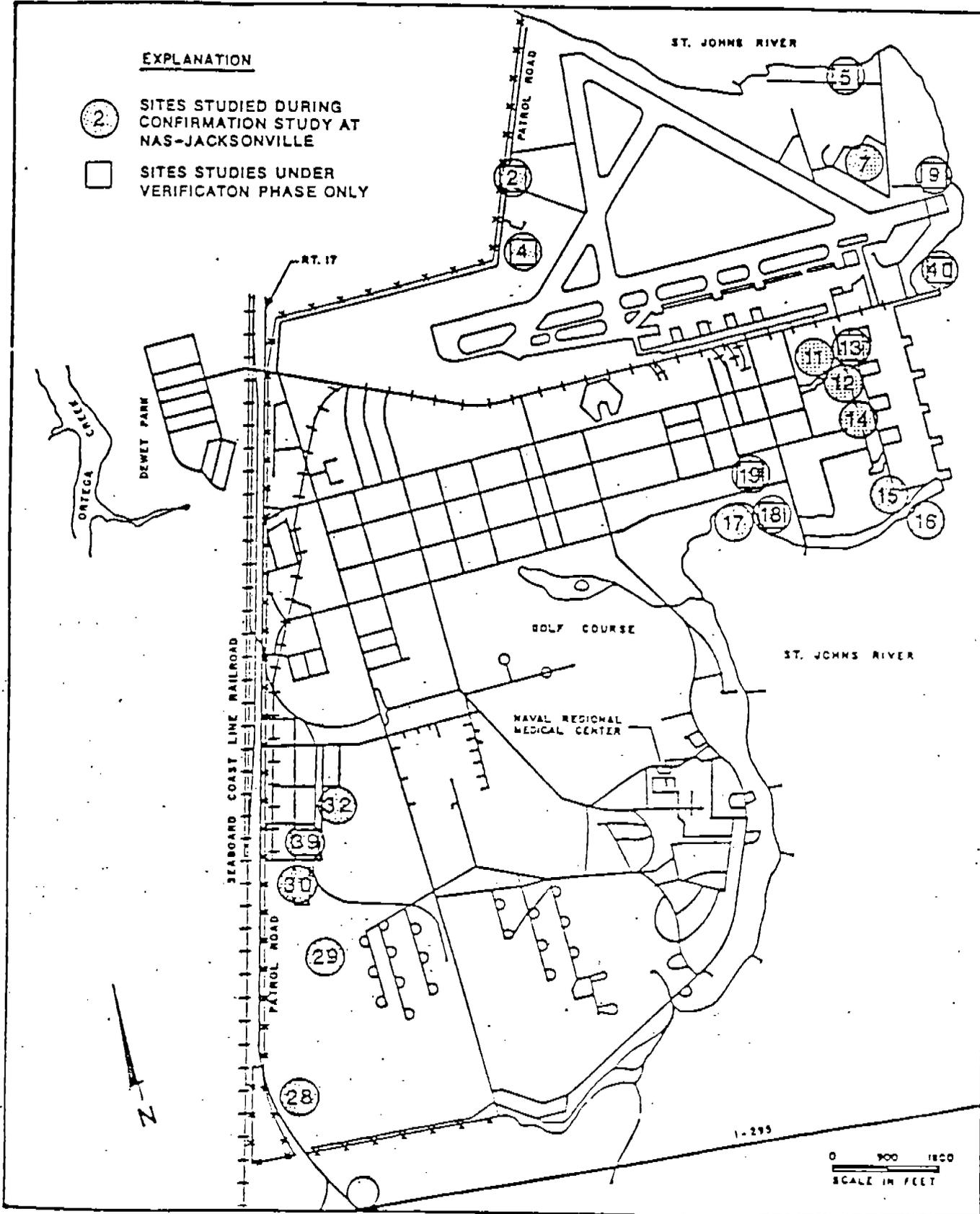
Findings:

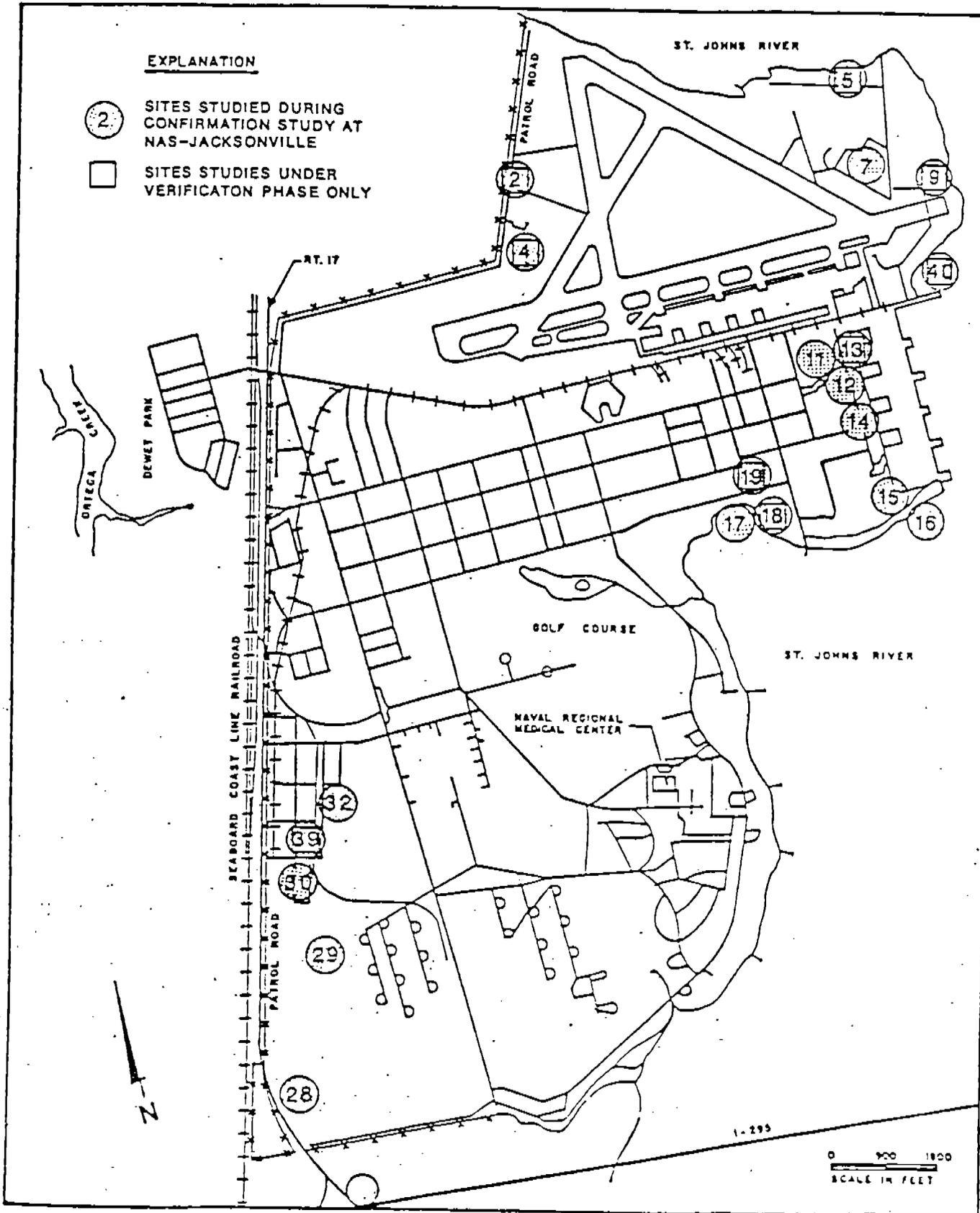
- o Four 10,000 gallon tanks were located under plant stands.

Recommendations:

- o Abandon tanks by pumping water out of tanks to domestic waste water treatment plant and filling tanks with inert material such as sand.







SITE NO. 30. OLD DRUM LOT

Site Description

The old drum lot was used for storage of drums containing raw products from 1955 to 1967. Reportedly, drums containing hazardous materials corroded and leaked their contents to the ground. Soil samples previously analyzed for PCBs in this area did not reveal any contamination.

Verification Study

Work Performed:

- o Installed three monitor wells (NAS30-1, NAS30-2, NAS30-3).
- o Analyzed ground-water samples for EPA priority pollutants.
- o Measured water levels in installed wells.
- o Collected six samples consisting of 3 sub-samples in an area for EP Toxicity analysis of metals.

Findings:

- o Laboratory analysis shows that the shallow ground water at the site contained only trace levels of two VOCs (TCE and Trans-1,2-DCE at one well (NAS30-2) and one base neutral compound (bis (2-chloroethyl) ether).
- o All metal and cyanide concentrations were below MCLs.
- o Shallow ground-water flow is to the east - southeast or toward a small drainage ditch.
- o Soil analysis shows levels of cadmium in three soil samples exhibit the characteristic of a hazardous waste.
- o Hazardous waste contractor was retained to remove contaminated soil.
- o Recommended follow-up study to be conducted in area after soil removal.

Characterization Study

Work Performed:

- o Installed two new monitor wells (NAS30-4 and NAS30-5).

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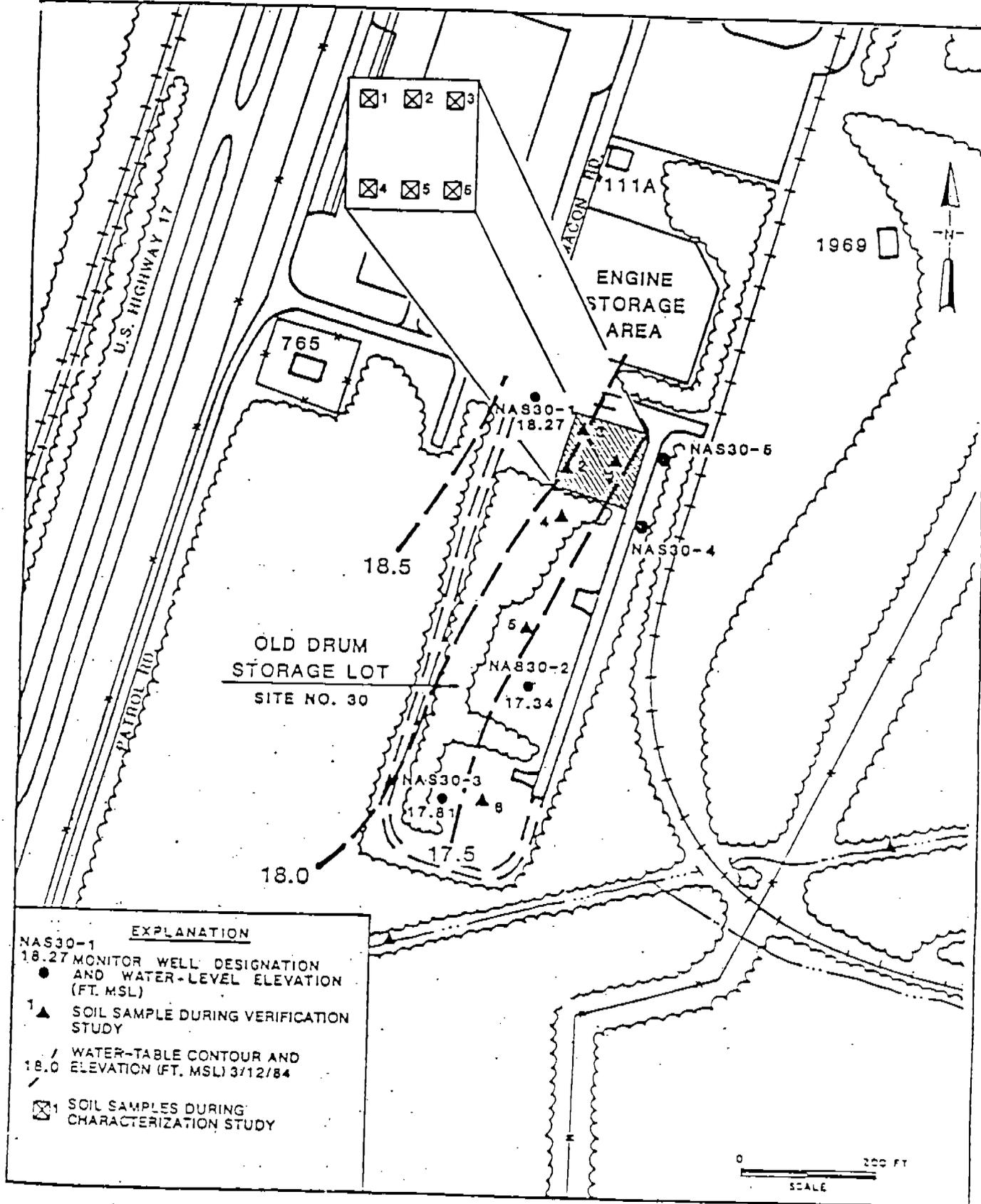
- o Analyzed three ground-water samples (two new wells and NAS30-1) for VOCs and metals.
- o Water-level measurements collected in all wells.
- o Collected six soil samples in excavated area for EP Toxicity analysis of cadmium and lead.

Findings:

- o VOCs, chiefly toluene (11 ug/l) and TCE (7 ug/l) detected only in NAS30-5.
- o Metal concentrations all below MCLs.
- o Analyses indicates that two of six soil samples (Nos. 3 and 4) exceeding EP Toxicity limit of cadmium for exhibiting the characteristic of a hazardous waste.

Recommendations:

- o Soils in area surrounding samples Nos. 3 and 4 should be removed and disposed of in an approved landfill.
- o Soil samples should be collected and analyzed for EP Toxicity (cadmium), during soil excavation, to assure contaminated soils are removed.



GERAGHTY & MILLER, INC.

SITE 30. VERIFICATION STUDY

Results of Chemical Analyses of Ground-Water Samples

Compound	NAS-30-1	NAS-30-2	NAS 30-3
<u>VOLATILES, ug/l</u>			
Trans-1,2 - dichloroethylene	-	TR	-
Trichloroethylene	-	TR	-
<u>TOTAL VOLATILES</u>	0	TR	0
<u>ACID EXTRACTABLES, ug/l</u>			
-	-	-	-
<u>BASE/NEUTRAL EXTRACTABLES, ug/l</u>			
bis (2-chloroethyl) ether	-	54	-
<u>PESTICIDES/PCBs, ug/l</u>			
-	-	-	-
<u>METALS, mg/l</u>			
Copper	-	-	0.023
Zinc	0.030	-	-
<u>CYANIDE, mg/l</u>			
-	-	-	-
<u>FIELD PARAMETERS</u>			
pH	5.37	6.13	6.10
Specific Conductance (umhos/cm)	145	420	290
Temperature (°C)	25	27	27

Results of Chemical Analysis of Soil Samples

Compound	NAS 30-1	NAS 30-2	NAS 30-3	NAS 30-4	NAS 30-5	NAS 30-6
<u>EP TOXICITY, mg/l</u>						
Barium	0.2	-	-	-	-	-
Cadmium	3.53	2.67	3.50	0.087	0.015	0.040
Chromium	0.23	0.01	-	0.06	-	0.03
Mercury	0.0005	-	-	-	-	-
Lead	-	2.55	-	-	-	0.11
Nickel	-	1.22	0.55	0.14	0.09	0.14
Arsenic	-	-	-	0.089	0.037	0.008
Silver	-	-	-	0.02	0.02	0.02

- = none detected  
 TR = trace (<10 ppb)

GERAGHTY & MILLER, INC.

SITE NO. 30. CHARACTERIZATION STUDY

Results of Chemical Analyses of Ground-Water Samples,  
Existing Wells

Compound	NAS 30-1	NAS 30-4	NAS 30-5
<u>VOLATILES, ug/l</u>			
Toluene	-	-	11
Chloroform	-	-	2.5
1,1,1-trichloroethane	-	-	2.5
Carbon tetrachloride	-	-	2
Bromodichloromethene	-	-	4
Trichloroethene	-	-	7
<u>TOTAL VOLATILES</u>	<u>0</u>	<u>0</u>	<u>29</u>
<u>METALS, Mg/l</u>			
Barium	0.14	0.15	0.25
<u>FIELD PARAMETERS</u>			
pH	5.04	6.38	7.66
Specific Conductance (umhos/cm)	100	340	260
Temperature (°C)	20	20	21

Results of Chemical Analyses of Soil Samples

Compound	#1	#2	#3	#4	#5	#6
<u>EP TOXICITY, MG/L</u>						
Cadmium	0.58	0.39	1.04	1.18	0.53	-
Lead	0.20	0.19	1.51	0.20	0.13	0.11

# = none detected

ATTACHMENT C

Facility 3004(u) Responce, April 2, 1986

DEPARTMENT OF THE NAVY

NAVAL AIR STATION

JACKSONVILLE, FLORIDA 32212

NORTHEAST DIST

VGY  
R  
APR 2 1985  
REGISTRY

IN REPLY REFER TO:  
6280 JACKSONVILLE

Code 184

MAR 29 1985

CERTIFIED - RETURN RECEIPT

Mr. Ernest Frey  
Hazardous Waste Section  
Northeast District Office  
Florida Department of Environmental  
Regulation  
3426 Bills Road  
Jacksonville, Florida 32207

Dear Mr. Frey:

The enclosed form has been completed as requested in your February 1, 1985 letter. The information requested was previously provided to you on November 4, 1983 in the form of an Initial Assessment Study (IAS) for NAS and the Navy Fuel Depot, Jacksonville. An addendum to the IAS was forwarded to Ms. Catherine C. Krestalude on 17 December 1984 which identified three additional sites where past disposal of hazardous chemicals is suspected.

The IAS is part of the Navy Assessment and Control of Installation Pollutants (NACIP) Program. The Department of the Navy developed the NACIP Program to identify, assess, and control environmental contamination from past use and disposal of chemicals and other materials. The NACIP program is part of the Department of Defense (DOD) Installation Restoration Program which satisfies requirements of the "Superfund" Program, authorized by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, for DOD installations. The NACIP Program consists of three phases with the decision to proceed from one phase to the next depending upon the results of the previous phase. The three phases are:

Phase I Initial Assessment Study (IAS) - collecting and evaluating all evidence which indicates the existence of pollutants which may have contaminated a site or pose an imminent health hazard for people located on or off the installation.

Phase II Confirmation Study (CS) - performing field investigations, including physical and analytical monitoring, to confirm or deny contamination or a health hazard and to quantify the extent of any program which may exist. The CS is further subdivided into two phases:

Verification - verifying whether contamination exists from a past waste disposal practice.

Characterization - quantifying and qualifying the extent of any contamination found during verification.

Phase III Corrective Measures - instituting needed remedial measures to control and mitigate contamination.

The sites identified in the IAS and those discussed in our 17 December 1984 letter are presently being investigated in the Verification Phase of the Confirmation Study. The final Verification Report is expected to be complete in July 1985. This report will be forwarded to you and Mr. John Ruddell with your Tallahassee office. A meeting will also be requested at that time to discuss the Verification findings and any recommended Characterization work.

Should you have any further questions, please do not hesitate to call Mr. Bill Roche at telephone number 772-2717.

Sincerely,



T. J. HEFFERNAN  
CAPTAIN, CEC, USN  
PUBLIC WORKS OFFICER  
BY DIRECTION OF THE  
COMMANDING OFFICER

Enclosure

INFORMATION REGARDING POTENTIAL RELEASES FROM  
SOLID WASTE MANAGEMENT UNITS

FACILITY NAME: Naval Air Station, Jacksonville, FL  
 EPA I. D. NUMBER: FL 6170024412  
 LOCATION City Jacksonville  
 State Florida

1. Are there any of the following solid waste management units (existing or closed) at your facility? NOTE - DO NOT INCLUDE HAZARDOUS WASTES UNITS CURRENTLY SHOWN IN YOUR PART B APPLICATION

	<u>YES</u>	<u>NO</u>
• Landfill	<u>X</u>	<u>      </u>
• Surface Impoundment	<u>      </u>	<u>X</u>
• Land Farm	<u>      </u>	<u>X</u>
• Waste Pile	<u>X</u>	<u>      </u>
• Incinerator	<u>      </u>	<u>X</u>
• Storage Tank (Above Ground)	<u>      </u>	<u>X</u>
• Storage Tank (Underground)	<u>      </u>	<u>X</u>
• Container Storage Area	<u>      </u>	<u>X</u>
• Injection Wells	<u>      </u>	<u>X</u>
• Wastewater Treatment Units	<u>      </u>	<u>X</u>
• Transfer Stations	<u>      </u>	<u>X</u>
• Waste Recycling Operations	<u>      </u>	<u>X</u>

2. If there are "Yes" answers to any of the items in Number 1 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volumes of wastes disposed of and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, location at facility, provide a site plan if available.

Information provided in the Initial Assessment Study (IAS) and addendum  
 letter dated 17 December 1984.  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NOTE: Hazardous waste are those identified in 40 CFR 261. Hazardous constituents are those listed in Appendix VIII of 40 CFR Part 261.

3. For the units noted in Number 1 above and also those hazardous waste units in your Part B application, please describe for each unit any data available on any prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the past or still be occurring.

Please provide the following information

- Date of release
- Type of waste released
- Quantity or volume of waste released
- Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc)

None other than potential items described in the IAS and addendum

letter dated 17 December 1984.

4. In regard to the prior releases described in Number 3 above, please provide (for each unit) any analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases. Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or groundwater.

Sites recommended for further investigation in the IAS and those identified

in the IAS addendum letter dated 17 December 1984 are presently being

studied in the Confirmation Phase of the NACIP investigation. The final

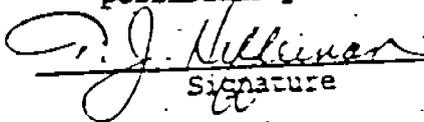
report of the Verification Phase of the Confirmation Study is expected

to be completed in July 1985.

#### Signature and Certification

As with reports in RCRA Permit Applications, submittal of this information must contain the following certification and signature by a principal executive officer of at least the level of Vice President or by a duly authorized representative of that person:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the 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.

  
Signature

T.J. Heffernan, Captain, CEC, USN  
Public Works Officer  
Name and Title (Typed)

ATTACHMENT D

Potential Contamination Sites at  
NAS - Jacksonville

## ATTACHMENT D

## Potential Solid Waste Management Units at NAS Jacksonville

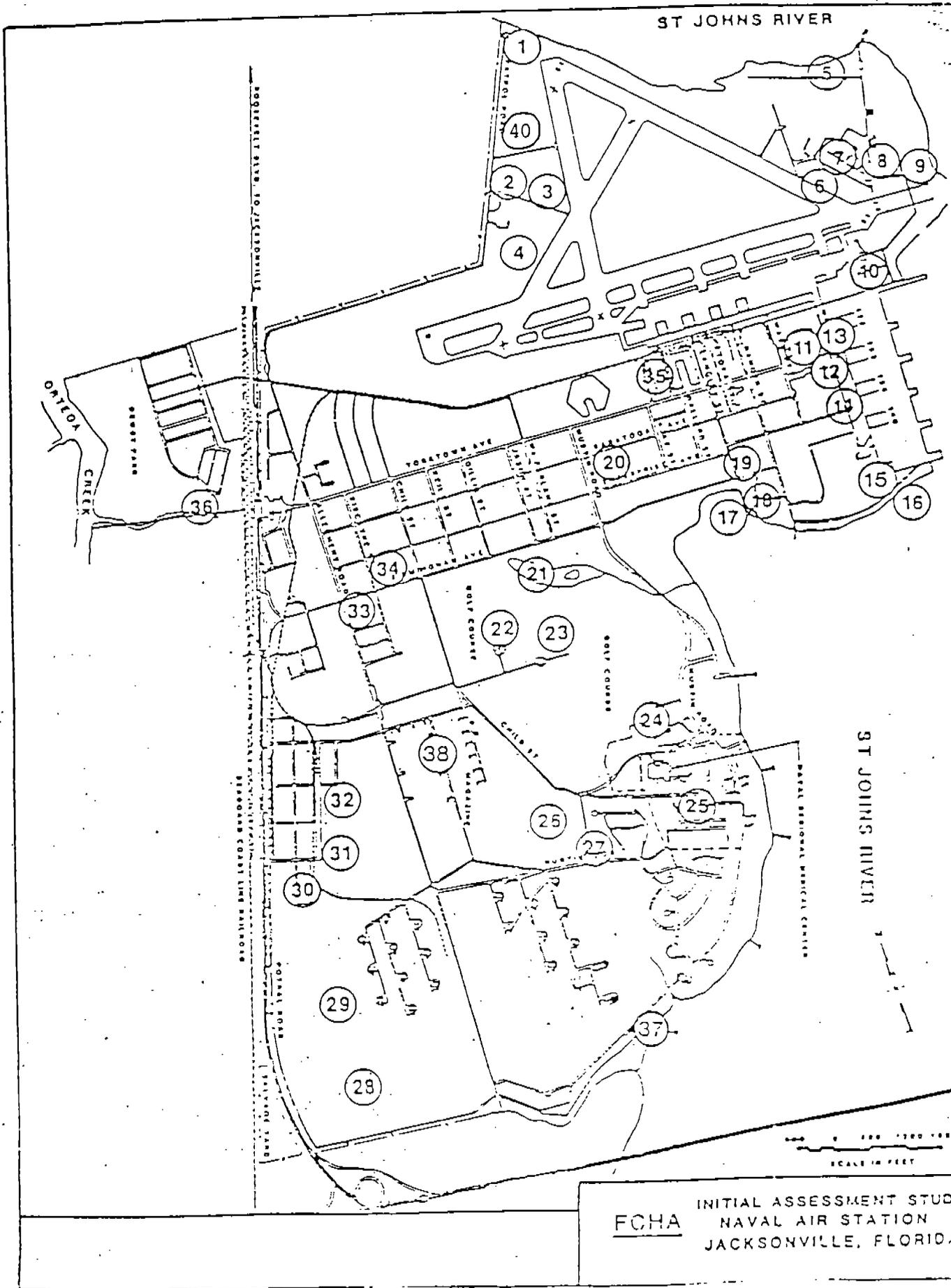
<u>Site No</u>	<u>Description</u>
1	Patrol Road Turn-around Site
2	Present Firefighting Training Area
3	Sludge Disposal Area /Sewage Treatment Plant Area
4	Pine Tree Planting Area
5	Shoreline Fill West of Fuel Barge Dock Site
6	Fuel Farm
7	JP-4 Explosion and Roof Collapse, Fuel Farm Area, Underground Tanks
8	Vacant Lot, Fuels Farm Area
9	Old Disposal Area (East of Fuel Farm)
10	Building 119, A-T
11	Hangar Building 101
12	Old Test Cell Building
13	Radium Paint Waste Disposal Pit
14	Battery Shop
15	Solvent and Paint Sludge Disposal Area (NARF)
16	Storm Sewer Discharge - Black Point
17	Glass Bead Disposal Area
18	Radioactive Waste Fill Area
19	Old Gas Station
20	Solid Waste Incinerator
21	Golf Course
22	"Ft. Dix"

## ATTACHMENT D (CONT'D)

## Potential Solid Waste Management Units at NAS Jacksonville

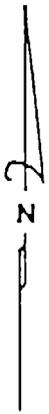
<u>Site No</u>	<u>Description</u>
23	Old Skeet Range
24	Scrap Metal Disposal Area
25	Building No. 2038
26	Old Main Registered Disposal Area
27	PCB Storage Area
28	Fire Pit
29	Organic Disposal Area
30	Old Drum Lot
31	Asphalt Mix Area
32	Base Landfill
33	Base Service Station
34	Old Transformer Storage Building
35	Temporary PCB Storage Area
35	Dewey Park
37	Power Barge
38	Torpedo Rework Facility
39	Municipal Waste Sludge Drying Beds
40	Polishing Pond for Wastewater Treatment System Effluent

ATTACHMENT D (CONT'D)



FCHA INITIAL ASSESSMENT STUDY  
NAVAL AIR STATION  
JACKSONVILLE, FLORIDA

E 284.000



DOMESTIC WASTE  
WATER TREATMENT  
PLANT

INDUSTRIAL SLUDGE  
DRYING BEDS

INDUSTRIAL WASTE  
WATER TREATMENT  
PLANT

-N 2,146.000

39

