COMPREHENSIVE LONG-TERM ENVIRONMENTAL ACTION FINAL SAMPLING AND ANALYSIS PLAN FOR SITE 11 — NORTH CHEVALIER DISPOSAL FIELD NAVAL AIR STATION PENSACOLA, FLORIDA

SOUTHDIV-CONTRACT NUMBER:
N62467-89-D-0318
CTO-058

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

Prepared by:
ENSAFE/ALLEN & HOSHALL
5724 Summer Trees Drive
Memphis, Tennessee 38134
(901) 372-7962

May 1993

Table of Contents

[Bold items enclosed in brackets denote changes to last version of document]

List of Figures

List of Tables

[Bold items enclosed in brackets denote changes to last version of document]

1.0 INTRODUCTION

As part of the U.S. Navy Comprehensive Long-Term Environmental Action Navy (CLEAN) Program, a Remedial Investigation/Feasibility Study (RI/FS) will be completed by EnSafe/Allen & Hoshall (E/A&H) at Site 11 — North Chevalier Disposal Area, located at the Naval Air Station Pensacola (NASP), 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 (SOUTHDIV) under Contract Number N62467-89-D-0318/058.

Primary references for this SAP include [the ***Comprehensive Sampling and Analysis Plan (CSAP) For NAS Pensacola* (E/A&H 1993)**, the *EPA Region IV Standard Operating Procedures and Quality Assurance Manual* (SOP/QAM), and the *Contamination Assessment/Remedial Activities Investigation Work Plan-Group B (Site 11)* completed by Ecology & Environment, Inc. (E&E 1992). Reference to these documents is made throughout this SAP and they should accompany this document during review or use. The investigation of Site 11 will be completed to fulfill requirements set forth in the Work Plan and the site-specific SAP and will be conducted in accordance with the SOP/QAM.

The Site 11 RI will assess the nature and extent of contamination identified during an investigation previously conducted by E&E as Phase I of the Work Plan [and any additional contamination identified during the RI. Any additional sources or contamination previously not detected will be investigated by the collection of additional samples from any given media, sampling of additional media not included in the site-specific SAP, installation of additional monitoring wells to delineate the extent and depth of contaminants, and performance of aquifer response test to characterize subsurface hydrologic conditions. Prior to the initiation of additional field activities, a field change request will be submitted

[Bold items enclosed in brackets denote changes to last version of document]

to the Navy for approval, and the **EPA** and FDER will be notified]. The results of the previous investigation are contained in a report entitled ***Interim Data Report (IDR), Contamination Assessment/Remedial Investigation, North Chevalier Disposal Area (Site 11), Naval Air Station Pensacola, Pensacola, Florida, Volumes I and 11*** (E&E 1991). Proposed activities for the RI have taken into consideration all previous investigations at Site 11, including Phase I.

Field activities to be performed during the **RI** include a [a contaminant source survey, **a** soil gas survey,] the completion of soil borings and monitoring wells, and the collection of **soil** and groundwater samples [for analysis]. Chemical analyses will be completed by a [laboratory that is approved the Naval Energy and Environmental Support Activity (NEESA) using Contract Laboratory Program (CLP) protocol]. Field sampling, analytical methods, and reporting **will** be conducted at **EPA** Level IV protocol.

Upon completion of the investigative work and laboratory analysis, an RI report will be submitted to SOUTHDIV summarizing the activities, results and conclusions **of** the investigation. The report will provide supporting **data** for the performance of a baseline risk assessment (BRA) and FS to be completed at the site.

This site-specific SAP, [in conjunction with the CSAP,] **will** provide guidelines for sampling and analytical techniques to be used during the RI, and **will** outline proper documentation procedures for the investigation.

2.0 BACKGROUND INFORMATION

2.1 Site Description

Site 11 occupies an 18-acre area adjacent to an arm of Bayou Grande north of Chevalier Field (also known as the Yacht Basin). Two large prefabricated buildings (Buildings 3627 and 3628) are located at the center of the site and Building 3445 is at the southwest corner. The area surrounding Buildings 3627 and 3628 is paved with asphalt, and a new north-south road runs through the site. The onsite surface elevation is approximately 5 feet above mean sea level (msl) and the topography appears to be level. Surface soils appear to be sandy and well drained. Eleven shallow and one deep groundwater monitoring wells **[are installed]** in and around the site. Other sites in the vicinity of Site 11 include Site 12, a scrap bin area, and Site 26, the Supply Department outside storage area.

2.2 Site History

In the late 1930s and up to the mid 1940s, Site 11 was a low, swampy area where industrial wastes were disposed of and burned. These reportedly included wastes from aircraft engine overhauls, waste oil, lumber, and other ignitable materials (E&E 1992).

The historical setting of Site 11 is **[detailed]** in Section 3 of the associated work plan for this site (E&E 1992). The history of previous activities and investigations are reported as they relate to the existence of known or suspected site contaminants. The IDR fully discusses the findings of E&E's 1991 Phase I investigation conducted at Site 11 (E&E 1991).

2.3 Physical Setting

Detailed descriptions of climatology, biological resources, surface water hydrology, physiography, and hydrogeology for NASP *are* contained in Sections 4 through 7 of the associated Work Plan for this site (E&E 1992).

3.0 PHYSICAL SURVEYS

Various physical surveys have been conducted at Site 11 as part of E&E's Phase I activities [including analysis of aerial photographs and existing data, site reconnaissance, habitat/biota survey, asbestos survey, surface emissions survey and particulate air sampling, radiation survey, and a geophysical survey. The results of each of these] can be found in Section 3.0 of the IDR (E&E 1991). Relevant information from these surveys has been taken into account during the planning of the RI, but will not be duplicated.

[A well inventory has been completed at Site 11 to assess the accessibility and validity of the groundwater sampling locations. Any monitoring wells that were found to be in disrepair will be repaired or abandoned in accordance with Northwest Florida Water Management District 2 regulations. The abandoned monitoring wells will be replaced with additional monitoring wells as necessary. In addition, both a soil gas survey and contamination source survey will be conducted at EPA Level II protocol to collect screening data.]

[3.1 Soil Gas Survey

A soil gas survey will be performed across Sites 11 to delineate the extent of the soil gas and groundwater contaminant plume. The soil gas survey results will be used to select the soil and groundwater sampling points to monitor the extent and movement of the contaminant plume. A 100-foot interval sampling grid will be established across the site. The two baselines of the grid will be established at 100-foot intervals by E/A&H personnel using a hand level. Soil gas analysis will be collected at each of the grid points. At grid points with elevated soil gas readings, a groundwater sample will be collected and analyzed using the heated-headspace method. All measurements will be recorded in the field logbook. Areas of elevated soil gas readings will be further investigated by redefining the grid to 10-

foot intervals. Additional soil gas readings will then be collected. The baselines and other key elements of the grid will be documented by a Florida registered surveyor for inclusion on report maps. Soil gas sampling procedures will be performed in accordance with Section **3.2** of the CSAP.]

[3.2 Contaminant Source Survey

A preliminary survey will be conducted to determine any potential contaminant sources and any present or past waste streams at the site. **This** survey will include a review of previous investigative reports, interviews with present and/or former **NASP** personnel, aerial photo analysis, and a utility survey.

The contaminant source survey will identify:

- The location of previous and current underground and overhead piping and utilities.
- The nature of past and/or present site activities that may have contributed to site Contamination (e.g., types of substances used and waste disposal practices).
- Locations of any known surface spills or leaks.
- Locations of any existing or known historical outfalls.
- The locations and contents of any known present or former underground storage tanks.

3.3 Habitat and Biota Survey

A Phase I habitat/biota survey will be performed at Site **11** as outlined in Section **8** of the CSAP to identify any onsite terrestrial and aquatic habitats or any surrounding habitats that could be affected by contamination migration. If potentially affected biota are identified at Site 11 during the Phase I survey and biota sampling is required for this site, Phases II and III of the ecological assessment will also be implemented as outlined in the CSAP.]

4.0 FIELD SAMPLING PLAN

The Field Sampling Plan details the sampling and field measurement procedures to be used during the RI. The field investigation includes advancing soil borings, installing groundwater monitoring wells, and collecting soil and groundwater samples using various techniques. The sampling and analytical requirements for this investigation are summarized in Table 4-1, and described in the following discussion.

The EPA Contract Laboratory Program (CLP), Target Analyte List (TAL), and Target Compound List (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.

Analyses proposed in this SAP have been organized differently than those in the Work Plan, which are subdivided into "Suites A through E". Proposed analytical parameters are now organized into the four basic subdivisions listed below.

Organization of Analytical Parameters:

- **Full Scan of Analysis (FSA) —** These chemical analyses will be performed on all samples collected. A full scan consists of analysis for TCL VOCs, **[base-neutral acid extractables]** (BNAs), **[polychlorinated biphenyls]** (PCBs), pesticides, cyanide, and TAL metals (unfiltered).

- **Physical Parameters, Water (PPW) —** These analyses will be performed on only a portion of the groundwater samples collected at the site. These parameters **[will be used to]** determine the physical characteristics of site groundwater **[for completion of the FS].**

Medium	No. of Samples[a]	Analytical Parameter	[DQO Level]	Comments
Soil[b]	108 (8) [3]	FSA PPS ST	[IV] [IV] [IV]	 -Shelby Tube
Groundwater[c]	1371 (12)	FSA PPW	[IV] [IV]	 -4 from each SWs, IWs, DWs
Total	145 (20)			

Source: Modified from Ecology and Environment, Inc., 1992

Notes:

a The number of samples shown in parentheses will be analyzed for the additional parameters indicated.

b Number of soil samples = 36 boring locations x 3 depth intervals = 108 samples; 1 depth interval from [3 initial] deep wells = [3] samples.

c Number of groundwater samples = 9 existing wells, plus [28] new wells (14 shallow, 11 intermediate, and [3 initial] deep) = [37] samples.

Analytical Parameters
Full Scan of Analysis (FSA) = TCL VOCs; TCL base-neutrallacid extractable organic compounds (BNAs); TCL Analysis pesticides and TCL polychlorinated biphenyls (PCBs); TAL metals (total [i.e., unfiltered], water only); and TCL cyanide.

Physical Parameters
Water (PPW) = 5-day biological oxygen demand (BOD), chemical oxygen demand (COD), hardness, total suspended solids, alkalinity, total phosphorus, nitrate-N, total Kjeldahl nitrogen (TKN), and heterotrophic plate count.

Physical Parameters
Soil (PPS) = Total phosphorus, nitrate-N, TKN, heterotrophic plate count, total organic carbon, cation exchange capacity.

Physical Parameters
Soil (ST) = Bulk density, partial size, percent moisture, specific gravity, permeability and porosity (taken with Shelby tube).

SW = Shallow well
IW = Intermediate depth well
DW = Deep well

[Bold items enclosed in brackets denote changes to last version of document]

The parameters include 5-day biological oxygen demand (BOD), chemical oxygen demand (COD), hardness, suspended solids, alkalinity, total phosphorus, nitrate -N, total Kjeldahl nitrogen (TKN), and heterotrophic plate count. Samples for these analyses will be collected at the same time and in addition to the samples collected for the FSA analyses. PPW samples will be collected from all aquifer zones sampled. The locations chosen for the PPW samples will be based on field observations (OVA readings, physical characteristics, etc.) and will be intended to represent the physical conditions of groundwater at the site. Areas likely representing contaminated as well as ambient conditions will be targeted.

- **Physical Parameters, Soil** (PPS) — These analyses will be performed on only a portion of the soil samples collected at the site. These parameters **[will be used to determine]** the physical characteristics of site soils located above the water table for **[completion** of **the FS].** The parameters include total phosphorus, nitrate-N, TKN, heterotrophic plate count, total organic carbon **(TOC),[and]** cation exchange capacity. Samples for these analyses will be collected at the same time and in addition to the samples collected for the FSA analyses. The locations chosen for the **PPS** samples will be based on field observations, and will be intended to represent the physical conditions of soils at the site. Areas likely representing contaminated as well as ambient conditions will be targeted.

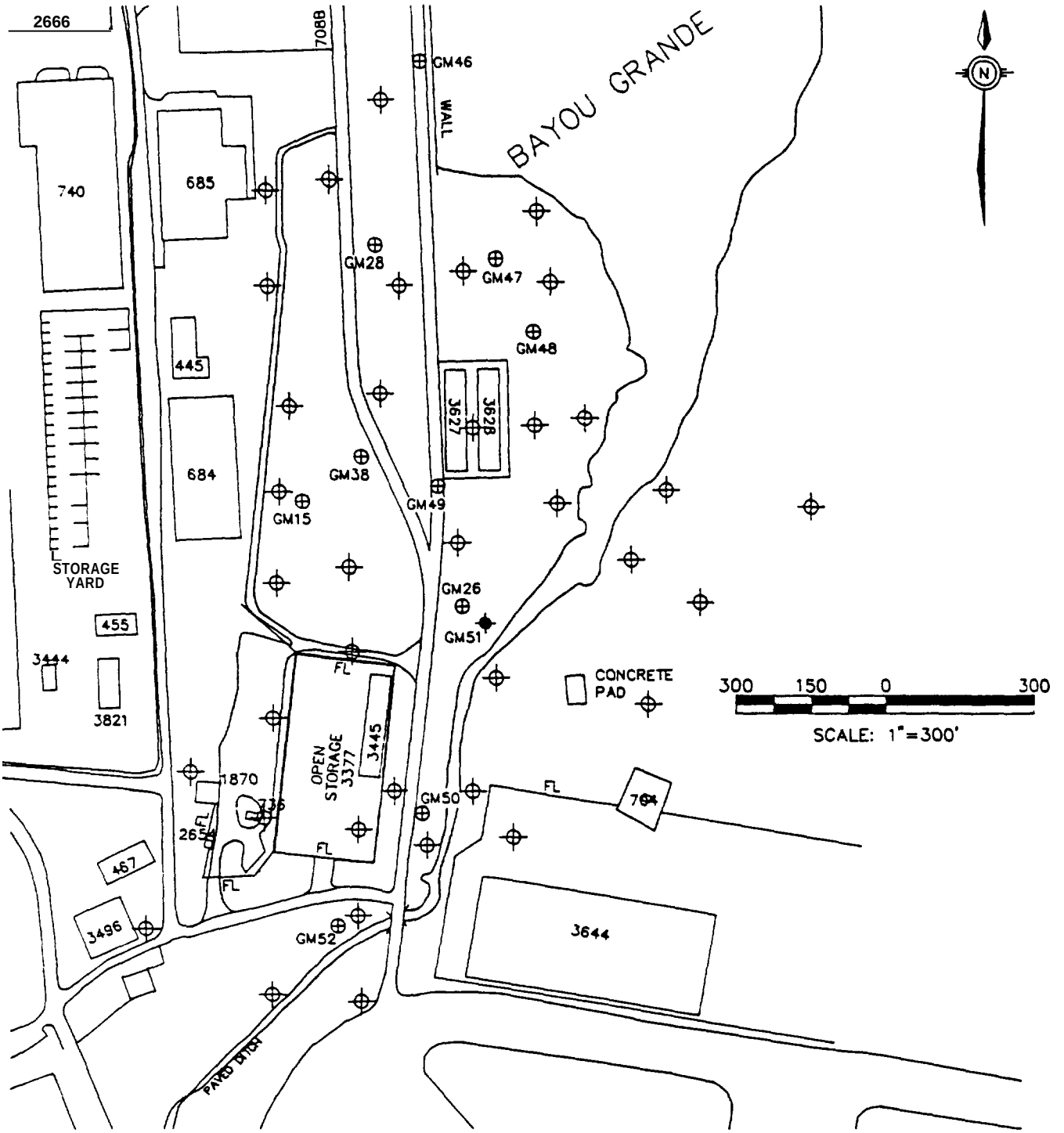
- **Physical Parameters, Soil (ST)** — These analyses will be performed only on soil samples collected with a Shelby tube sampler from the first **confining/semiconfining** unit encountered at the site. It is anticipated that this unit exists at approximately **40** feet below land surface (bls), immediately below the surficial aquifer zone. These parameters [will **be used to determine]** the physical characteristics of the confining unit matrix. Each Shelby tube sample will be analyzed for bulk density, particle size, percent

moisture, specific gravity, permeability and porosity. This information will be used to calculate the potential for contaminant migration between overlying and underlying aquifer zones.

Appendix IX analyses are no longer proposed for this investigation. Additionally, modifications have been made to the list of remediation/physical characteristic parameters proposed in the Work Plan. These changes have been made to address CERCLA requirements rather than RCRA requirements (i.e. the omission of Appendix IX analysis), to acquire additional information about the physical characteristics of site soils and groundwater in support of the Feasibility Study, as well as for simplicity. Therefore, certain parameters have been omitted from this *SAP* because they are either redundant with the comprehensive TAL/TCL analytical methods or provide information that is not legally defensible, or of limited use.

[Modification to Deep Monitoring Well Installation:
Initially, only three of the six deep monitoring wells proposed in the Site 11 Work Plan will be installed. The installation of deep wells 4, 13 and 17 will be postponed until the results of representative groundwater samples collected from the surficial and intermediate zones confirm the need for these permanent deep monitoring well locations.]

The [remaining] sampling locations are not expected to vary as they have been based on information obtained during the Phase I investigation. [The sample locations may, however, be modified based on the results of soil gas survey. The proposed] sample locations for Site 11 are presented in Figures 4-1 and 4-2. [Any additional sources or contamination previously not detected will be investigated during Phase II by the collection of additional



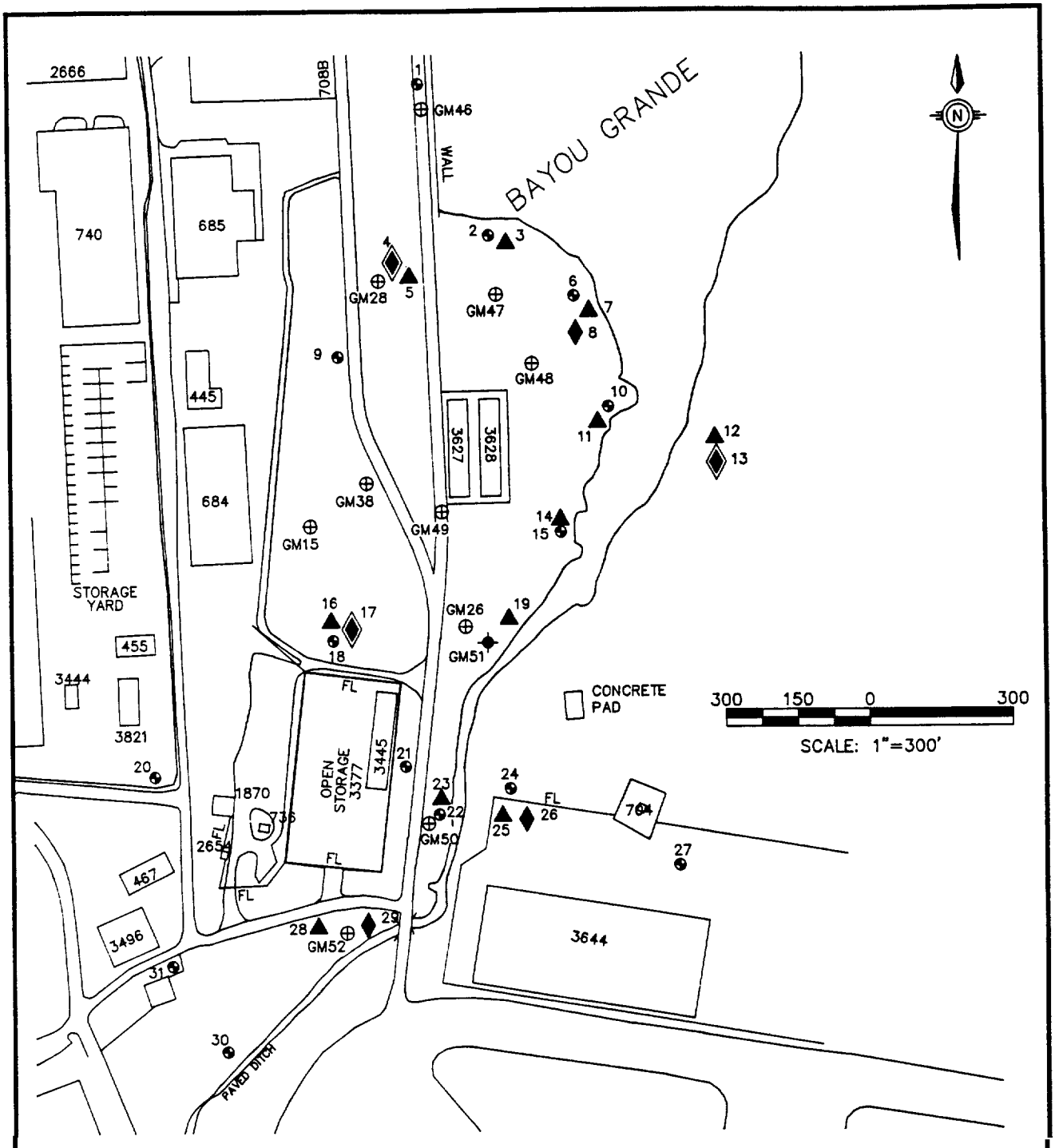
LEGEND

- BORING
- **EXISTING PERMANENT DEEP MONITORING** WELL
- **EXISTING PERMANENT SHALLOW** MONITORING **WELL**

SAMPLING AND ANALYSIS PLAN
SITE 11
NAS–PENSACOLA
PENSACOLA, FLORIDA

FIGURE 4–1
PROPOSED SOIL BORING LOCATIONS

DATE: 12/16/92 | DWG NAME: 048SIT11



LEGEND

- ▲ PROPOSED INTERMEDIATE MONITORING WELL
  PROPOSED DEEP MONITORING WELL
- ◈ PROPOSED SECONDARY DEEP MONITORING WELL
- e PROPOSED SHALLOW MONITORING WELL
  EXISTING PERMANENT DEEP MONITORING WELL
- ⊕ EXISTING PERMANENT SHALLOW MONITORING WELL

SAMPLING AND ANALYSIS PLAN
SITE 11
NAS–PENSACOLA
PENSACOLA, FLORIDA

FIGURE 4–2
PROPOSED MONITORING WELL LOCATIONS

DWG DATE: 04/02/93 | DWG NAME: 058SIT11

samples from any given media, sampling of additional media not included in this site specific *SAP*, installation of additional monitoring wells to delineate the extent and depth of contaminants, and performance of aquifer response tests to characterize subsurface hydrologic conditions. Prior to the initiation of additional field activities, a field change request will be submitted to Navy for approval and the EPA and FDER will be notified.] A discussion of soil boring and monitoring well location rationale is contained in Section 4.2.2 of the Site 11 Work Plan (E&E 1992).

As previously stated, FSA analysis will be performed on all samples, regardless of media type, (with the exception of Shelby tube samples), collected from all sample locations designated in Figures 4-1 and 4-2. Table 4-1 [summarizes] analysis for each media and sample type.

[Soil Samples —] FSA parameter analysis will be conducted on 108 soil samples collected from the 36 soil boring locations (see Figure 4-1). All boring locations will be sampled [at the following intervals: 0-1' bls, 1-3' bls, 3-5' bls etc.] from the land surface to the water table (see Section 4.5.1 of this *SAP* for soil sampling procedures). For planning purposes, the depth to water is estimated to be approximately *6* feet bls. It is estimated that three depth intervals will be sampled per location for FSA analyses. PPS parameter analysis will also be conducted on eight soil samples collected from the soil borings. The specific locations and depths for the PPS samples will be determined in the field based on site observations (odors, OVA readings, visible stains, etc.) to allow field personnel to identify locations that offer the best representation of site conditions (including areas of contamination).

[Groundwater Samples —] FSA parameter analysis will be conducted on one groundwater sample collected from 37 monitoring wells (see Figure 4-2). These monitoring well locations include the existing site monitoring wells, and newly installed site monitoring wells. PPW

parameter analysis will also be conducted on 12 of the groundwater samples collected. Groundwater samples will be collected from 14 shallow, 11 intermediate, and **[three initially installed]** deep wells. The specific locations for **PPW** sample collection will be determined in the field during FSA groundwater sample collection, and based on site observations (OVA readings, odors, etc.). In this way, field personnel will be able to identify locations that offer the most representative groundwater conditions or sample in areas of likely groundwater contamination,

[Shelby Tube Samples —] **ST** parameter analysis will be conducted on samples collected from the first confining/semiconfining unit encountered during drilling with a Shelby tube sampler (see Section 4.5.2 of this **SAP** for well installation procedures). One Shelby tube sample per well will be collected during installation of the **[three initially installed]** deep monitoring wells at Site 11.

4.1 Sampling Objective

Sampling objectives applicable to the Site 11 RI are **similar** to **and** in accordance with those presented in **[the *CSAP].*** However, no sediment or surface water sampling is proposed for the Site 11 investigation **[but shall be included in the RI for Bayou Grande (Site 40), the NASP Wetlands (Site 41) and Sites 30 and 31.1**

4.2 General Sampling Requirements

General sampling requirements applicable to the Site 11 RI are **[presented** in **Section 2.2 of the** CSAP].

4.3 Sample Management

Sample management procedures to be followed during the Site 11 RI are [described in Section **12** of the CSAP].

4.4 Collection of Auxiliary Data

Auxiliary data collection applicable to the Site 11 RI is in accordance with [Section 9 of the CSAP. Pumping tests will be performed at the site if groundwater remediation is required. Prior to initiating the pumping tests, slug tests will be performed at selected monitoring wells. The results of the slug tests will be used to design the appropriate pumping tests. Pumping tests will be performed in accordance with the procedures provided in Section 9.6.2 of the CSAP.]

4.5 Sampling Procedures

Sampling procedures proposed for the Site 11 RI are presented in [Sections **4, 6, 7,** and 8 of the CSAP]. These procedures that apply to this investigation will be referenced in the following subsections. All proposed modifications to the [CSAP] procedures, or modifications to procedures in the Site 11 Work Plan, will be discussed in the following subsections.

Soil Sampling

Soil samples will be collected during the installation of the 36 soil borings and [three initially installed] deep monitoring wells. Soil boring and monitoring well locations are shown in Figures **4-1** and **4-2.** The drilling methods and soil sampling procedures to be followed are in accordance with those in [Section **4** of the CSAP].

[Modifications to Soil Sampling Procedures:]

It is also proposed that modifications be made to the soil sampling procedures in the Site 11 Work Plan as follows:

- Only one Shelby tube sample be collected (instead of the two samples per deep well stated in the Work Plan) from the first confining/semiconfining unit encountered during the installation of each deep monitoring well, as described **in [Section 4.6.2 of the CSAP]**. This modification is proposed to avoid redundant analysis. **It** shall be noted that soil sampling for chemical analysis **(FSA)** is not proposed during well installation.

- With the exception of Shelby tube samples, no soil samples will be collected below the water table. This modification **is** proposed because no conclusive information would be obtained from collecting saturated soil samples below the water table for chemical analysis. [If **physical evidence of contamination is observed below the water table, a sample will be collected for FSA analyses for characterization and delineation of the source material.].**

Monitoring Well Installation

[Twenty-eight] monitoring wells will be installed at Site **11** (proposed locations are shown in Figure **4-2).** Fourteen wells will be shallow, completed to a target depth **of** approximately **20** feet bls. Eleven wells will be completed to an intermediate target depth of approximately **40** feet bls, and **[3 initially installed]** deep wells will be completed to a target depth of approximately 65 feet **bls.** The **drilling** methods and installation procedures are in accordance with those in **[Section 5 of the *CSAP].*** However, the following modifications are proposed for the **Site** 11 RI:

[Bold items enclosed in brackets denote changes to last version of document]

[Modifications to Monitoring Well Installation Procedures:]

- [In accordance with Florida Administrative Code Chapter **40A-3,** neat cement grout is required in all monitoring well installations. Although bentonite grout might provide a better seal in most areas, bentonite grout should be avoided in coastal areas such **as** NAS Pensacola where concentrations of total dissolved solids in groundwater are high].

- Intermediate depth wells will be completed into the lower portion of the surficial aquifer zone, immediately above the first confining/semiconfining unit; deep monitoring wells will be completed into the uppermost portion of the main producing zone (of the Sand-and-Gravel aquifer), immediately below the first confining/semiconfining unit, as stated in Section 14.2.2.3 of the Site 11 Work Plan.

- Surface casings will not be used during the installation of intermediate depth monitoring wells. [Instead], hollow-stem auger techniques **will** be employed to a depth of approximately 25 feet bls, [and then] hydraulic rotary [or hollow stem auger] drilling techniques will be used inside of the hollow-stem augers to [reach] the targeted completion depth of the borehole. **[This** modification is proposed because of the lack of a confining unit between the shallow and intermediate zones. The auger will therefore act as a temporary surface casing to reduce the potential for drawdown of contaminants during well installation.] Surface casings are only proposed for the installation of deep monitoring wells [penetrating] the confining unit.

Groundwater Sampling

Groundwater samples will be collected from the nine existing wells and 28 newly installed monitoring wells at Site 11. Groundwater sampling procedures to be followed are in accordance with those in [Section 6 of the CSAP].

Hydrologic Assessment

A hydrologic assessment will be performed at Site 11 in accordance with procedures described in [Section 9.6 of the CSAP]. However, the following modifications will be made for the Site 11 RI:

- [Full-scale pumping tests (up to 48 hours) will be performed at all sites requiring groundwater remediation. Prior to initiating the pumping tests, slug tests will be performed at selected monitoring wells. The results of the slug tests will be used to design the appropriate pumping tests. The USEPA and FDER will be kept apprised of the investigation as it progresses, and will be notified prior to conducting full scale pumping tests. The Navy will take technical responsibility for the design and implementation of these tests. Pumping tests will be performed in accordance with the procedures provided in Section *9.6.2* of the Comprehensive Sampling and Analysis Plan *(CSAP).]*

- A rain gauge will be installed at or near Site 11 during the RI to regularly monitor site precipitation, as stated in Section 14.2.3 of the Site 11 Work Plan.

[Bold items enclosed in brackets denote changes to last version of document]

4.6 Cadastral Survey

An cadastral survey will be performed at Site 11 as described in **[Section 3.5** of **the CSAP].**

4.7 Decontamination

Decontamination procedures to be followed during the Site 11 RI are in accordance with those in **[Section 11** of **the CSAP].**

4.8 Sample Management

Sample management procedures to be followed during the Site **11** RI are in accordance with those in **[Section 12 CSAP].**

4.9 Sample Custody

Sample custody procedures to be followed during the Site 11 RI are in accordance with those in **[Section 12.5** of **the CSAP].**

4.10 Investigation-Derived Wastes

Procedures to be followed for the handling of investigation-derived wastes during the Site 11 RI are in accordance with those in **[Section 13** of **the CSAP].**

4.11 Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) procedures to be followed during the investigation are in accordance with those in **[Section 15** of **the *CSAP].***

5.0 ANALYSIS

The following subsections provide quality assurance objectives for the collection of field measurements and laboratory analysis.

5.1 Field Measurements

Field measurements will be collected at Site 11 in accordance with guidelines set forth in **[Section** 10.1 **of the *CSAP].*** Field measurements **will** include pH, temperature, specific conductance, salinity, groundwater level, well head survey, and organic vapor detection.

5.2 Laboratory Analysis

Laboratory analysis will be conducted in accordance with guidelines set forth in **[Section 10.2** of **the *CSAP].***

[Bold items enclosed in brackets denote changes to last version of document]

6.0 QUALITY ASSURANCE PLAN

The Quality Assurance Plan (QAP) presented in [Section 15 of the CSAP] is generic and will be used for the Site 11 RI.

7.0 DATA MANAGEMENT PLAN

The Data Management Plan (DMP) presented in the **[Section 12** of **the CSAP] is** generic and will be **used** for the Site 11 RI.

[Bold items enclosed in brackets denote changes to last version of document]

8.0 REFERENCES

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

Ecology & Environment, Inc. (1**991).** ***Interim Data Report, Contamination Assessment/Remedial Investigation,*** *North* ***Chevalier Disposal Area (Site 11), Naval Air Station Pensacola, Pensacola, Florida, Volumes I and II.*** E & E, Inc.: Pensacola, Florida.

[EnSafe/Allen & Hoshall (1993). ***Comprehensive Sampling and Analysis Plan (CSAP) for Naval Air Station Pensacoh.*** **E/A&H: Memphis, Tennessee.]**

U.S. Environmental Protection Agency **(1991).** ***Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual,*** U.S. Environmental Protection Agency, Region IV: Athens Georgia.

9.0 FLORIDA PROFESSIONAL GEOLOGIST SEAL

I have read and approve of the Final Sampling and Analysis Plan for the Site 11 — North Chevalier Disposal Field 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, 1994

Brian E. Caldwell

5-7-93
Date

[Bold items enclosed in brackets denote changes to last version of document]