COMPREHENSIVE LONGT
ENVIRONMENTAL ACTION NAVY
FINAL *SAMPLING* AND ANALYSIS PLAN
FOR SITE 12
SCRAP BINS
NAVAL *AIR* STATION
PENSACOLA, FLORIDA

SOUTHNAVFACENGCOM
CONTRACT NUMBER:
N62467-89-D-0318
CTO-970

Prepared for:

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN)
NAVAL SUPPORT ACTIVITY
NAVAL *AIR* STATION
PENSACOLA, FLORIDA

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March 2, 1995

Release of this document requires the prior notification of the Commanding Officer of the Naval Air Station, Pensacola, Florida.

Rep entatio Page

Form approved OMB No. 88

1a. Report Security Classification Undassifiid	1b. Restrictive Marking N/A
2a. Security Classification Authority N/A	3. Distribution/Availability of Report see Cover Letters
2b. Declassification/Downgrading Schedule N/A	
	5. Monitoring Organization Report Number(s) N/A
6a. Name of Performing Organization EnSafe/Allen & Hoshall	6b. Office symbol *(if applicable)* E/A&H
	7a. Name of Monitoring Organization Naval A t Station Pensacola
6720 Summer Trees Drive, Suite 8 Memphis, Tennessee 38134	7b. Address (City, State end Zip Code) Pensacola, Florida
8a. Name of Funding/ Sponsoring Organization SOUTHNAVFACENGCOM	8b. Office symbol (if applicable)
	9. Procurement Instrument Identification Number 11562467-89-DO318/970
8c. Address *(City, State and ZIP code)* 2166 Eagle Drive P.O. Box 10068 Charleston, South Carolina 29411	10. Source of Funding Numbers

Program Element No.	Project No.	Task No.	Work Unit Accession No.

11. Title *(Include Security Classification)*

Final Sampling and Analysis Plan For Site 12 — Scrap Bins, NAS Pensacola, Pensacola, Florida

12. Personal Author(s)

Caldwell, Brian, (P.G.#1330, Florida Exp. Date July 31, 1996): Howard, Stephen C.

13a. Type of Report	13b. Time Covered	14. Date of Report *(Year, Month, Day)*	15. Page Count
Final	From 1/11196 To 2/3/95	1995, 03, 02	18

16. Supplementary Notation
N/A

17. COSATI Codes			18. Subject Terms *(Continue on reverse if necessary and identify by block number)*
Field	Group	Sub-Group	

19. Abstract

This Sampling and Analysis Plan (SAP) is written for Site 12, the scrap bins enclosure area, located approximately 800 feet northwest of Chevalier Field. The purpose of this investigation is to delineate the nature, lateral and vertical extent and magnitude of contaminated soil and groundwater at this Site.

Investigative work will be completed by advancing soil borings, installing permanent monitoring wells, and collecting soil, groundwater, sediment, and surface water samples for Target Analyte List/Target Compound List (TAL/TCL) analyses using Contract Laboratory Program (CLP) protocol, [and special analytical services (SAS), as required].

Preliminary Remediation Goals (PRGs) will be established after evaluating the data for identified contaminants. Upon completion of the investigative work and laboratory analysis, a Preliminary Site Characterization Report will be submitted to the Navy, U.S. Environmental Protection Agency (USEPA), and Florida Department of Environmental Protection (FDEP) summarizing the investigation's activities, results and conclusions. If the results of the Preliminary Site Characterization warrant a remedial investigation (RI), additional field work, if required, will be performed and the Preliminary Site Characterization Report will be expanded to fulfill RI requirements, including a Baseline Risk Assessment (BRA). [If an RI report is submitted, then the report will provide supporting data to complete an FS for the Site. Due to the proximity of Site 12 to several other sites (11, 25, 26, 27, and 30), the possibility exists that solid and/or liquid media contamination may not be restricted to, or caused by, Site 12. in this case, the results of the Site 12 investigation may be incorporated into a larger report which addresses this contamination on a larger scale (ie. larger OUI and which incorporates the investigative results of the affected sites].

This SAP, in conjunction with the Comprehensive Sampling and Analysis Pian (CSAP), will provide guidelines for sampling and analytical techniques to be used during the investigation, along with outlining proper documentation procedures

20. Distribution/Availability of Abstract ■ Unclassified/Unlimited ☐ Same as Rept ☐ DTIC Users	21. Abstract Security Classification N/A	
22a. Name of Responsible Individual William Hill	22b. Telephone *(Include Area Code)* (803) 743-0324	22c. Office Symbol

DD Form 1473, JUN 86 ***Previous editions are obsolete.***
SIN 0102-LF-014-6603

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List of Acronyms

The following list contains many of the acronyms, abbreviations, and units of measure used in this report.

bls	below land surface
BNAs	base-neutral/acid extractable organic compounds
BRA	Baseline Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CGs	Cleanup Goals
CLEAN	Comprehensive Long-Tern Environmental Action Navy
CLP	Contract Laboratory Program
CSAP	Comprehensive Sampling and Analysis Plan
DoD	Department of Defense
DQO	Data Quality Objective
E/A&H	EnSafe/Allen & Hoshall
E&E	Ecology & Environment, Inc.
FDEP	Florida Department of Environmental Protection
FS	Feasibility Study
FSA	Full Scan of Analysis
G&M	Geraghty and Miller, Inc.
GPS	Global Positioning System
GS	Grain Size
HEX	Hexavalent Chromium Analysis
IAS	Initial Assessment Study
IDR	Interim Data Report
IDW	Investigation Derived Waste
IWTP	Industrial Wastewater Treatment Plant
msl	mean sea level
NAS Pensacola	Naval Air Station Pensacola
NEESA	Naval Energy and Environmental Support Activity
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
ppm	parts per million
PPS	Physical Parameters, Soil
PPW	Physical Parameters, Water
PRG	Preliminary Remediation Goal
QA/QC	Quality Assurance/Quality Control
RBCs	Risk based concentrations
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study

SAP	Sampling and Analysis Plan
SAS	Special Analytical Services
SDWA	Safe Drinking Water Act
SOP/QAM	Standard Operating Procedures and Quality Assurance Manual
SOUTHNAVFACENGCOM	Southern Division, U.S. Navy, Naval Facilities Engineering Command
SSV	Sediment Screening Values
ST	Shelby Tube
TAL/TCL	Target Analyte List/Target Compound List
TAL	Target Analyte List
TCL	Target Compound List
TKN	Total Kjeldahl Nitrogen
TOC	Top Of Casing
TRPHs	Total Recoverable Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCS	Volatile Organic Compounds

EXECUTIVE SUMMARY

This Sampling and Analysis Plan (SAP) is written for Site 12, the scrap bins enclosure area, located approximately 800 feet northwest of Chevalier Field. The purpose of this investigation is to delineate the nature, lateral and vertical extent and magnitude of contaminated soil and groundwater at this Site.

Investigative work will be completed by advancing soil borings, installing permanent monitoring wells, and collecting soil, groundwater, sediment, and surface water samples for Target Analyte List/Target Compound List (TAL/TCL) analyses using Contract Laboratory Program (CLP) protocol, [and special analytical services (SAS), as required].

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This SAP, in conjunction with the Comprehensive Sampling and Analysis Plan (CSAP), will provide guidelines for sampling and analytical techniques to be used during the investigation, along with outlining proper documentation procedures.

1.0 INTRODUCTION

As part of the U.S. Navy Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, a Preliminary Site Characterization will be completed by EnSafe/Allen & Hoshall (E/A&H) at Site 12 - the Scrap Bins, at the Naval Air Station Pensacola (NAS Pensacola), Pensacola, Florida. This Sampling and Analysis Plan (SAP) has been developed by E/A&H for this investigation, as tasked by the Southern Division, U.S. Navy, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) under Contract No. N62467-89-D-0318/970.

Primary references for this SAP include the *Comprehensive Sampling* and *Analysis Plan for Naval Air Station Pensacola* (CSAP) (E/A&H 1994), the United States Environmental Protection Agency (USEPA) Region IV *Standard Operating Procedures and Quality Assurance Manual (SOPIQAM)*, and the *Contamination Assessment/Remedial Activities Investigation Work Plan — Group B* completed by Ecology & Environment, Inc. (E&E 1992). These documents are referred to throughout this plan. The Site 12 investigation will be completed to fulfill requirements set forth in this site-specific SAP, and will be conducted in accordance with the SOPIQAM and CSAP.

The Site 12 Preliminary Characterization will assess the nature of any potential contamination identified during past and proposed field investigations. The results of the previous Phase I investigations are outlined in the *Interim Data* Report **(IDR),** *Contamination Assessment/Remedial Investigation, Scrap Bins (Site 12)* (E&E 1991), [and **will be compared to the results of the proposed investigation].** Before field activities begin, contaminant source survey, and habitat and biota survey will be conducted.

Field sampling, analytical methods, and reporting will be conducted at USEPA Level IV protocol. Activities performed during the Preliminary Site Characterization include completing soil borings, and permanent monitoring wells; collecting surface water, groundwater, sediment, and soil samples; and a hydrologic assessment. Soil, sediment, groundwater and surface water

samples will be collected for target analyte list/target compound list (TAL/TCL) analyses using a laboratory approved by the Naval Energy and Environmental Support Activity (NEESA) using Contract Laboratory Program (CLP) protocol. **[In addition, special analytical services on specific analytes may be performed to achieve lower quantitation limits, as needed. Also, groundwater samples will be analyzed for alpha-spec and gamma-spec radiation, and soil samples will be screened for gamma radiation, and will be submitted to the laboratory for gamma-spec analysis if the screening results indicate elevated gamma radiation.]**

The investigation will involve installing permanent monitoring wells to enable groundwater samples to be collected. Also, soil samples will be collected from soil borings, and sediment and surface water samples will be collected from the onsite stormwater drainage system. The activities will confirm whether contaminants are present at the site. [Soil **contaminants will be compared to** both the **most recent risk-based concentrations (RBCs) for residential land, developed by EPA Region III** (currently 3rd quarter, 1994 for non-carcinogens, and 1st quarter, 1994 using a Hazard Index of 1 for carcinogens), and the risk-based cleanup goals (CGs) for Florida DoD sites (developed by FDEP, July 1994). Sediment samples will be compared to the USEPA Region IV Sediment Screening Values (SSVs) for Hazardous Waste Sites (2/94). Surface water samples will be compared to the lower of the Florida Fresh or Marine Water Quality Criteria based on protection of Aquatic Life, and the USEPA Fresh or Marine Acute and Chronic Water Quality Criteria (1991). Ground water contaminants will be compared the Florida Drinking Water Standards and Guidance Concentrations, followed by the Safe Drinking Water Act (SDWA) Maximum Concentration Levels (MCLs). If the potential exists for soil contaminants to leach to ground water, site-specific soil actions levels will be developed for each contaminant.] Preliminary remedial goals (PRGs) will be established after the data are evaluated for identified contaminants. Further assessment activities will depend on whether soil, **[sediment, surface water,]** and groundwater samples exceed the applicable PRGs and whether further contamination delineation is required.

Upon completion of the investigative work and laboratory analysis, a Preliminary Site Characterization Report will be submitted to the Navy, USEPA, and Florida Department of Environmental Protection (FDEP) summarizing the activities and results and conclusions of the investigation. If the results of the Preliminary Site Characterization warrant a remedial investigation (RI), additional field work, if required, will be performed and the Preliminary Site Characterization Report will be expanded to fulfill RI requirements, and will include a BRA. A Feasibility Study report also will be completed concurrently with the RI report.

2.0 BACKGROUND INFORMATION

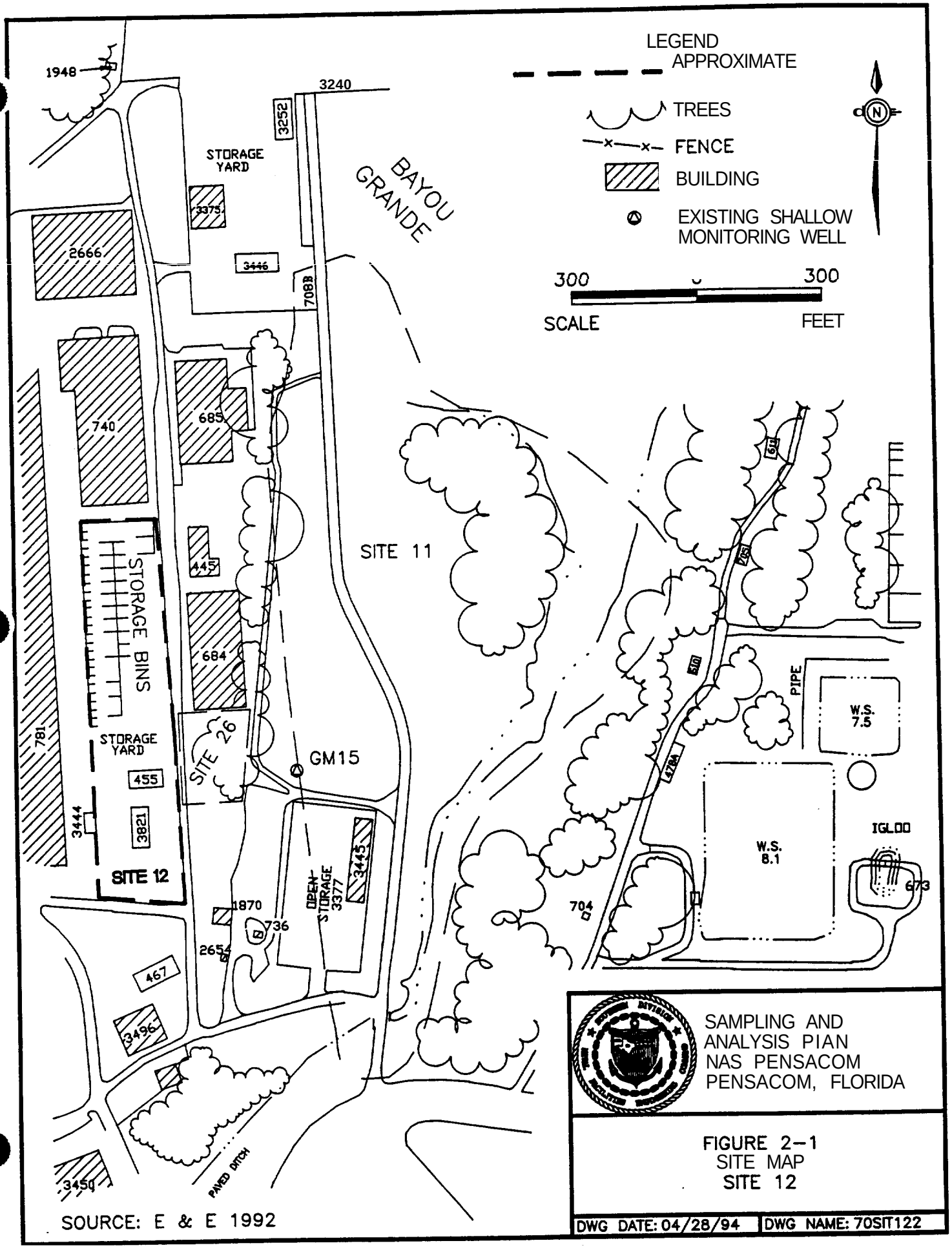
2.1 Site Description

Site 12 is located approximately 800 feet northwest of Chevalier Field and 600 feet west of Site 11 (see Figure 2-1). Most of the site area is enclosed by a fence and covered with a large concrete pad where heavy equipment is kept. Surface elevations average 15 to 18 feet above mean sea level (msl). The limited exposed surficial soil is sandy and well drained. No monitoring wells are present onsite. Shallow well GM-15 is located approximately 300 feet east of the site.

2.2 Site History

From the early 1930s to the mid-1940s, garbage from NAS Pensacola was placed in scrap bins and stored at Site 12. Industrial wastes were sent to the North Chevalier Disposal Area. Approximately 16 cubic yards (two truckloads) per day of wet garbage were stored here before being hauled off for livestock feed. There is no evidence of hazardous material disposal at this site (NEESA 1983).

E & E (1991) reported the presence of sediment, soil and ground water contamination on, and in the vicinity of, the site. Metals, total recoverable petroleum hydrocarbons (TRPHs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), phenols, and polychlorinated biphenyls (PCBs) were the primary contaminants. A potential source of


LEGEND
APPROXIMATE
TREES
FENCE
BUILDING
EXISTING SHALLOW MONITORING WELL
300
300
SCALE
FEET
1948
3240
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STORAGE YARD
3375
BAYOU GRANDE
2666
3446
7088
740
685
SITE 11
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STORAGE BINS
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STORAGE YARD
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SITE 12
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467
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SOURCE: E & E 1992
PIPE
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673
704
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NAS PENSACOM
PENSACOM, FLORIDA
FIGURE 2-1
SITE MAP
SITE 12
DWG DATE: 04/28/94
DWG NAME: 70SIT122

contamination was found to exist in the southeast portion of the site, however the nature of the source material and extent of the contamination was unknown. Further investigation was recommended.

2.3 Physical Setting

Climatology, biological resources, physiography, and hydrogeology for Site 12 and NAS Pensacola are detailed in Sections 4 through 7 of the E&E site work plan (1992).

3.0 PHYSICAL SURVEYS

Various physical surveys have been conducted as part of E&E's Phase I activities, including aerial photograph and site reconnaissance, surface/particulate air emissions, a habitat and biota survey, radiation survey, and a geophysical survey. Results of the physical surveys are presented in Section 3 of the IDR (E&E 1992). Relevant information from these surveys were considered when planning this Preliminary Site Characterization and will not be duplicated. Three surveys will be conducted before field activities begin: a contaminant source survey, and a more extensive habitat and biota survey.

3.1 Contaminant Source Survey

The contaminant source survey will be conducted to determine any potential sources and any present or past waste streams at the facility. The survey will include reviewing previous investigative reports, interviewing present and former NAS Pensacola personnel, analyzing aerial photographs surveying utilities.

To the greatest extent possible, the survey will include the identification of the following:

- Location of previous and current underground and overhead piping and utilities.
- Past and present chemicals used at the facility.

- Locations of any known surface spills.
- Locations of any known historical outfalls.
- Locations and contents of any known present or former underground storage tanks (USTs).

3.2 Habitat and Biota Survey

A Phase I habitat and biota survey will be performed in accordance with Section 8 of the CSAP. Data obtained during the Site 12 Preliminary Characterization also will be used to help assess ecological risk and any onsite or surrounding terrestrial and aquatic habitats potentially affected by contaminant migration. Any adjacent wetland complex will be assessed during the RI of Site 41 (NAS Pensacola Wetlands), and will be conducted in accordance with Section 8 of the CSAP.

4.0 FIELD SAMPLING PLAN

The field sampling plan describes the sampling and field measurement procedures to be used during the Preliminary Site Characterization. The field investigation includes advancing soil borings, installing groundwater monitoring wells, and collecting surface water, sediment, soil, and groundwater samples using various techniques, and conducting hydrologic and ecologic assessments for Site 12.

4.1 Sampling Objectives

The objectives of the field sampling effort are to:

- Identify potential sources of contaminants.
- Assess the nature of identified contaminants.
- Evaluate the extent of soil and groundwater contamination.

- Determine migration pathways of the contaminants.
- Identify potential receptors of the contaminants.

4.2 Sampling and Analytical Requirements

The sampling and analytical requirements for this investigation are summarized in Table 4-1 and discussed below. The proposed number of surface water, sediment, soil and groundwater samples also is listed in Table 4-1. The Navy, USEPA, and FDEP will be apprised of any changes in the number of samples collected.

Table 4-1
Site 12 Sampling and Analytical Requirements

Medium	No. of Samples[a]	Analytical Parameter	DQO[b] Level
Surface Water[c]	1	FSA	IV
	(1)	PPW	IV
Sediment[d]	6	FSA	IV
	(2)	PPS	IV
	(2)	GS	IV
Soil[e]	56	FSA	IV
	(6)	PPS	IV
	(2)	GS	IV
Groundwater[f]	9	FSA	IV
	(1)	PPW	IV
	9	Gamma-spec	IV
TOTAL	72	FSA	IV
	(10)	PPW/PPS	IV
	(2)	GS	IV

Notes:
a The nunber of samples shown in parentheses will be analyzed for the additional parameters indicated.
b DQO = Data Quality Objective
c Total nunber of surface water samples = 1 location x 1 sample interval = 1 sample.
d Total number of sediment samples = 6 locations x 1 sample interval = 6 samples.
e Total nunber of soil samples = 14 soil borings x 4 sample intervals = 56 samples.
f Total nunber of groundwater samples = 9 proposed shallow monitoring wells x 1 sample each = 9 samples.

FSA — Full Scan of Analysis
Target Compound List (TCL) volatile organic compounds, TCL base-neutral/acid extractable organic compounds, TCL pesticides, TCL polychlorinated biphenyls (PCBs), Target Analyte List (TALI metals (unfiltered), end TCL cyanide.

PPS — Physical Parameters (Sediment, Soil)
Total phosphorus. nitrate-N, TKN, heterotrophicplate count, total organic carbon, and cation exchange capacity.

OS — Grain Size Analysis

PPW — Physical Parameters (Water)
Five-day biological oxygen demand, chemical oxygen demand, hardness, total suspended solids, alkalinity, total phosphorus, nitrate-N, total Kjeldahl nitrogen (TKN), and heterotrophic plate count.

Any additional sources or previously undetected contamination will be investigated by the collecting additional samples from any given media, sampling additional media not included in this site-specific SAP, installing additional monitoring wells to delineate the extent and depth of contaminants, and performing aquifer response tests to characterize subsurface hydrologic conditions. When additional field activities **are** required, a field change request will be submitted to the Navy for approval with notification to the USEPA and **FDEP.**

The USEPA CLP TAL/TCL will be used to provide a legally defensible full spectrum of contaminant analysis. Soil and groundwater will be analyzed for the full TAL/TCL list with additional non-CLP analysis also being conducted when warranted, in accordance with Section 10 of the CSAP. **[Special analytical services will be performed on specific analytes,** in **order** to **achieve lower quantitation and detection** limits, **as needed. In addition, alpha-spec and gamma-spec analyses will be conducted on all groundwater samples.** ***Also,*** **soil samples will be screened for gamma radiation and, if elevated levels are present, will be analyzed for gamma-spec radiation.]**

Modifications have been made to the list of remedial/physical characteristic parameters proposed in the E&E site work plan (1992). Changes were made to the proposed analyses to address the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) rather than Resource Conservation and Recovery Act (RCRA) requirements (i.e., the omission of Appendix IX analyses) and to acquire additional information regarding the physical characteristics of site soil and groundwater if **an FS** is required. Therefore, **certain** parameters have been omitted from this SAP because they **are** either redundant to the comprehensive TAL/TCL analytical methods, provide information that is not legally defensible, or have limited use.

Analytical Organization

- **Full Scan of Analysis (FSA) —** A full scan consists of analysis for TCL volatile organic compounds (VOCs), TCL base-neutral extractable organic compounds (BNAs), TCL pesticides, TCL polychlorinated biphenyls (PCBs), TAL metals (unfiltered), and TCL cyanide.

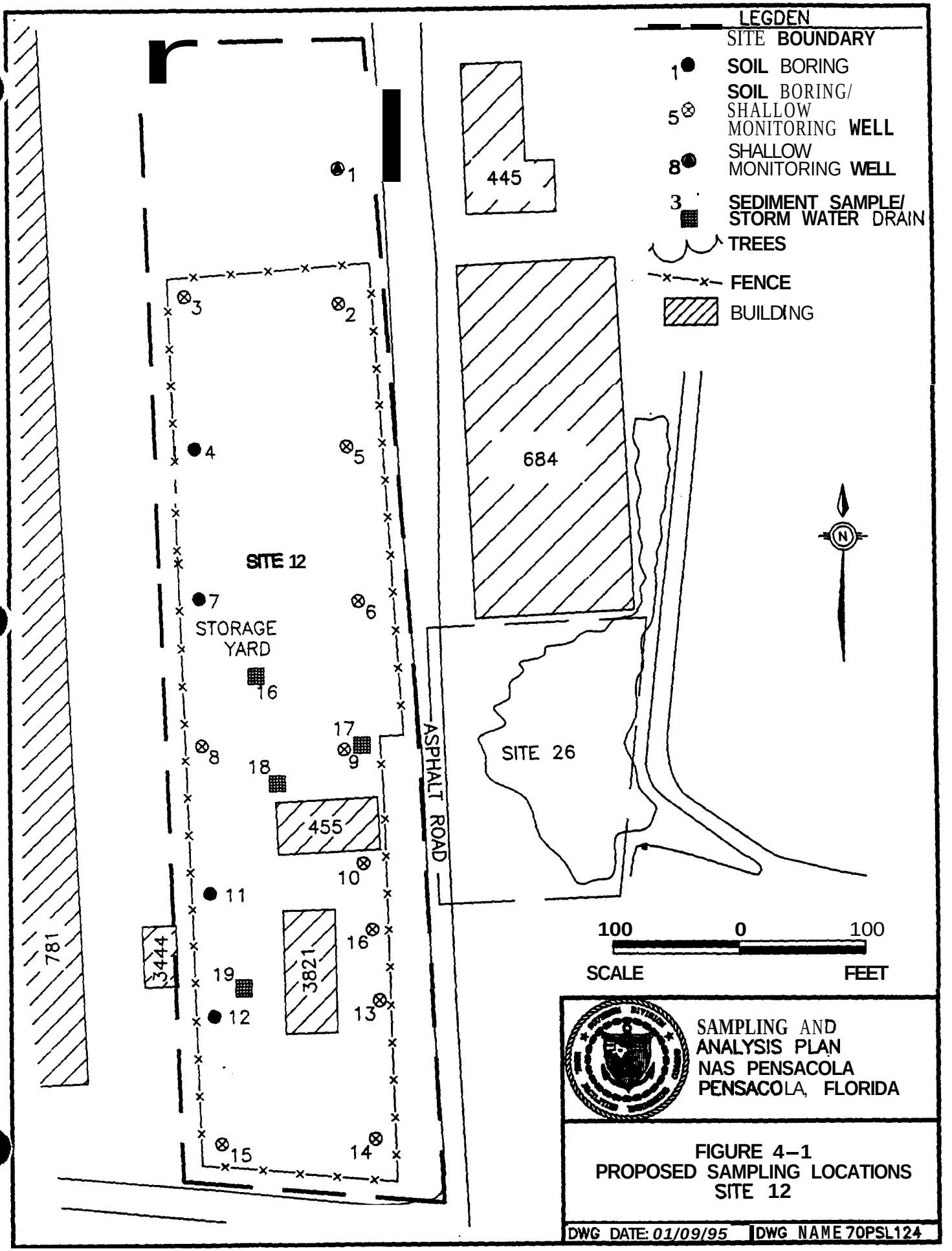
- **Physical Parameters, Soil (PPS) —** The parameters include total phosphorus, nitrate-N, TKN, heterotrophic plate count, total organic carbon, and cation exchange capacity. Additional sample volume will be collected for the PPS samples.

- **Grain Size Analysis (GS)**

- **Physical Parameters, Water (PPW) —** The parameters include five-day biological oxygen demand, chemical oxygen demand, hardness, total suspended solids, alkalinity, total phosphorus, nitrate-N, total Kjeldahl nitrogen (TKN), and heterotrophic plate count. Additional sample volume will be collected for the PPW samples.

4.3 Sample Locations

The sampling locations, presented in Figure 4-1, consist of [15] soil borings and nine permanent monitoring wells. These locations were agreed to by the Tier 1 Team during the March 1994 meeting. Soil and groundwater samples will be collected for PSA to confii whether contaminants are present at the site. Identified contaminants will be compared to the previously-cited PRGs established for each contaminant. The investigation will proceed to delineate extent only if contaminants exceed their respective PRGs.



SAMPLING AND ANALYSIS PLAN
NAS PENSACOLA
PENSACOLA, FLORIDA

FIGURE 4–1
PROPOSED SAMPLING LOCATIONS
SITE 12

DWG DATE: 01/09/95 | DWG NAME 70PSL124

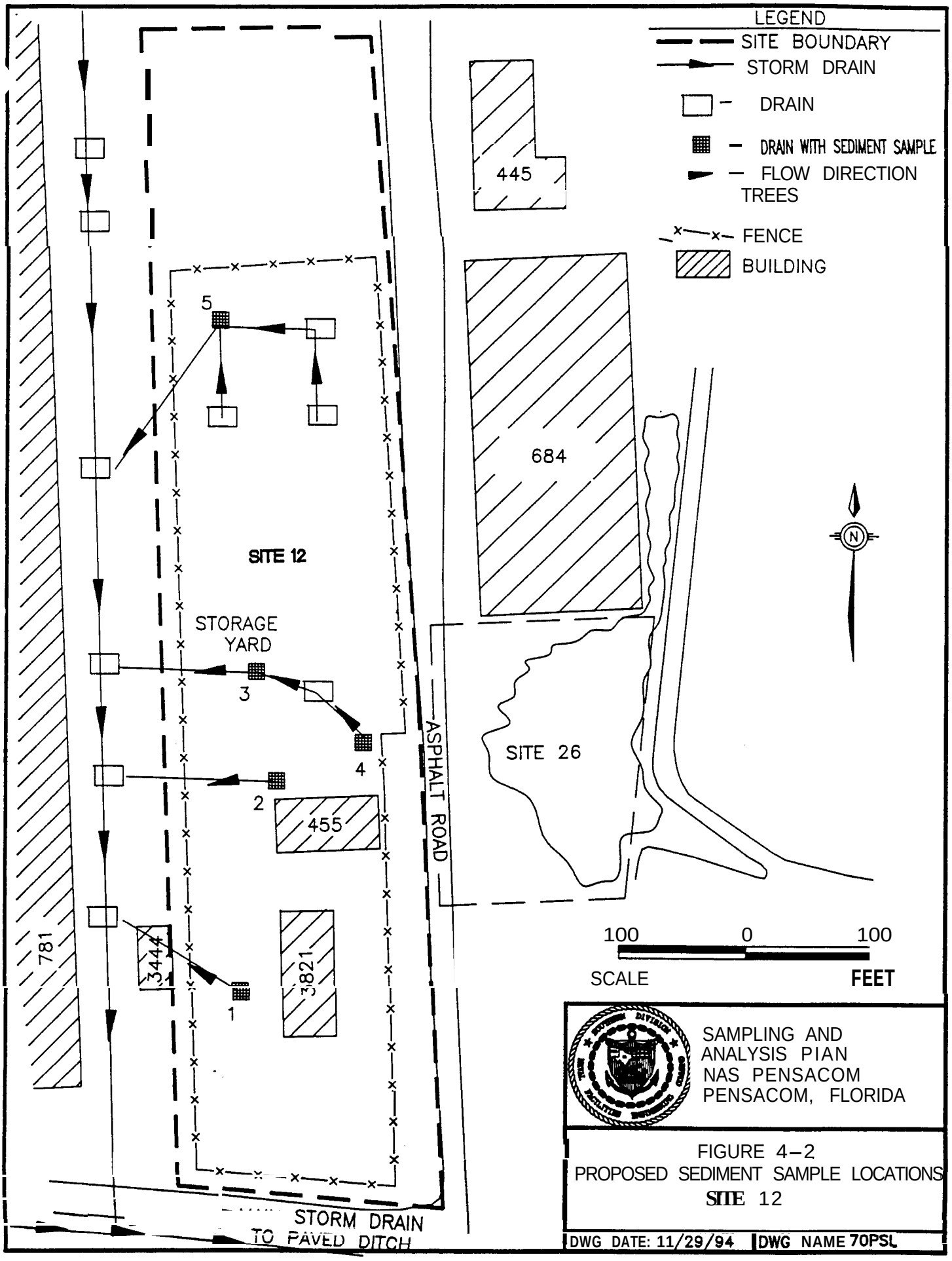
Surface Water Samples — An FSA will be conducted on one surface water sample. [The location of the surface water sample will be decided during the course of the field investigation. The sample will consist of surface run-off pooled after a period of rain. The purpose of this sample is to determine whether contaminants are being washed offsite with stormwater.] PPW analyses will be conducted on the surface water sample for the FS to represent potentially contaminated conditions.

Sediment Samples — An FSA will be conducted on six sediment samples collected from storm water drains. [All samples will be collected from within Site 12 boundaries. Five sample locations are shown in Figure 4-2. The location of the sixth sample will be determined during the field investigation. Further delineation of the storm drain system indicate that it would not be advantageous to collect sediment samples from the upstream and downstream extensions of the north-south trending storm drain adjacent to Building 781 (Figure 4-2) because the sediment is impacted by other sites, and this is beyond the scope of this investigation.] If sufficient sediment volume is present, one 0- to 6-inch depth sample will be collected at each sample location.

PPS and GS analyses will be conducted on two sediment samples collected for the FS to represent both background and potentially contaminated conditions.

Soil Samples — An FSA will be conducted on approximately 56 soil samples collected from 14 soil boring locations. All boring locations will be sampled at the following intervals: 0 to 1 feet below land surface (bls), 3 to 5 feet bls, 8 to 10 feet bls, 13 to 15 feet bls, etc., from the land surface to the depth of the water table, estimated to be 18 feet bls.

[An additional boring will be advanced for gamma radiation screening. The location of the boring coincides with the highest gamma radiation readings collected by E & E (1991). Soil samples will be collected from 0-1 feet, 1-3 feet, 3-5 feet, etc to the groundwater. All


LEGEND
SITE BOUNDARY
STORM DRAIN
DRAIN
DRAIN WITH SEDIMENT SAMPLE
FLOW DIRECTION
TREES
FENCE
BUILDING
445
684
SITE 12
STORAGE YARD
SITE 26
ASPHALT ROAD
455
781
3444
3821
1
2
3
4
5
STORM DRAIN TO PAVED DITCH
100 0 100
SCALE FEET
SAMPLING AND ANALYSIS PIAN
NAS PENSACOM
PENSACOM, FLORIDA
FIGURE 4–2
PROPOSED SEDIMENT SAMPLE LOCATIONS
SITE 12
DWG DATE: 11/29/94
DWG NAME 70PSL

samples will be screened using a Ludlum Model 44-2 gamma scintillator with an attached NaI probe in accordance with the CSAP. All samples containing elevated gamma radiation values will be sent to the laboratory for gamma-spec analysis, however if the screening does not detect elevated gamma radiation values in any of the samples, then 5% of the samples will be sent to the laboratory for gamma-spec radiation analysis.]

Soil samples are not expected to be collected below the water table. If visual or olfactory evidence of contamination is observed below the water table, a sample will be collected for an FSA to characterize and delineate potential contamination.

Groundwater Samples — A FSA will be conducted on groundwater samples collected from nine shallow monitoring wells. The wells will be completed to a target depth of 26 feet bls. In addition, one sample will be analyzed for PPW.

4.4 Sampling Procedures

Proposed sampling procedures are presented in Sections 4, 5, 6, and 7 of the CSAP. General sampling requirements will adhere to Section 2.2 of the CSAP with sample processing performed in accordance with Section 12. A brief description of the sampling procedures and any proposed procedure modifications to the CSAP or E&E site work plan (1992) are discussed below. All samples collected for HEX analysis will only be collected in the afternoon on Monday through Thursday due to a 24-hour holding time.

4.4.1 Surface Water Sampling

Surface water samples will be collected, during or shortly after a rain event, using either the submerged bottle technique for water less than 3 feet deep or the Kemmerer sampler for deeper water. Surface water sampling procedures will follow Section 7.3 of the CSAP.

4.4.2 Sediment Sampling

Sediment samples will be collected using a stainless steel trowel or spoon. Sediment sampling procedures will adhere to Section 7.2 of the *CSAP.*

4.4.3 Soil Sampling

Soil borings will be advanced using hollow-stem auger drilling techniques. Soil samples will be collected using split-barrel samplers in accordance with Section 4.6.1 of the *CSAP.*

4.4.4 Monitoring Well Installation and Development

Monitoring well borings will be advanced using hollow-stem auger drilling techniques. The drilling methods and monitoring well installation procedures will adhere to Sections 5.2 and 5.3 of the CSAP. In accordance with Florida Administrative Code Chapter 40A-3, neat cement grout is required in all monitoring well installations. Because of possible floating contaminants, shallow monitoring wells will be installed so the well screen brackets the water table.

At least 24 hours after monitoring well installation is complete, the monitoring wells will be developed in accordance with Section 5.4 of the CSAP. Monitoring well development will continue until the water withdrawn is as free of turbidity, as possible, based on the subsurface lithology of the area and pH, temperature, and specific conductivity have stabilized. These measurements will be recorded in accordance with Section 10.1 of the *CSAP.*

4.4.5 Groundwater Sampling

Due to the depth to ground water a Grundfos pump (as opposed to a peristaltic pump) with a low pumping rate will be used to provide quiescent sampling. **[The sampling will be performed in accordance with Section 6.3 of the *CSAP.*]** Field measurements to be recorded during groundwater sampling include pH, temperature, specific conductance, turbidity, groundwater level, and organic vapor detection. These measurements will be recorded in accordance with Section 10.1 of the CSAP.

4.5 Hydrologic Assessment

Groundwater levels will be measured from all the monitoring wells installed for Site 12 on the same day, at approximately the same time. These will be contoured to allow easy interpretation of the groundwater flow patterns under the site. In addition, specific capacity tests and/or slug tests will be performed on three wells to provide a first estimate of the hydraulic conductivity of the surficial zone.

4.6 Ecological Assessment

A minimum of a Phase I habitat and biota survey will be conducted in accordance with Section 8.1 of the ***CSAP.***

4.7 Geodetic Survey

A geodetic survey of the locations of the soil borings and monitoring wells will be performed using a Global Positioning System (GPS) in accordance with manufacturer's specifications.

4.8 Decontamination

Decontamination procedures will be performed in accordance with Section 11 of the ***CSAP.***

4.9 Investigation-Derived Wastes

Investigation-derived wastes (IDW) will be handled in accordance with Section 13 of the ***CSAP,*** and the IDW Management plan for NAS Pensacola.

4.10 Field Quality Assurance/Quality Control

Field quality assurance/quality control (QA/QC) samples will be collected in accordance with the frequency presented in Table 15-1 of the ***CSAP.*** QA/QC procedures to be followed during the investigation will be in accordance with Section 15.2 of the ***CSAP.***

5.0 QUALITY ASSURANCE PLAN

The Quality Assurance Plan presented in Section 15 of the *CSAP* will be followed during the Site 12 Preliminary Characterization.

6.0 DATA MANAGEMENT PLAN

The Data Management Plan presented in Section 14 of the CSAP will be followed during the Site 12 Preliminary Characterization.

7.0 REFERENCES

Ecology and Environment, Inc. (1992). ***Contamination Assessment/Remedial Activities Investigation Work Plan — Group B, Naval Air Station Pensacola, Pensacoh, Florida.*** Ecology and Environment, Inc.: Pensacola, **Florida.**

Ecology and Environment, Inc. (1991). ***Interim Data Report, Contamination Assessment/Remedial Investigation, Scrap Bins (Site 12), Naval Air Station Pensacoh, Pensacoh, Florida.*** Ecology and Environment, Inc.: Pensacola, **Florida.**

EnSafe/Allen & Hoshall. (1994). ***Comprehensive Sampling*** and ***Analysis Plan For Naval Air Station Pensacoh, Pensacoh, Florida — Final.*** EnSafe/Allen & Hoshall: Memphis, Tennessee.

Naval Energy and Environmental Support Activity (NEESA), 1983, ***Initial Assessment*** Study ***of Naval Air Station, Pensacoh, Florida.*** NEESA 13-015.

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8.0 FLORIDA PROFESSIONAL GEOLOGIST SEAL

I have read and approve of the Final Sampling and Analysis Plan for the Site 12 — Scrap Bins and seal it in accordance with Chapter 492 of the Florida Statutes. In sealing this document, I certify that the geological information contained in it is true to the best of my knowledge and that the geological methods and procedures included in this plan are consistent with currently accepted geological practices.

Name:	Brian E. Caldwell
License Number:	1330
State:	Florida
Expiration Date:	July 31, 1996

B E Caldwell

Brian E. Caldwell

2/28/95

Date