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PRECONSTRUCTION SOIL INVESTIGATION CHEVALIER FIELD NAS PENSACOLA FL
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ECOLOGY AND ENVIRONMENT, INC.

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PRE-CONSTRUCTION SOIL INVESTIGATION
CHEVALIER FIELD
NAVAL AIR STATION PENSACOLA
PENSACOLA, FLORIDA

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1. INTRODUCTION

This report presents the findings of the pre-construction soil investigation activities performed at Chevalier Field, Naval Air Station (NAS) Pensacola, Escambia County, Florida. This report has been prepared by Ecology and Environment, Inc., (E & E) for Southern Division, U.S. Navy, Naval Facilities Engineering Command, under Contract No. N62467-93-D-0663.

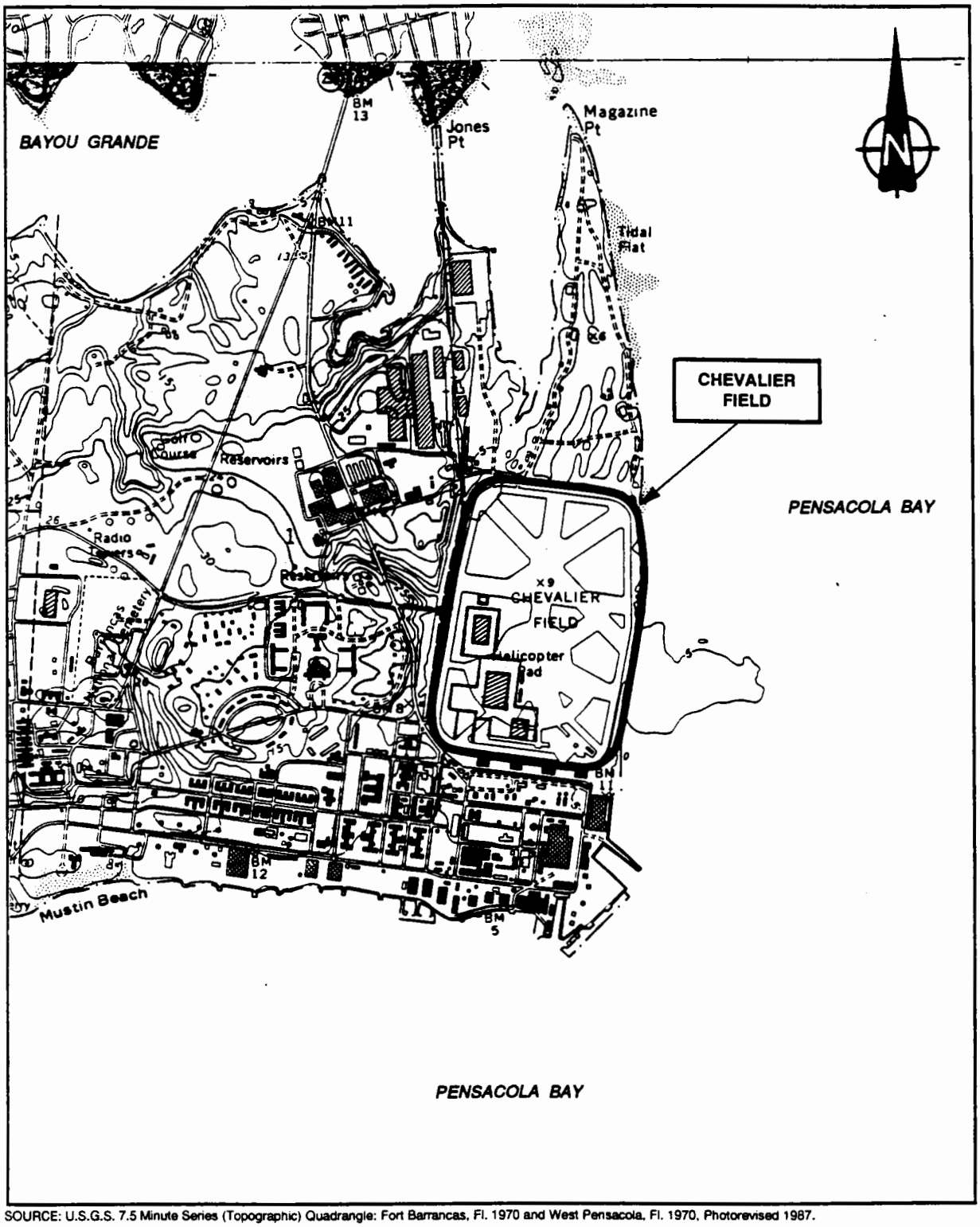
The information presented in this report is based on information and file documents provided by the Navy and on data gathered during the fieldwork conducted by E & E in January 1994. Included in the existing file documents are interim data reports for five Installation Restoration (IR) Program sites and contamination assessment reports (CARs) and/or analytical data for three underground storage tank (UST) sites. The five IR sites originally investigated by E & E are Site 9 (Navy Yard Disposal Area), Site 23 (Chevalier Field Pipe Leak Area), Site 29 (Soil South of Building 3460), Site 34 (Solvent North of Building 3557), and a portion of Site 36 (Industrial Waste Sewer). The performance of these IR investigations and the generation of their associated reports were carried out by E & E under a separate contract (No. 62467-88-C-0200). The UST investigation reports utilized in this investigation are for petroleum sites 2662W, 3557S and 607NE. The UST investigations were performed by ABB Environmental Services, Inc. (ABB), and the associated CARs were furnished to E & E through Southern Division.

The pre-construction soil investigation activities were conducted in accordance with E & E's 1992 General Health and Safety Plan (GHSP; E & E 1992b) and Generic Quality Assurance Project Plan (GQAPP; E & E 1992a), which were previously prepared for and approved by Southern Division. A Site-Specific Health and Safety Plan and a Sampling and Analysis Plan also were generated for this investigation.

Chevalier Field is located along the east central border of NAS Pensacola (see Figure 1-1). The approximately 190-acre facility currently functions as an active Naval Aviation

Depot (NADEP). The purpose of this NADEP facility is to refurbish and test military helicopters. However, this NADEP facility is currently scheduled for closure under Base Realignment and Closure (BRAC). Following closure of the NADEP facility, Southern Division, Chief Naval Education Training (CNET), plans to construct a technical training complex on the former Chevalier Field location.

The purpose of the pre-construction investigation was to: make a preliminary determination of the presence of potentially contaminated soil and groundwater and the primary contaminants of concern which may affect construction of the CNET facility; document the areas of soil contamination that will remain after facility closure; and determine the relative risk to worker safety during construction activities.



SOURCE: U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle: Fort Barrancas, Fl. 1970 and West Pensacola, Fl. 1970, Photorevised 1987.

SCALE

0 .5 1 MILE

0 1000 2000 3000 4000 5000 FEET

Figure 1-1
LOCATION MAP — CHEVALIER FIELD - NAS PENSACOLA

2. INVESTIGATION METHODOLOGY

2.1 PRE-FIELDWORK SCOPING MEETING

On December 23, 1993, a pre-fieldwork scoping meeting was conducted at NAS Pensacola. The meeting was attended by personnel representing NAS Environmental Division, CNET, NADEP, Public Works Center (PWC), and E & E. During this meeting, the general scope of work was discussed and prospective sample locations were identified.

2.2 EXISTING DATA EVALUATION

Prior to initiation of fieldwork, E & E personnel examined all available CARs and analytical data for sites located in the Chevalier Field area. These included the five IR sites previously investigated by E & E: Site 9 (Navy Yard Disposal area), Site 23 (Chevalier Field Pipe Leak Area), Site 29 (Soil South of Building 3460), Site 34 (Solvent North of Building 3557), and a portion of Site 36 (Industrial Waste Sewer). The interim data reports for these sites contained analytical screening results for soil samples and groundwater samples collected from temporary monitoring wells. Groundwater samples collected from the existing permanent monitoring wells were analyzed using U.S. Environmental Protection Agency (EPA) Contract Laboratory Program (CLP) protocol for the Target Analyte List (TAL) and Target Compound List (TCL) parameters.

These analytical results were reviewed to determine the areas that either require additional assessment or are adequately characterized by the existing data. Based on this review, the sample locations for this investigation were selected.

Although contamination assessments have been performed at three UST sites in the Chevalier Field area, the information obtained from these investigations was not reviewed prior to the fieldwork because it was not available to E & E at that time. Sections 3.2.1 and 3.2.2 present and discuss the results of the IR and UST investigations.

2.3 SOIL BORINGS

For the purpose of this investigation, 50 soil borings were completed at Chevalier field on January 5 and 6, 1994 (see Figure 2-1). The soil boring locations were selected by E & E based on the existing analytical data and the proposed locations of the CNET facility buildings. The soil borings were located in areas not previously investigated, with emphasis placed on those areas with suspected contamination and in the vicinity of the proposed CNET facility buildings. Table 2-1 provides the rationale for the specific soil boring locations. These boring locations were approved by Southern Division prior to initiation of the fieldwork. At each boring location, samples were collected for laboratory analysis and the soil headspace survey using a hand auger. The soil borings were advanced to the water table by hand using a stainless steel bucket auger. The depth to the water table ranged from 2 to 6 feet below land surface (BLS), with an average depth of approximately 4.5 feet BLS across Chevalier Field. Soil cuttings generated by each boring were placed onto plastic sheeting and containerized in DOT-17H drums. The sampling equipment was decontaminated prior to use and between borings in accordance with Section 6.10 of the GQAPP.

2.4 HEADSPACE SURVEY

An E & E sampling team conducted the soil headspace survey at Chevalier Field. The objective of the soil headspace survey was to determine if any excessively contaminated soil not previously detected, as defined by the Florida Administrative Code (FAC), Chapter 17-770, is present. Two soil samples were composited from each soil boring--one from land surface to approximately 2 feet BLS, and one from 2 feet BLS to the water table. Sample aliquots were composited and sealed in 16-ounce jars, leaving a headspace volume of approximately 50%. After the samples had equilibrated to a temperature between 20°C and 32°C, an organic vapor analyzer (OVA) was employed to conduct a headspace analysis of the soil vapors in accordance with Chapter 17-770.200(2), FAC. One of the two composite samples from each interval was analyzed with an OVA to determine the total organic vapor concentration. The other sample aliquot was analyzed for the presence of methane gas using an in-line granular activated charcoal filter on the OVA. Detailed records of the boring locations and OVA headspace readings were maintained in the site logbook. The headspace survey was performed in accordance with Section 6.4 of the GQAPP.

2.5 SOIL SAMPLING

The E & E sampling team collected 50 subsurface soil samples for laboratory analysis at Chevalier Field. These soil samples were composited from a single interval--the ground surface or just below the pavement to the water table. All soil sampling and compositing activities were performed in accordance with Section 6.6 of the GQAPP. At the direction of Southern Division personnel, no field quality assurance samples were collected. The soil samples were handled, packaged and shipped to E & E's Analytical Services Center (ASC) in Buffalo, New York, in accordance with Section 7.3 of the GQAPP. The soil samples were analyzed using EPA Third Edition SW-846 and American Society for Testing Materials (ASTM) methods; a summary of the analytical parameters is provided in Table 2-2. The sampling equipment was decontaminated in accordance with Section 6.10 of the GQAPP.

The rationale for determining which samples would be analyzed for Toxicity Characteristic Leaching Procedure (TCLP) organics was based on areas of known or suspected organic contamination and headspace survey results. The herbicide and pesticide sampling locations were selected to provide representative coverage of the area of interest.

2.6 DECONTAMINATION PROCEDURES

All equipment used during field activities was decontaminated in accordance with Section 6.10 of the GQAPP

2.7 INVESTIGATION-DERIVED WASTE MANAGEMENT

Soil cuttings generated during soil boring and sampling activities were placed in two 55-gallon DOT-17H drums, sealed, labeled, and moved to a central location on site. Potentially contaminated personal protective clothing, disposable materials, wastes generated during decontamination activities, and any other investigation-derived materials were placed in a separate drum for disposal. Disposal of the drummed investigation-derived materials is currently pending.

Table 2-1

RATIONALE FOR PROPOSED SOIL SAMPLE LOCATIONS CHEVALIER FIELD, NAS PENSACOLA

Soil Boring Numbers	Location Rationale
SB-1, SB-2, SB-4, SB-5, SB-7, SB-8, SB-25, SB-26, SB-38, SB-46	Oil/Water Separator
SB-3, SB-27	Existing Waste Oil UST Site (#607NE,3557S)
SB-6, SB-10, SB-11, SB-12	Industrial Waste Sewer Line
SB-9, SB-14, SB-15, SB-20, SB-21 SB-23, SB-28, SB-29, SB-31, SB-34, SB-35, SB-39, SB-40, SB-41, SB-42, SB-47, SB-48, SB-49, SB-50	Proposed Building Location
SB-13, SB-19	Proposed Building Location, Existing IR Site (#9)
SB-16, SB-17, SB-24	Proposed Building Location, Existing IR Site (#29)
SB-18	Proposed Building Location, Existing IR Site (#9) and Fuel Spill Area
SB-22, SB-30, SB-43, SB-44, SB-45	Athletic Field
SB-32, SB-33	Proposed Building Location, Potential Fuel Spill Area
SB-36	Existing IR Site (#34)
SB-37	Storm Water Runoff Drainage Ditch

Table 2-2

SOIL SAMPLE ANALYTICAL SUMMARY
CHEVALIER FIELD INVESTIGATION

Analytical Parameters (EPA Method)	Total Number of Samples
Volatile Organic Compounds (8240)	50
Base/Neutral and Acid Extractable Organics (8270)	50
Corrosivity (9040)	50
Total Organic Halogens (TOX) (ASTM-D-808-81)	50
Total Metals[a] (6010, 7421, 7060, 7470, 7740)	50
Toxicity Characteristic Leaching Procedure (TCLP Extraction 1311)	
Metals[a] (6010, 7470)	50
Organics (8270)	23[b]
Pesticides (8080)	5[c]
Herbicides (8150)	5[c]

Key:

a Includes arsenic, barium, cadmium, total chromium, lead, mercury, selenium, and silver.

b Samples SS-1, SS-8, SS-10, SS-13, SS-14, SS-17, SS-18, SS-19, SS-21, SS-22, SS-25, SS-26, SS-27, SS-29, SS-33, SS-35, SS-36, SS-38, SS-43, SS-45, SS-46, SS-47, and SS-48.

c Samples SS-1, SS-7, SS-16, SS-43, and SS-45.

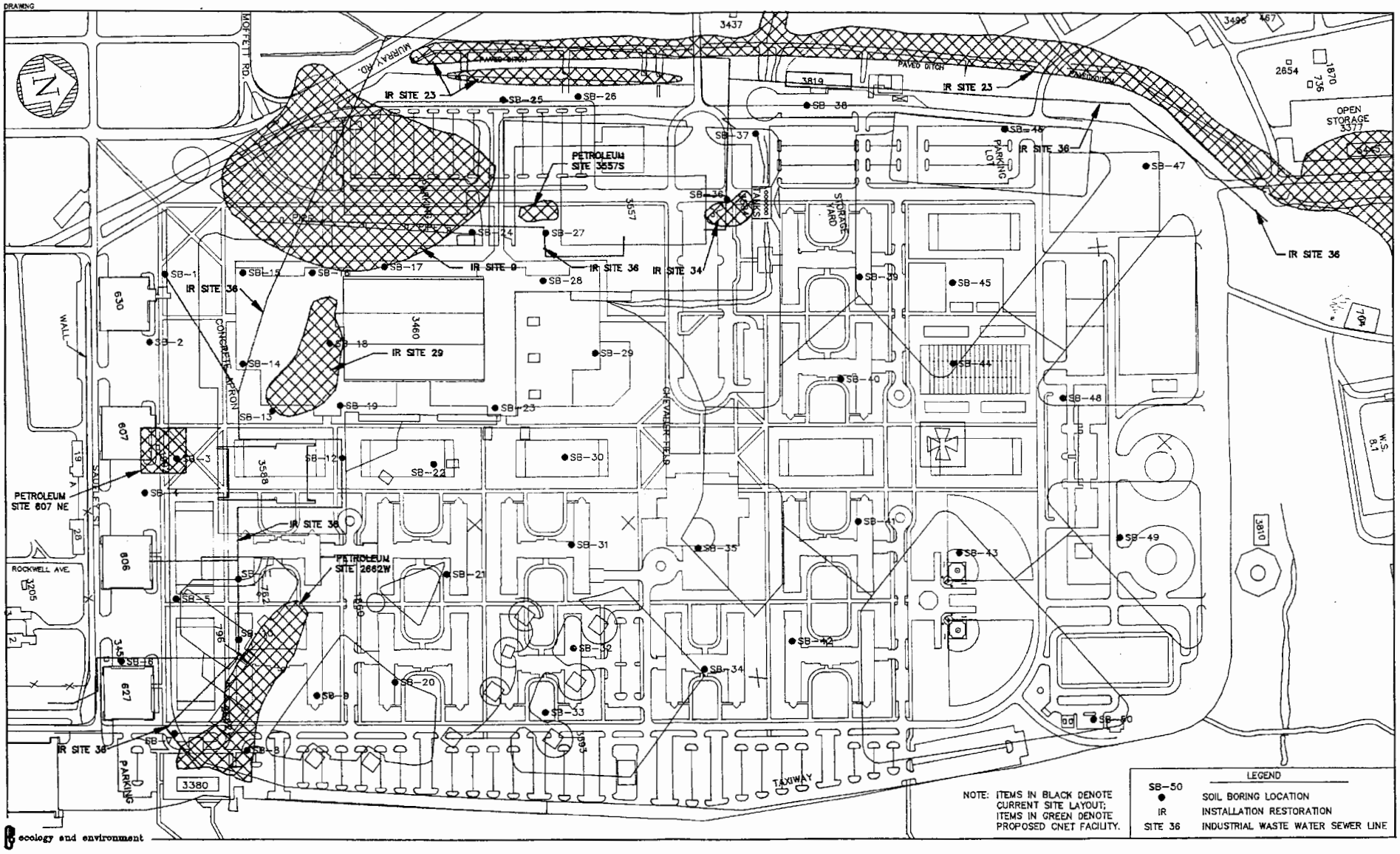


Figure 2-1 SOIL BORING LOCATION MAP
CHEVALIER FIELD, NAS PENSACOLA

3. RESULTS

To achieve the objectives of this investigation, E & E compiled and evaluated information from a variety of sources, including soil headspace and soil and groundwater analytical data from ABB's UST investigations, screening level soil and groundwater analytical data and CLP groundwater data from E & E's interim data reports on the IR sites, and soil headspace and soil analytical data from this investigation. This data has been reviewed to identify potential areas of concern. The following sections present this data and discuss the impact that these results may have on the proposed construction at Chevalier Field.

3.1 SOIL HEADSPACE SURVEY

The soil headspace survey was conducted at the soil boring locations presented on Figure 2-1; the soil headspace survey results are presented in Table 3-1.

Chapter 17-770, FAC (FDER 1990), defines excessive soil contamination as soils containing organic vapor concentrations greater than 500 parts per million (ppm) for the gasoline analytical group (including aviation gasoline) and 50 ppm for the kerosene and mixed product analytical group (including diesel, JP-4, JP-5). Methane-corrected OVA headspace readings above the 50 ppm standard were detected in only one sample, SB-25B, at a concentration of 78 ppm. The source of this elevated reading is believed to be the oil-water separator line located adjacent to this sample location. Although this sample location is located just inside the boundary of the proposed training facility parking lot, the values detected should not pose a problem to the planned construction activities. Another slightly elevated reading (but below the 50 ppm standard) was detected along the same oil-water separator line in sample SB-26B (38 ppm). The majority of methane-corrected readings were zero.

In summary, E & E's soil headspace survey identified excessively contaminated soil at only one sample location (SB-25B).

3.2 PRE-CONSTRUCTION SAMPLING RESULTS

Because soil samples were composited from the ground level or immediately below the asphalt/concrete surface to the water table as described in Section 2.5, the vertical distribution of the contaminants detected in the samples (i.e., related to the groundwater or bound in the upper soil horizons) cannot be determined. The vertical distribution of contaminants could impact the proposed construction depending on the depth of soil excavation required.

3.2.1 Soil Results

Table 3-2 presents a summary of the soil sample laboratory analytical results and the respective quantitation limits; only those parameters detected are presented. For comparison purposes, Table 3-2 also lists the Resource Conservation and Recovery Act (RCRA) Proposed Corrective Action Levels (PCALs) and the risk-based benchmark concentrations discussed in Section 3.2.3 that are available for the detected parameters, where applicable. The complete soil analytical results are presented in Appendix B.

Total metals, volatile organic compounds (VOCs), and base/neutral and acid extractable compounds (BNAs) were detected in the soil samples collected at Chevalier Field. The concentrations of total metals detected are probably indicative of ambient soil conditions in this area. No metals concentrations exceed the RCRA PCALs, risk-based benchmark, or the RCRA toxicity characteristic regulatory levels.

Several VOCs were detected at elevated concentrations in the soil samples. Of the VOCs detected, several compounds (methylene chloride; 1,1,1-trichloroethane; acetone; and xylene) could be spent solvents and may be considered F-listed hazardous waste constituents depending on the historical use of solvents in this area. Methylene chloride was reported to be present in the majority of the samples analyzed. However, all detections except one (SS-36) were qualified because of methylene chloride in the method blank. Because methylene chloride is considered a common laboratory artifact and the detection in SS-36 is within the range detected in the method blanks, its presence could be attributable to the laboratory. 1,1,1-Trichloroethane was detected at low concentrations in almost half the samples analyzed.

These results were unqualified by the laboratory and therefore are believed to represent actual soil conditions. Acetone was detected in almost all the samples analyzed. Because acetone is a common laboratory artifact that was present in many of the laboratory method blanks, most of these detections are probably not representative of actual soil conditions. Only seven samples exhibited acetone concentrations that were not qualified by the laboratory. Of these seven samples, only two (SS-10 and SS-25) exhibited concentrations significantly above the concentrations detected in the method blanks. The concentrations of acetone in SS-10 and SS-25 probably represent actual soil conditions at these locations. Xylene was detected in only one sample (SS-8). This detection probably represents actual soil conditions.

The 1,1,1-trichloroethane, acetone, and xylene detections which represent actual soil conditions could be attributable to spent solvents used at the field. The Navy will need to determine the possible historical use of solvents containing these compounds to determine if these detections represent F-listed waste constituents. The xylene detected in SS-8 is most likely attributable to the soil contamination at petroleum site 2662W. If the sources of the 1,1,1-trichloroethane and acetone are determined by the Navy to be related to spent solvents, in accordance with EPA policy regarding environmental media (sediment, soil, and groundwater) contaminated with RCRA-listed hazardous waste ("contained-in" policy; Cannon 1989), the affected soil also would be considered F-listed if the soil is excavated.

Low concentrations of five BNAs (fluorene, butyl benzenyl phthalate, chrysene, benzo(b)fluoranthene, and 2-methylnapthalene) were detected in the soil samples analyzed. None of these detections exceeds the RCRA PCALS or risk-based benchmark concentrations. A correlation does not appear to exist between the surficial material (i.e., concrete, asphalt, or grass) and the analytes and concentrations detected in the samples. The occurrences of the analytes are more likely related to historical activities than the surficial material in the area.

3.2.2 Toxicity Characteristic Leaching Procedure Results

The soil samples collected across Chevalier Field were extracted and analyzed for TCLP metals, organics, pesticides, and herbicides, as discussed in Section 2.5. Appendix B contains the TCLP analytical results. This analysis was performed to facilitate disposal of the soil, if required. The TCLP analysis detected no analytes above RCRA toxicity characteristic regulatory levels. Based on these results, none of the soil samples analyzed exhibited hazardous waste characteristics.

3.2.3 Hazard Evaluation Results

Table 3-2 presents a summary of the soil sample laboratory analytical results; only those parameters detected are presented. For the purpose of the hazard evaluation, E & E's risk assessment group has generated a list of risk-based benchmark concentrations for the detected parameters. These critical (lowest) risk-based concentrations were generated for construction worker exposure to contaminated soils. The assumptions used and the complete hazard evaluation report are provided in Appendix C.

All detected analyte concentrations were below the risk-based benchmark concentrations. Because no risk-based information for adult exposure to lead is available, the benchmark concentrations presented in the table were generated using EPA and Center for Disease Control data for children. No benchmark data was available for two of the BNA compounds. Although these compounds were detected in on-site soils, the levels detected are not excessive.

3.3 ANALYTICAL RESULTS--PREVIOUS INVESTIGATIONS

3.3.1 Installation Restoration Sites

During the period from 1990 through 1992, E & E performed contamination assessment/remedial activities investigations at five IR sites located at Chevalier Field. As part of these investigations, soil and groundwater samples were analyzed for screening parameters. Permanent existing monitoring wells were sampled and the samples analyzed for TAL and TCL parameters. Table 3-3 presents a summary of the soil sample screening results for these five sites. Table 3-3 also lists the RCRA PCALs that are available for the detected parameters. The RCRA PCALs do not constitute mandatory cleanup standards, but are guidance concentrations intended to assist in determining whether the detected concentration of a compound in an environmental sample is sufficiently high to warrant further action (EPA 1990). The RCRA PCAL values listed in the tables reflect the standard default values for worker exposure at this facility (EPA 1991). Table 3-4 presents a summary of the groundwater screening results for samples collected from the temporary monitoring wells. Table 3-5 presents a summary of the TAL/TCL compounds detected in the groundwater samples collected from the permanent monitoring wells on these sites.

The Navy Yard Disposal Area (IR Site 9) is located at the southwestern corner of Chevalier Field (see Figure 2-1). This area was used for general trash disposal between 1917

and the early 1930s. Soil samples were collected from 15 locations across Site 9. Appendix A contains the sample location figures for the Site 9 investigation. Low concentrations of metals were detected in soils across the site. The highest single metal concentration was lead, which was present in the northeast and west portions of the site. Other metals, including arsenic, also were detected above the quantitation limit. This widespread distribution of metals could be attributable to the landfill activities and/or to ambient levels in the Chevalier Field area. In addition, elevated total recoverable petroleum hydrocarbon (TRPH) concentrations were detected in samples located adjacent to the Industrial Waste Sewer Line, which runs beneath Site 9 (E & E 1992c).

Groundwater samples were collected from six temporary wells and two existing permanent monitoring wells during the IR investigation at Site 9. Relatively low concentrations of metals were the primary contaminants of concern detected in the groundwater samples. Total lead concentrations detected in four of the temporary wells exceeded the Florida Primary Drinking Water Standard (FPDWS) of 15 μg/L (FDER 1993). All other detections were below drinking water standards.

The Chevalier Field Pipe Leak Area (IR Site 23) is located adjacent to the western boundary of the proposed training facility (Figure 2-1). Site 23 is the location of two separate underground fuel pipeline leaks. Unknown quantities of Navy Special Fuel Oil and Marine Diesel Fuel were released in 1965 and 1970, respectively (E & E 1992d).

Soil samples were collected from 17 locations across Site 23. Appendix A contains the sample location figures for the Site 23 IR investigation. Soil samples collected from the southern portion of the site contained elevated concentrations of metals. Other areas of the site generally exhibited only trace concentrations of metals, which are indicative of ambient concentrations. The higher metals concentrations were detected in an area where metallic debris was encountered during drilling and where prominent electromagnetic and magnetic anomalies were observed. Elevated concentrations of TRPHs were also detected in the southern and northern and along the western portions of the site. Polynuclear aromatic hydrocarbon (PAH) contamination was also detected in the southern and western portions of the site. High phenols concentrations were detected along the western portion of the site.

Groundwater samples were collected from seven temporary and one existing permanent monitoring wells during the IR investigation at Site 23. Metals were the primary contaminants detected in the groundwater samples; however, all were unfiltered. Concentra-

tions of arsenic, chromium, zinc, lead, cadmium, and copper were detected above the applicable Florida drinking water standards.

IR Site 29 (Soil South of Building 3460) is located in the southwest corner of Chevalier Field (Figure 2-1). A suspected leak in the industrial waste sewer line is believed to be the source of the analytes detected at this site (E & E 1992e).

Eight soil samples were collected at Site 29. Appendix A contains the sample location figures for the Site 29 IR investigation. Generally, only trace concentrations of metals were detected in the soil samples. The concentrations detected most likely represent ambient levels in the soil. Moderately low concentrations of TRPHs were detected in samples collected from the northernmost borings.

Groundwater samples were collected from three temporary and one existing permanent monitoring wells during the IR investigation. Metals were the primary contaminants detected in the groundwater samples. Arsenic, chromium, manganese, and iron were detected at concentrations above the applicable Florida drinking water standards.

Solvent North of Building 3557 (IR Site 34) is located directly north of Building 3557 (Figure 2-1). An underground pipeline leak resulted in the loss of 45,000 gallons of a 1.7% chlorinated aromatic hydrocarbon solvent detergent in 1984 (E & E 1992f).

Twelve soil samples were collected at Site 34. Appendix A contains the sample location figures for the Site 34 IR investigation. Trace concentrations of metals and TRPHs were the only parameters detected in the soils.

Groundwater samples were collected from five temporary and four existing permanent monitoring wells during the IR investigation. Concentrations of chromium, iron, lead, and manganese exceeded the applicable Florida drinking water standards. The majority of metals concentrations were detected at trace levels. PAHs and phenols were also detected in the groundwater samples. The parameters detected do not appear to be related to the reported solvent release and should not pose a problem to construction of the proposed facility.

The Industrial Waste Sewer (IR Site 36) is located in the southeastern portion of NAS Pensacola. The segment of the sewer line that services the NADEP Chevalier Field activities is shown on Figure 2-1. In this area, the line is generally buried below the water table. The piping is generally between 8 and 15 inches in diameter and encompasses a wide variety of construction materials: cast iron, vitrified clay, fiberglass-reinforced plastic, polyvinyl chloride, polypropylene, steel, and "metal." The waste stream includes paint stripping solvents and

wastes, heavy metal, pesticides, radioactive wastes, fuels, cyanide wastes, and waste oils that have not been pretreated or segregated (E & E 1992g).

Soil samples were collected from 47 locations along the sewer line in the Chevalier Field area. Appendix A contains the sample location figures for the Site 36 IR investigation. Generally, low concentrations of a variety of metals were detected. Chromium, zinc, lead, cadmium, and copper were the most common metals detected. Elevated metals concentration were detected at one location, which corresponds to the area of elevated metals detected in the southern portion of Site 23. Elevated TRPH concentrations were detected in almost all samples. Low concentrations of PAHs and phenols were also detected in a few samples.

Groundwater samples were collected from 48 temporary monitoring wells during the IR investigation. Metals were the primary contaminants of concern detected in these samples. Concentrations of chromium, zinc, lead, cadmium, nickel, and copper were detected above the applicable Florida drinking water standards. In addition, a few isolated TRPH and PAH concentrations were detected at low levels.

To summarize the results of the IR investigation findings, generally low concentrations of metals were detected in the soil at all five of the sites located at Chevalier Field. The concentrations detected are generally below the RCRA PCALs and should be regarded as ambient levels. One potential exception is the elevated concentrations detected in the southern portion of Site 23, which could be due to past site activities or the leaking Industrial Waste Sewer line in that area. Several of the screening samples exhibited total PAHs above the listed PCAL. However, it should be noted that this PCAL is for benzo(a)pyrene only, which is the lowest PCAL of the PAHs. It is unlikely that the amount of benzo(a)pyrene present in these total PAH concentrations exceeds this PCAL. No other PCALs were exceeded in the screening soil samples. The elevated TRPH concentrations detected in the soil also appear to be related to the industrial sewer.

The primary groundwater contaminants appear to be metals. However, some of the elevated metal concentrations may be the result of acid preservation/leaching of metals from the entrained sediments in the non-filtered groundwater samples. This is supported by the lower metals concentrations detected in the samples analyzed for dissolved metals.

Although PCALs and risk-based benchmark concentrations were not generally exceeded in the screening samples, it should be noted that these screening data were collected and analyzed without quality assurance/quality control support. Full remedial investigations

are scheduled for initiation at these sites in the near future. The TAL/TCL data generated during these investigations should be utilized to supplement the data generated for these sites thus far.

3.3.2. Underground Storage Tank Investigations

As part of the UST removal program conducted by the Navy, 18 sites at the NADEP facility located at NAS Pensacola were identified. ABB was contracted by Southern Division to perform contamination assessment of these sites. Three sites (2662W, 3557S, and 607NE) are located at Chevalier Field in the area of interest for this investigation (see Figure 2-1). ABB, through Southern Division, has provided E & E with copies of these reports and/or available data for the purpose of the Chevalier Field investigation.

In 1992 and 1993, ABB conducted a contamination assessment of Site 2662W in the southeast corner of Chevalier Field. The CAR has not yet been completed; however, ABB has provided E & E with analytical and soil headspace results from this investigation. Appendix D presents several draft figures produced by ABB that show soil boring and monitoring well locations and soil headspace and groundwater concentration contours.

As presented on Figure 2 in Appendix D, soil headspace results were contoured for Site 2662W. One large and four smaller areas of soil contamination, exhibiting soil headspace results greater than 50 ppm, were identified. The large area covers approximately 50,000 square feet and is located northeast of Building 796. The four smaller areas are southeast of the larger area. The highest headspace readings were greater than 5,000 ppm.

All soil samples collected at the site were analyzed for arsenic, cadmium, chromium, and lead. Select samples (from borings SB4, SB5 and SB9) also were analyzed for TRPH volatile organics (EPA Method 8240) and TCLP metals and organics. Minor amounts of total metals were detected across the site, especially lead, which was present in most samples at concentrations ranging from non-detect to 280 milligrams per kilogram (mg/kg). The highest lead concentration was detected just north of Building 796 (see Figure 8 in Appendix D). Only minor amounts of volatiles and BNAs were detected in the samples analyzed for these compounds. Ethylbenzene was present in one sample at a concentration of 220 micrograms per kilogram (μg/kg). TRPHs were detected in two of the three samples analyzed for TRPHs and were very high (17,000 mg/kg) in the sample collected approximately 100 feet northwest of Building 2662.

Groundwater analytical results are presented on several figures in Appendix D. Figure 3 in Appendix D presents the monitoring well locations. Groundwater samples were analyzed for volatile organics (EPA Method 624), BNAs (EPA Method 625), arsenic, cadmium, chromium, lead, and TRPHs. Figure 4 in Appendix D presents the total VOC concentrations. An area exhibiting total organics greater than the Florida remedial action target level of 50 μg/L was identified in the eastern portion of the site, north of Building 3380. Monitoring well MW-12 exhibited the highest total VOC concentration of 587 μg/L. Figure 5 in Appendix D presents the benzene concentrations detected in the monitoring well samples. Benzene concentrations ranged from non-detect to 14 ppb. Several wells exhibited benzene concentrations greater than the FPDWS (FDER 1993) of 1 μg/L in an area that covers most of the site. Total naphthalene concentrations ranged from non-detect to 152 μg/L and were also contoured on a map (see Figure 6 in Appendix D). The areas exhibiting the highest concentrations of total naphthalenes were in the eastern portion of the site, north and northeast of Building 3380.

TRPH concentrations were highest in an area north-northwest of Building 2662, as presented on Figure 7 in Appendix D. TRPH concentrations ranged from non-detect to 97 ppm. Most groundwater samples exhibited low or non-detectable TRPH concentrations. Lead was detected in only three wells--MW50 (5 μg/L), MW29 (9 μg/L), and MW31 (8 μg/L)--at concentrations below the FPDWS.

Based on the investigations to date of Site 2662W, soil and groundwater contamination are present at the site. The contamination does not appear to have been completely delineated, especially on the eastern portion of the site. A CAR is expected to be completed by ABB in the near future. It is likely that soil and/or groundwater remediation will be required in this area (see Figure 2-1).

ABB conducted a contamination assessment of petroleum site 3557S between January and May 1992. The site is located directly south of Building 3557, which is situated along the western side of Chevalier Field (Figure 2-1).

As part of their contamination assessment activities, ABB conducted a soil headspace survey, soil sampling, and groundwater sampling. Appendix D contains the sample location figures and headspace and analytical summary tables for this site (ABB 1992b).

No excessively contaminated soil was identified during the soil headspace survey. In addition, all soil headspace results were zero when corrected for methane.

The five soil samples collected were analyzed for total metals. Lead was detected in two of the samples and the duplicate at concentrations no greater than 5.2 mg/kg. No other metals were detected.

Groundwater samples were collected from the five permanent wells at the site. The only analytes detected were TRPHs, and these were only detected in one well sample at a concentration of 1 mg/L, which is well below the Florida regulatory standard of 5 mg/L.

Based on these results, this site should not pose a problem to the construction of the proposed CNET facility. This site has been recommended to the state for no further action.

Between January 1992 and March 1993, ABB conducted a contamination assessment of petroleum Site 607NE. The site is located near the northeast corner of Building 607, located along the southern perimeter of Chevalier Field (Figure 2-1).

ABB conducted a soil headspace survey, soil sampling, and groundwater sampling as part of the investigation at this site. Appendix D contains the sample location figures and headspace and analytical summary tables (ABB 1992a, 1993).

No excessively contaminated soil was identified during the soil headspace survey. In fact, all soil headspace results were zero when corrected for methane.

Six soil samples were collected and analyzed for total metals. Lead was detected in five of these samples at concentrations which ranged as high as 15 mg/kg. Arsenic was detected in one sample at a concentration of 0.6 mg/kg. No other metals were detected. Three soil samples were collected and analyzed for TRPHs. The TRPH concentrations ranged from 12 mg/kg to 18 mg/kg. Although these concentrations exceed the Florida target level of 10 mg/kg for clean soil, they are below the cleanup level of 50 mg/kg.

Groundwater samples were collected from five permanent monitoring wells at Site 607NE. Several compounds were detected (i.e., chloroform, methylene chloride, toluene and acetone). Methylene chloride was the only compound that exceeded the drinking water standards. However, it also was detected in the equipment, trip, and laboratory method blanks; therefore, its presence cannot be attributed to the site.

Based on these results, ABB has recommended no further action for site 607NE.

The results of ABB's UST investigations indicate that sites 607NE and 3557S are not likely to require remediation. However, based on the results of the site 2662W assessment, it appears that soil and/or groundwater remediation may be required in this area.

Table 3-1
SOIL HEADSPACE SURVEY RESULTS
CHEVALIER FIELD INVESTIGATION

Sample Number	Depth to Water (feet BLS)	Sample Depth Interval (feet BLS)	Time Samples/Read	OVA Reading Unfiltered (ppm)	OVA Reading filtered (ppm)	Corrected for Methane (ppm)
SB-1A	4	0-2	10:20/10:58	0	0	0
SB-1B	4	2-4	10:21/10:59	0	0	0
SB-2A	5.5	0-2	16:00/17:45	0	0	0
SB-2B	5.5	2-5.5	16:10/17:45	0	0	0
SB-3A	6	0-2	16:20/17:47	0	0	0
SB-3B	6	2-6	16:23/17:47	0	0	0
SB-4A	5.5	0-2	15:20/16:12	0	0	0
SB-4B	5.5	2-5.5	15:30/16:13	0	0	0
SB-5A	6	0-2	15:26/16:15	0	0	0
SB-5B	6	2-6	15:28/16:16	0	0	0
SB-6A	5	0-2	10:08/10:52	0	0	0
SB-6B	5	2-5	10:11/10:53	0	0	0
SB-7A	3	0-2	10:14/10:55	0	0	0
SB-7B	3	2-3	10:15/10:56	0	0	0
SB-8A	4	0-2	09:02/10:02	1	0	1
SB-8B	4	2-4	09:04/10:05	42	42	0
SB-9A	3	0-2	09:10/10:06	0	0	0
SB-9B	3	2-3	09:12/10:07	0	0	0
SB-10A	4	0-2	15:00/15:37	54	80	0
SB-10B	4	2-4	15:05/15:38	700	>1000	0
SB-11A	4	0-2	15:23/16:08	0	0	0
SB-11B	4	2-4	15:30/16:09	0	0	0
SB-12A	5.5	0-2	09:14/10:07	0	0	0
SB-12B	5.5	2-5.5	09:20/10:08	0	0	0
SB-13A	6	0-2	13:52/14:48	0.2	0	0.2
SB-13B	6	2-6	13:55/14:48	0	0	0
SB-14A	4.5	0-2	13:40/14:46	0.3	0	0.3
SB-14B	4.5	2-4.5	13:45/14:47	0	0	0

Table 3-1
SOIL HEADSPACE SURVEY RESULTS
CHEVALIER FIELD INVESTIGATION

Sample Number	Depth to Water (feet BLS)	Sample Depth Interval (feet BLS)	Time Samples/Read	OVA Reading Unfiltered (ppm)	OVA Reading filtered (ppm)	Corrected for Methane (ppm)
SB-15A	4	0-2	11:22/13:02	0	0	0
SB-15B	4	2-4	11:22/13:02	0	0	0
SB-16A	4	0-2	11:20/13:03	0	0	0
SB-16B	4	2-4	11:25/13:04	0	0	0
SB-17A	5	0-2	13:12/14:40	22	0	22
SB-17B	5	2-5	13:17/14:41	0.4	0	0.4
SB-18A	6	0-2	14:15/14:49	4	0	4
SB-18B	6	2-6	14:16/14:49	0.6	0.2	0.4
SB-19A	5	0-2	11:40/13:05	0	0	0
SB-19B	5	2-5	11:42/13:06	0	0	0
SB-20A	3	0-2	10:10/10:57	0	0	0
SB-20B	3	2-3	10:20/10:58	1.8	2	0
SB-21A	4.5	0-2	08:39/09:17	0.4	0.2	0.2
SB-21B	4.5	2-4.5	08:39/09:17	0.4	0.4	0
SB-22A	5.5	0-2	08:30/09:18	0	0	0
SB-22B	5.5	2-5.5	08:35/09:18	0	0	0
SB-23A	5	0-2	14:03/14:49	0	0	0
SB-23B	5	2-5	14:05/14:50	0	0	0
SB-24A	4	0-2	14:30/15:46	0	0	0
SB-24B	4	2-4	14:40/15:47	0	0	0
SB-25A	2.5	0-2	10:10/10:55	50	12	38
SB-25B	2.5	2-2.5	10:13/10:56	160	82	78
SB-26A	4	0-2	10:40/13:00	0.4	0	0.4
SB-26B	4	2-4	10:45/13:00	100	62	38
SB-27A	6	0-2	13:40/14:43	0	0	0
SB-27B	6	2-6	13:45/14:44	0.8	0.2	0.6
SB-28A	4	0-2	13:11/14:42	0	0	0

Table 3-1
SOIL HEADSPACE SURVEY RESULTS
CHEVALIER FIELD INVESTIGATION

Sample Number	Depth to Water (feet BLS)	Sample Depth Interval (feet BLS)	Time Samples/Read	OVA Reading Unfiltered (ppm)	OVA Reading filtered (ppm)	Corrected for Methane (ppm)
SB-28B	4	2-4	13:15/14:43	0	0	0
SB-29A	4	0-2	09:45/10:34	0.2	0	0.2
SB-29B	4	2-4	09:46/10:35	0.2	0	0.2
SB-30A	5	0-2	08:15/09:13	0	0	0
SB-30B	5	2-5	08:16/09:14	0	0	0
SB-31A	4	0-2	16:08/17:40	0	0	0
SB-31B	4	2-4	16:15/17:43	0	0	0
SB-32A	3.5	0-2	10:50/11:43	0	0	0
SB-32B	3.5	2-3.5	11:00/11:45	0	0	0
SB-33A	3	0-2	10:58/11:39	0	0	0
SB-33B	3	2-3	10:59/11:40	0	0	0
SB-34A	5	0-2	09:11/09:56	0	0	0
SB-34B	5	2-5	09:17/09:57	0	0	0
SB-35A	5	0-2	10:55/11:35	0	0	0
SB-35B	5	2-5	10:57/11:37	0	0	0
SB-36A	6	0-2	13:20/14:45	0	0	0
SB-36B	6	2-6	13:25/14:46	0	0	0
SB-37A	2	0-1	14:35/15:52	0	0	0
SB-37B	2	1-2	14:36/15:54	86	100	0
SB-38A	3.5	0-2	09:35/10:36	0	0	0
SB-38B	3.5	2-3.5	09:40/10:36	0	0	0
SB-39A	3	0-2	10:28/11:00	0	0	0
SB-39B	3	2-3	10:32/11:01	0	0	0
SB-40A	5	0-2	08:58/09:52	0	0	0
SB-40B	5	2-5	09:01/09:53	0	0	0
SB-41A	4.5	0-2	08:58/09:52	0	0	0
SB-41B	4.5	2-4.5	08:40/09:16	0	0	0

Table 3-1
SOIL HEADSPACE SURVEY RESULTS
CHEVALIER FIELD INVESTIGATION

Sample Number	Depth to Water (feet BLS)	Sample Depth Interval (feet BLS)	Time Samples/Read	OVA Reading Unfiltered (ppm)	OVA Reading filtered (ppm)	Corrected for Methane (ppm)
SB-42A	4	0-2	09:05/10:05	0	0	0
SB-42B	4	2-4	09:10/10:07	0	0	0
SB-43A	4.5	0-2	13:45/14:59	0	0	0
SB-43B	4.5	2-4.5	13:55/15:00	0	0	0
SB-44A	5	0-2	11:30/13:09	0	0	0
SB-44B	5	2-5	11:40/13:10	0	0	0
SB-45A	4	0-2	11:35/13:13	0	0	0
SB-45B	4	2-4	11:37/13:15	0	0	0
SB-46A	3.5	0-2	10:45/12:59	0.5	0	0.5
SB-46B	3.5	2-3.5	10:45/12:59	1.5	0.8	0.7
SB-47A	4	0-2	09:45/10:32	0	0	0
SB-47B	4	2-4	09:46/10:33	0	0	0
SB-48A	6	0-2	11:41/13:11	0	0	0
SB-48B	6	2-6	11:43/13:12	0	0	0
SB-49A	4	0-2	14:30/15:13	0	0	0
SB-49B	4	2-4	14:35/15:14	0	0	0
SB-50A	5	0-2	13:50/15:00	0	0	0
SB-50B	5	2-5	13:52/15:01	0	0	0

Key: BLS = Below Land Surface
OVA = Organic Vapor Analyzer
ppm = parts per million
NA = Analysis not performed

Source: Ecology and Environment, Inc., 1994

Table 3-2

SOIL ANALYTICAL RESULTS
CHEVALIER FIELD
NAS PENSACOLA
(all results in µg/kg unless otherwise noted)

	Quantitation Limit[a]	SS-1[b]	SS-2[b]	SS-3[b,e]	SS-4[b]	SS-5[b]	SS-6[b]	SS-7[c]	SS-8[c,e,g]	SS-9[d]	SS-10[b,e,f]	SS-11[c]	SS-12[b]	SS-13[b]	SS-14[b]	SS-15[b]	SS-16[b]	SS-17[b]	RCRA/ PCAL	Risk-Based Benchmark
TOTAL METALS (mg/kg)																				
Arsenic	0.50	--	--	--	--	--	1.0	--	--	0.56	0.82	0.96	0.64	--	--	--	--	--	8E+01	5.46E+01
Barium	2.0	--	3.2	--	--	--	5.5	2.3	--	9.0	7.7	9.5	8.5	3.0	--	--	--	--	4E+03	2.3E+04
Cadmium	0.50	--	--	--	--	--	--	--	--	--	0.61	--	0.64	--	--	--	--	--	4E+01	1.71E+02
Chromium (total)	1.0	--	--	--	--	--	3.2	2.9	1.4	2.6	--	2.0	7.6	1.4	--	1.5	--	--	4E+02	2.64E+03
Lead	0.50	12	33	11	7.5	28	35	6.0	14	150	58	66	11	9.5	4.8	8.5	2.6	1.4	NA	5.0E+02[h]
Mercury	0.10	--	--	--	--	--	--	--	--	1.2	0.12	--	--	--	--	--	--	--	2E+01	1.02E+02
VOLATILE ORGANICS																				
Methylene Chloride	5.0	27(B)	4.8(JB)	3.0(JB)	3.8(JB)	4.8(JB)	6.4(B)	18(B)	360(JB)	13(B)	52,000(B)	4.2(JB)	3.2(JB)	9.9(B)	8.2(B)	4.1(JB)	1.7(JB)	11(B)	9E+04	9.68E+05
Chloroform	5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1E+05	9.87E+05
1,1,1-Trichloroethane	5.0	--		--	--	--	10	16	--	30	--	--	7.9	7.6	--	36	52	6.8	7E+06	2.43E+05
Toluene	5.0	--		--	--	--	--		--	--	--	--	--	--	--	--	--	--	2E+07	2.62E+06
Acetone	10	15	20(B)	12(B)	19(B)	14(B)	12	19(B)	--	6.2(JB)	69,000	23(B)	5.4(J)	20(B)	36(B)	11	7.8(J)	20(B)	8E+05	3.09E+07
Carbon Disulfide	5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8E+06	6.86E+04
2-Butanone	10	--	--	--	--	--	--	--	--	--	--	7.9(J)	--	--	--	--	--	--	4E+06	1.03E+07
Total Xylenes	5.0	--	--	--	--	--	--	--	770	--	--	--	--	--	--	--	--	--	2E+08	4.04E+07
BNAs																				
Naphthalene	330	--	--	1,600(J)	--	--	--	--	1,500(J)	--	--	--	--	--	--	--	--	--	1.6E+08	5.49E+06
Fluorene	330	--	--	400(J)	--	--	--	--	190(J)	--	2,500	--	--	--	--	--	--	--	1.6E+08	1.36E+08
Diethyl Phthalate	330	--	--	--	--	--	--	220(J)	--	--	--	--	--	--	--	--	--	--	NA	2.73+09

Key at end of table.

14:UO1901_T0707-06/29/94-D1

Table 3-2

SOIL ANALYTICAL RESULTS
CHEVALIER FIELD
NAS PENSACOLA
(all results in μg/kg unless otherwise noted)

	Quantitation Limit[a]	SS-1[b]	SS-2[b]	SS-3[b,e]	SS-4[b]	SS-5[b]	SS-6[b]	SS-7[c]	SS-8[c,e,g]	SS-9[d]	SS-10[b,e,f]	SS-11[c]	SS-12[b]	SS-13[b]	SS-14[b]	SS-15[b]	SS-16[b]	SS-17[b]	RCRA/ PCAL	Risk-Based Benchmark
Phenanthrene	330	--	--	--	--	--	--	--	--	--	1,700(J)	47(J)	--	--	--	--	--	--	1.6E+08	NA
Fluoranthene	330	--	--	--	--	--	--	--	--	--	--	120(J)	--	--	--	--	--	--	1.6E+08	1.32E+08
Pyrene	330	--	--	--	--	--	--	--	--	--	--	160(J)	--	--	--	--	--	--	1.2E+08	9.95E+07
Butyl Benzyl Phthalate	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	130(J)	--	--	NA	6.66E+08
Benzo(a) Anthracene	330	--	--	--	--	--	--	--	--	--	--	110(J)	--	--	--	--	--	--	1.57E+04	1.31E+05
Bis(2-ethylhexyl) Phthalate	330	--	--	770(J)	--	--	--	--	500(J)	49(J)	1,600(J)	--	--	--	--	220(J)	--	--	NA	6.80E+06
Chrysene	330	--	--	--	--	--	--	--	--	--	--	98(J)	--	--	--	--	--	--	1.57E+05	1.31E+06
Benzo(b) fluoranthene	330	--	--	--	--	--	--	--	--	--	--	90(J)	--	--	--	--	--	--	1.57E+04	1.30E+05
Benzo(k) fluoranthene	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.57E+04	1.31E+06
Benzo(a) pyrene	330	--	--	--	--	--	--	--	--	--	--	81(J)	--	--	--	--	--	--	1.6E+03	1.31E+04
Indeno(1,2,3-cd) pyrene	330	--	--	--	--	--	--	--	--	--	--	38(J)	--	--	--	--	--	--	1.57E+04	1.31E+05
Dibenzo(a,h) anthracene	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.6E+03	1.31E+04
Benzo(g,h,i) perylene	330	--	--	--	--	--	--	--	--	--	--	37(J)	--	--	--	--	--	--	NA	1.28E+06
2-Methylnaphthalene	330	--	--	--	--	--	--	--	2,200	--	--	--	--	--	--	--	--	--	NA	NA
TOTAL ORGANIC HALOGENS (% chlorine)	0.05	--	0.059	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NA	NA
CORROSIVITY (S.U.)	0.10	7.5	8.2	7.1	7.5	8.5	7.9	8.7	6.1	7.5	6.5	7.5	8.1	9.3	9.4	9.8	10	9.1	NA	NA

Key at end of table.

14:UO1901_T0707-06/24/94-D1

recycled paper

ecology and environment

Table 3-[illegible]

SOIL ANALYTICAL RESULTS
CHEVALIER FIELD
NAS PENSACOLA
(all results in µg/kg otherwise noted)

	Quantitation Limit[a]	SS-18[b]	SS-19[b]	SS-20[d]	SS-21[c]	SS-22[c]	SS-23[b]	SS-24[d]	SS-25[b]	SS-26[b]	SS-27[b]	SS-28[b]	SS-29[c]	SS-30[c]	SS-31[c]	SS-32[d]	SS-33[d]	SS-34[c]	RCRA/ PCAL	Risk-Based Benchmark
TOTAL METALS (mg/kg)																				
Arsenic	0.52	--	--	2.7	0.70	0.68	--	1.2	--	--	--	--	--	1.2	--	1.5	--	--	8E+01	5.46E+01
Barium	2.1	--	--	32	5.3	5.8	--	5.9	--	--	--	4.9	--	--	--	3.4	--	4.1	4E+03	2.3E+04
Cadmium	0.52	--	0.69	--	--	--	--	0.57	--	--	--	--	--	0.67	--	--	--	--	4E+01	1.71E+02
Chromium (total)	1.0	--	1.8	7.2	16	7.6	1.0	4.4	1.4	--	--	5.0	--	--	--	8.2	1.6	5.0	4E+02	2.64E+03
Lead	0.52	3.9	13	84	2.2	3.5	4.8	26	5.7	5.0	1.6	7.0	1.1	1.6	10	25	3.0	4.8	NA	5.0E+02[h]
Mercury	0.10	--	--	0.29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2E+01	1.02E+02
VOLATILE ORGANICS																				
Methylene Chloride	5.0	13(B)	8.8(B)	16(B)	8.8(B)	55(B)	41(B)	1.9(B)	41(B)	8.5(B)	19(B)	4.2(JB)	--	3.9(JB)	4.6(JB)	21(B)	22(B)	3.6(JB)	9E+04	9.68E+05
Chloroform	5.0	--	--	--	--	--	--	2.0(J)	--	--	--	--	--	--	--	--	--	--	1E+05	9.87E+05
1,1,1-Trichloroethane	5.0	--	10	--	6.7	--	--	--	--	9.7	--	34	--	--	--	26	36	16	7E+06	2.43E+06
Toluene	5.0	--	--	--	--	--	--		--	--	--	--	--	--	--	--	--	--	2E+07	2.62E+06
Acetone	10	36(B)	340(XB)	3.7(JB)	14(B)	6.8(J)	8.9(J)	23(B)	150	160(B)	15(B)	7.6(J)	--	4.1(J)	12	30(B)	8.7(JB)	12	8E+05	3.09E+07
Carbon Disulfide	5.0	--	--	--	--	--	1.6(AJ)	--	--	--	--	--	--	--	--	--	--	--	8E+06	6.86E+04
2-Butanone	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4E+06	1.03E+07
Total Xylenes	5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2E+08	4.04E+07
BNAs																				
Naphthalene	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.6E+08	5.49E+06
Fluorene	330	--	--	--	--	--	140(J)	--	--	--	--	--	--	--	--	--	--	--	1.6E+08	1.36E+08

Key at end of table.

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Table 3-2

SOIL ANALYTICAL RESULTS
CHEVALIER FIELD
NAS PENSACOLA
(all results in µg/kg otherwise noted)

	Quantitation Limit[a]	SS-18[b]	SS-19[b]	SS-20[d]	SS-21[c]	SS-22[c]	SS-23[b]	SS-24[d]	SS-25[b]	SS-26[b]	SS-27[b]	SS-28[b]	SS-29[c]	SS-30[c]	SS-31[c]	SS-32[d]	SS-33[d]	SS-34[c]	RCRA/ PCAL	Risk-Based Benchmark
Diethyl Phthalate	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NA	2.73+09
Phenanthrene	330	--	45(J)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.6E+08	NA
Fluoranthene	330	--	76(J)	--	--	--	140(J)	--	--	--	--	--	--	--	--	--	--	--	1.6E+08	1.32E+08
Pyrene	330	--	62(J)	--	--	--	220(J)	38(J)	--	--	--	--	--	--	--	--	--	--	1.2E+08	9.95E+07
Butyl Benzyl Phthalate	330	--	66(J)	--	--	2,400	--	--	--	--	--	--	--	--	--	--	--	--	NA	6.66E+08
Benzo(a) Anthracene	330	--	--	--	--	--	100(J)	--	--	--	--	--	--	--	--	--	--	--	1.57E+04	1.31E+05
Bis(2-ethylhexyl) Phthalate	330	--	--	--	--	--	--	--	--	--	39(J)	--	--	--	--	--	--	--	NA	6.80E+06
Chrysene	330	--	--	--	--	--	140(J)	--	--	--	--	--	--	--	--	--	--	--	1.57E+05	1.31E+06
Benzo(b) fluoranthene	330	--	--	--	--	--	230(J)	--	--	--	--	--	--	--	--	--	--	--	1.57E+04	1.30E+05
Benzo(k) fluoranthene	330	--	36(J)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.57E+04	1.31E+06
Benzo(a) pyrene	330	--	--	--	--	--	140(J)	--	--	--	--	--	--	--	--	--	--	--	1.6E+03	1.31E+04
Indeno(1,2,3-cd) pyrene	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.57E+04	1.31E+05
Dibenzo(a,h) anthracene	330	--	--	--	--	--	86(J)	--	--	--	--	--	--	--	--	--	--	--	1.6E+03	1.31E+04
Benzo(g,h,i) perylene	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NA	1.28E+06
2-Methylnaphthalene	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NA	NA
TOTAL ORGANIC HALOGENS (% chlorine)	0.05	--	--	--	--	--	--	--	--	--	--	--	--	0.058	--	--	--	--	NA	NA
CORROSIVITY (S.U.)	0.10	9.4	8.4	7.3	5.6	7.3	9.4	8.1	8.3	7.6	8.2	8.0	4.9	7.8	6.8	4.9	5.4	4.7	NA	NA

Key at end of table.

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Table 3-2

SOIL ANALYTICAL RESULTS
CHEVALIER FIELD
NAS PENSACOLA
(all results in µg/kg unless otherwise noted)

	Quantitation Limit[a]	SS-35[d]	SS-36[b]	SS-37[d]	SS-38[b]	SS-39[c]	SS-40[c]	SS-41[c]	SS-42[c]	SS-43[d]	SS-44[d]	SS-45[d]	SS-46[b]	SS-47[c]	SS-48[d]	SS-49[d]	SS-50[d]	RCRA/ PCAL	Risk-Based Benchmark
TOTAL METALS (mg/kg)																			
Arsenic	0.52	1.2	--	--	--	0.98	--	--	--	2.0	0.68	0.54	3.4	0.98	--	2.8	1.8	8E+01	5.46E+01
Barium	2.1	7.1	--	--	--	--	--	--	--	6.3	2.9	--	--	6.8	--	5.9	3.7	4E+03	2.3E+04
Cadmium	0.52	--	--	--	--	--	--	0.75	--	0.75	--	--	--	--	--	0.73	--	4E+01	1.71E+02
Chromium (total)	1.0	4.8	--	3.6	--	3.5	--	--	--	4.1	3.2	2.4	1.1	8.4	1.4	6.6	4.9	4E+02	2.64E+03
Lead	0.52	6.1	0.72	7.0	2.4	1.3	1.4	0.78	1.3	7.9	1.6	0.76	4.3	1.6	0.65	3.4	4.6	NA	5.0E+02[h]
Mercury	0.10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2E+01	1.02E+02
VOLATILE ORGANICS																			
Methylene Chloride	5.0	19(B)	19	4.0(JB)	52(B)	3.8(JB)	3.7(JB)	3.9(JB)	38(JB)	--	19(B)	20(B)	5.3(JB)	49(B)	17(B)	--	3.2(JB)	9E+04	9.68E+05
Chloroform	5.0	--	--	2.0(J)	--	--	--	--	--	--	--	--	--	--	--	--	--	1E+05	9.87E+05
1,1,1-Trichloroethane	5.0	7.2	3.3(J)	--	--	--	40	6.6	--	--	12	6.1	--	--	10	--	--	7E+06	2.43E+05
Toluene	5.0	--	--	--	--	--	--	--	--	3.1(J)	--	--	--	--	1.0(J)	--	--	2E+07	2.62E+06
Acetone	10	21(B)	10(B)	44(B)	--	5.9(J)	8.0(J)	3.5(J)	6.0(J)	160(B)	10(B)	12(B)	25(B)	3.6(J)	16(B)	8.3(JB)	6.1(JB)	8E+05	3.09E+07
Carbon Disulfide	5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	8E+06	6.86E+04
2-Butanone	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4E+06	1.03E+07
Total Xylenes	5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2E+08	4.04E+07
BNAs																			
Naphthalene	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.6E+08	5.49E+06
Fluorene	330	--	--	--	--	--	--	270(J)	--	--	--	--	--	--	--	--	--	1.6E+08	1.36E+08

Key at end of table.

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Table 3-2

SOIL ANALYTICAL RESULTS
CHEVALIER FIELD
NAS PENSACOLA
(all results in µg/kg unless otherwise noted)

	Quantitation Limit[a]	SS-35[d]	SS-36[b]	SS-37[d]	SS-38[b]	SS-39[c]	SS-40[c]	SS-41[c]	SS-42[c]	SS-43[d]	SS-44[d]	SS-45[d]	SS-46[b]	SS-47[c]	SS-48[d]	SS-49[d]	SS-50[d]	RCRA/ PCAL	Risk-Based Benchmark
Diethyl Phthalate	330	--	310(J)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NA	2.73+09
Phenanthrene	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.6E+08	NA
Fluoranthene	330	--	--	--	--	--	--	270(J)	--	--	--	--	--	--	--	--	--	1.6E+08	1.32E+08
Pyrene	330	--	--	--	--	--	--	340(J)	--	--	--	--	--	--	--	--	--	1.2E+08	9.95E+07
Butyl Benzyl Phthalate	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NA	6.66E+08
Benzo(a) Anthracene	330	--	--	--	--	--	--	280(J)	--	--	--	--	--	--	--	--	--	1.57E+04	1.31E+05
Bis(2-ethylhexyl) Phthalate	330	--	--	50(J)	--	--	--	--	--	--	--	--	--	--	--	--	--	NA	6.80E+06
Chrysene	330	--	--	--	--	--	--	300(J)	--	--	--	--	--	--	--	--	--	1.57E+05	1.31E+06
Benzo(b) fluoranthene	330	--	--	--	--	--	--	400	--	--	--	--	--	--	--	--	--	1.57E+04	1.30E+05
Benzo(k) fluoranthene	330	--	--	--	--	--	--	220(J)	--	--	--	--	--	--	--	--	--	1.57E+04	1.31E+06
Benzo(a) pyrene	330	--	--	--	--	--	--	290(J)	--	--	--	--	--	--	--	--	--	1.6E+03	1.31E+04
Indeno(1,2,3-cd) pyrene	330	--	--	--	--	--	--	200(J)	--	--	--	--	--	--	--	--	--	1.57E+04	1.31E+05
Dibenzo(a,h) anthracene	330	--	--	--	--	--	--	42(J)	--	--	--	--	--	--	--	--	--	1.6E+03	1.31E+04
Benzo(g,h,i) perylene	330	--	--	--	--	--	--	200(J)	--	--	--	--	--	--	--	--	--	NA	1.28E+06
2-Methylnaphthalene	330	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NA	NA
TOTAL ORGANIC HALOGENS (% chlorine)	0.05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NA	NA
CORROSIVITY (S.U.)	0.1	4.8	8.8	6.2	6.3	5.2	8.0	6.9	4.5	4.8	4.9	4.4	8.6	5.6	6.9	4.6	5.9	NA	NA

Key at end of table.

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Table 3-2

SOIL ANALYTICAL RESULTS
CHEVALIER FIELD
NAS PENSCOLA
(all results in μg/kg unless otherwise noted)

Note: Bold values indicate potential F-listed waste constituents.

[a]These quantitation limits represent the base practical quantitation limit for the sample, dry weight not factored in.
[b]Indicates concrete surface.
[c]Indicates asphalt surface.
[d]Indicates grass surface.
[e]The quantitation limit for BNAs in this sample was elevated by a factor of 5.
[f]The quantitation limit for VOCs in this sample was elevated by a factor of 5,000.
[g]The quantitation limit for BNAs in this sample was elevated by a factor of 125.
[h] Indicates risk-based value based on exposure to children.

Key:

-- = Parameter not detected.
(A) = Phenomenon of methodology with acid preservation.
(B) = Compound detected at similar concentrations in laboratory method blank.
(J) = Estimated value; parameter present but below the stated method detection limit.
(L) = Parameter present below the stated quantitation limit.
(X) = Exceeds calibration limit of instrument.
BNA = Base-neutral and acid extractable organics.
NA = Value not available.
mg/kg = Milligrams per kilogram.
PCAL = Proposed Corrective Action Level.
RCRA = Resource Conservation Recovery Act.
VOC = Volatile organic compound.
μg/kg = Micrograms per kilogram.

Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
SITE 9												
P9S001A	8.6	1.8	4.3	14	--	13	--	--	72	--	--	--
P9S002A	--	1.2	13	32	0.62	--	2.9	--	10	1.4	--	--
P9S002AD	--	1.9	14	36	--	--	4.3	--	41	2.0	--	--
P9S003A	--	2.9	16	32	--	--	2.6	--	180	--	--	--
P9S004A	--	1.1	--	--	--	--	--	--	5.3	--	--	--
P9S005A	--	3.6	2.2	--	--	--	--	--	--	--	--	--
P9S006A	--	2.3	3.0	12	--	--	--	--	--	--	--	--
P9S007A	--	5.2	11	11	--	--	4.6	--	98	--	--	--
P9S008A	--	--	9.4	75	--	--	--	--	59	--	--	--
P9S009A	7.1	1.7	3.3	6.7	--	--	--	--	14	--	--	--
P9S010A	--	4.7	--	8.4	--	--	--	--	--	--	--	--
P9S011A	--	--	4.0	--	--	--	4.9	--	9.3	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P9S012A	--	3.4	9.2	18	--	--	2.7	--	63	--	--	--
P9S013A	--	--	--	--	--	--	--	--	--	--	--	--
P9S014A	--	--	3.5	--	--	--	--	--	11	--	--	--
P9S015A	--	--	--	6.6	--	--	--	--	--	--	--	--
SITE 23												
P23S001A	8.0	180	340	190	1.2	5.1	150	1.0	6.9	6.0	--	--
P23S001AD	--	5.6	300	500	0.96	4.1	110	--	--	6.5	--	--
P23S002A	--	--	5.9	--	--	--	--	--	--	--	--	--
P23S003A	--	--	3.5	--	--	--	--	--	--	--	--	--
P23S004A	--	--	--	--	0.85	--	--	--	10	--	--	--
P23S005A	--	--	3.1	10	--	--	--	--	--	--	--	--
P23S006A	--	--	3.6	--	--	--	--	--	13	--	--	--
P23S007A	--	--	--	8.8	--	--	--	--	5.7	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P23S008A	--	--	2.3	9.6	--	--	--	--	18,000	35[c]	59[c]	--
P23S009A	--	--	4.2	15	--	--	--	--	--	--	--	--
P23S010A	--	--	19	29	--	--	4.9	--	20	--	--	--
P23S011A	--	--	2.0	--	--	--	--	--	730	--	--	--
P23S012A	--	--	4.2	--	--	--	--	--	410	--	--	--
P23S013A	--	4.1	4.6	9.3	--	--	--	--	--	--	--	--
P23S014A	--	4.4	5.2	8.5	--	--	--	--	--	--	--	--
P23S015A	6.4	--	--	--	--	--	--	--	--	--	--	--
P23S016A	--	1.5	2.6	--	--	--	--	--	19	--	--	--
P23017A	--	8.1	2.1	--	0.90	--	--	--	10	--	--	--
SITE 29												
P29S001A	--	--	9.9	17	--	--	--	--	29	--	--	--
P29S001AD	--	1.4	7.8	12	--	--	--	--	59	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P29S002A	--	--	3.2	--	--	--	--	--	74	--	--	--
P29S003A	--	--	--	--	--	--	--	--	--	--	--	--
P29S004A	--	--	--	--	--	--	--	--	--	--	--	--
P29S005A	--	--	--	--	--	--	--	--	--	--	--	--
P29S006A	--	2.0	2.4	9.5	--	--	--	--	--	6.2	--	--
P29S007A	--	2.4	--	--	--	--	--	--	--	--	--	--
P29S008A	--	--	2.0	--	--	--	--	--	--	--	--	--
SITE 34												
P34S001A	--	--	2.6	--	--	--	--	--	--	--	--	--
P34S002A	--	--	2.3	--	0.51	--	--	--	--	--	--	--
P34S003A	--	6.4	7.2	8.3	0.55	--	--	--	--	--	--	--
P34S004A	--	4.0	6.3	8.2	--	--	--	--	--	--	--	--
P34S005A	--	2.1	3.2	7.7	--	--	--	--	--	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P34S005AD	--	3.8	11	13	--	--	--	--	--	--	--	--
P34S006A	--	--	2.1	--	--	--	--	--	--	--	--	--
P34S007A	--	7.8	11	12	--	--	--	--	--	--	--	--
P34S008A	--	3.2	20	9.9	--	--	--	--	--	--	--	--
P34S009A	--	--	--	--	--	--	--	--	--	--	--	--
P34S010A	--	1.6	2.6	5.4	--	--	--	--	--	--	--	--
P34S011A	--	--	2.5	--	0.51	--	--	--	--	--	--	--
P34S011B	--	1.0	3.6	--	--	--	--	--	7.7	--	--	--
P34S012A	--	4.7	7.0	24	--	--	--	--	--	--	--	--
SITE 36												
P36S018A	--	11	3.5	--	--	--	--	--	7.4	(L)	--	--
P36S020A	--	--	2.9	--	--	--	--	--	--	(L)	--	--
P36S022A	--	1.3	52	--	--	--	3.0	--	5.6	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P36S024A	--	--	--	--	--	--	--	--	--	--	--	--
P36S026A	--	22	--	--	--	--	--	--	--	--	--	--
P36S028A	--	41	2.9	12	--	--	--	--	--	--	--	--
P36S030A	--	11	2.0	--	--	--	2.5	--	--	--	--	--
P36S032A	--	--	--	--	--	--	12	--	--	--	--	--
P36S070A	--	2.5	16	63	--	--	5.7	--	19	--	--	--
P36S070B	--	--	3.1	--	--	--	--	--	8.6	--	--	--
P36S072A	--	1.8	8.3	30	--	--	--	--	300	--	--	--
P36S072B	--	1.9	2.4	--	--	--	--	--	37	--	--	--
P36S074A	--	5.8	50	96	--	--	6.3	--	94	23	110	--
P36S074B	--	--	--	--	--	--	--	--	28	--	--	--
P36S076A	--	1.6	51	230	--	--	5.0	--	97	1.2	--	--
P36S076B	--	--	15	25	--	--	--	--	11	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P36S078A	--	4.5	26	84	0.55	--	8.1	--	130	--	--	--
P36S078B	--	--	9.1	--	--	--	--	--	14	--	--	--
P36S079A	--	--	8.9	25	--	--	--	--	57	--	--	--
P36S079B	--	--	--	--	--	--	--	--	18	--	--	--
P36S081A	--	2.1	31	86	--	--	5.7	--	32	--	--	--
P36S081B	--	--	--	--	--	--	--	--	20	--	--	--
P36S082A	--	3.4	16	68	--	--	--	--	3,400	1.1	--	--
P36S082AD	--	3.4	16	46	0.70	--	2.8	--	3,800	1.1	--	--
P36S082B	--	--	--	--	--	--	--	--	37	--	--	--
P36S085A	--	3.0	6.8	20	--	--	--	--	6.3	--	--	--
P36S085B	--	5.1	10	14	0.63	--	--	--	9.3	(L)	--	--
P36S086A	--	3.1	11	34	0.83	--	5.4	--	140	--	--	--
P36S086B	--	1.1	--	--	--	--	--	--	--	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P36S088A	--	--	5.9	14	--	--	--	--	58	--	--	--
P36S088B	--	--	16	--	0.87	--	--	--	23	--	--	--
P36S090A	--	1.9	2.7	--	--	--	--	--	33	--	--	--
P36S090B	--	--	3.8	10	--	--	--	--	27	--	--	--
P36S091A	--	1.6	6.9	12	--	--	10	--	30	--	--	--
P36S091B	--	2.8	5.3	--	--	--	--	--	280	(L)	--	--
P36S093A	--	1.0	3.7	--	--	--	--	--	25	--	--	--
P36S093B	--	--	5.1	14	--	--	--	--	42	(L)	--	--
P36S096A	--	2.0	2.6	--	--	--	--	--	140	--	--	--
P36S096B	--	--	4.9	--	--	--	--	--	17	--	--	--
P36S097A	--	2.8	2.5	--	--	--	--	--	30	--	--	--
P36S097B	--	--	--	--	--	--	--	--	31	--	--	--
P36S098A	--	2.4	4.0	--	--	--	3.7	--	110	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P36S098B	--	1.8	2.0	--	--	--	--	--	43	--	--	--
P36S100A	--	1.7	4.5	13	--	--	--	--	21	--	--	(L)
P36S100B	--	2.1	3.0	--	--	--	--	--	20	--	--	(L)
P36S101A	--	2.6	7.0	16	--	--	--	--	58	--	--	(L)
P36S101B	--	--	--	--	0.73	--	--	--	30	--	--	--
P36S102A	--	--	--	--	--	--	--	--	--	--	--	--
P36S102AD	--	1.1	--	--	--	--	--	--	--	--	--	--
P36S102B	--	--	--	--	--	--	--	--	--	(L)	--	--
P36S103A	--	6.5	6.7	--	0.54	--	--	--	37	--	--	--
P36S103B	--	3.4	4.3	--	0.71	--	--	--	22	--	--	--
P36S105A	--	4.6	11	--	0.51	--	--	--	29	--	--	--
P36S105B	--	2.8	4.8	11	--	--	--	--	25	(L)	--	--
P36S106A	--	4.0	3.6	17	--	--	--	--	93	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P36S106B	--	1.9	2.6	--	--	--	--	--	--	--	--	--
P36S107A	--	24	3.5	--	--	--	--	--	16	--	--	--
P36S107B	--	24	2.9	--	--	11	--	--	16	(L)	9.0	--
P36S109A	--	1.2	2.1	--	--	--	--	--	--	--	--	--
P36S109B	--	8.9	--	--	--	--	--	--	46	(L)	--	--
P36S156A	--	1.4	6.3	18	--	--	--	--	180	--	--	--
P36S156B	--	1.1	10	6.7	--	--	--	--	380	3.0	--	--
P36S156C	--	1.2	4.7	--	--	--	--	--	540	2.4	--	--
P36S158A	--	1.3	--	--	--	--	--	--	20	--	--	--
P36S158B	--	1.9	--	--	--	--	--	--	41	--	--	--
P36S158C	--	--	--	--	--	--	--	--	--	--	--	--
P36S160A	--	1.4	46	--	--	--	--	--	28	--	--	--
P36S160B	--	1.1	3.5	11	--	--	--	--	64	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P36S160C	--	1.4	--	--	--	--	--	--	40	--	--	--
P36S161A	--	--	--	--	--	--	--	--	19	--	--	--
P36S161B	--	1.1	--	--	--	--	--	--	18	--	--	--
P36S161C	--	--	2.8	--	--	--	--	--	26	--	--	--
P36S162A	--	4.0	--	--	--	--	--	--	--	--	--	--
P36S162B	--	--	--	--	--	--	--	--	--	--	--	--
P36S174A	--	1.4	--	--	--	--	--	--	30	--	--	--
P36S174B	--	--	--	--	--	--	--	--	17	--	--	--
P36S174C	--	--	--	--	--	--	--	--	42	--	--	--
P36S176A	--	4.9	3.2	--	--	--	--	--	31	--	--	--
P36S176B	--	--	--	--	--	--	--	--	14	--	--	--
P36S176C	--	1.2	--	--	--	--	--	--	--	--	--	--
P36S181A	--	--	2.0	--	--	--	--	--	18	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P36S181B	--	1.2	--	--	--	--	--	--	16	--	--	--
P36S183A	--	--	8.0	--	--	--	--	--	17	--	--	--
P36S183B	--	--	2.7	--	--	--	--	--	18	--	--	--
P36S197A	--	1.2	--	--	--	--	--	--	170	--	--	--
P36S197B	--	--	12	--	--	--	--	--	8.2	--	--	--
P36S199A	--	6.2	8.6	18	--	--	3.2	--	--	--	10	--
P36S199B	--	--	--	--	--	--	--	--	--	--	--	--
P36S201A	--	1.1	4.2	13	--	--	--	--	29	--	--	--
P36S201B	--	--	2.1	6.5	--	--	--	--	7.9	--	--	--
P36S203A	--	17	1,500	2,800	2.3	25	1,100	--	390	18	--	--
P36S203AD	--	22	6,100	12,000	4.1	39	500	--	780	5	--	--
P36S203B	--	9.0	570	940	0.82	15	260	--	350	4.1	--	--
P36S220A	--	--	9.0	25	--	--	2.8	--	7.0	--	--	--

Key at end of table.

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Table 3-3

SUMMARY ANALYTICAL SCREENING RESULTS FOR SOIL SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA (all results in mg/kg)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs	Total PAHs	Total Phenols	Diel-drin
Detection Limit	6.0	1.0	2.0	4.0	0.5	4.0	2.5	1.0	5.0	1.0	2.0	1.0
RCRA PCAL	8E+01	4E+02	1.6E+04		4E+01	2E+03	4E+02	2E+02		1.6+00[a]		4E-02
P36S220B	--	--	3.7	5.0	--	--	--	--	--	--	--	--
P36S222A	--	3.3	5.6	25	--	--	--	--	15	--	--	--
P36S222B	--	--	4.7	--	--	--	--	--	--	--	--	--

[a] RCRA PCAL for benzo(a)pyrene.
[b] The detection limit for this parameter in this sample was elevated by a factor of 12.
[c] The detection limit for this parameter in this sample was elevated by a factor of 2.

Key:

D = Duplicate sample.
(L) = Compound present below the detection limit.
mg/kg = milligrams per kilogram.
RCRA PCAL = Resource Conservation and Recovery Act Proposed Corrective Action Levels.
-- = Compound not detected.

Source: Ecology and Environment, Inc., 1994.

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Table 3-4
SUMMARY ANALYTICAL SCREENING RESULTS
FOR TEMPORARY WELL GROUNDWATER SAMPLES
FROM PREVIOUS INVESTIGATIONS
NAS PENSACOLA
(all results in μg/L, unless otherwise noted)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs (mg/L)	Total PAHs	Total Phenols	Methylene Chloride
Detection Limit	60	10	20	40	5.0	40	25	10	1.0	100	100	10
FPDWS/ FSDWS	50	100	5,000	15	5.0	100	1,000	100				
SITE 9												
TW008	--	--	130	80	--	--	--	--	--	--	--	--
TW010	--	13	100	61	--	--	--	--	--	--	--	--
TW011	--	--	110	64	--	--	110	--	--	--	--	--
TW011(Dup)	--	14	180	57	--	--	98	--	--	--	--	--
TW013	--	39	85	84	--	--	38	--	--	--	--	--
TW014	--	12	50	--	--	--	--	--	--	--	--	--
TW015	--	--	90	--	--	--	--	--	--	--	--	--
SITE 23												
TW001	89	210	48,000	35,000	110	360	10,000	57	--	--	--	--
TW002	98	20	220	340	--	--	95	--	--	--	--	--
TW002 (Dup)	--	13	240	460	--	--	100	--	--	--	--	--
TW004	--	68	360	390	--	--	44	--	--	--	--	--

Key at end of table.

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Table 3-4
SUMMARY ANALYTICAL SCREENING RESULTS
FOR TEMPORARY WELL GROUNDWATER SAMPLES
FROM PREVIOUS INVESTIGATIONS
NAS PENSACOLA
(all results in μg/L, unless otherwise noted)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs (mg/L)	Total PAHs	Total Phenols	Methylene Chloride
Detection Limit	60	10	20	40	5.0	40	25	10	1.0	100	100	10
FPDWS/ FSDWS	50	100	5,000	15	5.0	100	1,000	100				
TW005	--	84	530	270	6.7	40	62	--	--	--	370	--
TW006	85	20	93	--	--	--	--	--	--	--	--	--
TW007	--	--	--	--	--	--	--	--	--	--	--	--
TW008	--	22	61	--	--	--	--	--	49	(L)	--	--
SITE 29												
TW006	--	26	58	--	--	--	--	--	11	--	--	--
TW007	--	34	38	--	--	42	--	--	2.6	--	--	--
TW007(Dup)	110	26	66	--	--	--	--	--	5.7	--	--	--
TW008	--	23	46	--	--	--	--	--	12	--	--	100[a]
SITE 34												
TW006	--	--	97	--	--	--	--	--	--	--	--	--
TW007	--	15	55	--	--	--	--	--	--	--	190	--
TW009	--	--	150	--	--	--	--	--	--	--	--	--

Key at end of table.

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Table 3-4
SUMMARY ANALYTICAL SCREENING RESULTS
FOR TEMPORARY WELL GROUNDWATER SAMPLES
FROM PREVIOUS INVESTIGATIONS
NAS PENSACOLA
(all results in μg/L, unless otherwise noted)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	Silver	TRPHs (mg/L)	Total PAHs	Total Phenols	Methylene Chloride
Detection Limit	60	10	20	40	5.0	40	25	10	1.0	100	100	10
FPDWS/ FSDWS	50	100	5,000	15	5.0	100	1,000	100				
TW009(Dup)	--	--	200	--	--	--	--	--	--	--	--	--
TW011	--	12	94	58	--	--	--	--	1.2	190	960	--
TW012	--	37	290	--	--	--	--	--	--	--	--	--

Key at end of table.

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Table 3-4
SUMMARY ANALYTICAL SCREENING RESULTS
FOR TEMPORARY WELL GROUNDWATER SAMPLES
FROM PREVIOUS INVESTIGATIONS
NAS PENSACOLA
(all results in μg/L, unless otherwise noted)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	TRPHs (mg/L)	Total Xylenes	Total PAHs	1,1 Dichloro ethane	1,1,1 Trichloro ethane	Diel-drin	Total PCBs
Detection Limit	60	10	20	40	50	40	25	1.0	10	100	10	10	5.0	10
FPDWS/FSDWS	50	100	5,000	15	5.0	100	1,000		10,000		7.0	200		0.5
SITE 36														
TW018	--	140	120	140	8.5	46	30	--	--	--	--	--	--	--
TW020	--	31	90	--	--	--	--	--	--	--	--	--	--	--
TW022	--	21	29	110	--	--	--	--	--	(L)	--	--	--	--
TW022(Dup)	--	28	44	140	--	--	26	--	--	(L)	--	--	--	--
TW024	18	24	--	--	--	--	--	--	--	140	--	--	--	--
TW026	--	190	89	--	7.5	--	34	2.3	--	--	--	--	--	--
TW028	--	77	130	140	--	--	--	--	--	--	--	--	--	--
TW030	--	31	54	--	--	--	--	--	--	--	25	--	--	--
TW032	--	35	160	--	--	110	--	--	--	--	--	--	--	--
TW070	--	36	660	1,900	8.4	--	210	--	--	--	--	--	--	--
TW070(Dup)	--	29	390	1,200	--	--	120	--	--	--	--	--	--	--
TW072	--	100	360	1,100	8.2	--	100	--	--	--	--	--	--	--
TW074	--	36	250	280	--	--	50	--	--	--	--	--	--	--
TW076	--	33	1,800	3,800	--	--	290	--	--	--	--	--	--	--

Key at end of table.

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Table 3-4
SUMMARY ANALYTICAL SCREENING RESULTS
FOR TEMPORARY WELL GROUNDWATER SAMPLES
FROM PREVIOUS INVESTIGATIONS
NAS PENSACOLA
(all results in µg/L, unless otherwise noted)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	TRPHs (mg/L)	Total Xylenes	Total PAHs	1,1 Dichloro ethane	1,1,1 Trichloro ethane	Diel-drin	Total PCBs
Detection Limit	60	10	20	40	50	40	25	1.0	10	100	10	10	5.0	10
FPDWS/FSDWS	50	100	5,000	15	5.0	100	1,000		10,000		7.0	200		0.5
TW078	--	79	1,200	2,100	9	44	250	1.0	--	--	--	--	--	--
TW079	--	15	200	400	--	--	69	--	--	--	--	--	--	--
TW081	100	33	580	720	--	--	79	--	--	--	--	--	--	--
TW082	--	73	430	1,700	11	--	130	3.5	--	--	--	--	--	--
TW085	--	160	590	1,300	21	48	210	--	--	--	--	--	--	(L)
TW086	--	34	120	270	5.7	--	55	3.5	--	--	--	--	--	--
TW088	--	22	100	--	--	--	--	3.6	--	--	--	--	--	--
TW090	--	23	190	310	--	--	45	--	--	--	--	--	--	--
TW091	--	49	320	700	--	--	140	--	--	--	--	--	--	--
TW093	--	66	320	930	--	44	94	--	--	--	--	--	--	--
TW096	--	36	110	260	--	--	27	--	--	--	--	--	--	--
TW097	--	40	53	200	--	43	--	--	--	--	--	--	--	--
TW098	--	36	130	410	--	--	37	--	--	--	--	--	--	--
TW100	--	80	260	420	--	--	84	--	--	--	--	--	(L)	--
TW101	--	34	130	130	--	--	38	--	--	--	--	--	--	--

Key at end of table.

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Table 3-4
SUMMARY ANALYTICAL SCREENING RESULTS
FOR TEMPORARY WELL GROUNDWATER SAMPLES
FROM PREVIOUS INVESTIGATIONS
NAS PENSACOLA
(all results in μg/L, unless otherwise noted)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	TRPHs (mg/L)	Total Xylenes	Total PAHs	1,1 Dichloro ethane	1,1,1 Trichloro ethane	Diel-drin	Total PCBs
Detection Limit	60	10	20	40	50	40	25	1.0	10	100	10	10	5.0	10
FPDWS/FSDWS	50	100	5,000	15	5.0	100	1,000		10,000		7.0	200		0.5
TW102	--	30	130	100	--	--	--	--	--	--	--	--	--	--
TW103	--	350	500	520	--	--	35	--	--	--	--	--	--	--
TW105	--	130	420	750	--	--	190	--	--	--	--	--	--	--
TW106	--	140	220	400	--	--	39	--	--	--	--	--	--	--
TW107	--	380	100	67	--	--	--	1.4	--	--	--	17	--	--
TW109	--	160	54	130	--	--	--	--	--	--	--	--	--	--
TW156	--	63	250	310	--	--	52	4.1	--	--	--	--	--	--
TW156(Dup)	--	61	200	200	--	--	37	3.2	--	--	--	--	--	--
TW158	--	19	33	--	--	--	--	--	--	--	--	--	--	--
TW160	--	24	330	170	--	--	29	--	--	--	--	--	--	--
TW161	--	22	35	110	--	--	--	--	--	--	--	--	--	--
TW162	--	71	83	97	--	--	29	--	--	--	--	--	--	--
TW174	--	13	28	--	--	--	--	--	--	--	--	--	--	--
TW176	--	70	73	88	--	--	28	--	--	--	--	--	--	--
TW178	--	67	240	110	7.0	--	--	--	--	--	--	--	--	--

Key at end of table.

14:U01901_T0707-06/23/94-D1

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Table 3-4
SUMMARY ANALYTICAL SCREENING RESULTS
FOR TEMPORARY WELL GROUNDWATER SAMPLES
FROM PREVIOUS INVESTIGATIONS
NAS PENSACOLA
(all results in µg/L, unless otherwise noted)

Sample Number	Arsenic	Chromium	Zinc	Lead	Cadmium	Nickel	Copper	TRPHs (mg/L)	Total Xylenes	Total PAHs	1,1 Dichloro ethane	1,1,1 Trichloro ethane	Diel-drin	Total PCBs
Detection Limit	60	10	20	40	50	40	25	1.0	10	100	10	10	5.0	10
FPDWS/FSDWS	50	100	5,000	15	5.0	100	1,000		10,000		7.0	200		0.5
TW181	--	--	110	300	--	--	82	--	--	--	--	--	--	--
TW183	--	--	210	240	--	--	--	--	--	--	--	--	--	--
TW197	--	25	54	51	--	--	--	--	160	--	--	--	--	--
TW199	--	72	93	160	--	--	67	--	--	--	--	--	--	--
TW201	--	15	79	55	--	--	73	--	--	--	--	--	--	--
TW203	--	190	24,000	37,000	44	440	6,300	--	--	--	--	--	--	--
TW220	--	22	240	530	--	--	280	--	--	--	--	--	--	--
TW222	--	1,200	140	--	--	--	95	1.6	10	--	--	--	--	--

[a] The detection limit for this parameter in this sample was elevated by a factor of 10.

Key:

-- = Compound not detected.
Dup = Duplicate groundwater sample.
FPDWS = Florida Primary Drinking Water Standard.
FSDWS = Florida Secondary Drinking Water Standard.
(L) = Compound present below detection limit.
mg/L = milligrams per liter.
ug/L = micrograms per liter.

14:UO1901_T0707-06/24/94-D1

Table 3-5

SUMMARY ANALYTICAL RESULTS FOR PERMANENT WELL GROUNDWATER SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA

(all results in μg/L, unless otherwise noted)

	PO9WO29 (GM-29)	PO9WO29 (Dup) (GM-29)	PO9WO30 (GM-30)	P23W006 GM-6	P23W006 (Dup) (GM-6)	P29W007 GM-7	P29W007 (Dup) (GM-7)	P34W053 GM-53	P34WO56 GM-56	P34W057 GM-57	P34W061 GM-61	FPDWS/ FSDWS
TOTAL METALS												
Aluminum	145(B)	109(B)	634	471	551	246	61.2(B)	1,650	1,110	706	279	200
Antimony	--	--	--	--	--	--	--	--	--	39.1(B)	--	6
Arsenic	--	--	--	--	--	--	--	--	2.4(B)	--	--	50
Barium	38.2(B)	35.1(B)	--	5.4(B)	5.6(B)	161(B)	147(B)	--	17.6(B)	5.2(B)	38.7(B)	2,000
Cadmium	--	--	--	--	--	--	--	3.3(B)	--	--	--	5.0
Calcium	46,500	46,200	3,590(B)	16,600	16,600	32,700	32,900	15,700	60,000	49,500	50,500	
Chromium	--	--	--	--	--	103	37	52.9	13.5	--	--	100
Cobalt	10.7(B)	12.4(B)	9.7(B)	--	--	8.8(B)	9.3(B)	7.6(B)	6.3(B)	5.8(B)	6.5(B)	
Copper	4.4(B)	3.3(B)	--	--	--	3.2(B)	--	4.4(B)	--	3.0(B)	6.6(B)	1,000
Iron	188	221	1,860	814(E)	1,040(E)	1,350(E)	954(E)	4,400	6,590	2,600	4,800	300
Lead	5.2	4.7	8.6	2.3(B)	2.9(B)	3.8(S)	1.1(B)	4.7*	10*	5.0*	7.3(S)*	15
Magnesium	1,910(B)	1,800(B)	2,580(B)	1,720(B)	1,740(B)	1,780	1,780(B)	5,210	4,440(B)	3,380(B)	6,330	
Manganese	26.3	31.7	35.7	4.8(B)	7.0(B)	289(E)	149(E)	101	607	40.9	54.0	50
Mercury	0.21*	--*	--*	--	--	--	--	--	--	--	--	2
Nickel	--	--	--	--	--	19.4	--	11.7(B)	--	--	--	100
Potassium	1,490(B)	1,580(B)	1,880(B)	1,170(B)	1,240(B)	3,010	2,930(B)	3,190(B)	3,800(B)	1,460(B)	2,660(B)	

Key at end of table.

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Table 3-5

SUMMARY ANALYTICAL RESULTS FOR PERMANENT WELL GROUNDWATER SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA
(all results in μg/L, unless otherwise noted)

	PO9WO29 (GM-29)	PO9WO29 (Dup) (GM-29)	PO9WO30 (GM-30)	P23W006 GM-6	P23W006 (Dup) (GM-6)	P29W007 GM-7	P29W007 (Dup) (GM-7)	P34W053 GM-53	P34WO56 GM-56	P34W057 GM-57	P34W061 GM-61	FPDWS/ FSDWS
Selenium	--(W,N)*	--(W,N)*	--(W,N)*	--	--	--	--	--	--(W)	--(W)	--(W)	50
Silver	--	--	3.3(B)	--	--	--	--	--	--	--	--	100
Sodium	4,450(B,E)	4,640(B,E)	5,060	4,840(B)	5,020	27,100	27,000	5,890	9,130	3,390(B)	127,000	150,000
Thallium	--	--	--	--	--	--	--	--(W)	--	--	--	2
Vanadium	6.8(B)	7.1(B)	6.5(B)	--	--	4.2	4.4(B)	7.1(B)	--	--	--	
Zinc	11.9(B)	11.7(B)	18.5(B)	5.2(B)	11.4(B)	12.9	8.4(B)	26.2	16.7(B)	25.1	39.1	5,000
DISSOLVED METALS												
Aluminum	110(B)	120(B)	92.6(B)	57.4(B)	60.1(B)	151(B)	236	3,330	107(B)	74.3(B)	302	
Antimony	--	--	--	33.2(B)	--	--	--	34.5(B)	--	--	--	6
Arsenic	--	--	--	--	--	--	--	--	--(W)	--	--	50
Barium	40.4(B)	41.3(B)	--	--	--	141(B)	147(B)	8.1(B)	15.3(B)	--	39.6(B)	2,000
Cadmium	--	--	--	4.2(B)	--	--	--	--	--	3.2(B)	--	5.0
Calcium	48,600	49,200	3,560(B)	16,500	16,600	33,600	33,500	15,700	61,300	51,700	50,300	
Chromium	--	--	--	--	--	--	109	--	--	--	--	100
Cobalt	11.0(B)	13(B)	10.9(B)	--	--	12.4(B)	11.8(B)	8.0(B)	10.7(B)	8.4(B)	10.1(B)	
Copper	3.8(B)	7.5(B)	2.2(B)	2.1(B)	--	5.0(B)	3.6(B)	4.5(B)	--	--	2.1(B)	1,000
Iron	65.5(B)	56.5(B)	1,080	62.6(B,E)	55.3(B,E)	287(E)	849(E)	4,400	4,070	139	4,800	300

Key at end of table.

14:UO1901_T0707-06/23/94-D1

Table 3-5

SUMMARY ANALYTICAL RESULTS FOR PERMANENT WELL GROUNDWATER SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA
(all results in μg/L, unless otherwise noted)

	PO9WO29 (GM-29)	PO9WO29 (Dup) (GM-29)	PO9WO30 (GM-30)	P23W006 GM-6	P23W006 (Dup) (GM-6)	P29W007 GM-7	P29W007 (Dup) (GM-7)	P34W053 GM-53	P34WO56 GM-56	P34W057 GM-57	P34W061 GM-61	FPDWS/ FSDWS
Lead	1.6(B)	2.4(B)	1.9(B)	1.1(B)	--	1.1(B,W)	1.4(B,W)	5.4*	--*	--*	3.2*	15
Magnesium	1,920(B)	1,900(B)	2,520(B)	1,680(B)	1,680(B)	1,840(B)	1,810(B)	5,370	4,430(B)	3,310(B)	6,240	
Manganese	20.5	21.0	32.8	3.3(B)	3.7(B)	165(E)	181(E)	99.3	592	36.6	57.1	50
Nickel	--	10.9(B)	--	--	--	--	22.4(B)	--	--	--	--	100
Potassium	1,550(B)	1,720(B)	2,030(B)	1,260(B)	1,260(B)	3,170(B)	3,220(B)	3,280	3,280(B)	1,550(B)	2,600(B)	
Selenium	--(W,N)*	--(W,N)*	--(N)*	--	--	--	--	--(W)	--	--	--(W)	50
Sodium	4,710(B,E)	5,110(E)	5,280(E)	4,940(B)	4,950(B)	28,200	27,700	5,900	9,570	3,550(B)	122,000	150,000
Thallium	--	--	--	--	--	--	--	--(W)	--	--	--(W)	
Vanadium	7.7(B)	7.9(B)	7.6(B)	--	--	5.6(B)	6.1(B)	10.8(B)	4.4(B)	5.4(B)	--	
Zinc	11.0(B)	9.6(B)	11.6(B)	9.8(B)	9.3(B)	9.0(B)	13.0(B)	24.4	10.5(B)	6.6(B)	21.1	5,000
TRPHs (Mg/L)	1.0	1.2	--	1.6	--	--	1.2	--	--	--	--	
Chloromethane	7(J)	--	--	--	--	--	--	--	--	--	--	
Acetone	3(B[a],J)	--	--	8(J)	10	14(B[a])	13	5(B[a],J)	2(B[a],J)	3(B[a],J)	4(B[a],J)	
Bis(2-ethylhexyl) Phthalate	3(B[a],J)	3(B[a],J)	9(B[a],J)	5(B[a],J)	5(B[a],J)	3(B[a],J)	3(B[a],J)	3(B[a],J)	4(B[a],J)	4(B[a],J)	4(B[a],J)	
Methylene Chloride	3(B[a],J)	2(B[a],J)	2(B[a],J)	6(B[a])	5(B[a])	6(B[a])	1(B[a],J)	1(B[a],J)	2(B[a],J)	2(B[a],J)	2(B[a],J)	5
Carbon Disulfide	--	--	--	--	--	--	--	--	9	--	13	100

Key at end of table.

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Table 3-5

SUMMARY ANALYTICAL RESULTS FOR PERMANENT WELL GROUNDWATER SAMPLES FROM PREVIOUS INVESTIGATIONS NAS PENSACOLA
(all results in μg/L, unless otherwise noted)

	PO9WO29 (GM-29)	PO9WO29 (Dup) (GM-29)	PO9WO30 (GM-30)	P23W006 GM-6	P23W006 (Dup) (GM-6)	P29W007 GM-7	P29W007 (Dup) (GM-7)	P34W053 GM-53	P34WO56 GM-56	P34W057 GM-57	P34W061 GM-61	FPDWS/ FSDWS
Chlorobenzene	--	--	--	--	--	--	--	--	3(J)	--	--	
1,3-Dichlorobenzene	--	--	--	--	--	--	--	--	1(J)	--	--	
1,4-Dichlorobenzene	--	--	--	--	--	--	--	--	2(J)	--	--	75
Naphthalene	--	--	--	--	--	--	--	4(J)	15	--	--	
2-Methyl Naphthalene	--	--	--	--	--	--	--	4(J)	60	--	--	

Key:

- * = Duplicate analysis not within control limits.
- -- = Compound not detected.
- (B) = Reported value was obtained from a reading that was less than the contract required detection limit but greater than or equal to the instrument detection limit.
- (B*) = Present in method blank.
- Dup = Duplicate groundwater sample.
- (E) = Reported value is estimated because of the presence of interference.
- FPDWS = Florida Primary Dringing Water Standard.
- FSDWS = Florida Secondary Drinking Water Standard.
- (J) = Estimated value; compound present but below detection limit.
- (L) = Compound present below detection limit.
- mg/L = milligrams per liter.
- (N) = Spiked sample recovery not within control limits.
- (S) = The reported value was determined by the method of standard additions.
- (W) = Post digestion spike for furnace AA analysis is out of control limits (85 - 115%), while sample absorbance is less than 50% of spike absorbance.

Source: Ecology and Environment, Inc. 1994.

14:UO1901_T0707-06/23/94-D1

4. SUMMARY AND CONCLUSIONS

Based on the results of this soil investigation and a review of other information available, it appears that soil and groundwater beneath Chevalier Field may be of potential concern to the construction activities related to the proposed CNET facility. Petroleum and potential F-listed waste constituents have been detected at several sample locations at Chevalier Field.

The results of this investigation revealed the presence of several compounds which may be considered F-listed hazardous waste constituents when excavated. The source of these compounds, specifically 1,1,1-trichloroethane and acetone, should be investigated by the Navy to determine the regulatory status of the soil that these constituents are contained in. If these compounds are determined to be from spent solvents used on Chevalier Field, the affected soil would carry the F-listed hazardous waste designation if it were excavated during construction activities.

The results of the ABB investigation identified contaminated soil and groundwater at petroleum site 2662W. The soil headspace survey delineated a large area of excessively contaminated soil, as defined by Chapter 17-770, FAC. In addition, high concentrations of lead, volatile organics, and TRPHs were detected in the soil samples. Concentrations of benzene exceeding the FPDWS were detected in the groundwater at this site, as were elevated concentrations of TRPHs. Based on these results, it is likely that soil and/or groundwater remediation will be required at this site.

The majority of the other analytes detected were generally below the applicable regulatory standards. The metals concentrations detected in the soil samples are generally representative of the ambient levels found in the soil in this area. Although elevated concentrations of BNAs were detected in some soil samples, the levels were generally not significant. In addition, the highest concentrations were detected outside the areas of

proposed construction. Various other compounds also were detected, all at concentrations below regulatory standards.

With the exception of the groundwater contamination identified at petroleum site 2662W, metals were the only analytes detected in groundwater samples at concentrations above the FPDWS. It should be noted that the majority of these samples were analyzed unfiltered; therefore, the results obtained may not be representative of the actual concentrations of dissolved metals in the groundwater.

Based on the available laboratory analytical data and the risk-based concentrations generated, there does not appear to be an exposure risk to construction workers involved in this project.

5. REFERENCES

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6. FLORIDA REGISTERED PROFESSIONAL GEOLOGIST SEAL

Name:	Craig R. Smith
License Number:	1089
State:	Florida
Expiration Date:	July 31, 1994

Craig R. Smith

6/24/94

Date

APPENDIX A

IR SITES
SAMPLE LOCATION FIGURES

APPENDIX B

1994 SOIL ANALYTICAL DATA

MEMORANDUM

TO: Craig Smith

FROM: Gary Hahn

DATE: January 26, 1994

SUBJECT: UO-1000 Chevalier Field Report

RE: 9400.033

CC: Lab File

During routine review of job 9400.033, an incorrect result was found. Sample 00190 [SS-26] for metals analysis has a wrong result for **LEAD**. The correct amount should read **5.0 mg/kg**.

Enclosed is an amended result page for sample 00190. Please update your file. Thank you.

A copy of this will be sent to Giles Cassels.

GH/jp
enclosure

METALS SECTION

JOB NUMBER :9400.033
ELAP ID : 10486

Ecology and Environment, Inc.
Analytical Services Center

CLIENT : UO-1000 CHEVALIER FIELD
RESULTS IN DRY WEIGHT %SOLIDS : 95 %
SAMPLE ID LAB : EE-94-00190 MATRIX: SOLID
SAMPLE ID CLIENT: SS-26

PARAMETER		RESULTS	Q	QNT. LIMIT	UNITS
Silver	(ICP)	ND		1.0	MG/KG
Arsenic	(FU)	ND		0.53	MG/KG
Barium	(ICP)	ND		2.1	MG/KG
Cadmium	(ICP)	ND		0.53	MG/KG
Chromium Total	(ICP)	ND		1.0	MG/KG
Lead	(FU)	5.0		0.53	MG/KG
Selenium	(FU)	ND		0.53	MG/KG
Mercury		ND		0.10	MG/KG

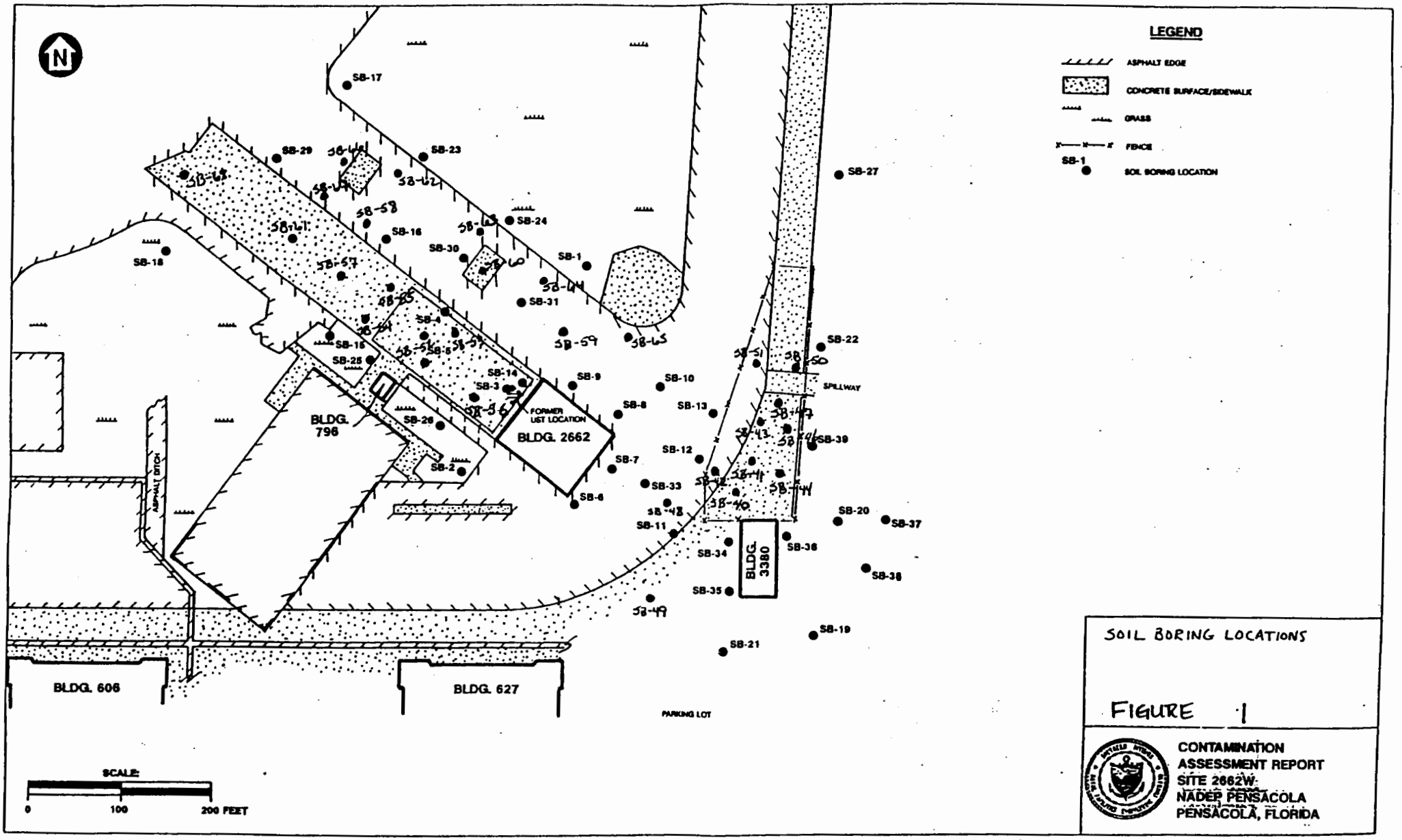
QUALIFIERS: C = COMMENT ND = NOT DETECTED
J = ESTIMATED VALUE

APPENDIX C

HAZARD EVALUATION REPORT

APPENDIX D

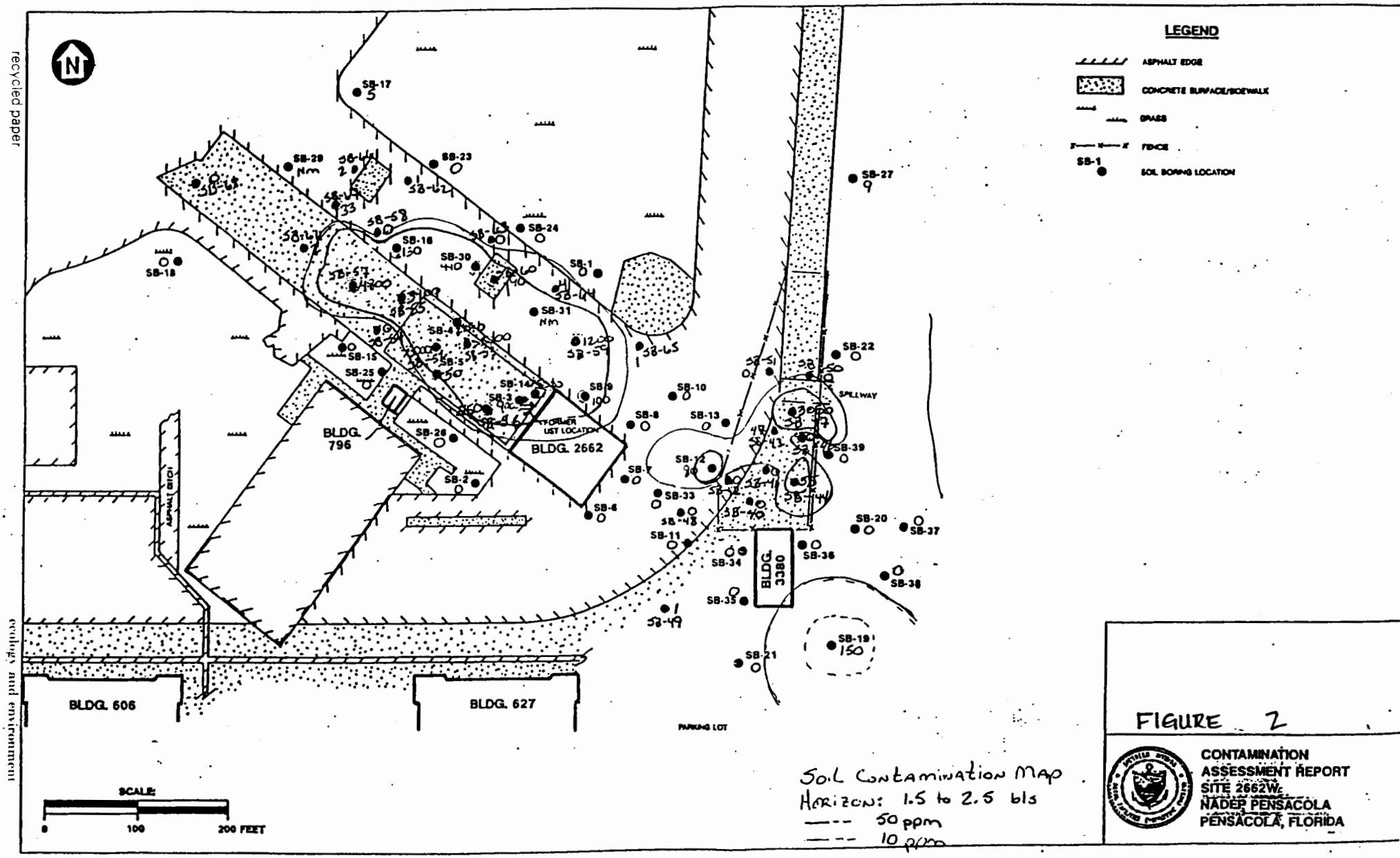
ABB SAMPLE LOCATION FIGURES AND HEADSPACE AND ANALYTICAL TABLES



SOIL BORING LOCATIONS

FIGURE 1

CONTAMINATION ASSESSMENT REPORT
SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA



Soil Contamination Map
Horizon: 1.5 to 2.5 bls
--- 50 ppm
--- 10 ppm

FIGURE 2

CONTAMINATION ASSESSMENT REPORT
SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA

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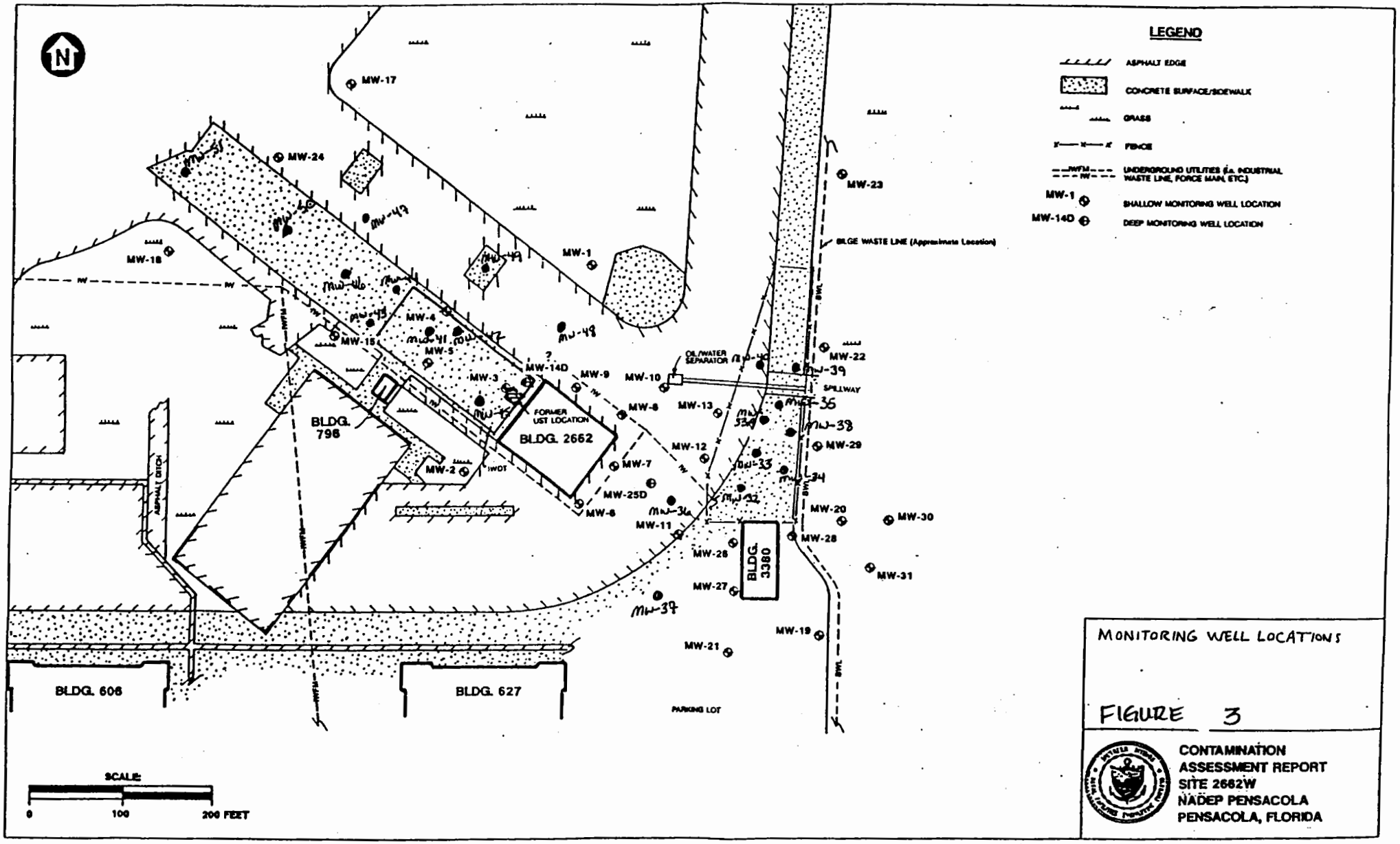
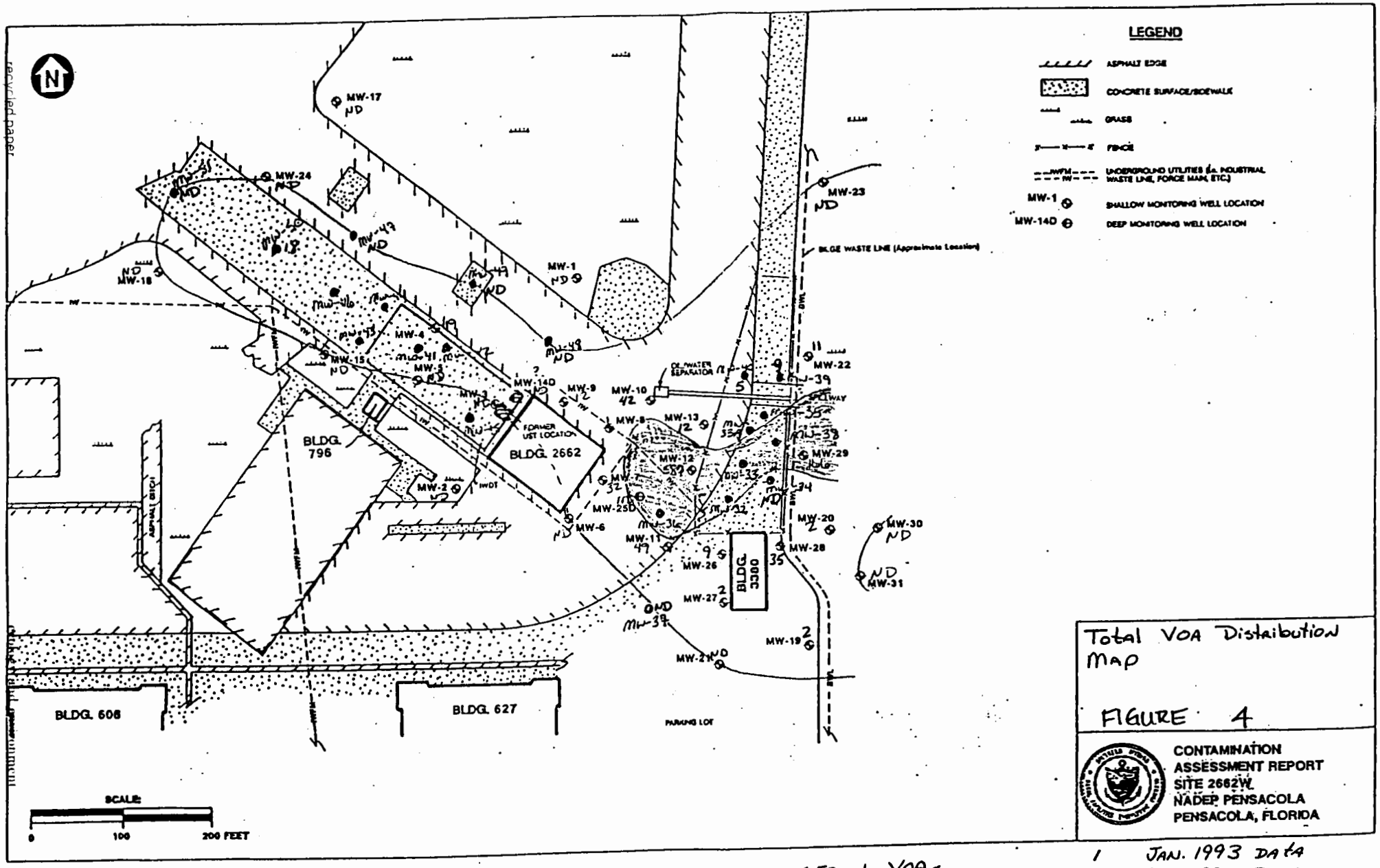


MONITORING WELL LOCATIONS

FIGURE 3

CONTAMINATION ASSESSMENT REPORT
SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA



Total VOA Distribution Map

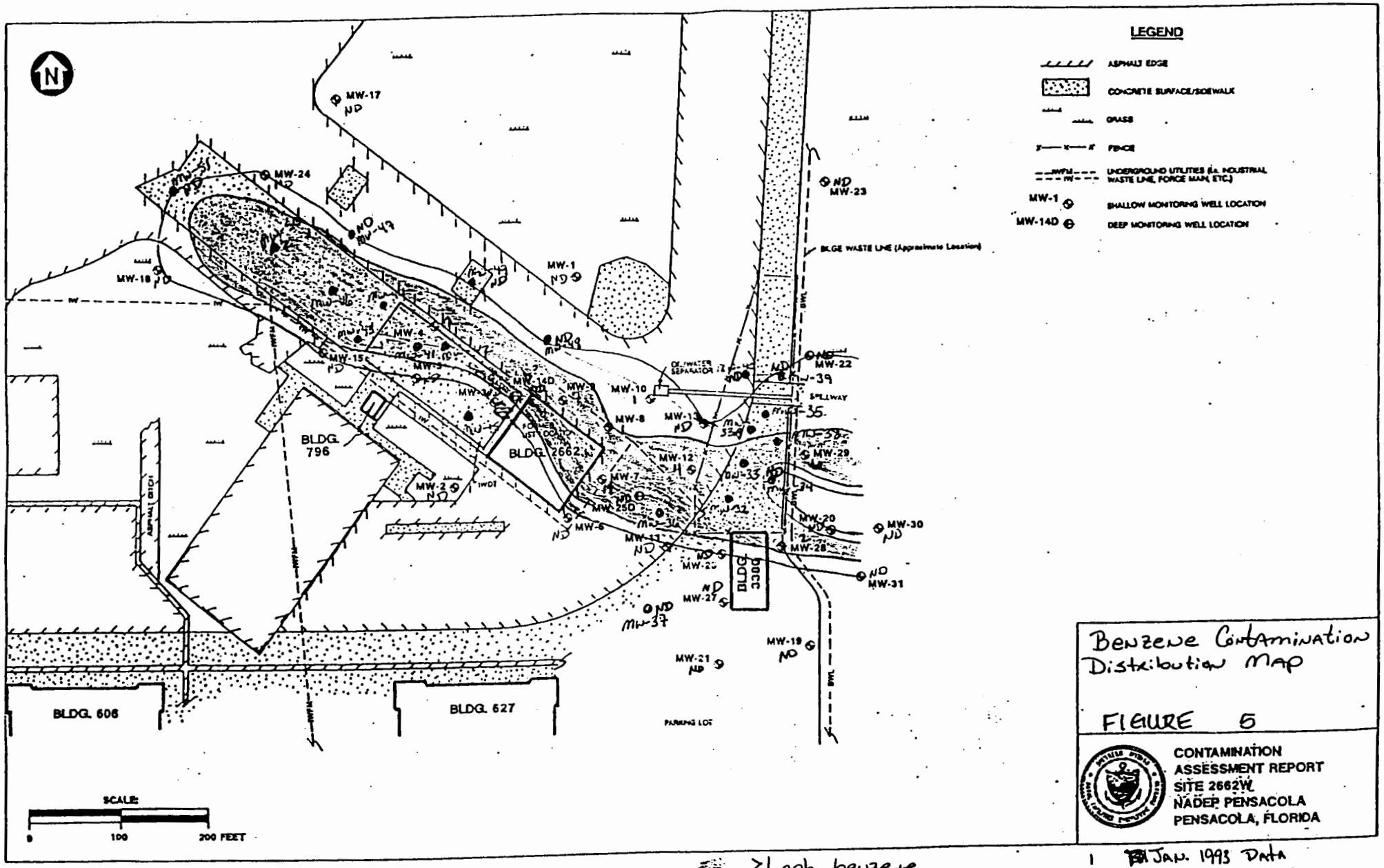
FIGURE 4

CONTAMINATION ASSESSMENT REPORT
SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA

<50 ppb VOAs

≥ 50 ppb VOAs

1 JAN. 1993 DATA
2 Aug. 1992 DATA



Benzene Contamination Distribution Map

FIGURE 5

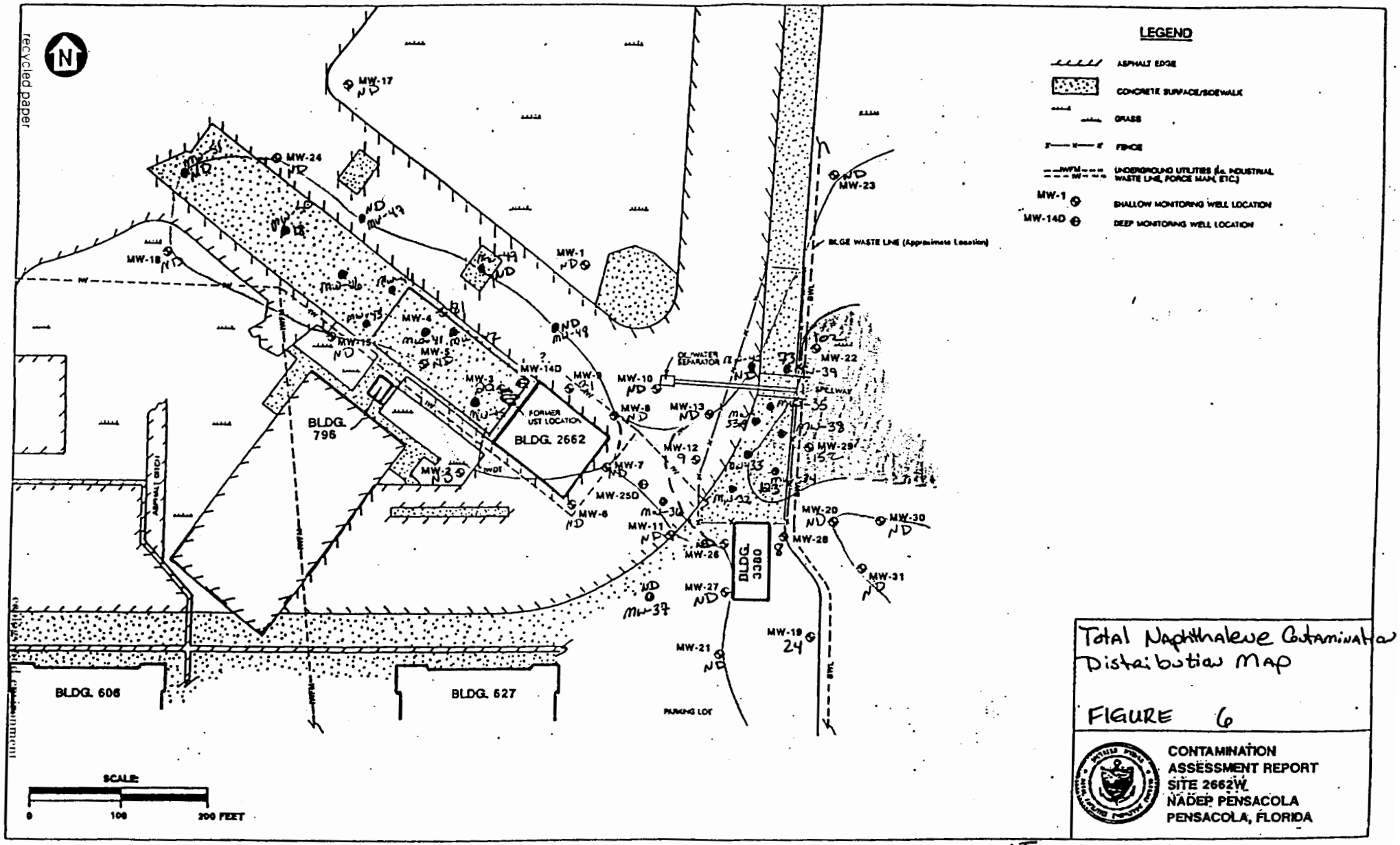
CONTAMINATION ASSESSMENT REPORT
SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA

>1 ppb benzene

≤1 ppb benzene

1 Jan. 1993 Data

2 Aug. 1992 Data



Total Naphthalene Contamination Distribution Map

FIGURE 6

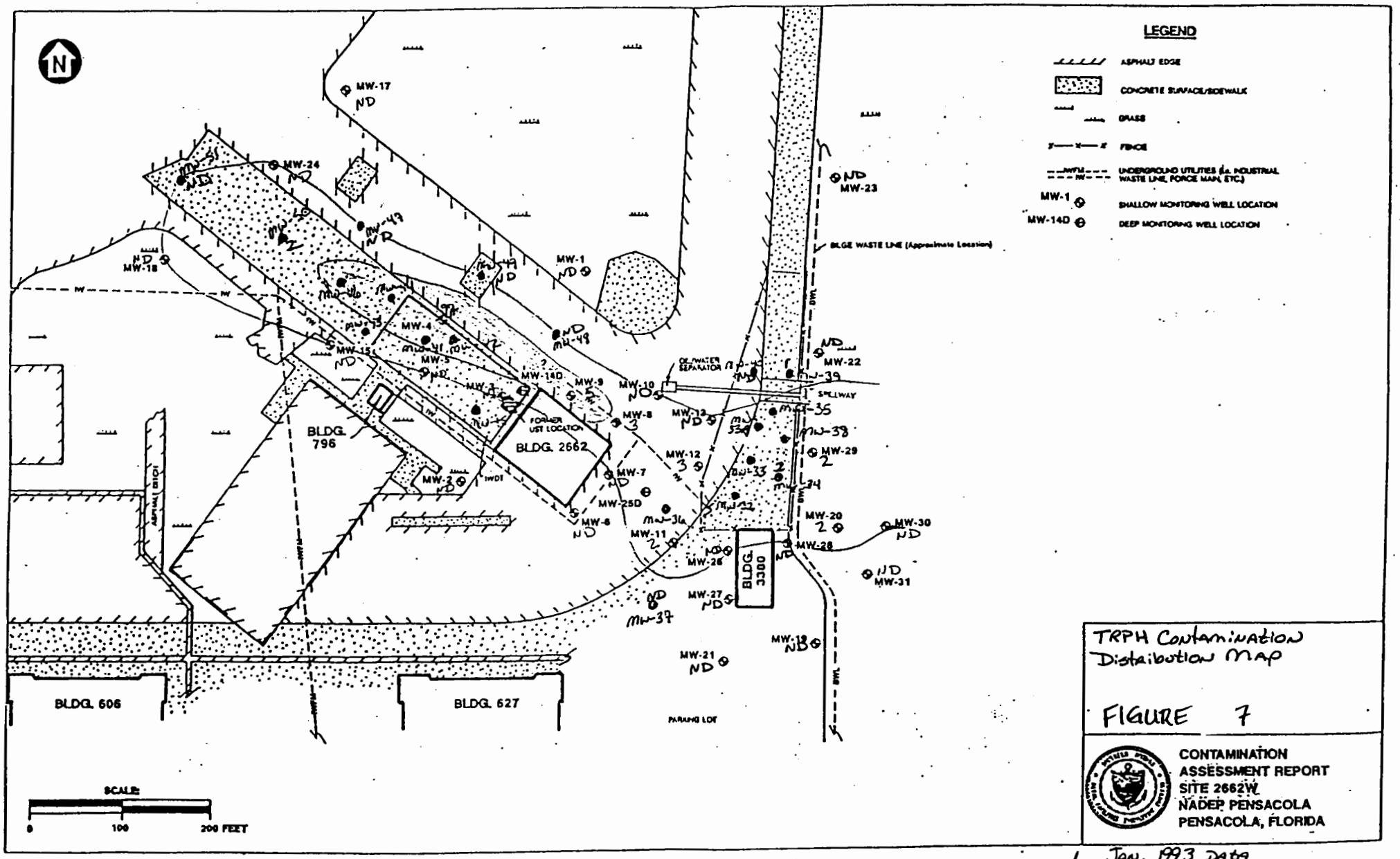
CONTAMINATION ASSESSMENT REPORT
SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA

<100 T. Nap

≥ 100 T. Nap

1 Jan. 1993 Data
2 Aug 1992 Data

recycled paper



TRPH Contamination Distribution Map

FIGURE 7

CONTAMINATION ASSESSMENT REPORT
SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA

<5 ppm TRPH

≥5 ppm TRPH

1 JAN. 1993 DATA
2 Aug. 1992 DATA

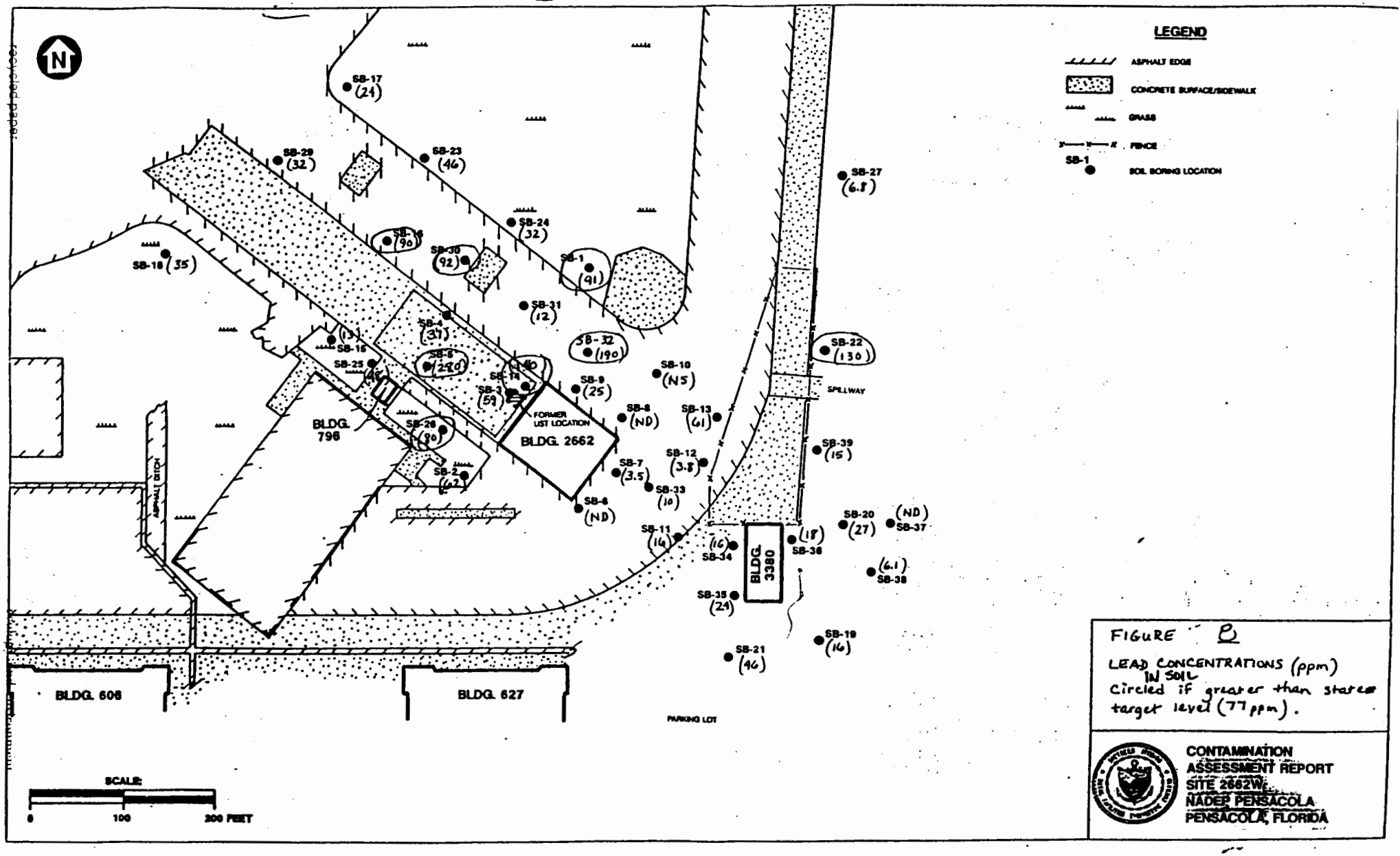


FIGURE 8

LEAD CONCENTRATIONS (ppm) IN SOIL
Circled if greater than state target level (77 ppm).

CONTAMINATION ASSESSMENT REPORT
SITE 2662W
NADEP PENSACOLA
PENSACOLA, FLORIDA