

**DRAFT FINAL SUMMARY AND  
TECHNICAL EVALUATION REVIEW  
OF WORK PERFORMED AT 51  
SWMUs AND AOCs  
U.S. NAVAL STATION  
ROOSEVELT ROADS  
CEIBA, PUERTO RICO  
Work Assignment: R02031  
(Ref. No. 1-635-340)**

**Prepared for:  
U.S. Environmental Protection Agency**

**Contract: 68-W9-0003**

**TRC**

TRC Environmental Corporation

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Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY  
Air and Waste Management Division  
26 Federal Plaza  
New York, New York 10278

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TRC Project Manager:	Steven E. Panter
Telephone Number:	(908) 563-1100
Subcontract No.:	NA
Subcontractor Project Manager:	NA
Telephone No.:	NA
EPA Work Assignment Manager:	Timothy Gordon
Telephone No.:	(212) 264-9538
Date Prepared:	June 30, 1993

TRC ENVIRONMENTAL CORPORATION  
291 Broadway, Suite 1206  
New York, New York 10007  
(212) 349-4616



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## 1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has requested TRC Environmental Corporation (TRC - formerly Alliance Technologies Corporation) to assess the investigation and/or remedial work done on the 51 solid waste management units (SWMUs) and areas of concern (AOCs) at the U.S. Naval Station (NAVSTA) Roosevelt Roads, located in Ceiba, Puerto Rico. This evaluation and summary report is being carried out under EPA Contract No. 68-W9-0003 (TES 6), Work Assignment No. R02031.

EPA requested TRC to review all available technical documents presenting the remedial investigation and corrective measures done at the facility, summarize the information contained within the documents, and comment on the adequacy of the work done to date (if any). This report presents the results of the review of the following documents:

- Installation Restoration Program Naval Station Roosevelt Roads, Puerto Rico, July 15, 1992, Technical Review Committee Meeting Minutes, July 15, 1992, Atlantic Division Naval Facilities Engineering Command.
- Phase II RCRA Facility Assessment of the U.S. Naval Station Roosevelt Roads Facility, Roosevelt Roads, Puerto Rico, November 1988, A.T. Kearney, Inc.
- Draft Work Plan, Remedial Investigation, U.S. Naval Station Roosevelt Roads, Puerto Rico, prepared for Atlantic Division Naval Facilities Engineering Command by Baker Environmental, Inc. (Baker), April 27, 1992.
- Draft Sampling and Analysis Plan, Part I: Field Sampling Plan, U.S. Naval Station Roosevelt Roads, Puerto Rico, prepared for Atlantic Division Naval Facilities Engineering Command by Baker Environmental, Inc., April 27, 1992.
- Draft Sampling and Analysis Plan Part II: Quality Assurance Project Plan, U.S. Naval Station Roosevelt Roads, Puerto Rico, prepared for Atlantic Division Naval Facilities Command by Baker Environmental, Inc., April 27, 1992.
- Draft Health and Safety Plan, U.S. Naval Station Roosevelt Roads, Puerto Rico, prepared for Atlantic Division Naval Facilities Engineering Command by Baker Environmental, Inc., April 27, 1992.
- Evaluation of Data from First and Second Rounds of Verification Sample Collection and Analysis, April 1988, Environmental Science and Engineering, Inc. (ESE).

- Supplemental Appendix of Laboratory Data -- Evaluation of Data from First and Second Rounds of Verification Sample Collection and Analysis, April 1988, Environmental Science and Engineering, Inc.
- Initial Assessment Study of Naval Station Roosevelt Roads, Puerto Rico, September 1984, Naval Energy and Environmental Support Activity, prepared by Greenleaf/Telesca. Planners. Engineers. Architects, Inc.
- P.A. Rakowski, Letter to Barry Tornick, June 30, 1992.
- Technical Review Committee Meeting Minutes, February 14, 1989.
- Technical Review of RCRA Facility Investigation and Corrective Measures Work Plan Sites 8, 15, & 16, prepared for EPA by TRC Environmental Corporation, July 8, 1992a.
- Technical Review of RCRA Facility Investigation and Corrective Measures Work Plan Sites 5-7, 10, 13, 14, 18, & 21, prepared for EPA by TRC Environmental Corporation, August 21, 1992b.
- Site Summary for Drone Washdown Area Roosevelt Roads (Site No. 8), prepared for Atlantic Division Naval Facilities Engineering Command by Versar, Inc., April 29, 1991a.
- Remedial Investigation/Feasibility Study for Site 15 Naval Station Roosevelt Roads Puerto Rico, prepared for Atlantic Division Naval Facilities Engineering Command by Versar, Inc., May 15, 1992b.
- Remedial Investigation/Feasibility Study for Site 16 Naval Station Roosevelt Roads Puerto Rico, prepared for Atlantic Division Naval Facilities Engineering Command by Versar, Inc., May 15, 1992.

Between June 1 and June 4, 1993, TRC conducted a site visit. TRC was accompanied by NAVSTA personnel (either Sindulfo Castillo or Wilfredo Rivera) at all times. At the request of the WAM, all SWMU/AOCs were visited except SWMUs 5, 21, 22, 27, 28, 38, 47 and AOC D. For each SWMU that was visited, a checklist was completed. The checklist included information of the materials/wastes stored at each SWMU, PID (HNU) readings from wells (if any), PID readings from soils (where appropriate), the general condition of the site, and any recommendations that could be made about the SWMU/AOC. The checklists can be found in Appendix A. Appendix B contains the maps of the locations where samples have been collected (if any) and where samples are planned to be collected (if any). Photographs were taken of all but two of the SWMUs visited. Photographs were not taken from SWMUs 8 and 40 because there was no subject to photograph. SWMU 8 consists of buried sludge pits and SWMU 20 consists of a tanker truck that is no longer onsite. These photographs and their

descriptions can be found in Appendix C. Appendix D contains a table summarizing the media that require corrective action/investigation on a SWMU specific basis. It should be noted, that five new SWMUs were discovered during TRC's site visit.

## **1.1 Background**

Naval Station (NAVSTA) Roosevelt Roads is located on the east coast of Puerto Rico in the municipality of Ceiba, approximately 33 miles southeast of the capital city of San Juan. The primary mission for NAVSTA Roosevelt Roads is to provide full support for Atlantic Fleet weapons training and development activities. The review completed by TRC focuses on 51 SWMUs and AOCs located within the NAVSTA Roosevelt Roads facility.

The work that has been completed to date includes the following:

In 1984, an Initial Assessment Study (IAS) was performed by Greenleaf/Telesca, Planners, Engineers, Architects, Inc. This document was performed for Naval Energy and Environmental Support Activity (NEESA) and reported on IR Sites 1 through 20. In 1988, A.T. Kearney, Inc. performed a RCRA Facility Assessment which investigated SWMUs 1 through 47 and AOCs A through D. Based on these two reports, numerous investigations have been performed. In 1988, ESE performed two rounds of verification sampling at IR Sites 1, 3, 5, 6, 7, 8, 9, 10, 12, 13, 14 and 18. In 1992, Versar performed two Remedial Investigation/Feasibility Studies, one at IR Site 15 and the other at IR Site 16. Versar also wrote a site summary for IR Site 8. In 1992, Baker submitted a Work Plan, Sampling and Analysis Plan (Parts I and II), and a Health and Safety Plan to investigate IR Sites 1, 2, 3, 5, 6, 7, 10, 13, 14, 18 and 21. TRC reviewed these documents for their completeness and adequacy. The results of this review were presented in two reports, one for Baker's Work Plan for Sites 5-7, 10, 13, 14, 18 and 21, and the other for Baker's Work Plan for Sites 8, 15 and 16.

Two Technical Review Committee Meetings were held, one on February 12, 1989, and one on July 15, 1992. The progress of the investigations at Roosevelt Roads was discussed during these meetings. In June 1992, P.A. Rakowski of the Environmental Programs Branch of the Navy sent a letter to Barry Tornick of the EPA Caribbean Correction Action Section. The letter described the status of the different SWMUs/AOCs.

## **1.2 Objectives and Scope of Review**

The objective of this summary report is to review all the investigative and remedial work done on each SWMU/AOC and to evaluate whether enough information has been collected to adequately characterize the various media, identify the principal environmental issues, and gauge the effectiveness of any remedial action, if necessary. TRC focused its review on the technical merit of the work. Each SWMU/AOC was evaluated by a geologist/hydrogeologist, risk assessor, ecologist and a civil engineer

familiar with remediation of environmental contamination. Consequently, each SWMU/AOC was reviewed from several perspectives. This was done in order to provide a well-rounded, comprehensive review.

### **1.3 Report Organization**

This report is divided into three sections. Section 1.0 describes the scope and methodology for this review. Section 2.0 summarizes the investigatory and/or remedial history of each SWMU/AOC, provides comments or recommendations regarding the additional work or data gaps, and summarizes the findings and recommendations of the site visit. For ease of reading, the information is presented separately for each SWMU/AOC. Each SWMU/AOC is broken down into three subsections. The first subsection summarizes the work done at the SWMU/AOC, its history, environmental concerns and any other relevant information deemed necessary to provide an adequate information base from which to evaluate the investigative or remedial work performed. The second subsection provides TRC's assessment of the SWMU/AOC and any important comments or recommendations required to close data gaps, or complete remediation of the SWMU/AOC. If samples were collected at a SWMU and analyses were available, the results were compared to Subpart S Action Levels (40 CFR 264.521). The results of the comparison, if any, were tabulated and included in subsection 2 of that SWMU. The third subsection summarizes the observations of TRC's site visit and provides further recommendations as to additional work that is necessary (if any). TRC's Summary and Conclusions for the review are provided in Section 3.0.

Each SWMU/AOC is identified, first by the number used in the A.T. Kearney report dated November 1984. The second identifier, if any, comes from the Installation Restoration (IR) Program that is described in the 1984 Naval Energy and Environmental Support Activity (NEESA) Report dated September 1984.

The report contains four appendices described above in Section 1.0.

### **1.4 Review of Data Quality**

TRC was unable to determine the quality of the data presented in ESE's Supplemental Appendix of Laboratory Data for the following reasons. The supplemental appendix is formatted in summary tables that presents the parameters of interest, the sample results, the SWMUs/AOCs reported, and the sample identification numbers. The summary tables do not identify rinsate or trip blanks; therefore, field contamination cannot be assessed. The tables do not present calibration data, calibration verification results, or laboratory control sample results; therefore, the precision and accuracy of the analytical methodologies used to analyze the samples can not be evaluated. Precision and accuracy of the sample analysis regarding sample matrix can not be evaluated without surrogate spike results, matrix spike/matrix spike duplicate results or

laboratory and field duplicate results, all of which are not presented in the summary tables.

## **2.0 SWMU/AOC SUMMARY AND EVALUATION ASSESSMENT**

### **2.1 SWMU 1, IR Site 5, Army Cremator Disposal Site**

#### **2.1.1 Background**

According to the 1984 Naval Assessment and Control of Installation Pollutant Department (NACIP) report, "[the] Army Cremator disposal area...is located south of the intersection of the access road to the Ammo Pier and Langley Drive, west and southwest of the Navy Exchange and Bowling Alley, and near the Ensenada Honda Mangrove Swamp" (NEESA 1984).

This SWMU operated from the early 1940s until the early 1960s and was the main station landfill during this time. "Waste material was disposed of by piling, burning and compacting" (A.T. Kearney, Inc. 1988). "An estimated 100,000 tons of waste...including scrap metal, inert ordnance, batteries, tires, appliances, cars, cables, dry cleaning solvent cans, paint cans, gas cylinders, construction debris, dead animals, and residential waste" was disposed of at this site (NEESA 1984). No reliable information exists regarding the amounts of material present in the disposal area that could be hazardous. However, in 1984, "[the Initial Assessment Study] IAS team estimated that as much as 1,000 tons of hazardous material could be present in the area" (NEESA 1984).

In 1984, the NACIP IAS team spotted several large mounds of drums during an over-flight. "An on-ground visual inspection...was attempted, but [the] vegetation...was too dense, and the drums could not be located" (NEESA 1984). Based on their observations, the IAS team recommended the sampling of ground water, subsurface soils and drums.

In 1988, the RCRA Facility Assessment (RFA) "[the visiting site inspection] VSI team observed an oily, silver-toned substance floating at the water's edge. Dead mangroves were observed several feet out from the water's edge and extending up and down the shoreline" (A.T. Kearney, Inc. 1988). According to a facility representative, this was due to a spill of JP-5 (aviation kerosene) in November of 1986. "An area measuring approximately 50 feet in diameter completely devoid of vegetation was found within the boundaries of this unit" (A.T. Kearney, Inc. 1984). The RFA VSI team suggested using aerial photographs to determine the location of the drums and an appropriate geophysical method (e.g., ground penetrating radar, magnetometer) to locate any buried drums. They also suggested taking soil samples in places where drums are found and in the area that was devoid of vegetation. In addition, they suggested collecting surface water and sediment samples along the edge of the mangroves.

In 1988, Environmental Science and Engineering, Inc. (ESE) produced a report that evaluated the data from two rounds of verification sampling. Five surface water, five

sediment and five ground water samples were collected in each round of sampling. The sediment samples contained "[isolated], low levels of pesticides,...[and] elevated levels of antimony, selenium and methylene chloride" (Technical Review Committee Meeting Minutes 1989). The surface water samples revealed several metals that exceeded ambient water quality criteria. Ground water samples indicated thallium, copper, arsenic, chromium (total and hexavalent) and selenium in levels that exceeded primary drinking water standards. Low levels of organic compounds were also detected in some of the ground water samples. Based on their findings, ESE recommended no additional investigation of this SWMU (Technical Review Committee Meeting Minutes 1989). (See Table 2.1.1 below for results that exceeded Subpart S Action Levels.)

In 1992, Baker Environmental, Inc. (Baker) proposed to collect ten surface soil samples in areas of stressed vegetation in SWMU 1 (see Table 2.1.1 below.) These samples will be used to support a baseline risk assessment and will be analyzed for volatile organic compounds (VOCs), base neutral acids (BNAs), and metals.

**Table 2.1.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 1**

<b>Media</b>	<b>No. of Samples</b>	<b>Results that exceed Subpart S Action Levels</b>
Soil	No samples 10 planned	N/A
Surface Water	Round 1: 5 Round 2: 5	Round 1: Arsenic levels exceeded Subpart S Action Levels in all 5 samples. Round 2: Selenium concentrations exceeded Subpart S Action Levels in 5SW01, 5SW02, 5SW03 and 5SW05.
Sediment	Round 1: 5 Round 2: 5	Round 1: Metals exceeded Subpart S Action Levels in all 5 samples. Round 2: Metals exceeded Subpart S Action Levels in all 5 samples except 5SE03.
Ground Water	Round 1: 5 Round 2: 5	Round 1: Metals exceeded Subpart S Action Levels in samples 5GW3, 5GW4 and 5GW5. Round 2: Metals exceeded Subpart S Action Levels in samples 5GW01, 5GW03, 5GW04 and 5GW05.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that Remedial Investigation/Feasibility Study (RI/FS) efforts began for this site in November 1991.

### 2.1.2 SWMU Assessment and Recommendations

TRC has noted the following areas that still need to be addressed in this SWMU:

- In TRC's review of Baker's Work Plan and Sampling and Analysis Plan, in addition to soil sampling in areas of stressed vegetation, soil sampling that covers the entire site should be performed. The samples should be analyzed for full Target Compound List (TCL) and Target Analyte List (TAL) parameters.
- The drums that were noted in the 1984 NACIP IAS overflight were never located or sampled. These drums should be located either by review of historical aerial photographs, by another overflight, or by an appropriate geophysical method (e.g., magnetometer), and subsequently sampled. The lack of previous sampling of the drum disposal area represents a significant data gap for the risk assessment. Until such characterization is performed, the existing data should be considered inadequate for risk assessment purposes since exposures to this potential source area cannot be evaluated. Future sampling of the drums, surrounding soils, and underlying soils should be for full TCL and TAL parameters.
- Ground water results from ESE's 1988 verification sampling rounds were compared to background wells at other SWMUs. There is an upgradient well (5GW01) present at this SWMU. This is the well that should be used as a background to compare the results found in the downgradient wells. Numerous metals concentrations detected in downgradient wells are significantly higher than the metal concentrations found in the upgradient well (5GW01). TRC recommends that monitoring well 5GW01 be used as the upgradient well.
- Elevated concentrations of phenols detected in sediments sampled within the mangrove swamp were attributed to naturally occurring background levels. It is recommended that a background sediment sample from the mangrove swamp be collected and analyzed in order to substantiate the claim made regarding detected phenol concentrations. In addition, the background sample would provide naturally occurring concentrations of inorganic contaminants.
- It is unclear if the area described by the 1988 RFA VSI team as being completely devoid of vegetation was ever sampled. The previous surface water and sediment sampling effort reported elevated concentrations of selenium, silver, and pesticides. It is recommended that additional sediment and surface water samples be collected and analyzed for full TCL and TAL analyses to further characterize the extent and magnitude of these contaminants. In particular, sampling of non-vegetated areas needs to be conducted.
- Previous sampling has failed to characterize surface and subsurface soils. Such characterization is necessary for evaluating exposure pathways in a risk assessment. Future soil sampling should examine the entire landfill area to yield

results which are indicative of the landfill as a whole. To be consistent with previous investigations, laboratory analyses should include full TCL and TAL parameters. In addition, total organic carbon analyses should be performed on surface soil and sediment samples so that bioavailable concentrations can be calculated for an ecological assessment.

- Surface and subsurface soil samples must be obtained from background locations for the purposes of evaluating site-related contaminations, particularly inorganics. Using a base-wide approach, background locations for each medium should be selected by identifying areas which are unlikely to have been impacted by past base activities. Analytical parameters the full TCL and TAL scan.

### **2.1.3 Site Visit Findings and Recommendations**

During TRC's site visit, this landfill was observed to be a heavily vegetated hill (see Appendices A, B, C and D). The dense vegetation prevented TRC from observing most of the site. As a result, TRC's recommendations are predominantly based on past analyses. Elevated metals concentrations were observed in both rounds of surface water, sediment, and ground water sampling. These results are suggestive of a release. Based on the site visit and past analyses, TRC recommends the following:

- Because the landfill is a hill, ground water can be flowing radially. For this reason, TRC recommends the installation of two additional wells, one north of the landfill and one west of the landfill.
- TRC recommends that these two new wells and the five existing wells be sampled for another round to further characterize the site.
- The following analyses should be performed on the ground water samples: full TCL/TAL parameters, cations, anions, phosphorus, alkalinity, TDS, BOD, TOC, COD, DO, and temperature.
- The collection of another round of sediment and surface water samples further out into the mangrove swamp for full TCL/TAL parameters to further characterize the site.

## **2.2 SWMU 2, IR Site 6, Langley Drive Disposal Site**

### **2.2.1 Background**

The Langley disposal site, which is located along Langley Drive approximately 2,000 feet north of the Navy Exchange Complex and 300 feet east of the drive towards Ensenada Honda, operated as a landfill from approximately 1939 to 1959 (NEESA 1984). "The Navy documents this unit as having been used for the disposal of both hazardous and non-hazardous wastes" (A.T. Kearney, Inc. 1988).

In 1984, the NACIP IAS team performed a site inspection. During the inspection, the IAS team observed "partially buried metal and concrete objects, old fuel lines, flexible metal hoses, small containers containing pellets, steel cables, hardened tar, rubble, and ten to fifteen 55-gallon drums that were corroded. The drum contents, usually consisting of a whitish solid with a green outer crust, [were] exposed" (NEESA 1984). The IAS team estimated the volume of disposed waste to be approximately 1,700 cubic yards, of which approximately 20,000 pounds could be hazardous material. The IAS team recommended that the site be "thoroughly traversed to determine the location of all drums and other disposal areas," and that these drums be sampled (NEESA 1984).

In 1988, a RFA was performed at this site. "The VSI team observed ... a dump site covering an area of approximately 40 feet x 150 feet. Within the perimeter were lengths of thick cable, broken concrete blocks, ringed metal hoses, and six severely corroded drums. At least one of the drums was filled with a white, damp chalky substance" (A.T. Kearney, Inc. 1988). The RFA suggested the sampling of the contents of the drums and the use of a magnetometer or ground penetrating radar to locate any buried wastes.

In 1988, ESE produced a report that evaluated data from two rounds of sampling. Thirty-two soil samples, six sediment, six surface water and one ground water sample were collected during the two rounds of sampling. "Elevated levels of lead were found in [some] soil samples" (Technical Review Committee Meeting Minutes 1989). During Round 2, two soil samples were analyzed for EP Toxicity for lead only. The results of these analyses indicated that the soil samples cannot be classified as hazardous waste. Elevated levels of total chromium, copper and selenium were detected in surface water samples. Elevated levels of lead and low levels of organic compounds, including pentachlorophenol and aldrin, were also detected in the one upgradient ground water sample. ESE recommended the following: "[resampling] of the [three] surface water samples for lead[;]...[resampling] of the monitoring well for priority pollutants (excluding asbestos, cyanide, and dioxin)[;]...[and] a focused environmental assessment of the area upgradient of the monitoring well" (Technical Review Committee Meeting Minutes 1989). (See Table 2.2.1 below for results that exceeded Subpart S Action Levels.)

The July 15, 1992, Technical Review Committee Meeting Minutes indicate that in addition to the recommended collection of one ground water and three surface water samples, that three sediment samples also be collected (see Table 2.2.1 below).

The 1992 Baker Sampling and Analysis Plan indicates that they intend to collect three surface water, three sediment, and one ground water sample in order to support a baseline risk assessment (see Table 2.2.1 below).

**Table 2.2.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 2**

<b>Media</b>	<b>No. of Samples</b>	<b>Results that exceed Subpart S Action Levels</b>
Soil	Round 1: 15 Surface Round 2: 15 Surface Round 2: 2 Surface for EP Toxicity	Samples R6S1A, R6S2A, R6S3A, R6S4A, R6S5A, R6S13A, R6S14A, and R6S15A had metals exceeding Subpart S Action Levels.
Surface Water	Round 1: 3 Round 2: 3 3 planned	All six samples had metals exceeding Subpart S Action Levels.
Sediment	Round 1: 3 Round 2: 3 3 planned	All six samples, except R6SE03, had metals exceeding Subpart S Action Levels.
Ground Water	Round 2: 1 1 planned	Sample R6GW01 contained Aldrin in levels that exceeded Subpart S Action Levels.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that RI/FS efforts began at this site in November 1991.

**2.2.2 SWMU Assessment and Recommendations**

TRC has noted several areas that still need to be addressed at this SWMU:

- As already noted by TRC in their review of Baker's Sampling and Analysis Plan, "one well is not sufficient to characterize this site. At least one upgradient and three downgradient wells should be installed" (TRC 1992a). TRC recommends the installation of three shallow downgradient monitoring wells. Deeper wells should be installed if analytical results from the shallow wells warrant it.
- The drums that were noted in the 1984 NACIP IAS inspection and the 1988 RFA VSI inspection have not been sampled. TRC recommends the sampling of these drums. The lack of previous sampling of the drum disposal areas represents a significant data gap for the risk assessment. Until such characterization is performed, the existing data should be considered inadequate for risk assessment purposes since exposures to this potential source area cannot be evaluated. Future sampling of the drums, surrounding soils, and underlying soils should include full TCL and TAL parameters.
- The 1984 NACIP IAS also recommended the use of ground penetrating radar or a magnetometer to locate buried waste. This has not been done to date. TRC

recommends that a geophysical survey be performed using ground penetrating radar.

- Detected concentrations of surface water contaminants were compared with shallow ground water concentrations. It is unacceptable to compare concentrations of contaminants detected in different media. It is recommended that background concentrations of surface water and sediment contaminants be determined by collecting appropriate background samples within areas of the mangrove swamp that are known not to have been impacted by contamination.
- Previous sampling indicates the presence of lead in surface soil and ground water at concentrations exceeding OSWER directive action limits of 500 mg/kg and 15 ug/l for soil and ground water, respectively. The lateral extent of these elevated levels must be defined with future sampling at the northernmost and southernmost SWMU perimeters. Because concentrations of other metals may also be elevated, future soil sampling should examine TAL metals.
- Total organic carbon analyses should be performed on surface soil and sediment samples so that bioavailable concentrations can be calculated for an ecological assessment.
- Analyses for all TCL and TAL components should be performed for surface water samples as well for ground water and sediment samples. Baker's Work Plan for the RI at this site (April 27, 1992) shows surface water being analyzed only for lead. According to the RFA this unlined SWMU was filled with waste material which was left exposed to the environment. Surface water contamination (in addition to lead) is, therefore, likely due to runoff.

### **2.2.3 Site Visit Findings and Recommendations**

During TRC's site visit, this landfill was observed to be heavily vegetated (see Appendices A, B, C and D). The dense vegetation prevented TRC from observing most of the site. As a result, TRC's recommendations are predominantly based on past analyses. Metals levels that exceeded Subpart S Action Levels were detected in soil, surface water, and sediment. Aldrin was detected in ground water in levels that exceeded Subpart S Action Levels. As previously stated, TRC recommends that three downgradient wells be installed and sampled for full TCL/TAL parameters, cations, anions, phosphorous, alkalinity, TDS, BOD, TOC, COD, DO, and-temperature. These wells should be located along the mangrove swamp to the east of the landfill. TRC also observed a drum on site. This drum, located approximately 250 to 300 yards along the trail from Langley Drive, was observed to be on its side and was very rusted. The contents, a white, soapy powder-like substance, were coming out of the drum and were on the ground. TRC recommends that this white substance be sampled for full TCL/TAL parameters.

## 2.3 SWMU 3, IR Site 7, Station Landfill

### 2.3.1 Background

The Station Landfill is located south of the Industrial Area Wastewater Plant (Building 1758) and operated from the early 1960s until 1978. "The landfill covers 85 acres, and is separated into several different disposal 'areas'" (A.T. Kearney, Inc. 1988). Some of these "areas" are undetectable from the ground. Methods of disposal involved the "[excavation] of a trench to the water table, filling the trench with waste, spreading and compacting [the waste] with a bulldozer, then covering [the waste] with soil.... It is estimated that from 40 to 60 tons of waste per day were disposed of in the past" (A.T. Kearney, Inc. 1988). Wastes that were disposed of at this SWMU include, "residential wastes, scrap metal, cables, paint waste, solvents, PCBs, OTTO Fuel II, Argentine, [Askarel], pesticides, lubricating oil, [unlabeled 55-gallon drums], dead animals, [inert ordnance], digested sludge, construction debris, [asbestos], and possibly Super Tropical Bleach (STB), a decontaminating agent" (NEESA 1984).

In 1988, an RFA was performed at this SWMU. The VSI team observed one fiberglass drum with a polyethylene liner, and a decaying Volkswagen Beetle. The RFA report suggested that an "appropriate geophysical method (e.g., ground penetrating radar, magnetometer) be used in order to determine the location of [buried] wastes,...[and that] extensive soil, ground water and surface water sampling be done to determine the existence of a release of hazardous constituents to the environment" (A.T. Kearney, Inc. 1988).

In 1988, ESE produced a report evaluating two rounds of verification sampling and analysis. "Eight ground water monitoring wells were installed, and samples of ground water were collected [and analyzed] from each well. In addition, three composite soil samples were collected from the drum ditch" (ESE 1988). The ESE report indicates that only low levels of oil and grease were detected in the soil samples. The report also indicated that "low levels of organic compounds, as well as metals concentrations exceeding drinking water criteria were [detected] in the ground water samples collected during both rounds of sampling" (ESE 1988). ESE recommended that there be no additional investigation of the drum ditch or of ground water. The ESE report indicates that a risk assessment will be performed at this site. (See Table 2.3.1 for results that exceeded Subpart S Action Levels.)

The July 1992 Technical Review Committee Meeting Minutes indicate that eight ground water, twenty soil and four sediment samples will be needed to support a baseline risk assessment (see Table 2.3.1 below).

The 1992 Baker Sampling and Analysis Plan indicates that they plan to collect eight ground water, twenty soil, and four sediment samples in order to support a baseline risk assessment (see Table 2.3.1 below).

**Table 2.3.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 3**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	3 composite samples 20 planned	None
Surface Water	no samples	N/A
Sediment	no samples 4 planned	N/A
Ground Water	Round 1: 8 samples Round 2: 8 samples 8 planned	Six samples in Round 1 and one sample in Round 2 contained Bis(2-ethylhexyl)phthalate in concentrations exceeding Subpart S Action Levels. All eight samples in Round 1 and six samples in Round 2 contained metals that exceeded Subpart S Action Levels.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that RI/FS efforts began at this site in November 1991.

**2.3.2 SWMU Assessment and Recommendations**

TRC has noted several areas that still need to be addressed in this SWMU:

- Surface water samples have not been collected and are not planned to be collected even though "contact with surface waters and consumption of contaminated biota are presented as potential exposure routes" (TRC 1992a). TRC recommends that surface water samples be collected and analyzed for full TCL and TAL parameters.
- No subsurface soil samples have been collected or are planned to be collected even though exposure to subsurface soils appears to be a possible future exposure route. TRC recommends that borings and test pits be installed in order to characterize subsurface soils. Soil samples should be collected in areas of obvious contamination and analyzed for full TCL and TAL parameters.
- The 1984 NACIP IAS report recommended the use of ground penetrating radar or a magnetometer to locate buried waste. This has not been done to date. TRC recommends that this type of geophysical study be performed using ground penetrating radar.

- Surface water drainage channels located within the landfill site need to be identified. Surface water and sediment samples from these areas (and ground water discharge locations between the landfill and Puerca Bay/ Ensenada Honda need to be sampled for full TCL and TAL analyses.

### **2.3.3 Site Visit Findings and Recommendations**

During TRC's site visit, TRC observed this SWMU to be an operating landfill as described in the background. During the visit, TRC observed two 10-gallon cans--one containing Activator Disinfectant and one containing "natriumhypochoritlosung" (German). One can was empty and another had approximately 0.5 gallons in it. The cans were not leaking, and there was no evidence of a release. TRC also observed a 5,000-gallon AVGAS tank on site. The HNu reading from this tank was 0 units. There was no evidence of a release from this tank (see Appendices A, B, C and D).

Past analytical results of ground water have indicated the presence of Bis(2-ethylhexyl)phthalate and metals in levels that exceed Subpart S Action Levels. As a result, the site needs to be further characterized. In addition to the recommendations in Section 2.3.2, TRC recommends the collection of the samples that are planned to be collected plus the following:

- Two additional sediment and surface water samples further north on the east and west sides of the landfill because the landfill is a peninsula and releases may be occurring at these locations;
- Collect surface water samples at the proposed sediment sampling locations because surface water samples have not been collected to date;
- Collect another round of ground water samples because analyses performed in the first two rounds were inadequate and they did not establish any trend. Analyses should include full TCL/TAL parameters, cations, anions, phosphorous, alkalinity, TDS, BOD, TOC, COD, DO, and temperature.

## **2.4 SWMU 4, Drone Fuel Drain Oil/Water Separator**

### **2.4.1 Background**

According to the 1988 RFA report:

[drones] that are not destroyed during launching presentations are rescued...and brought back to Building 860, Aerial Target Systems Department. Since 1970, all waste drone fuel has been drained directly into a below ground oil/water separator.... After separation, the waste petroleum goes to a private contractor and the waste water to the sanitary sewer system. In 1983, a valve was

installed on the pipe between the oil/water separator and the storm sewer to prevent the overflow that had been reaching the storm sewer during heavy [rainfalls] (A.T. Kearney, Inc. 1988).

Before this time, between 1970 and 1983, the overflow would go directly into the adjacent storm sewer system.

During the 1988 RFA VSI, the VSI team observed the oil water separator and reported it to be made of concrete approximately 10 feet x 10 feet x 10 feet in dimension. The VSI team did not observe the valve that was installed in 1983. "This unit manages JP-4 and JP-5 jet fuel" (A.T. Kearney, Inc. 1988). The 1988 VSI team did not observe a release of contaminants to the environment, but suggested that the integrity of the SWMU be tested using visual inspection or pressure testing.

In 1988, ESE performed two rounds of verification sampling and analysis.

One soil sample was collected as a background sample in Round 1. This sample was analyzed for oil and grease, lead, VOA, xylene, MEK, and EDB. Elevated levels of oil and grease (8.21 mg/kg) were detected in this soil sample.

A total of six sediment samples were collected for Site 8 (3 samples during each round).... Oil and grease levels ranged from 69-4740 mg/kg. [ESE attributed these concentrations to Building 200.]

A total of eight surface waters were collected from Site 8 during both Rounds. Three were collected in Round 1 and [five] during Round 2.... Significant levels of oil and grease (ranging from 5 to 102 ug/L) were found in Round 1 samples. Oil and grease [were] not detected in Round 2 samples. The levels of oil and grease detected [were attributed] to...Building 200. (Technical Review Committee Meeting Minutes, 1989) (See Table 2.4.1 for results that exceeded Subpart S Action Levels.)

In 1991, Versar produced a Site Summary for the Drone Washdown Area (Site No. 8). Versar reviewed the past history of the site and ESE's 1988 results. They concluded that no further investigations or remedial action was necessary.

**Table 2.4.1 - Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 4**

<b>Media</b>	<b>No. of Samples</b>	<b>Results that exceed Subpart S Action Levels</b>
Soil	1	None
Surface Water	Round 1: 3 Round 2: 5	None
Sediment	Round 1: 3 Round 2: 3	None
Ground Water	No samples	N/A

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy recommends no further action at this SWMU for the following reasons:

[This] separator processes wastewater in contact with JP-4, JP-5, and/or hydraulic oils and lubricants which are categorized as Petroleum, Oils, and Lubricants (POLs). These are excluded as hazardous substances under CERCLA's POL exclusion clause and are non-hazardous materials. In addition, there is no reason to believe that these POLs would come in contact with any RCRA hazardous materials. Furthermore, like any other tankage designed and built by the Navy to process wastewaters, the Navy used the working screen method for structural design (comparable to American Concrete Institute Code Section 305) whereby the likelihood of structural cracks [is] minimized. Considering that there are no hazardous materials, substances or constitutes other than POL type of compounds and that the SWMU's physical design minimizes cracks and releases, the Navy recommends no further action under RCRA Corrective Action (P.A. Rakowski, letter to Barry Tornick, June 1992).

**2.4.2 SWMU Assessment and Recommendations**

- TRC will inspect the oil/water separator and the storm sewer system to ascertain the existence of a valve.
- TRC will visually inspect this SWMU's integrity during the site inspection in order to note whether or not there has been a release to the environment. Because the oil/water separator is below grade a visual inspection may require the tank contents to be drained.

### **2.4.3 Site Visit Findings and Recommendations**

During TRC's site visit, this SWMU was observed to be as described in the background. The existence of a valve was not able to be determined because the oil/water separator was below grade. However, the wash basin that is located above the oil/water separator was observed to be in good condition. No staining or evidence of a release was observed (see Appendices A, B, C and D). As a result, TRC recommends no further action at this SWMU.

## **2.5 SWMU 5, Dumpsters**

### **2.5.1 Background**

This SWMU is comprised of many metal dumpsters that are located throughout the facility. These dumpsters are presently active and are regularly emptied. Wastes handled by each dumpster varies, but "include burnable wastes (e.g., refuse), non-burnable wastes (e.g., metal), salvageable wastes (e.g., metal) and non-salvageable wastes (e.g., sand)" (A.T. Kearney, Inc. 1988). The 1988 RFA Report suggested that these SWMUs be emptied on a regular basis to avoid a release to the environment through spillage. Outside of that, the VSI team suggested no further action.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy concurs with no further action for this site.

### **2.5.2 SWMU Assessment and Recommendations**

TRC recommends no further action.

### **2.5.3 Site Visit Findings and Recommendations**

At the request of EPA, this SWMU was not inspected during the site visit. As a result, TRC has no further recommendations.

## **2.6 SWMU 6, IR Site 11, Former Paint Storage (Building 145)**

### **2.6.1 Background**

The building is a bunker, approximately sixty yards long, seven feet high and eight feet wide with three openings to the surface through the roof. These openings are covered with dilapidated wood structures. There is one entrance at ground level. The 1984 IAS team reported the presence of approximately "[sixty] 55-gallon drums,...one hundred 5-gallon pails, and a number of other small containers" (NEESA 1984). "[The] condition of the containers ranged from being intact and neatly stacked to randomly placed, leaking, and obviously reused for waste material" (A.T. Kearney, Inc. 1988). The 1984 IAS Report stated that the drums and other containers had been in the building for sometime,

probably since 1957. Some of the materials "identified...by the IAS team included spray paint, olive drab paint, black boot polish and some adhesives" (NEESA 1984). The IAS team sampled a number of the drums, but the analyses were not available to TRC. "[The] IAS team...concluded that the majority of the material (approximately 2000 gallons) could be classified as hazardous" (NEESA 1984).

In 1988, the RFA VSI team reported that Building 145 was empty, except for some protective clothing and some water on the floor. There were "several old paint covered gloves and pieces of clothing, broken pallets and several empty paint cans outside [the] unit" (A.T. Kearney, Inc. 1988). The RFA VSI team indicated that there was no evidence of a release to the environment. The VSI team suggested no further action.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that this SWMU posed an immediate threat. As a result, "[to] expedite cleanup, the [(site inspection)] SI and the Remedial Investigation/ Feasibility Study (RI/FS) phases were skipped, and this site went directly into the RD/RA phase. The RD/RA phase consisted of a removal action. During the Spring of 1988, all material was recontained, removed and properly disposed of, and the floor...cleaned. Building 145 was left completely empty" (P.A. Rakowski, letter to Barry Tornick, June 1992). As a result, the Navy recommended no further action under RCRA or CERCLA.

### **2.6.2 SWMU Assessment and Recommendations**

- TRC will inspect this SWMU to check the integrity of the concrete floor. If staining is observed and cracks are present in the concrete, sampling may be necessary.
- If any post closure sampling data are available, then they should be reviewed before this SWMU is recommended for no further action.

### **2.6.3 Site Visit Findings and Recommendations**

During TRC's site visit, it was observed that the concrete floor of this SWMU was in good condition. No staining or any evidence of release was observed at this SWMU (see Appendices A, C and D). No sheens were noted in the water in this SWMU. Wildlife (frogs) were observed in the water in the SWMU. As a result, TRC recommends no further action for this SWMU.

## **2.7 SWMU 7, IR Site 12, Tow Way Road Fuels Farm**

### **2.7.1 Background**

This SWMU is located north of Tow Way Road on a hill that overlooks Ensenada Honda, and is comprised of a number of fuel storage tanks. Numerous "[spills], leaks and sludge

disposals have occurred here since 1957" (NEESA 1984). This site, SWMU 7, has been combined with SWMU 8 in other reports at Site 12.

In 1984, the NACIP Study reports the following history for this SWMU: "Over a 15 to 20 year period, approximately 420,000 gallons of diesel fuel leaked from underground storage tanks 56A and 56B. These tanks were removed in 1984" (A.T. Kearney, Inc. 1988). Diesel fuel was observed by the NACIP IAS team "on top of the ground water that had seeped into the holes where the tanks had been removed" (A.T. Kearney, Inc. 1988). In 1957 or 1958, a Tank 82 fuel line burst, spilling approximately 420,000 gallons of Bunker C fuel. This spill reportedly ran downhill into Ensenada Honda. "In 1978, approximately 65,000 gallons of diesel fuel leaked from Tank 1080. In 1986..., an estimated 91,000 gallons of JP-5 (unleaded aviation kerosene) leaked from Tank 85" (A.T. Kearney, Inc. 1988). Approximately 70,000 gallons of this spill reached Ensenada Honda.

In 1988, the RFA VSI team observed that there were two earthen retaining walls with gates at the bottom of the hill where the tanks are located. They also noted a permanent boom on the Tow Way Road Fuels farm storm water outfall. In addition, the VSI team noted "areas of dried sludge directly downhill from Tank 82,...vapors rising from the manhole over Tank 84, and fluid dripping steadily from a pipe that extended laterally from Tank 83. Vegetation was stressed in the area of this pipe" (A.T. Kearney, Inc. 1988). Facility representatives reported to the VSI team that a "minor" spill from Tank 83 had occurred. The RFA VSI report suggested the testing of the integrity of the existing tanks and the sampling of soil and ground water in order to determine the extent of the releases.

The 1988 ESE report does not address SWMU 7 specifically, but addresses Site 12 (SWMU 7 and SWMU 8) together. In 1988, ESE performed two rounds of verification sampling at this SWMU (SWMUs 7 and 8). A total of two surface water, two sediment, and twelve ground water samples were collected and analyzed. In addition, ninety-seven soil borings were installed--twenty in Round 1 and seventy-seven in Round 2. ESE reports that significant concentrations of oil and grease were detected in Round 1 sediment and surface water samples, but not in the Round 2 sediment and surface water samples. The Round 2 surface water sample contained lead, but the concentration was below ambient water quality criteria. Round 1 ground water samples indicated elevated levels of benzene, toluene, oil and grease, whereas Round 2 ground water samples indicated "the absence of oil and grease, but the presence of lead and an increased concentration of benzene" (Technical Review Committee Meeting Minutes 1989). Numerous soil borings were noted as being contaminated with fuel. ESE recommended that no additional surface water and sediment samples be taken. ESE also recommended that additional soil samples be taken and analyzed for total petroleum hydrocarbons, benzene, toluene, xylene and lead. ESE recommended the installation of two monitoring wells to determine the lateral extent of contamination detected in monitoring well 12GW08. (See Table 2.7.1 below for results exceeding Subpart S Action Levels.)

**Table 2.7.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 7**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	Round 1: 20 Soil borings Round 2: 77 Soil borings	None
Surface Water	Round 1: 1 Round 2: 1	None
Sediment	Round 1: 1 Round 2: 1	None
Ground Water	Round 1: 6 Round 2: 6	Samples 12GW2 (2000ppb) and 12GW02 (4100ppb) contained levels of benzene that far exceeded Subpart S Action Levels (1ppb). Lead was detected in samples 12GW02 and 12GW05 in levels exceeding Subpart S Action Levels.

The June 1992 letter from P.A. Rakowski to Barry Tornick states that in 1990, this SWMU had been transferred to the Navy underground storage tank (UST) program because the contamination was due to petroleum products only, because there was no reason to believe that the POLs have come into contact with RCRA hazardous materials, and because POLs are excluded as hazardous substances under CERCLA.

This letter also indicates that a final site characterization report was completed in February 1992, and that a system was currently being installed to remove free product from the site.

**2.7.2 SWMU Assessment and Recommendations**

- TRC will inspect the free product removal system that has been installed (if one has been installed) to determine if it is adequate.
- Lead was detected in surface water at concentrations above chronic ambient water quality criteria. Oil and grease levels (Round 1) are above concentrations reported to result in adverse impacts to marine biota. Therefore, additional surface water and sediment samples near the drainage outfall are warranted. These samples should be analyzed for full TCL and TAL parameters, and TPH.

- According to the June 1992 letter from P.A. Rakowski to Barry Tornick, a corrective action plan for the tank farm was to have been developed by October 1992. The sampling requirements and any available results should be reviewed to determine if further action is necessary. This information was not available to TRC during preparation of this document, but is critical to providing a complete assessment. In the absence of this information, TRC recommends that the SWMU's ground water be monitored to evaluate the effectiveness of the removal system, if installed. Analyses should include PAHs, oil and grease, lead, benzene, toluene xylene, and ethylbenzene (BTEX) and fingerprint analysis.

### **2.7.3 Site Visit Findings and Recommendations**

TRC observed this SWMU to be as described in the background section above. Very little visual evidence of past releases was observed during the site visit. The only visual evidence of a release was observed at Tank 1082 where there was oil floating on the water in the tunnel for the pipeline to the tank. No other visual evidence of a release was observed (see Appendices A, B, C and D). TRC took HNu readings from most of the wells on site. From these readings (ranging from 0 to 40 units) and from background information, it is evident that releases have occurred. It should be noted that numerous wells (approximately 14) have recently been installed. The analyses (if any) from these wells, as well as from the older wells, were not available to TRC. As a result, TRC cannot make an informed recommendation until these data are thoroughly reviewed. The free product removal system that was noted in the June 1992 letter from P.A. Rakowski to Barry Tornick has not been installed.

## **2.8 SWMU 8, IR Site 12, Tow Way Road Disposal Pits**

### **2.8.1 Background**

The Tow Way Road Disposal Pits site consists of two pits that are located north of Tow Way Road on a hill overlooking Ensenada Honda. This site, SWMU 8, has been combined with SWMU 7 in other reports as Site 12.

"Between 1971 and 1972, Tank 83 and 1080 were cleaned, and the Bunker C fuel sludge was emptied into two pits" (NEESA 1984). These pits are located within a 100-foot radius of the tanks. "One pit [near Tank 83, measured] approximately 100 feet in circumference and 10 to 20 feet in depth. [The] second pit [measured] 50 feet in circumference and 10 to 20 feet in depth", and is located near Tank 1080 (NEESA 1984). The 1984 IAS report indicates that an estimated "3,900 to 7,500 cubic yards of Bunker C fuel sludge were cleaned from the tanks and disposed of in these pits" (NEESA 1984).

The 1988, RFA VSI team report states that the pits "were left open until the sludge solidified (a process [that the VSI team] estimated to take six to seven years), and then covered with several feet of soil" (A.T. Kearney, Inc. 1988). The RFA report suggested that the pits be located using an "appropriate geophysical method (e.g., ground penetrating

radar) and that soil and ground water samples be collected adjacent to each pit" (A.T. Kearney, Inc. 1988).

The 1988 ESE report does not address SWMU 8 specifically, but addresses Site 12 (SWMU 7 and SWMU 8 together). In 1988, ESE performed two rounds of verification sampling at this SWMU (SWMU 7 and SWMU 8). A total of two surface water, two sediment, and twelve ground water samples were collected and analyzed. In addition, ninety-seven soil borings were installed--twenty in Round 1 and seventy-seven in Round 2. ESE reports that significant concentrations of oil and grease were detected in Round 1 sediment and surface water samples, but not in Round 2 sediment and surface water samples. The Round 2 surface water sample contained lead, but the concentration was below ambient water quality criteria. Round 1 ground water samples indicated elevated levels of benzene, toluene, oil and grease, whereas Round 2 ground water samples indicated "the absence of oil and grease, but the presence of lead and an increased concentration of benzene" (Technical Review Committee Meeting Minutes 1989). Numerous soil borings were noted as being contaminated with fuel. ESE recommended that no additional surface water and sediment samples be taken. ESE also recommended that additional soil samples be taken and analyzed for total petroleum hydrocarbons, benzene, toluene, xylene and lead. ESE recommended the installation of two monitoring wells to determine the lateral extent of contamination detected in monitoring well 12GW08. (See Table 2.8.1 below for results that exceeded Subpart S Action Levels.)

**Table 2.8.1 - Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 8**

<b>Media</b>	<b>No. of Samples</b>	<b>Results that exceed Subpart S Action Levels</b>
Soil	Round 1: 20 Soil borings Round 2: 77 Soil borings	None
Surface Water	Round 1: 1	None
Sediment	Round 1: 1 Round 2: 1	None
Ground Water	Round 1: 6 Round 2: 6	Samples 12GW2 (2,000 ppb) and 12GW02 (4,100 ppb) contained levels of benzene that far exceed Subpart S Action Levels (1 ppb). Lead was detected in samples 12GW02 and 12GW05 in levels exceeding Subpart S Action Levels.

The June 30, 1992 letter from P.A. Rakowski to Barry Tornick refers to SWMU 8 as a description of the work that has been done at SWMU 7. According to this letter, in 1990, this SWMU had been transferred to the Navy UST program because the contamination was due to petroleum products only, because there was no reason to believe that the POLs have come into contact with RCRA hazardous materials, and because POLs are excluded as hazardous substances under CERCLA. This letter also indicates that a final site characterization report was completed in February 1992, and that a system was currently being installed to remove free product from the site.

### **2.8.2 SWMU Assessment and Recommendations**

- The two disposal pits have not been investigated as separate SWMUs from the tank farm (SWMU 7). The sludge disposal pits are not controlled containment systems such as the tank farms; therefore, future investigation should be performed under the IR Program, not the UST program. Such investigations should be consistent with the approach employed at SWMU 9, IR Site 13, Leaded Sludge Pits. Soil borings and monitoring wells should be advanced and installed to specifically characterize these waste disposal SWMUs. Both surface and subsurface soil samples should be submitted for laboratory analyses. Since this effort will constitute an initial examination of sludge disposal pits, full TCL and TAL characterization (minus pesticides/PCBs) should be performed on the soil and ground water samples collected from these areas.
- The 1988 RFA suggested the locating of the two disposal pits using ground penetrating radar and then sampling soil and ground water adjacent to these SWMUs. To date, this has not been done and needs to be addressed.
- Total organic carbon analyses should be performed on surface soil samples so that bioavailable concentrations can be calculated for an ecological assessment. In addition, once the pits are located, samples should be analyzed for full TCL and TAL analyses, and TPH.
- The October 1992 UST Corrective Action Plan should be reviewed to determine if any pertinent sampling information is available. If so, this data will help focus areas for ground water and surface water sampling in and around the pit area.

### **2.8.3 Site Visit Findings and Recommendations**

Because this SWMU consists of buried leaded sludge pits, it could not be located during the site visit (see Appendices A, B and D). As a result, TRC reiterates its recommendation that ground penetrating radar be used to locate these pits. Once located, borings around and through the pits should be installed to characterize the nature and extent of the release.

## 2.9 SWMU 9, IR Site 13, Leaded Sludge Pits

### 2.9.1 Background

This SWMU consists of eight fuel storage tanks. Tanks 212 through 215 are located north of Forrestal Drive along Manila Bay Road. "Tanks 216 and 217 are located on a hilltop about 4,000 feet southeast of tanks 212 through 215, north of Forrestal Drive" (NEESA 1984). The location of tanks 210 and 211 has not been determined.

The 1984 NACIP report indicates that these "tanks were constructed in 1948 for the storage of AVGAS [(aviation gasoline)], and [that the tanks] were cleaned about every five years until 1978" (this does not include tanks 210 and 211, which were abandoned in 1950 and probably cleaned only once) (NEESA 1984). This report indicates that "cleaning...resulted in the removal of 20 to 30 drums (800 to 1,250 gallons) of leaded sludge per tank" (NEESA 1984). The NACIP report estimates that between "30,000 and 50,000 gallons of leaded sludge were disposed of at these areas over a 40-year period" (NEESA 1984). This sludge was "disposed of in a series of pits (8 feet x 8 feet x 8 feet)" (A.T. Kearney, Inc. 1988). These pits were located within 300 feet of the tank that was being cleaned. "After the sludge settled in the pits, it was covered with [three] to [four] feet of soil" (A.T. Kearney, Inc. 1988). The NACIP report suggests using infrared photographs or a terrain conductivity survey to locate the disposal sites in order to install soil borings.

The 1988 RFA report indicates a start date of 1940 instead of 1948 as noted in the 1984 NACIP report. The VSI team was unable to locate the buried pits during their inspection. The RFA report suggested using an appropriate geophysical method (e.g., ground penetrating radar) to locate the pits in order to collect soil and ground water samples adjacent to these areas.

In 1988, ESE performed two rounds of verification sampling at this SWMU. "Six sediment samples were collected during each round [of sampling]" (Technical Review Committee Meeting Minutes 1989). According to ESE, oil and grease were detected in each round, but levels were not significant when shipping activities in the area were considered. "Lead was also detected in both rounds, but not in significant levels" (Technical Review Committee Meeting Minutes 1989). Low levels of volatile organic compounds were detected in Round 2, but not in Round 1. Twelve surface water samples were also collected. Two of the six Round 1 samples indicated low levels of oil and grease. Oil and grease were not detected in any Round 2 surface water samples. Low levels of lead were detected in all Round 2 surface water samples. "Eleven wells were sampled during each round" (Technical Review Committee Meeting Minutes 1989). During Round 1, four wells contained significant levels of fuel-derived organic constituents. During Round 2, only two of the four wells continued to show significant fuel-derived organic constituents. ESE recommended the installation of an additional three monitoring wells and sixteen borings. Samples from these new wells and from

wells 13GW01-13GW06 would be analyzed for benzene, toluene, xylene and lead. (See Table 2.9.1 below for results that exceeded Subpart S Action Levels.)

The Technical Review Committee Meeting Minutes indicated that 14 ground water, 20 surface soil and 60 subsurface soils will be collected to support a baseline risk assessment (see Table 2.9.1 below). Ground water and surface soil samples would be analyzed for VOCs, BNAs and metals, whereas subsurface soils would be analyzed for TPH, BTEX and lead.

Baker's 1992 Sampling and Analysis Plan indicates that they plan to collect these samples.

**Table 2.9.1 - Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 9**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	No samples 20 Surface Soil & 60 Soil planned	N/A
Surface Water	Round 1: 6 Round 2: 6	Four out of the six samples in Round 2 exceeded Subpart S Action Levels for lead.
Sediment	Round 1: 6 Round 2: 6	None
Ground Water	Round 1: 11 Round 2: 11 3 new wells planned	Six of the eleven Round 1 and seven of the eleven Round 2 had volatile levels that exceeded Subpart S Action Levels.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that RI/FS efforts for this site began in November 1991.

### 2.9.2 SWMU Assessment and Recommendations

- Baker's 1992 Sampling and Analysis Plan (SAP) states that "subsurface soil boring samples, surface soil samples, and ground water samples will be collected. Surface water and sediment are listed as expected environmental concerns" (TRC 1992). The fact that no surface water or sediment samples from these media are to be collected needs to be addressed. "In addition, ingestion of contaminated biota and vapors are also listed as potential exposure routes" (TRC 1992). Future work must be modified to address these SAP specific concerns.

- Baker's SAP states that "subsurface soil samples will be selected for collection on the basis of 'evidence of contamination, saturation, etc.' It is important to collect samples from below the bottom of the tank and at background locations so as to determine if these tanks have leaked" (TRC 1992).
- TRC's review of Baker's 1992 SAP states:
  - ...three new monitoring wells will be installed but [the SAP] provides no information on how deep the wells will be or where they will be screened. This information needs to be included so that the effectiveness of the wells in measuring contamination may be evaluated. In addition, the criteria and rationale used for placing wells and determining screen depths must be presented in the Work Plan in order to evaluate how effective they will be in obtaining information on stratigraphy and aquifer properties (TRC 1992b).
- Baker's "figures show the surface soil and soil boring sample locations. There need to be more soil borings.... In particular, it appears that soil borings should be installed on the east and west sides of tank 214 and on the northeast side of tank 215, as well as on the east side of the tanks on Site 13C" (TRC 1992b).
- Elevated concentrations of oil and grease were detected at sediment sampling locations 13SE1, 13SE2, 13SE3, and 13SE6 (particularly at sample 13SE1). An additional oil and grease sample should be collected at sample location 13SE6 due to the high variation observed between levels detected in Rounds 1 and 2. Oil and grease, lead and PAH analyses are recommended on additional sediment samples collected in the vicinity of Tanks 214 and 215.
- Elevated levels of oil and grease detected in sediment samples were reported to be attributable to "shipping activities." It is recommended that appropriate sediment background sampling be conducted to verify this statement.
- Several chlorinated VOCs (TCE, 1,2,-DCA, and vinyl chloride) were detected in ground water samples collected from SWMU 9. Some concentrations exceed the Maximum Contaminant Levels (MCLs). Additional monitoring wells are necessary to (1) delineate the lateral and vertical extent of these ground water contaminants; and (2) determine the point at which concentrations comply with Federal standards.
- Total organic carbon analyses should be performed on surface soil and sediment samples so that bioavailable concentrations can be calculated for an ecological assessment.

### **2.9.3 Site Visit Findings and Recommendations**

Because this SWMU consists of buried leaded sludge pits, it could not be located during the site visit. TRC walked around the area where these pits are suspected to be located, and no evidence of a release or of their presence was observed (see Appendices A, B, C and D). In addition to the previous recommendations, TRC recommends that these pits be located using ground penetrating radar. Once located, borings should be advanced around and through the pits to characterize the nature and extent of the contamination. TRC also recommends that the leaking valve observed during the site visit be repaired, and that soil samples in the two areas of stressed vegetation noted in the checklists be sampled for full TCL/TAL parameters.

## **2.10 SWMU 10, IR Site 15, Transformer Maintenance Area (Building 90, Substation 2)**

### **2.10.1 Background**

According to the 1984 IAS report, the transformer maintenance area has been used as a transformer repair shop by the Public Works Department - Power Distribution Shop since 1964. In order to repair pole-mounted distribution transformers, the transformer oil would first be drained. "From 1964 through 1979, used transformer oil was...poured [directly] onto the ground in the vicinity of Building 90. [Interviewed personnel] remembered using PCB-based dielectric fluids (by the trade names of Askarel, Inerteen, and Pyranol) for servicing the transformers" (NEESA 1984). The Power Distribution Shop ordered approximately 200 gallons of replacement transformer fluid per year.

The 1984 NACIP report estimates that approximately "3,000 gallons of transformer oil were drained to the soil in the vicinity of [Building 90]" (NEESA 1984). The IAS team suggested the collection of six soil samples (0-12 inches) to be analyzed for PCBs.

The 1988 RFA VSI team noted oil-stained soil in the vicinity of Building 90 and "a trash can (approximately 20 gallons) [that] was filled with oil and leaking onto the ground" (A.T. Kearney, Inc. 1988). The VSI team suggested that this site be referred to Toxic Substance Control Act (TSCA) personnel.

In 1988, ESE produced a Remedial Action Alternative Analysis for Site 15 (SWMU 10). Based on their analysis, ESE developed the following four remedial alternatives:

1. No action - installation of a 6-foot high galvanized chain link fence around areas of PCB contamination exceeding 10 ppm.
2. Cap alternative - single layer of asphaltic concrete covering areas of PCB contamination exceeding 10 ppm.

3. Partial excavation and capping - excavation of areas where PCB concentrations exceed 25 ppm and the capping of the rest of the area that falls between 10 and 25 ppm with asphaltic concrete.
4. Excavation alternative - excavation of all material containing PCB concentrations that exceed 10 ppm.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that RI/FS efforts for this site began in October 1988.

In 1992, Versar prepared a Remedial Investigation/Feasibility Study for Site 15 (SWMU 10). During their investigation, Versar collected numerous soil, sediment, wipe and chip samples. (See Table 2.10.1 for results that exceeded Subpart S Action Levels.) Based on their data and the data collected by Greenleaf in 1988, Versar investigated the feasibility of the three following remedial alternatives:

1. Soil excavation, transportation and off-site incineration
2. Soil excavation, transportation and off-site land disposal
3. Soil excavation and on-site incineration (Versar 1992a)

Of the three, Versar recommended Alternative 2 (soil excavation, transportation, and off-site land disposal).

**Table 2.10.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 10**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	33 (Greenleaf) 36 (Versar)	Fourteen Greenleaf locations had concentrations greater than the 10 ppm ARAR. Seven Versar locations contained PCBs in concentrations greater than 10 ppm ARAR.
Wipe	3 (Versar)	N/A
Chip	2 (Versar)	N/A
Sediment	12 (Versar)	One of the Versar locations contained PCBs greater than the 10 ppm ARAR.

## 2.10.2 SWMU Assessment and Recommendations

- TRC's report on the review of Baker's 1992 Work Plan and SAP noted the following:
  - The [studies to date have only been] concerned with the soil and sediment sample matrix. The site drains to the southwest and east, with drainage eventually joining in a drainage ditch that flows southwest into Ensenada Honda. Analysis of results from the soil and sediment samples could be used to address the possibility of further contamination of the storm system through runoff. Although soil and sediment results are clearly presented, a discussion regarding the effect that the detected contamination may have on other media at the site must be included....
  - The scenarios and toxicity values used to determine appropriate target clean-up levels in the ESE's risk assessment contained as Appendix B does not reflect current guidance and must not be used to evaluate or justify the use of the TSCA target level of 10 ppm....
  - All contaminants detected need to be presented for evaluation (e.g., lead, MEK). The decision to narrow the focus of the quantitative risk assessment to just PCBs needs to be [addressed]....
  - The possible additive risks to receptors from site contaminants in other media, (e.g., ground water), exposure via pathways not evaluated (e.g., inhalation), and contact with other site contaminants (e.g., lead), need to be fully discussed in the risk characterization and stated as a limitation of the risk assessments at the beginning of Versar's baseline risk assessment report.
  - The reported target clean-up levels may need to be revised pending the results of a more extensive ecological risk assessment. It appears that PCBs from Site 15 may potentially be transported off site by the existing storm water drainage systems to Puerca Bay and Ensenada Honda. Target clean-up levels (for site soils/sediments) will need to be established that are protective of aquatic biota if offsite transport of PCBs result in adverse effects to these sensitive ecological receptors....
  - A 10 parts-per-million (ppm) clean-up level, as governed by the TSCA, is the only remedial goal mentioned in the FS [for Unit 15]. According to Section 4.1.2.1 of the CERCLA guidance, "preliminary remediation goals are developed on the basis of

chemical specific ARARs.... These preliminary remediation goals are (to be) re-evaluated as site characterization data and information from the baseline risk assessment become available." Any information pertaining to the risks associated with a residual 10 ppm PCB level in the site soil must be [addressed]. An acceptable risk level for the protection of human health and the environment must be stated as part of the Remedial Action Objectives (RAOs)....

- The process options considered...[to date] did not include immobilization technologies. In situ solidification has been successfully demonstrated as a means to remediate PCB-contaminated soil. This technology is most cost effective when used to treat large volumes of soil since the costs associated with excavation and transportation of soil are precluded. Since the potential for remediation of a larger volume of soil than is presently quantified exists, this option should be included in the FS for review....
- A cost sensitivity analysis is also required to assess the effect that variations in specific assumptions associated with design, implementation, and operation of an alternative can have on its estimated cost. This kind of analysis is particularly important in this case since "if it is later determined that the contamination has migrated, additional treatment of possibly large amounts of soil will be needed" (Site 15, RI/FS, p. 71). Economies of scale for each process option considered should be more fully investigated. This is particularly important for the onsite incineration option. According to the FS, the cost effectiveness of this option is greatly increased when treating more than 5,000 tons of soil.
- While the correct criteria are used to evaluate each alternative delineated in Section 6.3.3 (Detailed Analysis of Remedial Alternatives), insufficient information is presented to show that the alternatives have been developed to a point where a detailed analysis is warranted. Section 6.2.1 of the RI/FS guidance suggests that the "...information developed to define alternatives at this stage in the RI/FS process may consist of preliminary design calculations, process flow diagrams, sizing of key process components, preliminary site layouts, and a discussion of limitations, assumptions, and uncertainties concerning each alternative." None of the requirements listed above are supplied in the detailed analysis of the alternatives listed in the FS. Only a very brief description of each alternative is supplied which outlines the relative pros and cons for that choice. This section must be

reworked to include the level of specificity required by the guidance in order to thoroughly evaluate each alternative in detail (TRC 1992).

- Total organic carbon analyses should be performed on surface soil and sediment samples so that bioavailable concentrations can be calculated for an ecological assessment.
- If immobilization is judged to be a viable alternative, then data for implementability of this technology should be gathered.

### ***2.10.3 Site Visit Findings and Recommendations***

This SWMU appeared as described in the background. During the visit, TRC observed an empty, very rusted 5-gallon can of paint spirits on the concrete porch located south-southwest of Building 90 (see Appendices A, B, C and D). There was no staining in the area of this can or any evidence of a release. TRC also observed an oil-stained area (approximately 8' x 10') approximately 50 feet south-southwest of the fenced area. TRC also observed a 5-gallon can of gear oil on the transformer pad located south-southwest of the fenced area. There was no staining or any evidence of a release from this can either.

Versar has performed an in-depth investigation into PCB contamination in the soils and concrete of this area. As stated in Section 2.10.1 above, Versar recommended remediation of this site, which is scheduled to occur this summer according to NAVSTA environmental personnel. However, no investigation has been performed to determine if ground water has been impacted in this area. In addition to the recommendations above, TRC recommends the installation of four wells. One well should be located northeast of Building 90 (upgradient), one east of Building 90 (cross gradient/downgradient) and two southwest of Building 90 (downgradient), along Forrestal Drive. The wells should be sampled for full TCL/TAL parameters.

## **2.11 SWMU 11, IR Site 16, PCB Storage Compound**

### ***2.11.1 Background***

According to the 1984 RFA report, "Building 38 was a 60-megawatt steam turbine facility that generated power from the early 1940s through 1949.... The [facility] used Bunker 'C' fuel, which was stored in two 50,000-gallon reinforced concrete tanks located directly northwest of the building" (NEESA 1984). In the 1970s, Bunker C fuel was observed in manholes near Building 38 during heavy rainfalls. Bunker C fuel was also "discharged to the Enlisted Beach via the old cooling water outlet for the Power Plant" (NEESA 1984). Building 38 was also used for the repair of electrical transformers from 1956 through 1964. "During this period, used oil from the transformers was poured directly

onto the ground in the vicinity of Building 38" (NEESA 1984). An estimated 1,600 gallons of transformer fluid were disposed of in this area.

The 1984 IAS team suggested the collection of six soil samples via hand auger. They suggested the collection of two samples from the oil-stained soil northwest of the building, and four samples (in a grid) from the area north and northwest of the building.

The 1988 RFA report states that this SWMU is TSCA regulated. This was told to the VSI team by a facility representative. Located inside Building 38 "is a cyclone fence which surrounds a curbed [(8-inch)] concrete pad. PCB-contaminated items (e.g., old transformers and full 55-gallon drums) are temporarily stored on the concrete pad inside the cyclone fence" (A.T. Kearney, Inc. 1988). A Defense Reutilization and Marketing Office (DRMO) contractor disposes these items. The VSI team observed drums that they believed to contain PCB-contaminated soil outside the cyclone fence. The VSI team also observed "oil contaminated sorbent . . . inside the fence on the concrete pad" (NEESA 1984). A facility representative told the VSI team that the oil spill inside the fence was "from a non-PCB transformer (<50 ppm PCBs) and that laboratory results were pending regarding the contents of the drums" located outside of the fence (NEESA 1984). The RFA VSI team suggested that the results of the analysis of the spilled materials be obtained to confirm that they do not contain PCBs. If the analysis reveals that the spill does not contain PCBs, then the VSI suggested no further action beside complying with TSCA regulations.

In 1988, ESE produced a Remedial Action Alternative Analysis Report. ESE

...collected thirty-eight soil samples from the site (9 in Round 1 and 29 in Round 2). These samples were analyzed for PCBs, oil and grease, volatile organic compounds (VOC), ethylene dibromide (EDB), xylenes, methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK). In Round 2, an EP toxicity test for lead was completed. The analytical results indicated the presence of PCB and lead contamination at the site. Lead concentrations were less than the EP toxicity standard for lead. Other constituents detected, but not at levels of concern, were MEK as well as oil and grease (Technical Review Committee Meeting Minutes 1989). (See Table 2.11.1 below for results that exceeded TSCA Action Levels.)

Based on their analyses, ESE proposed the following four remedial alternatives:

1. "No action" alternative - In this alternative, a 6-foot high galvanized chain link fence is to be installed at the site to encompass all areas of the site confirmed to have PCB concentrations above 10 ppm to restrict site access (approximately 2246 square yards)....

2. Cap alternative - In this alternative, the soils in the concrete ditch are to be scraped to remove the soil in the ditch (approximately 2 cubic yards). These soils are to be spread out in the area where PCB levels exceed 10 ppm and where a 1-inch asphaltic concrete cap is to be installed over a 4-inch base. The total area to be capped is 1780 square yards....
3. Partial excavation and capping alternative - In this alternative, the concrete-lined ditch is to be scraped to remove the soil in the ditch and the area having PCB concentrations above 25 ppm is to be excavated to a depth of 1 foot. A total of 469 cubic yards of PCB-contaminated soil will be removed and disposed of by incineration in an incinerator permitted for PCB incineration. The area excavated is to be filled with clean backfill (less than 1 ppm PCB). The site areas containing PCB levels from 10-25 ppm are to be capped with 1-inch asphaltic concrete and a 4-inch base (379 square yards)....
4. Excavation alternative - In this alternative, all site areas containing PCB concentrations greater than 10 ppm are to be excavated to a depth of 1 foot below land surface and disposed of by incineration in an incinerator permitted for PCB incineration (595 cubic yards). Areas that are excavated are to be backfilled with clean soil (less than 1 ppm PCB) (Technical Review Committee Meeting Minutes 1989).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that RI/FS efforts began at this site in October 1988.

In 1992, Versar prepared a Remedial Investigation/Feasibility Study for this site. During their investigation, Versar collected numerous surface water, sediment, soil, wipe and chip samples. (See Table 2.11.1 below for results that exceeded TSCA Action Levels.) Based on their data and the data collected by ESE in 1988, Versar investigated the feasibility of the three following remedial alternatives:

1. Soil excavation, transportation and off-site incineration
2. Soil excavation, transportation and off-site land disposal
3. Soil excavation and on-site incineration (Versar 1992a)

Of the three, Versar recommended Alternative 2 (soil excavation, transportation, and off-site land disposal).

**Table 2.11.1 Summary of Samples and Results that Exceeded TSCA Action Levels at SWMU 11**

Media	No. of Samples	Results that exceed TSCA Action Levels
Soil	38 (Greenleaf)  37 (Versar)	Fifteen locations contained PCB concentrations greater than the 10 ppm ARAR (TSCA). The two highest results were 1,200 ppm and 40,000 ppm. Eighteen locations were greater than the 10 ppm ARAR.
Wipe	33 (Versar)	Two locations exceeded the TSCA ARAR of 1,000 mg/m <sup>2</sup> .
Chip	6 (Versar)	N/A
Sediment	12 (Versar)	Eight locations were greater than the 10 ppm ARAR for PCBs.
Surface Water	3 (Versar)	All three samples were greater than the MCL of 0.5 ug/L.

**2.11.2 SWMU Assessment and Recommendations**

- TRC's report on the review of Versar's and ESE's Work Plans and SAPs noted the following:
  - The scenarios and toxicity values used to determine appropriate target clean-up levels in the ESE risk assessment contained as Appendix B in both [ESE's and Versar's] reports do not reflect current guidance and must not be used to evaluate or justify the use of the TSCA target level of 10 ppm....
  - All contaminants detected need to be presented for evaluation (e.g., lead, MEK). The decision to narrow the focus of the quantitative risk assessment to just PCBs needs to be addressed.
  - The possible additive risks to receptors from site contaminants in other media (e.g., ground water), exposure via pathways not evaluated (e.g., inhalation), and contact with other site contaminants (e.g., lead), need to be fully discussed in the risk characterization and stated as a limitation of the risk assessments at the beginning of the baseline risk assessment report.

- The reported target clean-up levels may need to be revised pending the results of a more extensive ecological risk assessment. It appears that PCBs from Site 16 may potentially be transported offsite by the existing storm water drainage systems and/or the cooling water tunnel present beneath the site to Puerca Bay and Ensenada Honda. Target clean-up levels (for site soils/sediments) will need to be established that are protective of aquatic biota if offsite transport of PCBs result in adverse effects to these sensitive ecological receptors....

- A 10 ppm clean-up level, as governed by the TSCA, is the only remedial goal mentioned in the FS [for Unit 16]. According to Section 4.1.2.1 of the CERCLA guidance, "preliminary remediation goals are developed on the basis of chemical specific ARARs.... These preliminary remediation goals are (to be) reevaluated as site characterization data and information from the baseline risk assessment become available." Any information pertaining to the risks associated with a residual 10 ppm PCB level in the site soil must be [addressed]. An acceptable risk level for the protection of human health and the environment should be stated as part of the RAOs [in Versar's RI/FS report]....

- The process options considered [to date] did not include immobilization technologies. In-situ solidification has been successfully demonstrated as a means to remediate PCB-contaminated soil. This technology is most cost effective when used to treat large volumes of soil since the costs associated with excavation and transportation of soil are precluded. Since the potential for remediation of a larger volume of soil than is presently quantified exists, this option should be included in the FS for review. The long-term stability of in-situ stabilization also needs to be addressed. The discussion should incorporate long-term management and access controls (fences, restricted access, deed restrictions and signs).... [If immobilization is considered as a process option, data for implementability of this technology should be gathered.]

- A cost sensitivity analysis is also required to assess the effect that variations in specific assumptions associated with design, implementation, and operation of an alternative can have on its estimated cost. This kind of analysis is particularly important in this case since "if it is later determined that the contamination has migrated, additional treatment of possibly large amounts of soil will be needed." Economies of scale for each process option considered should be more fully investigated. This is particularly important

for the onsite incineration option. According to the FS, the cost effectiveness of this option is greatly increased when treating more than 5,000 tons of soil.

While the correct criteria are used to evaluate each alternative delineated in Section 6.3.3 (Detailed Analysis of Remedial Alternatives), insufficient information is presented to show that the alternatives have been developed to a point where a detailed analysis is warranted. Section 6.2.1 of the RI/FS guidance suggests that the "...information developed to define alternatives at this stage in the RI/FS process may consist of preliminary design calculations, process flow diagrams, sizing of key process components, preliminary site layouts, and a discussion of limitations, assumptions, and uncertainties concerning each alternative." None of the requirements listed above are supplied in the detailed analysis of the alternatives listed in the FS. Only a very brief description of each alternative is supplied which outlines the relative pros and cons for that choice. This section should be reworked to include the level of specificity required by the guidance in order to thoroughly evaluate each alternative in detail (TRC 1992a).

- There is a high potential for PCB transport through the cooling water tunnel and storm drainage system. TRC recommends that the discharge location of the storm drain be determined and subsequently sampled for full TCL and TAL parameters.
- Surface water and sediment samples need to be collected within Puerca Bay and Ensenada Honda at the inlet/outlet of the cooling water tunnel. It is recommended that a minimum of two samples be collected at each location and be subjected to a full TCL and TAL analyses.

### ***2.11.3 Site Visit Findings and Recommendations***

TRC observed this SWMU to be a bermed, fenced, concrete pad located inside Building 38. Inside the pad were 27 transformers, 53 55-gallon drums that were labelled as containing PCBs and two 5-gallon cans labelled as not containing PCBs. There were also 28 drums (some were 30-gallon and some were 55-gallon) located outside the pad, but still inside Building 38. Eighteen of these drums were labelled as suspected pesticide contamination. The rest were labelled as non-regulated waste (petroleum contaminated soil). There were also three transformers located outside of the pad. All drums and transformers were in good condition. There was a stained area (approximately 10' x 10' in area) located inside the pad (see Appendices A, B, C and D).

Although there is a stained area, this area is located inside a bermed, fenced pad, which is in turn located inside a building. Furthermore, the entire area surrounding Building 38

is SWMU 45 which has been thoroughly investigated and is due for remediation in the near future. As a result, TRC recommends that the drums and transformers located outside of the pad be moved inside. Outside of this, TRC recommends no further action.

## **2.12 SWMU 12, Fire Training Pit Oil/Water Separator**

### **2.12.1 Background**

This SWMU began operations in 1983. However, the 1984 NACIP report does not address this SWMU. The first mention of this SWMU is in the 1988 RFA report. According to the RFA,

...the Fire Training Pit Oil/Water Separator is an in-ground concrete tank that measures approximately 7 feet x 30 feet x 10 feet deep.... Waste oils are burned at this SWMU during training exercises.... Overflow from this unit is controlled by a manually operated valve. Wastewater from this unit flows through the sewer drainage system (SWMU...38) to be processed by one of the Naval Station Wastewater Treatment Plants (one of SWMUs...27,...28 or...29). [The] oils from this unit are pumped back into the Fire Training Pit (SWMU...14). [The VSI team observed] a ground level opening [that was] covered by heavy grating. [The VSI team also noted] an area of dead grass, adjacent to the [oil/water] separator, [and oil] stains on the curbing and guardrail uprights.... The VSI team suggested that an automatic overflow control valve be installed...and that the final disposition of the wastewater be determined (A.T. Kearney, Inc. 1988).

The RFA also suggested the collection of ground water and soil samples to determine if there has been a release of hazardous constituents to the environment. This, it was suggested, could be done during sampling at the Fire Training Pit (SWMU 14).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that confirmatory sampling is to be done at this SWMU. The preparation of the Work Plan for this work is scheduled to begin in the third quarter of fiscal year 1993.

### **2.12.2 SWMU Assessment and Recommendations**

- TRC will visually inspect this SWMU to check the concrete's integrity. Because the oil/water separator is below grade, a visual inspection may require the tank contents to be drained.
- The Work Plan for the sampling effort should be reviewed to determine its adequacy.

- TRC will inspect this SWMU to observe the staining reported in the 1988 RFA report and to determine if any additional releases have occurred since the 1988 RFA.
- Soil borings are warranted to evaluate the integrity of the fire training pit and vertical magnitude of contamination associated with the reported stained areas. Multiple depths should be sampled in each soil boring. Should visual observations or field screening identify the presence of contamination in subsurface soils, then multiple monitoring wells should be installed to evaluate ground water impacts. In addition, surface soil samples should be obtained from stained areas. All future samples should be submitted for full TCL and TAL analyses since waste oils were used as the fuel for training exercises.

### ***2.12.3 Site Visit Findings and Recommendations***

During the site visit, TRC observed that the concrete of the oil/water separator was in good condition. No cracks or staining were observed. The oil/water separator was nearly full (approximately 1 foot from the top of the separator) and had a sheen on it. The oil/water separator appeared as if it could easily overflow during periods of heavy rain (see Appendices A, B, C and D). Because no samples have been collected to date, TRC recommends that six surface soil samples be collected around the perimeter of the separator to determine if a release has occurred. One sample from the northeast side, one from the southwest side, two from the northwest side and two from the southeast side of the oil/water separator. Analyses should include full TCL and TAL parameters. If results come back above action levels, then the soil borings recommended in Section 2.12.2 should be installed.

## **2.13 SWMU 13, IR Site 18, Old Pest Control Shop (Building 258 and Surrounding Areas)**

### ***2.13.1 Background***

The NACIP report describes this SWMU as the following:

The Pest Control Shop...was located at Building 258 from the late 1950s through 1983. Pesticides were stored in Building 258 and also on the parking apron. Former Pest Control Shop employees remember incidental spillage of pesticides in and around the building. In 1976, a 55-gallon drum of malathion, which was stored outside the building, ruptured and the contents spilled onto the ground, eventually washing into the drainage ditch in back of the building. This same ditch received rinse waters from the cleaning of pesticide equipment over a storm drain which discharged to the ditch. Excess pesticides were also poured into this ditch. Past environmental engineering surveys cite numerous aquatic kills due to pesticides entering the ditch. The area

surrounding the building is devoid of vegetation, although the drainage ditch does not show any signs of stressed vegetation.

Pesticides used in the past include DDT, Paris Green, malthane, malathion, and chlordane.... There is no information available, either from records or interviewees, regarding the amounts or concentrations of the pesticides used (NEESA 1984).

Based on their findings, the 1984 NACIP report suggested that 22 soil samples be collected. They suggested that one composite sample be taken upgradient in the drainage ditch, one composite down-gradient, one near the road for a background sample and 19 samples in a grid pattern. They suggested that these soil samples be analyzed for pesticides.

In 1988, a RFA was performed at this SWMU. The VSI team noted that

...a faint but discernible pesticide odor was present behind the building and inside what is now the diving club pump room. [They did not observe any] signs of stressed vegetation.... The president of the diving club, Mr. Seufert, reported [to the VSI team] that club members had decontaminated the inside of the building before occupying it. According to Mr. Seufert, decontamination involved washing the inside walls and floor with bleach before sealing with a vinyl coating. The meeting room was then tiled, but the pump room was not (A.T Kearney, Inc. 1988).

Based on their inspection, the VSI team

...suggested that extensive soil and ground water sampling be performed at this SWMU to determine the existence and nature of release of hazardous constituents to the environment. Areas sampled should include outside near the south side of Building 258 and in and around the ditch that is approximately 40 feet from the building. Analyses should include a set of indicator parameters based upon the physical and chemical characteristics of pesticides stored here in the past. As an interim measure, it is suggested that recreational use of the building be discontinued immediately until sampling results confirm that building's safety (A.T Kearney, Inc. 1988).

In 1988, ESE performed two rounds of verification sampling.

Fifteen soil samples were collected in Round 1 and analyzed for pesticides at this site. Several pesticides, including chlordane, were detected in the surficial soils in the area adjacent to Building 258.

[In addition,] eight sediment samples were collected at this site (2 in Round 1 and 6 in Round 2) and analyzed for pesticides. Chlordane and other pesticides were detected in the sediment samples collected from the drainage ditch which conveys storm water runoff from the site. A total of 8 surface water samples were [also] collected at this site (2 in Round 1 and 6 in Round 2) and analyzed for pesticides. Chlordane and other pesticides were detected in the surface water samples collected from the drainage ditch which conveys storm water runoff. Three shallow monitoring wells were installed at the site and ground water samples [were] collected in Round 2. Ground water samples were analyzed for pesticides. A low concentration of DDD, PP<sup>1</sup> (0.0017 ug/L) was detected in one of the three monitoring wells at the site. [As a result, ESE recommended that a] baseline risk assessment of the pesticide contamination [be performed in order] to determine if the levels of pesticide detected in the soils, sediment, surface water and ground water pose a threat to human health and the environment (Technical Review Committee Meeting Minutes 1989). (See Table 2.13.1 below for results that exceeded Subpart S Action Levels.)

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that RI/FS efforts for this site began in November 1991 and that the Work Plan was scheduled to be received by EPA in July 1992.

Baker's 1992 report indicates that they plan to collect 15 soil, six sediment, six surface water and three ground water samples to support a baseline risk assessment (Baker 1992) (see Table 2.13.1 below).

**Table 2.13.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 13**

<b>Media</b>	<b>No. of Samples</b>	<b>Results that exceed Subpart S Action Levels</b>
Soil	Round 1: 15 15 planned	None
Surface Water	Round 1: 2 Round 2: 6 6 planned	None
Sediment	Round 1: 2 Round 2: 6 6 planned	None
Ground Water	Round 2: 3 3 planned	None

**2.13.2 SWMU Assessment and Recommendations**

- Six surface water and sediment locations are proposed to be sampled (for pesticides and metals) near the previous surface water/sediment sampling locations. However, the proposed sampling locations appear to differ from sampling locations identified in previous investigations of this site. Therefore, it is recommended that the Work Plan for the proposed sampling be reviewed for its adequacy.
- The table in Baker's 1992 Remedial Investigation (RI) Work Plan shows that samples from SWMU 13 will be analyzed for metals and pesticides only. Samples collected from SWMU 13 should also be analyzed for full TCL and TAL parameters.

**2.13.3 Site Visit Findings and Recommendations**

During TRC's site visit, this SWMU appeared as described in the background. There were no signs of releases observed during the site visit. There was no stressed vegetation, staining, or odors (see Appendices A, B, C and D). Past sampling has revealed the presence of some pesticides at the site, but none were detected in levels that exceeded Subpart S Action Levels. As a result, TRC recommends that the samples proposed by Baker be collected to determine whether further action is necessary.

## 2.14 SWMU 14, IR Site 17, Fire Training Pit, Crash Crew Training Area

### 2.14.1 Background

The NACIP report indicated the following about SWMU 14:

The Crash Crew training area...was operated by the Air Operations Department from the early 1960s through 1983.

Two unlined pits were used in the past for fire fighting training. The first pit, which was approximately 40 feet in diameter, was used from the early 1960s through the beginning of 1983 (20 years). Assuming 20 years of operation, about 120,000 gallons of waste solvents, fuels, and oils were placed in the pits and set on fire for fire fighting training. Also burned were wood, trash, plastic, fuel filter elements, oily rags, and other debris. The fires were extinguished using aqueous film-forming foam (AFFF) and potassium bicarbonate (Purple K). Past aerial photographs show drainage from this pit to the ditch along the runway shoulder. The new fire training pit was built at the same location as the old pit. When the new pit was built, all of the oil-stained, contaminated soil was excavated and most likely disposed of in the base landfill.

The second pit was used temporarily during the construction of the new fire training pit in 1983. This unlined gravel pit has a diameter of 200 feet and was used approximately six times. Approximately 3,000 gallons of waste fuel, oil, and solvents were burned in this area. Only small amounts of fuel were allowed to soak into the ground (NEESA 1984).

The IAS team has concluded that there is no threat to human health or the environment from this site because the contaminated soils associated with the original fire pit were removed during construction of the new pit, no PCBs were detected, and because the temporary pit was used so little. As a result, the IAS team suggested no further action.

In 1988, a RFA inspection was performed at this SWMU. During the inspection the VSI team

observed [that] within the concrete curbing of the pit was a metal structure (what appeared to be the tank from a railroad tank car and large pieces of scrap metal) underlain by a layer of rocks which rest on the concrete lining. The metal structure, rocks and concrete curbing were completely black. Immediately adjacent to the pit was an area of darkly stained soil measuring approximately 40 feet

by 100 feet. Vegetation was observed to be growing in the stained area adjacent to the pit (A.T. Kearney, Inc. 1988).

The VSI team also noted an oil/water separator (SWMU 12) that was associated with the fire training pits. Based on their observations, the VSI team

suggested that soil and ground water samples be collected in order to determine the existence of release. The samples should be taken at a depth corresponding to either the depth of the unit, or progress until there is evidence supporting the existence of a release (e.g., staining), whichever is deeper. Analysis should include a set of indicator parameters based upon the chemical and physical characteristics of waste managed at this unit (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy concurs with confirmatory sampling, as suggested in the 1988 RFA, and that sampling efforts are scheduled to begin the third quarter of fiscal year 1993.

#### ***2.14.2 SWMU Assessment and Recommendations***

- TRC recommends that the Work Plan for the sampling to be done at this SWMU be reviewed for its adequacy.
- "Oil-stained/visibly contaminated" soils were reportedly removed in 1983, but no followup sampling, except for PCB analysis, was conducted to determine the full extent of contamination. The proposed confirmatory sampling scheduled for the third quarter 1993 appears to be limited to the oil/water separator (SWMU 12) associated with the fire training pits. Sampling to evaluate the full nature and extent of SWMU 14 contamination should include the following: 1) soil borings in the area of the fire training pit to determine the vertical extent of contamination; 2) ground water impacts need to be evaluated; and 3) impact to drainage ditch needs to be evaluated since past discharge to the ditch has been reported.

#### ***2.14.3 Site Visit Findings and Recommendations***

To date no sampling has been performed at this SWMU. The new fire training pit is in good condition. The concrete surrounding the pit is in good condition. No cracks or staining were observed during the site visit (see Appendices A, B, C and D). Confirmation sampling has been proposed for this area; however, no formal plans for sampling have been made. To determine if releases have occurred, six surface soil samples should be collected surrounding the pit, and three surface water/sediment samples should be collected in the drainage ditch. Samples should be analyzed for full TCL/TAL

parameters. If results from these samples exceed action levels, the boring and wells proposed in Section 2.14.2 should be installed.

The PCB sampling from the Temporary (Old) Fire Training Pit in 1983 were not available to TRC. This pit is located approximately 500 feet north of the new Fire Training Pit. This area consists of a soil-bermed area approximately 100 feet in diameter where fire training exercises were performed directly on the ground surface. Because of the potential for a release, TRC recommends that confirmatory sampling be performed here to determine if there has been a release to the environment. TRC recommends the collection of 10 surface soil samples and 10 shallow soil samples (0'-2') throughout the Temporary Fire Training Pit area. Samples should be analyzed for full TCL/TAL parameters. If results from these samples exceed action levels, the borings and wells proposed in Section 2.14.2 should be installed.

## **2.15 SWMU 15, Hospital Incinerator**

### **2.15.1 Background**

"As described in the 1984 NACIP report, this SWMU is a 'package' incinerator with burners located in the main chamber at the base of the stack. The SWMU operates under the auspices of Commonwealth of Puerto Rico air pollution regulations. According to the U.S. Navy, it is used exclusively to burn pathological waste generated by the hospital" (A.T. Kearney, Inc. 1988).

The 1988 RFA VSI team estimated the SWMUs capacity at ½ cubic yard. The VSI team noted that the Hospital Incinerator was "constructed of metal and lined inside with fire bricks. [The] unit rests on a concrete pad (no curbing) and is protected by a roof and two walls made of corrugated metal" (A.T. Kearney, Inc. 1988). The VSI team indicated that there was no evidence of a release from this SWMU. The VSI team suggested that other than continuing to comply with Environmental Quality Board (EQB) regulations, that no further action was suggested.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy agrees with the 1988 RFA report suggestion of no further action.

### **2.15.2 SWMU Assessment and Recommendations**

TRC recommends no further action.

### **2.15.3 Site Visit Findings and Recommendations**

No samples have been or are planned to be taken at this SWMU. There was no staining, stressed vegetation or odors observed at this SWMU (see Appendices A, C and D). Because there was no evidence of a release, TRC recommends no further action for this SWMU.

## **2.16 SWMU 16, Waste Explosive Storage (Building 1666)**

### **2.16.1 Background**

According to the 1988 RFA, "this unit was included on the original Part A RCRA Application for NAVSTA Roosevelt Roads that was submitted in November 1980", but only cited, not included, in the revised RCRA Part A Application (A.T. Kearney, Inc. 1988). The VSI team was denied access to this SWMU because it is a "unique military operation" which requires special security clearance. No listing of wastes was provided to them and no inspection was performed due to the denied access. As a result, the wastes managed at this SWMU could not be determined, and whether or not there has been a release of hazardous constituents to the environment could not be determined. The VSI team could not make any suggestions until further information was obtained.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy recognizes the fact that additional information is needed for this SWMU. The Navy indicates that the information will be provided as soon as it is available.

### **2.16.2 SWMU Assessment and Recommendations**

TRC agrees that additional information is needed before any recommendations can be made.

### **2.16.3 Site Visit Findings and Recommendations**

No sampling has been done or is planned at this SWMU. The building was empty at the time of the inspection. The area is fenced and the building is locked with an elaborate alarm system. Materials stored here included waste explosives (solid and gel form) from devices that did not function properly. These wastes (items) are periodically brought to Vieques Island, where they are detonated. The concrete inside of the shed was not stained and was not cracked. No evidence of a release was observed (see Appendices A, C and D). As a result, TRC recommends no further action for this SWMU.

## **2.17 SWMU 17, DRMO Hazardous Waste Storage Facility (Building 1973)**

### **2.17.1 Background**

According to the 1988 RFA report, "this SWMU is a hazardous waste container storage facility and has operated under RCRA interim status since 1980.... Building 1973 is located in the Defense Reutilization and Marketing (DRMO) Office Yard. This SWMU has a storage capacity of 17,400 gallons...and is divided into 4 storage bays containing caustics, acids, general toxics and oxidizers" (A.T. Kearney, Inc. 1988). The storage bays are made of concrete block. The concrete slab of each storage bay is coated with epoxy.

There are dedicated containment trenches in each bay. "According to the U.S. Navy, only nonflammable hazardous wastes are stored at this unit. Prior to the use of this unit for hazardous waste storage, hazardous wastes were stored at Past DRMO Hazardous Waste Storage (SWMU...25)" (A.T. Kearney, Inc. 1988).

During the [1988 RFA] VSI, it was observed that this SWMU was clean, orderly, and secure, with the exception of caustics, such as sodium hydroxide and potassium hydroxide, being stored in the "acid" storage bay. There was no evidence of release to secondary containment.... [According to a facility representative,] inspections are conducted approximately once a month.... There have been no documented releases identified with this unit,...[and the VSI team indicated that there was] no evidence of a release observed during [their inspection] (A.T. Kearney, Inc. 1988).

The VSI suggested continued compliance with RCRA requirements. Besides this, no further action was suggested.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy concurs with the 1988 RFA recommendation of no further action.

### ***2.17.2 SWMU Assessment and Recommendations***

TRC recommends no further action for the following reasons: There are no documented past releases from this site. The 1988 VSI team did not observe any evidence of release. The site was reportedly clean, orderly and secure. Monthly inspections are performed.

### ***2.17.3 Site Visit Findings and Recommendations***

This SWMU is located inside Building 1973. There are four bays (acids, caustics, general toxics, and oxidizers) with a sump located in front of the bays that would contain any spills. The concrete is in good condition and there were no stains or other signs of any release (see Appendices A, C and D). For these reasons, TRC recommends no further action for this SWMU.

## **2.18 SWMU 18, Ignitable Storage Facility (Building 2009)**

### ***2.18.1 Background***

"This unit is a hazardous waste container storage facility that has been under RCRA interim status since November 1980" (A.T. Kearney, Inc. 1988). The ignitable hazardous wastes are stored in drums, and include mostly paint and aviation fuel wastes.

Building 2009 is located in the Defense Reutilization and Marketing Office (DRMO) yard. This unit has a storage capacity

of 2,600 gallons and has been designed and designated for the storage of ignitable hazardous wastes in containers.... Building 2009 is a metal structure measuring approximately 20 feet by 20 feet underlain by a concrete slab with 4-inch curbing. The walls and roof are constructed of corrugated metal. The slab appeared stained, but no evidence of recent spillage was observed.... There [have been] no documented releases identified with this unit in PR file material (A.T. Kearney 1988).

The VSI team states that there is no evidence of a release from this SWMU during their inspection. The VSI team suggested no further action other than continuing to comply with RCRA regulations.

The June 1992 letter from P.A. Rakowski to Barry Tornick states that the Navy concurs with the 1988 RFA report recommendations.

### ***2.18.2 SWMU Assessment and Recommendations***

Because staining of the slab was observed during the VSI inspection, TRC will inspect this site for any additional spills that may have occurred since the 1988 RFA and to inspect the integrity of the slab.

### ***2.18.3 Site Visit Findings and Recommendations***

This SWMU was observed to be as described in the background. The SWMU contained fifteen 55-gallon drums of naphtha, waste paint, isopropanol, hydraulic fluid with freon, and waste diesel. There were also six boxes of cans of MEK, one 30-gallon drum of isopropanol and one 10-gallon drum of flammable liquid. All drums and containers were in good condition (see Appendices A, C and D). No sampling has been done or is planned for this SWMU. Some old stains were noted on the floor of this SWMU. However, these stains were minor. The concrete was in good condition and is curbed. The SWMU is enclosed with corrugated metal. No signs of release were observed during the site visit. As a result, TRC recommends no further action for this SWMU.

## **2.19 SWMU 19, IR Site 21 Pesticide Waste Storage (Building 121)**

### ***2.19.1 Background***

The 1988 RFA reports the following:

This unit is a hazardous waste storage facility which is used for the storage of outdated pesticides.... This unit was included in the original Part A RCRA Permit Application; however, it was not included in the revised application because of plans to close this

unit.... At the time of the VSI, this unit was still being used for pesticide waste storage.

The VSI team observed this unit to be a building surrounded by an unlocked cyclone fence; however, the building itself was secured, denying the VSI team entry. Tall grasses, vines, and woody vegetation grew thick immediately around the outside of the building and outside the cyclone fence. The smell of pesticides was evident.... According to facility representatives, their office is still awaiting the completion of the closure plan for this unit (NEESA 1984).

Based on their inspection, the VSI team suggested "that the current regulatory status of this SWMU be reviewed and the SWMU inspected to ensure compliance with interim status requirements" (NEESA 1984).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that a Work Plan for confirmatory sampling was prepared and that it was due to EPA by July 1992 (Baker's 1992 Work Plan). They also indicate that sampling results will be incorporated as part of the closure plan if they are received before the closure plan approval. If they are received afterwards, they will be provided as a separate document to the closure plan.

Baker's 1992 Work Plan indicates that they plan to collect 18 chip samples and 32 subsurface soil samples from eight borings to support a baseline risk assessment (see Table 2.19.1 below).

**Table 2.19.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 19**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	32 soil from 8 borings (4 samples per boring) planned	N/A
Chip	18 planned	N/A

### **2.19.2 SWMU Assessment and Recommendations**

- In order to determine risks to ecological receptors, it is recommended that surface water drainage channels located within the immediate vicinity of the facility be identified. If present, surface water and sediment samples from these areas will need to be sampled for full TCL and TAL parameters.

- The rationale for sample location (soil borings) needs to be provided. It is recommended that additional sampling within the fenced area be performed.
- Background sampling of upgradient wells, surface water/sediment, and soil is proposed in the Work Plan yet it is unclear the extent of sampling of all these media within SWMU 19. Only soil sampling is indicated. The baseline risk assessment should evaluate all potentially affected media.
- The table in Baker's 1992 Work Plan shows that samples from SWMU 19 will be analyzed for metals and pesticides only. Samples collected from SWMU 19 should also be analyzed for full TCL and TAL parameters.

### ***2.19.3 Site Visit Findings and Recommendations***

TRC observed this SWMU to be as described in the background. There were no drums or containers inside the building. The floor inside of Building 121 was stained. The interior had a strong pesticide odor. The heaviest staining was at the northeast corner of the building where a vent to the outside was located (see Appendices A, B, C and D). For this reason, TRC recommends confirmatory sampling (surface soil) outside of this vent and around the perimeter of Building 121. Samples should be analyzed for full TCL/TAL parameters. TRC also recommends that two of the planned borings be moved to the north and west sides of Building 121, to determine if releases to these areas has occurred.

## **2.20 SWMU 20, Waste Oil Tank Truck (Near Building 860)**

### ***2.20.1 Background***

According to the 1988 RFA report, "[this] unit is a truck that temporarily stored waste oil, solvents and fuel...[and is] located at the northern edge of the Aerial Target Systems Department yard (in front of Building 860)" (A.T. Kearney, Inc. 1988). This SWMU began operations in approximately 1982. "According to a facility representative, wastes are stored in the 1,500 gallon steel tank of this SWMU. Periodically, a contractor pumps out the accumulated waste. If this unit fills up before the contractor arrives, facility representatives will tow this unit approximately 75 feet into the middle of the yard and let the tank drain into the Drone Fuel Drain Oil/Water Separator (SWMU...4)" (A.T. Kearney, Inc. 1988). The VSI team states that they did not observe any evidence of a release from this unit. The VSI team "suggested that this unit be moved from the grass to the concrete yard of Building 860 and kept there as a routine matter" (A.T. Kearney, Inc. 1988). They also suggested that if a spill did occur, that it could be washed into the Drone Fuel Drain Oil/Water Separator (SWMU 4). Outside of this, the VSI team suggested no further action.

In 1988, ESE performed two rounds of verification sampling and analysis.

One soil sample was collected as a background sample in Round 1. This sample was analyzed for oil and grease, lead, VOA, xylene, MEK, and EDB. Elevated levels of oil and grease (8.21 mg/kg) were detected in this soil sample.

A total of six sediment samples were collected for Site 8 (3 samples during each round).... Oil and grease levels ranged from 69-4740 mg/kg. [ESE attributed these concentrations to Building 200.]

A total of eight surface waters were collected from Site 8 during both Rounds. Three were collected in Round 1 and [five] during Round 2.... Significant levels of oil and grease (ranging from 5 to 102 ug/L) were found in Round 1 samples. Oil and grease [were] not detected in Round 2 samples. The levels of oil and grease detected [were attributed] to...Building 200. (Technical Review Committee Meeting Minutes, 1989) (See Table 2.20.1 for results that exceeded Subpart S Action Levels.)

In 1991, Versar produced a Site Summary for the Drone Washdown Area (Site No. 8). Versar reviewed the past history of the site and ESE's 1988 results. They concluded that no further investigations or remedial action was necessary.

This SWMU is located in the vicinity of IR Site 8. As a result, the samples from the IR Site 8 Report are included here. It should be noted, however, that these results do not adequately address this SWMU.

**Table 2.20.1 Summary of Samples and Results that Exceeded Subpart S Action Levels**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	1	None
Surface Water	Round 1: 3 Round 2: 5	One sample, 8SW01, had a benzene concentration of 1.1 ug/l. The Action level is 1.0 ug/l.
Sediment	Round 1: 3 Round 2: 3	None
Ground Water	No samples	N/A

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy agrees the 1988 RFA report suggestion of no further action.

### **2.20.2 SWMU Assessment and Recommendations**

- The truck's mobility creates the potential for releases in multiple locations. No documentation on the integrity of the truck tank was provided. The potential exists for waste oil release during tank pumping. If it is determined that a release occurred, sampling and analysis for solvents need to be performed to characterize the nature and extent of the release.
- Total organic carbon analyses should be performed on surface soil samples (if release is confirmed) so that bioavailable concentrations can be calculated for an ecological assessment.
- TRC will inspect this SWMU to see if this SWMU is kept on the concrete area and to determine if there have been any releases since the 1988 RFA inspection.

### **2.20.3 Site Visit Findings and Recommendations**

At the time of TRC's site visit, it was observed that this SWMU is no longer present at the site and is no longer used. Oil is now stored in 55-gallon drums along the northeast side of building 860. These drums are periodically picked up by DRMO.

The area where this SWMU was stored consists of a grassy area located approximately 200 feet north-northeast of Building 860. No staining, stressed vegetation or odors were noted during the site visit. There was a bare area in the grass, but this appeared to be due to the rocky/sandy nature of the soil. Located immediately northeast of the grassy area is a fenced, bermed concrete pad. This pad stores materials to be used including nineteen 55-gallon drums of braycote R151 (an oil), a 500-gallon tank of JP-5 fuel and several flammables cabinets that contain paints and isopropyl alcohol. Except for two minor cracks in the concrete, this pad was in good condition. The drain that led to the overflow valve was in good condition and was locked shut. There were no stains or other evidence of a release (see Appendices A, B, C and D). TRC recommends that the minor cracks be repaired. Outside of this, no further action is recommended.

## **2.21 SWMU 21, Donuts 1-4**

### **2.21.1 Background**

According to the 1988 RFA report,

[these] four units are part of the Oil Spill Removal System, which also is comprised of the Ships Waste Offload Barges (SWMU...22), Oil Spill Separator Tanks (SWMU...23) and the Oil Spill Separator (SWMU...24). A donut is a motorized storage tank having a circular, bloated shape (hence the name donut). As described by facility representatives during the VSI, a fuel oil spill in the harbor

is first contained with containment booms and oil skimmers. Donuts are then motored to the spill area where they pump the waste into their respective 10,000 gallon storage tanks. Back on the dock, the donuts are emptied into one of the Ships Waste Offload Barges (SWOBs) (SWMU...22) (A.T. Kearney, Inc. 1988).

These SWMUs were still active at the time of the VSI inspection. The VSI team "suggested that these SWMUs be tested for integrity (e.g., visual inspection, pressure testing) and repaired or replaced accordingly" (A.T. Kearney, Inc. 1988). Outside of this, no further action was suggested.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy does not consider these units SWMUs but instead considers them "vessels" because these units move about the harbor as needed to serve various ships in port. More importantly, the Navy indicates that due to Navy policy, that the donuts have been phased out and are no longer used. As a result, the Navy indicates that these SWMUs will not be integrity tested.

### ***2.21.2 SWMU Assessment and Recommendations***

TRC recommends no further action at these SWMUs because they are no longer in use.

### ***2.21.3 Site Visit Findings and Recommendations***

At the request of EPA, this SWMU was not inspected during TRC's site visit. As a result, no further recommendations have been made.

## **2.22 SWMU 22, Ships Waste Offload Barges (SWOB) 1 and 2**

### ***2.22.1 Background***

According to the 1988 RFA report,

These two units [the Ships Waste Offload Barges] are part of the Oil Spill Removal System which is also comprised of Donuts (SWMU...21), Oil Spill Separator Tanks (SWMU...23) and the Oil Spill Oil/Water Separator (SWMU...24). Naval personnel reported the following about the Ships Waste Offload Barges (SWOBs). The capacity of these floating barges is 40,000 gallons each. In addition to collecting material from large spills, and bilge and ballast wastewater from ships, these units act as a collection points for waste from the donuts (SWMU...21) during spill events, and oily waste from the general vehicle maintenance shops (at those times when DRMO is late in removing accumulated waste). Three

onshore Oil Spill Separator Tanks (SWMU 24) receive the SWOB waste (A.T. Kearney, Inc. 1988).

The commencement of operations for these SWMUs could not be determined by the VSI team. However, these SWMUs were being used at the time of the VSI inspection. The VSI team "suggested that these units be tested for their integrity (e.g., visual inspection, pressure testing) and repaired or replaced accordingly" (A.T. Kearney, Inc. 1988). Outside of this, no further action was suggested.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy does not consider these units SWMUs, but instead considers them "vessels" because these units move about the harbor as needed to serve various ships in port. More importantly, the Navy indicates that because of Navy policy, that the SWOBs have been phased out and are no longer used. As a result, the Navy indicates that these SWMUs will not be integrity tested for the above two reasons.

#### ***2.22.2 SWMU Assessment and Recommendations***

TRC recommends no further action at these SWMUs because they are no longer in use.

#### ***2.22.3 Site Visit Findings and Recommendations***

At the request of EPA, this SWMU was not inspected during TRC's site visit. As a result, no further recommendations have been made.

### **2.23 SWMU 23, Oil Spill Separator Tanks 1 Through 3**

#### ***2.23.1 Background***

"Located approximately 100 feet inshore from the Fuel Pier are three Oil Spill Separator Tanks which process waste pumped in from the Ships Waste Offload Barges (SWMU...22). The Oil Spill Separator Tanks are large steel boxes," that are underlain by a concrete pad with an 8-inch curb (A.T. Kearney, Inc. 1988). Each box has a pipe that extends out laterally from the bottom.

After the water settles to the bottom of the tank, a valve on the pipe is opened, and the contents are allowed to spill out until all the water has been removed. The separated oil is then transferred to the Oil Spill Oil/Water Separator (SWMU...24). This added process of separation is necessary because the majority of liquid pumped up by Donuts (SWMU...21) and SWOBs (SWMU...22) consists of sea water. Each Oil Spill Separator Tank is constructed of steel and, [according to facility representatives], has a 2,000 gallon capacity (A.T. Kearney, Inc. 1988).

The VSI team noted black staining on the concrete pad, curbing and areas of asphalt around the SWMUs. The VSI team "suggested that soil samples be taken from the area of visible drainage path in order to determine the existence of release" (A.T. Kearney, Inc. 1988). They also suggested that the concrete pad and curbing be replaced with one that is sufficient to contain the entire contents of the tanks.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy performed a site visit in 1992. They did not observe a release to adjacent soils. They also noted that the tanks were enclosed within a berm which was in turn enclosed by another berm that measured approximately 50 feet by 50 feet. The Navy also states, that the stained asphalt that was mentioned in the 1988 RFA report was removed and disposed of during the construction of the second berm. Furthermore, they maintain that "these tanks contain POLs and some process water only...[and that] there is no reason to believe hazardous substances have come into contact with the POLs stored within these tanks" (P.A. Rakowski, letter to Barry Tornick, June 1992). The Navy recommended no further action at this site for the following reasons: there is lack of evidence of a release to soils, and this area is now covered by concrete and does not contain hazardous materials or substances.

### ***2.23.2 SWMU Assessment and Recommendations***

- TRC will inspect this site to determine if there has been a release to soils.
- TRC will also inspect the site for any additional spills that may have occurred since the 1988 RFA and to obtain measurements of the containments (berms) in order to determine if they can contain the volume of the tanks.

### ***2.23.3 Site Visit Findings and Recommendations***

The pad that holds the three oil/water separator tanks is heavily stained. Some staining was noted outside of the bermed area (see Appendices A, C and D). The SWMU was observed to be as described in the background. No sampling has been done or is planned for this SWMU. Also observed during the inspection were eight batteries, two corrosives cabinets, and one flammables cabinet. These were located west-northwest of the northwest corner of the pad. These were in good condition, and there was no evidence of a release. Because of the heavy staining, TRC recommends confirmatory sampling. Sampling should include soil samples (surface), and wipe and chip samples of the pad and the surrounding asphalt. Samples should be analyzed for full TCL/TAL parameters. TRC also recommends that the batteries and storage cabinets be moved to a padded area.

It should be noted that an EPA SPCC inspection was conducted by another EPA team the day after TRC's inspection. The Navy was issued a notice of violation for this area by the SPCC inspection team.

## 2.24 SWMU 24, Oil Spill Oil/Water Separator

### 2.24.1 Background

According to the 1988 RFA report, "the Oil Spill Oil/Water Separator is a below ground structure built of concrete with steel grating covering the top at ground level" (A.T. Kearney, Inc. 1988). Facility representatives reported to the VSI team that the oil/water separator has a capacity of 1,500 gallons. "This unit receives discharge from [the] Oil Spill Separator Tanks (SWMU...23). After separation, the waste oil is removed by DRMO. The final disposal of wastewater was not determined [by the VSI team]" (A.T. Kearney, Inc. 1988). The VSI team also did not determine if an overflow control device existed at this SWMU. They did not observe any sign of a release at the time of the VSI. The VSI team suggested that the SWMU's integrity be tested and that "the existence and integrity of an overflow control device be verified" (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick states that the Navy recommends no further action at this SWMU for the following reasons:

[This] separator processes wastewater in contact with JP-4, JP-5, and/or hydraulic oils and lubricants which are categorized as Petroleum, Oils, and Lubricants.... These are excluded as hazardous substances under CERCLA's POL exclusion clause and are non-hazardous materials. In addition, there is no reason to believe these POLs would come in contact with any RCRA hazardous materials. Furthermore, like any other tank designed and built by the Navy to process wastewaters, the Navy used the working stress method for structural design (comparable to American Concrete Institute Code Section 305) whereby the likelihood of structural cracks are minimized. Considering that there are no hazardous materials, substances or constitutes other than POL type of compounds and that the unit's physical design minimizes cracks and releases, the Navy recommends no further action under RCRA Corrective Action (P.A. Rakowski, letter to Barry Tornick, June 1992).

### 2.24.2 SWMU Assessment and Recommendations

- TRC will inspect this SWMU for any signs of visible cracks. Because the oil/water separator is below grade, a visual inspection may require the tank contents to be drained.
- TRC will also attempt to verify the existence and integrity of an overflow valve.

### **2.24.3 Site Visit Findings and Recommendations**

During the site visit, the integrity of the oil/water separator appeared to be in good condition. No cracks were observed on the tank walls, and there was no staining along the walls that would indicate a release. However, some minor stains were noted around the separator at the water level (see Appendices A, C and D). For this reason, TRC recommends the collection of four wipe and chip samples of the asphalt around the oil/water separator. The existence of an overflow was not able to be determined during the site visit.

It should also be noted that a bermed pad containing trailer tankers was located within 50 feet of the oil/water separator. This pad is heavily stained and should be investigated. This investigation could be included under the confirmatory sampling needed at SWMU 23. TRC recommends the collection of four wipe and chip samples around the pad to determine if there has been a release of hazardous constituents. Samples should be analyzed for full TCL/TAL parameters.

## **2.25 SWMU 25, Past DRMO Hazardous Waste Storage**

### **2.25.1 Background**

"This unit is an area measuring approximately 40 feet x 100 feet and is located immediately adjacent to the Ignitable Storage Facility (SWMU...18)" (A.T. Kearney, Inc. 1988). In 1988, a facility representative stated to the VSI team that "this unit was used for hazardous waste storage prior to the use of the Ignitable Storage Facility (SWMU...18) and DRMO Hazardous Waste Storage Facility (SWMU...17)" (A.T. Kearney, Inc. 1988). Facility representatives also told the VSI team that "[closure] plans are being written for this unit" (A.T. Kearney, Inc. 1988). Furthermore, a facility representative told the VSI team that this SWMU was being used to store hazardous materials at the time of the inspection. Evidence of past release was observed during the VSI. "Several oily stains, the largest measuring approximately 20 feet in diameter [were observed]" (A.T. Kearney, Inc. 1988). As a result, the VSI team suggested that "soil sampling [be done] in areas of stained soil [in order] to determine if there had been a release of hazardous constituents to the environment" (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy plans to perform confirmatory sampling in the third quarter of fiscal year 1993 at this SWMU.

### **2.25.2 SWMU Assessment and Recommendations**

- TRC recommends that the Work Plan for confirmatory sampling to be reviewed for its adequacy and appropriateness for determining if there has been a release of hazardous constituents to the environment.

- Confirmatory sampling that is scheduled to be performed should include the collection of surface soil samples and subsurface soil samples. If subsurface soil samples have been impacted, then ground water monitoring wells need to be installed to determine if ground water in the vicinity of the site has been impacted.

### **2.25.3 Site Visit Findings and Recommendations**

The 1988 VSI team observed stained areas during their visit. No staining was observed during TRC's site visit (see Appendices A, C and D). This area is now utilized for storage of product to be used, except for two or three unlabelled 55-gallon drums that have been sampled. The results of the sampling were pending at the time of TRC's site visit. TRC recommends that once the results for the drums are received, the drums be disposed of properly. TRC recommends that the drums be kept in SWMU 17 or 18 until the final removal. Confirmatory sampling should be done due to the staining noted by the 1988 VSI team. Confirmatory sampling should include the collection of ten surface soil samples and ten shallow soil samples (0'-2') in the area of the shelves and storage cabinets, and one sediment sample from the storm water drain on site. Samples should be analyzed for full TCL/TAL parameters.

## **2.26 SWMU 26, Abandoned Engine Oil Drums**

### **2.26.1 Background**

This SWMU is comprised of approximately 25 "30-gallon drums, some of which had polyethylene liners" (A.T. Kearney, Inc. 1988). The 1988 RFA report indicates that these drums were "located behind Building 544 and were surrounded by thick brush" (A.T. Kearney, Inc. 1988). The VSI team noted that "some of the drums contained engine lubricating oil, and that one of the labels had the number 9150-231-6654 stamped on it" (A.T. Kearney, Inc. 1988). The VSI team could not identify the contents in all of the drums because not all of the drums were labeled. The VSI team also observed a "tar-like substance...leaking onto the ground" (A.T. Kearney, Inc. 1988). The VSI team "suggested that the contents of all of the drums be determined...[and that] the drums...be disposed of in a manner that is appropriate [for] the physical and chemical characteristics of their contents" (A.T. Kearney, Inc. 1988). They also suggested that soil sampling be performed in the area of the drums to determine if a release of hazardous constituents has occurred.

In 1992, the Navy conducted a site inspection of this SWMU. The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the site had changed since the 1988 RFA VSI. Since the 1988 VSI, Building 544 had been demolished (in approximately 1990). "Only the concrete foundation of Building 544 remains" (P.A. Rakowski, letter to Barry Tornick, June 1992). The Navy indicates that the 55-gallon drums had been removed and that they did not observe any evidence of stained soil. Furthermore, the Navy contends that the area behind this building is very large and is overgrown with thick vegetation. For these reasons, the Navy feels that it would be impossible to determine where to sample. In addition, the Navy contends that the "drums contained POL type substances

and are not hazardous materials or hazardous substances" (P.A. Rakowski, letter to Barry Tornick, June 1992). For these reasons, the Navy has recommended no further action under RCRA Corrective Action for this site.

### ***2.26.2 SWMU Assessment and Recommendations***

- TRC will inspect this SWMU during its site visit in order to determine if there is any soil staining.
- TRC also recommends that soil sampling be performed either by determining the former location of the drums through interviews or aerial surveys, or sampling of the entire area. This is the only way to confirm that no release of hazardous substances has occurred.
- TRC recommends that samples be analyzed for full TCL and TAL analyses and TPH.

### ***2.26.3 Site Visit Findings and Recommendations***

No sampling has been done or is planned to be done at this SWMU. The 1988 VSI team noted that a tar-like substance was leaking onto the ground from drums that were located behind Building 544. During TRC's site visit, no drums were found. There was no staining, stressed vegetation, or any other sign of a release observed (see Appendices A, C and D). To determine if hazardous substances have been released to the environment, TRC recommends that the former location of the drums be determined (through aerial surveys or interviews) and that samples in that location be collected. If the former location of the drums cannot be determined, then sampling that covers the site needs to be performed to determine if a release to the environment has occurred. Samples should be analyzed for full TCL/TAL parameters.

## **2.27 SWMU 27, Capehart Area, Wastewater Plant**

### ***2.27.1 Background***

According to the 1984 NACIP report,

The [1984] NACIP study...reports the following concerning this domestic sewage treatment plant. This SWMU services the Capehart housing area and has a total capacity of 0.46 million gallons per day. This treatment plant is divided into two parallel units and both are similar extended aeration plants. Digested sludge is dewatered in two drying beds and hauled periodically to the Station Landfill (SWMU...3). Chlorinated effluent is discharged to the adjacent coastal waters through a submarine outfall. Sludge generation is estimated at 70 tons per year (10%

moisture).... This unit and the other two Naval Station Wastewater Treatment Plants (SWMUs...28 and...29) were issued a NPDES Permit in March 1986.

[In 1988], the VSI team was unable to gain access to this unit because the gate was locked and there was no operator onsite. Information regarding the processes of this unit [had] been requested [by the VSI team] from facility representatives, but had not been received before completion of [their] report. [Documents reviewed by the VSI team showed that data] obtained from chemical characterization of effluent discharged by this unit revealed that this unit is in violation of the Puerto Rico Environmental Quality Board Water Quality Standards Regulations.... Specific violations were not cited in "Scope of Work; Study for Elimination of NPDES Violations at the U.S. Naval Station, Roosevelt Roads." ...[The VSI team suggested that this] unit be tested for structural integrity of its component parts. ...[They also] suggested that soil or surface water samples be collected near the outfall of [this unit] to determine the potential for the release of hazardous constituents (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick states the following:

This site is a conventional wastewater treatment plant servicing the Capehart area sewage collection system operated under NPDES Permit No. PR0020010. Since April 1990, this plant has been operating under a Federal Facility Compliance Agreement (FFCA) for NPDES violations. Actions on the FFCA has been coordinated with Mr. John Kashwana in the Office of Water Enforcement of EPA Region II. Prior to the issuance of the FFCA, EPA required the Navy to conduct a study to determine the cause of violations and determine if such violations were the result of industrial discharges to the sanitary system. Specific industrial sources were identified, and the industrial wastewater for such sources will be pretreated by equipment currently under construction (FY92 MCON Project P-495). Industrial sources are primarily in the Forrestal collection area (SWMU Site 29). These specific industrial sources introduce only oil or fuel into the system. Under the FFCA, the Navy is required to upgrade this plant to meet the current NPDES limit and future Water Quality Standards (WQS) for nutrient removal and toxicity. Plant upgrades are to be completed in August 1994. In order to ensure compliance with the upcoming NPDES permit to be issued, the Navy conducted a piece by piece inspection of the plant. In February 1992, the facility was inspected for detail repairs of tankage and equipment, pipe valves,

pumps, etc. Although structural integrity was not the specific focus of the inspection, no problems of this nature were detected in February 1992. Based upon the numerous times the units have been taken out of service for sludge removal and equipment repair, the Navy has no reason to suspect leaks due to structural integrity. It might also be noted that concrete tankage in the Navy is designed by the working stress method which is a design which minimizes the likelihood of cracks (comparable to American Concrete Institute Code Section 350).

The Navy made an application for upgrading the plant to tertiary treatment in October 1990 as is required under the FFCA for NPDES permit modifications. The wastewaters were, at that time, characterized to the satisfaction of EPA Region II. Also, full characterization of the wastewater was done in the Hayes, Saay, Mattern and Mattern Study, August 1988, for NPDES violations (currently held by Mr. Phil Sweeney, Permit Writer's Branch of EPA Region II). At that time, no hazardous contingents were detected. In order to comply with the new TCLP ruling, the sludge was tested in January 1992 for the presence of hazardous waste using TCLP. Plant residuals currently pass TCLP criteria for hazardous waste. Current activity policy is that no hazardous waste may be introduced into the system. Based on the above reasons and the fact that this site is covered by the NPDES program administered by EPA Region II, it is the Navy's contention that the sewage treatment plant (STP) need not be sampled nor tested for structural integrity under RCRA Corrective Action (P.A. Rakowski, letter to Barry Tornick, June 1992).

### ***2.27.2 SWMU Assessment and Recommendations***

- Although current policy prevents hazardous wastes from being introduced into the wastewater system and recent sludge testing indicates a lack of hazardous waste, previous constituents present in the wastewater are unknown. Therefore, it is recommended that two sediment samples be collected from each of the sewer outfalls and subjected to a full TCL and TAL analysis.
- According to the RFA, digested sludge is dewatered in two drying beds at this plant. No information as to whether or not these beds are lined was given. If unlined, sludge characteristics (prior to their 1992 TCLP characterization) should be determined (from historical data) to see if sampling of the drying beds is warranted.

### **2.27.3 Site Visit Findings and Recommendations**

At the request of EPA, this SWMU was not inspected during TRC's site visit. As a result, no further recommendations have been made.

## **2.28 SWMU 28, Bundy Area Wastewater Plant**

### **2.28.1 Background**

"The operator of this unit stated [to the VSI team] that the Bundy Area Wastewater Plant has a capacity of 200,000 gallons per day" (A.T. Kearney, Inc. 1988). The 1984 NACIP report, however, states its capacity at 0.655 million gallons per day (mgd).

Flow varies greatly because this unit services a military training area nearby which is used sporadically. Influent flows through a system involving a communitor, primary clarifiers, a contact basin, trickling filters, secondary clarifiers, a chlorine contact basin, and final discharge through one of the Naval Station Outfalls (AOC D). Four drying beds with sand filters are used to dry digested sludge which is disposed of in the Station Landfill (SWMU...3). According to the NACIP report, approximately 6.5 tons of sludge (90% solids) are produced yearly from this unit (A.T. Kearney, Inc. 1988).

The NACIP report states that occasionally the dewatered sludge is disposed of at the site (SWMU 28), but most goes to the sanitary landfill (SWMU 3). "Detailed information (including flow charts) was requested from facility officials at the time of VSI... A NPDES Permit for the SWMU and the two other Naval Station Wastewater Treatment Plants (SWMUs...27 and...29) was issued in March 1986" (A.T. Kearney, Inc. 1988).

[Documents reviewed by the VSI team showed that data] obtained from chemical characterization of effluent discharged by this unit revealed that the unit was in violation of the Puerto Rico Environmental Quality Board Water Quality Standards Regulations.... Specific violations were not cited in "Scope of Work; Study for Elimination of NPDES Violations at the U.S. Naval Station, Roosevelt Roads." [The VSI team suggested that this unit] be tested for structural integrity of its component parts. [They also] suggested that soil or surface water samples be collected near the outfall of [this unit] to determine the potential for the release of hazardous constituents (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick stated that the Bundy Area Wastewater Plant is a conventional wastewater treatment plant servicing the Bundy area sewage collection system.

Since April 1990 this plant has been operating under a Federal Facility Compliance Agreement (FFCA) for NPDES violations. Actions on the FFCA has been coordinated with Mr. John Kashwana in the Office of Water Enforcement of EPA Region II. Prior to the issuance of the FFCA, EPA required the Navy to conduct a study to determine the cause of violations and determine if such violations were the result of industrial discharges to the sanitary system. Specific industrial sources were identified, and the industrial waste water for such sources will be pretreated by equipment currently under construction (FY92 MCON Project P-495). Industrial sources are primarily in the Forrestal collection area (SWMU Site 29). These specific industrial sources introduce only oil or fuel into the system. Under the FFCA, the Navy is required to upgrade this plant to meet the current NPDES limit and future Water Quality Standards (WQS) for nutrient removal and toxicity. Plant upgrades are to be completed in August 1994. In order to ensure compliance with the upcoming NPDES permit to be issued, the Navy conducted a piece by piece inspection of the plant. In February 1992, the facility was inspected for detail repairs of tankage and equipment, pipe valves, pumps, etc. Although structural integrity was not the specific focus of the inspection, no problems of this nature were detected in February 1992. Based upon the numerous times the SWMUs have been taken out of service for sludge removal and equipment repair, the Navy has no reason to suspect leaks due to structural integrity. It might also be noted that concrete tankage in the Navy is designed by the working stress method which is a design which minimizes the likelihood of cracks (comparable to American Concrete Institute Code Section 350).

The Navy made an application for upgrading the plant to tertiary treatment in October 1990 as is required under the FFCA for NPDES permit modifications. The wastewaters were, at that time, characterized to the satisfaction of EPA Region II. Also, full characterization of the wastewater was done in the Hayes, Saay, Mattern and Mattern Study, August 1988, for NPDES violations (currently held by Mr. Phil Sweeney, Permit Writer's Branch of EPA Region II). At that time, no hazardous contingents were detected. In order to comply with the new TCLP ruling, the sludge was tested in January 1992 for the presence of hazardous waste using TCLP. Plant residuals currently pass TCLP criteria for hazardous waste. Current activity policy is that no hazardous waste may be introduced into the system. Based on the above reasons and the fact that this site is covered by the NPDES program administered by EPA Region II, it is the Navy's contention that the

sewage treatment plant (STP) need not be sampled nor tested for structural integrity under RCRA Corrective Action (P.A. Rakowski, letter to Barry Tornick, June 1992).

### **2.28.2 SWMU Assessment and Recommendations**

- To date, no investigation of the sludge that had been disposed of at this site has been done. The area of disposal should be located using ground penetrating radar and sampled accordingly via surface soil sampling, subsurface soil sampling, and ground water sampling.
- Although current policy prevents hazardous wastes from being introduced into the wastewater system and recent sludge testing indicates a lack of hazardous waste, previous constituents present in the wastewater are unknown. Therefore, it is recommended that two sediment samples be collected from each of the sewer outfalls and subjected to a full TCL and TAL analysis.
- According to the RFA, digested sludge is dewatered in two drying beds at this plant. No information as to whether or not these beds are lined was given. If unlined, sludge characteristics (prior to their 1992 TCLP characterization) should be determined (from historical data) to see if sampling of the drying beds is warranted.

### **2.28.3 Site Visit Findings and Recommendations**

At the request of EPA, this SWMU was not inspected during TRC's site visit. As a result, no further recommendations have been made.

## **2.29 SWMU 29, Industrial Area Wastewater Plant (Building 1758)**

### **2.29.1 Background**

The 1984 NACIP report indicates that

this plant (Building 1758) has a capacity of 0.937 mgd using the trickling filter system with aerobic digestion. It serves the southeastern section of the base, including the Public Works Complex, and has received all ship-generated sewage since 1980. Little, if any, wastewater other than domestic sewage is processed here.... Sludge dewatering is accomplished in the sludge drying beds, and is delivered to the adjacent landfill [(SWMU 3)] at a rate of 60 tons per year (dry sludge).... Chlorinated secondary treated sewage meeting local water quality standards is discharged to the adjacent coastal waters through a 14-inch submarine outfall line (NEESA 1984).

The 1988 VSI team indicates that the facility actually processes approximately 0.7 mgd and that this SWMU was issued a NPDES permit in March 1986. During their inspection, the VSI team observed that effluent was stored in "a plastic-lined aeration lagoon prior to processing" (A.T. Kearney, Inc. 1988). This SWMU has been in operation since 1970, and documents reviewed by the VSI team showed that data "obtained from chemical characterization of effluent discharged by this SWMU revealed that this SWMU was in violation of the Puerto Rico Environmental Quality Board Water Quality Standards Regulations.... Specific violations were not cited in 'Scope of Work; Study for Elimination of NPDES Violations at the U.S. Naval Station, Roosevelt Roads'" (A.T. Kearney, Inc. 1988). The VSI team "suggested that this unit be tested for structural integrity of its component parts. [They also] suggested that soil or surface water samples be collected near the outfall of [this SWMU] to determine the potential for the release of hazardous constituents" (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick stated that the Forrestal Wastewater Plant is a conventional wastewater treatment plant servicing the waterfront "Industrial" area sewage collection system. Prior to 1990, this SWMU was referred to as the "Industrial Area Wastewater Plant."

Since April 1990, this plant has been operating under a Federal Facility Compliance Agreement (FFCA) for NPDES violations. Actions on the FFCA has been coordinated with Mr. John Kashwana in the Office of Water Enforcement of EPA Region II. Prior to the issuance of the FFCA, EPA required the Navy to conduct a study to determine the cause of violations and determine if such violations were the result of industrial discharges to the sanitary system. Specific industrial sources were identified, and the industrial wastewater for such sources will be pretreated by equipment currently under construction (FY92 MCON Project P-495). Industrial sources are primarily in the Forrestal collection area (SWMU Site 29). These specific industrial sources introduce only oil or fuel into the system. Under the FFCA, the Navy is required to upgrade this plant to meet the current NPDES limit and future Water quality Standards (WQS) for nutrient removal and toxicity. Plant upgrades are to be completed in August 1994. In order to ensure compliance with the upcoming NPDES permit to be issued, the Navy conducted a piece by piece inspection of this plant. In February 1992, the facility was inspected for detail repairs of tankage and equipment, pipe valves, pumps, etc. Although structural integrity was not the specific focus of the inspection, no problems of this nature were detected in February 1992. Based upon the numerous times the units have been taken out of service for sludge removal and equipment repair, the Navy has no reason to suspect leaks due to structural integrity. It might also be noted that concrete tankage in the Navy is designed by the

working stress method which is a design which minimizes the likelihood of cracks (comparable to American Concrete Institute Code Section 350).

The Navy made an application for upgrading the plant to tertiary treatment in October 1990 as is required under the FFCA for NPDES permit modifications. The wastewaters were, at that time, characterized to the satisfaction of EPA Region II. Also, full characterization of the wastewater was done in the Hayes, Saay, Mattern and Mattern Study, August 1988, for NPDES violations (currently held by Mr. Phil Sweeney, Permit Writer's Branch of EPA Region II). At that time, no hazardous contingents were detected. In order to comply with the new TCLP ruling, the sludge was tested in January 1992 for the presence of hazardous waste using TCLP. Plant residuals currently pass TCLP criteria for hazardous waste. Current activity policy is that no hazardous waste may be introduced into the system. Based on the above reasons and the fact that this site is covered by the NPDES program administered by EPA Region II, it is the Navy's contention that the sewage treatment plant (STP) need not be sampled nor tested for structural integrity under RCRA Corrective Action (P.A. Rakowski, letter to Barry Tornick, June 1992).

### ***2.29.2 SWMU Assessment and Recommendations***

- Although current policy prevents hazardous wastes from being introduced into the wastewater system and recent sludge testing indicates a lack of hazardous waste, previous constituents present in the wastewater are unknown. Therefore, it is recommended that two sediment samples be collected from each of the sewer outfalls and subjected to a full TCL and TAL analysis.
- According to the RFA, digested sludge is dewatered in two drying beds at this plant. No information as to whether or not these beds are lined was given. If unlined, sludge characteristics (prior to their 1992 TCLP characterization) should be determined (from historical data) to see if sampling of the drying beds is warranted.

### ***2.29.3 Site Visit Findings and Recommendations***

TRC observed a large (approximately 50,000-gallon) tank on site. This tank contained an anaerobic digester. TRC also noted several drying beds. The plant was under construction at the time of the site visit. No signs of stressed vegetation or other evidences of a release were observed (see Appendices A, C and D). As a result, TRC recommends no further action beyond the recommendations noted in Section 2.29.2 of this report.

## **2.30 SWMU 30, Former Incinerator Site**

### **2.30.1 Background**

"Installed in 1973 and dismantled in 1983, this unit was used to burn classified material, contaminated diesel oil, JP-5 fuel (usually mixed with some lube oil), solvents, and sludge residue" (A.T. Kearney, Inc. 1988). The 1984 NACIP study estimated that 600 gallons of oil per week were processed at this SWMU.

In 1988, a facility representative reported to the VSI team that in 1984, "the present unit was installed in the same location as the dismantled incinerator and has never been activated. The new unit is surrounded by a cyclone fence that was unlocked at the time of the VSI. Dense vegetation made the [VSI team's] approach difficult. There was no indication through visual observation [by the VSI team] that the new SWMU had ever been active" (A.T. Kearney, Inc. 1988). The VSI team suggested no further action for this SWMU.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy agrees with the suggestion made by the VSI team of no further action.

### **2.30.2 SWMU Assessment and Recommendations**

TRC recommends no further action at this SWMU.

### **2.30.3 Site Visit Findings and Recommendations**

No sampling has been or is planned to be done at this SWMU. During TRC's site visit, TRC noted that the incinerator itself was in good condition. Heavy vegetation surrounded the incinerator on all sides. There was no staining, no stressed vegetation and no other signs of a release. For these reasons, this SWMU is recommended for no further action. However, associated with this incinerator is a 500-gallon underground storage tank that was used to store fuel for the incinerator. At the time of TRC's site visit, this tank had been excavated. The tank was still on site awaiting disposal and appeared to be in good condition. The excavation for the tank was still open and did not contain any odors or visible staining (see Appendices A, C and D). TRC believes that it would be beneficial to the Navy to sample the soils of the excavation to confirm that there has been no release from this tank. This would provide the Navy with proof that there was no release when future investigations are performed.

## 2.31 SWMU 31, Waste Oil Collection Area (PWD Storage Yard)

### 2.31.1 Background

According to the 1988 RFA,

[the] Transportation Shop services Public Works Department vehicles inside Building 31 and in the yard just north of the building. Approximately 30 yards from the Transportation Shop warehouse is a concrete pad used for the temporary storage of 55-gallon waste oil drums, although none were present at the time of the VSI. A 6-inch concrete curb surrounds the pad which measures approximately 13 feet by 20 feet. A steel drainage pipe with a broken valve is set into the curbing, and at the time of the [1988] VSI, was in the open position.... The yard surrounding this unit is asphalt.... No leakage was evident at the time of the VSI; however, with the drain pipe valve broken in the open position any spills on the concrete pad would flow directly onto the Public Works Department yard (A.T. Kearney 1988).

The VSI team suggested that the drain valve be repaired. Other than that, they suggested no further action.

The 1984 IAS report does not specifically discuss SWMU 31 but discusses Building 31. According to the IAS report, the area around Building 31 was used for open storage of drummed material. The IAS report noted the following:

Near Building 31 evidence of a similar type of storage operation was found. Approximately 50 drums were found within the vegetation bordering the north side of Building 31 transportation lot. Most of the drums are full to partially full of unknown contents. The Public Works Department attempted to remove some of these drums; however, the condition of the drums resulted in massive leakage. The spill contaminated a flatbed truck before running onto the ground, staining an approximately 10-foot-diameter circle of soil. An extremely strong creosote or solvent odor was present. These drums and the spill can be easily accessed by base personnel. The spilled material was identified by the Navy as asphalt, and will be sent to DPDO for sale or reuse. Three drums were not identified and are being held (NEESA 1984).

In 1988, ESE performed two rounds of verification sampling for IR Site 10 (SWMUs 31 and 32, and AOC B). Only ground water samples were collected from eight wells. The results of the analyses indicated that presence of low levels of organic compounds and the presence of some metals at levels that exceeded primary drinking water standards and

ambient water quality criteria. ESE recommended that no additional ground water samples be collected. (See Table 2.31.1 below for results that exceeded Subpart S Action Levels.)

This SWMU is located immediately east of building 2022. IR Site 10 does not address this SWMU specifically. However, the samples collected from IR Site 10 are listed below, but it should be noted that these samples do not adequately characterize SWMU 31.

**Table 2.31.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 31**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	No samples 30 planned	N/A
Surface Water	No samples	N/A
Sediment	No samples	N/A
Ground Water	Round 1: 8 Round 2: 8	Round 1: Sample 10GW1 had one semi-volatile (bis(2-ethylhexyl)phthalate) exceeding Subpart S Action Levels. All Round 1 ground water samples had metals exceeding Subpart S Action Levels. Round 2: All Round 2 ground water samples except 10GW02 had metals exceeding Subpart S Action Levels.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that an RI/FS effort was begun for this site in November 1992, and that a Work Plan for this work was submitted in July 1992. This letter also indicates that this SWMU is part of IR Site 10 which is made up of SWMUs 31 and 32 and AOC B.

Baker's 1992 Work Plan and the 1992 Technical Review Committee Meeting Minutes indicate that 30 surface soil samples will be collected to support a baseline risk assessment.

### **2.31.2 SWMU Assessment and Recommendations**

- Baker's Work Plan indicates that ground water is a potential environmental concern. Their Work Plan must provide an explanation as to why no ground

water samples are to be collected, or it should be modified to include collection of such sampling.

- TRC will inspect the drain valve at this SWMU in order to determine if it has been repaired. TRC will also inspect for any releases that may have occurred since the 1988 VSI team inspection.
- Ground water samples previously analyzed show very high concentrations of copper, silver, selenium, cadmium, and zinc (to aquatic biota). The direction of ground water flow and discharge locations to surface waters needs to be identified. It is also recommended that surface waters and sediments at these ground water discharge locations be sampled and analyzed for metal concentrations.

### ***2.31.3 Site Visit Findings and Recommendations***

Confirmatory sampling needs to be performed at this SWMU. During TRC's site visit, heavy staining was noted around the pad (see Appendices A, B, C and D). TRC also noted that the broken valve referenced to in the 1988 RFA report had been removed. No new valve was installed. Instead, the concrete berm was replaced where the valve was removed. Due to the heavy staining, TRC recommends the collection of 6 soil, 6 wipe and 6 chip samples. One sample should be located on the northeast and southwest ends of the pad, and two samples should be located on the southeast and northwest sides of the pad. Samples should be analyzed for full TCL/TAL parameters. This sampling will confirm whether or not there has been a release of hazardous constituents to the environment.

The previous recommendations found in Section 2.31.2 were based on analyses from IR Site 10. IR Site 10, however, does not address this SWMU adequately. For this reason, the recommendations from the site visit supersede those in Section 2.31.2.

## **2.32 SWMU 32, Battery Collection Area (PWD Storage Yard)**

### ***2.32.1 Background***

This SWMU consists of a number of batteries that were stored on the bed of a truck and on a pallet on the ground. This SWMU is located approximately 100 yards northeast of the transportation shop warehouse. The 1988 VSI team noted that several dozen batteries were in various stages of decay, but that none of the batteries were corroded to the point of leakage. Most, according to the VSI team, appeared to contain electrolyte. The VSI team also noted that they did not observe any evidence of release. They suggested that the facility dispose of or recycle the batteries. They also suggested that there be a designated battery storage area that would ensure that releases to environmental pathways do not occur.

The 1984 IAS report does not address SWMU 32 specifically, but instead discusses general site conditions around Buildings 25 and 31. The 1984 report notes the following:

Building 25 was used from 1951 until the structure collapsed in 1979 by the Public Works-Supply Department for temporary storage of materials to be turned over to [(Defense Property Disposal Office)]DPDO.... According to aerial photographs, the entire area around the building was used for open storage of drummed material from at least 1957.

The entire area in and around the collapsed building is overgrown with vegetation, although historical aerial photographs show the area to be relatively free of vegetation other than ground cover through 1977. Materials found in and around Building 25 [included] 20 to 25 apparently empty to partially filled 55-gallon drums; ten to fifteen five-gallon pails; office furniture; mechanical devices; construction rubble; industrial gas cylinders; asbestos sheeting; fiberglass buoys; and transformers.

Of particular interest were the five-gallon pails, the drums, and a large transformer found at the collapsed building. The five-gallon pails had become corroded, exposing a substance similar to that found at the Langley Drive site.... The compound has a green-colored crust about ½-inch thick, encasing a white material with the consistency of semi-dry plaster. A large transformer is lying on its side at the east corner of the building. No evidence of oil leakage was apparent.

Material was also found along the various access roads and consisted of drums, office furniture, asbestos, rubber, and a pole-mounted transformer from which oil has leaked. Some of these areas exhibited stressed vegetation. There are several other areas of disposed material (about five acres) between the access routes. A 1957 photograph was taken by a tenant. Activity shows that the area around Building 145 was used as a general storage area for several hundred drums. During the IAS team's overflight, CONEX containers were also found in a clearing at this area.

Near Building 31 evidence of a similar type of storage operation was found. Approximately 50 drums were found within the vegetation bordering the north side of the Building 31 transportation lot. Most of the drums are full to partially full of unknown contents. The Public Works Department attempted to remove some of these drums; however, the condition of the drums resulted in massive leakage. The spill contaminated a flatbed truck

before running onto the ground, staining an approximately 10-foot-diameter circle of soil. An extremely strong creosote or solvent odor was present. These drums and the spill can be easily accessed by base personnel. The spilled material was identified by the Navy as asphalt, and will be sent to DPDO for sale or reuse. Three drums were not identified and are being held (NEESA 1984).

In 1988, ESE performed two rounds of verification sampling for IR Site 10 (SWMUs 31 and 32, and AOC B). Only ground water samples were collected from eight wells. The results of the analyses indicated that presence of low levels of organic compounds and the presence of some metals at levels that exceeded primary drinking water standards and ambient water quality criteria. ESE Recommended that no additional ground water samples be collected. (See Table 2.32.1 below for results that exceed Subpart S Action Levels.)

Baker's 1992 Work Plan and the 1992 Technical Review Committee Meeting Minutes indicate that 30 surface soil samples will be collected to support a baseline risk assessment.

IR Site 10 is in the vicinity of SWMU 32 but does not address this SWMU specifically. The samples collected from IR Site 10 are listed below, but it should be noted that these samples do not adequately characterize SWMU 32.

**Table 2.32.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 32**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	No samples 30 planned	N/A
Surface Water	No samples	N/A
Sediment	No samples	N/A
Ground Water	Round 1: 8 Round 2: 8	Round 1: Sample 10GW1 had one semi-volatile (bis(2-ethylhexyl)phthalate) exceeding Subpart S Action Levels. All Round 1 ground water samples had metals exceeding Subpart S Action Levels. Round 2: All Round 2 ground water samples except 10GW02 had metals exceeding Subpart S Action Levels.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that an RI/FS effort was begun for this site in November 1991 and that a Work Plan for this work was submitted in July 1992. This letter also indicates that this SWMU is part of IR Site 10 which is made up of SWMUs 31 and 32 and AOC B.

### ***2.32.2 SWMU Assessment and Recommendations***

- Baker's Work Plan indicates that ground water is a potential environmental concern. Their Work Plan must provide an explanation as to why no ground water samples are to be collected or it should be modified to include collection of such sampling.
- TRC will inspect the area to ensure that the batteries have been removed, to observe if there have been any releases since the 1988 VSI and to observe if any designated area for battery storage has been constructed. If evidence of release is observed, then sampling of the stained area should be performed to characterize the nature and extent of the contamination. Analyses should include TCL and TAL parameters.
- Ground water samples previously analyzed show very high concentrations of copper, silver, selenium, cadmium, and zinc (to aquatic biota). The direction of ground water flow and discharge locations to surface waters need to be identified. It is also recommended that surface waters and sediments at these ground water discharge locations be sampled and analyzed for metal concentrations.

### ***2.32.3 Site Visit Findings and Recommendations***

This SWMU has been moved several hundred feet west to its present location approximately 100 to 150 feet northeast of the north corner of Building 31. This SWMU is comprised of three pallets of batteries and approximately 100 to 110, 55-gallon drums of JP-5 contaminated soil and sludge (see Appendices A, B, C and D). These materials were on pallets that were placed on soil. All containers were intact and not leaking. One small area (approximately 2' x 2') was stained with an oil-like substance. There is also a small paint storage shed at this location. This shed was a fenced concrete pad that was roofed with corrugated metal. There was no evidence of a release from this shed. Because the pallets were stored on soil and because there was some staining observed, TRC recommends that this area's soils be sampled for full TCL and TAL parameters to determine if a release of hazardous materials has occurred. There was no staining or evidence of a release in the former location of this SWMU.

## 2.33 SWMU 33, AIMD Hazardous Waste Storage Pad

### 2.33.1 Background

According to the 1988 RFA, "[this] unit is located outside, against the northern wall of Building 379. It was described [to the VSI team] by facility representatives as a temporary hazardous waste storage area" (A.T. Kearney, Inc. 1988). This storage area is a curbed concrete pad with a manual overflow control valve. "The wastes stored at this SWMU are generated by Aircraft Intermediate Maintenance Department (AIMD) maintenance, and according to the NACIP report...include wastes generated from cleaning, painting, paint stripping, minor calibration, complete overhaul of avionic components, and battery cleaning and recharging operations" (A.T. Kearney, Inc. 1988). During their visit, the VSI team observed "beryllium waste, hydraulic fluid and solvents generated from aircraft maintenance" (A.T. Kearney, Inc. 1988). The VSI team also observed minor amounts of unidentified damp white powder in the grass several feet outside the storage pad. The VSI report suggested that the white powder be sampled, characterized and removed, and that future management practices prevent release from this SWMU.

In 1988, ESE performed two rounds of verification sampling and analysis.

One soil sample was collected as a background sample in Round 1. This sample was analyzed for oil and grease, lead, VOA, xylene, MEK, and EDB. Elevated levels of oil and grease (8.21 mg/kg) were detected in this soil sample.

A total of six sediment samples were collected for Site 8 (3 samples during each round).... Oil and grease levels ranged from 69-4740 mg/kg. [ESE attributed these concentrations to Building 200.]

A total of eight surface waters were collected from Site 8 during both Rounds. Three were collected in Round 1 and [five] during Round 2.... Significant levels of oil and grease (ranging from 5 to 102 ug/L) were found in Round 1 samples. Oil and grease [were] not detected in Round 2 samples. The levels of oil and grease detected [were attributed] to...Building 200. (Technical Review Committee Meeting Minutes, 1989) (See Table 2.33.1 for results that exceeded Subpart S Action Levels.)

In 1991, Versar produced a Site Summary for the Drone Washdown Area (Site No. 8). Versar reviewed the past history of the site and ESE's 1988 results. They concluded that no further investigations or remedial action was necessary.

It should be noted that IR Site 8 samples do not adequately address this SWMU, but because this SWMU falls within the area of IR Site 8, the results have been included.

**Table 2.33.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 4**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	1	None
Surface Water	Round 1: 3 Round 2: 5	None
Sediment	Round 1: 3 Round 2: 3	None
Ground Water	No samples	N/A

It should be noted the IR Site samples do not adequately address this SWMU.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy conducted a site visit in March 1992. They state that this SWMU is no longer used for storage of hazardous waste, and that the white powder observed in the grass several feet outside the storage pad was not found. They also indicate that no evidence of a release was observed, and that soils immediately adjacent to the pad were removed as part of a construction project. For the above reasons, the Navy recommended no further action at this SWMU.

**2.33.2 SWMU Assessment and Recommendations**

- TRC recommends that soil samples be taken for full TCL and TAL parameters in the vicinity of the storage pad to verify that there has not been a release to the environment.
- TRC will inspect this area during the site visit to observe if any additional spills had occurred since the 1992 Navy inspection.

**2.33.3 Site Visit Findings and Recommendations**

In 1988, the VSI team observed minor amounts of an unidentified, damp, white powder in the grass several feet outside the storage pad. This was not observed during TRC's site visit. During TRC's site visit, the pad was observed to be empty, and there was a small stained area of soil (approximately 2' x 2') in the middle of the north side of the pad (see Appendices A, C and D). Because this pad was never sampled and some staining was observed during TRC's site visit, TRC recommends the collection of eight soil samples (four surface and four at 0'-2') around the perimeter of the pad to determine if there has

been a release of hazardous constituents to the environment. Samples should be analyzed for full TCL and TAL parameters.

## **2.34 SWMU 34, VC-8 Waste Storage Pad**

### **2.34.1 Background**

The 1984 IAS report does not discuss this SWMU specifically. It does, however, note the general waste producing processes at this SWMU which include painting, paint stripping, degreasing, and solvent cleaning activities.

The 1988 RFA notes that

[this] unit is located outside, behind a trailer at the northeastern edge of the Fleet Composite Squadron Eight (VC-8) airfield. It was observed to be a concrete pad with one foot curbing. One-half of the pad is used for bousers and one-half for drum storage. Measuring 8 feet x 13 feet, the bouser pad supports a tank with approximately a 500 gallon capacity. Immediately adjacent is the 5 feet x 10 feet drum storage pad. Stored at this unit are waste aviation fuel and waste paint resulting from aircraft maintenance. The drums were grounded at the time of the VSI. During heavy rainfall, the manual overflow control valve is sometimes opened to prevent overflow. The discharge runs into an adjacent ditch (A.T. Kearney, Inc. 1988).

No release was observed during the VSI. The VSI team suggested that the Navy build a cover to keep rainwater from flooding the concrete pad. Other than that, the VSI team suggested no further action.

### **2.34.2 SWMU Assessment and Recommendations**

TRC will inspect this SWMU to observe if a cover has been constructed for this SWMU and to observe if any releases have occurred since the 1988 VSI.

### **2.34.3 Site Visit Findings and Recommendations**

The 1988 VSI team recommended that this SWMU be covered. During TRC's site visit, this SWMU was observed to be two times the size described in the 1988 RFA Report. It was apparent where the addition had been added because it was newer than the old pad. Both pads were covered with a corrugated metal roof, fenced and bermed. There was no staining inside the pad and there were no cracks in the concrete. The overflow valve was in good condition. No evidence of a release was observed. The bouser pad supporting the 500-gallon tank was also in good condition, with no stains or cracks observed (see

Appendices A, C and D). For these reasons, TRC recommends no further action at this SWMU.

## **2.35 SWMU 35, Aircraft Wash Rack Oil/Water Separator (VC-8 Yard)**

### **2.35.1 Background**

According to the 1988 RFA,

[this] unit is located approximately 50 feet from Building 396, and is designed to collect and separate oil and washwater from aircraft washdown. This below grade, concrete unit measures approximately 5 feet by 15 feet by 5 feet deep. According to a facility representative, after separation the water goes to the Industrial Area Wastewater Plant (SWMU 29) and the sludge goes to the Station Landfill (SWMU 3) (A.T. Kearney, Inc. 1988).

The 1988 VSI team observed a manual overflow control valve. No evidence of release was observed during the VSI. Based on their inspection, the VSI team suggested that this SWMU be integrity tested to determine the likelihood of release.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy suggests no further action at this SWMU for the following reasons:

This separator processes wastewater in contact with JP-4, JP-5, or hydraulic oils and lubricants which are categorized as POLs. These are excluded as hazardous substances under CERCLA and there is no reason to believe these POLs have come into contact with RCRA hazardous materials. Furthermore, like any other tankage designed and built by the Navy to process wastewaters, the Navy used the working stress method for structural design (comparable to American Concrete Institute Code Section 305) whereby the likelihood of structural cracks are minimized. Considering that there are no hazardous materials, substances or constituents other than POL type of compounds and that the unit's physical design minimizes cracks and releases, the Navy recommends no further action under RCRA Corrective Action (P.A Rakowski, letter to Barry Tornick, June 1992).

### **2.35.2 SWMU Assessment and Recommendations**

- TRC recommends that the SWMU be integrity tested because even though POLs are not hazardous materials themselves, they often contain hazardous constituents such as heavy metals and PCBs.

- TRC will inspect this SWMU for any cracks during the site inspection. Because the SWMU is below grade, a visual inspection may require that the oil/water separator tank contents be drained.

### **2.35.3 Site Visit Findings and Recommendations**

This SWMU was in good condition at the time of TRC's site visit. The concrete of the oil/water separator was not cracked. There were no odors or stressed vegetation. The pad where the aircraft are washed was not stained (see Appendices A, C and D). For these reasons, TRC recommends no further action at this SWMU.

## **2.36 SWMU 36, Vehicle Wash Rack Oil/Water Separator**

### **2.36.1 Background**

According to the 1988 RFA,

[this] unit is not surrounded by any immediate buildings, but is in the general vicinity of the Berthing Pier. As required by [(United States Department of Agriculture)] USDA regulations, the Department of Defense washed vehicles at the vehicle wash rack. The purpose of this activity is to remove soil borne contaminants (insects, microbes, etc.). In the process, some oily waste is washed into the Vehicle Wash Rack Oil/Water Separator. This is an underground concrete unit measuring approximately 8 feet x 18 feet by an undetermined depth. Steel grating covered two thirds of the surface opening at the time of the VSI. According to a facility representative, this separator has been operational [since 1983] (A.T. Kearney, Inc. 1988).

No evidence of release was observed during the VSI. The VSI team suggested that this SWMU be integrity tested to determine the likelihood of release.

The 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy recommends no further action at this SWMU for the following reasons:

The wash rack receives water contaminated with POL type of compounds, wax, detergents, dust, dirt, etc. from washing vehicles and there is no reason to believe this wastewater would come into contact with any hazardous materials nor are these compounds considered hazardous substances. Besides, this wash rack is undersized, so it will be replaced in early fiscal year 1992 as part of a program to upgrade all pretreatment units used to process wastewaters prior to being introduced into the conventional STP. Since this unit will be replaced and there are no hazardous

materials, compounds, or substances present, the Navy recommends no further action under RCRA corrective action (P.A. Rakowski, letter to Barry Tornick, June 1992).

### **2.36.2 SWMU Assessment and Recommendations**

- TRC will inspect the new oil/water separator for integrity during the site visit. Because the SWMU is below grade, a visual inspection may require the oil/water separator tank contents to be drained.
- TRC will also inspect to see if there have been any releases since the installation of the new SWMU.

### **2.36.3 Site Visit Findings and Recommendations**

During TRC's site visit, the concrete of the oil/water separator was stained along the walls, but no cracks were observed in the concrete. In addition, no stressed vegetation or any other evidence of a release was observed. For these reasons, TRC recommends no further action at this SWMU. The wash pad where the vehicles are cleaned had some cracks in it, but there was no staining of the concrete (see Appendices A, C and D). TRC recommends that the cracks in the concrete be repaired. Outside of this, no further action is recommended.

## **2.37 SWMU 37, Waste Oil Drum Storage Area**

### **2.37.1 Background**

According to the 1988 RFA,

[this] unit consists of nineteen 55-gallon drums resting on wooden pallets, situated on a [raised], covered concrete pad behind Hanger 200. The drums were observed [by the VSI team] to contain waste gasoline and lubricating oil from AIMB operations.

During the 1988 VSI, minor oil stains were observed on the concrete pad, and a minor area on the nearby grass was observed to have stressed vegetation (A.T. Kearney, Inc. 1988).

The VSI team suggested that the "area of stained soil and stressed vegetation be sampled to determine the existence of release of hazardous constituents to the environment" (A.T. Kearney, Inc. 1988). They also suggested that management practices (including the addition of curbing) be installed to prevent such releases.

In 1988, ESE performed two rounds of verification sampling and analysis.

One soil sample was collected as a background sample in Round 1. This sample was analyzed for oil and grease, lead, VOA, xylene, MEK, and EDB. Elevated levels of oil and grease (8.21 mg/kg) were detected in this soil sample.

A total of six sediment samples were collected for Site 8 (3 samples during each round).... Oil and grease levels ranged from 69-4740 mg/kg. [ESE attributed these concentrations to Building 200.]

A total of eight surface waters were collected from Site 8 during both Rounds. Three were collected in Round 1 and [five] during Round 2.... Significant levels of oil and grease (ranging from 5 to 102 ug/L) were found in Round 1 samples. Oil and grease [were] not detected in Round 2 samples. The levels of oil and grease detected [were attributed] to...Building 200. (Technical Review Committee Meeting Minutes, 1989) (See Table 2.37.1 for results that exceeded Subpart S Action Levels.)

Sampling has not been performed for SWMU 37 specifically, but has been done for IR Site 8 which is in the area of SWMU 37. Below are the samples collected for IR Site 8. It should be noted, however, that these samples do not adequately address SWMU 37.

**Table 2.37.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 37**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	1	None
Surface Water	Round 1: 3 Round 2: 5	One sample, 8SW01, had a benzene concentration of 1.1 ug/l. The Action Level is 1.0 ug/l.
Sediment	Round 1: 3 Round 2: 3	None
Ground Water	No samples	N/A

In 1991, Versar produced a Site Summary for the Drone Washdown Area (Site No. 8). Versar reviewed the past history of the site and ESE's 1988 results. They concluded that no further investigations or remedial action was necessary.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy recommends no further action at this SWMU for the following reasons:

Although this site is in the area of IR Site 8 (SWMU Sites 43 and 44), it was not identified as part of an IR site. Any prior spills or leaks from the area near Hanger 200 would be covered by the IR efforts at IR site 8. From 1986 through 1988, two rounds of confirmation sampling were conducted at IR site 8. The results from these sampling efforts revealed contamination is below action levels (see page 3-27 of Verification Step Round 1 and 2 of the Confirmation Study, ESE Inc., April 1988). The Navy recommends this area for no further action under CERCLA or RCRA Corrective Action. A Site Summary is currently being prepared that summarized the past SI efforts at IR site 8 and presents the Navy's reasons for recommending this site for no further action. The final draft Site Summary shall be forwarded by NAVSTA Roosevelt Roads under separate cover for EPA review and comment in July 1992. Furthermore, these drums contained waste oil, a type of POL, and therefore are not RCRA hazardous materials or hazardous substances under CERCLA (P.A. Rakowski, letter to Barry Tornick, June 1992).

### ***2.37.2 SWMU Assessment and Recommendations***

TRC will inspect this SWMU to observe if a curb has been installed and to see if any releases have occurred since the 1988 VSI inspection.

### ***2.37.3 Site Visit Findings and Recommendations***

The 1988 VSI team recommended that this pad be bermed. This pad was observed to be bermed during TRC's site visit. TRC also observed that there were four flammables cabinets and approximately twenty 55-gallon drums of cleaning compound, speed dry, paint waste, non-regulated waste and JP-5 fuel waste located on the asphalt immediately adjacent to the pad. All drums and cabinets were in good condition. There was no staining in this area or any evidence of a release (see Appendices A, B, C and D). A small area of stressed vegetation was noted on the northeast corner of the pad. A PID reading was taken in this area and the HNu read 200 units. Because of the observed release, TRC recommends that sampling of the area of stressed vegetation be performed as well as sampling of the surrounding asphalt. Sampling of the soil and asphalt should cover the entire area around the pad, and the area where drums are stored on pallets. Samples should be analyzed for full TCL/TAL parameters. TRC also recommends that the drums and flammable cabinets that were observed on the asphalt be moved inside the covered, bermed concrete pad.

## 2.38 SWMU 38, Sewer Drainage System

### 2.38.1 Background

According to the 1988 RFA,

[this] unit is an underground sewer drainage system that includes both the sanitary and storm sewer systems. [The 1988 VSI team] could not...[determine] if this unit [was] comprised of two separate, dedicated sewage systems, or one single unit. In addition, the particular piping material used for construction (e.g., PVC, metal piping) could not be determined. Past and present waste management practices involve various wastes washing into this facility's drainage system. The [1984] NACIP report documented release to the Sewer Drainage System of excess pesticides from the Old Pest Control Shop (SWMU 13) and overflow from the Drone Fuel Drain Oil/Water Separator (SWMU 4).... During the VSI, evidence of overflow that may enter the Sewer Drainage System was observed at the Fire Training Pit Oil/Water Separator (SWMU 12)....

[The VSI team] suggested that the relative interdependence and integrity of the systems be determined. Based upon the results of integrity testing, the VSI team suggested that soil sampling may be warranted to determine if hazardous constituents have been released into the environment. They also suggested that the soil samples, [(if warranted)] should be collected from points along the sewer system where there has been leaking or cracking, [and] that the analytical parameters should include fractions of Appendix VIII hazardous constituents (e.g., metals, volatiles, and semivolatiles) (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy recommends no further action at this SWMU for the following reasons:

Three separate sewer systems serve the Naval Station. The Capehart system serves housing and schools. The Bundy system serves the base administration facilities, hobby shops, fast food eateries, BOQ, and a laundry. The Forrestal system serves the waterfront industrial area, Public Works, Shops, Air Operations and the Sea Bee quarters. It is extensively known that all three systems experience severe inflow problems during rainfall events. To a lesser extent infiltration occurs. The three systems are reaching the end of their useful life. Recently completed in February 1992 was the first phase of a study to detect Inflow-Infiltration (I/I). The

second phase to locate specific sources of I/I will commence July 1993. A follow-up answer repair project is programmed to start in Fiscal year 1994.

It is acknowledged that where infiltration occurs, the possibility exists that exfiltration could occur. However, such phenomenon usually occurs due to pipes under heavy loads and where pipe joints have separated due to settlement. Typically large pipes, say 12 to 15 inches and larger, experience settlement. This size pipe generally occurs in the lower areas of the Forrester System where the seasonal ground water table remains high (above the pipe) thereby causing ground water infiltration into the system. Where ground waters do in fact rise above the crown of the pipes, the mere static water pressure of the ground will cause infiltration rather than exfiltration of the sewer pipe contents. Being that the industrial facilities located in the Forrester system are located in the lowlands of the base where ground waters are generally high, it is considered very unlikely that exfiltration of the sewer contents has occurred where industrial constituents have been introduced. The Navy has no knowledge that hazardous constituents have been introduced into the system and it is...[the Navy's] policy prohibiting the introduction of hazardous waste into the sewer system. For the above reasons, the Navy recommends no further action under RCRA Corrective Action (P.A. Rakowski, letter to Barry Tornick, June 1992).

### ***2.38.2 SWMU Assessment and Recommendations***

Soil samples should be collected from points along the sewer system where leaks or cracks are identified. Samples should be analyzed for full TCL and TAL parameters.

### ***2.38.3 Site Visit Findings and Recommendations***

At the request of EPA, this SWMU was not inspected during TRC's site visit. As a result, no further recommendations have been made.

## **2.39 SWMU 39, Spent Battery Storage (Building 3158)**

### ***2.39.1 Background***

According to the 1988 RFA,

[this] unit consists of a storage building and covered battery drainage area. This building stores waste batteries and battery acid that are wastes generated by Naval Mobile Construction Battalion

(NMCB or "Seabees") operations. The metal battery drain tank (shaped rather like a funnel) is underlain by a curbed concrete pad. Battery contents are poured into the drain tank and the battery acid is caught below in a container. The curbing around the pad is cracked and stained, indicating that there have potentially been past releases to the soil.

[The VSI team suggested that] soil samples...be collected adjacent to and through the pad to determine the nature and extent of release. The sampling effort should include collection of soil samples, with analysis for pH, to a depth of approximately two feet or until visible contamination is observed. In addition, it is further suggested that cracks in the concrete pad be repaired to prevent future release to soil (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy recommends no further action at this SWMU for the following reasons:

The Navy, during a site visit in March 1992, observed no visible signs of release to the soils. This area is no longer used for storage of spent batteries. Since there is lack of evidence of a release to soils, the Navy recommends this site for no further action under RCRA Corrective Action (P.A. Rakowski, letter to Barry Tornick, June 1992).

### ***2.39.2 SWMU Assessment and Recommendations***

TRC will inspect this SWMU during the site visit to check for the presence of cracks and stains. If cracks and stains do exist as indicated in the 1988 RFA, TRC recommends that the RFA suggestions be followed.

### ***2.39.3 Site Visit Findings and Recommendations***

During TRC's site visit, it was observed that this SWMU is no longer used for battery storage, but instead for flammable storage. TRC was not able to locate the bermed pad mentioned in the background section above. The storage shed was in good condition. Inside the shed there were twelve 5-gallon cans of hydraulic fluid (GM Dextron II), six 8.30-ounce cans of starter fluid, two 8-ounce cans of radiator leak preventive, twenty-two 1-quart cans of hydraulic fluid, six cans of window cleaner fluid and other miscellaneous 5-gallon cans of lube oil, silicone, and paint. The floor was not stained and was not cracked (see Appendices A, C, and D). There was no stressed vegetation outside or any other evidence of a release. For these reasons, TRC recommends no further action at the shed, but recommends that the battery drainage pad be located and sampled as recommended in the 1988 RFA.

It should be noted that TRC located a drum storage pad approximately 150 feet north of Building 3158. This pad contained approximately one hundred twenty 55-gallon drums of 10 and 30 weight lubrication oils. The drums were in good condition and not leaking. There are no stains and no evidence of any releases. TRC recommends that the structural cracks in the concrete be filled in and that the pad be bermed.

## 2.40 SWMU 40, Seabee Oil Collection Area

### 2.40.1 Background

According to the 1988 RFA,

[this] unit is located in the Alpha Company Maintenance Yard and consists of a mobile storage tank (capacity approximately 300 gallons) stored on a gravel yard. The tank is used to collect used lubricating oil before DRMO disposes of it.... Adjacent to the mobile storage is a curbed concrete pad that contained several drums and pails at the time of the VSI. During the VSI, stained gravel was observed under the mobile storage tank. [The VSI team] suggested that soil samples be collected beneath the mobile storage tank.... Analysis should include a set of indicator parameters based upon the chemical and physical characteristics of the wastes managed by this unit. It is further suggested that a covered concrete pad with curbing be built for the mobile tank (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick states that the Navy recommends no further action at this SWMU for the following reasons:

The Navy, during [their] site visit in March 1992, found that the conditions at this site have changed from that identified in the 1988 RFA report. [A point that they made] is that this area is located within the Sea Bee compound. Sea Bees are a group with mobile units and equipment. The mobile tank mentioned in the 1988 RFA report could not be found anywhere in the compound, nor did anyone know where it was or where it might have been located. The two tanks observed during the 1992 site visit in this compound did not fit the description of the tank mentioned in the RFA report. The 1988 RFA report indicated the tank was a 300 gallon capacity, but the two tanks found [by the Navy] are of 1000 and 500-gallon capacity. Since it is impossible to locate the probable location of the tank and no evidence of a release was visible, the Navy recommends this site for no further action under RCRA Corrective Action (P.A. Rakowski, letter to Barry Tornick, June 1992).

### **2.40.2 SWMU Assessment and Recommendations**

TRC will inspect the gravel yard during the site visit to identify the presence of soil staining. If visible signs of contamination are evident, then it is recommended that soil sampling be conducted. Samples should be analyzed for full TCL and TAL parameters. If soil samples are found to be contaminated, then potential impacts on ground water will need to be addressed.

### **2.40.3 Site Visit Findings and Recommendations**

TRC observed this SWMU to be a parking area in the Seabee compound. The tank mentioned in the 1988 RFA was no longer on site. The parking area had no stains (see Appendices A and D). The waste oil is now stored behind Building 3102 in the new SWMU 48. Because this SWMU is no longer used and because there was no evidence of a release, TRC recommends no further action.

## **2.41 SWMU 41, Rinse Rack Near Seabee Pesticide Storage**

### **2.41.1 Background**

According to the 1988 RFA,

[this] unit was observed [during the VSI] to be an uncurbed concrete slab measuring approximately 12 feet x 20 feet that is located directly adjacent to the Seabee Pesticide Storage Building (Building 3152).... The drain within this slab is made up of four strips (6 inches wide). Each strip runs parallel to and is located within the perimeter of the slab...[to form] an inner rectangular "frame". The drain is covered by steel grating. The VSI team was informed by naval personnel that this unit is most commonly used to rinse out the spray trailer which usually contains a mosquito pesticide (A.T. Kearney, Inc. 1988).

The VSI team did not determine if the expired pesticides were washed down the drain of the SWMU or were sent to DRMO. The VSI team did not observe any signs that would indicate a release into the environment. The VSI team suggested "that the point of ultimate discharge of wastes from this SWMU be determined and evaluated in conjunction with further information regarding the disposal of excess pesticides (i.e., whether they are sent to DRMO or drained at this unit)" (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy will provide the requested information on this SWMU as soon as it is available.

### **2.41.2 SWMU Assessment and Recommendations**

- The discharge location of the rinsate waste needs to be provided before any recommendations regarding sampling can be prepared. TRC will attempt to locate the discharge location during the site inspection.
- The "additional information" provided by the Navy for this SWMU should include a list of the pesticides (specific chemical or manufacturer's brand name) that were potentially drained through this SWMU (if applicable). This information will help focus future sampling efforts if they are warranted.

### **2.41.3 Site Visit Findings and Recommendations**

TRC observed this SWMU to be as described in the 1988 RFA (see Appendices A, C and D). TRC observed the pad to be in good condition. There was no staining and there were no cracks in the concrete. There was a 55-gallon drum (almost empty) adjacent to the washdown area. This drum was in good condition. There were no stains near the drum. TRC recommends that the one 55-gallon drum be removed properly and that the ultimate discharge of this SWMU be determined as recommended in the 1988 RFA. The ultimate discharge of this SWMU was not able to be determined by TRC during the site visit. TRC also recommends that the contents and condition of the adjacent building (Building 3152) be determined. This building was locked at the time of the TRC site visit.

## **2.42 SWMU 42, Water Treatment Plant Sludge Lagoons**

### **2.42.1 Background**

According to the 1988 RFA,

raw water is supplied by mountain rainwater from the Rio Blanco River...west of the Naval Station. Water treatment at Naval Station Roosevelt Roads involves aeration, prechlorination, coagulation, sedimentation, filtration, fluoride adjustment, and disinfection.... Located several hundred feet west of the Roosevelt Roads Water Treatment Plant are two open sludge lagoons measuring approximately 160 feet x 90 feet x 20 feet deep.... A facility representative [told the VSI team that] the lagoons are natural, unlined ponds. Sludge from the Water Treatment Plant sedimentation tanks is released periodically into one of the sludge lagoons. Thick vegetation was observed growing along the edges of both lagoons. The plant operator reported that the sludge in these lagoons consists of river mud with aluminum sulfide and lime added during the water filtration and sediment settling processes. In order to prevent a system backup during heavy rainfall the

lagoon gates are opened. This happens about once a year, according to the plant operator. Discharge flows into a surface water canal that eventually reaches the mangroves. The operator also stated [to VSI personnel] that the sludge in these lagoons had been removed and deposited offsite once in the seven years of his tenure there" (A.T. Kearney, Inc. 1988). The VSI team suggested no further action because the sludge consists of river mud, aluminum sulfide and lime. Because of this the VSI team had no reason to suspect that any product or waste at this SWMU contained hazardous waste.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy agrees with the 1988 RFA recommendation of no further action.

#### **2.42.2 SWMU Assessment and Recommendations**

Because the sludge is comprised of river mud, aluminum sulfide and lime, there is no reason to believe that any product or waste at this SWMU contains hazardous waste. As a result, TRC recommends no further action at this SWMU.

#### **2.42.3 Site Visit Findings and Recommendations**

TRC observed this SWMU to be as described in the background section above. There was no staining, stressed vegetation, or any other sign of a release (see Appendices A, C, and D). As already stated, this SWMU is comprised of river mud, aluminum sulfide and lime all of which are non-hazardous materials. As a result, TRC recommends no further action for this SWMU.

### **2.43 SWMU 43, Drone Washdown Area**

#### **2.43.1 Background**

According to the 1988 RFA, this SWMU is located

directly in front of the garage doors of Building 860, Aerial Target Systems Department, [and] is a concrete lined drainage ditch covered by steel grating which measures approximately 350 feet x 2 feet x 3 feet deep.... As stated by a facility representative, drones are recovered from the sea after military exercises and brought to Building 860. Here the saltwater and marker dye is rinsed off over the steel grating. This unit drains into the drainage ditch north of Building 860. According to the [1984] NACIP study..., from about 1960 until the mid-1970s, between 2,500 and 5,000 gallons of contaminated JP-4 and JP-5 drone fuel [was] drained in the approximate area where this unit is now, eventually discharging

into the ditch north of Building 860, Fuel and Chemical Storage Compound Drainage Ditch (SWMU 44). The current practice is to drain unused drone fuel directly into the Drone Fuel Drain Oil/Water Separator (SWMU 4).

[The VSI team suggested no further action] due to the fact that release of hazardous constituents from this unit has not been documented for at least 10 years and because the ditch that received discharge of hazardous constituents is addressed as SWMU 44 [(IR Site 8)] (A.T. Kearney, Inc. 1988).

In 1988, ESE performed two rounds of verification sampling and analysis.

One soil sample was collected as a background sample in Round 1. This sample was analyzed for oil and grease, lead, VOA, xylene, MEK, and EDB. Elevated levels of oil and grease (8.21 mg/kg) were detected in this soil sample.

A total of six sediment samples were collected for Site 8 (3 samples during each round).... Oil and grease levels ranged from 69-4740 mg/kg. [ESE attributed these concentrations to Building 200.]

A total of eight surface waters were collected from Site 8 during both Rounds. Three were collected in Round 1 and [five] during Round 2.... Significant levels of oil and grease (ranging from 5 to 102 ug/L) were found in Round 1 samples. Oil and grease [were] not detected in Round 2 samples. The levels of oil and grease detected [were attributed] to...Building 200. (Technical Review Committee Meeting Minutes, 1989) (See Table 2.43.1 for results that exceeded Subpart S Action Levels.)

In 1991, Versar produced a Site Summary for the Drone Washdown Area (Site No. 8). Versar reviewed the past history of the site and ESE's 1988 results. They concluded that no further investigations or remedial action was necessary.

This SWMU is located in the vicinity of IR Site 8. As a result, the samples from the IR Site 8 Report are included here. It should be noted, however, that IR Site 8 does not adequately address SWMU 44.

**Table 2.43.1 Summary of Samples and Results that Exceeded Subpart S Action Levels for SWMU 43**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	1	None
Surface Water	Round 1: 3 Round 2: 5	One sample, 8SW01, had a benzene concentration of 1.1 ug/l. The Action Level is 1.0 ug/l.
Sediment	Round 1: 3 Round 2: 3	None
Ground Water	No samples	N/A

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy concurs with the 1988 RFA report suggestion of no further action at this SWMU.

**2.43.2 SWMU Assessment and Recommendations**

- The evaluation of SWMU 43 does not appear to have included sampling, and subsequent analysis of the drainage ditch north of Building 860. This ditch needs to be sampled, and the samples analyzed for hazardous constituents of the drone fuel and marker dye. Full TCL and TAL parameters are recommended. Also need to determine whether or not releases at this SWMU impacted subsurface soils, ground water, surface water and sediments.
- TRC will conduct a visual inspection of this SWMU during the site inspection. If cracks are found, further soil and ground water sampling may be warranted.

**2.43.3 Site Visit Findings and Recommendations**

This SWMU consists of the concrete area (parking) in front of Building 860. During TRC's site visit, there were no stains, odors, stressed vegetation, or other indications of a release (see Appendices A, B, C, and D). The samples collected from the IR Site 8 investigation are approximately 300 yards away. Because there was no sign of a release and because the only result that exceeds the Subpart S action level was very close to the action level, TRC recommends no further action for this site (see table in Section 2.43.2).

## 2.44 SWMU 44, IR Site 8, Aerial Target Systems Department Drainage Ditch

### 2.44.1 Background

The 1984 IAS report provides the following information about SWMU 44:

The drone washdown area...is located at Building 860 (Aerial Target Systems Department).... [Drones] are launched from Cabras Island at the eastern entrance to Roosevelt Roads Harbor. Drones that are not destroyed during...[presentations] are recovered by helicopter in the Pasaje de Vieques for reuse and returned to Building 860. This operation has been active there since about 1961. Between 1961 and 1969 the Aerial Target Systems Activity averaged 125 presentations per year, totaling about 1,000 presentations. Since Radio Corporation of America, Inc., (RCA) received the contract in 1969, approximately 4,000 presentations have been conducted, bringing the total to approximately 5,000 presentations over a 20-year period.

After each presentation the outside of the drone is washed with freshwater to remove the saltwater and marker dye, and...remaining fuel is removed from the fuel tank. In the past this was done outside Building 860, where the fuel and wastewater were disposed of in a drainage ditch which flows into a mangrove swamp and eventually into the harbor. From about 1960 to the mid-1970s all contaminated fuels (JP-4 and JP-5) and oil were disposed of in this ditch. During this estimated 15-year period, about 2,500 presentations occurred. [The IAS team estimated that there were] one to two gallons of unused fuel per drone. As a result, about 2,500 to 5,000 gallons of JP-4 and JP-5 fuel were disposed of in the unlined earthen drainage ditch. An undetermined amount of oil was also routinely disposed of in this ditch.

[The IAS report also indicates that in] the mid-1970s an underground oil separator was constructed outside Building 860 to prevent any oil or fuel from the drone washdown procedure from entering the drainage ditch and storm sewer system. A tank truck (1,500-gallon capacity) is used to siphon the fuel from the oil separator. Any oil or fuel removed from the drones is also disposed of in this tank truck. Until about 1982 the tank truck was emptied by the Public Works Department and disposed of by DPDO on a monthly basis; since this time it has normally been emptied every three or four months.

Until about 1983, the oil separator would overflow into the adjacent storm sewer system during periods of heavy rainfall. This problem was corrected by the installation of a valve on the pipe between the separator and storm sewer which, if closed, can stop the flow of oil into the storm sewer (NEESA 1984).

The 1988 RFA report indicated that "a fuel and chemical storage pad was also located adjacent to this SWMU. [This] fuel and chemical storage pad stores products used in the maintenance and repair of drones such as JP-4, JP-5, rust preventative and solvents" (A.T. Kearney, Inc. 1988). The VSI team also noted the presence of a drain pipe with a valve that extended out from the storage pad and over the Aerial Target Systems Drainage Ditch. The VSI team observed dead vegetation directly below this drain pipe. Based on their observations, the VSI team "suggested that soil samples be collected from both the area immediately around the dead vegetation, and at least 10 to 15 feet further north in the drainage ditch. Indicator parameters should include a set of parameters appropriate for the types of waste managed by this SWMU in order to determine the existence of release to the environment" (A.T. Kearney, Inc. 1988).

In 1988, ESE performed two rounds of verification sampling. They collected one soil sample, six sediment samples and eight surface water samples. The soil sample (background sample) contained elevated levels of oil and grease. Elevated levels of oil and grease were also detected in the sediment samples. ESE attributed these levels to the Hanger Area (Building 200). The first round surface water samples also had elevated levels of oil and grease. However, oil and grease were not detected in the Round 2 surface water samples. The elevated levels of oil and grease in the surface water samples were also attributed to Building 200. Because the constituent levels were low, ESE recommended no additional monitoring for Site 8, and that the oil and grease emanating from the hanger should be handled as a separate site. (See Table 2.44.1 below for results that exceeded Subpart S Action Levels.)

This SWMU is located in the vicinity of IR Site 8. As a result, the samples from the IR Site 8 Report are included here. It should be noted, however, that IR Site 8 does not adequately address SWMU 43.

**Table 2.44.1 Summary of Samples and Results that Exceeded Subpart S Action Levels for SWMU 44**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	1	None
Surface Water	Round 1: 3 Round 2: 5	One sample, 8SW01, had a benzene concentration of 1.1 ug/l. The Action Level is 1.0 ug/l.
Sediment	Round 1: 3 Round 2: 3	None
Ground Water	No samples	N/A

In 1991, Versar prepared a Site Summary for Drone Washdown Area. The Versar report reviews ESE's finding from their two rounds of verification sampling. The Versar report indicates that "hazardous waste management practices for Building No. 200 were reviewed and that deficiencies were corrected" (Versar 1992b). Versar also indicates that they conducted a site visit in August 1990 and that during their visit, they observed that the oil/water separator for Site 8 was operating effectively and that "no petroleum products or sheens were noted" (Versar 1992b). They noted that all vegetation "in the ditch appeared lush and healthy" (Versar 1992b). As a result, Versar concurred with ESE that "activities related to the drone washdown area are no longer impacting the surrounding drainage ditch, and that the concentrations of contaminants detected warrant no further investigations or remedial action" (Versar 1992b).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy concurs with the recommendations of no further action at this site.

#### **2.44.2 SWMU Assessment and Recommendations**

- "It is unknown whether historical activities at or around Building 229 may have resulted in releases of contaminants which would invalidate the Building 229 area for background sampling (for example, the site may be near a UST location, or near a fuel tank location for refueling drones)" (TRC 1992b). Whether or not Building 229 is a valid background location needs to be addressed.
- In general, levels of contaminants detected are rather low and below concentrations associated with adverse effects to aquatic biota. However, it is unclear as to whether all potential fuel components (including additives) were analyzed. It is recommended that potential concerns from fuel additives be addressed.

- Considering the significant amount of material discharged into the drainage systems at this SWMU and the existence of a fuel and chemical storage pad, the sampling and analysis presented in the April 29, 1991 site summary prepared by Versar, Inc. does not appear to adequately characterize chemical contamination at this SWMU. Surface soil, sediment and surface water samples need to be collected from the drainage ditches located north and south of Building 860. Surface soils samples in and around the storage pad area also need to be collected. In addition, due to the cracked and pervious nature of the concrete drainage ditches, subsurface soil samples need to be collected under all drainage ditches surrounding Building 860 and the storage pad. Samples collected need to be analyzed for full TCL and TAL parameters. Finally, the impact of past spills on ground water conditions needs to be determined.
- The effectiveness of the oil/water separator in preventing spills into the drainage ditch and storm water system needs to be evaluated. A valve on the pipe between the separator and storm sewer which needs to be closed manually to prevent discharges into the storm sewer during periods of heavy rainfall does not guarantee that discharges will not occur. The impact of discharges from this SWMU into the storm water system and its discharge point needs to be determined.

#### **2.44.3 Site Visit Findings and Recommendations**

TRC inspected this SWMU during the site visit. The concrete drain had no stains and was in good condition. The concrete did not have any cracks. The vegetation at the discharge point of the drain was lush and healthy and there were no sheens on the water (see Appendices A, B, C, and D). As a result, TRC recommends no further action for this SWMU. This recommendation supersedes those in Section 2.44.2.

### **2.45 SWMU 45, IR Site 16, PCB Spill Area (Building 38)**

#### **2.45.1 Background**

According to the 1984 NACIP report, "[Building] 38 was a 60-megawatt steam turbine facility that generated power from the early 1940s through 1949. The facility used Bunker 'C' fuel, which was stored in two 50,000-gallon reinforced concrete tanks. These tanks are located directly northwest of the building" (NEESA 1984). In the 1970s, Bunker C fuel was observed in manholes near Building 38 during heavy rainfalls. Bunker C fuel was also discharged to the Enlisted Beach via the old cooling water outlet for the Power Plant.

According to the 1984 IAS report, Building 38 was also used for the repair of electrical transformers from 1956 to 1964. During this time, used oil from the transformers was poured directly onto the ground in the vicinity of Building 38. An estimated 1,600 gallons of transformer fluid were disposed of in this area (NEESA 1984).

The IAS team suggested the collection of six soil samples via hand auger. They suggested the collection of two samples, from the oil-stained soil northwest of the building, and four samples (in a grid) from the area north and northeast of the building (NEESA 1984).

The 1988 RFA VSI team indicates that

the exact location of the spill area was difficult to ascertain at the time of the VSI. [The VSI team also observed oil stains] on a concrete pad near the northeast corner of Building 38.... [They did not observe a release to soils.] The VSI team suggested that soil samples be collected from stained areas within the area constituting the PCB Spill Area, and that surface water samples be taken at the old cooling water outlet on the Enlisted Beach. Parameters for analysis [should] include an indicator parameter appropriate for the wastes managed (i.e., transformer oil matrix). It is also suggested that the PCB issue be addressed by referring this unit to TSCA (A.T. Kearney, Inc. 1988).

In 1988, ESE performed two rounds of verification sampling.

Thirty-eight soil samples were collected from the site (9 in Round 1 and 29 in Round 2). These samples were analyzed for PCBs, oil and grease, volatile organic compounds (VOC), ethylene dibromide (EDB), xylenes, methyl ethyl ketone (MEK), and methyl isobutyl ketone (MIBK). In Round 2, an EP toxicity test for lead was completed. The analytical results indicated the presence of PCB and lead contamination at the site. Lead concentrations were less than the EP toxicity standard for lead. Other constituents detected, but not at levels of concern, were MEK as well as oil and grease (Technical Review Committee Meeting Minutes 1989). (See Table 2.45.1 below for results that exceeded Subpart S Action Levels.)

**Table 2.45.1 Summary of Samples and Results that Exceeded Subpart S Action Levels at SWMU 45**

Media	No. of Samples	Results that exceed Subpart S Action Levels
Soil	38 (Greenleaf) 37 (Versar)	Fifteen locations contained PCB concentrations greater than the 10 ppm ARAR (TSCA). The two highest results were 1,200 ppm and 40,000 ppm. Eighteen locations were greater than the 10 ppm ARAR.
Wipe	33 (Versar)	Two locations exceeded the TSCA ARAR of 1,000 mg/m <sup>2</sup> .
Chip	6 (Versar)	N/A
Sediment	12 (Versar)	Eight locations were greater than the 10 ppm ARAR for PCBs.
Surface Water	3 (Versar)	All three samples were greater than the MCL of 0.5 ug/L.

Based on their findings from the two rounds of sampling, ESE produced a Remedial Action Alternative Analysis report. This report was summarized by the Technical Review Committee in 1989. In this report, ESE proposed the following four remedial alternatives:

1. "No action" alternative - In this alternative a 6-foot high galvanized chain link fence is to be installed at the site to encompass all areas of the site confirmed to have PCB concentrations above 10 ppm to restrict site access (approx. 2246 square yards)....
2. Cap alternative - In this alternative, the soils in the concrete ditch are to be scraped to remove the soil in the ditch (approx. 2 cubic yards). These soils are to be spread out in the area where PCB levels exceed 10 ppm where a 1-inch asphaltic concrete is to be installed over a 4-inch base. The total area to be capped is 1780 square yards....
3. Partial excavation and capping alternatives - In this alternative, the concrete lined ditch is to be scraped to remove the soil in the ditch and the area having PCB concentrations above 25 ppm is to be excavated to a depth

of 1 foot. A total of 469 cubic yards of PCB-contaminated soil will be removed and disposed of by incineration in an incinerator permitted for PCB incineration. The area excavated is to be filled with clean back fill (less than 1 ppm PCB). The site areas containing PCB levels from 10-25 ppm are to be capped with a 1-inch asphaltic concrete with a 4-inch base (379 square yards)....

4. Excavation alternative - In this alternative, all site areas containing PCB concentration greater than 10 ppm are to be excavated to a depth of 1 foot below land surface and disposed of by incineration in an incinerator permitted for PCB incineration (595 cubic yards). Areas that are excavated are to be backfilled with clean soil (less than 1 ppm PCB) (Technical Review Committee Meeting Minutes 1989).

In 1992, Versar prepared a Remedial Investigation/Feasibility Study for this site. During their investigation, Versar collected numerous surface water, sediment, soil, wipe and chip samples. Based on their data and the data collected by ESE in 1988, Versar investigated the feasibility of the three following remedial alternatives:

1. Soil excavation, transportation and off-site incineration
2. Soil excavation, transportation and off-site land disposal
3. Soil excavation and on-site incineration (Versar 1992a).

Of the three, Versar recommended Alternative 2 (soil excavation, transportation, and off-site land disposal).

#### **2.45.2 SWMU Assessment and Recommendations**

- TRC's review of Versar's and ESE's Work Plans and SAPs noted the following:
  - The scenarios and toxicity values used to determine appropriate target clean-up levels in the ESE risk assessments contained as Appendix B in both [ESE's and Versar's] reports do not reflect current guidance and must not be used to evaluate or justify the use of the TSCA target level of 10 ppm....
  - All contaminants detected need to be presented for evaluation (e.g., lead, MEK). The decision to

narrow the focus of the quantitative risk assessment to just PCBs needs to be fully explained.

- The possible additive risks to receptors from site contaminants in other media (e.g., ground water), exposure via pathways not evaluated (e.g., inhalation), and contact with other site contaminants (e.g., lead), need to be fully discussed in the risk characterization and stated as a limitation of the risk assessments at the beginning of the baseline risk assessment report.

- The reported target clean-up levels may need to be revised pending the results of a more extensive ecological risk assessment. It appears that PCBs from Site 16 may potentially be transported offsite by the existing storm water drainage systems and/or the cooling water tunnel present beneath the site to Puerca Bay and Ensenada Honda. Target clean-up levels (for site soils/sediments) will need to be established that are protective of aquatic biota if offsite transport of PCBs result in adverse effects to these sensitive ecological receptors....

- A 10 ppm clean-up level, as governed by the TSCA, is the only remedial goal mentioned in the FS [for Site 16]. According to Section 4.1.2.1 of the CERCLA guidance, "preliminary remediation goals are (to be) reevaluated as site characterization data and information from the baseline risk assessment become available." Any information pertaining to the risks associated with a residual 10 ppm PCB level in the site soil must be [addressed]. An acceptable risk level for the protection of human health and the environment should be stated as part of the RAOs....

- The process options considered [to date] do not include immobilization technologies. In-situ solidification has been successfully demonstrated as a means to remediate PCB-contaminated soil. This technology is most cost effective when used to treat large volumes of soil since the costs associated with excavation and transportation of soil are precluded. Since the potential for remediation of a larger

volume of soil than is presently quantified exists, this option should be included in the FS for review. The long-term stability of in-situ stabilization also needs to be addressed. The discussion should incorporate long-term management and access controls (fences, restricted access, deed restrictions and signs). [If immobilization is considered as a process option, then data for implementability of this technology should be gathered.]

- A cost sensitivity analysis is also required to assess the effect that variations in specific assumptions associated with design, implementation, and operation of an alternative can have on its estimated cost. This kind of analysis is particularly important in this case since "if it is later determined that the contamination has migrated, additional treatment of possibly large amounts of soil will be needed." Economies of scale for each process option considered should be more fully investigated. This is particularly important for the onsite incineration option. According to the FS, the cost effectiveness of this option is greatly increased when treating more than 5,000 tons of soil.

- While the correct criteria are used to evaluate each alternative delineated in Section 6.3.3 (Detailed Analysis of Remedial Alternatives), insufficient information is presented to show that the alternatives have been developed to a point where a detailed analysis is warranted. Section 6.2.1 of the RI/FS guidance suggests that the "...information developed to define alternatives at this stage in the RI/FS process may consist of preliminary design calculations, process flow diagrams, sizing of key process components, preliminary site layouts, and a discussion of limitations, assumptions, and uncertainties concerning each alternative." None of the requirements listed above are supplied in the detailed analysis of the alternatives listed in the FS. Only a very brief description of each alternative is supplied which outlines the relative pros and cons for that choice. This section should be reworked to include the level of specificity required by the

guidance in order to thoroughly evaluate each alternative in detail (TRC 1992b).

- The potential for PCB transport through the cooling water tunnel and storm drainage system is high. It is recommended that the storm drain be located.
- Surface water and sediment samples need to be collected within Puerca Bay and Ensenada Honda at the inlet/outlet of the cooling water tunnel. It is recommended that a minimum of two samples be collected at each location and be subjected to a full TCL and TAL analyses.
- The derivation of a chronic hazard index of  $2.4 \times 10^{-4}$  for lead concentrations detected in soils needs to be explained in order to allow an evaluation of the statement that a very low degree of risk is posed by the observed concentrations of lead in the soil. Note that EP toxicity data cannot be used to determine risks to human health. It is not clear whether or not EP toxicity data were used to make this determination.
- The impacts of past spills at this SWMU on ground water needs to be determined along with an estimate of risk to potential human receptors which may be exposed to site contaminants via contact with ground water or ground water discharged to surface water.
- If immobilization is judged to be a viable alternative, then data for implementability of this technology should be gathered.

### ***2.45.3 Site Visit Findings and Recommendations***

TRC observed this site to be as described in the background section above. There were no stains, stressed vegetation or other evidence of a release (see Appendices A, B, C, and D). However, as noted above, this SWMU is going to be remediated due to PCB contamination. Sindulfo Castillo of the Environmental Division of NAVSTA stated that this site was going to be remediated some time during the summer of 1993. TRC recommends that four wells be installed (one upgradient and three downgradient) to determine if ground water has been impacted by the PCB contamination onsite. TRC also recommends that a tank investigation be performed on the two underground storage tanks that were used to store Bunker C fuel.

## **2.46 SWMU 46, Pole Storage Yard**

### **2.46.1 Background**

According to the 1988 RFA report,

[this] unit was cited in the NACIP report as a Public Works Department hazardous waste storage area that had been used to store transformers and 55-gallon drums of PCB-contaminated material.... The [NACIP report] further stated that the area showed evidence of oil spillage. A facility representative confirmed that this unit had formerly been used to store transformers [during the 1988 VSI]. [The VSI team observed that] this unit was a covered concrete pad, [and that it was] used for the storage of products including insulators, telephone poles, small cardboard boxes of electrical equipment, and several full 5-gallon pails, one marked as electrical lubricant. [The VSI team also noted that the] unit was surrounded by a cyclone fence. Telephone poles were piled near the entrance. No evidence of release was observed [by the VSI team] (A.T. Kearney, Inc. 1988).

The VSI team suggested that the location of the stored transformers and 55-gallon drums within the Pole Storage Yard be determined, and that soil samples be collected to characterize the nature and existence of release to the environment.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy concurs with the RFA report suggestion of confirmatory sampling, and that a Work Plan for the sampling efforts is scheduled to begin the third quarter of fiscal year 1993.

### **2.46.2 SWMU Assessment and Recommendations**

- TRC recommends that the Work Plan for the confirmatory sampling be reviewed in order to assess its adequacy.
- Due to the variety of materials stored at this SWMU, surface and subsurface soils samples need to be collected and analyzed for full TCL and TAL parameters. In addition, the impact of spills at this SWMU on adjacent surface water bodies and ground water needs to be determined.

### **2.46.3 Site Visit Findings and Recommendations**

TRC observed this SWMU to be as described in the background section above. TRC did not observe any evidence of a release. There was no staining, no odors, and no stressed vegetation (see Appendices A, C, and D). However, past reports note the presence of spills on this site. As already recommended, TRC recommends that confirmatory

sampling be performed at this SWMU. Confirmatory sampling should include four soil samples around the pad and two samples within the area where the poles were stored. Samples should be analyzed for full TCL/TAL parameters. If these samples contain results that exceed action levels, the impact on surface water and ground water needs to be determined.

## 2.47 SWMU 47, Local Disposal Areas

### 2.47.1 Background

According to the 1988 RFA report, the Roosevelt Roads

facility [has a number of] unspecified...satellite disposal points, existing both as dedicated areas associated with specific process points, and also as general refuse accumulation areas. Facility representatives did not know the specific locations of all disposal points and refuse accumulation areas, nor the specific composition of materials disposed of at these units.

[The 1988 RFA report suggested] that the facility implement a survey to determine the location of all satellite disposal areas and general refuse accumulation areas. If it is suspected that hazardous constituents are being released at any of these areas, then appropriate sampling (e.g., soil, sediment, ground water, surface water) is suggested at local areas to determine if there has been a release of hazardous constituents to the environment (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that the Navy recommends no further action at this SWMU for the following reasons:

The 1988 RFA report referred to the "Local Disposal Areas" site as both a SWMU and an Area-of-Concern (AOC) during the meeting in March 1992. EPA Region II and the Navy came to an agreement that this site(s) is an AOC and not a SWMU. SWMUs must be identifiable units. The 1988 RFA report was in error for referring to this site as SWMU Site 47. Furthermore, a facility survey (Initial Assessment Study, NEESA 13-051, September 1984) conducted in 1984 to determine and define all past hazardous waste material's storage, use, disposal practices and disposal areas on Navy property did not identify this site(s). Therefore, the Navy proposes this site(s) for no further action under RCRA Corrective Action (P.A. Rakowski, letter to Barry Tornick, June 1992).

### **2.47.2 SWMU Assessment and Recommendations**

As recommended in the 1988 RFA, a facility survey needs to be performed to determine the location of all satellite disposal areas and general refuse accumulation areas. If it is determined that a release has occurred at any of these areas, then appropriate sampling and analysis needs to be performed to characterize the nature and extent of the release.

### **2.47.3 Site Visit Findings and Recommendations**

At the request of EPA, this SWMU was not inspected during TRC's site visit. As a result, no further recommendations have been made.

## **2.48 AOC A, Torpedo Shop**

### **2.48.1 Background**

The 1984 NACIP report indicates that

the Torpedo Shop assembles MK 30, MK 46 and MK 48 torpedoes for the Atlantic Fleet Weapons Training Facility (AFWTF) and the Weapons Department.... Following a "run" by one of the target or practice torpedoes, the torpedo is recovered, the fuel removed, and the torpedo washed with Agentine, a dry cleaning solvent. The waste produced by this process includes OTTO Fuel II, clothing contaminated in the assembly and maintenance of the torpedoes, detergent Agentine, alcohol (Neosol), sodium sulfide, denatured ethyl alcohol, acetone, oil and silver cell batteries. According to the U.S. Navy, approximately 120 55-gallon drums of solvent and fuel waste are generated yearly by this unit.... Contaminated OTTO Fuel II and other waste is stored temporarily before being shipped to Cape Canaveral, Florida.... [Disposal] of inoperable explosives generated by this unit is carried out by Explosive Ordnance Detachment (EOD) personnel at the Eastern Maneuver Area (EMA) on Vieques Island (A.T. Kearney, Inc. 1988).

During the 1988 RFA visit, the VSI team was told by the "[Atlantic Fleet Weapons Training Facility)] AFWTF Director, Mr. Nestor Paradis, that this AOC is a 'unique military operation' which requires special security clearance for entry. [As a result, the] VSI team was denied access, and no VSI was conducted at this unit" (A.T. Kearney, Inc. 1988). The VSI team suggested that additional information be obtained about the manner in which wastes are generated, stored, and disposed.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that additional information is needed at this AOC and that it will be provided as soon as it is available.

### **2.48.2 AOC Assessment and Recommendations**

TRC recommends that the information regarding waste generation, storage, and disposal that is to be provided by the Navy be reviewed to determine if additional investigation/sampling is warranted.

### **2.48.3 Site Visit Findings and Recommendations**

This AOC had five units within it. The first unit in AOC A contained fuel tanks from torpedoes (see Appendices A, C, and D). This AOC is approximately 10' x 10' in area, is made of concrete and is roofed. There is a sump inside. There was no staining of the floor and no cracks in the concrete. The HNu read 0 units and the air in this AOC is monitored daily. Because there was no evidence of a release, TRC recommends no further action.

The second unit within AOC A is Building 832. This building contains wastes including cyanide waste (UN #1935), mineral spirits, alcohol, HCN, Otto, Fuel II, and Agentine. The building is constructed with concrete cinder block. The building contains a roof and has a bermed concrete floor. The floor is painted and contains a sump. There were no spills noted in this building, no odors or any other evidence of a release. As a result, TRC recommends no further action for this AOC.

The third unit within AOC A is the torpedo washdown pad. This pad is located directly in front of Building 832 (see Appendices A, C, and D). This pad is used to wash down torpedoes. There was no staining or evidence of a release from this AOC. There were, however, some minor cracks in the pad. As a result, TRC recommends that the cracks in the pad be repaired and that the pad be epoxied.

The fourth unit within AOC A is comprised of two storage pads located at Building 1730 (see Appendices A, C and D). There were approximately five 55-gallon drums stored on each pad. Each pad was bermed and painted. There were no cracks in the concrete, no stains, and no other evidence of a release. For these reasons, TRC recommends no further action at this AOC.

The fifth unit within AOC A is a materials storage area for alcohol, lubricating oil, paint and agentine. The AOC is roofed, bermed, fenced and locked. There were no cracks in the concrete, no stains and no other evidences of a release. For these reasons, TRC recommends no further action.

## 2.49 AOC B, Former PWD Storage Area (Building 25)

### 2.49.1 Background

This AOC is part of IR Site 10. The 1984 IAS report noted the following:

Building 25 was used from 1951 until the structure collapsed in 1979 by the Public Works-Supply Department for temporary storage of materials to be turned over to DPDO.... The entire area around the building was used for open storage of drummed material from at least 1957, according to aerial photographs.

The entire area in and around the collapsed building is overgrown with vegetation, although historical aerial photographs show the area to be relatively free of vegetation other than ground cover through 1977.

Materials found in and around Building 25 include 20 to 25 apparently empty to partially filled 55-gallon drums; 10 to 15 five-gallon pails; office furniture; mechanical devices; construction rubble; industrial gas cylinders; asbestos sheeting; fiberglass buoys; and transformers.

Of particular interest are the five-gallon pails, the drums, and a large transformer found at the collapsed building. The five-gallon pails have become corroded, exposing a substance similar to that found at the Langley Drive site [(SWMU 2)].... The compound has a green-colored crust about 1/2-inch thick, encasing a white material with the consistency of semi-dry plaster. A large transformer is lying on its side at the east corner of the building. No evidence of oil leakage was apparent (NEESA 1984).

The 1988 RFA VSI team observed that Building 25 had collapsed. They also noted the following:

It appeared that the majority of material stored there consisted of old clothing, empty wooden boxes and small empty shells. No sign of release was noted during the VSI; however, it is possible that some amount of material was completely covered by vines and could not be observed during the VSI.... [As a result, the VSI team] suggested that this unit be cleared of vegetative cover and an inventory be made regarding general type, amount and location of wastes currently stored here. [They also suggested that] Public Works Department records be reviewed to determine type, amount

and, if possible, location of wastes stored here in the past (A.T. Kearney, Inc. 1988).

In 1988, ESE performed two rounds of verification sampling for IR Site 10 (SWMU 31 and 32, and AOC B). Only ground water samples were collected from eight wells. The results of the analyses indicated the presence of low levels of organic compounds and the presence of some metals at levels that exceeded primary drinking water standards and ambient water quality criteria. ESE recommended that no additional ground water samples be collected.

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates that a Work Plan is being prepared for this AOC which should have been completed in July 1992.

Baker's 1992 Work Plan and the 1992 Technical Review Committee Meeting Minutes indicate that 30 surface soil samples will be collected to support a baseline risk assessment.

#### ***2.49.2 AOC Assessment and Recommendations***

- Baker's Work Plan indicates that ground water is a potential environmental concern. Their Work Plan must provide an explanation as to why no ground water samples are to be collected, or it should be modified to include collection of such samples.
- TRC recommends that the results of the surface soil sampling be reviewed to determine if additional sampling is warranted for this area.

#### ***2.49.3 Site Visit Findings and Recommendations***

TRC observed that Building 25 had been demolished. The foundation, which is made of brick, is now used for the storage of heavy equipment (bulldozers, etc.) and for a drum storage pad (see Appendices A, C, and D). The drum storage pad had seventeen 55-gallon drums on it, five 5-gallon drums, and measured approximately 15' x 50'. The drums contained diesel fuel and lubricating oil. Some of the drums were covered with a tarp. The pad was bermed with sand bags. There were stains on the pad and outside of the berm. Because there has been an observed release, TRC recommends confirmatory sampling around the pad. Confirmatory sampling should consist of six soil samples (two samples on each of the long sides and one on each of the short sides of the pad). Samples should be analyzed for full TCL and TAL parameters.

## **2.50 AOC C, Transformer Storage Area (Near Building 2042)**

### **2.50.1 Background**

The 1988 RFA report describes this AOC as follows:

This AOC is comprised of two raised concrete pads that, at the time of the VSI, were used for storage of transformers.... During the VSI, 40 transformers were observed to be stored on the storage pad to the south, which measured approximately 20 feet x 50 feet. This pad was covered by ripped canvas stretched over a wooden frame. The north pad was uncovered and contained at least 25 transformers and 20 to 40 batteries. The products stored at this unit were in good condition. Standing oil inside the north pad and release to the soil through a crack in the concrete were observed. Transformers of various sizes were scattered around both the south pad and the north concrete pad. [Based on their observations, the VSI team] suggested that soil samples be collected from each pad. Analysis should include an indicator parameter appropriate for the wastes managed (i.e., transformer oil matrix) (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick that the Navy concurs with the RFA suggestion of confirmatory sampling, and that the sampling efforts are scheduled to begin the third quarter of fiscal year 1993.

### **2.50.2 AOC Assessment and Recommendations**

- TRC recommends that the Work Plan for the confirmatory sampling be reviewed for its adequacy.
- Soil samples need to be collected from each pad and analyzed for full TCL and TAL parameters.

### **2.50.3 Site Visit Findings and Recommendations**

TRC observed the AOC to be as described in the background section above, except that the southern pad was bermed so that it formed two pads. Pad 1 (the southern pad) had approximately 100 to 110 transformers of various sizes (see Appendices A, C and D). Pad 1 was heavily stained with oil (probably from the transformers). Pad 2 (southern pad) contained approximately 25 transformers of various sizes. There was an area of stressed vegetation along the north side of Pad 2. However, as can be seen in the photograph (Photograph C.2), this is probably due to the telephone pole at this location because the stressed vegetation is around the pole only. There was also a hole in the berm on the west side of Pad 2. There was staining down the side of the pad indicating that a release

had occurred. Pad 3 (northern pad) contained approximately 25 transformers of various sizes as well. This pad also contained approximately 20 batteries that were broken and in poor condition. There was heavy oil staining on Pad 3 (probably from the transformers). In addition, there were three transformers approximately 75 feet south of Pad 1. These transformers were in good condition and were not leaking. There was no staining near these transformers. As a result, TRC agrees with previous recommendations of confirmatory sampling. Sampling should include the oils on the pads as well as the surrounding soils. Samples should be analyzed for full TCL/TAL parameters.

## **2.51 AOC D, Naval Station Outfalls**

### **2.51.1 Background**

The 1988 RFA report describes this AOC as follows:

There are a number of outfalls at the Roosevelt Roads facility. These outfalls may be associated with the Sewer Drainage System (SWMU 38), the various on-site [(Waste Water Treatment Plants] WWTPs and/or other drainage areas or ditches which exist within the facility boundaries. These outfalls include both regulated (e.g. NPDES) and nonregulated outfalls. The facility representatives knew neither the specific location of all outfalls nor the specific chemical composition of the effluent being discharged at each of these outfalls. These areas are a concern since there have been repeated past violations of releases from regulated discharge units (e.g., NPDES)" (A.T. Kearney, Inc. 1988).

Based on this information, the VSI team suggested the following:

It is suggested that the facility implement a survey to determine the location of all outfalls at the Roosevelt Roads facility and the nature of the effluent being discharged at each of the outfalls. If it is suspected that hazardous constituents are being released at any outfall, then sampling (e.g. effluent and sediment) is suggested at the outfall discharge point to determine if there has been a release of hazardous constituents to the environment (A.T. Kearney, Inc. 1988).

The June 1992 letter from P.A. Rakowski to Barry Tornick indicates the following:

The outfalls may be classified into two major categories: (1) those which are related to and for the purpose of strictly conveying stormwater, and (2) those for the purpose of conveying process wastewaters from the base's sewage treatment plants.

Under NPDES regulations, stormwater conveyed to an ultimate pointed source from industrial activities shall be permitted. Application for individual groups [was] due to EPA by October 1, 1992. The NAVSTA Roosevelt Roads was made part of a group application submitted to EPA Region II for stormwater for U.S. Naval Stations during March 1991. Therefore, the base's application is pending EPA approval. Based upon the characterization of the stormwater, EPA will issue appropriate parameters for monitoring and surface water limitations consistent with the P.R. Environmental Quality Board's Water Quality Standards. The Navy sees no additional sampling necessary as it is being covered by the NPDES program administered by EPA Region II.

For the outfalls discharge from the wastewater treatment plants, such discharges are monitored and are limited according to the NPDES program. Although violation of the NPDES permit have occurred through these three outfalls, they have been for pH, Coliforms, Chlorine Residual (lack of) and BODs or BOD percent removal. Violations have been tied specifically to a broken or marginally functional equipment at each of the plants. Violations from this outfall have been for conventional pollutants caused by poor operations, faulty equipment and the presence of a lot of rainwater. Violations can not be attributed to the introduction of any hazardous constituent into the system. For the above reasons, the Navy recommends no further action under RCRA Corrective Action (P.A. Rakowski, letter to Barry Tornick, June 1992).

### ***2.51.2 AOC Assessment and Recommendations***

Although current permits regulate the discharge of hazardous wastes from the station outfalls, the previous constituents present in the wastewater and storm water outfalls are unknown. Therefore, TRC is in agreement with the RFA recommendation that the facility identify the location of all outfalls at the station and the nature of the effluent (presently and formerly) being discharged at each location. If hazardous wastes are suspected of being released, then sediment samples should be collected from each of the outfalls suspected of discharging hazardous constituents. Sediment samples should be analyzed for full TCL and TAL parameters.

### ***2.51.3 Site Visit Findings and Recommendations***

At the request of EPA, this AOC was not inspected during TRC's site visit. As a result, no further recommendations have been made.

## **2.52 New SWMU 48, 90-Day Storage Compound (Building 3102)**

### **2.52.1 Background**

This SWMU was discovered during TRC's site visit. For this reason, no background information was available to TRC before the site visit.

### **2.52.2 SWMU Assessment and Recommendations**

Because no information was available for this SWMU prior to TRC's site visit, no recommendations were made.

### **2.52.3 Site Visit Findings and Recommendations**

This SWMU was not included in the 1988 RFA because it has come into existence since that inspection. TRC observed this SWMU to be a mobile, bermed metal containment (see Appendices A, C, and D). This containment was in turn lying on cement which was surrounded by a locked fence. The concrete was bermed with sand bags. This SWMU contained ten 55-gallon drums of waste oil and oil contaminated soil. The drums were in good condition and were not leaking. There were no stains or any other evidence of a release. For these reasons, TRC recommends no further action at this SWMU.

## **2.53 New SWMU 49, 500-Gallon Waste Oil Tank (Building 3188)**

### **2.53.1 Background**

This SWMU was discovered during TRC's site visit. For this reason, no background information was available to TRC before the site visit.

### **2.53.2 SWMU Assessment and Recommendations**

Because no information was available for this SWMU prior to TRC's site visit, no recommendations were made.

### **2.53.3 Site Visit Findings and Recommendations**

This SWMU consists of a bermed 500-gallon waste oil tank located west of Building 3188 (see Appendices A, C, and D). The tank was in good condition and was not leaking. The berm was also in good condition. There was no staining or cracks in the concrete. There is an overflow valve that was closed at the time of inspection. For these reasons, TRC recommends no further action for this SWMU.

## **2.54 New SWMU 50, Storage Area behind Building 3166**

### **2.54.1 Background**

This SWMU was discovered during TRC's site visit. For this reason, no background information was available to TRC before the site visit.

### **2.54.2 SWMU Assessment and Recommendations**

Because no information was available for this SWMU prior to TRC's site visit, no recommendations were made.

### **2.54.3 Site Visit Findings and Recommendations**

This SWMU consists of a fenced area south of the southwest corner of Building 3166. TRC observed one 55-gallon drum of malathion, three 5-gallon cans of roof cement, two 5-gallon cans of floor wax, two 5-gallon cans of lubricant, two 5-gallon cans of polyvinyl and nine flammables cabinets (see Appendices A, C, and D). Many of the above containers were stored directly on the soil. The containers were in good condition and were not leaking. There was no staining or any other evidence of a release. TRC recommends that these materials be moved to a padded area in case any spills occur.

## **2.55 New SWMU 51, The New Location of SWMU 33 (AIMD Hazardous Waste Storage Pad)**

### **2.55.1 Background**

This SWMU was discovered during TRC's site visit. For this reason, no background information was available to TRC before the site visit.

### **2.55.2 SWMU Assessment and Recommendations**

Because no information was available for this SWMU prior to TRC's site visit, no recommendations were made.

### **2.55.3 Site Visit Findings and Recommendations**

This SWMU is used in place of SWMU 33 (AIMD Hazardous Waste Storage Pad). This SWMU consists of a bermed, fenced, roofed concrete pad measuring approximately 25' x 25' (see Appendices A, B, C, and D). At the time of the site visit, this SWMU contained fourteen 55-gallon drums of waste oil, non-regulated waste, blast booth media (plastic mixed with dry paint), aluminum oxide, naphtha petroleum, antifreeze/water waste, hydraulic fluid and rags, empty paint cans, aerosol paint cans, synthetic fuel waste and paint waste. The pad contained two overflow valves. Staining of asphalt was observed under and in the area around these valves. On the back side of the pad is a 200

gallon (approximately) unleaded gasoline tank. This tank is bermed with sand bags. One of the hoses of the tank had a leak in it. Personnel fixed this during the site visit and sponged up the leak. Due to the observed releases, TRC recommends confirmatory sampling for this SWMU. Sampling should include wipe and chip samples from the surrounding asphalt as well as surface water and sediment samples from the drainage ditch that is within 100 feet of the pad. Samples should be analyzed for full TCL/TAL parameters.

## **2.56 New SWMU 52, Building 200 - Waste Collection Area at the East End of the Runway**

### **2.56.1 Background**

This SWMU was discovered during TRC's site visit. For this reason, no background information was available to TRC before the site visit.

### **2.56.2 SWMU Assessment and Recommendations**

Because no information was available for this SWMU prior to TRC's site visit, no recommendations were made.

### **2.56.3 Site Visit Findings and Recommendations**

This SWMU consists of one empty drum of syntectic fuel, one empty drum of "non-halogenated fuel," one empty drum of "halogenated fuel," one empty drum of JP-5 fuel and one empty flammables cabinet. The drums were on a mobile, bermed steel pad (see Appendices A, B, C, and D). All containers were in good condition and were not leaking. There were no stains or any other signs of a release. For these reasons, TRC recommends no further action.

## **3.0 SUMMARY**

In general, many of the SWMUs/AOCs have significant gaps in the data base which results in incomplete characterization, and precludes making decisions or taking effective remedial action. This commonly results from the following:

- lack or inadequate number of samples collected,
- inadequate type(s) of analyses,
- not all potentially impacted media were investigated,
- not enough information was available to make any conclusions, and
- not enough information has been gathered to prepare a remedial design.

For example, at SWMU 1, sampling of the area that was completely devoid of vegetation was never performed. At SWMU 11, sampling was done for PCBs only. Sampling did not include lead and MEK even though these contaminants were detected in earlier

sampling events. Similarly, not enough information has been gathered to prepare a remedial design. In another example, SWMU 45, numerous surface water, sediment, soil, wipe and chip samples were collected. But, ground water was not investigated even though there was reason to believe it could be impacted. In some cases conclusions or recommendations could not be made due to lack of any information.

Numerous SWMUs/AOCs were also effectively characterized. These SWMUs/AOCs have been adequately addressed either because there were no significant operations or releases related to the SWMU, or because the SWMU has been decommissioned. For instance, SWMU 5 consisted of dumpsters. Because no hazardous material was handled at these sites and because they are maintained, no further action is necessary. SWMU 21, Donuts 1-4, is an example of where the site has been adequately addressed because the SWMUs are no longer in operation. One issue that affects all SWMUs/AOCs is that background samples were not collected in the vicinity of the SWMUs/AOCs in question.

The site visit was conducted between June 1 and June 4, 1993. During this visit, TRC discovered five new SWMUs. TRC also discovered that some SWMUs had been relocated. For example, SWMU 33, AIMD Hazardous Waste Storage Pad, had been moved to the other side of the AIMD Building. The new area was considered a new SWMU (SWMU 55). Some additional SWMUs were observed to need additional work. AOC C, Transformer Storage Area, for example, was heavily stained and had evidence of releases. Other SWMUs were observed to be clean (visually) and were recommended for no further action. For example, SWMU 42, Water Treatment Plant Sludge Lagoons, had no staining, stressed vegetation, odors, or any other sign that would indicate a release. As a result, no further action was recommended at this SWMU. It should be noted, however, that TRC's site visit was a visual inspection and that the "absence of evidence" does not necessarily mean the "evidence of absence." This should be considered when needs for corrective action are determined.

**APPENDIX A**  
**SITE VISIT CHECKLISTS**

NJ-R31.APP

A-1

RECYCLED PAPER

ENFORCEMENT CONFIDENTIAL

**TRC**

US Naval Station Roosevelt Roads

Date: June 4, 1995

Time: 1030

SWMU Number and Full Name: SWMU 1, IR site 5, Army Cremator  
Disposal Site

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

- approximately 200 yards in trail ~~off~~  
off or is some metal objects. May  
be an old drum no odors or stressed vegetation  
however.

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

Yes:

56W05 - 0ppm

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 2ppm Low 0ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

All

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of metal objects. possible drum

Photo 2:

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. Vegetation is very thick. Can not see much.
2. Review Baker's results to make conclusions

US Naval Station Roosevelt Roads

Date: June 3, 1993

Time: 1600

SWMU Number and Full Name: SWMU 2, IR site 6, Langley  
Price Disposal Site

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

Yes. Approximately 250 to 300 yards in on the trail bulldozed so that baker could sample is an old drum. The drum was corroded, and the contents were spilled out. The drum contents are unknown but are will soapy/powder like substance. No odor & No HNu readings.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

- 1 drum. The exact contents are not known, but were a white soapy/powder material. (see photo 1)

3. Are there any odors? If so, describe.

No. There was no odor coming from the white material either.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

Yes. One

06GW01 = 0 ppm

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm.

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No. There were <sup>over</sup> hundreds of crabs living in the area of the dump. The vegetation was not stressed in the area of the white powder.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of white soapy/powder like substance

Photo 2: Photo of dense, thick (impenetrable) growth.

Photo 3: Photo of lane plowed by the bulldozer for Baker when they performed their sampling. Facing SE across Lungler Drive

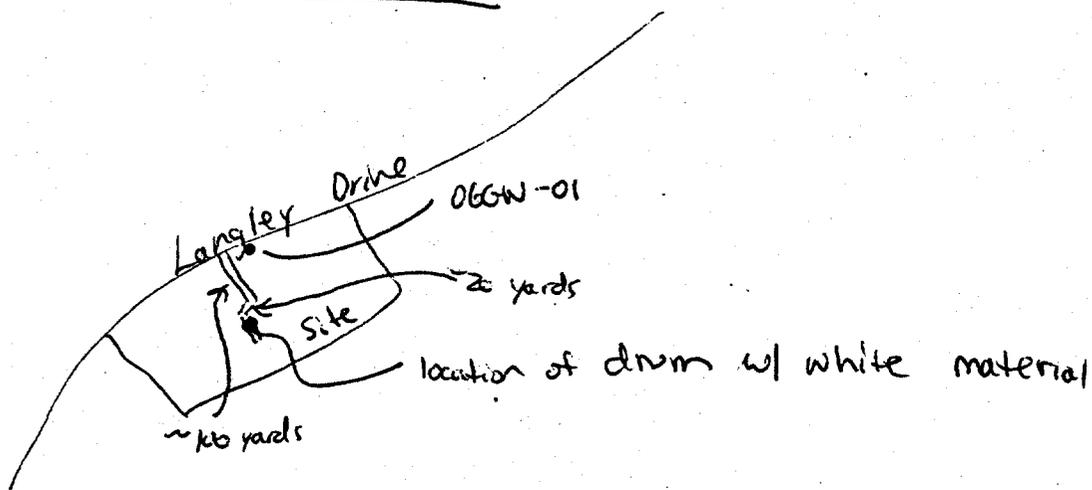
Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. Sample the white material of the drum to determine if they are hazardous or not.

Sketch of Site:



2. The vegetative growth on the site is so thick that it is virtually impenetrable w/out the aid of a backhoe/bulldozer.
3. Other materials observed included rusted metal flexible pipe & concrete debris.
4. Baker's results should be in shortly obtain copy to make suggestions.

US Naval Station Roosevelt Roads

Date: June 1, 1993

Time: 9:10 am

SWMU Number and Full Name: SWMU 3, IR Site 7 Station Landfill

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

There was no visible evidence of staining. Even from the 5000 gallon AVGAS tank and the 2 10-gallon cans.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

- 2 10-gallon cans = 1. Natriumhypochloritlösung (caustic) this one had ~ .5 gallons in it.  
2. Aktivator (Disinfectant)

- 1 5000 gallon AVGAS tank. stored as scrap metal. no readings from inside tank and no evidence of a release

3. Are there any odors? If so, describe.

- Only the odor of rotten garbage.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

Yes. 8.

MW-1 = 0 ppm      MW-7 = 0 ppm

MW-2 = }  
MW-3 = } could not be located due to dense vegetation

MW-4 = could not be located

MW-5 = 0 ppm

MW-6 = no reading taken (cap stuck closed)

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings:      High 0 ppm      Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No holes were dug for PID readings because there was no area stained to test.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

There were no signs of stressed vegetation.

9. List the photos taken and describe the subject and direction of photo:

Roll 1: Photo 1: Photo of 10-gallon can of Sodiumhypochlorite (caustic substance). There was ~ .5 gallons left in the can.

Roll 1: Photo 2: Photo of 10-gallon can of Alkimeter (Disinfectant)

Roll 1: Photo 3: Photo of AUGAS TANK. A 3 foot hole has been drilled into tank. Readings from inside tank were 0 ppm. No evidence of a release from this tank.

**Photo 4:** Photo of landfill looking NNE. Note location of 8000 gallon ~~AWGAS~~ tank left of center in the photo & Bldg. 38 old power plant.

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. Land fill is currently operating.
2. Land fill is vegetated, but a good portion of the landfill can be accessed by foot. The interior part of the landfill is thicker & would require some sort of backhoe or bulldozer for access.
3. Baker did collect an additional round of Ground water samples. Report will be available soon.

US Naval Station Roosevelt Roads

Date: June 3, 1993

Time: 1320

SWMU Number and Full Name: SWMU 4, Drone Fuel Drain Oil/Water Separator

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings:

High 2 ppm

Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. Bk entire area w/in 200' is concrete and there is no staining.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No. The entire area surrounding area is concrete. No vegetation.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of oil/water separator facing NNE.

Photo 2: Photo of inside of catch basin. Note drain, lack of staining & absence of cracks in the concrete.

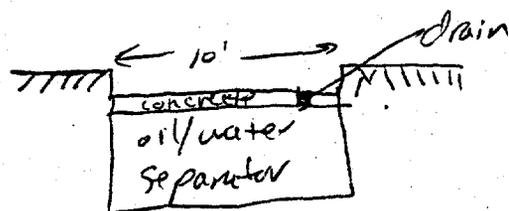
Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. The oil/water separator consists of a grate (10' x 10') & 1' deep. There is a drain in the ~~sepa~~ pit that flows to the oil/water separator. The oil/water separator under lies the 1' catch basin & is not visible or accessible (see sketch): The only way to



determine if a release has occurred is to install HI borings on each side of the oil/water separator. However, there is no staining & no evidence of any release at this SWMU.

US Naval Station Roosevelt Roads

Date: June 2, 1993

Time: 940

SWMU Number and Full Name: SWMU 6, IR Site 11, former Paint Storage

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings:

High 0 ppm

Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. Existing bunker is made of concrete.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No. In fact, 3 frogs were living  
in water in bunker

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of bunker looking W. Note lock  
of <sup>staining</sup> and curtains.

Photo 2: Photo of bunker looking W <sup>way</sup> 1/2 down  
bunker. No curtains.

Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. Bunker is made entirely of concrete.  
No cracks were evident. No staining.  
No sheen was noted on water.
2. No further action recommended.

US Naval Station Roosevelt Roads

Date: June 2, 1997

Time: 1400

SWMU Number and Full Name: SWMU 7, IR Site 12, Tow Way Road  
Fuels Farm

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

- The entrance where pipes came out from tank 1082 has water in it. The way has oil on it.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

There are numerous very large fuel storage tanks (US-10) use background info for specifics. No new tanks.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

Yes  
VGW-2: ~30 ppm (6ft tanks 84, 1082, 83, 82, 1080.  
UGW-4 = ~30 ppm VGW-5 = 0 ppm UGW-17 = 20 ppm  
UGW-14 = 40 ppm UGW-12 = 30 ppm UGW-16 = 0 ppm  
UGW-3 = 40 ppm UGW-13 = 18 ppm UGW-18 = 0 ppm

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No. AR said that there was no active pump & treat system that he was aware of at this time.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. b/c there was no staining.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

4 Photo 1: Photo of oil on water @ tank 1082  
(Diesel). Looking NNE.

4 Photo 2: Close up of fuel on water at tank  
1082

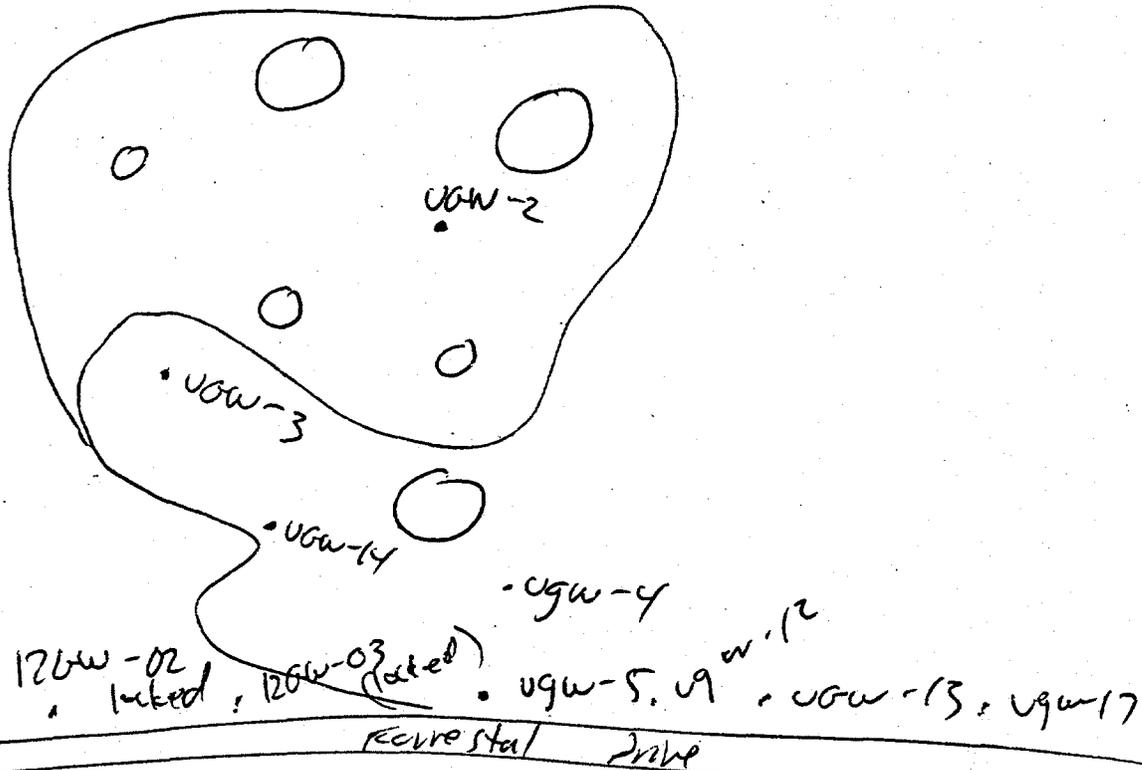
Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

Sketch of well locations:



UGW-15

UGW-6

12GW-4  
locked

UGW-18

UGW-16  
BENT FROM

UGW-7 UGW-8

4.

V9W-8 = 0 ppm

V9W-7 = 0 ppm

V9W-6 = 0 ppm

V9W-15 = 130 ppm

10. There was no visible evidence of release on the surface at this SWMU except for the minor amt of oil in the hallway of tank 1082.

US Naval Station Roosevelt Roads

Date: June 2, 1993

Time: 1:00 pm

SWMU Number and Full Name: SWMU 8, IR site 12, Tow Way Road  
Disposal Pits

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

This SWMU is related to SWMU 7 which is  
part of IR site 12

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

Yes. See SWMU 7.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppb Low 0 ppb

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1:

None

Photo 2:

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. The disposal pits could not be located.
2. TRC recommends using GPR to locate disposal area.

US Naval Station Roosevelt Roads

Date: June 3, 1997

Time: 9:30 am

SWMU Number and Full Name: SWMU 9, IR Site 13, Leaded Sludge Pits

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

- Yes there is, but not from the leaded sludge pits. Leaded sludge pit could not be located. However the vapor filter valve for tanks 212 and 213 was dripping. See photo 3. There is stressed vegetation around 2 sides of the valve. (see photo 3)
- Top of tank 217. Some stressed vegetation. (~10'x10') see photo 4.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

There are several tanks on-site (see past history for exact sizes) 212 & 213 contain ~~un~~ unleaded gasoline.

3. Are there any odors? If so, describe.

Yes. Gas odor around entire site. Source possibly (tanks 212 & 213) from tank vents most only at tanks 212 & 213.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

Yes:

13GW-01 = 5 ppm

13GW02 = cap stuck shut

13GW03 = 0 ppm

13GW06 = locked no key

13GW05 = could not be located

13GW4 = stuck shut

13GW07 = 0 ppm

13GW08 = 0 ppm

13GW10 = 1 ppm

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 10 ppm Low 0 ppm

Possibly ~~from~~ from vents on tanks.

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

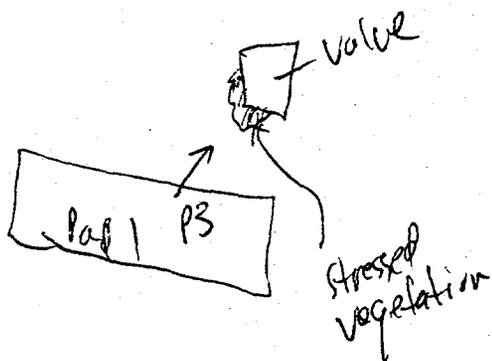
- Yes. At the valve area of the vapor filter in the area of stressed vegetation

HNU = 30 ppm @ tanks 212 & 213.

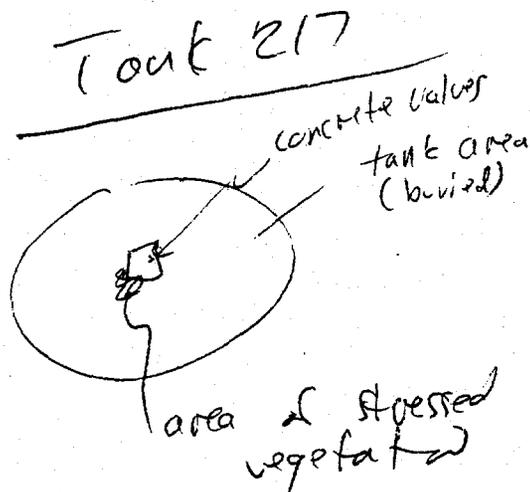
- At top of tank 27 in area of stressed vegetation (see photo 4) HNU = 6 ppm

8. Are there any signs of stressed vegetation? If so, describe and sketch.

Yes. (See photos). At the area of vapor filter area:



&



9. List the photos taken and describe the subject and direction of photo:

**Photo 1:** Photo of two concrete pits ssw of tank 212. Empty. Possible oil staining. Oil odor from tank. Facing NNE.

**Photo 2:** Photo of inside of tanks. Water at bottom. Concrete is in good condition.

**Photo 3:** Photo of valve at vapor filter where there is stressed vegetation & valve dripper. HNEI = 30 ppm. Notice stressed vegetation & drip area under valve.

Photo 4: Photo of top of tank 217 & area of stressed vegetation. Facing NW. A N<sub>x</sub> reading from soil = 6 ppm

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. The fueling pads <sup>at tanks 212 & 213</sup> are in good shape and contain no cracks or stains. No evidence of a release from these pads (at tanks 212 & 213).
2. Leaded pits could not be located. A OPR survey needs to be conducted to locate these pits.
3. Gas odors were mainly detected at tanks 212 & 213. ~~From~~ The source was suspected to be the vents from tanks 212 & 213.
4. There were two areas of stressed vegetation. Both were relatively small. 1. At tanks 212 & 213. There is a dripping valve at this location. Valve should be repaired.  
2. Area on top of Tank 217. See photo 4.

US Naval Station Roosevelt Roads

Date: June 2, 1993

Time: 1140

SWMU Number and Full Name: SWMU 10, IR site 15, Transformer  
Maintenance Area (Bldg 90)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

NO  
Yes, SW of Substation ~ 75'

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

- 1 empty very rusted 5-gallon can of paint  
spirits. No staining visible
- 1 5 gallon can of Grease oil at transformer  
pad. Not leaking

3. Are there any odors? If so, describe.

NO

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 2 ppm Low off

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

~~No - No evidence staining.~~

No

8. Are there any signs of stressed vegetation? If so, describe and sketch.

AA. Yes. There is a bare area - 75' S of substation where there is an oil stained area - 8' x 10' in area.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of 5 gallon (very rusted & empty) can of paint spirits

Photo 2: Photo of stained area facing North Eastward Substation & bldg 90

Photo 3: Photo of gear oil on transformer pad. facing west

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. This SWMU is slated for remediation in three months. Soils will be removed.
2. orange fencing restricting access to SWMU is being put up.
3. Review cleanup plan.

US Naval Station Roosevelt Roads

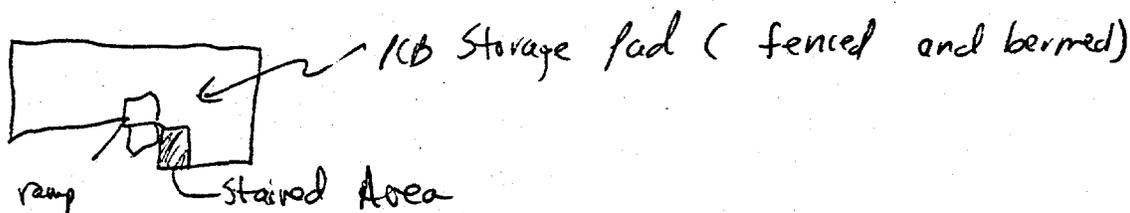
Date: June 1, 1993

Time: 11:00 am

SWMU Number and Full Name: SWMU 11, PCB Storage Compound, Inside Bldg 38.

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

There is a stained area ~ 10' x 10' in area within the storage area (fenced and bermed). Within the storage area are numerous drums of PCB containing material as well as numerous transformers.



2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

Yes.

- 28 transformers. One of which is not on a pallet.
  - 53 55-gallon drums that are labelled as containing PCBs
  - 2 5 gallon cans that are labelled as not containing PCBs.
  - 28 drums outside of pad on concrete. Some 55-gallon, some 30 gallon drums 18 are labelled as suspected pesticide contamination. The rest are labelled as non regulated waste (Petroleum contaminated soil).
3. Are there any odors? If so, describe.

- Yes an oil/solvent odor. No readings in ambient air on HNU however.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppa Low 0 ppa

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No, because SWMU is inside building on concrete.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of opening to storage area

Photo 2: Stained concrete area (~10' x 10') in area in corner of pad.

Photo 3: Photo of drums and of pesticide, <sup>contaminated</sup> soil and of petroleum contaminated soil outside of pad.

Photo 4: Photo of 3 transformers outside pad.

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

Question #2: There are 3 small transformers outside of pad.  
(cont) That are labelled as containing PCBs, 30 gallons  
combined volume Max. None are leaking.

1. The 3 small transformers should be placed inside the pad area. Sindulfo Castillo said he will have someone move them today.
2. The other drums should be moved to bermed area as well. There is enough room for storage.

US Naval Station Roosevelt Roads

Date: June 4, 1993

Time: 1005

SWMU Number and Full Name: SWMU ~~17~~ Fire Training Pit, IR site  
# 17

oil/water separator

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No No evidence of release

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: photo of oil/water separator w/ stream of water. facing NE

Photo 2:

Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. Oil/water separator appears as if it could easily overflow during periods of heavy rain. Sill. WR said that he will have Mason Contractors pump this out. This should be pumped out periodically.
2. Walls are in good condition. No cracks. Minor staining.

US Naval Station Roosevelt Roads

Date: June 3, 1993

Time: 1130

SWMU Number and Full Name: SWMU 13, IR 18, old Pest Control Shop  
(Building 258 and Surrounding Area).

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

Yes:

18GW03 = 0 ppm

18GW02 = 0 ppm

18GW01 = upgradient well. Cap will not come off.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings:

High 0 ppm

Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. No evidence of any releases.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of entire site. Building used to be where pallets are in photo. Building destroyed by hurricane Hugo. Facing SSW.

Photo 2: Photo of drainage ditch. Notice no stressed vegetation. Facing SW.

Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. Samples should be taken from ditch along road & from 2 storm drains (1 storm drain is covered by a iron (board). opened it up & no reading on t/NO
2. Samples (if taken) should be collected down slope of parking (concrete) area & at where building used to be.
3. There was no visual evidence of a release from this sumu.

US Naval Station Roosevelt Roads

Date: June 4, 1993

Time:

SWMU Number and Full Name: SWMU 14, Fire Training Pit Off/Water  
Separator IR site 17.

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

The rocks in the middle of the pond are stained. However, there is no release evident outside of concrete lined area.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

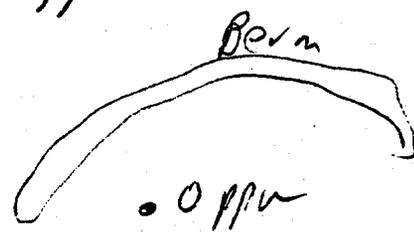
Yes:

Pit 1



All readings = 0 ppm

Pit 2



8. Are there any signs of stressed vegetation? If so, describe and sketch.

No

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of pit w/ Sump around it & a pad around the sump. Notice no stain on the concrete pad.

Photo 2: Photo of pit # 2 located w of Pit # 1 outside of fence. (~200 yards)

Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. There is no sign of release from the new fire training pit. This pit is concrete lined & has not been used for some time.
2. The only way to confirm no release at pit #2 is to install berings & take samples downgradient to the pit area

US Naval Station Roosevelt Roads

Date: June 2, 1993

Time: 1020

SWMU Number and Full Name: SWMU 15, Hospital Incinerator (Bldg 1928)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppb Low 0 ppb

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. No evidence of any release

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of incinerator facing north.

Photo 2: Photo of Bio medical waste shed, facing East.

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. Incinerator is still operating.
2. There is a shed that contains biomedical waste ~ 50' south of the incinerator. Shed was locked & is on asphalt. No evidence of release from here.
3. No further action.

US Naval Station Roosevelt Roads

Date: June 4, 1993

Time:

SWMU Number and Full Name: SWMU 16, Waste Explosive Storage  
(Building 1666)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No. Building (~ 10 x 10') is completely empty.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings:

High

0.0

Low

0.0

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No, no staining & no evidence of release.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1:

Photo of inside of shed. Empty.  
No stains. No cracks in concrete.

Photo 2:

Photo of outside of building.

Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. This building holds solid explosives & some gel explosives on items that are not functioning. These wastes are periodically brought to Uequer Island and detonated.

2. No stairs, no cracks, & no evidence of release. Wastes are mostly solids w/ some gels.

3. No further action.

US Naval Station Roosevelt Roads

Date: June 3, 1993

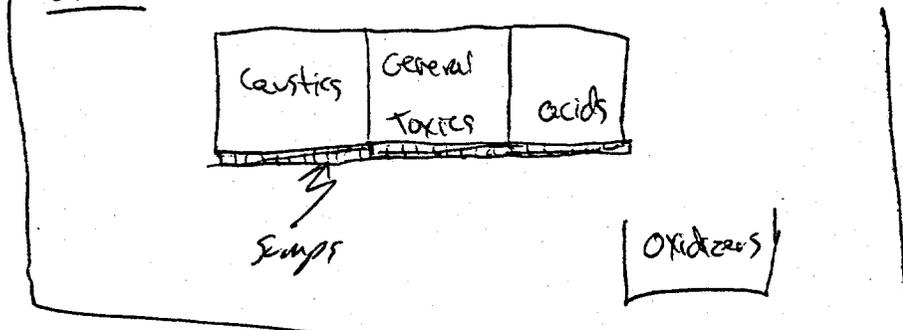
Time: 800 am

SWMU Number and Full Name: SWMU 17, DRMO Hazardous Waste Storage Facility (Building 1973)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No. There are 4 bays (caustics, general toxics, acids & oxidizers). Bays are inside DRMO Bldg.

Sketch:



2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

Yes:

Oxidizer Bay:

1 10-gallon drum of Sulfuric acid, mercuric sulfate

Acids Bay:

1 55 gallon drum of unknown corrosive material (awaiting analysis) has labelled on drum

1 30 gallon drum of nitric acid

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm.

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. holes were dug b/c storage is inside on concrete floor & there was no sign of any release.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of caustics bay w/ batteries & drums. Note no evidence of release. Concrete in good condition & the sump preventing spills from leaving area.

Photo 2: Photo of general toxics. (Numerous drums) note no evidence of a release & sump. Concrete in good condition.

Photo 3: Photo of Acids bay. ibid (above)

Photo 4: Photo of oxidizers bay. Ibid (above)

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. This unit is very clean & organized.
2. No signs of staining.
3. Sump for each bay separates materials
4. Concrete is in good condition.
5. Recommend no further action. Keep facility in the shape that it is presently in.

## 2. General Toxic Bay:

~ 60 55-gallon drums of used oil, oily rags, PP680 & water  
D006, D035, etc...

## Caustics Bay

- 54 boxes of batteries
- 1 - 30-gallon drum of Diethylene Triamine, UN1719 a decontaminating agent
- 1 10-gallon drum of waste copper chloride

US Naval Station Roosevelt Roads

Date: June 3, 1993

Time: 830

SWMU Number and Full Name: SWMU 18, Ignitable Storage Facility  
(Building 2009).

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

Yes

- 15 55-gallon drums of Naptha, waste paint, isopropanol, Hydraulic fluid w/ Freon, waste diesel
- 6 boxes of cans w/ MEK (good condition)
- 1 30 gallon drum of 150 propanol
- 1 10-gallon drum of flammable liquid

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 1 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No B/c inside corrugated metal shed w/ concrete floor. (Bermed).

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of outside of building. Photo taken facing SW.

Photo 2: Photo of contents of building. Note no staining, beam.

Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. This SWMU is in good condition. Concrete is in good shape. No major staining. No evidence of any releases to the environment.
2. There were approximately 2-3 drums of unknown contents in SWMU 25. These were waiting on analysis. Once analysis has been received, drums should be moved into storage shed or into building. SWMU 25 is immediately adjacent w/ 10' of the steep SWMU 18.
3. Outside of this, no further action is recommended.

US Naval Station Roosevelt Roads

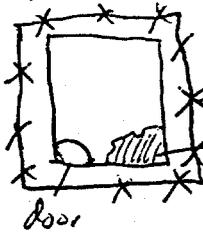
Date: June 2, 1993

Time: 920

SWMU Number and Full Name: SWMU 19, IR site 21, Pesticide waste storage (Building 121)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

There is some staining inside the Bldg.



fence

Stained concrete floor w/ Fertilizer type substance placed on top of fl.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No.

3. Are there any odors? If so, describe.

Very strong pesticide odor. in side building.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. There was no evidence of a release to the outside so no digging was done.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

NO

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of stained concrete area NE corner of Bldg. Building of ~ 30' x 20'.

Photo 2: Photo of interior of Bldg to show that it is empty.

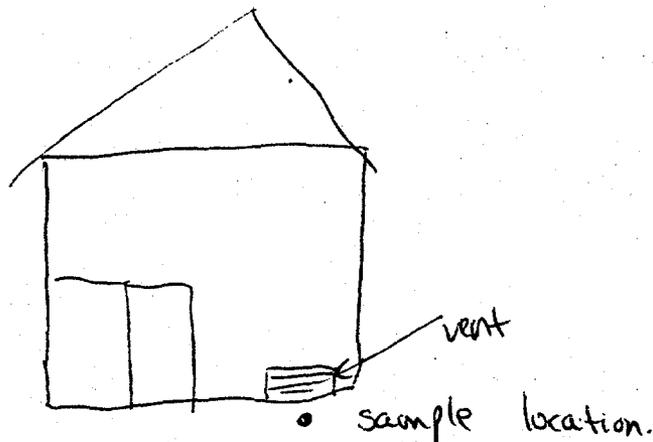
Photo 3: Photo of outside of Bldg. Heavily vegetated on outside of Bldg.

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. This unit is due for closure this summer (July).
2. There was no evidence of a release to the outside. However, if samples are taken, one should be taken near vent by the front doors.



US Naval Station Roosevelt Roads

Date: June 3, 1993

Time: 1410

SWMU Number and Full Name: SWMU 20, Waste Oil Tank Truck  
(Near Building 260).

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No. There is a bare spot in middle of grass area where tank was kept. This area is probably due to the rocky nature of the soil, however. The tank truck is no longer used. Instead, a bermed concrete pad

This probably does not fall under RCRA

- It is used to store ~~waste~~ materials that will be used. ~~waste~~ it is stored in 57 gallon drums along Bldg 260. No leaks & repairs  
2. Are any drums, batteries, transformers, etc., on site? If so, how many, and every 5 months itemize each with any contents if possible.

Yes. In the bermed concrete pad.

Bermed Pad:

- 19 drums of Baxcote R151 (an oil). Drums are in good condition & not leaking.
- JPS 500 gallon tank. No leaks. No stains
- Flammable cabinet. Paints, isopropyl alcohol. Some minor staining, but no releases outside of cabinet

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

Yes. In the middle of the grass area where tank was parked. Two holes ~ 3" deep. H<sub>2</sub>S = 2 ppm. However, this may be natural b/c soil smelled like dirt.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo looking SE towards building 200.  
Note presence of bare area. This may be due to rocky nature of soil however, b/c there is no stressed vegetation.

Photo 2: Photo of bermed pad area w/ all of the materials. Looking NNW towards building 200.

Photo 3: Photo of minor cracks in pad & drain.  
looking towards Bldg 200.

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

6/3/93 RWE  
Delete this  
to be this has  
product & probably  
falls under  
SPCC

1. This SWMU has been moved & changed to a bermed concrete pad. For all intents & purposes, this is a new SWMU.
2. Pad is in good shape. There are 1-2 minor cracks. May want to caulk those. There is a sump with a drain to drainage ditch b/w bldg 860 & 200. There is a valve at the end of the drain & is locked shut. N
3. No leaks or evidences of any release.
4. Recommended No further Action
5. This is material storage.

2. 5 5-gallon cans of corrosion preventive, No  
leaks, No drips

- oil shed: ~ 100 5-gallon cans of oil (10-10)  
Transmission fluid Mirco stains on floor, but  
no release outside of shed.

- 1 250 gallon tank diesel

- 1 250 gallon tank gas

Note: All of the above is product & probly falls under SPEC:

10. 6. If samples are to be taken, they should  
be surface soil samples in grassy area &  
possible subsurface soil samples as well as  
sediment samples from drainage ditch.

7. This area shows no evidence of a release.

US Naval Station Roosevelt Roads

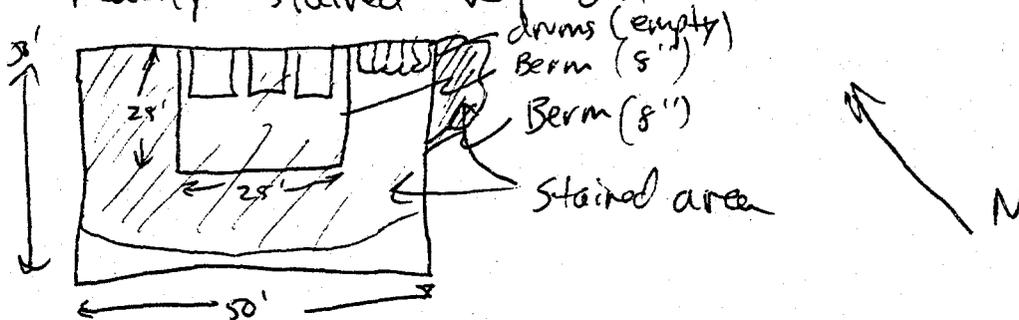
Date: June 2, 1993

Time: 1330

SWMU Number and Full Name: SWMU 23, Oil Spill Separator Tanks

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

Yes. Most of the bermed (~8") pad is heavily stained w/ oil. Pad is ~50' x 50'



2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

- 22 drums (empty) w/in pad
- 16 55-gallon drums of cleaned sorbent pads (these are brought to DEMO (located SSE of NE corner of pad))

no evidence of release {  
- 8 batteries in good condition located NW of pad.  
- 2 corrosive cabinets & 1 flammable cabinet.

3. Are there any odors? If so, describe.

Yes. Oil odor

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

Yes, at NE corner of pad.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of entire pad. Note heavy staining.

Photo 2: Photo of stained area w/ stressed vegetation at ENE corner of pad

Photo 3: Photo of batteries and flammable storage closet

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. Pad is heavily stained w/ oil.
2. Some release but it is difficult to determine if it came directly from pad. May have come from pad cleaning area to the SE of of the pad
3. Confirmatory soil sampling should be performed in this area

1. There are several small splashes of oil stain outside of bermed area.

US Naval Station Roosevelt Roads

Date: June 2, 1997

Time: 1340

SWMU Number and Full Name: SWMU 24, Oil Spill Oil/Water Separator

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

There is some staining around perimeter of the oil/water separator. Does not appear to have come from oil/water separator, however the integrity of the tank itself is good. No cracks evident.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

- There are numerous drums to the SW of the tent, but they are all empty & will be used for the rags that are used to clean up spills.

3. Are there any odors? If so, describe.

Yes. Oil odor.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppb Low 0 ppb

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No Tank surrounded by asphalt

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of stained asphalt surrounding tank looking NE

Photo 2: Photo of inside walls of tank looking NE. Note that walls are in good condition

Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. There is a pad <sup>(bermed)</sup> to the SW of the building where trucks park. Pad is heavily stained. Surrounded by asphalt. There does not appear to be any release to surrounding soils; however, rain could carry oil away.
2. This SWMU requires no further action

US Naval Station Roosevelt Roads

Date: June 3, 1993

Time: 850

SWMU Number and Full Name: SWMU 25, Past DEMO Waste Storage

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No

Note: This area is now used for materials that will be used (product) except for the 2-3 drums of unknown contents that are being analyzed

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

Yes:

- Materials to be used: Denatured alcohol, electric insulating oil, lube oil etc... asbestos.
- There are ~~2~~ a few drums of unknown contents. These have been sampled & results are due soon

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

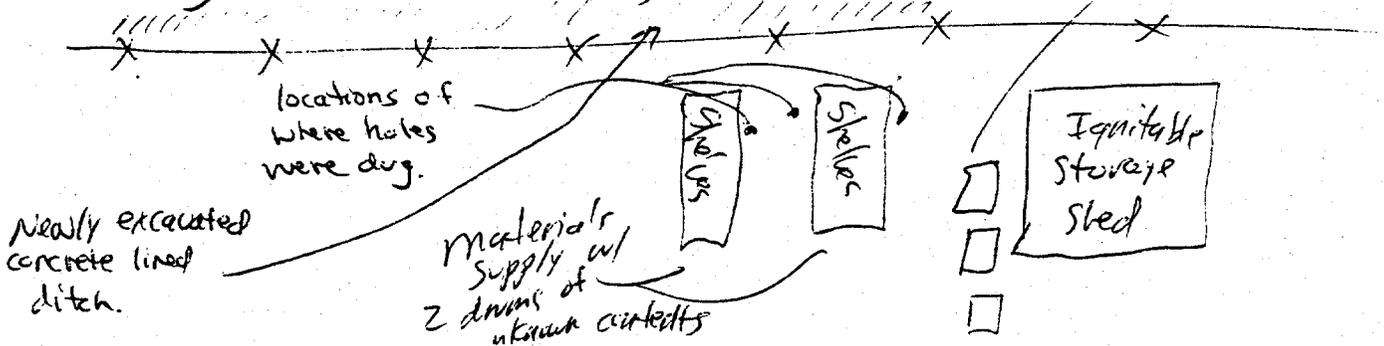
No.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

Yes.

3 holes were dug. Both = 0 ppm flammable shed



8. Are there any signs of stressed vegetation? If so, describe and sketch.

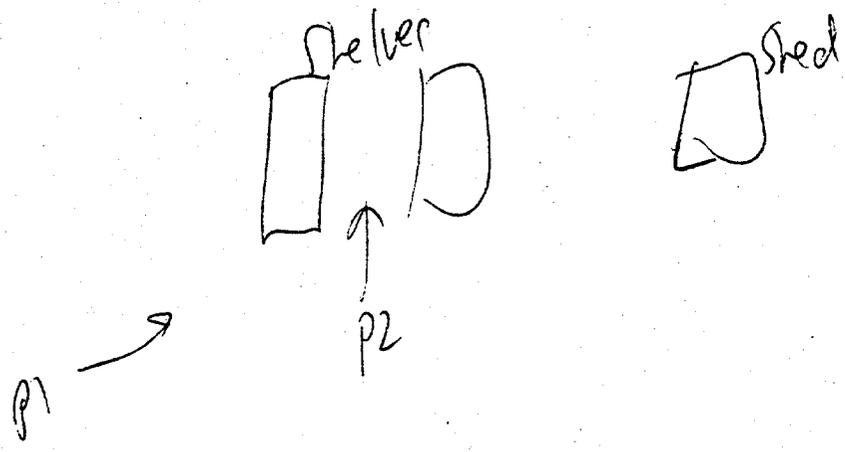
W.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of shelves w/ supplies. Notice no staining. Arms & cans in good shape. See Ignitable materials shed.

Photo 2: Photo of ground b/f shelves. Note no staining. Facing WSW.

Photo 3:



**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. The 2-3 drums of unknown contents should be moved into the shed or into the building when analyses are received.
2. There was no staining of the concrete lined ditch behind (SW) of the storage area.
3. Once this 2-3 drums of unknown contents are removed, this site will fall under SPCC6.

US Naval Station Roosevelt Roads

Date: June 4, 1993

Time: 1200

SWMU Number and Full Name: SWMU 26, Abandoned Engine Oil Drums  
(behind building 574)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

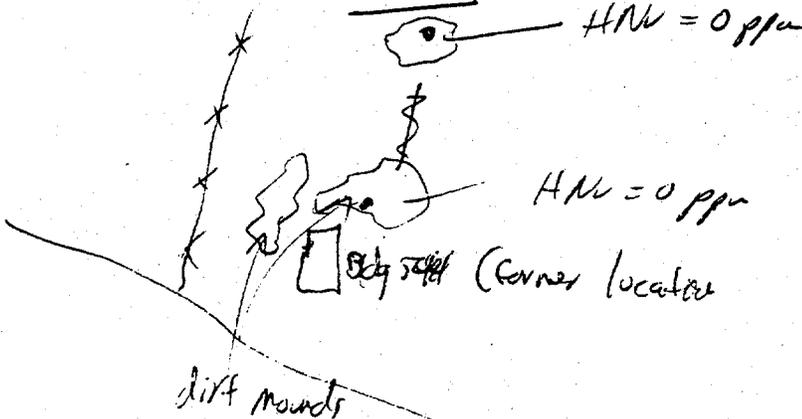
No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

Yes.

Sketch:



8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photos (1-3) Panoramic view of yard where drums were probably located. The area contains numerous mounds. Facing south.

Photo 2: Photo 5 photo of where building 544 used to be (area dug up). No stairs or evidence of release.

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. There were no signs of any drums or  
leases.
2. If sampling for verification is necessary  
the sampler should be surface and on 0-2  
b/c surface has been reworked (mounds).

US Naval Station Roosevelt Roads

Date: June 1, 1993

Time: 11:30 am.

SWMU Number and Full Name: SWMU 29, Industrial Area Wastewater Plant.

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No. There is one large tank on-site that has a caustic warning on it. No leaks from this tank were observed. The exact contents of the tank are not known, however, will try to find out what the contents are. We found out from Mr. Ortiz that the contents are anaerobic digester. (bacteria). There are no hazardous materials at this site.

3. Are there any odors? If so, describe.

- Sewerage odor, only near dry bed, however

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No, there was no evidence of a release.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of drying looking SW.

Photo 2: Photo of tank containing anaerobic digester.

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

US Naval Station Roosevelt Roads

Date: June 1, 1993

Time: 11:50 am

SWMU Number and Full Name: SWMU 30, former Incinerator site

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

1 Tank ~ 2000 gallons. This was a fuel tank for the incinerator. This tank had been removed. The excavation where it was taken out was still open. There was no odors or staining evident from the excavation.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppb Low 0 ppb

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of incinerator. Heavily vegetated all around. No signs of a release and no stressed vegetation.

Photo 2: Photo of excavation where fuel tank for the incinerator was located. Note the absence of staining of the soil.

Photo 3: Photo of the tank that was removed from the excavation. Tank appeared to be in good shape.

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. Tank that was removed from ground is still on-site. SC said that it will probably be removed when there are a number of tanks to be removed from Roosevelt Road. This tank should be removed, the excavation should be sampled for confirmation of no release from the tank & the excavation should be filled in.

US Naval Station Roosevelt Roads

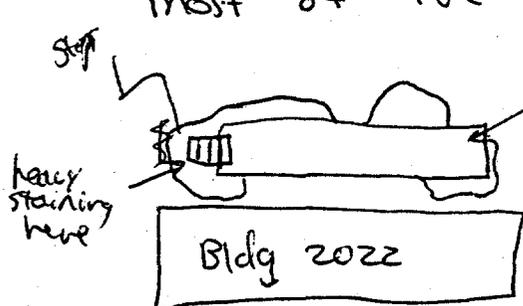
Date: June 2, 1993

Time: 8:10 am

SWMU Number and Full Name: SWMU 31, Waste Oil Collection Area  
(AWO Storage Yard)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

Yes. There is heavy oil staining surrounding most of the pad.



Bermed concrete pad. Berm is ~4" concrete is not cracked & it is in good condition.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

- Yes:
1. 44 55-gallon drums of waste oil & from the oil/water separator
  2. 1 500-gallon tank used for disposal of waste oil from vehicle shop.

3. Are there any odors? If so, describe.

Yes, a strong petroleum odor.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

Yes. However, wells could not be located.

Wilfredo Rivera (Environmental Division) did not know where wells were located.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No B/C pad is concrete & surrounding area is asphalt.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No. There is no vegetation w/in 100 yards of the pad.

9. List the photos taken and describe the subject and direction of photo:

Roll 2 Photo 1: Photo of stained asphalt looking South along Bldg 2022.

2 Photo 2: Photo of stained asphalt looking SW along Bldg 2022.

2 Photo 3: Photo of stained asphalt looking W at Bldg 2022.

**Photo 4:** Photo of empty drums at northeast corner of Building 2022.

**Photo 5:** Photo of empty drums inside Bldg 2022. Facing South.

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. Wells could not be located.
2. Valve mentioned in 1988 report has been taken out. No valve was present during this inspection.
3. Heavily stained asphalt (oil) surrounds most of the pad.
4. Sampling of asphalt/soil should be done

US Naval Station Roosevelt Roads

Date: June 2, 1993

Time: 850

SWMU Number and Full Name: SWMU 32, Battery Collection Area  
(PWD Storage Yard)

- This SWMU has been ~~used~~ moved to NW corner of Bldg. 31
1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

~~There is no evidence of a release.~~ This SWMU contains 2 pallets of old batteries (~30 - empty) and 1 pallet of ~20 batteries (full). RW <sup>Roy West</sup> says that batteries are due to be picked up today. There is a small area of stained soil ~90' NE of the paint locker for Bldg 31. This area is ~~very~~ small (~2x

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

Yes:

1. 2 ~~old~~ pallets of old dry batteries (~30 empty).
2. 1 pallet of ~20 batteries (full).
3. ~100-110 55 gallon drums of JP-5 contaminated soil & sludge from bottom of oil/water separator. Drums are on pallets. RW expects removal w/in 30 days. ~~Drums~~ Pallets are directly on soil. No concrete pad.

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. b/c there is no stained soil.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

2 Photo 1: Photo of new barrier on palat facing SW. Note no evidence of release.

2 Photo 2: Photo of old barrier facing SW. Note no evidence of release.

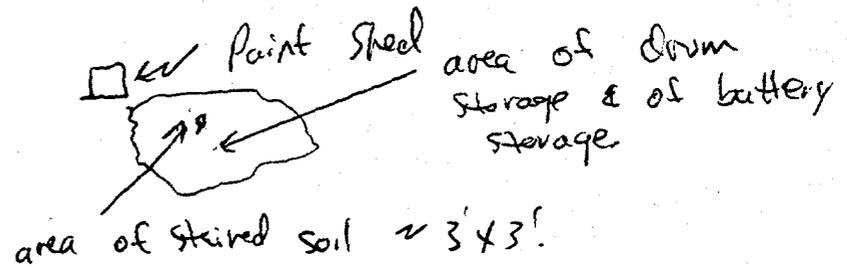
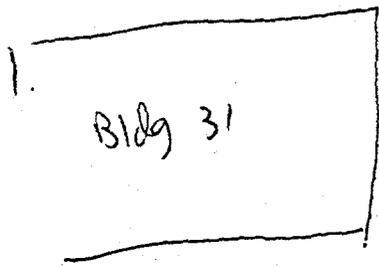
2 Photo 3: Photo of 100-110 55-gallon drums of JP-5 contaminated soil & sludge from oil/water separator.

Photo 4: Photo of Paint Storage area, facing  
NE

Photo 5: Photo of small area of stained soil.  
Facing SW. Note location of old batteries.

10. Miscellaneous comments, suggestions, recommendations, etc.

1. Drums should be kept on concrete piddled area
2. All drums were intact & not leaking
3. Area of stained soil was very small.
4. Paint Storage shed may be considered a separate SWMU.
- 5.



2. 4. Paint locker has at least 200 cans of various paints in various sized containers.

US Naval Station Roosevelt Roads

Date: June 4, 1993

Time: 815

SWMU Number and Full Name: SWMU 33, AIMD Hazardous Waste Storage Pad

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No. Yes. There is a small area ~ 2' x 2' stained w/ oil. This area is in the middle of the north side of the pad. The staining is minor.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm.

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

Yes. Four holes were dug. 1 on each side of the pad. The only PID reading was in the stained area. HNu = 4 ppm

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No. Yes. There was a bare area where the oil staining was.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of pad. Note lack of staining on pad. Looking SW.

Photo 2: Photo of stained area looking N.

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. This pad is no longer used for waste storage.
2. There was no evidence of release and there was no staining.
3. The white material mentioned in the 1988 RFA was not visible during this inspection.

US Naval Station Roosevelt Roads

Date: June 4, 1983

Time: 920

SWMU Number and Full Name: SWMU 54, VC-8 Waste Storage Pad

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

- ~ 40-50 ~~gal~~ 55-gallon drums of hydraulic fluid, oil, mixture of the 2, paints & thinners, contaminants JP-5 fuel.

- 1 500-gallon tank of JP-5 fuel that is ~~revised~~ reused. Tank is in good shape. No signs of leaks. ~~There~~ No stains.

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 2 ppm Low 2 ppm.

7. Were any holes dug for PID-readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. There was no sign of a release.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

NO.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of pad. Notice pad has been fenced & roofed & also doubled in size from the 1988 RFA. facing W

Photo 2: ~~Photo of <sup>out</sup> inside floor of pad showing no~~  
Photo of overflow control valves. Notice no evidence of stressed vegetation.

Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. As recommended by the 1988 RFA, A cover has been added to this unit. This unit has also doubled in size. It is fenced & bermed, & the concrete is in good condition w/ no cracks.
2. There are 2 overflow valves at the W side of the pad. These flow directly (w/in 5') to a drainage ditch. If samples were to be taken to check for a release, they should be taken in the ditch behind the pad.
3. When pads are dewatered, they are filtered.
4. No further action recommended.

US Naval Station Roosevelt Roads

Date: June 4, 1993

Time: 900

SWMU Number and Full Name: SWMU 35, Aircraft Wash Rack Oil/Water Separator (VC-8 Yard)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No b/c there was no sign of a release.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of oil/water separator w/ washdown area in background. Facing W.

Photo 2: Photo of walls of oil/water separator. Walls have some oil stains, but are in good shape w/ no cracks. The grey color of water is

Photo 3: from the part on the planes

↓ Photo of washdown pad. Note lack of staining. Facing NW

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. There are no signs of oil release.
2. No further action
3. If further action is deemed necessary, then soil samples should be (surface & subsurface) taken around tank & sediment samples from the drainage ditch to the NE of the separator.
4. There is no staining on the washdown pad.

US Naval Station Roosevelt Roads

Date: June 2, 1993

Time: 1030

SWMU Number and Full Name: SWMU 36, Vehicle Wash Rack Oil/Water Separator

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

There is staining (oil) on the sides of the walls of the oil/water separator. However, concrete is in very good condition. No cracks observed.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No

3. Are there any odors? If so, describe.

Yes. Oil.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

Reading from inside oil/water separator was 0 ppm as well.

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No b/c there was no stressed vegetation & no evidence of a release.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of oil/water separator tank facing away from the bay (North).

Photo 2: Photo of side wall of tank to show no cracks present. Facing East.

Photo 3: Photo of bermed wash basin where trucks are washed. Note the drain & the cracks in the pad. No staining was visible. Drain goes into oil/water separator tank.

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. This SWMU is in good condition. Pad may need to have cracks repaired - this is minor.

US Naval Station Roosevelt Roads

Date: June 3, 1983

Time: 1500

SWMU Number and Full Name: SWMU 37, Waste Oil Drum Storage Area

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

Atg. Yes. Stressed vegetation @ NE corner of pad. (2'x2' area).

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

Yes

Bermed Pad:

- JP-5 fuel

- waste fuel

- Non regulated waste

- Petroleum

} all drums are in good condition. Some old, minor stains but no new stains. No releases from berms.

3. Are there any odors? If so, describe.

Yes. Oil odor. However, this is from the sheds next to the pad where workers were pouring waste oil into 55-gallon drums.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

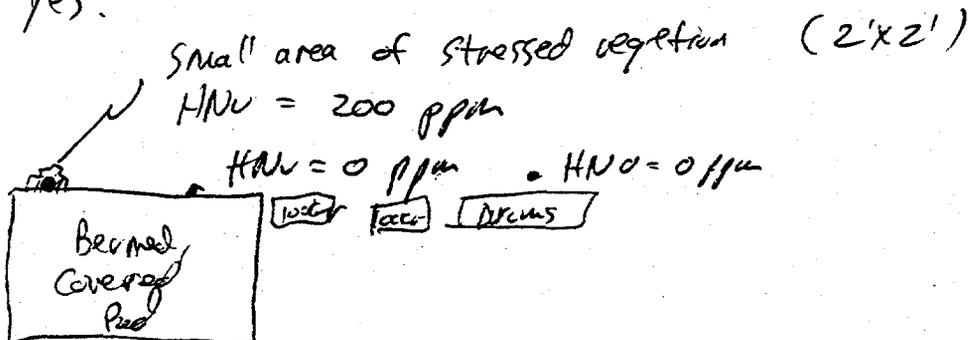
5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

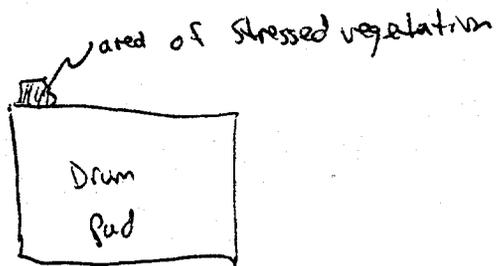
7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

Yes.



8. Are there any signs of stressed vegetation? If so, describe and sketch.

~~No~~ Yes, at NE corner of bermed pad.  
Took HNV reading from dug hole = zero ppm



9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of covered, bermed, fenced pad.  
Looking EastNE.

Photo 2: Interior of pad. Note red stains (mud) on floor. No signs of any releases. Facing East

Photo 3: Photo of drums on pallets & lockers  
looking SE. Note no staining or evidence of release.

Photo 4: Photo of oil staining under sand.

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. Two representatives from Motev pool said that a new pad has been made @ Motev pool & that the drums will be moved there at some time (unspecified).
2. Oil has escaped behind area (sandbags) but is still w/in brick floor of old building.
3. oil does not appear to have migrated very far.

US Naval Station Roosevelt Roads

Date: June 2, 1997

Time: Transformer Storage Area (Near Bldg 2:42)

SWMU Number and Full Name: AOC C, ↙

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

Yes  
Most of pad one is heavily stained w/ oils.  
Areas - 6" around circumference of pad has stressed vegetation as well as stressed vegetation in pad  
- There is no staining on pad 2.  
- Batteries on pad 3. Some are broken open.  
- There is staining (oil-PCBs?) on pad 3.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

Yes:

Next to each other }  
Pad 1: 1. ~ 100-110 transformers of various sizes  
Pad 2: ~ 25 transformers of various sizes.  
Pad 3: ~ 25 Transformers of various sizes. (rectified)  
Three transformers are located ~ 100' SE of pad 1. They are not leaking, but are on soil & not on a pad.

3. Are there any odors? If so, describe.

Yes. Oil odor.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

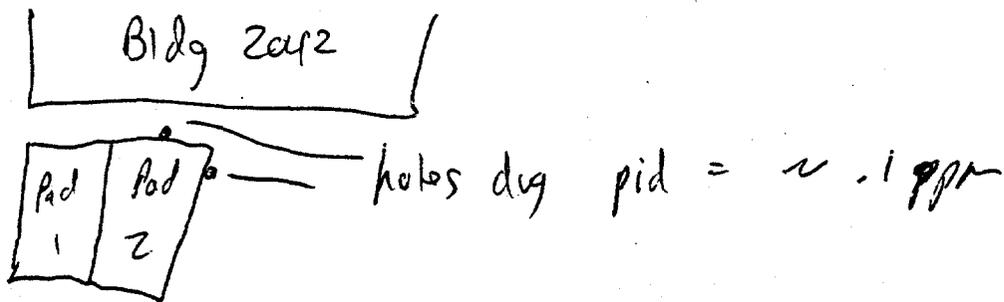
No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

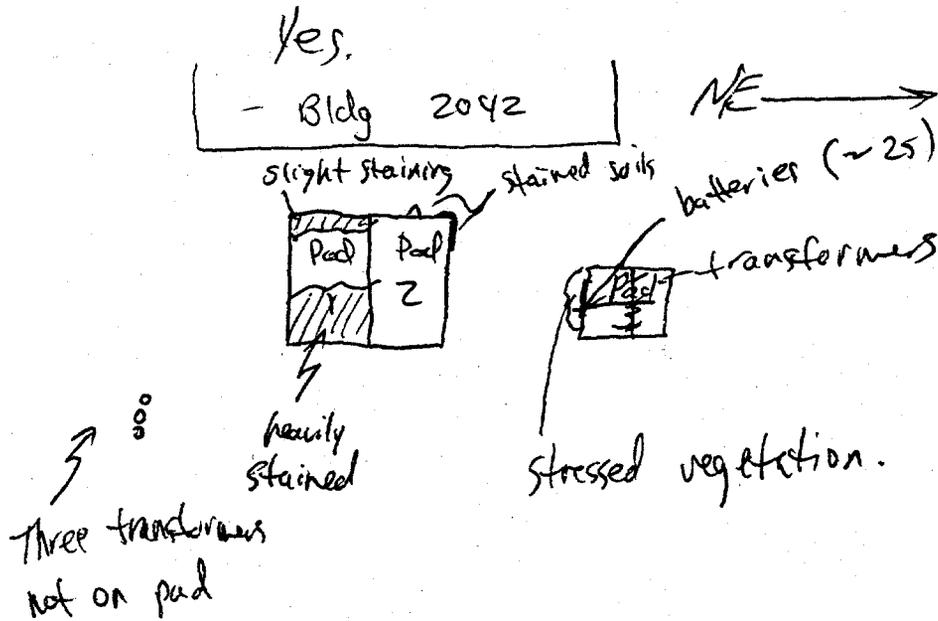
No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm.

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).



8. Are there any signs of stressed vegetation? If so, describe and sketch.



9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of heavily stained area in Pad 1.

Photo 2: Photo of stressed vegetation, ~~to~~ along N side of Pad 2. Most likely due to pole & ref from pad.

Photo 3: Photo of hole in beam of pad 2 on west side. Note oil staining down side of the wall.

Photo 4: Photo of stressed vegetation area facing SW towards Bldg 200.

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. Kearney recommended the installation of a curb onto the concrete pad. This has been done.
2. The waste materials on pallets should be moved into bermed area.
3. Samples (surface soil) should be taken around bermed pad & lockers & drums on pallets. Especially in the area of stressed vegetation at NE corner of the pad.
4. pad fills w/ water & the water is pumped to the grassy area.
5. There are no stained areas leading from the bermed pad to the <sup>stressed</sup> stressed area. <sup>stained areas</sup> However, <sup>must have had</sup> ~~had~~ to come from the <sup>staining</sup> bermed area.

2. 4 Flammables cabinets

- 1 for waste oil (workers were putting oil into 55 gallon drums at time of the incident).

~ 20 55-gallon drums of cleaning compound  
Speedy dry, paint waste, non-regulated  
waste & JP-5 fuel. All drums are in good  
condition & are on pallets. There is no  
staining under them. No evidence of releases.

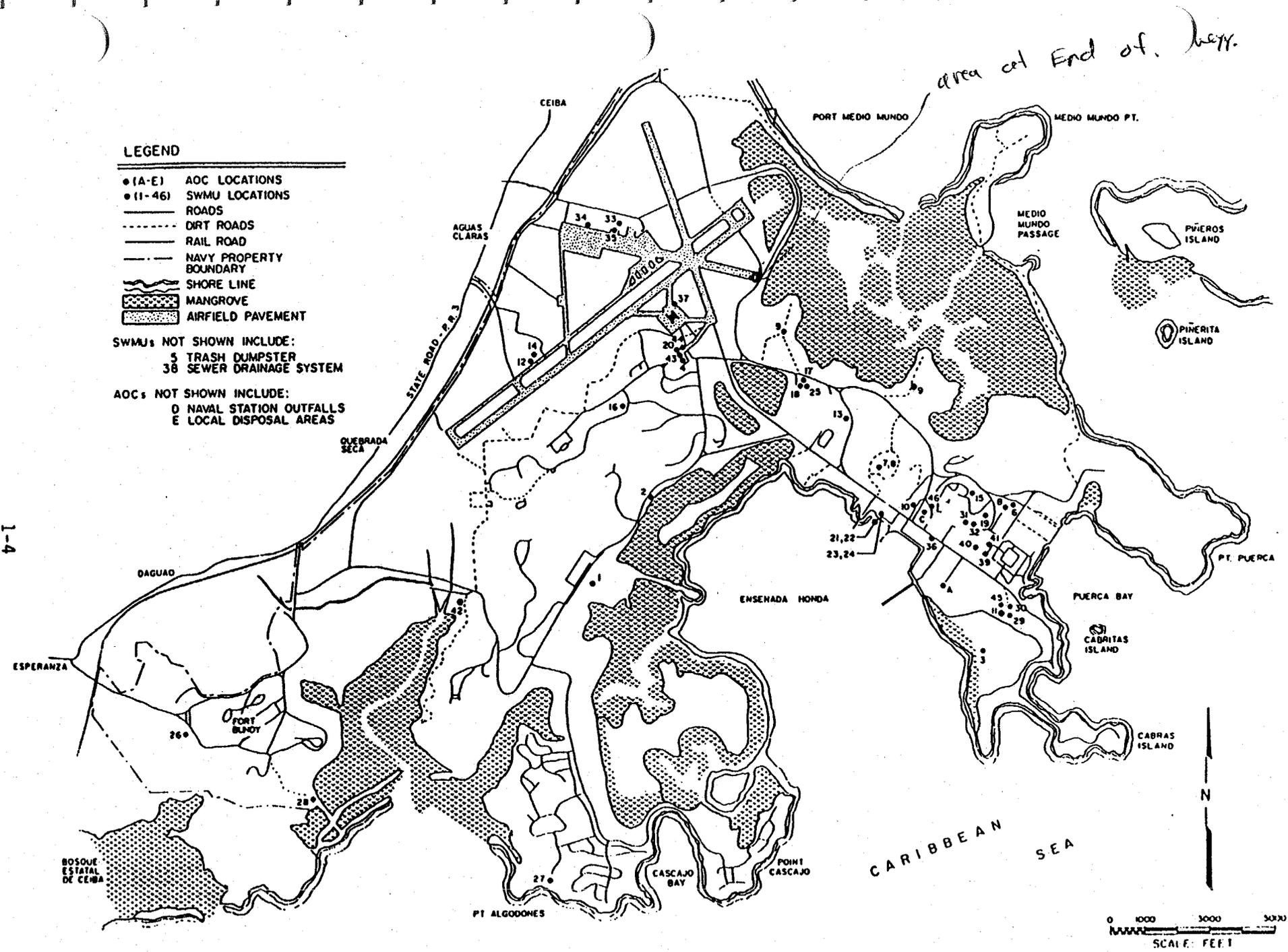


FIGURE I. LOCATION OF SWMUs AND AOCs AT U.S. NAVAL STATION, ROOSEVELT ROADS (REF. 53).

US Naval Station Roosevelt Roads

Date: June 1, 1993

Time: 1410

SWMU Number and Full Name: SWMU 39, Spent Battery Storage  
(Bldg 3158)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No. No staining. No odors.

This no longer used for battery storage but for flammables instead

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

Yes:

12 5-gallon cans of hydraulic fluid (GM Dextron II)

6 8.30 cans of ~~stated~~ fluid

2 8 oz cans radiator leak preventive

22 1 qt cans hydraulic fluid

5 1/2 qt cans 2 cycle engine oil

6 gallons of window cleaner fluid

3. Are there any odors? If so, describe.

No.

thinner

Misc 5 gallon cans of lube oil, silicone, paint, etc.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppb Low 0 ppb

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. @/c Inside & Concrete

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Roll 2 Photo 1: Photo of inside of shed, No staining.  
No cracks.

Roll 2 Photo 2: Photo of drum storage pad for oils.  
~ 120 drums present. Note no staining &  
that drums are in good condition. Note  
Bldg 3158 in background on right.

Roll 2 Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. Floor is concrete. No cracks. Painted. Floor could use repainting. No odor, no staining and no evidence of a release. MSDS sheets in <sup>side</sup> material.
2. There is a drum storage pad located ~ 150' <sup>North</sup> east of Bldg 3158. Pad is bermed w/ sand bags & has ~~water~~ man made (construction (cracks) in it. There are ~ 120 55 gallon drums of 10 weight, 30, lube oils, Antifreeze etc.. No evidence of spills or leaks. No staining. No odor. Drums are in good condition. May want to berm & make rec pad w/o cracks. This is a rec SWMC!! This is the pad in photo 2

US Naval Station Roosevelt Roads

Date: June 1, 1995

Time: 1515

SWMU Number and Full Name: SWMU 40, Seabee Oil Collection Area

this SWMU is no longer in existence. Oil Sp.

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

This SWMU is no longer on-site.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

~~1 500 gallon tank for~~

NA

3. Are there any odors? If so, describe.

NA

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

N/A

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

N/A

6. Ambient Air PID readings:

High N/A

Low N/A

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

N/A

8. Are there any signs of stressed vegetation? If so, describe and sketch.

NA

9. List the photos taken and describe the subject and direction of photo:

Photo 1:

NA

Photo 2:

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

*NA*

US Naval Station Roosevelt Roads

Date: June 1, 1993

Time: 1430

SWMU Number and Full Name: SWMU, 41, Rinse Rack Near  
Seabee Pesticide Storage

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No

1. 1 55-gallon drum mostly empty. Maybe  
~ 1-2" of stuff on bottom. Drum has been  
here for a while (rested)

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. B/c pad is concrete & surrounded by asphalt.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Roll 2 Photo 1: Photo of pad. Note no cracks in pad.

Roll 2 Photo 2: Photo of drum at washdown rack.

Photo 3:

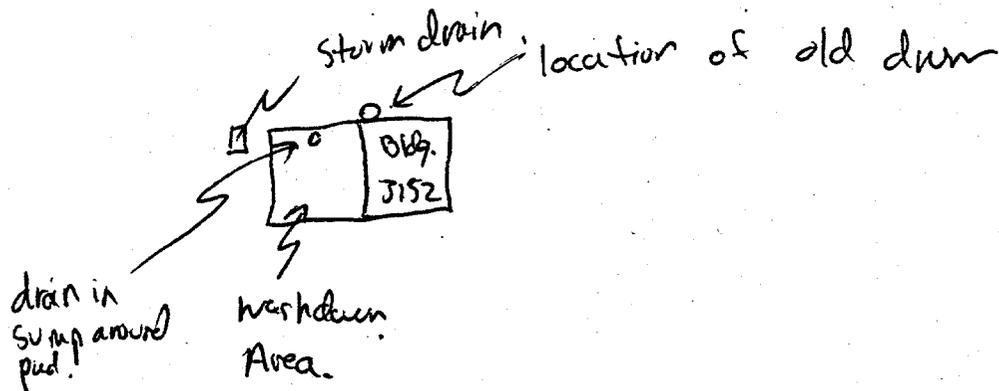
Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. May want to collect samples ~~around~~ in storm drain to check for release.

Location of storm drain:



2 Pad is not currently used

3 Old drum's content should be determined & appropriately dealt with

4. Pesticide storage building is locked. No one is allowed in. As a result, contents of Bldg are unknown. put PID up to vent in back of shed. No readings.

5. Should also collect sample from drain in sump of pod.

US Naval Station Roosevelt Roads

Date: June 4, 1993

Time: 1230

SWMU Number and Full Name: SWMU 42, Water Treatment Plant  
Sludge Lagoons

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings:

High           

Low           

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No

8. Are there any signs of stressed vegetation? If so, describe and sketch.

*Ab.*

9. List the photos taken and describe the subject and direction of photo:

Photo 1: *Photo of lagoon facing north*

Photo 2:

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. This facility does not process any hazardous wastes. There was no staining, no stressed vegetation and no sign of any release.
2. Recommend no further action.



US Naval Station Roosevelt Roads

Date: June 5, 1993

Time: 1420

SWMU Number and Full Name: SWMU 43, Drone Fuel Washdown Area.  
(IR Site 8)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No b/c the entire area is concrete & there was no staining.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo looking SSE along building 860.  
Note the lack of any staining.

Photo 2:

Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. This SWMU falls under IR Site 8. To
2. There was no staining & no evidence of release.
3. If samples were taken for this, then they should be taken from SWMU 44 (The Drainage Ditch).
4. No further action recommended for this site

US Naval Station Roosevelt Roads

Date: June 3, 1995

Time: 1350

SWMU Number and Full Name: SWMU ~~44~~ <sup>44. Aerial Target Systems</sup> ~~Drone Washdown Area~~  
(IR Site 8) Drainage Ditch.

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High Off Low Off

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

Yes. Approximately in the middle of the grating I dug up some sediment/algae and took an HNu reading. HNu read 1 ppm. I smelled the material & was not able to decipher whether or not the odor was from the algae.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No, in fact plants are growing in the ditch.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of sediment in the drainage ditch.

Photo 2: Photo facing SE showing where ~~grating~~<sup>grating</sup> comes out into ditch. There was no stream on water & plants were growing in ditch.

Photo 3:

Photo 4:

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

1. If samples are to be taken, sweep samples should be taken within the ditch. However, there is no evidence of a release here.
2. The current operations for removing oil involves placing the drosses over the oil/water separator pit. & emptying oil into 5 gallon pails which are then transferred to 55 gallon drums. Even though this practice is in place, no oil stains were noted in the pit.
3. Recommend no further action
4. There are only natural construction cracks in ditch

US Naval Station Roosevelt Roads

Date: June 1, 1993

Time: 10:35 am

SWMU Number and Full Name:

SWMU <sup>45</sup> H,  
Compound

IR Site 16  
Building 38

Spill Area  
PCB Storage

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

There is no visible evidence of staining. See photo 1.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

There are numerous gas cylinders onsite. A total of 53 tanks of various sizes. Almost all are acetylene but there are a few ethylene oxide tanks.

3. Are there any odors? If so, describe.

- There is an oil/solvent odor coming from inside Building 38. There are no ambient odors from the outside. The interior of Building 38 is a different SWMU than the exterior.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

Yes. One hole was dug.

N ↓



location of H<sub>2</sub> dig reading (0 ppm) located in low area

location of Bunker fuel tanks

8. Are there any signs of stressed vegetation? If so, describe and sketch.

no

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of concrete pad facing NW. Note lack of staining on concrete. Also note location of bunker C fuel storage tanks to the right.

Photo 2: Photo of interior of bunker C fuel storage tanks. AHU from interior was open.

Photo 3: Photo of Acetylene tanks, and

**Photo 4:** Photo of Chlorine Cylinder Storage pad.  
4 tanks are inside.

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. Sindulfo Castillo states that this SUMU is scheduled for remediation in July or August of this year.
2. Site Access should be constrained more.

US Naval Station Roosevelt Roads

Date: June 2, 1993

Time: 1045.

SWMU Number and Full Name: SWMU 46, Pole Storage Yard

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

No.

1 trash can that is empty

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. B/c there was no evidence of any release. No staining. No odors. No stressed vegetation.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of pole storage unit w/ cap & concrete floor.

Photo 2: Photo of floor area showing no evidence of staining & the absence of any drums, containers, transformers, etc..

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. There is no evidence of any release now
2. No further action recommended

US Naval Station Roosevelt Roads

Date: June 1, 1993

Time: 1545

SWMU Number and Full Name: New SWM ~~60~~ 48 RWE 6/16/93  
90 day oil storage  
Compound in back of Bldg 3102

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

1. 20 empty drums along Bldg. These to be used in case of a spill & contaminated soil can be placed in them.
2. 16 55-gallon drums. Empty triple washed. Will be brought to DRMO for scrap.
3. 10 55-gallon drums of waste oil and oil contaminated soil.

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of empty drums behind Bldg. 3102 that are used for any contaminated soil that might result from a spill.

Photo 2: Photo of triple washed drums to be brought to ORMA

Photo 3: Photo of oil drums & soil contaminated drums inside fenced area on a mobile bermed pad which is in turn inside a concrete pad bermed w/ sand bags. Note batteries on pallet

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

*Private Long says that area will eventually be concrete  
bermed.*

#2. 4. ~ 20 old batteries on pallet. Covered  
& taped up. Will be brought to PRMO  
On concrete pad inside bermed area -  
berm is made of sand bags.

US Naval Station Roosevelt Roads

Date: June 1, 1993

Time: 1500

49 RWF 6/16/93

SWMU Number and Full Name: 61 (New SWMU, 500 gallon waste oil tank on W side of Bldg 3/88)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No. Tank is no longer used. Berm is concrete and is relatively new = no cracks visible

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

1 500-gallon waste oil tank.

3. Are there any odors? If so, describe.

No

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings:

High 0 ppm

Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No

Yes, at valve discharge location  $\text{H}_2\text{N} = 0 \text{ ppm}$

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No

9. List the photos taken and describe the subject and direction of photo:

Photo 1: photo of tank facing south along wall  
of Bldg 3188.

Photo 2:

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. Tank and berm are in excellent condition.  
Tank is empty. (tapped on side).

US Naval Station Roosevelt Roads

Date: June 1, 1993

Time: 1525

SWMU Number and Full Name: SWMU 63<sup>50</sup>, Storage Area behind Bldg 3166  
RWE 6/16/93

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

NO

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

Yes:

1. 1 55-gallon drum of malathion (on pallet)
2. 3 5-gallon cans of roof cement
3. 2 5-gallon cans of floor wax
4. 2 5-gallon cans of lubricant
5. 2 5-gallon cans of polyethyl
6. 9 flammable cabinets

3. Are there any odors? If so, describe.

NO

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No

8. Are there any signs of stressed vegetation? If so, describe and sketch.

no

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of Drums & cars behind Bldg 3166 facing north. Note: there is no concrete pad. Some Drums are sitting directly on soil.

Photo 2: Photo of Drums & cars behind Bldg 3166 facing south.

Photo 3: Photo of 3 transformers ~ 25 gallons. PCB content unknown.

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. Drums & cars are sitting directly on soil. There is no evidence of a release. Containers should be placed on a concrete pad

- #2
7. 3 55-gallon drums, 1 full contents unknown
  8. 12 5-gallon cans of adhesive grout and wall covering
  9. 5 5-gallon cans of caete-cure
  10. Misc paint cans & 3 55-gallon drums of unknown contents.
  11. Flammable containers, contain paint.
  12. 3 25-gallon transformers at SE corner of Bldg 5166. Transformers are sitting on wood & appear to be new. Transformers are not leaking & there is no evidence of a release.

US Naval Station Roosevelt Roads

Date: June 4, 1993

Time: 835

SI <sup>ewe</sup> 6/16/93

SWMU Number and Full Name: SWMU 65 (The New SWMU 33)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

Yes. The concrete pad ~~was~~ is stained w/ oil. The pad is split in half. Each half has its own overflow valve. The asphalt is stained in the vicinity of the overflow valves.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

14 55-gallon drums of waste oil, non regulated waste, Blast Bosta media (plastic mixed w/ dry paint), Alor, Naptha Petroleum (PP680), Antifreeze/water waste, hydraulic fluid & oil rags, empty paint cans, aerosol paint cans, petroleum waste, synthetic waste, paint waste

3. Are there any odors? If so, describe.

Yes. Oil & gas

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No. Entire area surrounded by asphalt.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of front of pad facing NE.

Photo 2: Photo of valve w/ signs of release & the gas tank (leaking). Note speedy dvr & diaper used to clean up spill.

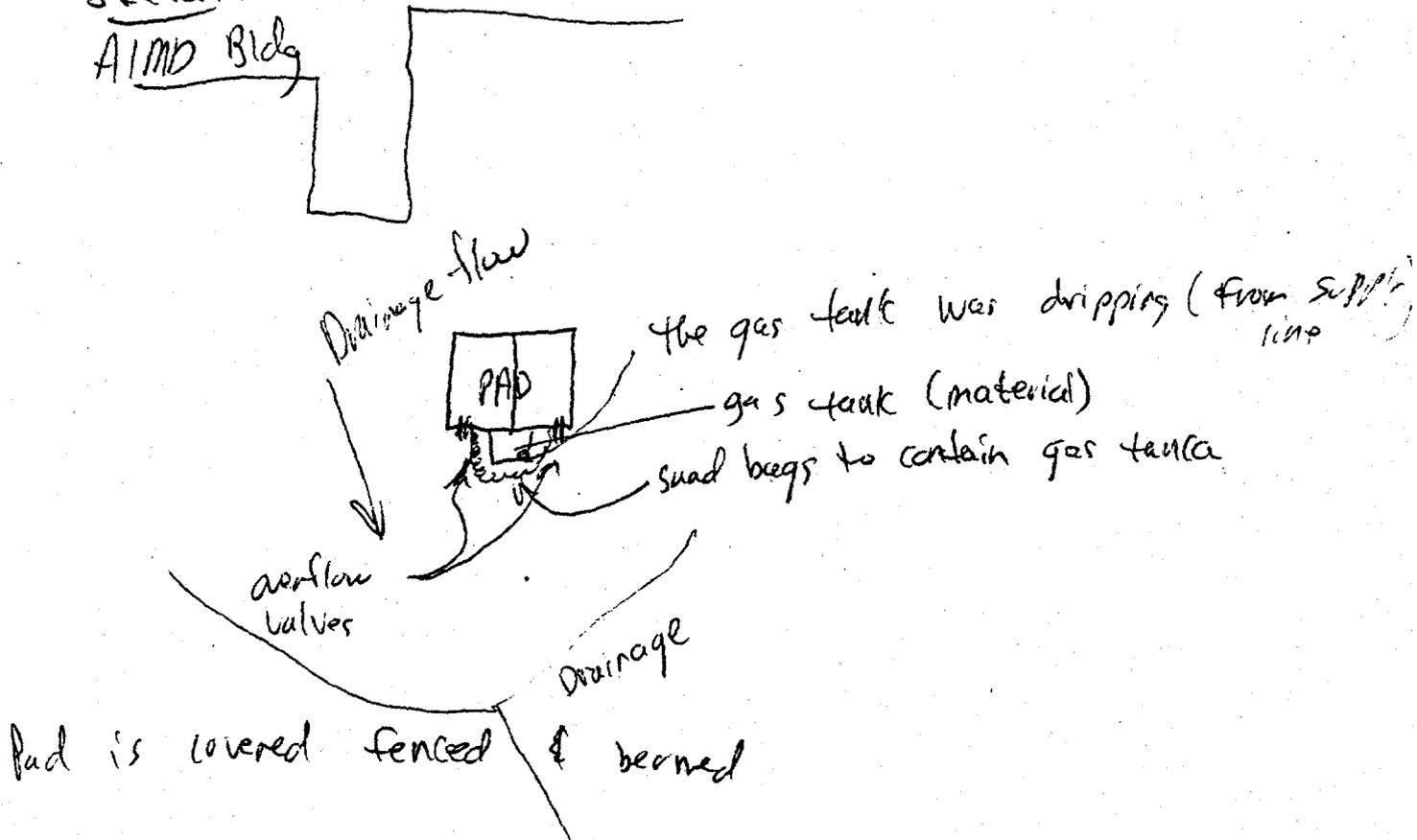
Photo 3: Photo of ~~BE~~ overflow valve

Photo 4: Close up of leak from gas tank.

Photo 5:

10. Miscellaneous comments, suggestions, recommendations, etc.

Sketch:



10.
  1. Recommend sampling of drainage ditches to check for impact on drainage ditches
  2. Pad should be cleared so that any overflows don't contain waste.

US Naval Station Roosevelt Roads

Date: June 3, 1993

RWE/6/16/93

Time: 1540

SWMU 52

SWMU Number and Full Name:

Bldg 2000 - Waste Collection area at East end of runway. See map for location

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

all empty {  
1 55-gallon drum of synthetic fuel  
1 55-gallon drum of nonhalogen fuel  
1 55-gallon drum of halogenated fuel  
1 55 gallon drum of JP-5 fuel  
- Flammable lockers = empty

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No.

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No.

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of drums & locker facing NE.  
All are empty. No staining.

Photo 2:

Photo 3:

**Photo 4:**

**Photo 5:**

**10. Miscellaneous comments, suggestions, recommendations, etc.**

1. This is a temporary storage.
2. This was not on original SWMU list.
- 3.

US Naval Station Roosevelt Roads

Date: June 1, 1993

Time: 1320

SWMU Number and Full Name: AOC A, Torpedo Shop

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

No.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

- 1 10 gallon drum of fuel residue inside of fuel tank storage (OTTO fuel II). No evidence of a release.

- There are numerous drums of agentine, OTTO Fuel II, waste wash fluid from washing torpedo fuel tanks, paint, alcohol. ~~All are~~

- All areas were padded and bermed & were in excellent shape. There was no evidence of release from these areas.

3. Are there any odors? If so, describe.

No.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings: High 0 ppm Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

No b/c there was no evidence of a release & all containers were on concrete

Photo 6: Photo of Drum Pad #1 at Bldg 1730

~~Photo 7: Photo of Drum Pad #2 at Bldg. 1730~~

6. Torpedo washdown area should be repaired to fill in the minor cracks.

US Naval Station Roosevelt Roads

Date: June 2, 1993

Time: 1000

SWMU Number and Full Name: AOC B, Former PWD Storage Area  
(Building 25)

1. Is there any visible staining or evidence of release? If so, describe below in detail. Sketch extent of release.

This SWMU has been demolished. There is a makeshift pad made on the brick flooring of where the building once stood. Pad is ~ 15' x 50' and is made of sandbags. There are 17 55-gallon drums of diesel fuel & lubricating oil. Some of the drums are covered w/ a tarp.

2. Are any drums, batteries, transformers, etc., on site? If so, how many, and itemize each with any contents if possible.

Yes

1. 17 55-gallon drums & 5 5-gallon drums & 1 gallon can.

3. Are there any odors? If so, describe.

Yes. Oil odor.

4. Are there any wells? If so, how many? What were the PID readings in each (itemize per well).

No

5. Are any of the wells part of a treatment process? If so, describe the process and which wells are being used for this.

No

6. Ambient Air PID readings:

High 0 ppm

Low 0 ppm

7. Were any holes dug for PID readings? If so, how many, where (use map or sketch one) and what were the readings (itemize per PID reading location).

Yes. In the sand used to absorb oil release. After sand was removed, oil, <sup>staining</sup> was underneath.

8. Are there any signs of stressed vegetation? If so, describe and sketch.

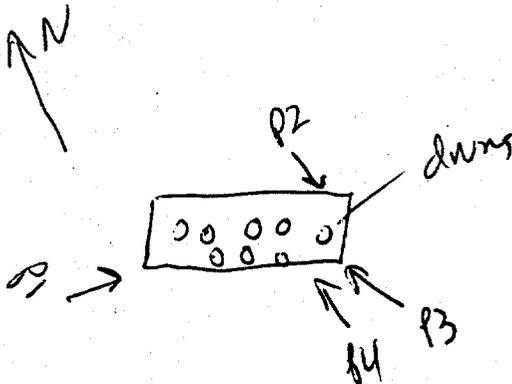
No

9. List the photos taken and describe the subject and direction of photo:

3 Photo 1: Photo of drums looking east.

3 Photo 2: Photo of stained area ~ 3' x 3' looking SE.

3 Photo 3: Photo of stained area & sand used to soak oil off ground facing N.



8. Are there any signs of stressed vegetation? If so, describe and sketch.

No.

9. List the photos taken and describe the subject and direction of photo:

Photo 1: Photo of interior of Torpedo fuel tank storage.  
Note the catch basin that catches any fuel that may spill. Basin is in excellent condition.  
No cracks

Photo 2: Photo of 10-gallon Otto Fuel II residue tank.  
Note good condition of tank & no evidence of release

Photo 3: Photo of inside of Bldg. 832.  
Waste oil fuel storage. Photo of drums of Cyanide waste UN # 1955. Mineral spirits, alcohol, HCN, PGDN (Otto Fuel II), Agentine (a clear flow), All used to clean torpedo engines. 30 wt engine oil. Fuel tanks of Otto II fuel (German).

Photo 4: Photo of crack in torpedo washdown pool. Crack is not severe, however.

Photo 5: Photo of entire torpedo washdown pool

10. Miscellaneous comments, suggestions, recommendations, etc.

1. Fuel <sup>tank</sup> storage room is air monitored daily.
2. Bldg 832 is in good condition. Floor has no cracks & is freshly painted. All doors are sealed. Sump is also freshly painted & there are no cracks in it.
3. Bldg 1730. Two <sup>berms</sup> drum pads. Pads are in good shape. No cracks, no staining.
4. Inside Bldg 1730. Wash area is epoxied. Ran out of film no photo. Floor has no cracks & is epoxied.
5. Flammable storage locker. Contains numerous drums and various sized containers. Materials include: alcohol, lubricating oil, paint, Acetylene. No evidence of any releases. No odors, no stains, no cracks. Area is enclosed and fenced.

Photo 4: Photo of 3 transformers facing SE away from pads 1, 2 & 3.

Photo 5: Photo of batteries on pad 3. facing SE

Photo 6: Photo of stained pad (3) looking W.

10. Miscellaneous comments, suggestions, recommendations, etc.

Photo 7: Photo along S wall of pad 3. Photo of stressed vegetation facing W.

1. Walls (beams) of pad 3 are cracked & leaking. Pad 3 is stained.
2. Pad 2 is not stained but has a small hole in beam on W side w/ oil staining (light) running down outside wall.
3. Pad 1 is heavily stained.
4. There are three transformers standing directly on soil. They are not leaking & should be moved to padded area.
5. Sampling of the soils surrounding this area should be performed. Stained areas should be cleaned & transformers removed & disposed properly.

**APPENDIX B**

**MAPS OF SWMUs WHERE SAMPLES HAVE BEEN  
AND/OR ARE PLANNED TO BE COLLECTED**

NJ-R31.APP

B-1

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**BASE MAP SHOWING  
SWMU/AOC LOCATIONS**

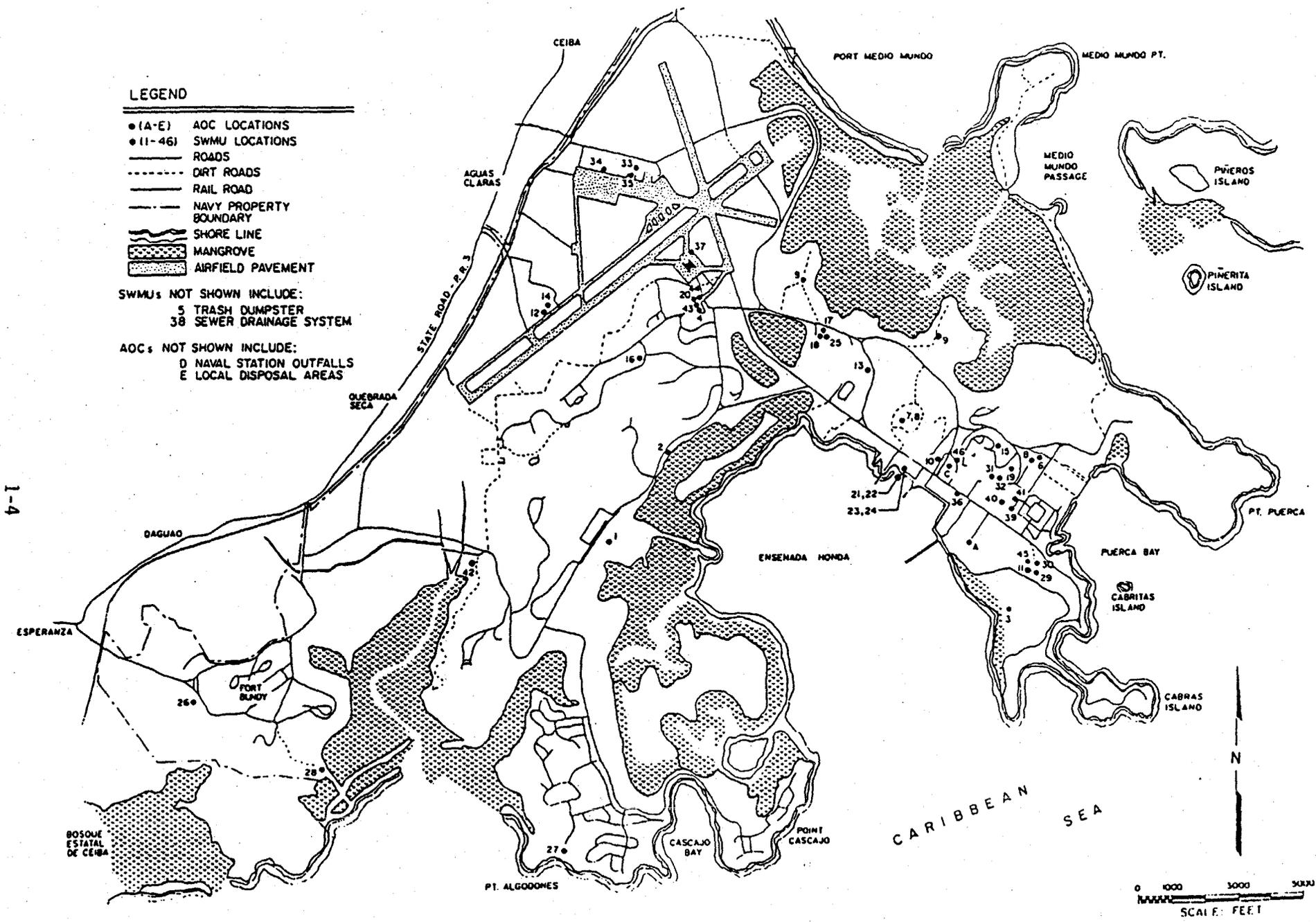
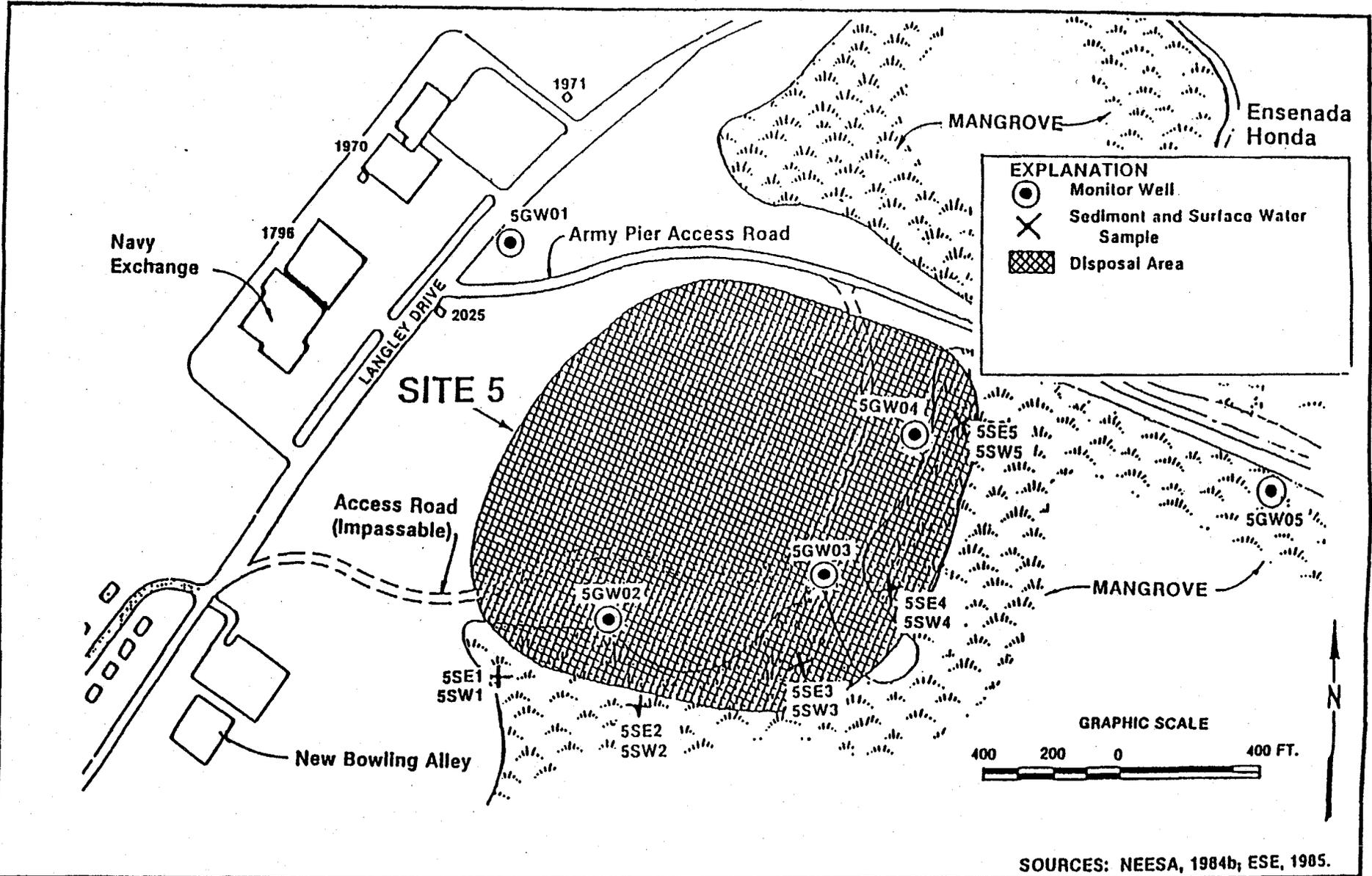


FIGURE 1. LOCATION OF SWMUs AND AOCs AT U.S. NAVAL STATION, ROOSEVELT ROADS (REF. 53).

**SWMU 1**

**TRC**

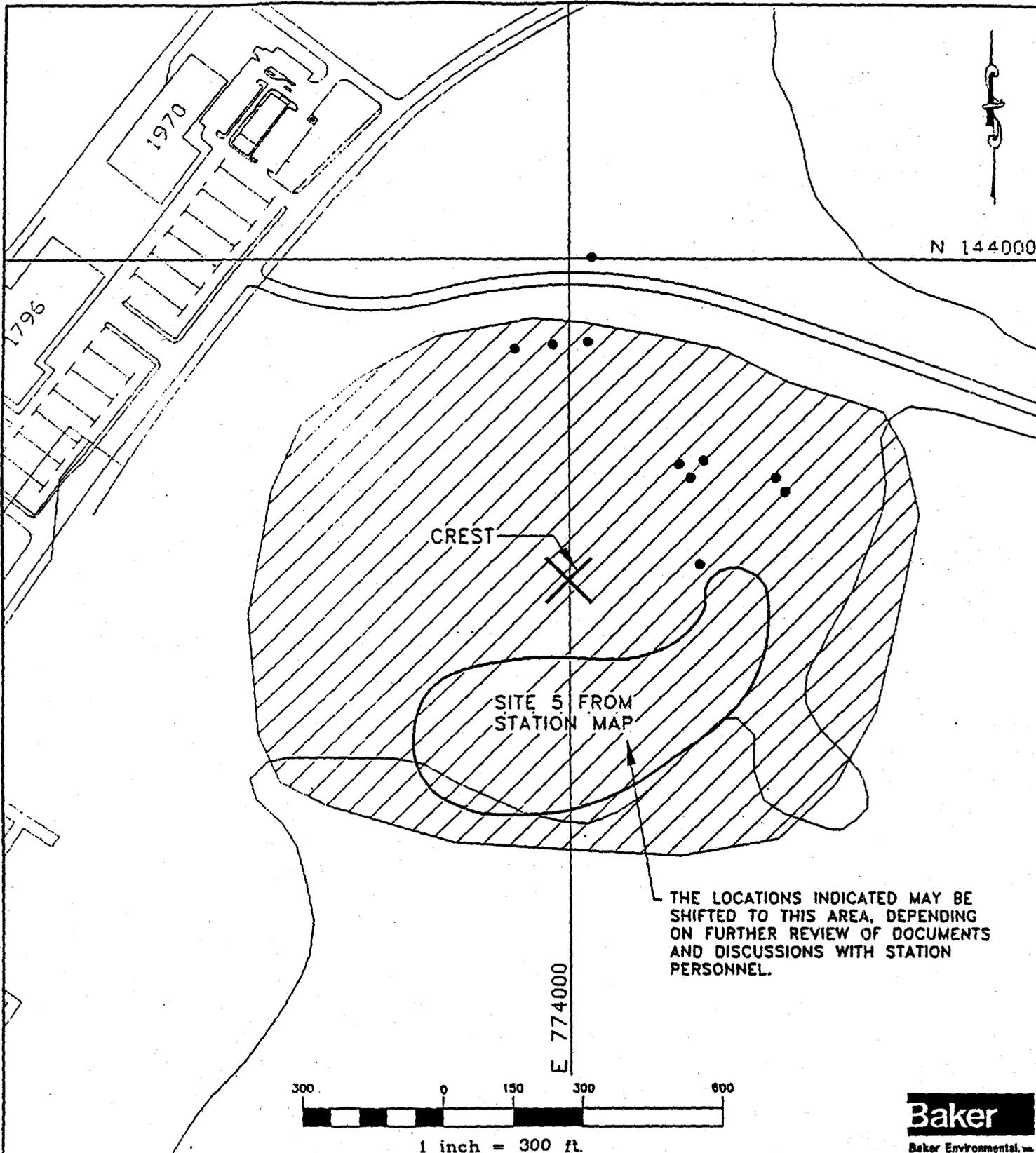


SOURCES: NEESA, 1984b; ESE, 1985.

Figure 3-4  
ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE 5,  
ARMY CREMATOR DISPOSAL AREA



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**LEGEND**

- PLANNED SURFACE SOIL SAMPLE LOCATION

**FIGURE 2-3**  
**SAMPLE LOCATION MAP**  
**SITE 5, ARMY CREMATOR**  
**DISPOSAL SITE**  
**NAVAL STATION ROOSEVELT ROADS**  
**PUERTO RICO**

**SWMU 2**

**TRC**

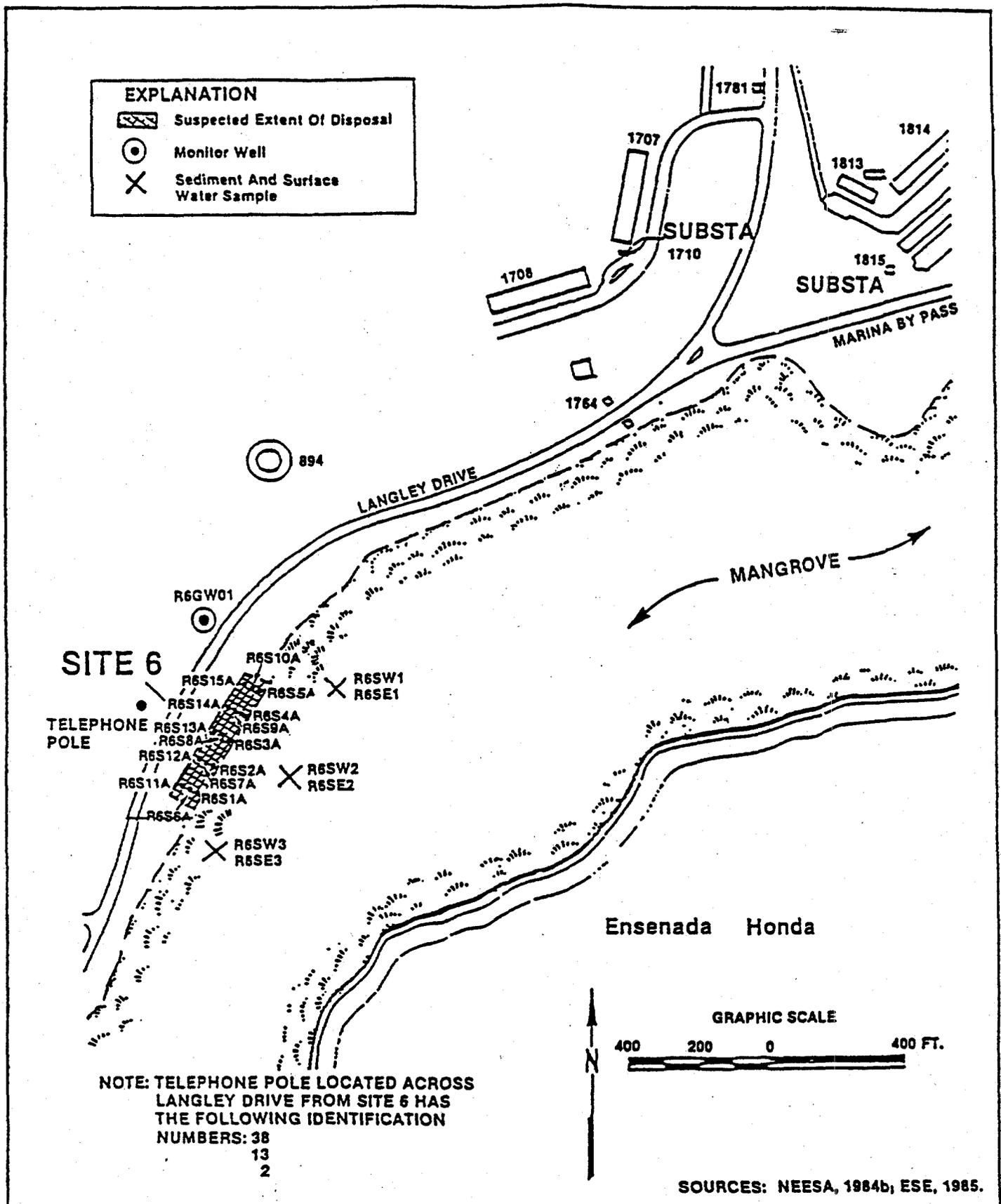
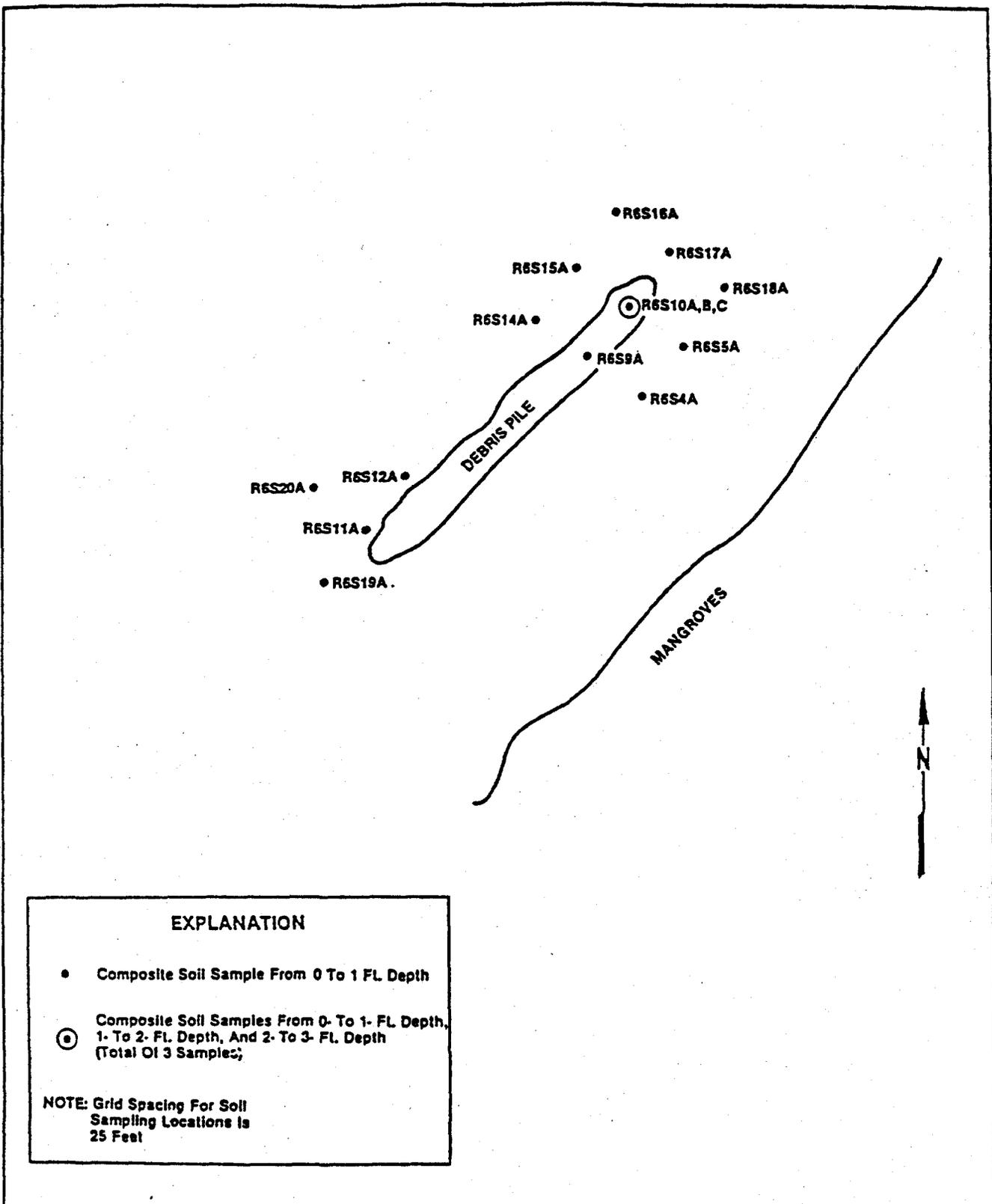


Figure 3-5  
 ROUND 1 SAMPLING LOCATIONS AT SITE 6,  
 LANGLEY DRIVE DISPOSAL SITE



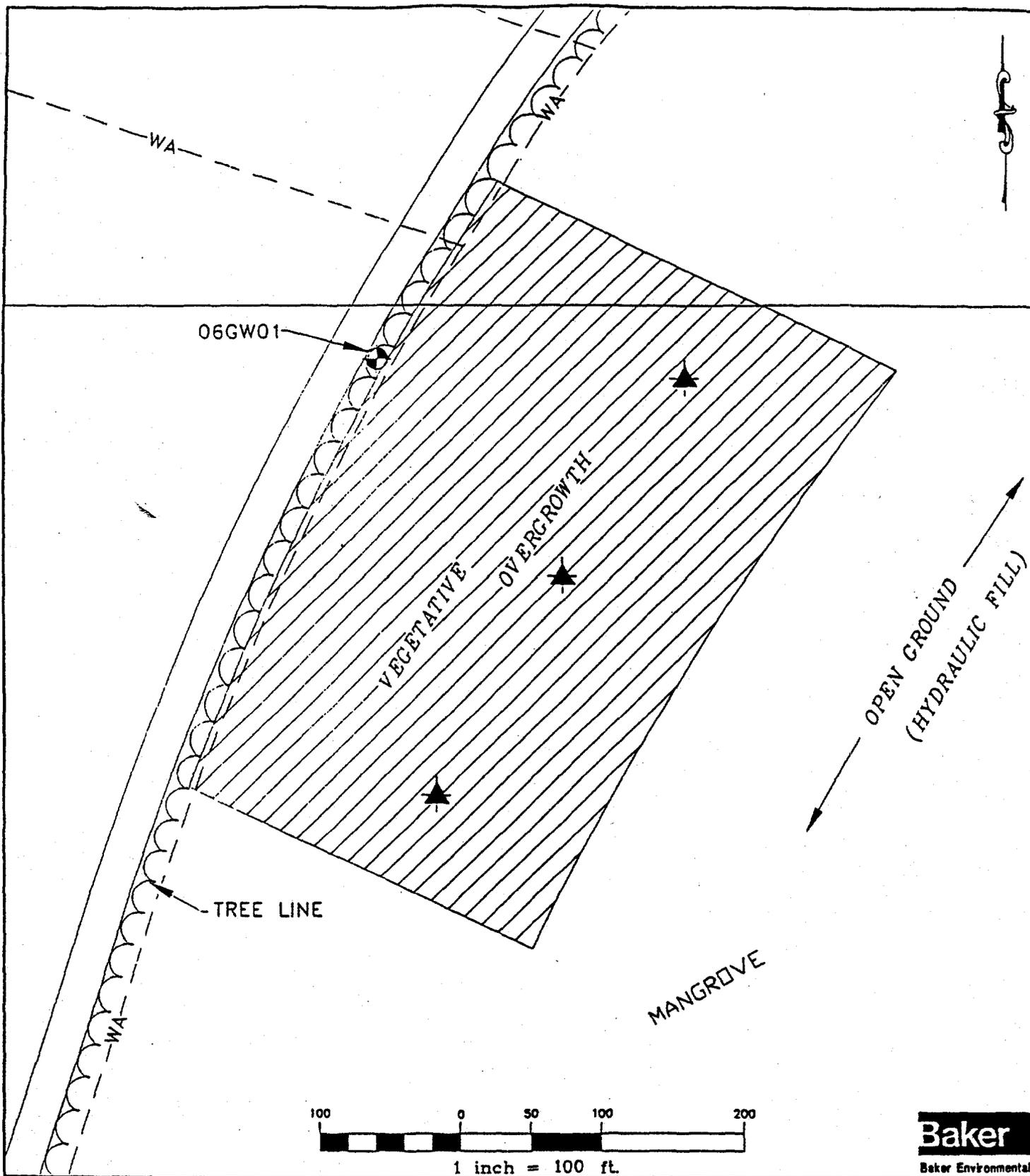
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**Figure 3-6**  
**ROUND 2 SOIL SAMPLING LOCATIONS AT**  
**SITE 6, LANGLEY DRIVE DISPOSAL SITE**



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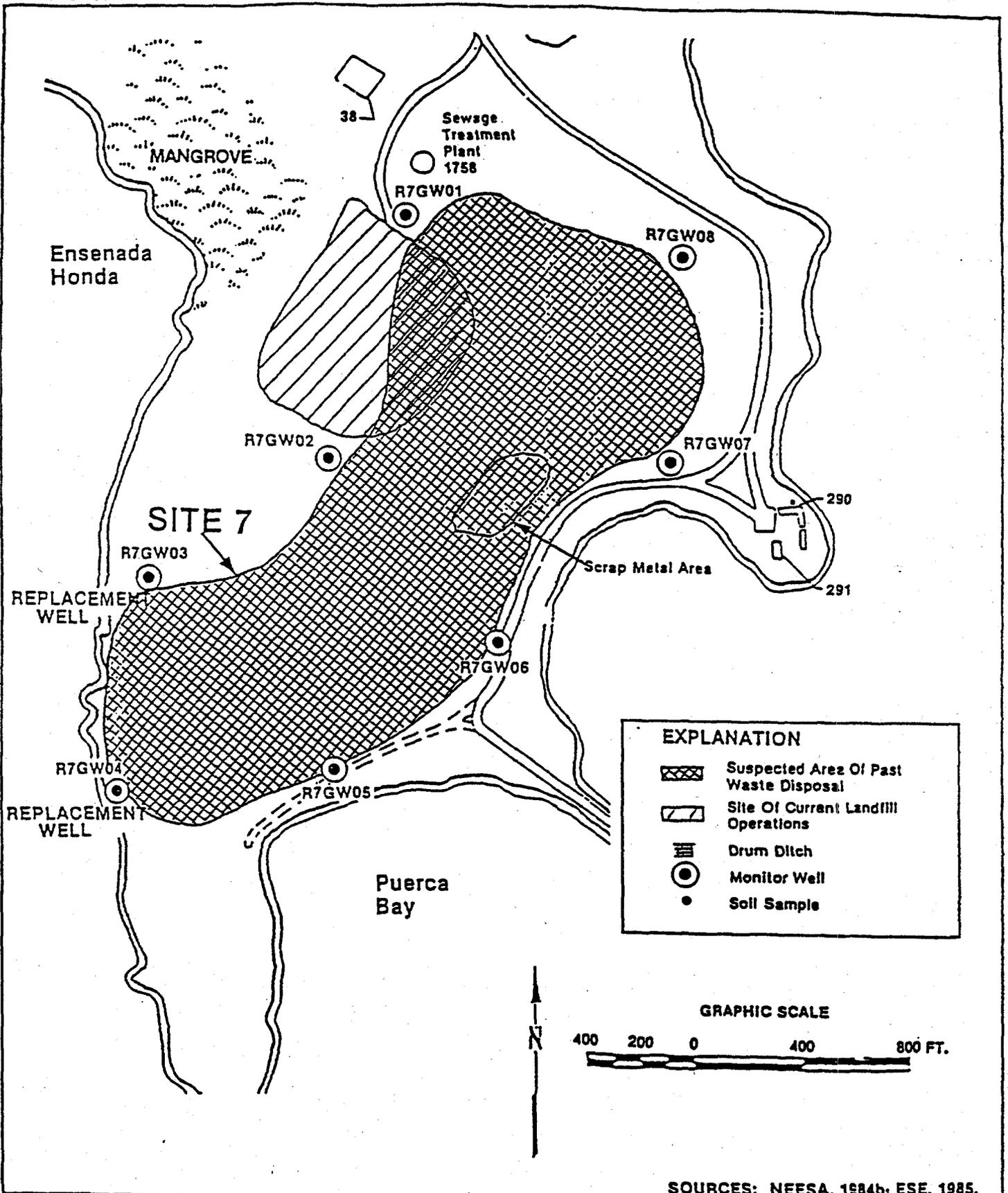
LEGEND

- ▲ PLANNED SURFACE WATER/SEDIMENT SAMPLE LOCATION
- ⊕ APPROXIMATE LOCATION OF EXISTING MONITORING WELL

FIGURE 2-4  
 SAMPLE LOCATION MAP  
 SITE 6, LANGLEY DRIVE  
 DISPOSAL SITE  
 NAVAL STATION ROOSEVELT ROADS  
 PUERTO RICO

**SWMU 3**

**TRC**



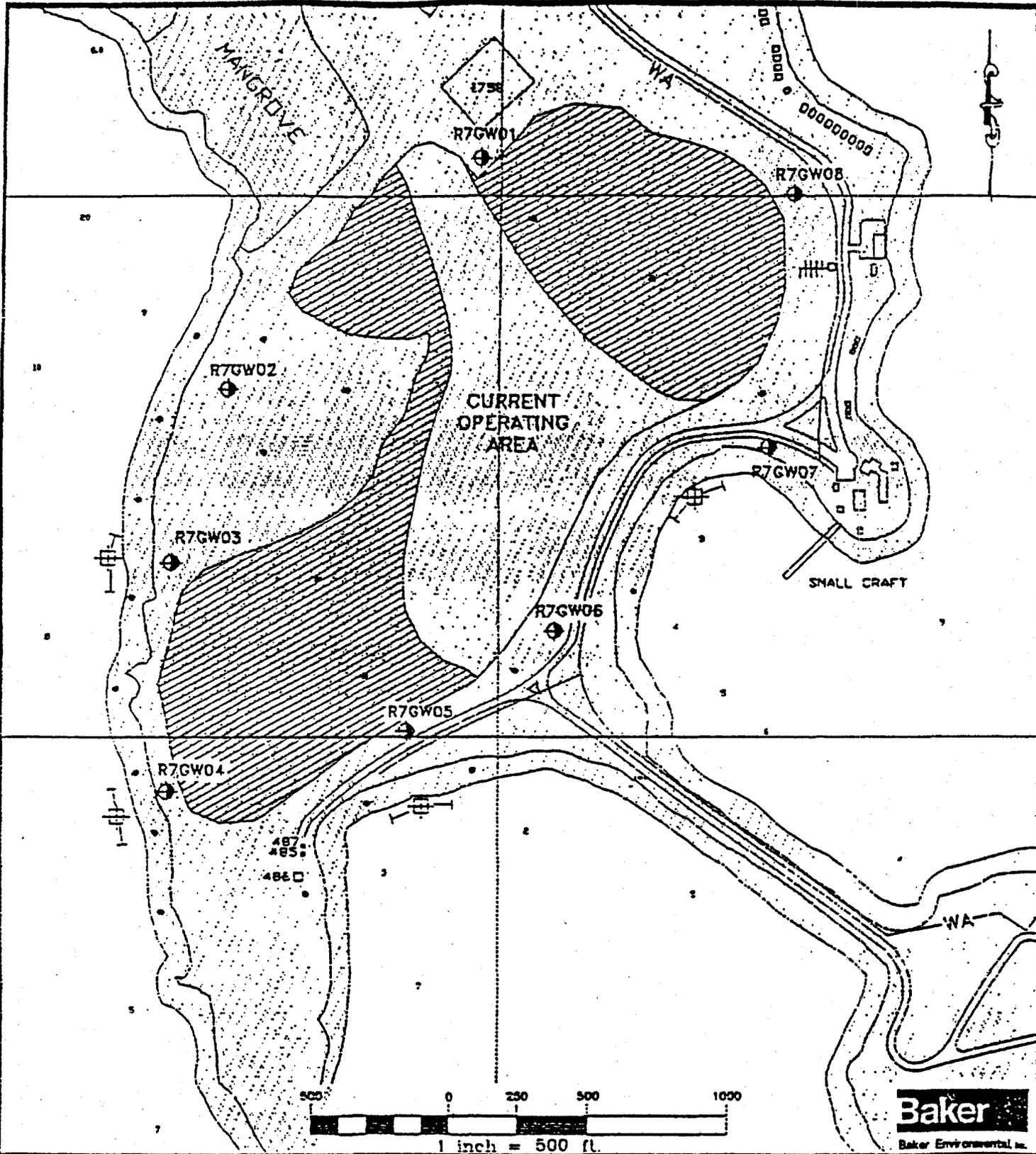
EXPLANATION	
	Suspected Area Of Past Waste Disposal
	Site Of Current Landfill Operations
	Drum Ditch
	Monitor Well
	Soil Sample

SOURCES: NEESA, 1984b; ESE, 1985.

Figure 3-8  
 ROUNDS 1 AND 2 SOIL AND GROUND  
 WATER SAMPLING LOCATIONS AT SITE 7,  
 STATION LANDFILL



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**LEGEND**

-  AREA OF PLANNED SURFACE SEDIMENT SAMPLE LOCATION
-  PLANNED SURFACE SOIL SAMPLE LOCATION
-  R7GW03 APPROXIMATE LOCATION OF EXISTING MONITORING WELL

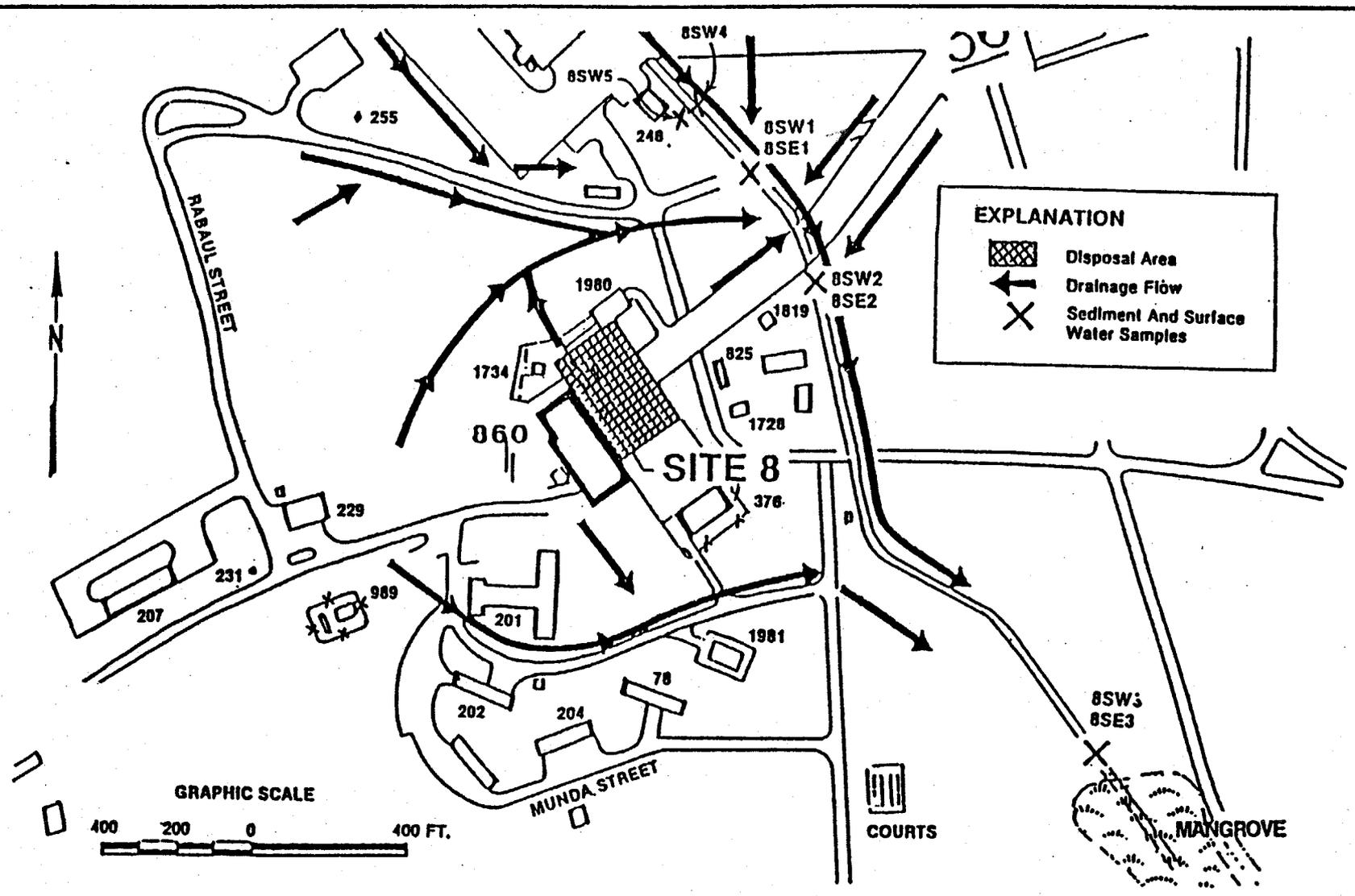
SOURCE: LANTDIV, FEBRUARY 1992

**FIGURE 5-5**  
**SAMPLE LOCATION MAP**  
**SITE 7, STATION LANDFILL**  
**NAVAL STATION ROOSEVELT ROADS**  
**PUERTO RICO**

**SWMU 4**

**TRC**

3-31



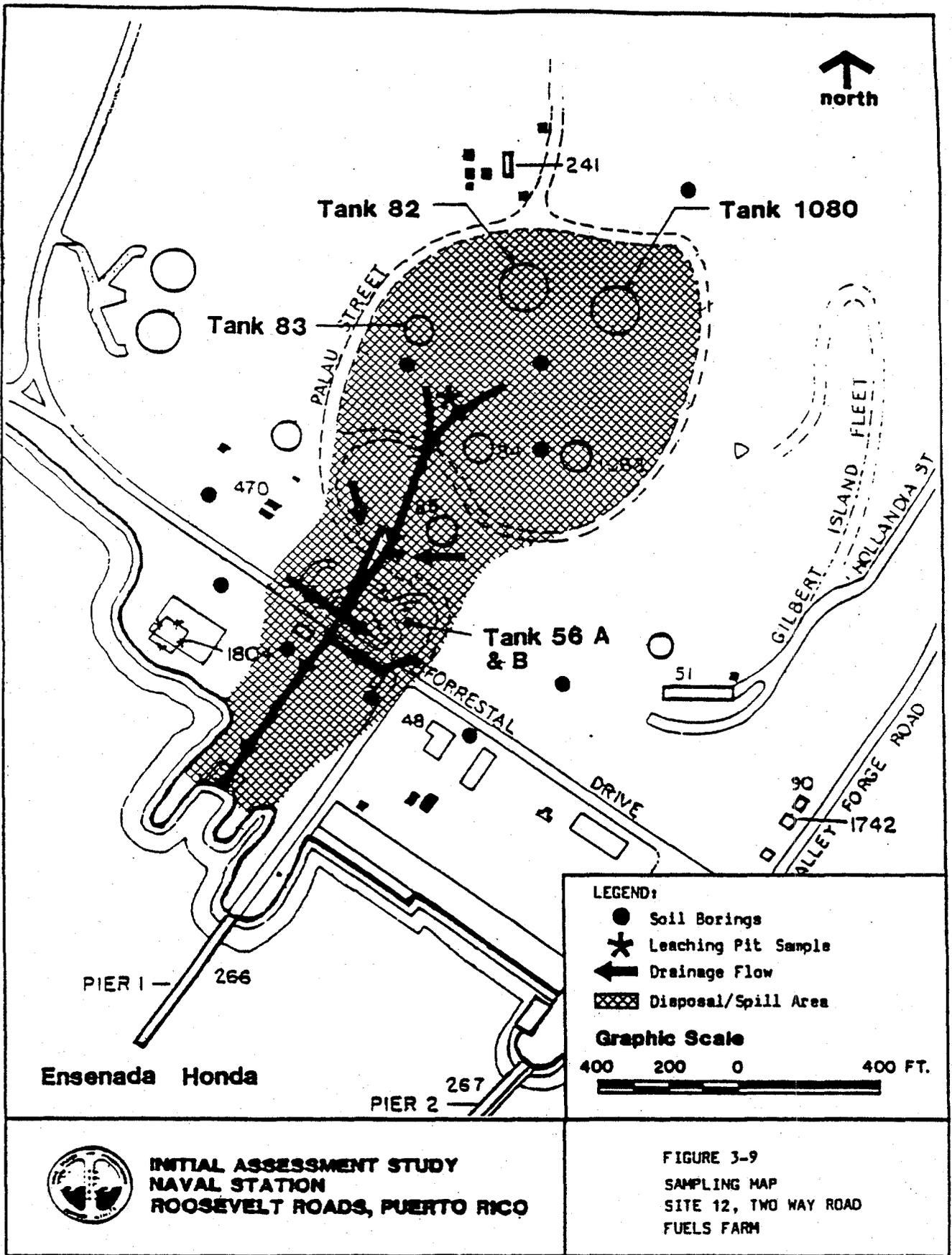
SOURCES: NEESA, 1984b; ESE, 1985.

Figure 3-9  
ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE 8,  
DRONE WASHDOWN



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**SWMU 7**



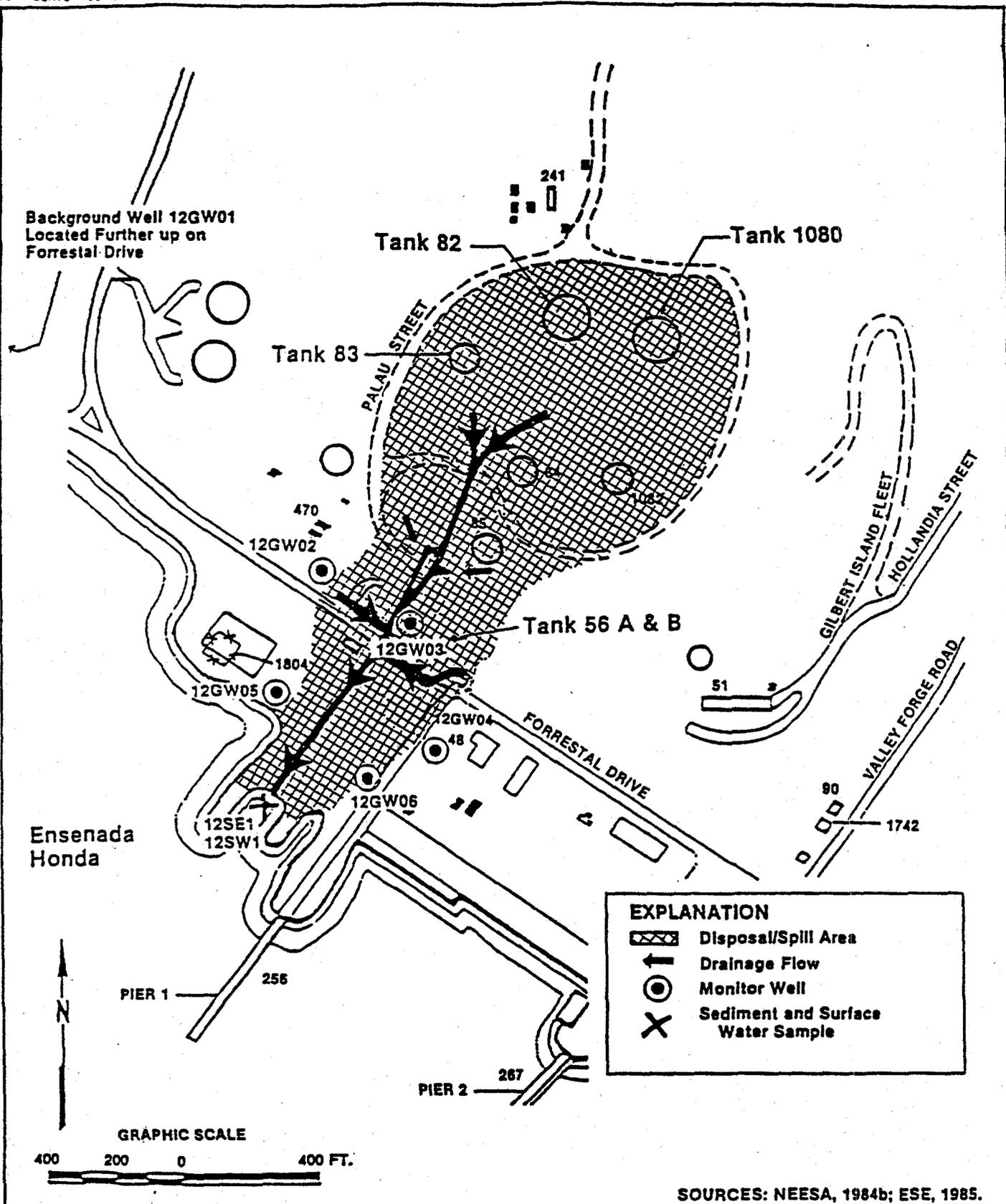
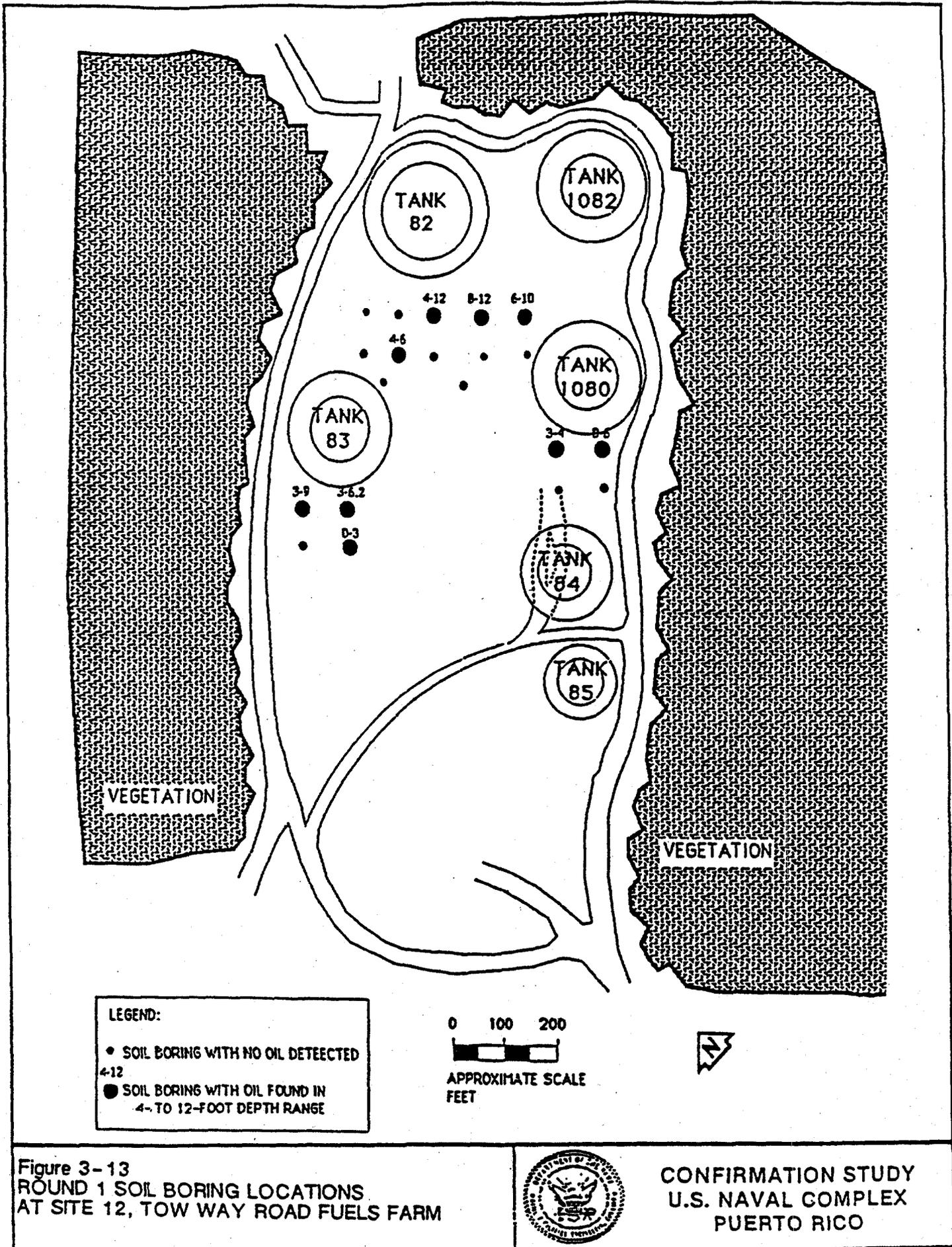


Figure 3-12  
 ROUNDS 1 AND 2 GROUND WATER, SURFACE WATER,  
 AND SEDIMENT SAMPLING LOCATIONS AT SITE 12,  
 TOW WAY ROAD FUELS FARM



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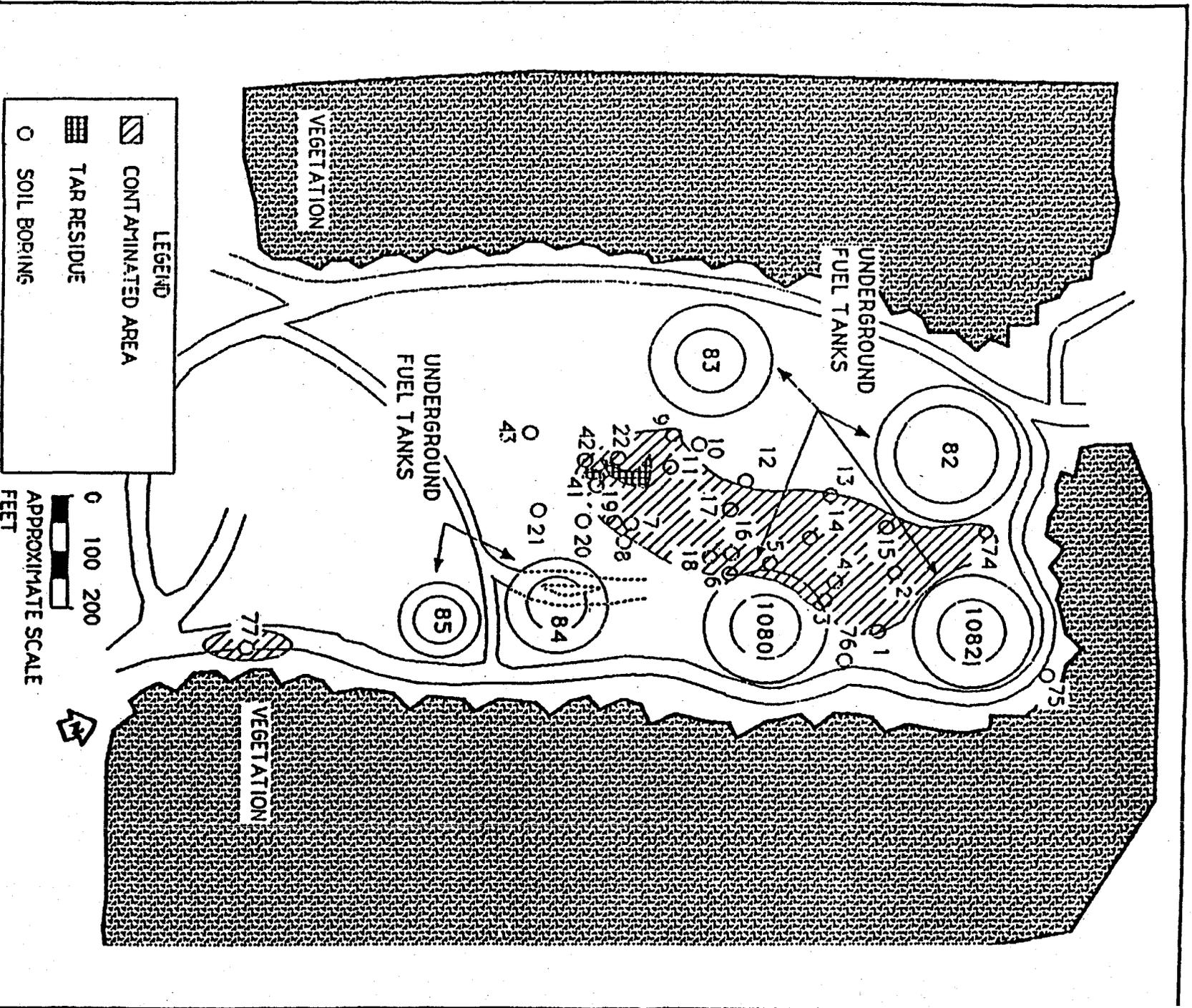
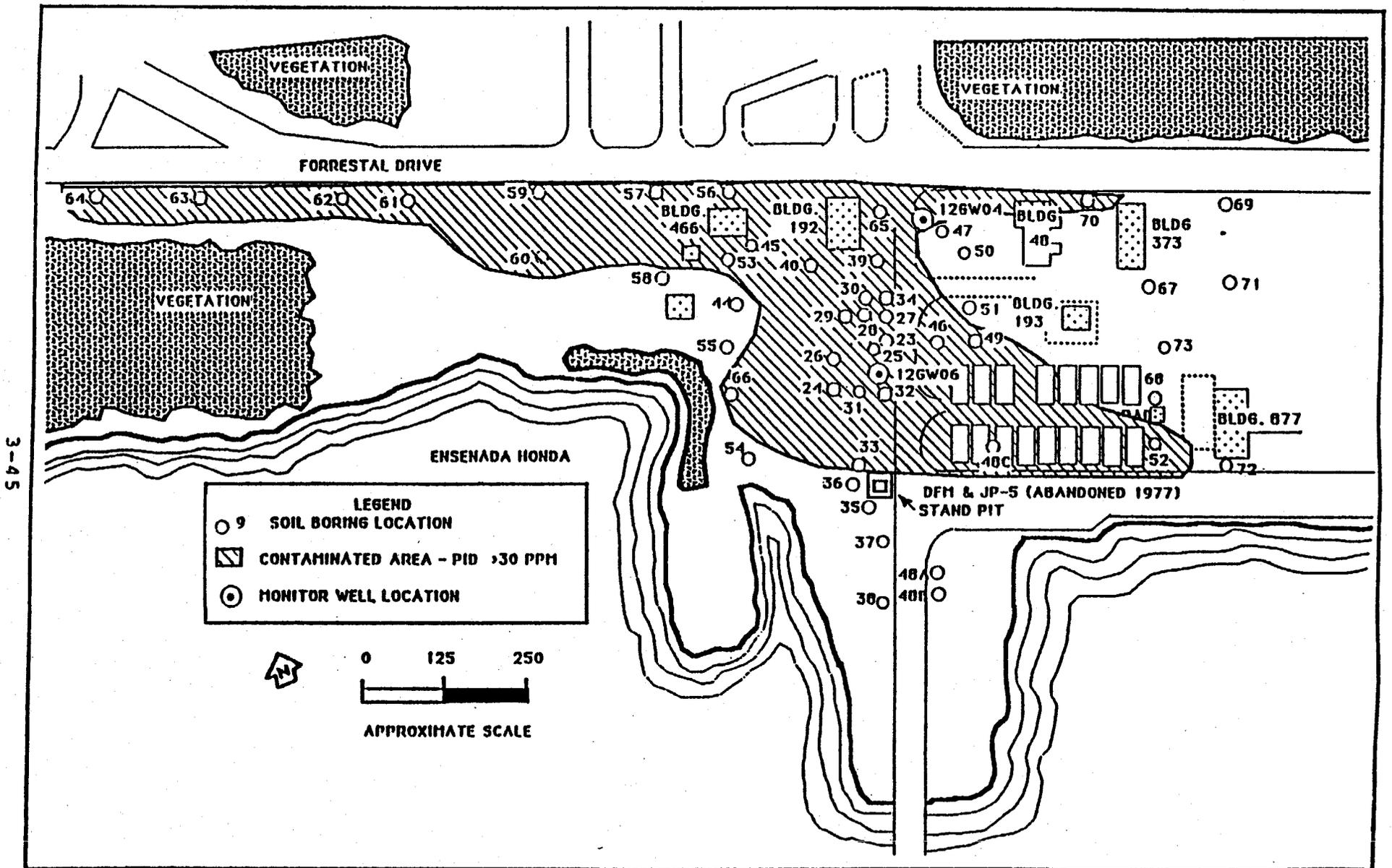


Figure 3-14  
 ROUND 2 SOIL BORING LOCATIONS  
 AND CONTAMINATION AT UPPER  
 SECTION OF SITE 12, TOW WAY  
 ROAD FUELS FARM



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3-45

Figure 3-15  
 ROUND 2 SOIL BORING LOCATIONS  
 AND CONTAMINATION AT LOWER  
 SECTION OF SITE 12, TOW WAY ROAD  
 FUELS FARM



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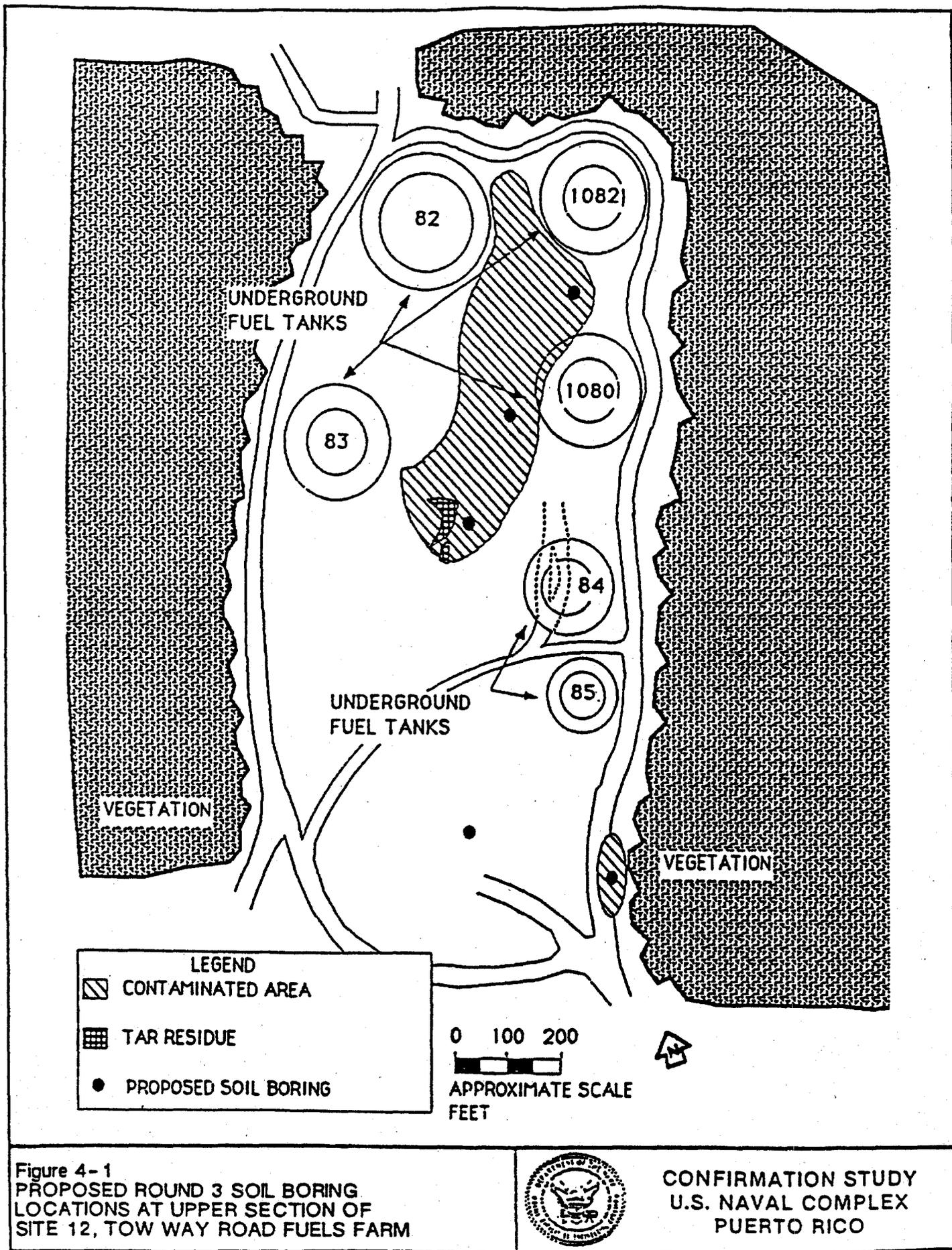


Figure 4-1  
 PROPOSED ROUND 3 SOIL BORING  
 LOCATIONS AT UPPER SECTION OF  
 SITE 12, TOW WAY ROAD FUELS FARM



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4-10

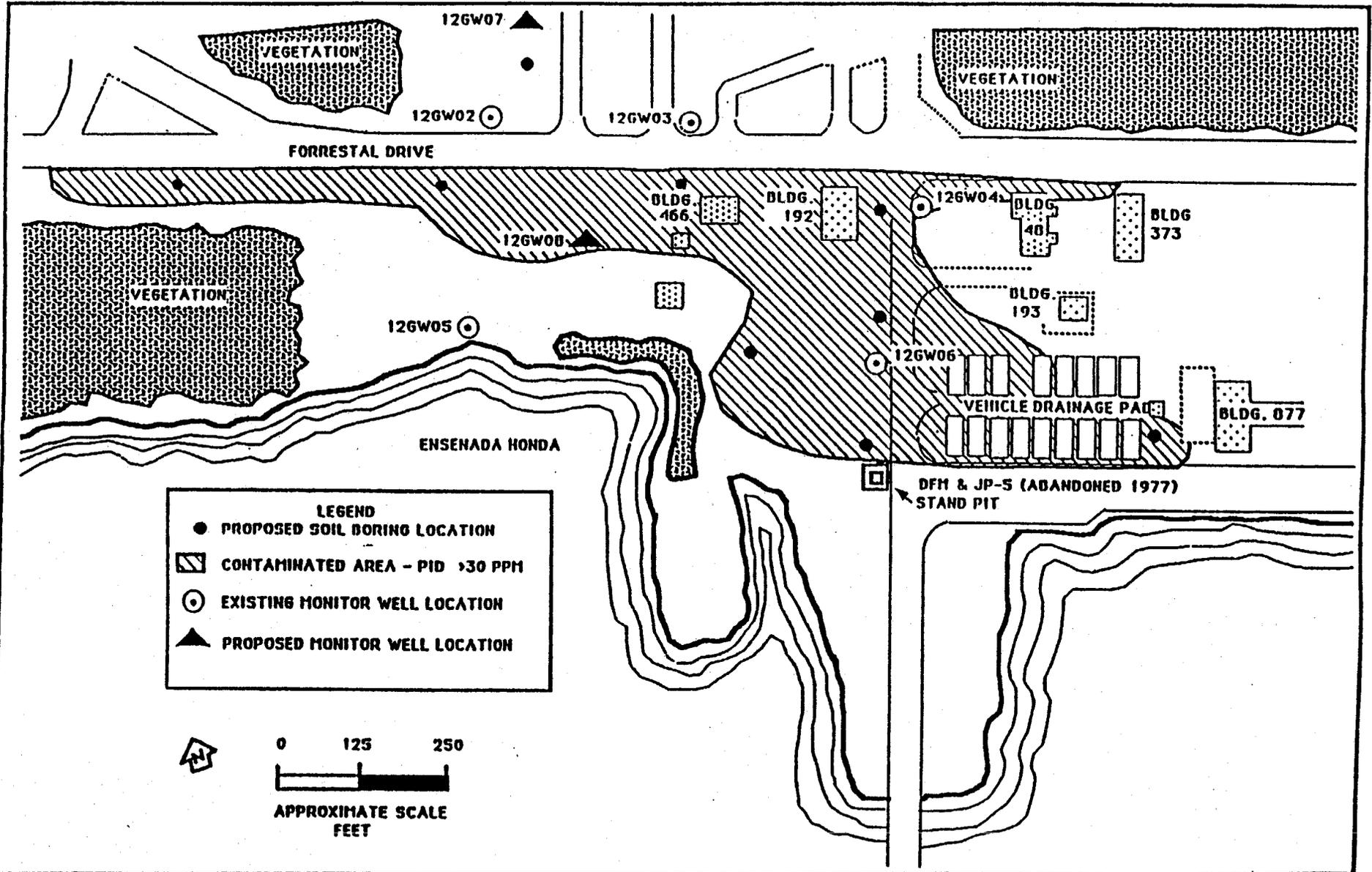
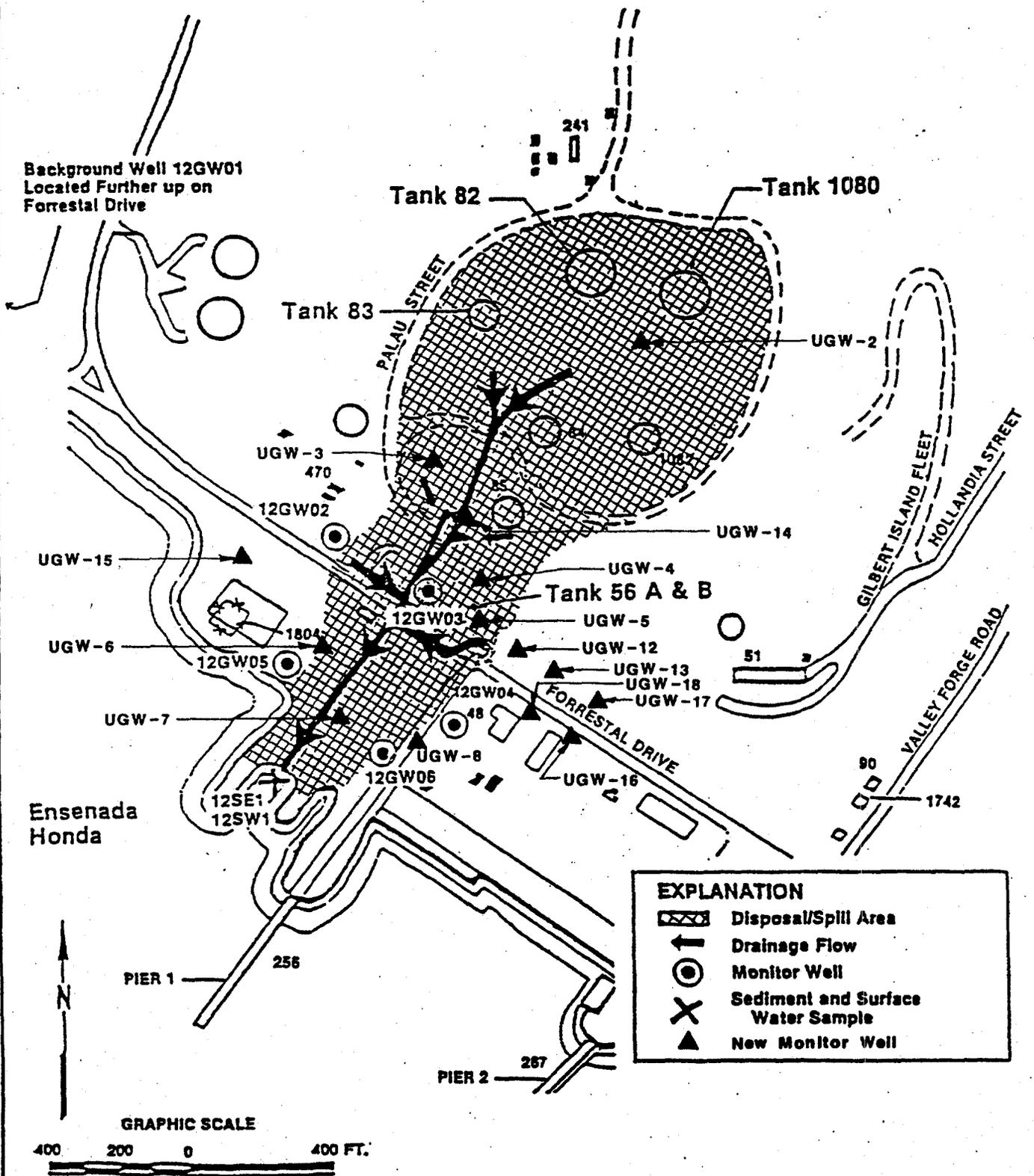


Figure 4-2  
 PROPOSED ROUND 3 SOIL BORING  
 LOCATIONS AT LOWER SECTION  
 OF SITE 12, TOW WAY ROAD  
 FUELS FARM



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 PUERTO RICO

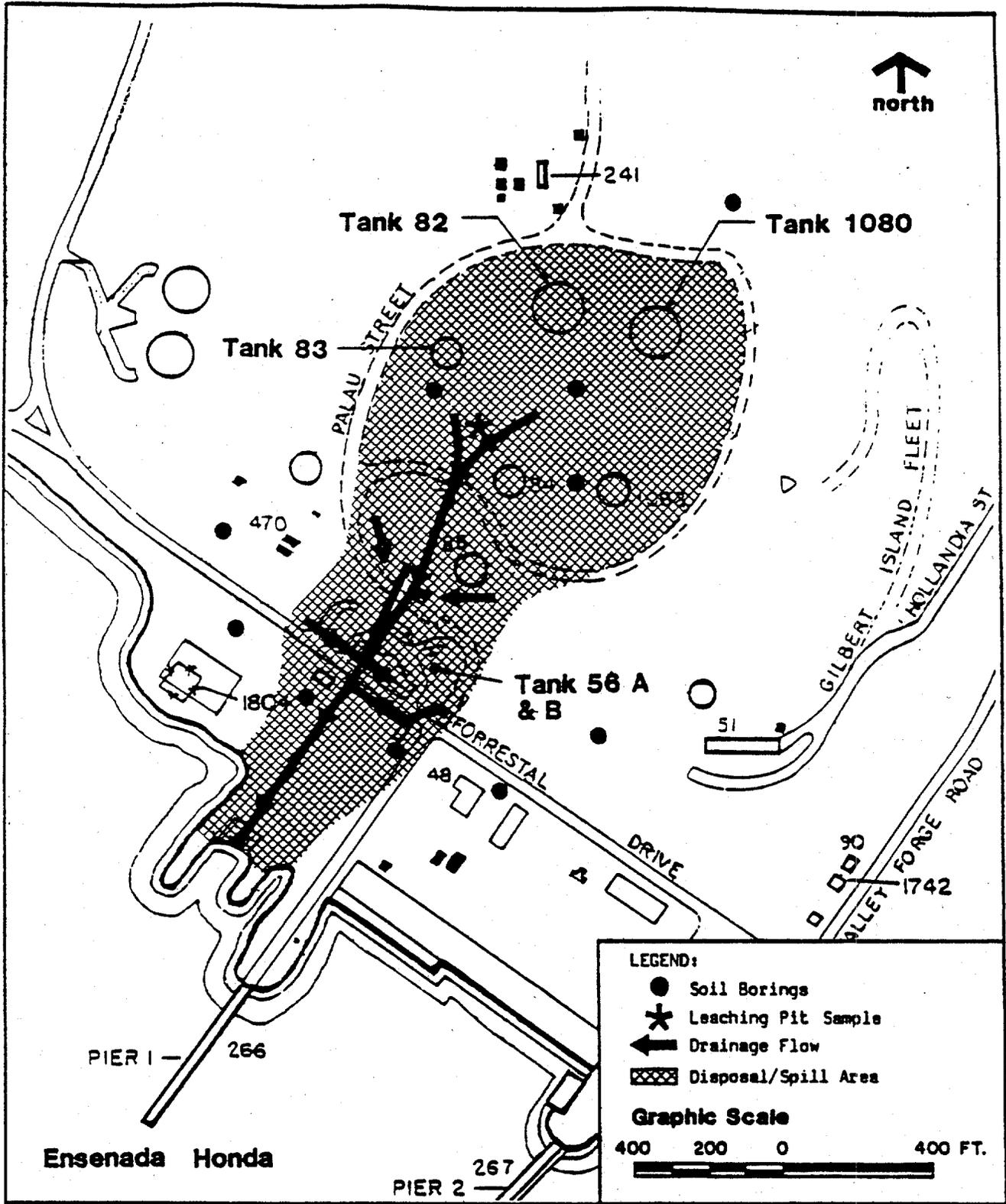


**NEW WELL LOCATIONS OBSERVED  
DURING TRC SITE VISIT**

**TRC** 18 Worlds Fair Drive  
Somerset, N.J. 08873

**SWMU 8**

**TRC**



**INITIAL ASSESSMENT STUDY  
NAVAL STATION  
ROOSEVELT ROADS, PUERTO RICO**

**FIGURE 3-9  
SAMPLING MAP  
SITE 12, TWO WAY ROAD  
FUELS FARM**

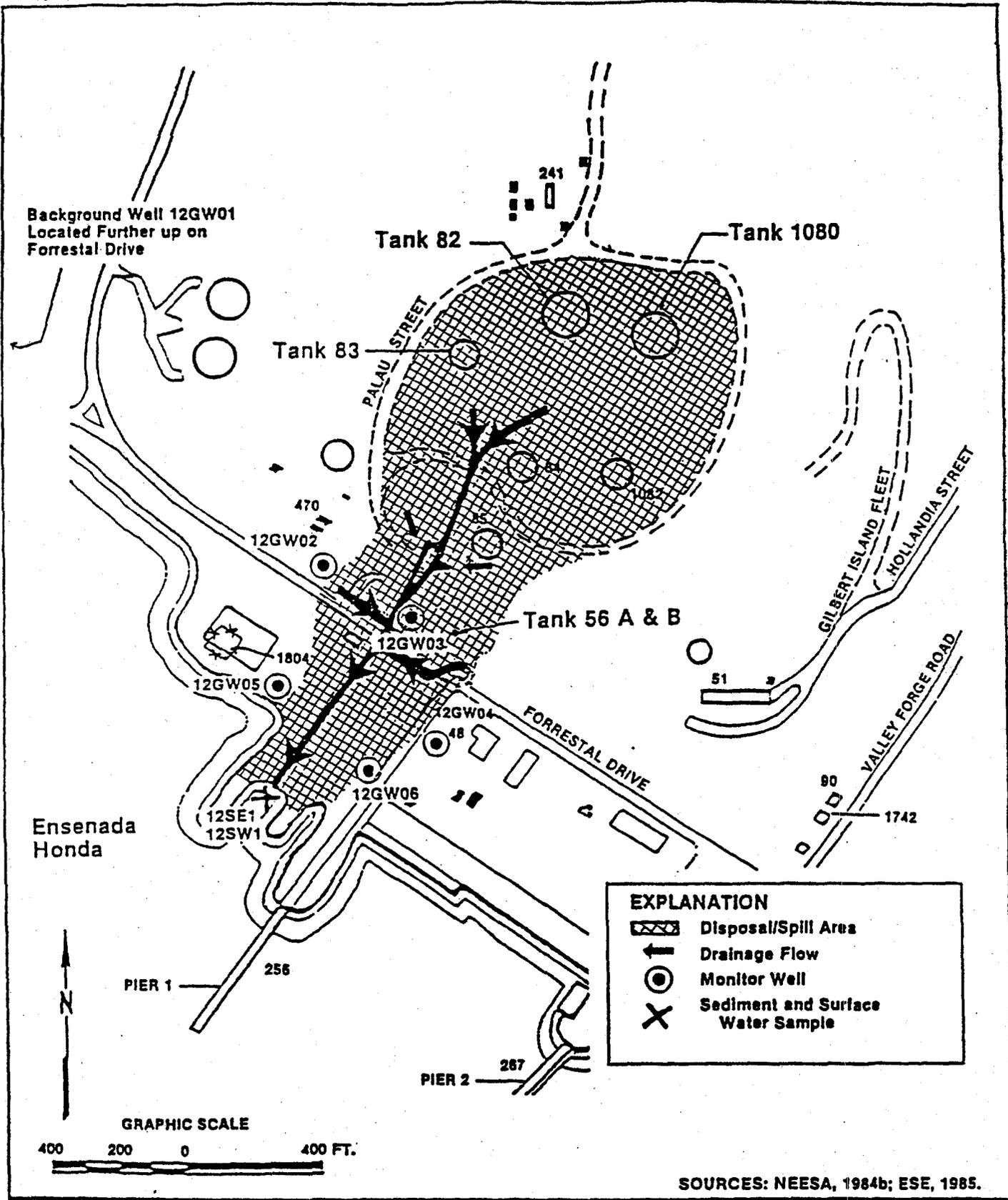


Figure 3-12  
 ROUNDS 1 AND 2 GROUND WATER, SURFACE WATER,  
 AND SEDIMENT SAMPLING LOCATIONS AT SITE 12,  
 TOW WAY ROAD FUELS FARM



**CONFIRMATION STUDY  
 U.S. NAVAL COMPLEX  
 PUERTO RICO**

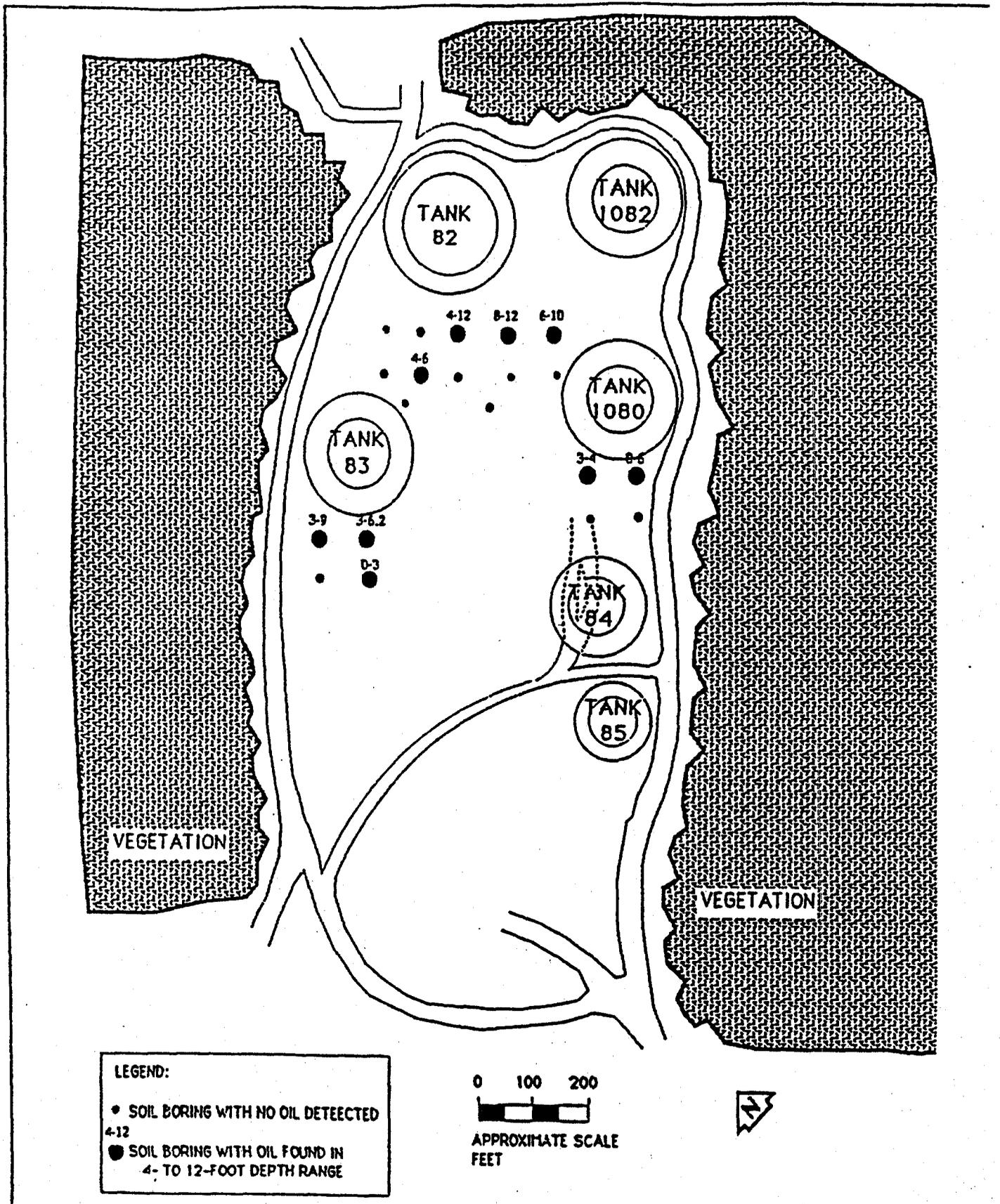


Figure 3-13  
 ROUND 1 SOIL BORING LOCATIONS  
 AT SITE 12, TOW WAY ROAD FUELS FARM



CONFIRMATION STUDY  
 U.S. NAVAL COMPLEX  
 PUERTO RICO

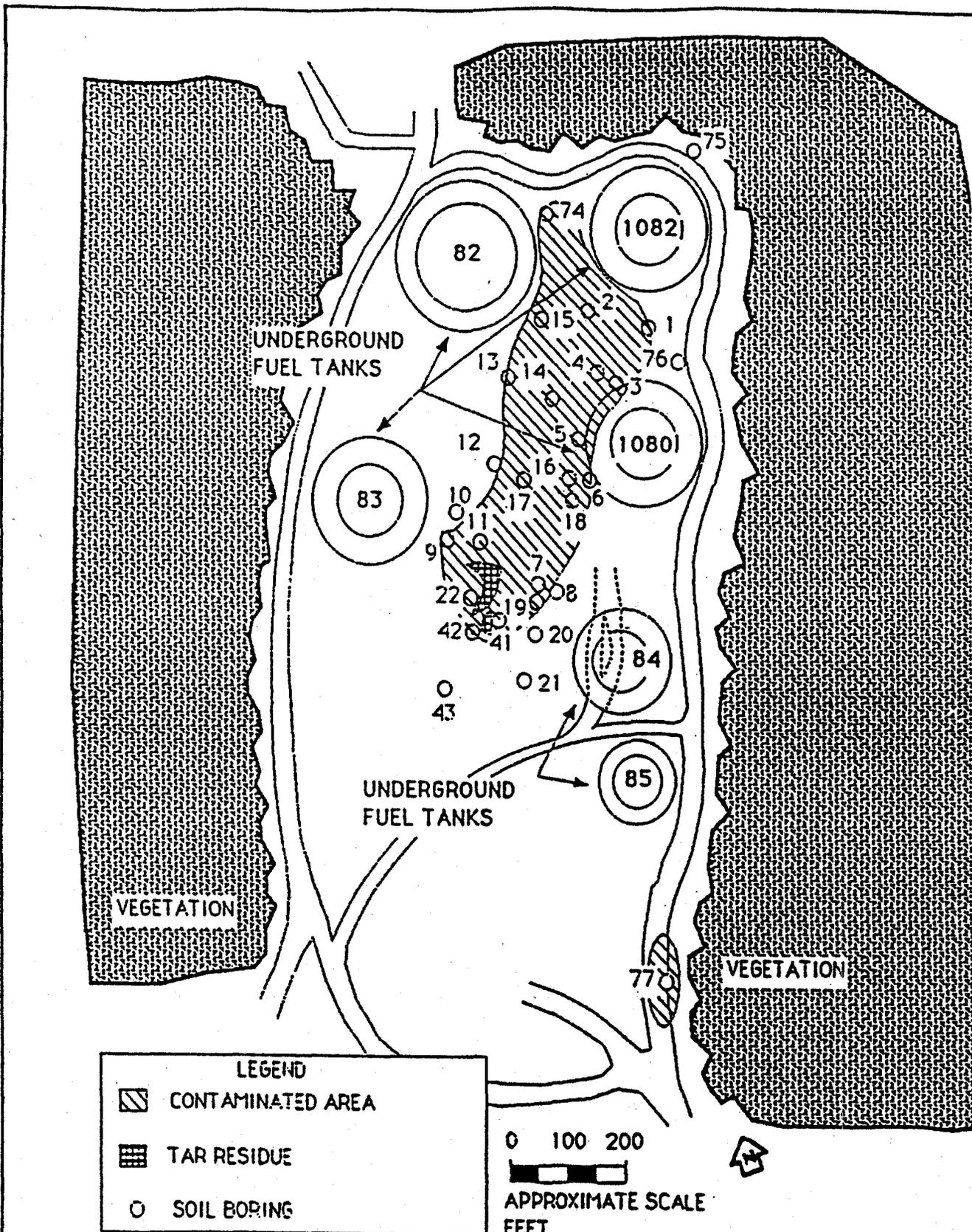
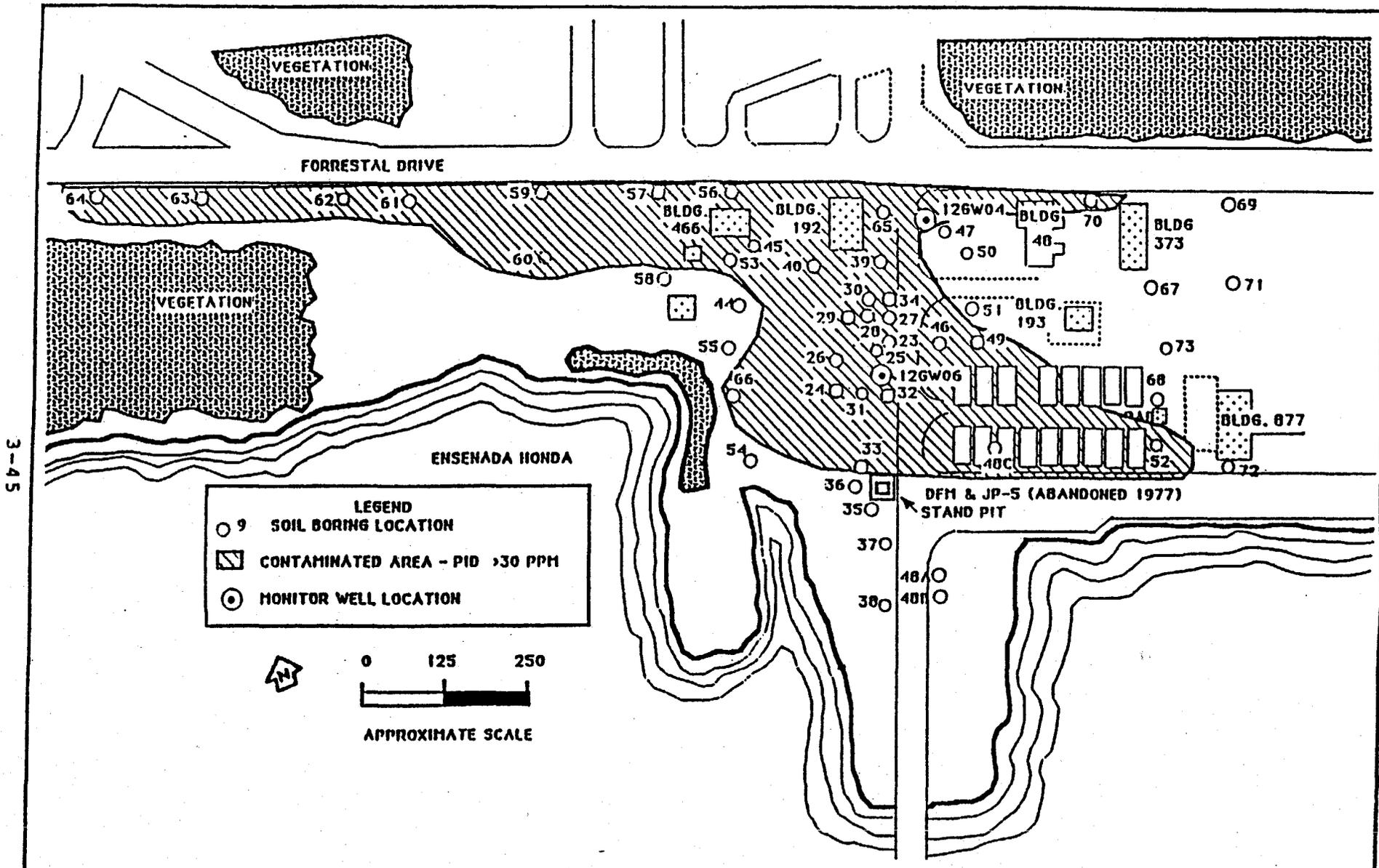


Figure 3-14  
 ROUND 2 SOIL BORING LOCATIONS  
 AND CONTAMINATION AT UPPER  
 SECTION OF SITE 12, TOW WAY  
 ROAD FUELS FARM



CONFIRMATION STUDY  
 U.S. NAVAL COMPLEX  
 PUERTO RICO



3-45

Figure 3-15  
 ROUND 2 SOIL BORING LOCATIONS  
 AND CONTAMINATION AT LOWER  
 SECTION OF SITE 12, TOW WAY ROAD  
 FUELS FARM



CONFIRMATION STUDY  
 U.S. NAVAL COMPLEX  
 PUERTO RICO

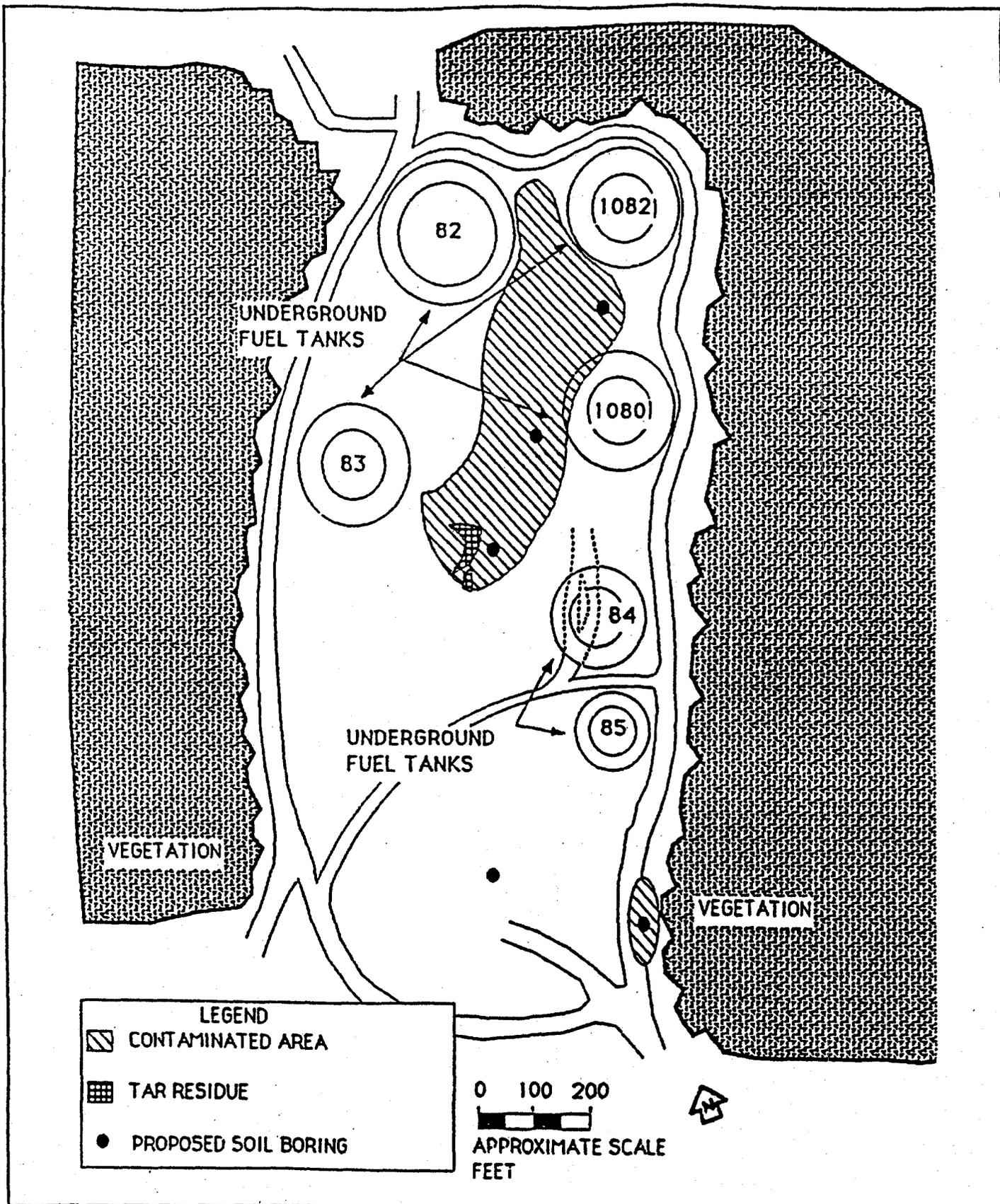


Figure 4-1  
 PROPOSED ROUND 3 SOIL BORING  
 LOCATIONS AT UPPER SECTION OF  
 SITE 12, TOW WAY ROAD FUELS FARM



CONFIRMATION STUDY  
 U.S. NAVAL COMPLEX  
 PUERTO RICO

4-10

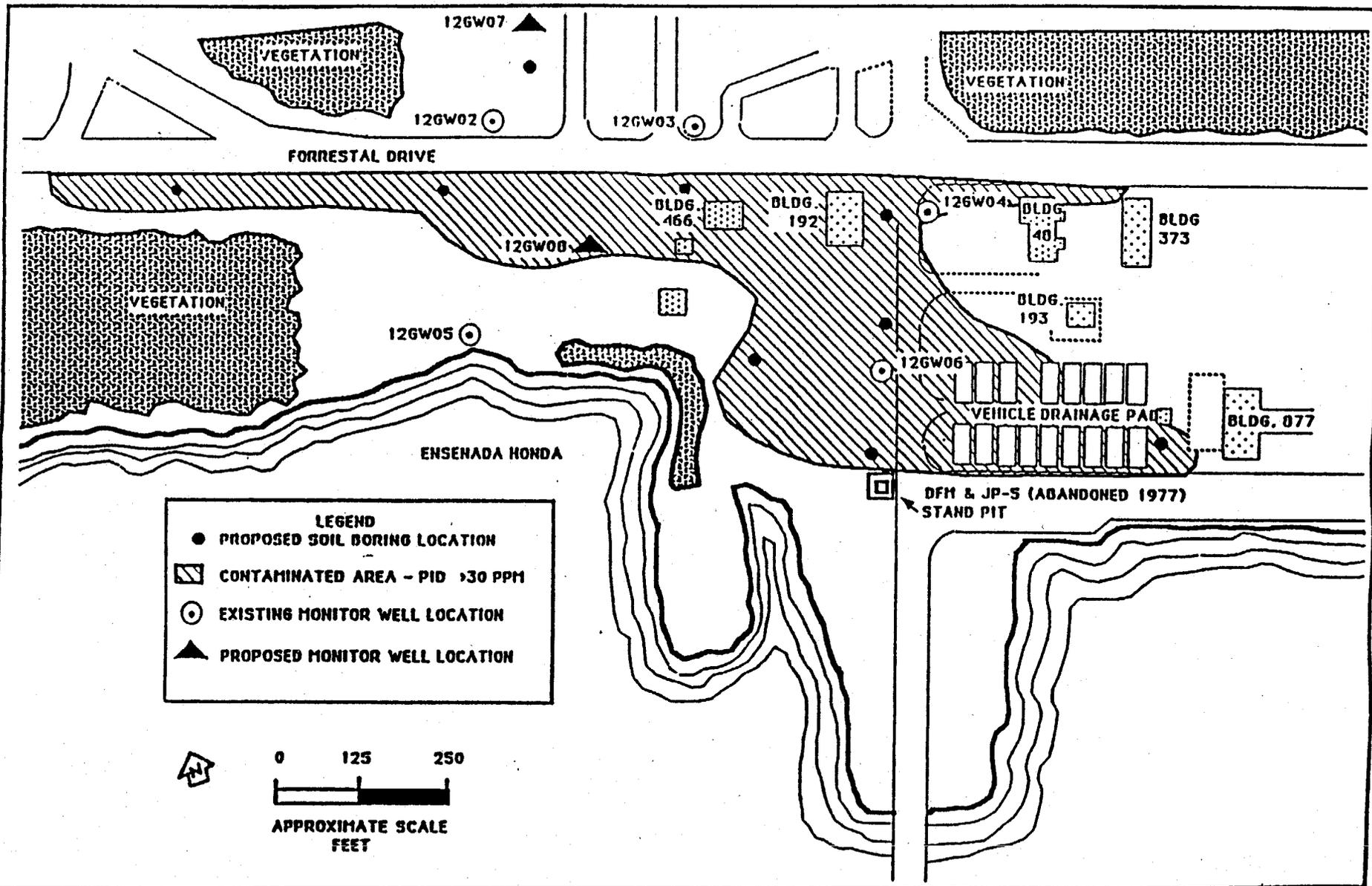
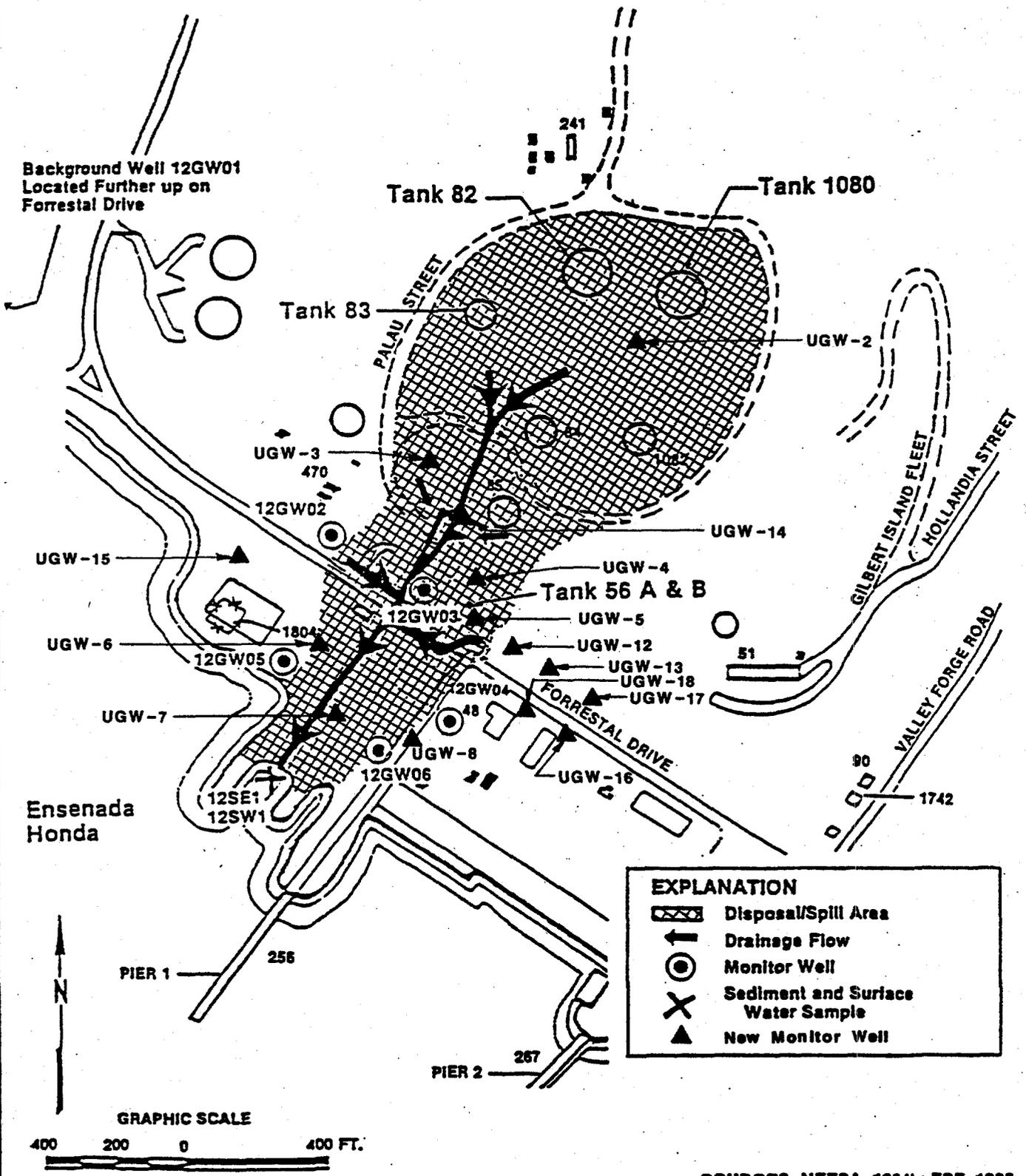


Figure 4-2  
PROPOSED ROUND 3 SOIL BORING  
LOCATIONS AT LOWER SECTION  
OF SITE 12, TOW WAY ROAD  
FUELS FARM



CONFIRMATION STUDY  
U.S. NAVAL COMPLEX  
PUERTO RICO



SOURCES: NEESA, 1984b; ESE, 1985.

TRC Environmental Corporation

**NEW WELL LOCATIONS OBSERVED  
DURING TRC SITE VISIT**



18 Worlds Fair Drive  
Somersert, N.J. 08873

**SWMU 9**

**TRC**

3-59

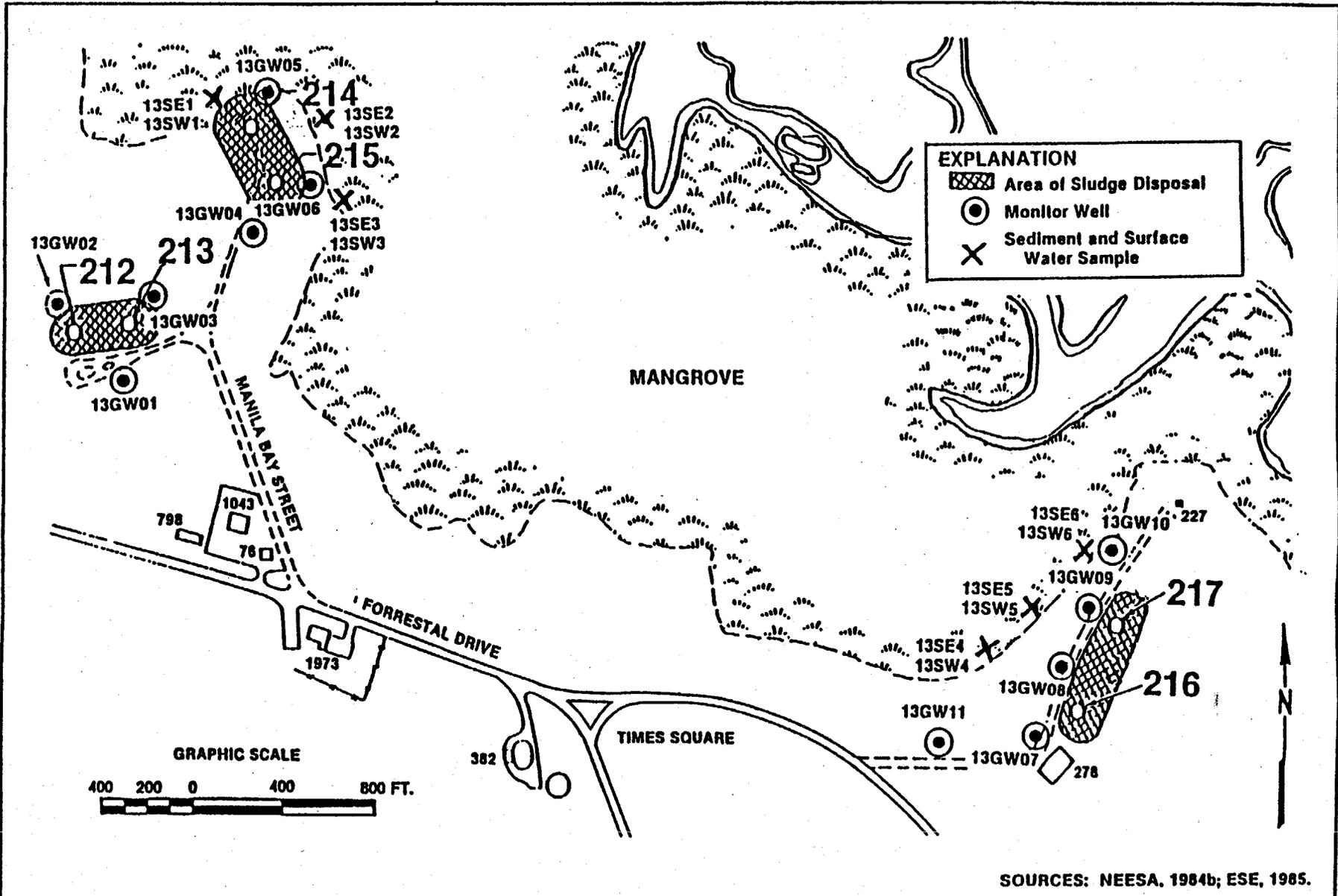
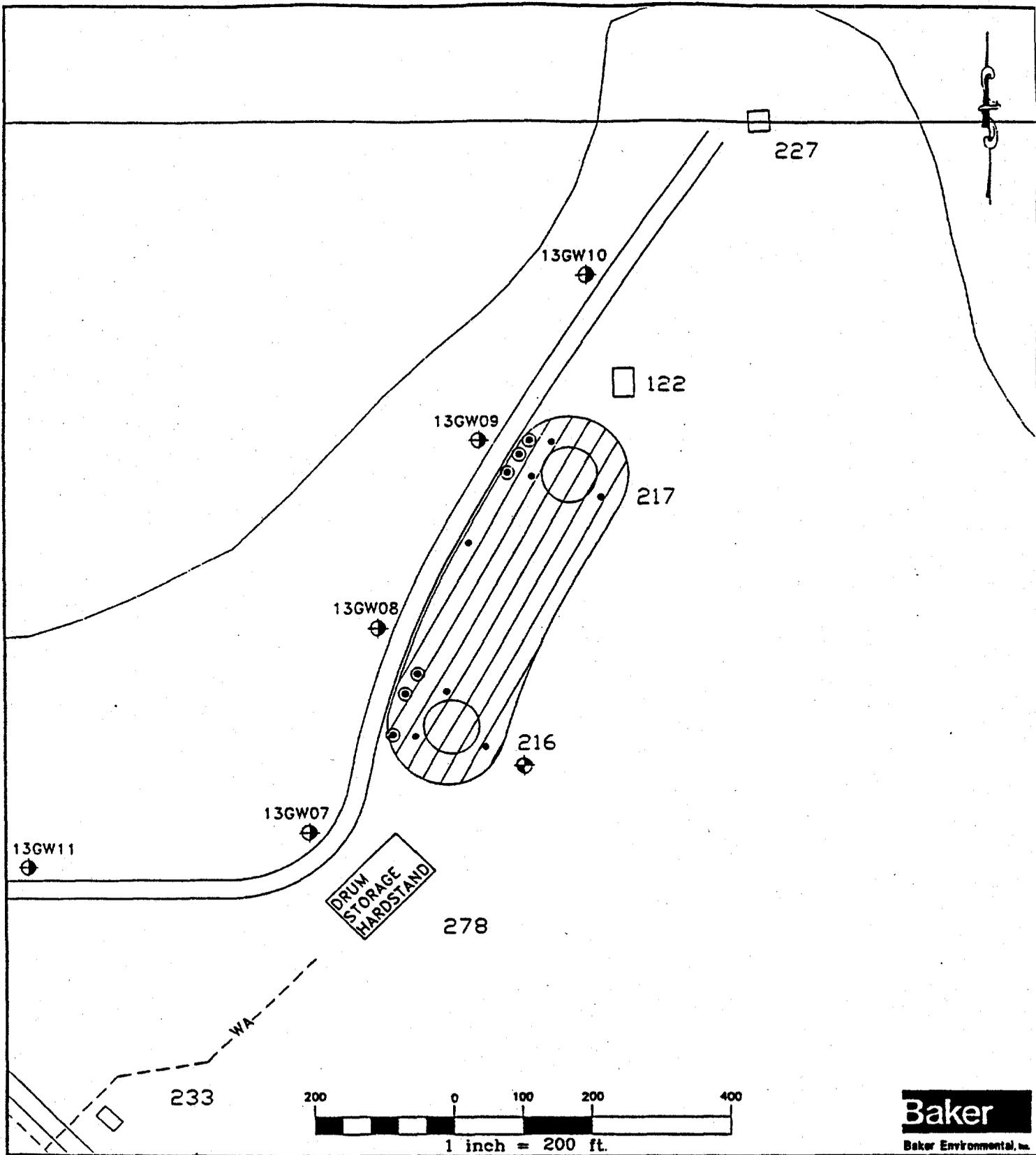


Figure 3-16  
 ROUNDS 1 AND 2 SAMPLING  
 LOCATIONS AT SITE 13,  
 TANKS 210 TO 217



**CONFIRMATION STUDY**  
**U.S. NAVAL COMPLEX**  
**PUERTO RICO**

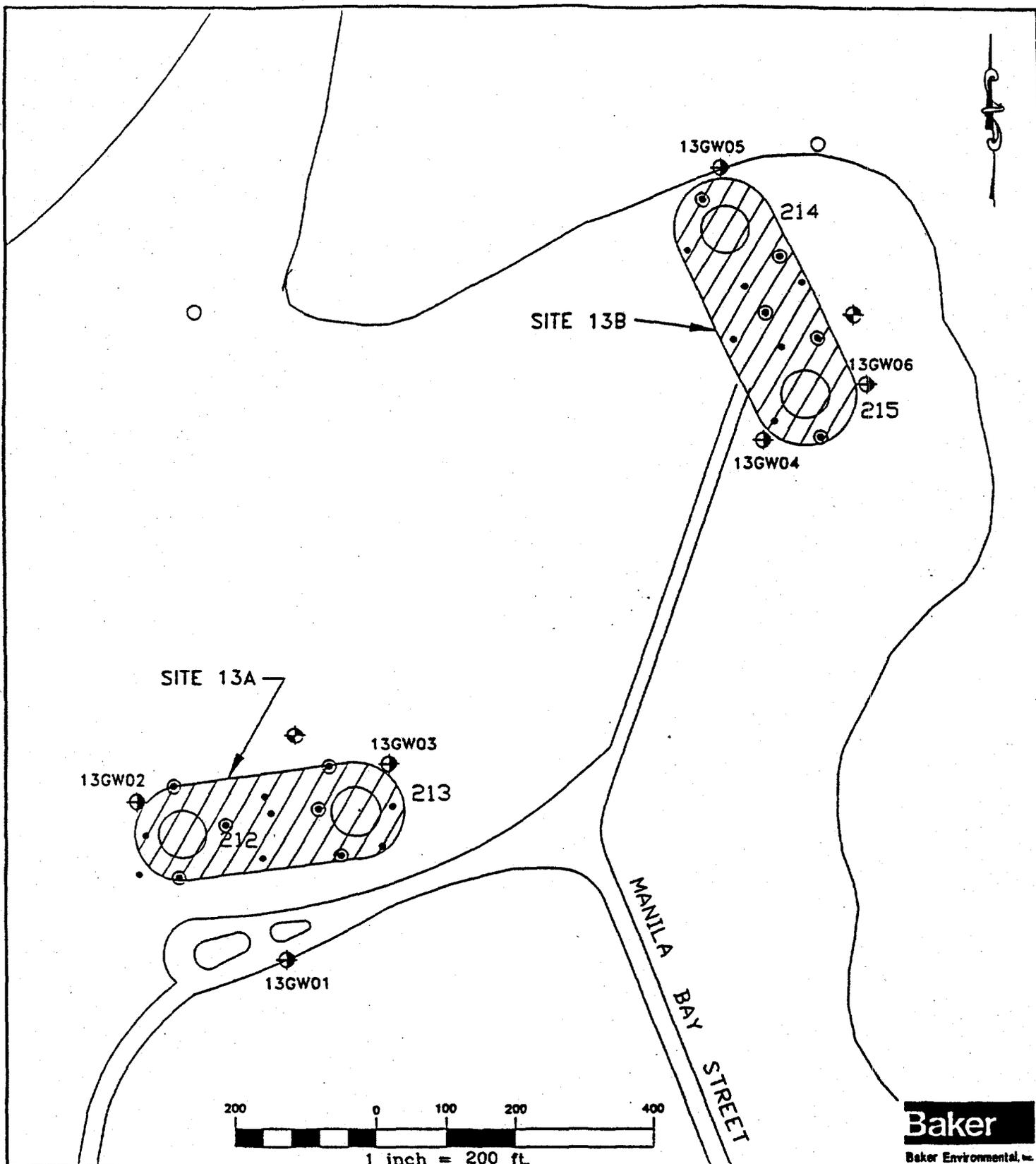


**Baker**  
Baker Environmental, Inc.

- 13GW09 APPROXIMATE LOCATION OF EXISTING MONITORING WELL
- PLANNED SURFACE SOIL SAMPLE LOCATION
- PLANNED MONITORING WELL LOCATION
- PLANNED SOIL BORING SAMPLE LOCATION

SOURCE: LANTDIV., FEBRUARY 1992

FIGURE 2-8  
SAMPLE LOCATION MAP  
SITE 13C, TANK FARM  
NAVAL STATION ROOSEVELT ROADS  
PUERTO RICO



**LEGEND**

- PLANNED SURFACE SOIL SAMPLE LOCATION
- ⊕ PLANNED MONITORING WELL LOCATION
- ⊙ PLANNED SOIL BORING LOCATION
- ⊕ APPROXIMATE LOCATION OF EXISTING MONITORING WELL

136W01

SOURCE: LANTDIV., FEBRUARY 1992

**FIGURE 2-7  
SAMPLE LOCATION MAP  
SITE 13A AND 13B  
TANK FARM**

**NAVAL STATION ROOSEVELT ROADS  
PUERTO RICO**

**SWMU 10**

**TRC**

# FORRESTAL DRIVE

LEGEND:

- BORING LOCATIONS

Numbers by borings are the PCB concentrations in ppm.  
ND = Not detected



APPROXIMATE SCALE: 0.25"=10'

VALLEY FORGE ROAD

DRAINAGE DITCH

DRAINAGE DITCH

132.1

FENCED AREA

12.38

1308

1186

191.3

SUB-STATION  
2

19.41

(BLDG 90)

18.18

ND

FIGURE 2-1  
VERIFICATION SAMPLING LOCATIONS AND  
RESULTS AT SITE 15, SUBSTATION 2



CONFIRMATION STUDY  
U.S. NAVAL COMPLEX  
PUERTO RICO

# FORRESTAL DRIVE

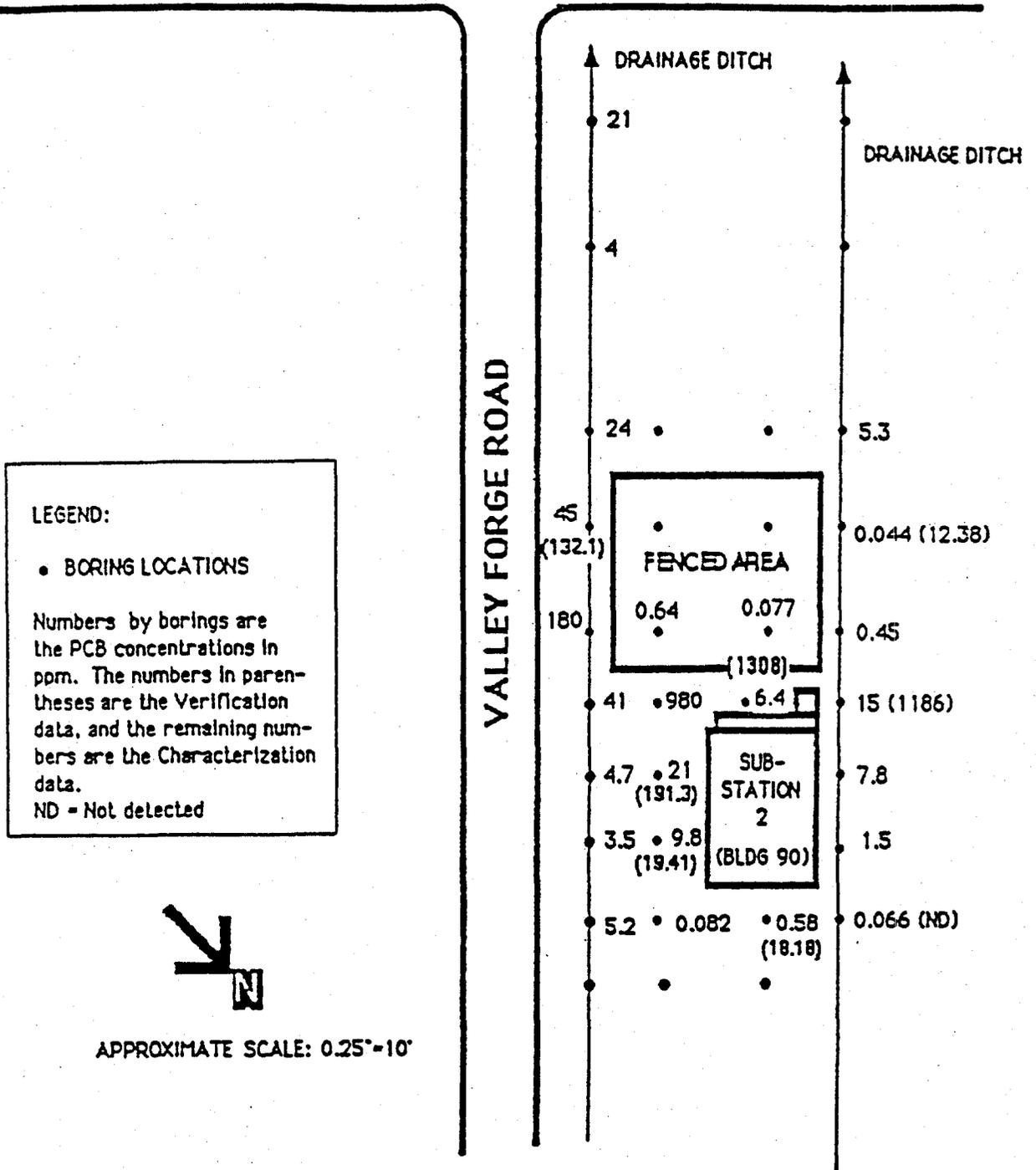
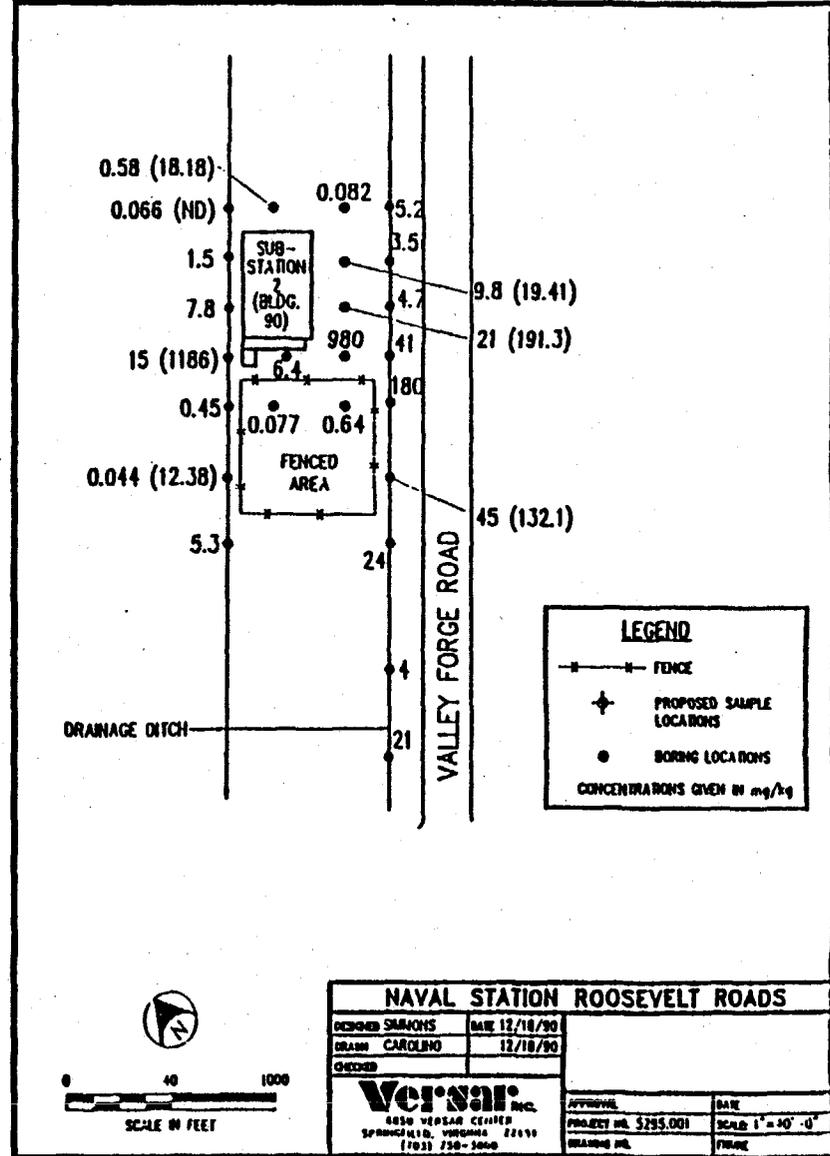
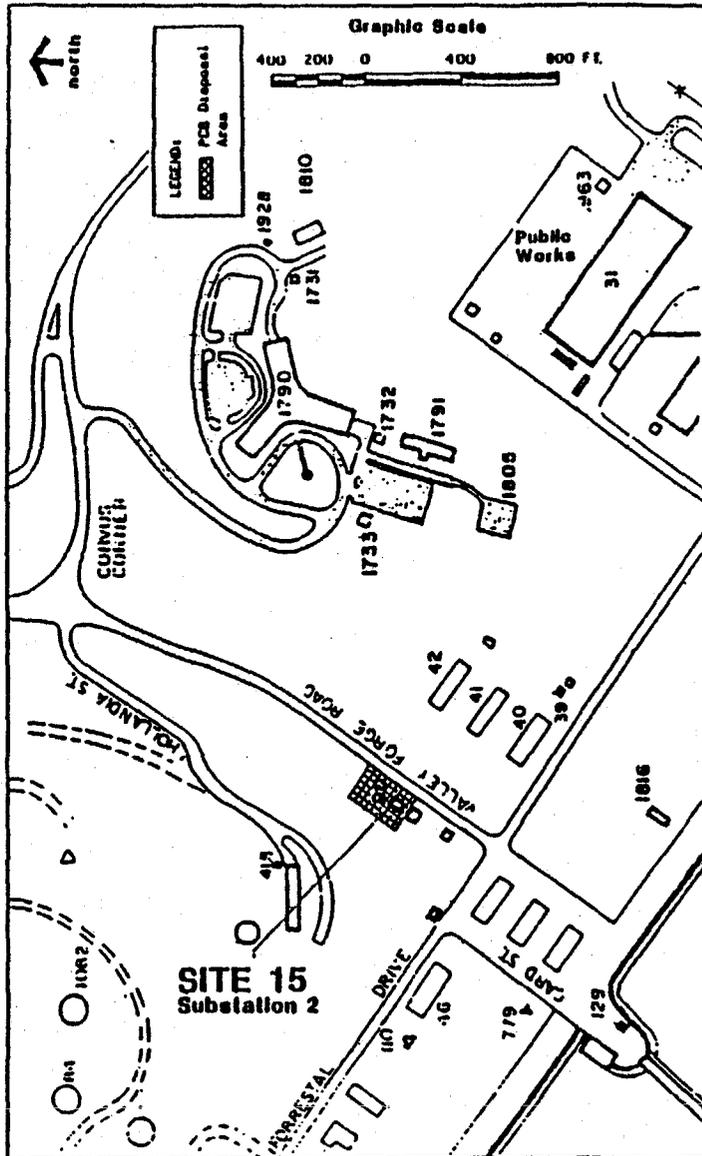


FIGURE 3-1  
 CHARACTERIZATION STEP SAMPLING  
 LOCATIONS AND RESULTS AT SITE 15,  
 SUBSTATION 2



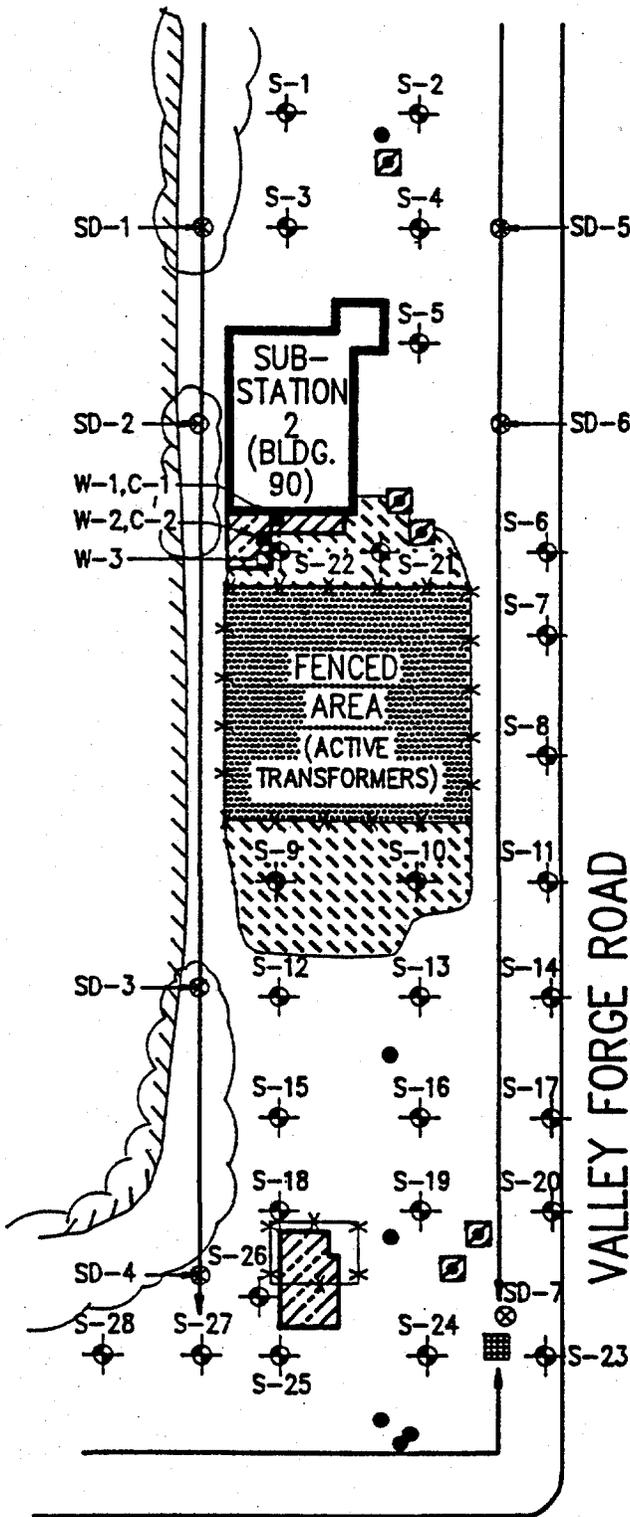
CONFIRMATION STUDY  
 U.S. NAVAL COMPLEX  
 PUERTO RICO



**FIGURE 3**  
LOCATION AND CONFIRMATION STUDY SAMPLING LOCATIONS FOR  
SITE 15: SUBSTATION NO. 2, BUILDING 90,  
NAVSTA ROOSEVELT ROADS, PUERTO RICO

**FIGURE 4**

**VERSAR SUPPLEMENTARY  
REMEDIAL INVESTIGATION  
SAMPLING LOCATIONS  
MAY 1991**



**LEGEND**

- WIPE AND CHIP SAMPLE
- WIPE SAMPLE
- ▣ CHIP SAMPLE
- ⊕ SOIL SAMPLE
- ⊗ SEDIMENT SAMPLE
- ▨ GRAVEL SURFACE
- ▧ CONCRETE
- ⊡ MANHOLE
- ▩ STORM WATER DRAIN
- TELEPHONE POLE
- ┌┐┐ DRAINAGE SWALE
- ▭ BUILDINGS
- ⌋ VEGETATION
- ▨ HILLSIDE
- ▩ EXPOSED SOIL (NO VEGETATION)
- ▭ MANWAY
- ▩ STAINED SOIL
- \*\*\* FENCE

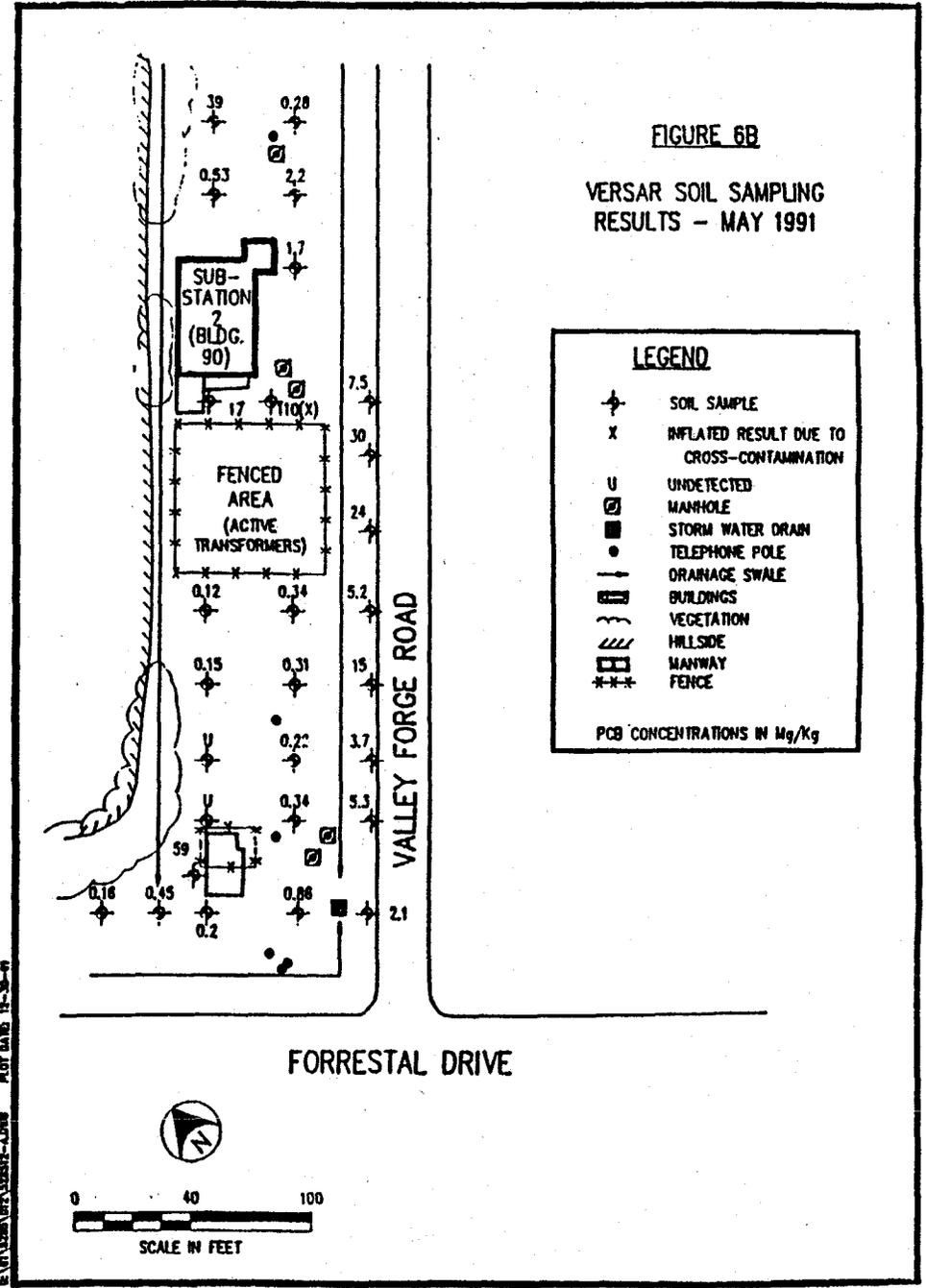
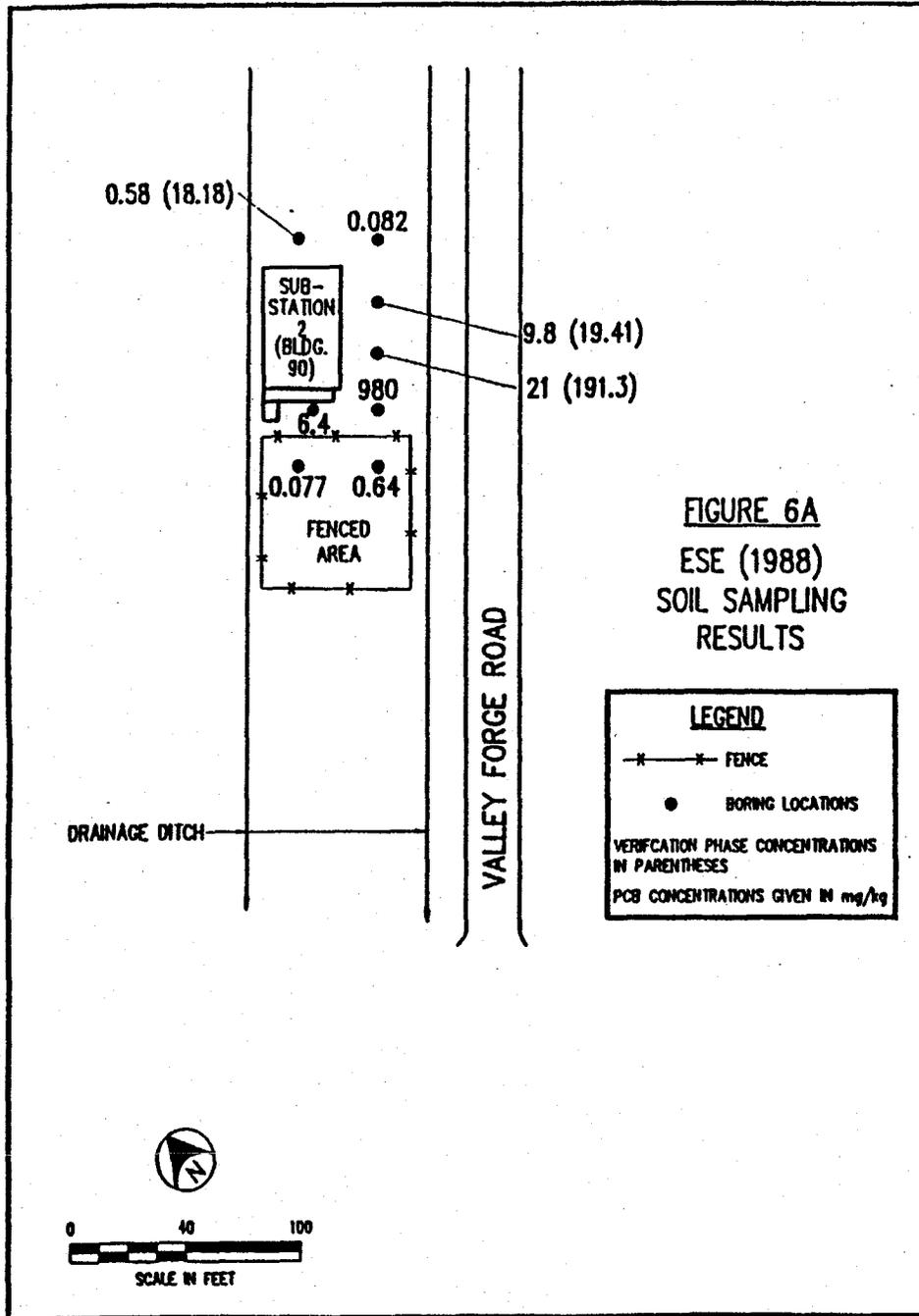


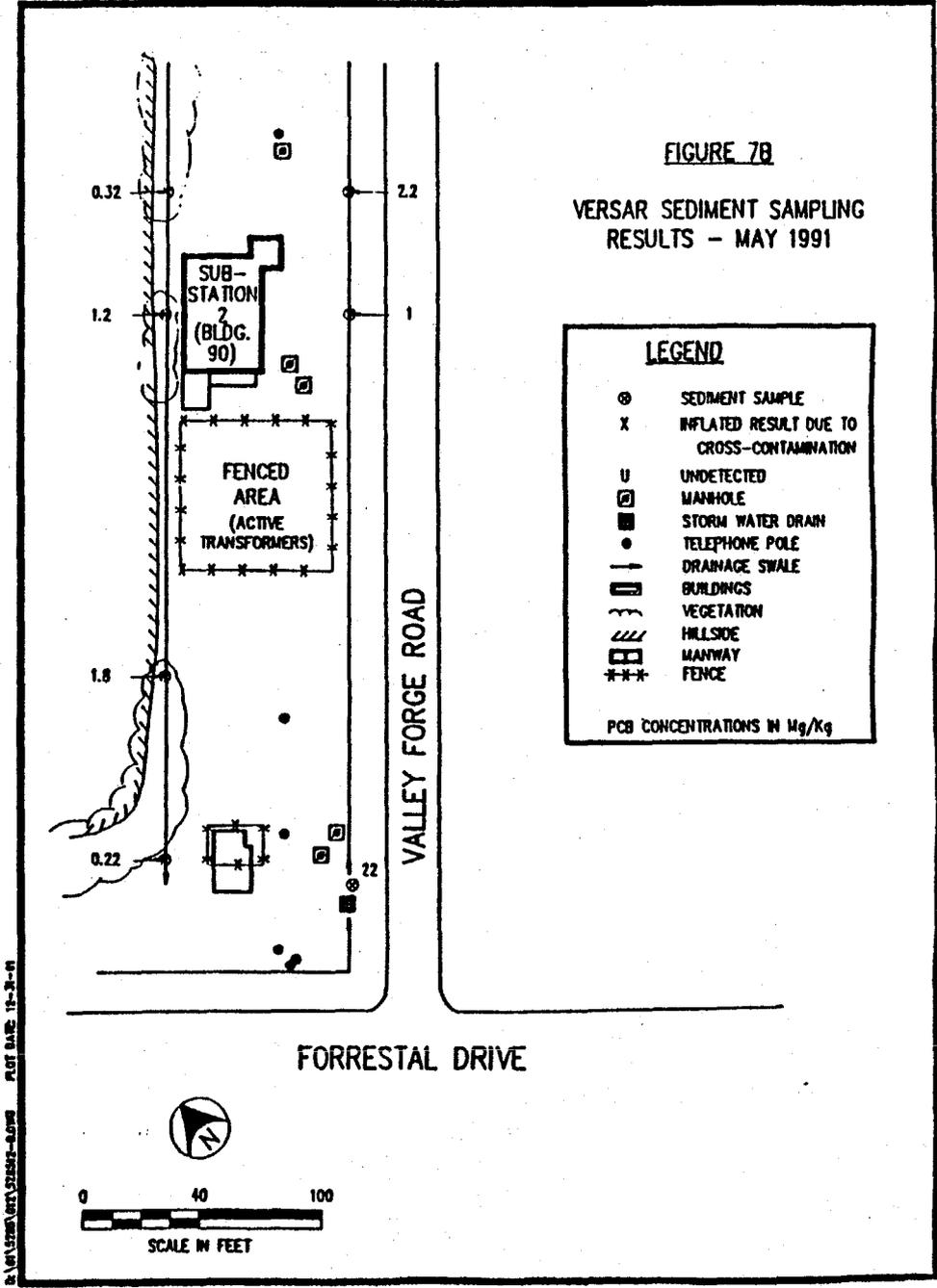
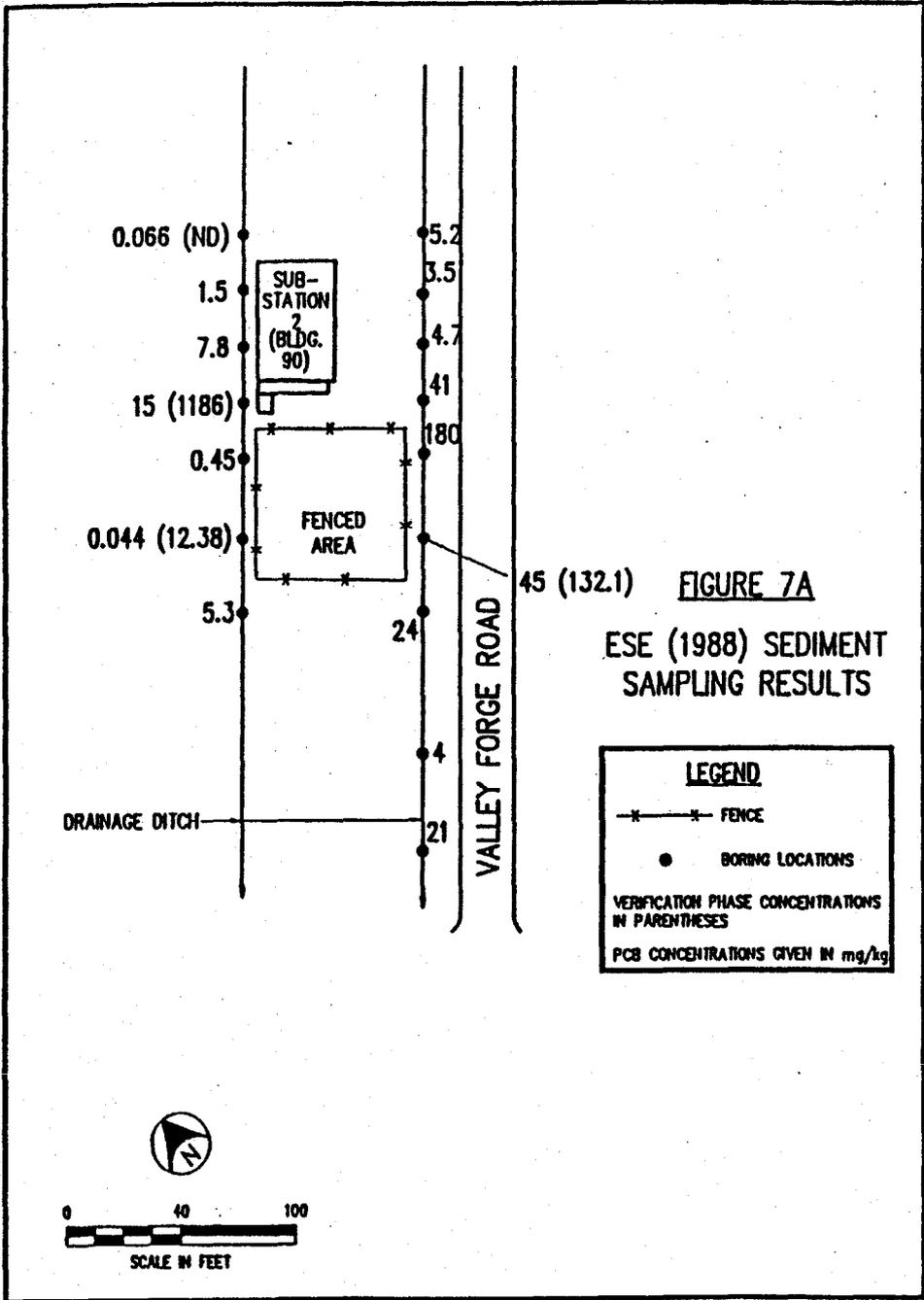
0 40 100



SCALE IN FEET

D:\5295\004\FIG23A-X.DWG

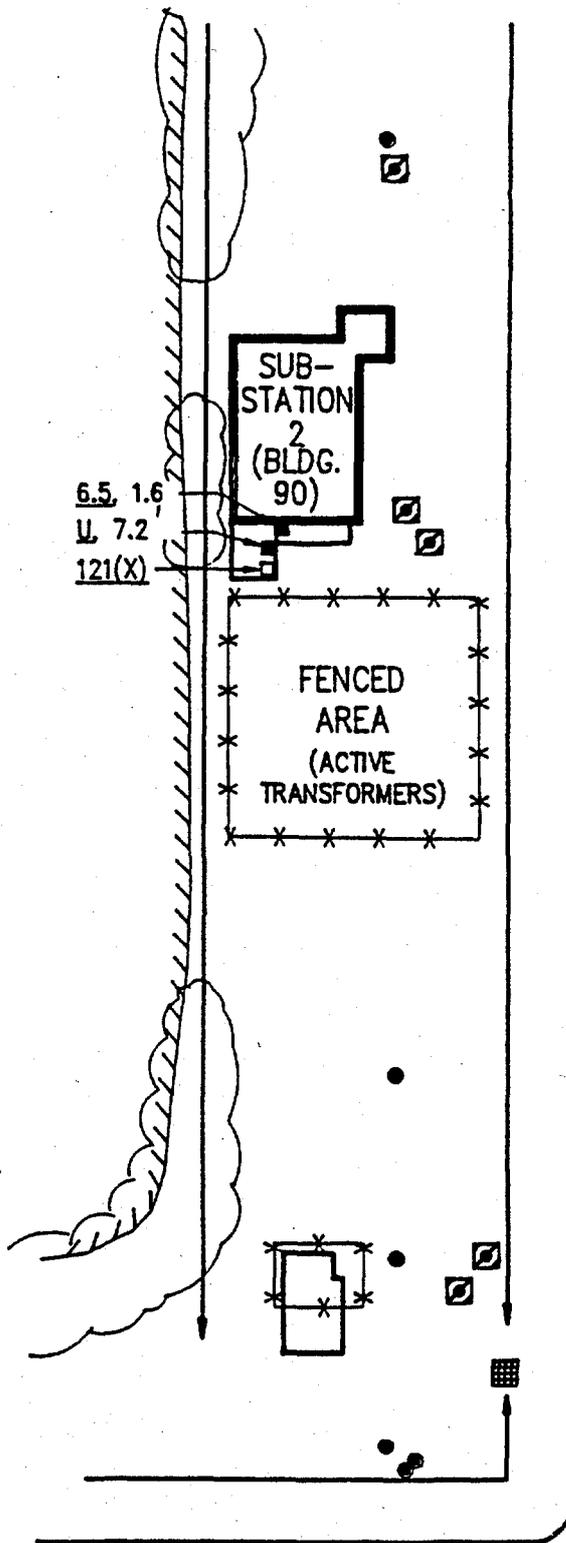




D:\M\25001\GRT\252501-AD090 PLOT DATE: 11-28-91

**FIGURE 8**

**VERSAR WIPE AND CONCRETE  
CHIP SAMPLE LOCATIONS  
MAY 1991**



**LEGEND**

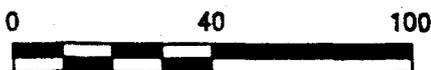
- WIPE AND CHIP SAMPLE\*
- WIPE SAMPLE\*
- ◻ CHIP SAMPLE
- X INFLATED RESULT DUE TO CROSS-CONTAMINATION
- U UNDETECTED
- ◻ MANHOLE
- ▣ STORM WATER DRAIN
- TELEPHONE POLE
- └─┘ DRAINAGE SWALE
- ▭ BUILDINGS
- ⎓ VEGETATION
- ▨ HILLSIDE
- ▭ MANWAY
- \*\*\* FENCE

-CHIP SAMPLE CONCENTRATIONS  
IN Mg/Kg

-WIPE SAMPLE CONCENTRATIONS  
IN Ug/M2

\* WIPE SAMPLE RESULTS ARE  
UNDERLINED

FORRESTAL DRIVE



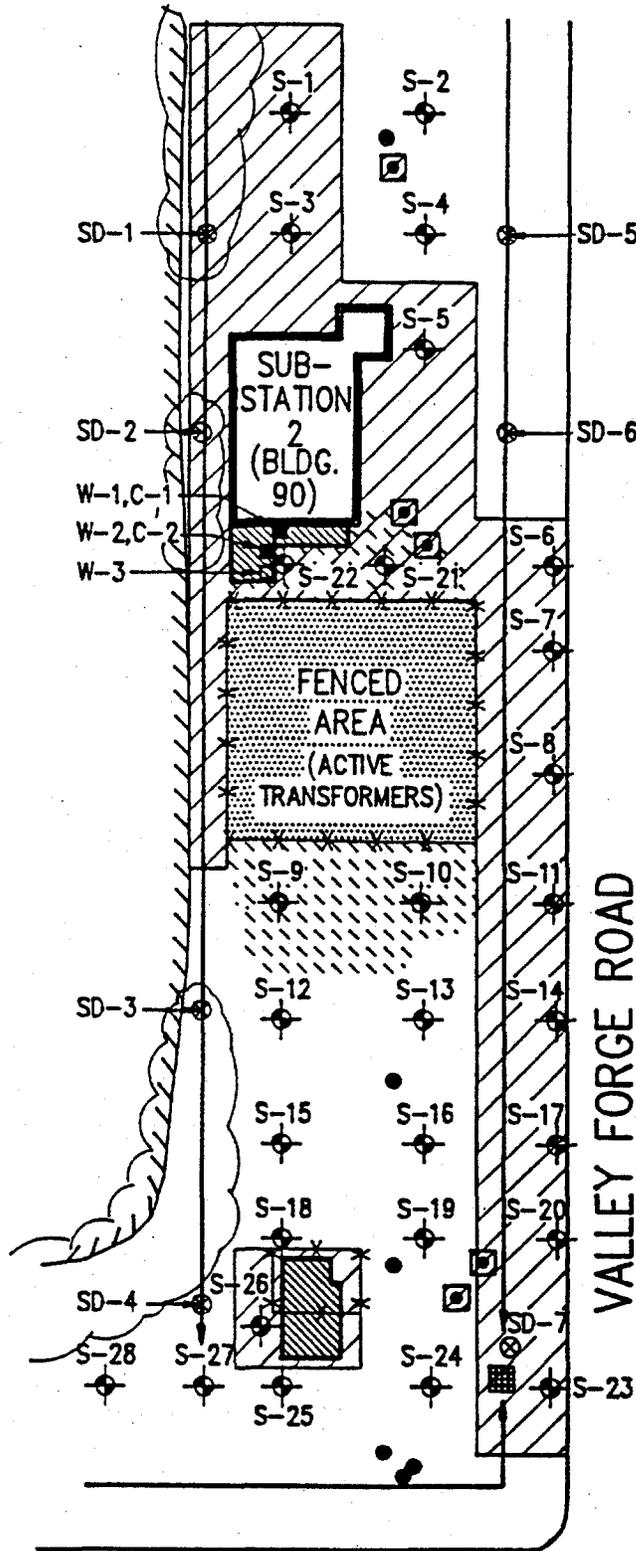
SCALE IN FEET

PLOT DATE: 11-11-91

D:\01\5285\012\528512-C.DWG

**FIGURE 9**

**EXTENT OF CONTAMINATION  
SOIL/SEDIMENT EXCEEDING  
10 Mg/Kg PCB  
(VERSAR 1991 AND  
ESE 1988 DATA)**

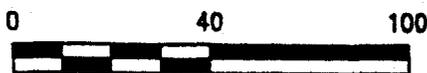


**LEGEND**

- WIPE AND CHIP SAMPLE
- WIPE SAMPLE
- ▣ CHIP SAMPLE
- ⊕ SOIL SAMPLE
- ⊗ SEDIMENT SAMPLE
- ▨ GRAVEL SURFACE
- ▧ CONCRETE
- Ⓜ MANHOLE
- ▩ STORM WATER DRAIN
- TELEPHONE POLE
- └─┘ DRAINAGE SWALE
- ▭ BUILDINGS
- ⌋ VEGETATION
- ▨ HILLSIDE
- ▭ EXPOSED SOIL (NO VEGETATION)
- ▭ MANWAY
- \*\*\* FENCE
- ▨ EXTENT OF CONTAMINATION

**FORRESTAL DRIVE**

**VALLEY FORGE ROAD**



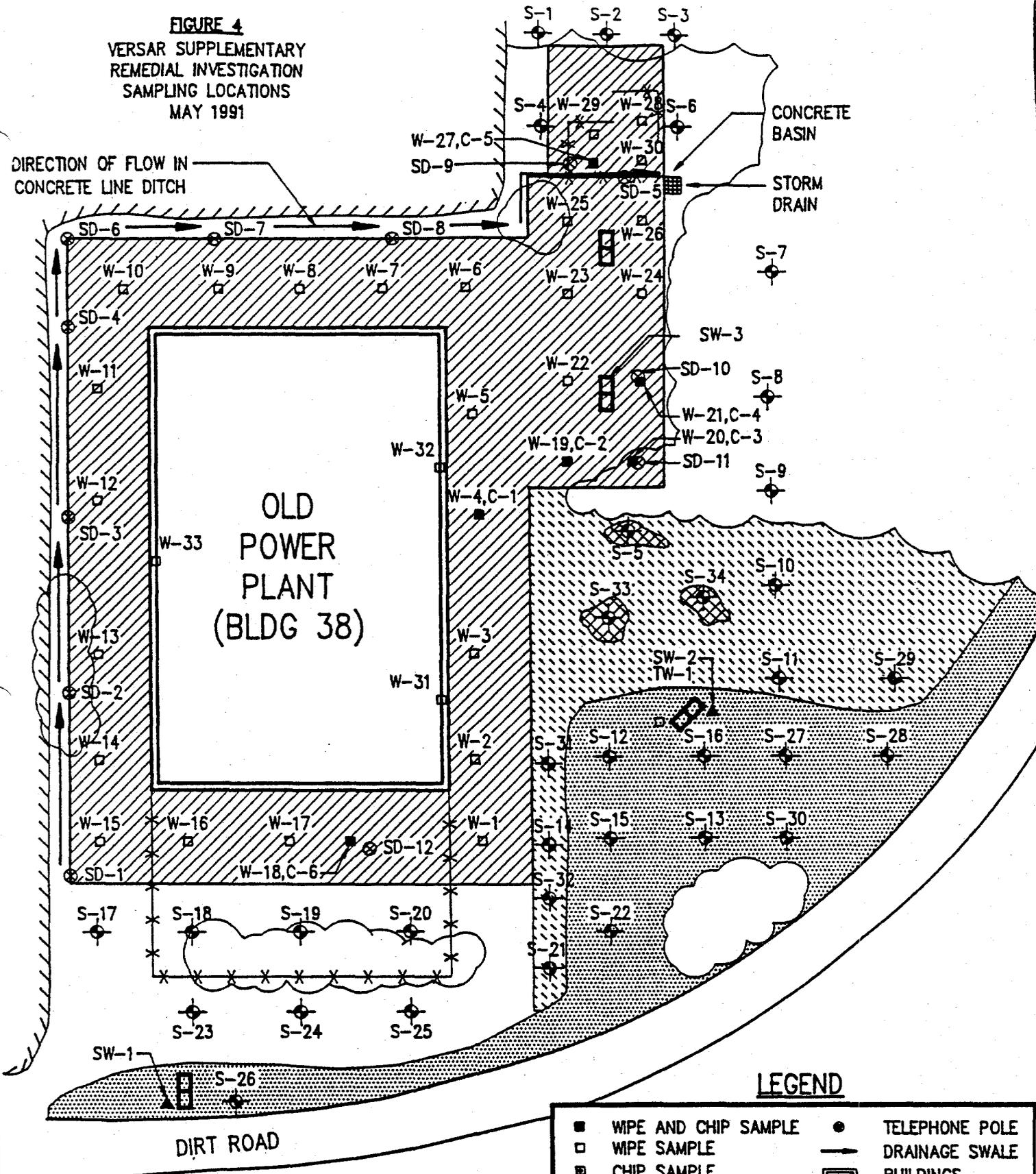
**SCALE IN FEET**

**SWMU 11**

**TRC**

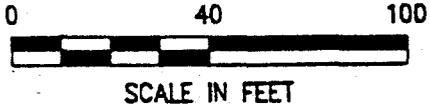
**FIGURE 4**  
**VERSAR SUPPLEMENTARY**  
**REMEDIAL INVESTIGATION**  
**SAMPLING LOCATIONS**  
**MAY 1991**

DIRECTION OF FLOW IN  
 CONCRETE LINE DITCH



**LEGEND**

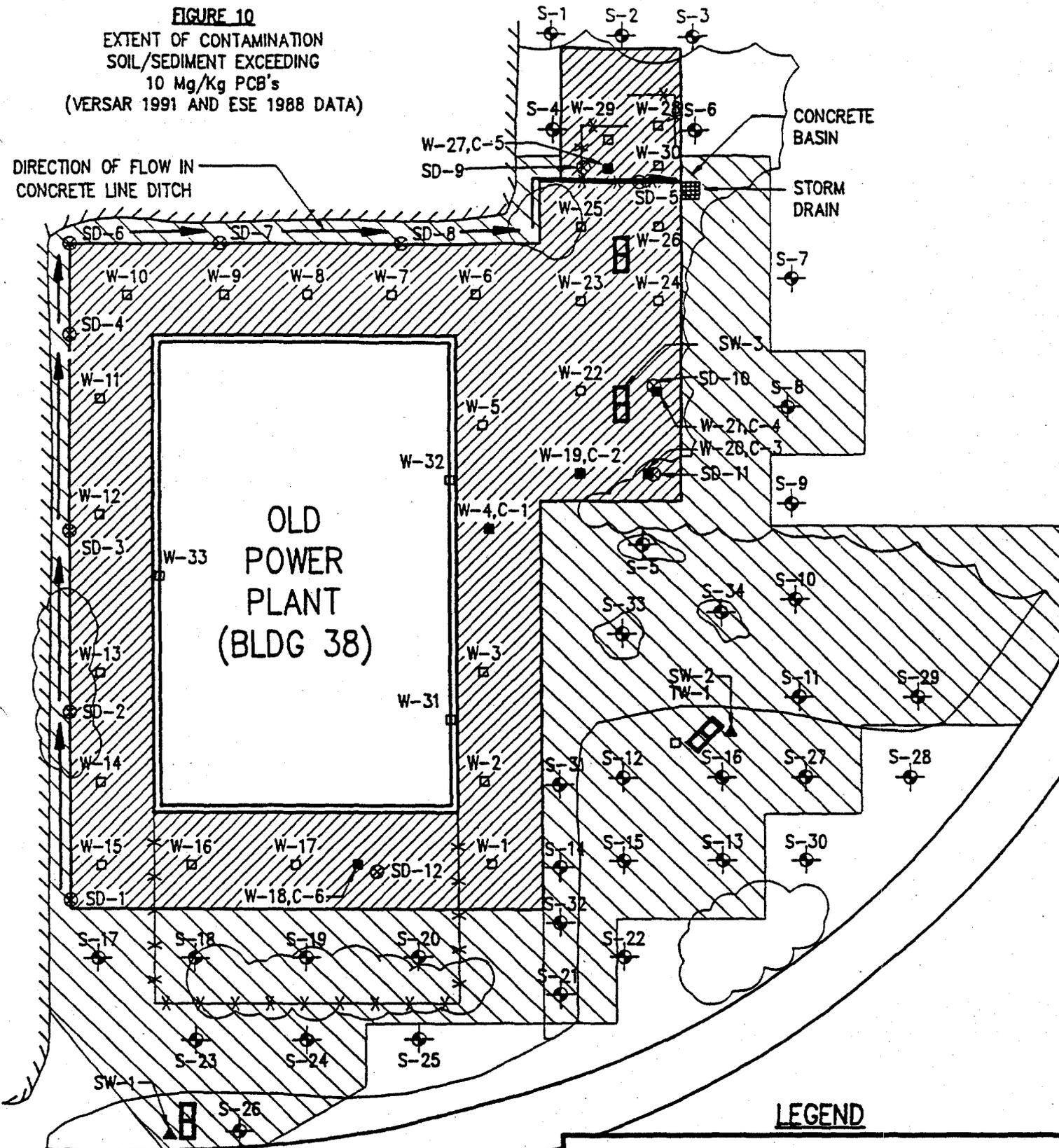
- |   |                      |     |                                 |
|---|----------------------|-----|---------------------------------|
| ■ | WIPE AND CHIP SAMPLE | ●   | TELEPHONE POLE                  |
| □ | WIPE SAMPLE          | →   | DRAINAGE SWALE                  |
| ⊠ | CHIP SAMPLE          | ▭   | BUILDINGS                       |
| ⊙ | SOIL SAMPLE          | ⌋   | VEGETATION                      |
| ⊗ | SEDIMENT SAMPLE      | ▨   | HILLSIDE                        |
| ▨ | GRAVEL SURFACE       | ⌋   | EXPOSED SOIL<br>(NO VEGETATION) |
| ▧ | CONCRETE             | ▭   | MANWAY                          |
| ⊠ | MANHOLE              | ⊗   | STAINED SOIL                    |
| ▧ | STORM WATER DRAIN    | *** | FENCE                           |
| ▲ | SURFACE WATER SAMPLE |     |                                 |



DWG. PLOT DATE: 01-17-92  
 D:\5295\004\F

**FIGURE 10**  
**EXTENT OF CONTAMINATION**  
**SOIL/SEDIMENT EXCEEDING**  
**10 Mg/Kg PCB's**  
**(VERSAR 1991 AND ESE 1988 DATA)**

DIRECTION OF FLOW IN  
 CONCRETE LINE DITCH

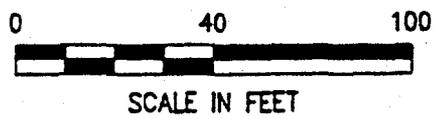


OLD  
 POWER  
 PLANT  
 (BLDG 38)

**LEGEND**

- |   |                      |     |                                 |
|---|----------------------|-----|---------------------------------|
| ■ | WIPE AND CHIP SAMPLE | ●   | TELEPHONE POLE                  |
| □ | WIPE SAMPLE          | →   | DRAINAGE SWALE                  |
| ▣ | CHIP SAMPLE          | ▭   | BUILDINGS                       |
| ⊙ | SOIL SAMPLE          | ⋈   | VEGETATION                      |
| ⊗ | SEDIMENT SAMPLE      | ▨   | HILLSIDE                        |
| ▨ | GRAVEL SURFACE       | ⬜   | EXPOSED SOIL<br>(NO VEGETATION) |
| ▧ | CONCRETE             | ▭   | MANWAY                          |
| ⊕ | MANHOLE              | ⊗   | STAINED SOIL                    |
| ▧ | STORM WATER DRAIN    | *** | FENCE                           |
| ▲ | SURFACE WATER SAMPLE |     |                                 |

DIRT ROAD



PLOT DATE: 01-17-92  
 0: 5295\004\F

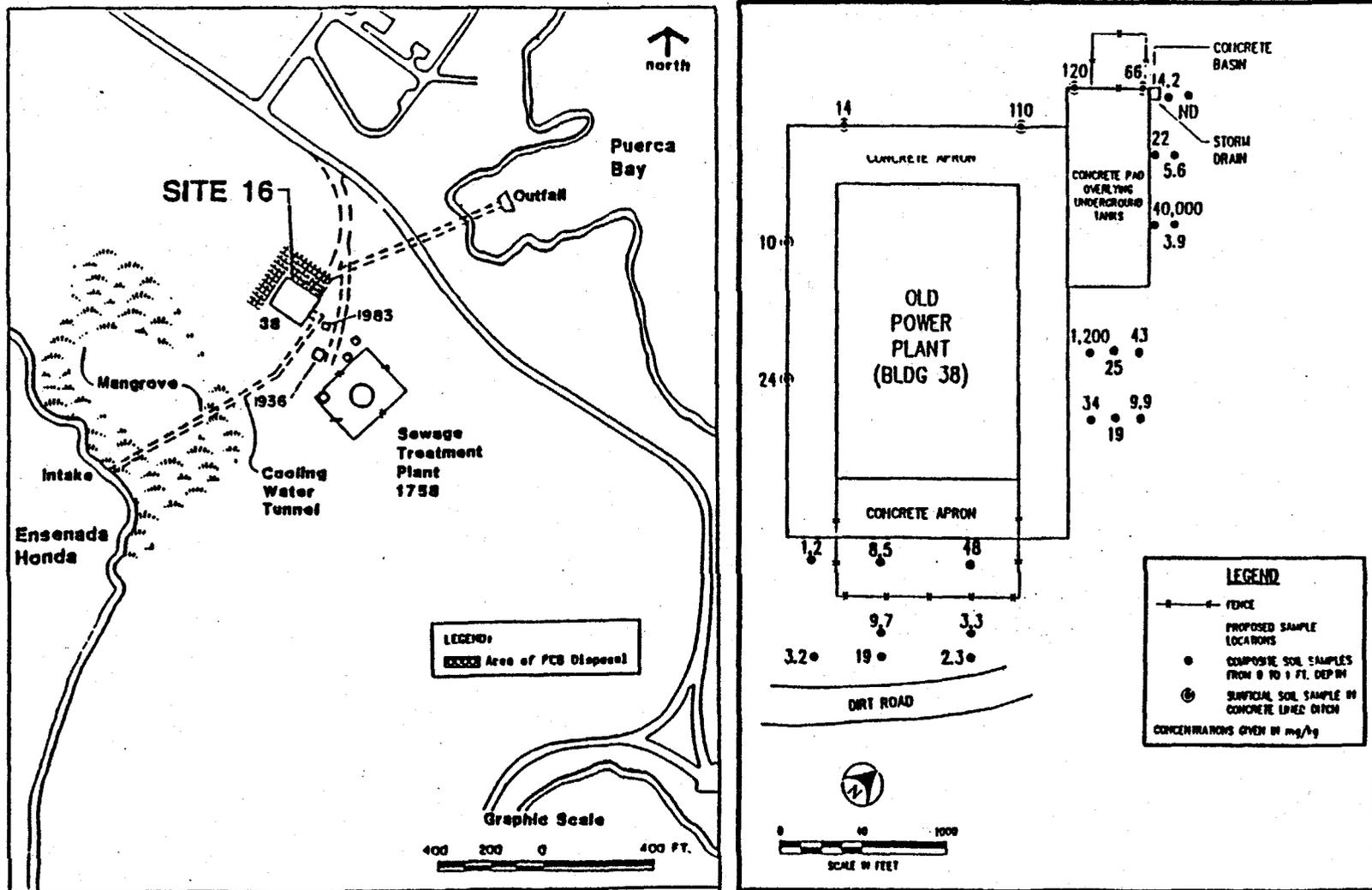
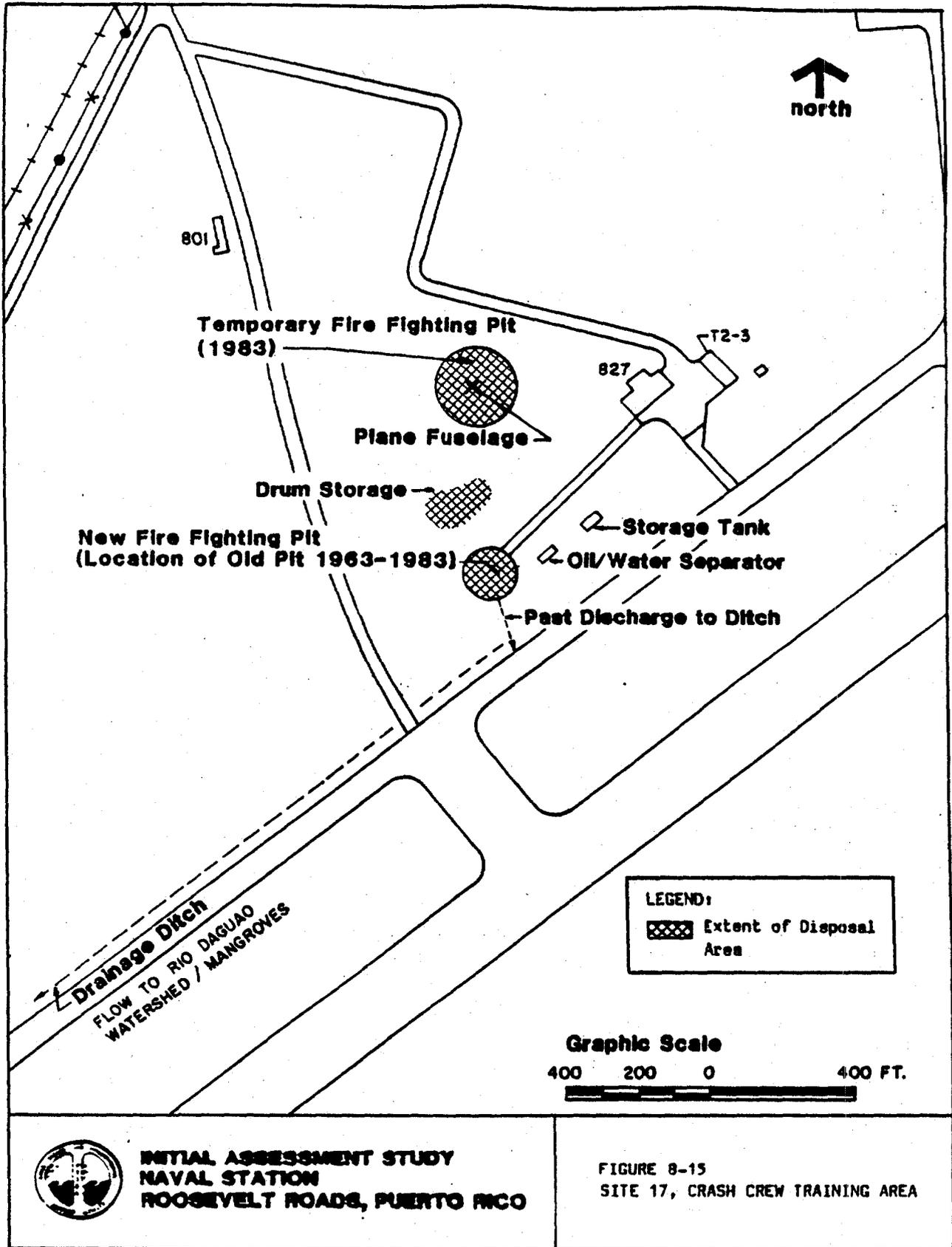


FIGURE 3

LOCATION AND CONFIRMATION STUDY SAMPLING  
 LOCATIONS, SITE 16: OLD POWER PLANT, BUILDING 38  
 NAVSTA ROOSEVELT ROADS, PUERTO RICO

**SWMU 12**

**TRC**

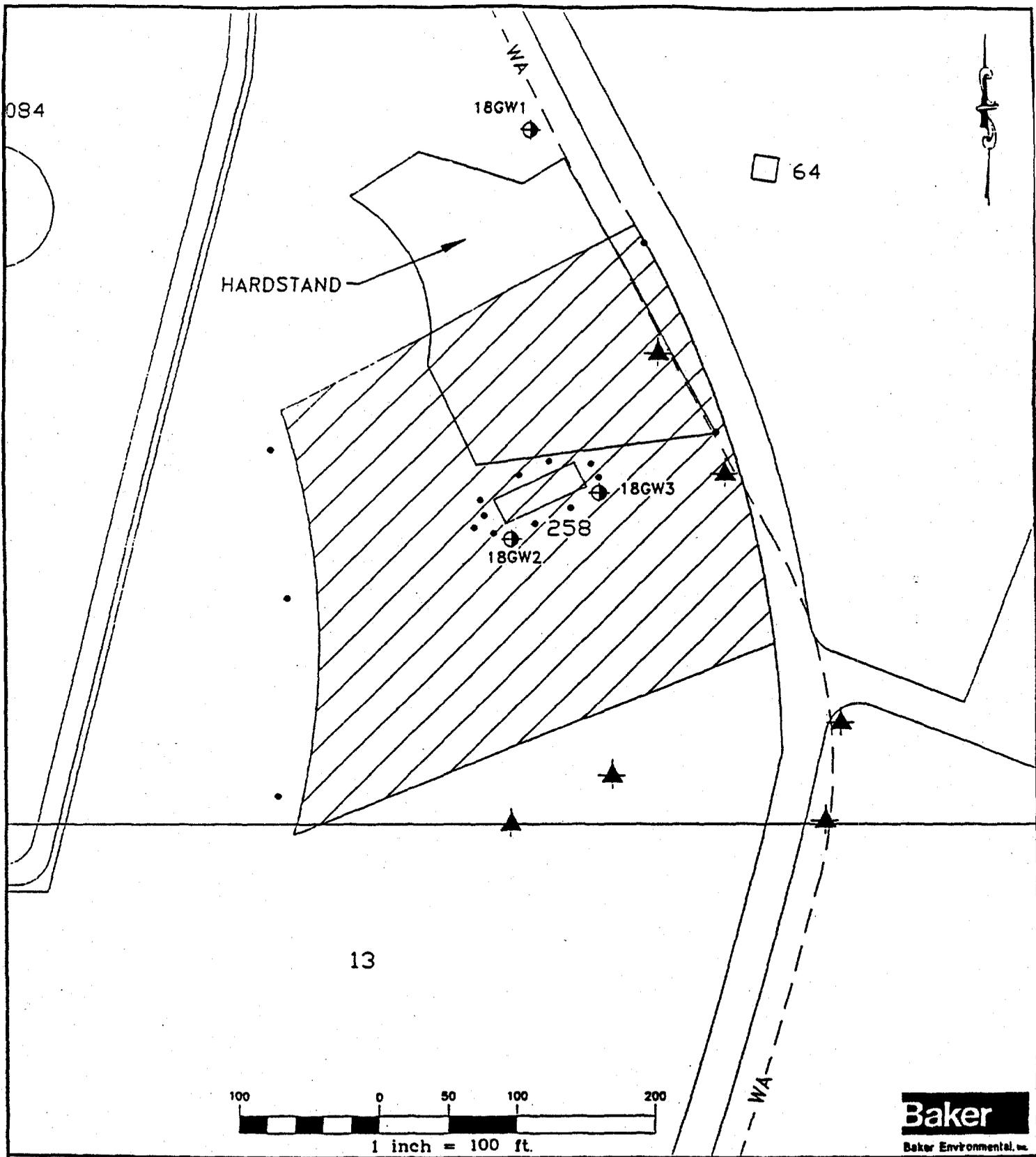


**INITIAL ASSESSMENT STUDY  
NAVAL STATION  
ROOSEVELT ROADS, PUERTO RICO**

**FIGURE 8-15  
SITE 17, CRASH CREW TRAINING AREA**

**SWMU 13**

**TRC**



**Baker**  
Baker Environmental, Inc.

**LEGEND**

- 18GW1  APPROXIMATE LOCATION OF EXISTING MONITORING WELL
-  PLANNED SURFACE WATER/SEDIMENT SAMPLE LOCATION
-  PLANNED SURFACE SOIL SAMPLE LOCATION

SOURCE: LANTDIV., FEBRUARY 1992

**FIGURE 2-10**  
**SAMPLE LOCATION MAP**  
**SITE 18, PEST CONTROL SHOP**  
**AND SURROUNDING AREAS**  
**NAVAL STATION ROOSEVELT ROADS**  
**PUERTO RICO**

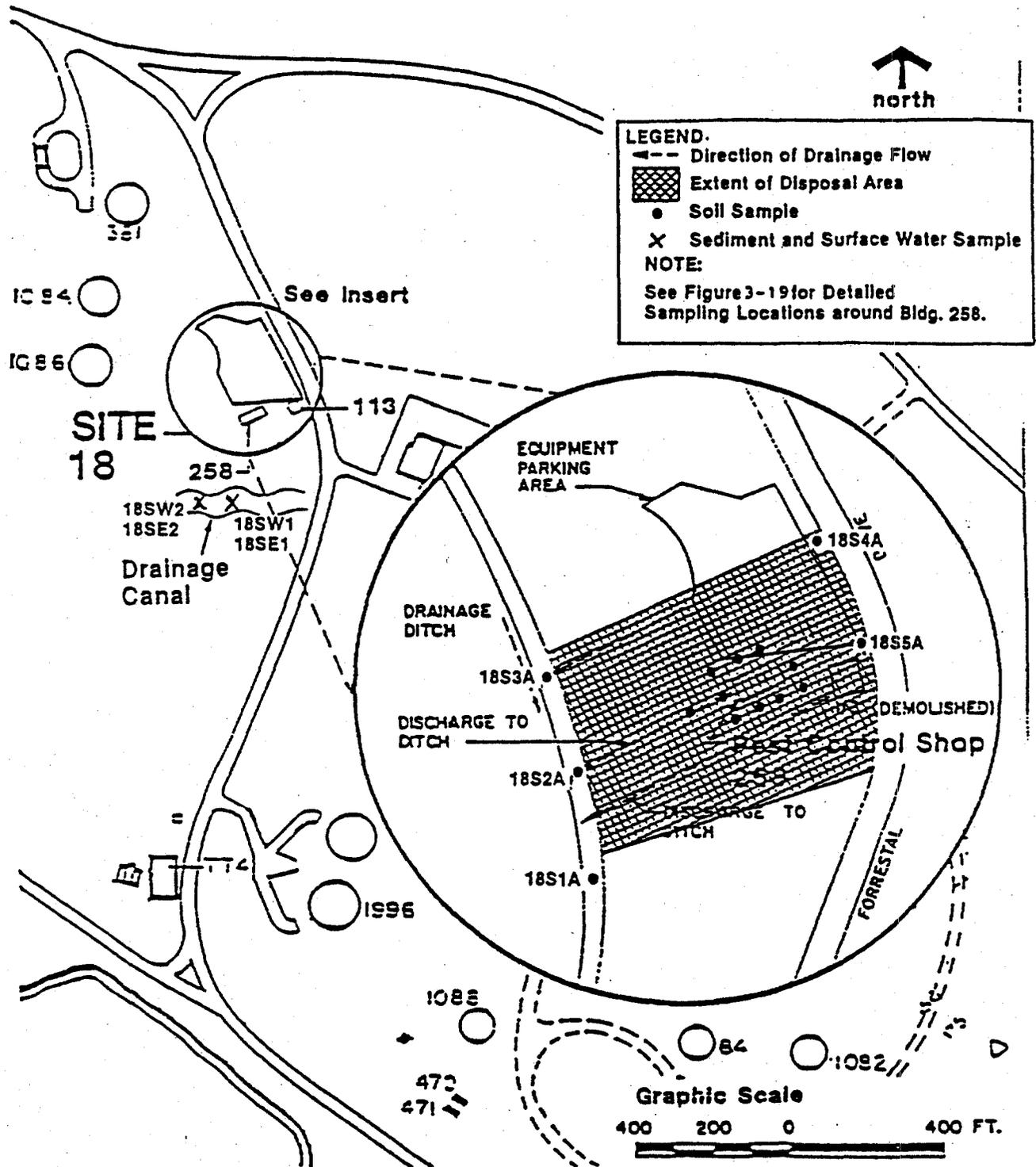


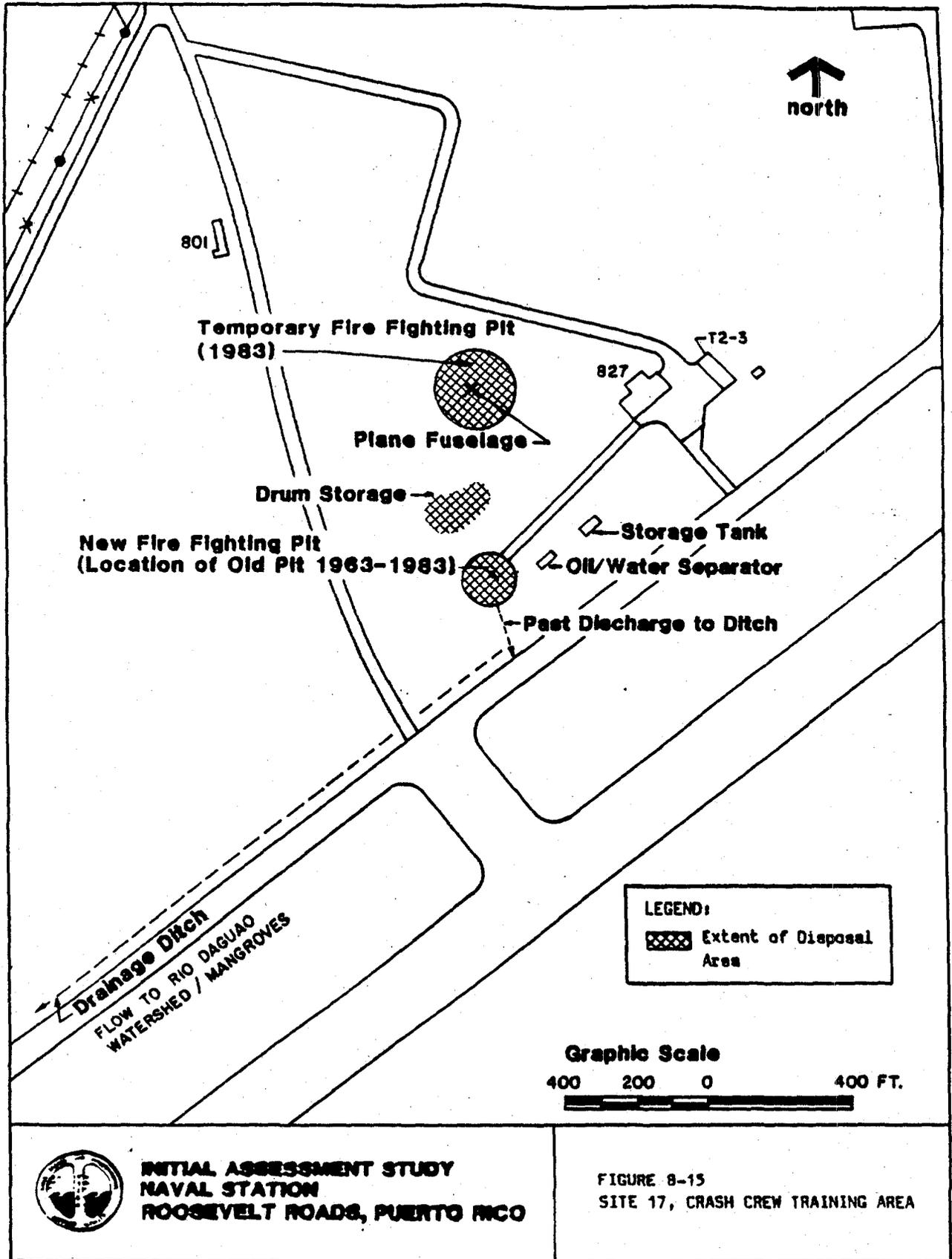
Figure 3-18  
 ROUND 1 SOIL, SURFACE WATER,  
 AND SEDIMENT SAMPLING LOCATIONS  
 AT SITE 18, PEST CONTROL SHOP  
 AND SURROUNDING AREA



CONFIRMATION STUDY  
 U.S. NAVAL COMPLEX  
 PUERTO RICO

**SWMU 14**

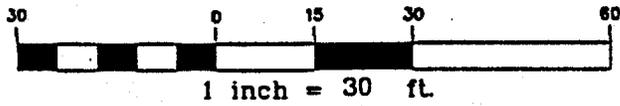
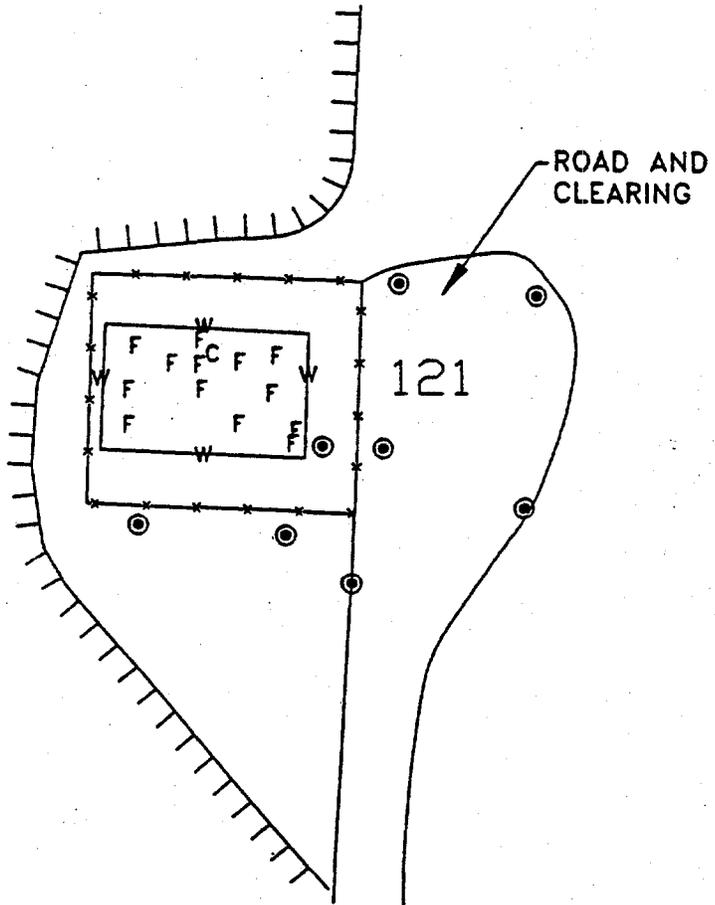
**TRC**



**SWMU 19**



RISING  
TERRAIN



**Baker**  
Baker Environmental, Inc.

LEGEND

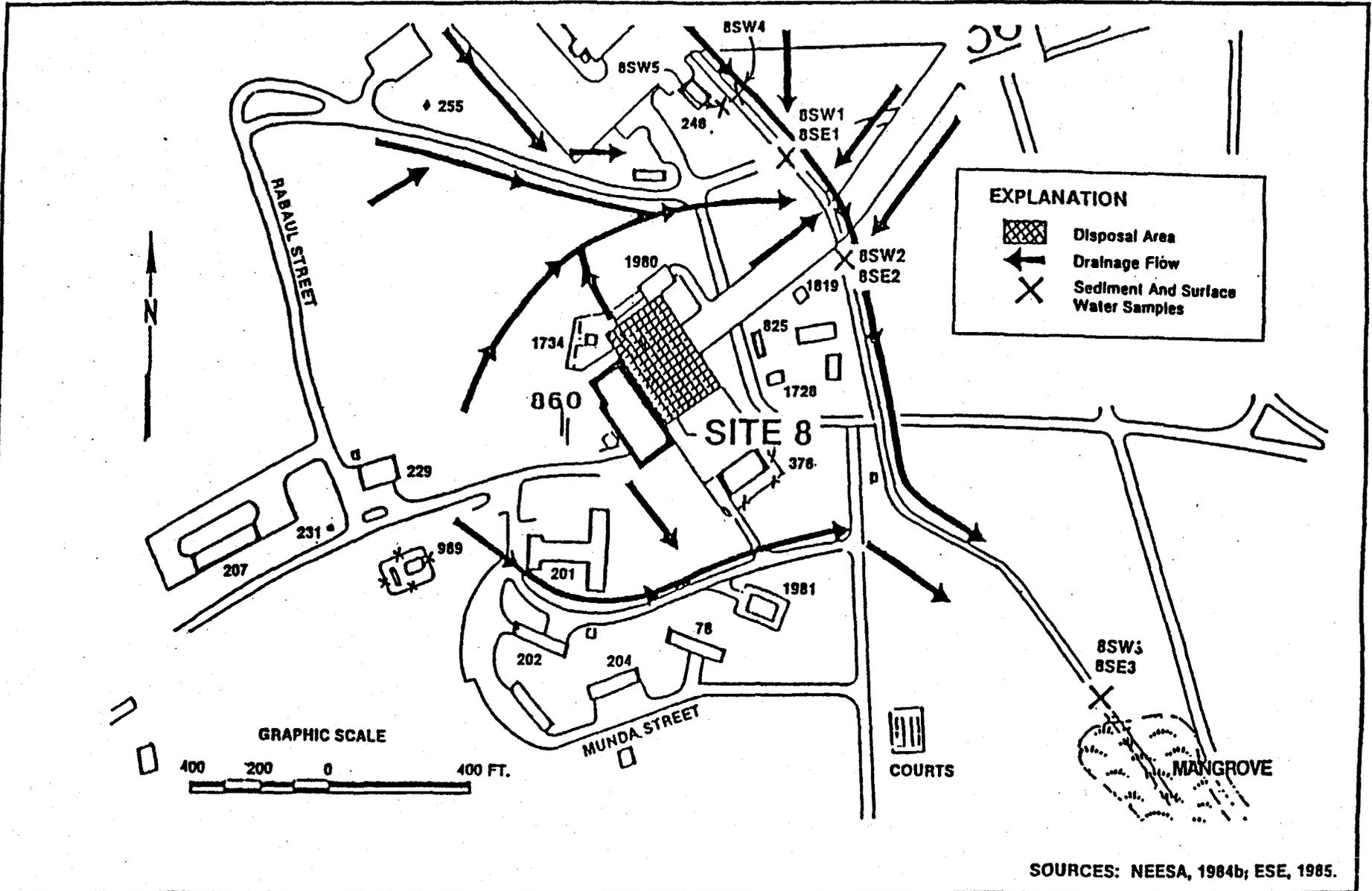
- ⊙ PROPOSED SOIL BORING LOCATION
- F FLOOR (CONCRETE) SAMPLE LOCATION
- W WALL (CONCRETE) SAMPLE LOCATION
- C CEILING (CONCRETE) SAMPLE LOCATION

FIGURE 2-12  
SAMPLE LOCATION MAP  
SITE 21, OLD PESTICIDE  
STORAGE BUILDING 121  
NAVAL STATION ROOSEVELT ROADS  
PUERTO RICO

SOURCE: LANTDIV., FEBRUARY 1992

**SWMU 20**

**TRC**



SOURCES: NEESA, 1984b; ESE, 1985.

Figure 3-9  
ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE 8,  
DRONE WASHDOWN

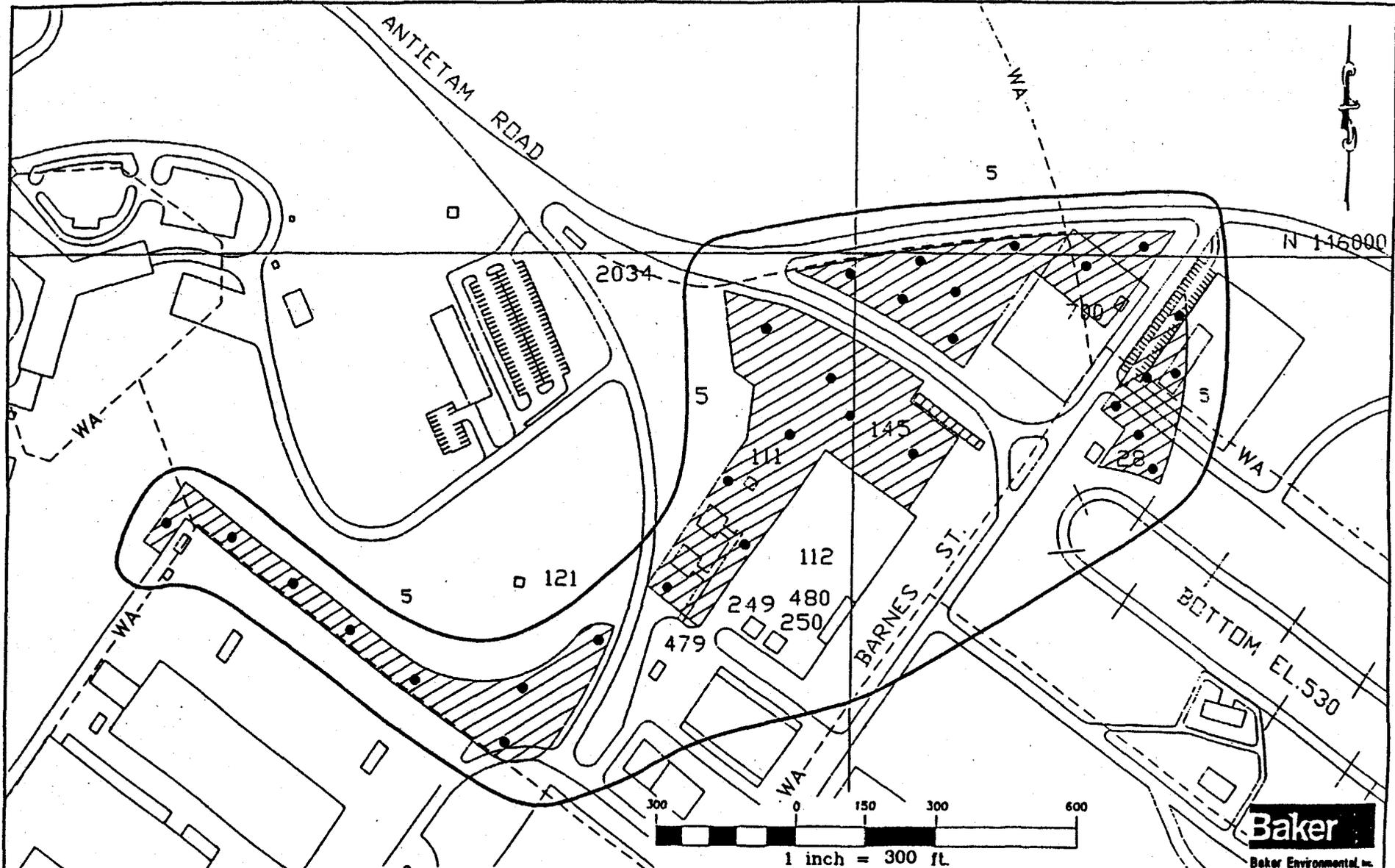


CONFIRMATION STUDY  
U.S. NAVAL COMPLEX  
PUERTO RICO

**SWMU 31**

**TRC**

2-11



**LEGEND**

- PLANNED SURFACE SOIL SAMPLE LOCATION

**FIGURE 2-6**  
**SAMPLE LOCATION MAP**  
**SITE 10, BUILDING 25**  
**STORAGE AREA**  
**NAVAL STATION ROOSEVELT ROADS**  
**PUERTO RICO**

3-36

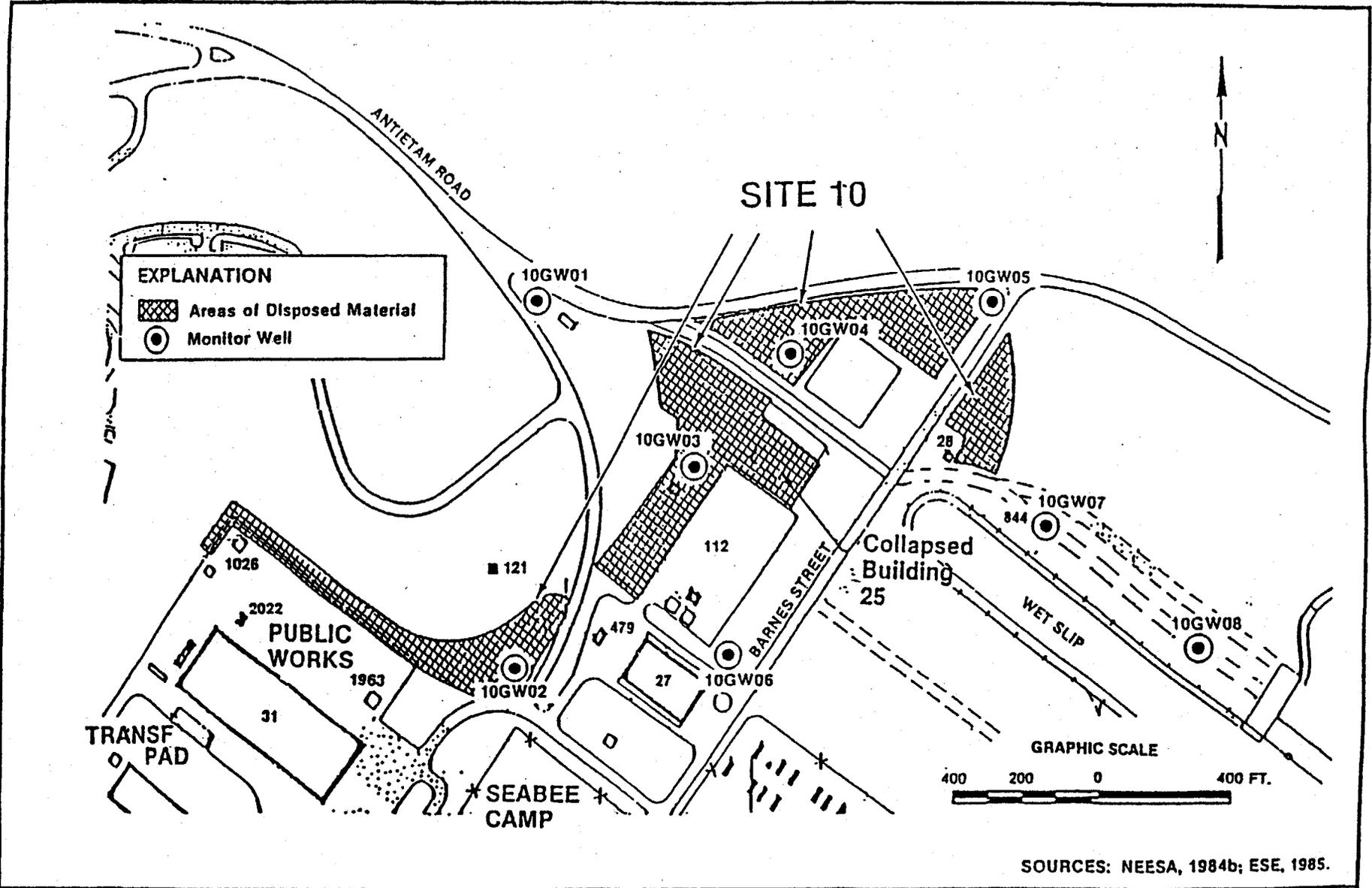


Figure 3-11  
 ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE NO. 10,  
 BUILDING 25 STORAGE AREA

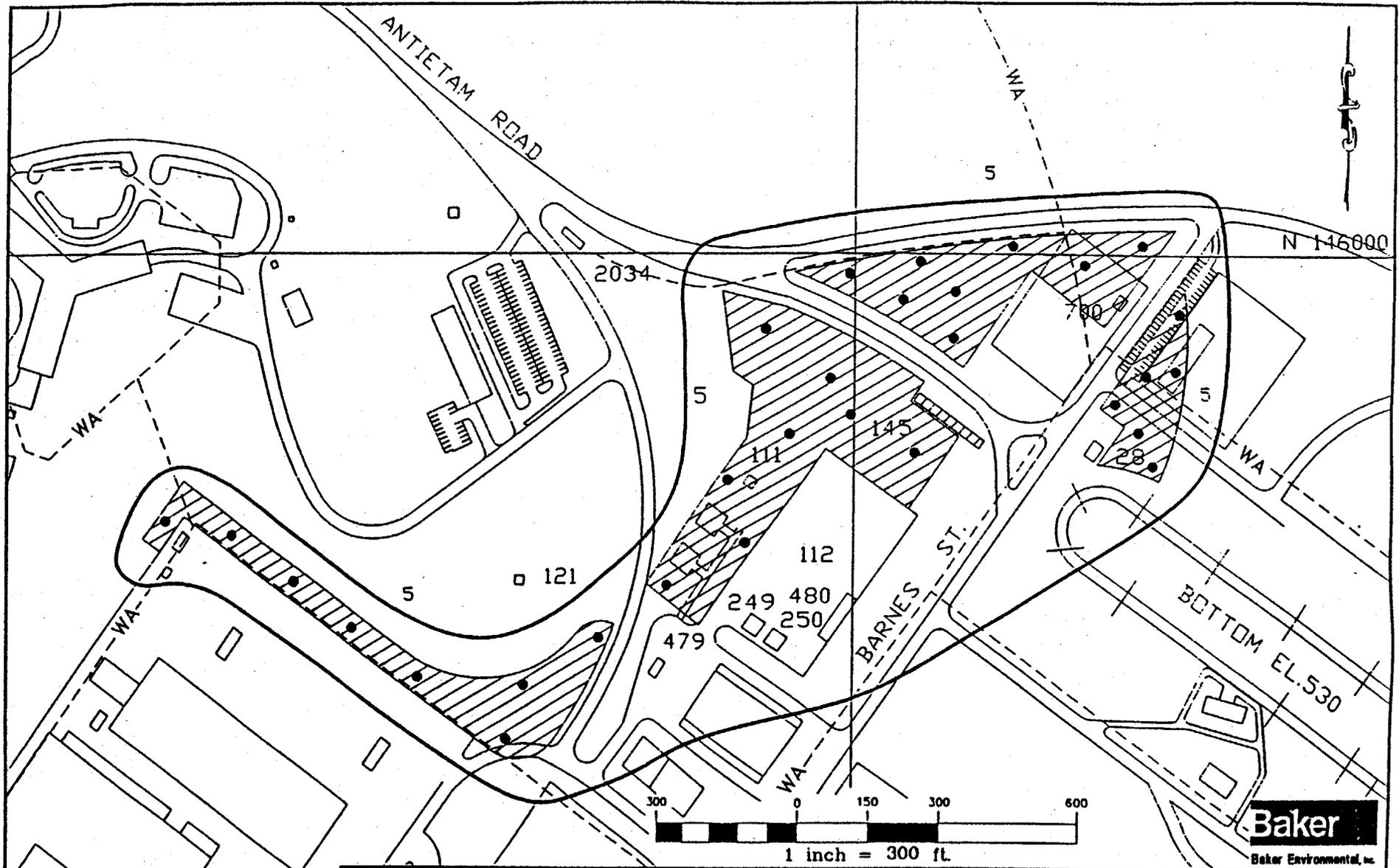


CONFIRMATION STUDY  
 U.S. NAVAL COMPLEX  
 PUERTO RICO

SWMU 32

**TRC**

2-11



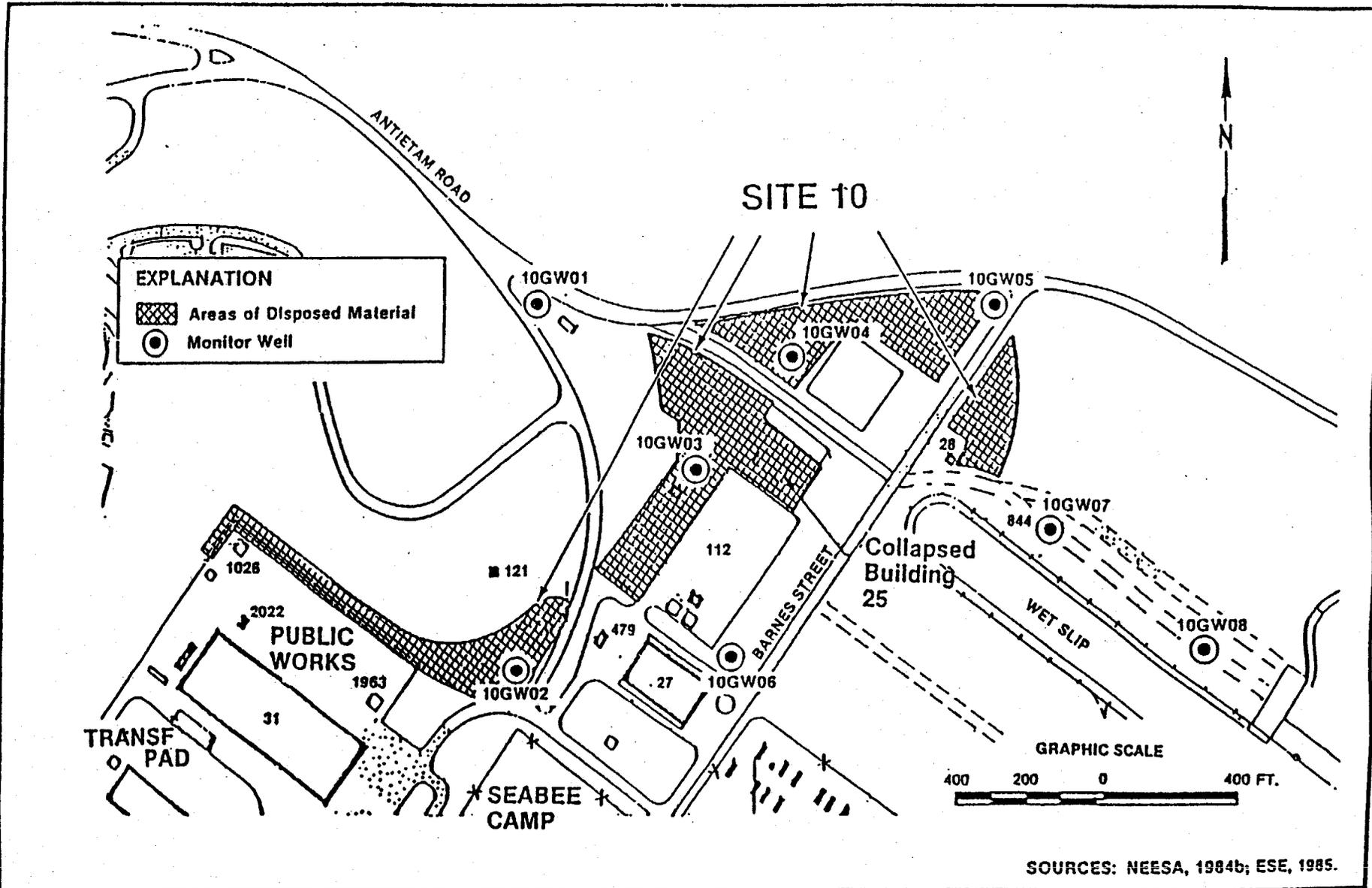
**LEGEND**

- PLANNED SURFACE SOIL SAMPLE LOCATION

FIGURE 2-6  
 SAMPLE LOCATION MAP  
 SITE 10, BUILDING 25  
 STORAGE AREA

NAVAL STATION ROOSEVELT ROADS  
 PUERTO RICO

3-36



SOURCES: NEESA, 1984b; ESE, 1985.

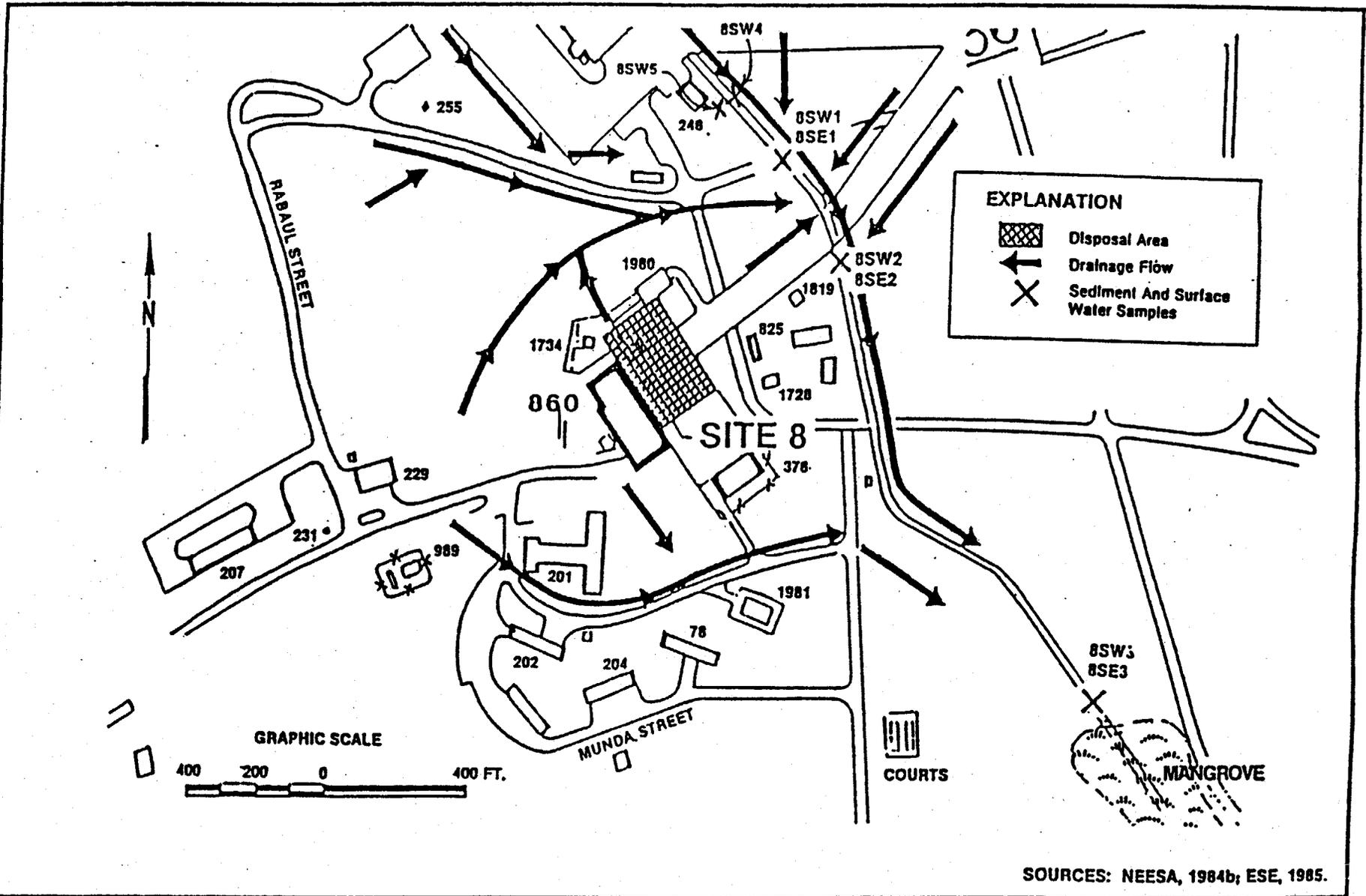
Figure 3-11  
ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE NO. 10,  
BUILDING 25 STORAGE AREA



CONFIRMATION STUDY  
U.S. NAVAL COMPLEX  
PUERTO RICO

**SWMU 37**

**TRC**



SOURCES: NEESA, 1984b; ESE, 1985.

Figure 3-9  
ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE 8,  
DRONE WASHDOWN



CONFIRMATION STUDY  
U.S. NAVAL COMPLEX  
PUERTO RICO

**SWMU 43**

**TRC**

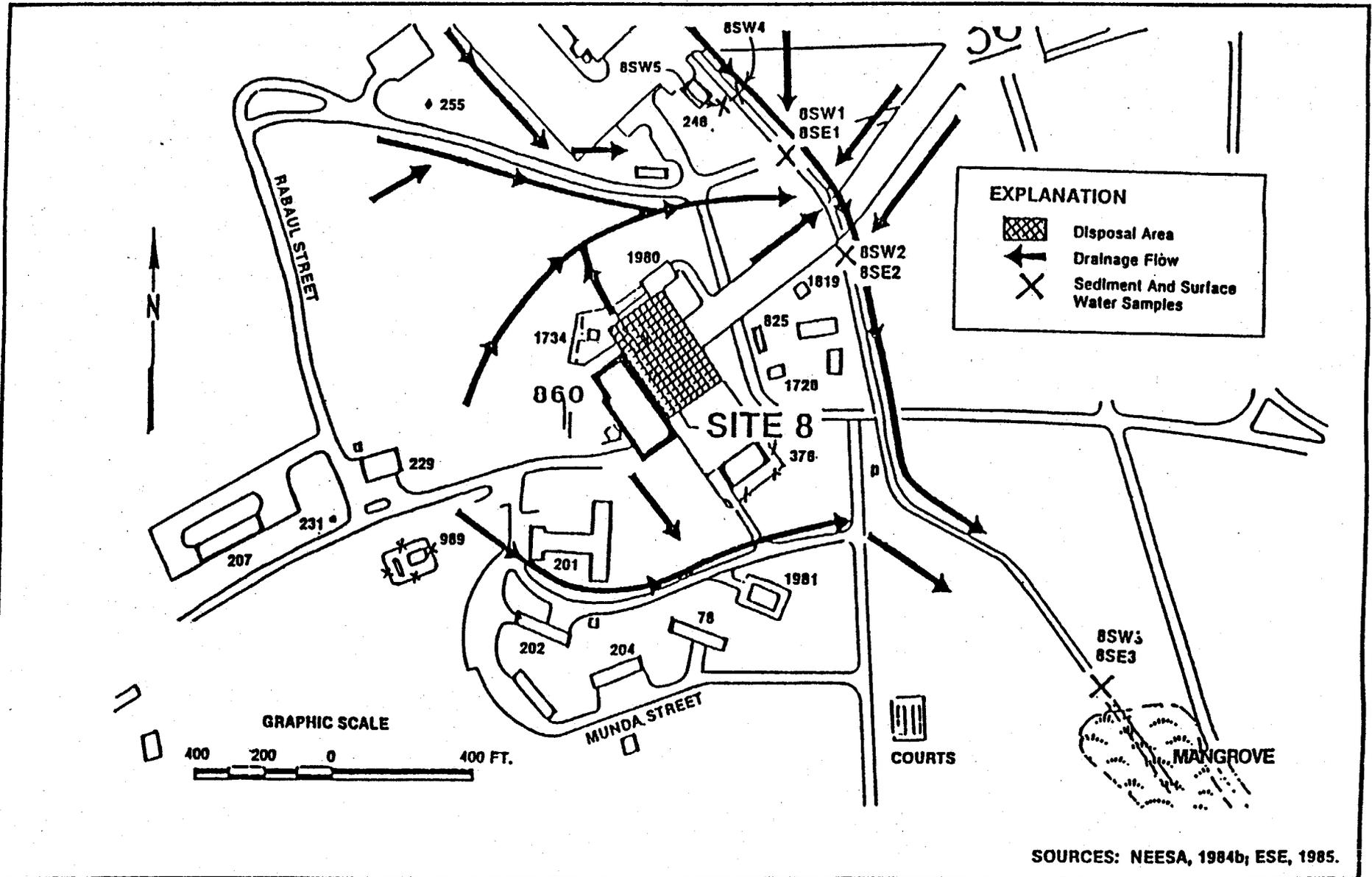


Figure 3-9  
 ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE 8,  
 DRONE WASHDOWN

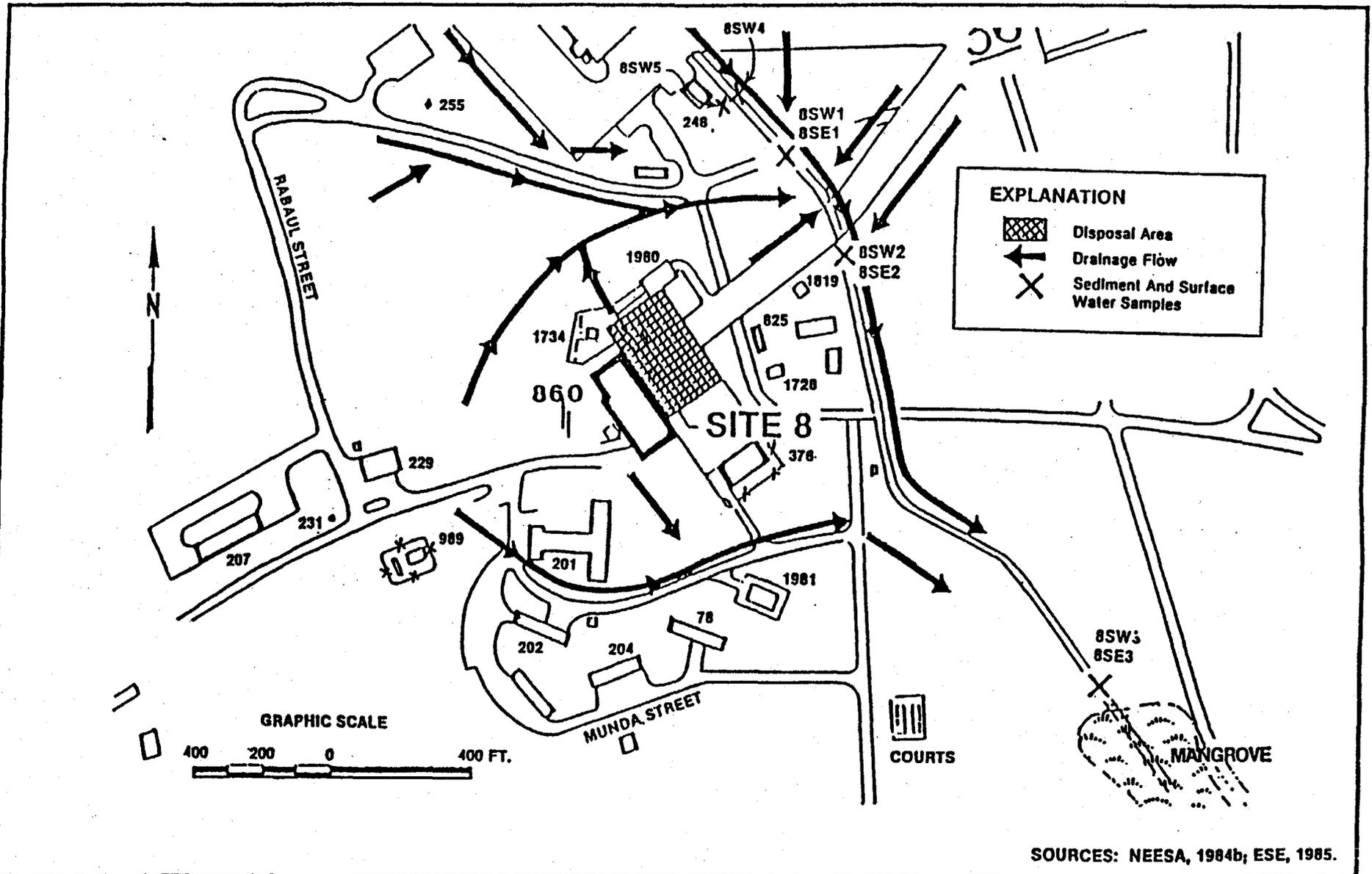


CONFIRMATION STUDY  
 U.S. NAVAL COMPLEX  
 PUERTO RICO

**SWMU 44**

**TRC**

3-31



SOURCES: NEESA, 1984b; ESE, 1985.

Figure 3-9  
ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE 8,  
DRONE WASHDOWN



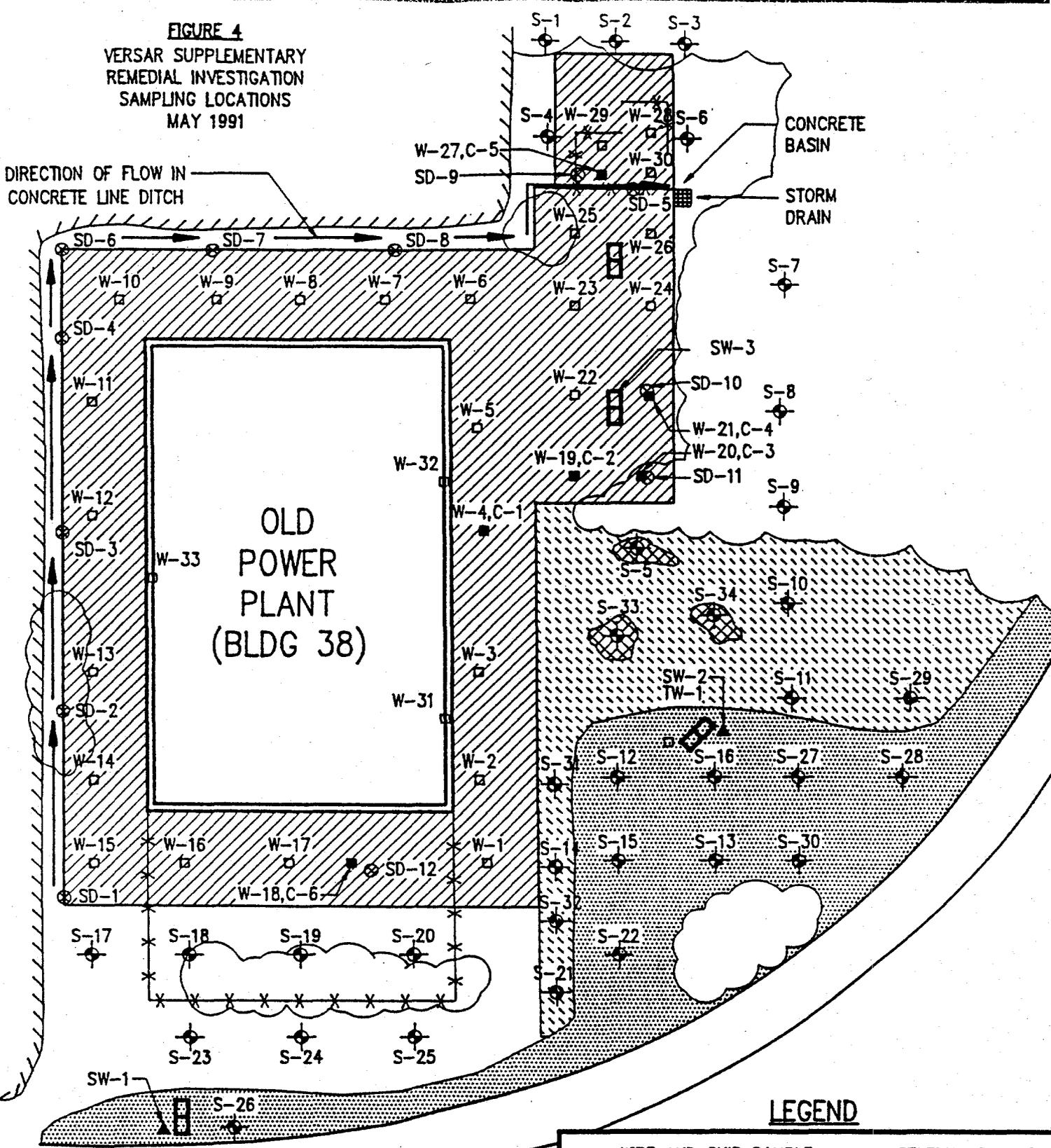
CONFIRMATION STUDY  
U.S. NAVAL COMPLEX  
PUERTO RICO

**SWMU 45**

**TRC**

**FIGURE 4**  
**VERSAR SUPPLEMENTARY**  
**REMEDIAL INVESTIGATION**  
**SAMPLING LOCATIONS**  
**MAY 1991**

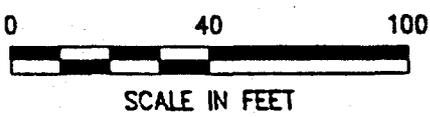
DIRECTION OF FLOW IN  
 CONCRETE LINE DITCH



OLD  
 POWER  
 PLANT  
 (BLDG 38)

**LEGEND**

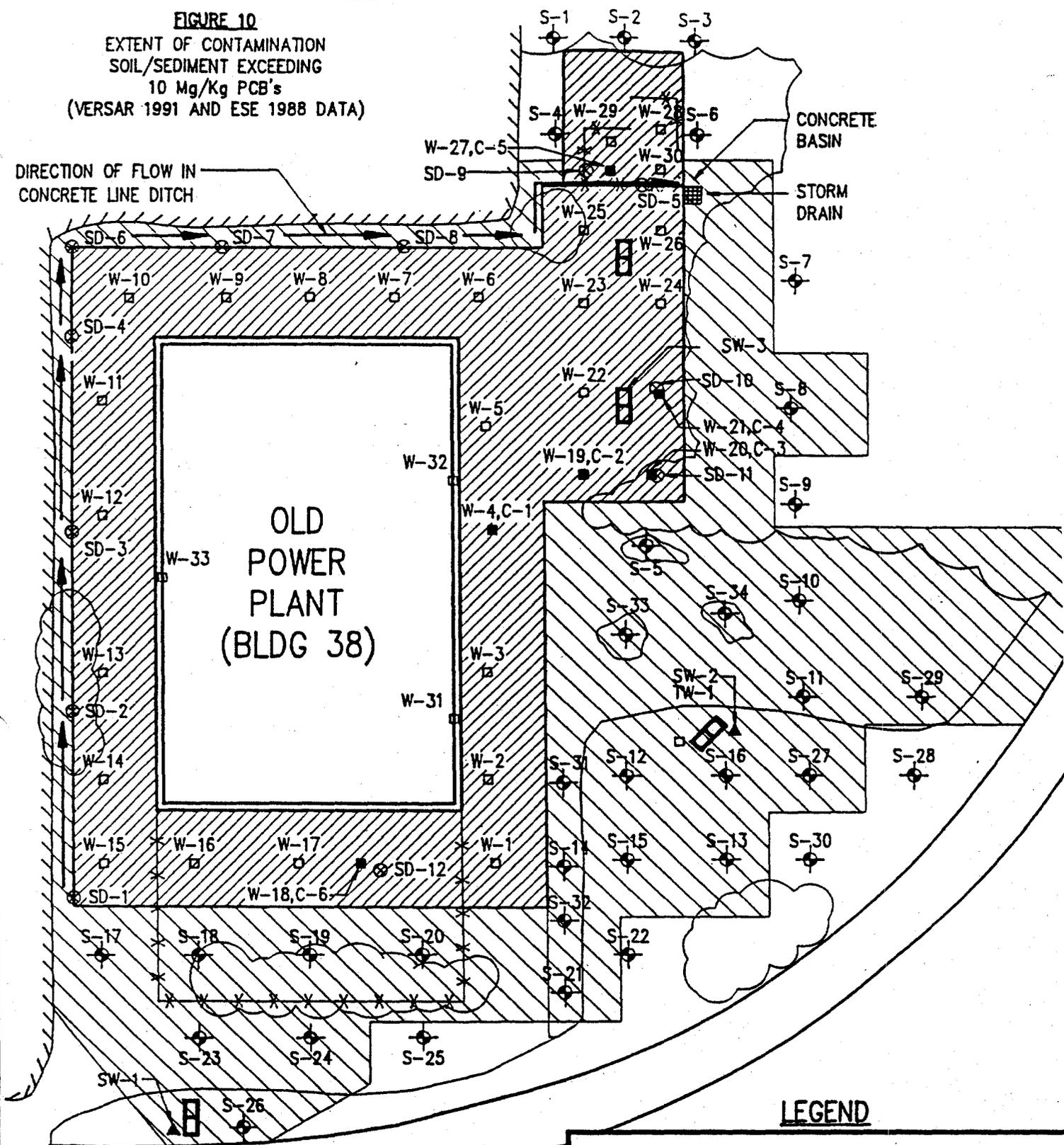
- |   |                      |     |                                 |
|---|----------------------|-----|---------------------------------|
| ■ | WIPE AND CHIP SAMPLE | ●   | TELEPHONE POLE                  |
| □ | WIPE SAMPLE          | →   | DRAINAGE SWALE                  |
| ▣ | CHIP SAMPLE          | ▭   | BUILDINGS                       |
| ⊙ | SOIL SAMPLE          | ⌒   | VEGETATION                      |
| ⊗ | SEDIMENT SAMPLE      | ▨   | HILLSIDE                        |
| ▨ | GRAVEL SURFACE       | ⌒   | EXPOSED SOIL<br>(NO VEGETATION) |
| ▨ | CONCRETE             | ▭   | MANWAY                          |
| ⊠ | MANHOLE              | ⊗   | STAINED SOIL                    |
| ▣ | STORM WATER DRAIN    | *** | FENCE                           |
| ▲ | SURFACE WATER SAMPLE |     |                                 |



DWG PLOT DATE: 01-17-92  
 0: 5295\004

**FIGURE 10**  
**EXTENT OF CONTAMINATION**  
**SOIL/SEDIMENT EXCEEDING**  
**10 Mg/Kg PCB's**  
**(VERSAR 1991 AND ESE 1988 DATA)**

DIRECTION OF FLOW IN  
 CONCRETE LINE DITCH

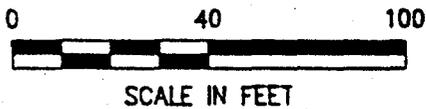


OLD  
 POWER  
 PLANT  
 (BLDG 38)

**LEGEND**

- |   |                      |     |                                 |
|---|----------------------|-----|---------------------------------|
| ■ | WIPE AND CHIP SAMPLE | ●   | TELEPHONE POLE                  |
| □ | WIPE SAMPLE          | —   | DRAINAGE SWALE                  |
| ⊕ | CHIP SAMPLE          | ▭   | BUILDINGS                       |
| ⊙ | SOIL SAMPLE          | ~   | VEGETATION                      |
| ⊗ | SEDIMENT SAMPLE      | ▨   | HILLSIDE                        |
| ▨ | GRAVEL SURFACE       | ▭   | EXPOSED SOIL<br>(NO VEGETATION) |
| ▨ | CONCRETE             | ▭   | MANWAY                          |
| ⊕ | MANHOLE              | ⊗   | STAINED SOIL                    |
| ▨ | STORM WATER DRAIN    | *** | FENCE                           |
| ▲ | SURFACE WATER SAMPLE |     |                                 |

DIRT ROAD



PLOT DATE: 01-17-92

DWG

D: 5295/004

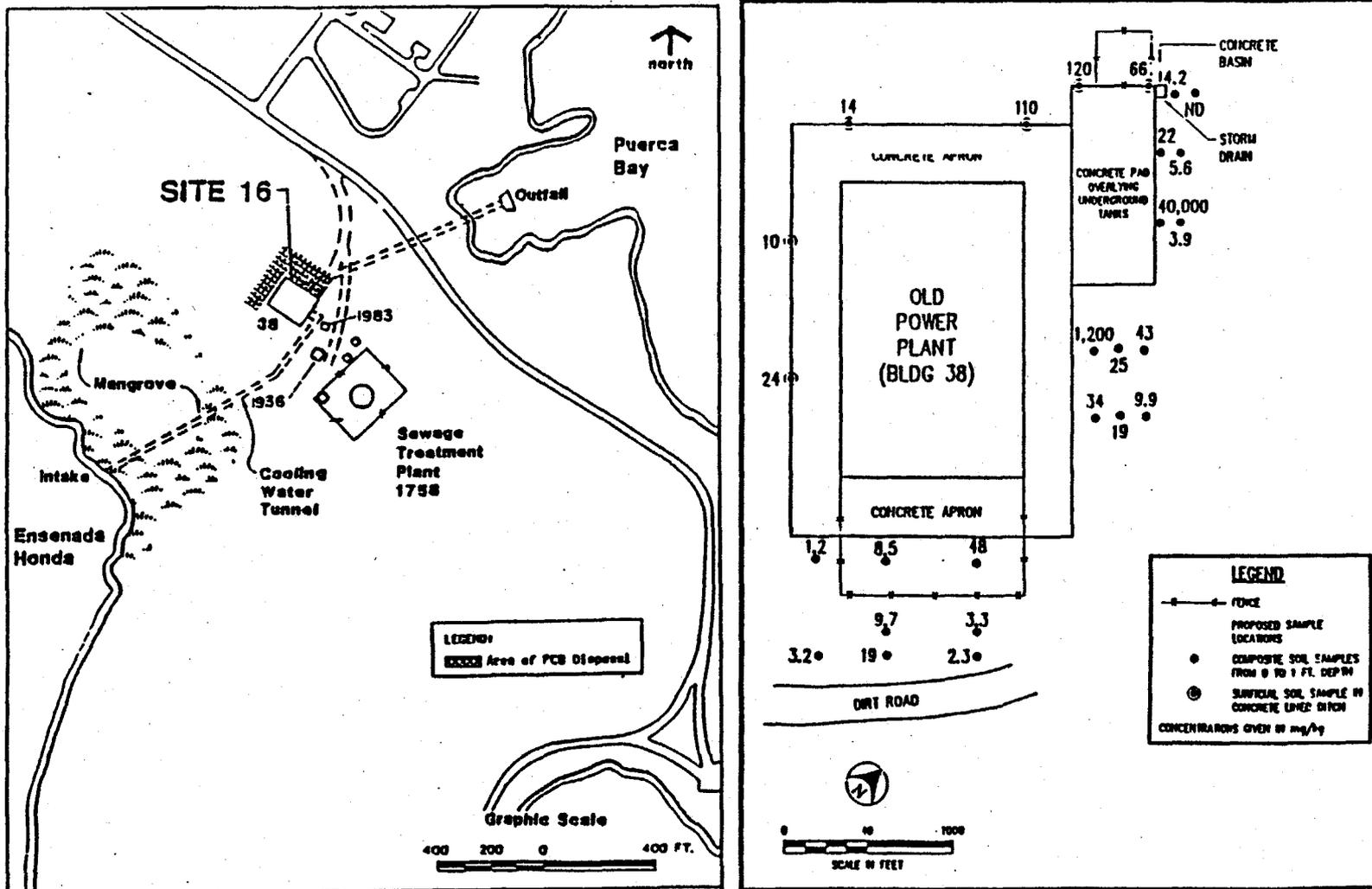
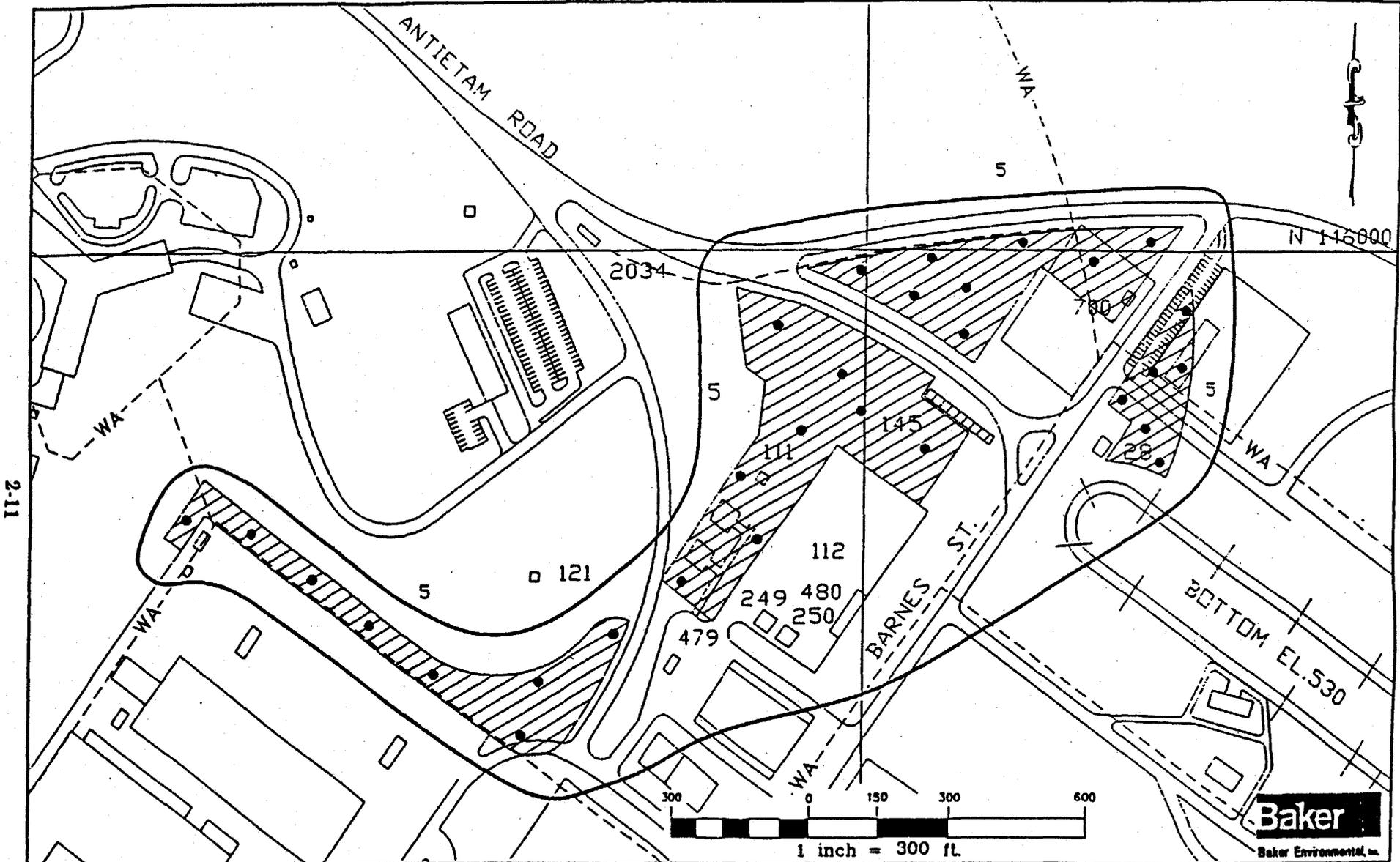


FIGURE 3

LOCATION AND CONFIRMATION STUDY SAMPLING  
 LOCATIONS, SITE 16: OLD POWER PLANT, BUILDING 38  
 NAVSTA ROOSEVELT ROADS, PUERTO RICO

**AOC B**

**TRC**



2-11

**LEGEND**

- PLANNED SURFACE SOIL SAMPLE LOCATION

**FIGURE 2-6**  
**SAMPLE LOCATION MAP**  
**SITE 10, BUILDING 25**  
**STORAGE AREA**  
**NAVAL STATION ROOSEVELT ROADS**  
**PUERTO RICO**



3-36

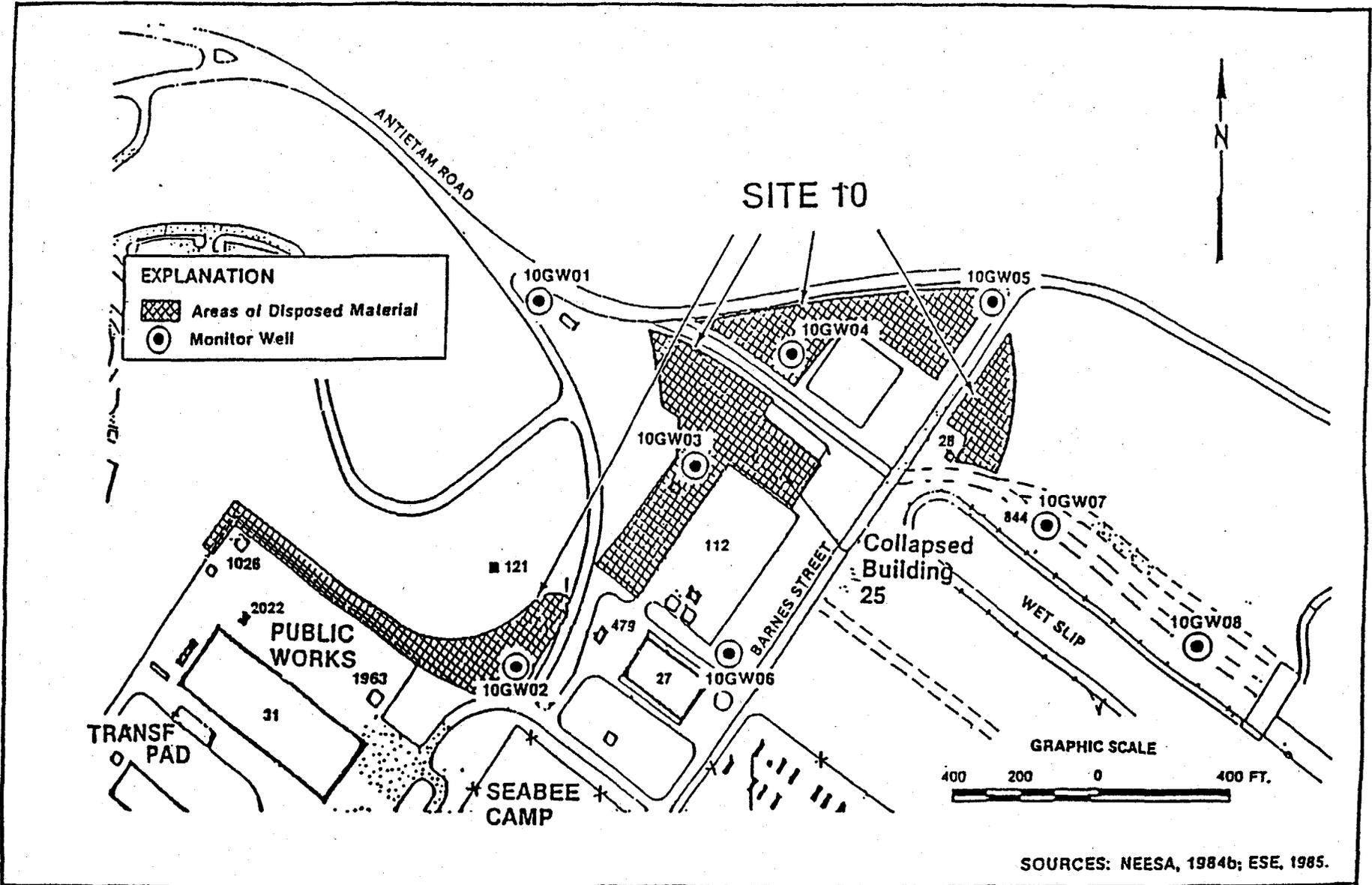


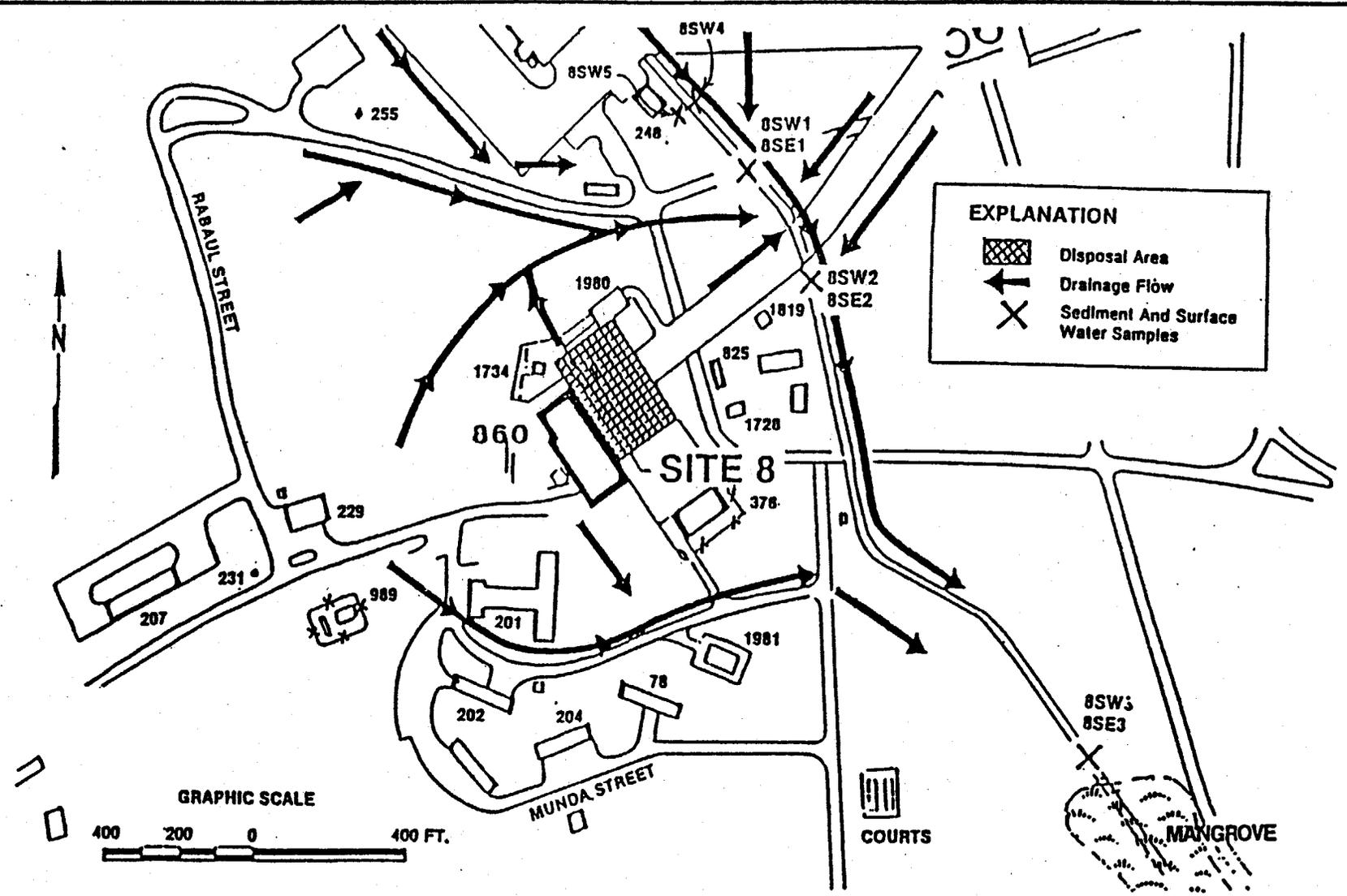
Figure 3-11  
ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE NO. 10,  
BUILDING 25 STORAGE AREA



CONFIRMATION STUDY  
U.S. NAVAL COMPLEX  
PUERTO RICO

**SWMU 51**

**TRC**



**EXPLANATION**

-  Disposal Area
-  Drainage Flow
-  Sediment And Surface Water Samples

SOURCES: NEESA, 1984b; ESE, 1985.

Figure 3-9  
ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE 8,  
DRONE WASHDOWN



CONFIRMATION STUDY  
U.S. NAVAL COMPLEX  
PUERTO RICO

**SWMU 52**

**TRC**

3-31

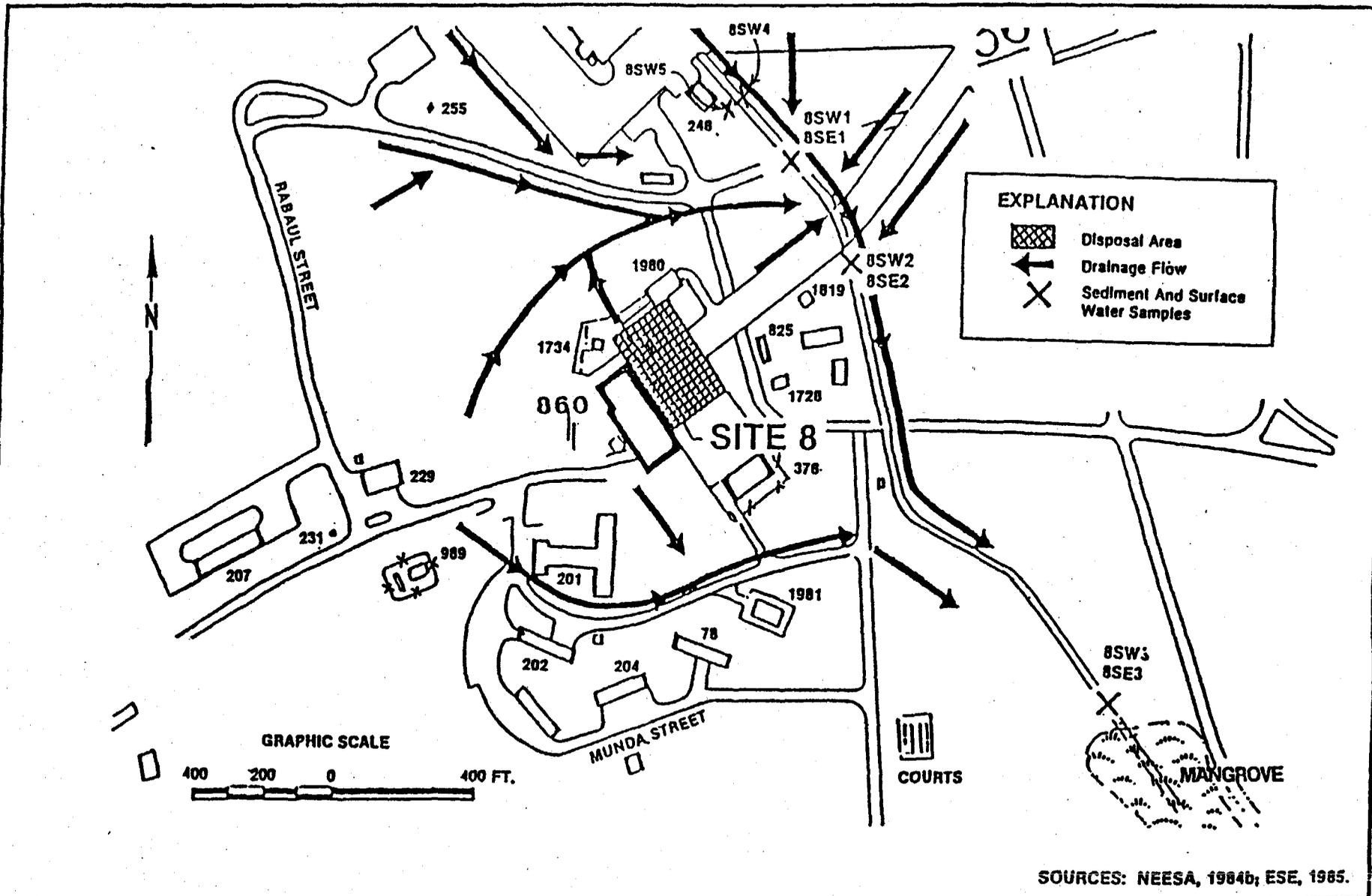


Figure 3-9  
ROUNDS 1 AND 2 SAMPLING LOCATIONS AT SITE 8,  
DRONE WASHDOWN



CONFIRMATION STUDY  
U.S. NAVAL COMPLEX  
PUERTO RICO

APPENDIX C

SITE VISIT PHOTOGRAPH LOG  
(SEE ATTACHED PHOTOGRAPH ALBUM FOR PHOTOGRAPHS)

NJ-R31.APP

C-1

RECYCLED PAPER

ENFORCEMENT CONFIDENTIAL

**TRC**

### **Numbering of Photographs:**

The photographs contained in this log are numbered according to the SWMU at which they were taken and lettered in the order of which they were taken at that SWMU. For instance, Photograph 10B is the second photograph (B) taken at SWMU 10 (10). All photographs have numbers on them. It should be noted, however, that some photographs are dark, and the numbers may be difficult to find. The first photograph at each SWMU is number with "SWMU" in front of the number. Any subsequent photographs at each SWMU (B-E) are numbered without the "SWMU." For instance, Photograph 10B is numerated as "10B" only, whereas Photograph 10A is numerated as "SWMU 10A."

**U.S. NAVAL STATION ROOSEVELT ROADS  
SITE VISIT  
PHOTOGRAPH LOG**

- SWMU 1A** Photograph of metal object (foreground) and rusted metal (background). Rusted metal in background is a possibly a drum. The location of these objects is approximately 200 yards along the trail from the Army Pier Access Road. Photograph is taken looking south-southwest.
- SWMU 2A** Photograph of white soapy/powder-like substance that came from an old, rusted drum (background). The location of the drum is approximately 200 yards along the trail off of Langley Drive. Photograph is facing north.
- SWMU 2B** Photograph of the thick, dense vegetation that covers the site.
- SWMU 2C** Photograph of trail plowed by a bulldozer for Baker when they performed their sampling. Photograph was taken facing southeast across Langley Drive.
- SWMU 3A** Photograph of a 10-gallon can of Natriumhypochloritlosung (caustic substance). There was approximately 0.5 gallons left in this can. The can was not leaking and there was no sign of a release. Photograph was taken facing east in the area of active landfill operations.
- SWMU 3B** Photograph of a 10-gallon can of Aktivator (disinfectant). This can was empty. There was no sign of a release. The can was lying next to the can mentioned in Photograph 3A.
- SWMU 3C** Photograph of 5,000-gallon AVGAS tank. Note the 3-foot hole that has been welded into the tank. There is no evidence of a release from this tank. The photograph was taken facing north.
- SWMU 3D** Photograph of the landfill facing north-northwest. Note the location of the 5,000-gallon AVGAS tank left of center.
- SWMU 4A** Photograph of the oil/water separator facing north-northeast. Note the lack of staining.
- SWMU 4B** Photograph of the inside of the oil/water separator catch basin. Note the

drain, the lack of staining, and the absence of cracks in the concrete.

- SWMU 6A** Photograph of the paint storage bunker facing west. The substance on the floor is water. There was no staining and there was no sheen on the water. The concrete was in good condition.
- SWMU 6B** Photograph of the bunker taken half way down the hall. Photograph was taken facing west. Note the lack of any containers.
- SWMU 7A** Photograph of oil on water at tank 1082 (diesel). Photograph was taken facing north-northwest.
- SWMU 7B** Close up of the diesel on the water at tank 1082.
- SWMU 9A** Photograph of two concrete pits located approximately 100 feet south-southwest of tank 212. Photograph was taken facing north-northeast.
- SWMU 9B** Photograph of the inside of the tanks. Note the water at the bottom. Concrete is in good condition.
- SWMU 9C** Photograph of the valve at the vapor filter. Note the stressed vegetation and the stained drip area under the valve. The valve was dripping at the time of the inspection. Photograph was taken facing north.
- SWMU 9D** Photograph of the top of tank 217. Note the area of stressed vegetation. Photograph was taken facing north.
- SWMU 10A** Photograph of very rusted 5-gallon can of paint spirits. The can was empty. The can was located on the concrete pad southwest of Building 90. Photograph was taken facing west.
- SWMU 10B** Photograph of stained area located approximately 100 feet southwest of the fenced area. Photograph was taken facing north-northeast.
- SWMU 10C** Photograph of a 5-gallon can of gear oil on the transformer pad. Note lack of staining and the good condition of the can. Photograph has taken facing west.

- SWMU 11A** Photograph of the storage pad located inside Building 38. Note presence of drums and transformers. The photograph was taken at entrance to pad facing west.
- SWMU 11B** Photograph of the stained concrete (approximately 10' x 10' in area) in the northeast corner of the pad.
- SWMU 11C** Photograph of drums of pesticide contaminated soil and of petroleum contaminated soil. The drums are located outside of the pad, but still inside Building 38. Photograph was taken facing west.
- SWMU 11D** Photograph of three small transformers located outside the pad. Note the lack of staining. Photograph was taken facing west.
- SWMU 12A** Photograph of the oil/water separator with a sheen on the water. Note the good condition of the concrete and the high water level. Photograph was taken facing northeast.
- SWMU 13A** Photograph of the entire site (IR Site 18). Building 258 was previously located where the pallets are presently located on end in the center of photograph. Photograph was taken facing southwest.
- SWMU 13B** Photograph of the drainage ditch that runs southeast along site. Notice the lack of stressed vegetation. Photograph was taken facing southeast.
- SWMU 14A** Photograph of the new fire training pit with a sump around it. Note the lack of staining on the pad around the pit.
- SWMU 14B** Photograph of the old fire training pit which is located approximately 200 yards west of the new fire training pit. Notice the berm that demarks the location of the pit.
- SWMU 15A** Photograph of the incinerator facing north. Note lack of staining or evidence of a release.
- SWMU 15B** Photograph of the biomedical waste shed where wastes for incineration are kept. Note the lack of staining or evidence of a release. Photograph was taken facing east.

- SWMU 16A** Photograph of the outside of the waste explosive shed.
- SWMU 16B** Photograph of the inside of the shed. Note that the shed is empty. Also note the lack of staining and good condition of the concrete.
- SWMU 17A** Photograph of the caustics bay with batteries and drums. Note the lack of staining and good condition of the concrete.
- SWMU 17B** Photograph of the general toxics bay with numerous drums. Note the lack of staining and the good condition of the concrete. Also note the presence of the sump.
- SWMU 17C** Photograph of the acids bay with two drums. Note the lack of staining, the good condition of the concrete and the presence of the sump.
- SWMU 17D** Photograph of the oxidizers bay with containers on a pallet. Note the lack of staining, the good condition of the concrete and the presence of the sump.
- SWMU 18A** Photograph of the outside of the shed. The photograph was taken facing southwest.
- SWMU 18B** Photograph of the contents in southwest corner of shed. Notice lack of major staining, good condition of the concrete and the berm.
- SWMU 18C** Photograph of the drums in the northwest corner of the shed. Note the lack of major staining, and the good condition of the concrete and the berm.
- SWMU 19A** Photograph of the outside of the building facing west. Note the heavy vegetation surrounding the building and the fence.
- SWMU 19B** Photograph of the northwest corner of the building.
- SWMU 19C** Photograph of the northeast corner of building. Note the heavy staining and the presence of the vent that leads directly to the outside. Photograph was taken facing north.
- SWMU 20A** Photograph of the grassy area where the truck was previously parked. Note the presence of a bare area. This is probably due to the rocky/sandy nature of the soil because there are no signs of stressed vegetation. Note the

- presence of the pad in the background where materials are stored. Photograph was taken facing southeast.
- SWMU 20B** Photograph of the bermed, fenced concrete pad where materials are stored. Photograph was taken facing northeast.
- SWMU 20C** Photograph of the floor of the concrete pad. Note the presence of minor cracks, the lack of staining and the presence of an overflow drain.
- SWMU 23A** Photograph of the entire pad facing northeast. Note the three oil/water separators, the heavily stained concrete and the empty drums.
- SWMU 23B** Photograph of the stained area outside the pad with stressed vegetation. Photograph is of the southeast corner of the pad.
- SWMU 23C** Photograph of batteries on pallets and three storage cabinets. These are located at the northeast corner of the pad. Note the lack of staining.
- SWMU 24A** Photograph of the oil/water separator facing east. Note the staining around the perimeter of the tank on the asphalt.
- SWMU 24B** Photograph of the inside of the oil/water separator. Note the stained walls and the good condition of the concrete.
- SWMU 25A** Photograph of shelves with supplies. Notice the lack of staining, the good condition of the drums and the presence of the Ignitable Storage Shed (SWMU 18) in the background.
- SWMU 25B** Close up of the ground in between the shelves facing west. Note the lack of staining.
- SWMU 26A-C** Panoramic view of the yard where the drums were located. Note the presence of numerous mounds. Photographs were taken facing west and south.
- SWMU 26D** Photograph of where Building 544 used to be (excavated area). Note the lack of staining or stressed vegetation. Photograph was taken facing west.

- SWMU 29A** Photograph of a drying bed facing southwest.
- SWMU 29B** Photograph of the tank containing anaerobic digester. Note the lack of staining and any evidence of a release. Photograph was taken facing east.
- SWMU 30A** Photograph of the incinerator facing south. Note the heavy vegetation, the lack of any release and the lack of stressed vegetation.
- SWMU 30B** Photograph of the excavation where the fuel tank for the incinerator was located. Note the absence of staining. Photograph was taken facing west.
- SWMU 30C** Photograph of the fuel tank that was removed from the excavation. The tank was in good condition. The tank is located approximately 50 feet north of the incinerator.
- SWMU 31A** Photograph of heavily stained asphalt looking south along Building 2022.
- SWMU 31B** Closeup of the stained asphalt adjacent to the steps of the pad looking southwest.
- SWMU 31C** Photograph of the stained asphalt looking west at Building 2022.
- SWMU 31D** Photograph of empty drums at the northeast corner of Building 2022. Photograph was taken facing south.
- SWMU 31E** Photograph of empty drums inside Building 2022.
- SWMU 32A** Photograph of new batteries on a pallet facing southwest. Note the lack of staining.
- SWMU 32B** Photograph of old batteries facing southwest. Note the lack of staining.
- SWMU 32C** Photograph of approximately 100 to 110, 55-gallon drums of JP-5 contaminated soil and sludge from oil/water separators. Photograph was taken facing southwest.
- SWMU 32D** Photograph of the paint storage area facing west. Note the lack of staining and the lack of stressed vegetation. No evidence of a release.

- SWMU 32E** Photograph of a small area of stained soil (approximately 2' x 2' in area). Photograph was taken facing southwest.
- SWMU 33A** Photograph of the entire pad facing southwest.
- SWMU 33B** Photograph of stained soil (approximately 2' x 2' in area) in the middle of the north side of the pad.
- SWMU 34A** Photograph of overflow control valves on the west side of the pads. Notice no evidence of stressed vegetation.
- SWMU 35A** Photograph of the oil/water separator with the washdown area in the background. Washdown area is being used at the time of the inspection. Note the lack of stressed vegetation and staining. Photograph was taken facing west.
- SWMU 35B** Photograph of the walls of the oil/water separator. Walls are oil stained, but the concrete is in good condition with no cracks. The gray color of the water is from the paint on the helicopter.
- SWMU 35C** Photograph of the washdown pad facing northwest. Note the lack of any staining and the presence of the drains that flow to the oil/water separator.
- SWMU 36A** Photograph of the oil/water separator tank facing north. Note the stained walls, but the good condition of the concrete.
- SWMU 36B** Photograph of the side wall of the tank to show the lack of cracks in the concrete. Photograph was taken facing east.
- SWMU 36C** Photograph of the bermed wash pad where trucks are washed. Note the drain to the oil/water separator and the cracks in the pad. Note the lack of staining on the pad.
- SWMU 37A** Photograph of the covered, bermed, fenced pad facing northeast.
- SWMU 37B** Photograph of the interior of the pad. Note the lack of major stains on floor. Photograph was taken facing northeast.

- SWMU 37C** Photograph of drums and cabinets immediately adjacent (southeast) of the pad. No staining.
- SWMU 37D** Photograph of stressed vegetation at the northeast corner of the pad. Photograph was taken facing southwest.
- SWMU 39A** Photograph of the inside of the shed. Note the lack of staining and the good condition of the concrete. This is presently a materials storage shed.
- SWMU 39B** Photograph of the drum storage pad located approximately 200 feet north of Building 3158. Note the presence of approximately 120, 55-gallon drums. Note the lack of staining and the good condition of the drums. Building 3158 is in the background on the right. Photograph was taken facing south.
- SWMU 41A** Photograph of the rinse rack pad. Note the presence of the sump, the lack of staining and the lack of any cracks in the concrete. Also note the location of the empty drum at the far corner of Building 3152. Photograph was taken facing north.
- SWMU 41B** Photograph of an empty drum at corner of Building 3152. Drum is in good condition and there were no signs of a release from it. Photograph was taken facing east.
- SWMU 42A** Photograph of the waste water treatment plant lagoon. No sheens or signs of stressed vegetation were observed. Photograph was taken facing north.
- SWMU 43A** Photograph of the wash down area facing south-southeast along Building 860. Note the lack of any staining.
- SWMU 44A** Photograph of the drainage ditch facing south-southeast along Building 860. This is where the ditch discharges to another ditch. Note the lack of any sheens or of stressed vegetation.
- SWMU 44B** Photograph of sediment in the drainage ditch in front of Building 860.
- SWMU 45A** Photograph of the concrete pad facing northwest. Note lack of staining on concrete and the location of the Bunker C fuel storage tanks (under the pad)

between the two trees).

- SWMU 45B** Photograph of the inside of the manway on top of the Bunker C fuel storage tanks. HNu from in here was 0 ppm.
- SWMU 45C** Photograph of acetylene tanks on the west side of Building 38. Photograph was taken facing south.
- SWMU 45D** Photograph of the chlorine cylinder storage pad. Four tanks are inside. Note the lack of any stains. Photograph was taken facing west.
- SWMU 46A** Photograph of the pole storage yard with a corrugated metal roof and a concrete floor. Photograph was taken facing northeast.
- SWMU 46B** Photograph of the floor area showing no evidence of staining and the absence of any drums. Photograph was taken facing northeast.
- SWMU 48A** Photograph of oil drums and contaminated soil drums inside fenced area on a mobile bermed pad which is in turn inside a concrete pad bermed with sand bags. Note the batteries on the pallet and the lack of staining. Photograph was taken facing north.
- SWMU 48B** Photograph of empty drums behind Building 3102 that are used for any contaminated soil that might result from a spill. Photograph was taken facing northwest.
- SWMU 48C** Photograph of triple washed drums that are due to be brought to DRMO. Photograph was taken facing northwest.
- SWMU 49A** Photograph of the 500-gallon waste oil tank located on the west side of Building 3188. Note the berm which is unstained and has no cracks. There is no evidence of a release. Photograph was taken facing south.
- SWMU 50A** Photograph of 55-gallon drums and cans behind Building 3166. Note that the drums and cans are stored directly on soil. There is no staining or stressed vegetation. Photograph was taken facing north.
- SWMU 50B** Photograph of the drums and cans behind Building 3166 facing south.

- SWMU 50C** Photograph of three transformers (approximately 25 gallons each) behind Building 3166. Transformers are on asphalt and are in good condition. No evidence of a release. Photograph was taken facing north.
- SWMU 51A** Photograph of the front of the pad facing northeast.
- SWMU 51B** Photograph behind the pad of the drain valves. Note the stained asphalt under the drain valve. Also notice the 500-gallon unleaded gasoline tank. Photograph was taken facing southwest.
- SWMU 51C** Photograph of the stained asphalt under the southeast drain valve. Photograph was taken facing west.
- SWMU 51D** Close up of the leak from the 500-gallon unleaded fuel tank. Tank is bermed with sand bags.
- SWMU 52A** Photograph of the drums and flammables cabinet at the eastern most point of the runway. All of the drums and the cabinet are empty. There is no staining. Photograph was taken facing north.
- AOC A.1** Photograph of the interior of the torpedo fuel tank storage shed. Note the catch basin that would catch any fuel spills. Basin is in excellent condition with no cracks or stains.
- AOC A.2** Photograph of the 10-gallon Otto Fuel II residue can. Note the good condition of the can and lack of any stains.
- AOC A.3 and AOC A.4** Photographs of the inside of Building 832 where waste oil is stored. Note the drums of cyanide waste (UN#1935), mineral spirits, alcohol, HCN, OHO Fuel II, and Argentine. All are the result of torpedo cleaning. Note the lack of staining and the excellent condition of the concrete (no cracks).
- AOC A.5** Photograph of cracks in the torpedo washdown pad. Cracks are minor.
- AOC A.6** Photograph of entire torpedo washdown pad.
- AOC A.7** Photograph of the drum pad at Building 1730. Drum pad is bermed, in good condition, and has no stains.

- AOC B.1**      Photograph of 55-gallon drums facing east. Drums are on the brick floor where Building 25 was previously. The drums are bermed with sandbags.
- AOC B.2**      Photograph of the stained area on north side of pad facing south.
- AOC B.3**      Photograph of the stained area at the southwest corner of the pad and of the sand used to soak the oil. Photograph was taken facing west.
- AOC B.4**      Close up of the sand that used to soak up the oil.
- AOC C.1**      Photograph of the heavily stained area in pad number 1 facing southeast.
- AOC C.2**      Photograph of the area of stressed vegetation on northeast side of pad number 1. Stressed vegetation appears to be caused by the telephone pole in the photograph.
- AOC C.3**      Photograph of the hole in the berm on the west side of pad number 2. Note the oil staining down the side of the wall.
- AOC C.4**      Photograph of three transformers facing southeast. These transformers were in good condition and were not leaking.
- AOC C.5**      Photograph of the broken, old batteries on pad number 3.
- AOC C.6**      Photograph of the stained area on pad number 3. Photograph facing west.
- AOC C.7**      Photograph of the south wall of pad number 3. Note the stressed vegetation. Photograph was taken facing west.

APPENDIX D

TABLE SUMMARY OF MEDIA THAT ARE  
SUBJECT TO CORRECTIVE ACTION/INVESTIGATION

NJ-R31.APP

D-1

RECYCLED PAPER

ENFORCEMENT CONFIDENTIAL

**TRC**

**U.S. NAVAL STATION ROOSEVELT ROADS  
 MEDIA SUBJECT TO CORRECTIVE ACTION/INVESTIGATION  
 (LISTED BY SWMU/AOC)**

<b>SWMU/AOC</b>	<b>GW*</b>	<b>Soil</b>	<b>SW**</b>	<b>Sed***</b>	<b>Other</b>
1. Army Cremator Disposal Site (IR Site 5)	Yes	No	Yes	Yes	No
2. Langley Drive Disposal Site (IR Site 6)	Yes	No	No	No	Sample drum
3. Station Landfill (IR Site 7)	Yes	No	Yes	Yes	No
4. Drone Fuel Drain Oil/Water Separator	No	No	No	No	No
5. Dumpsters	No	No	No	No	No
6. Former Paint Storage (Building 145)(IR Site 11)	No	No	No	No	No
7. Tow Way Road Fuels Farm (IR Site 12)	ND	ND	ND	ND	ND
8. Tow Way Road Disposal Pits (IR Site 12)	ND	ND	ND	ND	ND
9. Leaded Sludge Pits (IR Site 13)	ND	ND	ND	ND	ND
10. Transformer Maintenance Area (Building 90)(IR Site 15)	Yes	No	No	No	No
11. PCB Storage Compound (IR Site 16)	No	No	No	No	Move drums
12. Fire Training Pit Oil/Water Separator	Yes	No	No	No	No
13. Old Pest Control Shop (IR Site 18)	Yes	Yes	Yes	Yes	No
14. Fire Training Pit, Crash Crew Training Area	Yes	Yes	Yes	No	No
15. Hospital Incinerator	No	No	No	No	No
16. Waste Explosive Storage (Building 1666)	No	No	No	No	No
17. DRMO Hazardous Waste Storage Facility (Building 1973)	No	No	No	No	No
18. Ignitable Storage Facility (Building 2009)	No	No	No	No	No
19. Pesticide Waste Storage (Building 121)(IR Site 19)	Yes	No	No	No	Borings
20. Waste Oil Tank Truck (Near Building 860)	No	No	No	No	Repair cracks
21. Donuts 1-4	No	No	No	No	No
22. Ships Waste Offload Barges	No	No	No	No	No
23. Oil Spill Separator Tanks 1-3	Yes	No	No	No	Wipe and chip samples

SWMU/AOC	GW*	Soil	SW**	Sed****	Other
24. Oil Spill Oil/Water Separator	No	No	No	No	Wipe and chip samples
25. Past DRMO Hazardous Waste Storage	Yes	Yes	No	No	No
26. Abandoned Engine Oil Drums	Yes	No	No	No	No
27. Capehart Area, Wastewater Plant	No	No	No	No	No
28. Bundy Area, Wastewater Plan	No	No	No	No	No
29. Industrial Area Wastewater Plant (Building 1758)	No	Yes	No	No	No
30. Former Incinerator Site	Yes	No	No	No	No
31. Waste Oil Collection Area (PWD storage yard)	Yes	No	No	No	Wipe and chip samples
32. Battery Collection Area (PWD Storage Yard)	Yes	No	No	No	No
33. AIMD Hazardous Waste Storage Pad	Yes	No	No	No	Subsurface soil samples
34. VC-8 Waste Storage Pad	No	No	No	No	No
35. Aircraft Wash Rack Oil/Water Separator (VC-8 Yard)	No	No	No	No	No
36. Vehicle Wash Rack Oil/Water Separator	No	No	No	No	Repair minor cracks
37. Waste Oil Drum Storage Area	Yes	No	No	No	Wipe and chip samples
38. Sewer Drainage System	No	No	No	No	No
39. Spent Battery Storage (Building 3158)	No	No	No	No	Follow 1988 RFA recommendations
40. Seabee Oil Collection Area	No	No	No	No	No
41. Rinse Rack Near Seabee Pesticide Storage	No	No	No	No	Remove drum, inspect Building 3152 and follow 1989 RFA recommendations.
42. Waste Water Treatment Plant Lagoons	No	No	No	No	No
43. Drone Washdown Area	No	No	No	No	No
44. Aerial Target-Systems Department Drainage Ditch	No	No	No	No	No
45. PCB Spill Area (Building 38)	No	No	No	Yes	Underground tank investigation
46. Pole Storage Yard	Yes	No	No	No	No
47. Local Disposal Areas	No	No	No	No	No

SWMU/AOC	GW*	Soil	SW**	Sed***	Other
A. Torpedo Shop	No	No	No	No	Repair minor cracks
B. Former PWD Storage Area (Building 25)	Yes	No	No	No	No
C. Transformer Storage Area (Building 2042)	Yes	No	No	No	Wipe and Chip samples
D. Naval Station Outfalls	No	No	No	No	Sampling as part of other SWMUs/AOCs.
48. 90-Day Storage Compound	No	No	No	No	No
49. 500-Gallon Waste Oil Tank (Building 3188)	No	No	No	No	No
50. Storage Area Behind Building 3166	No	No	No	No	No
51. AIMD Hazardous Waste Storage Pad (New SWMU 33)	Yes	Yes	Yes	No	Wipe and chip samples
52. Building 200 - Waste Collection Area at East End of Runway	No	No	No	No	No

GW\* = Ground Water  
 SW\*\* = Surface Water  
 Sed\*\*\* = Sediment  
 ND = Not Determined