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FINAL

CORRECTIVE MEASURES STUDY WORK PLAN
SWMU 45 - AREAS OUTSIDE OF BUILDING 38
THE FORMER POWER PLANT

RCRA/HSWA Permit No. PR2170027203

NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO

CONTRACT TASK ORDER 0277

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1.0 INTRODUCTION

This work plan presents the technical approach for conducting a Corrective Measures Study (CMS) for the "Areas Outside Building 38 - The Former Power Plant (SWMU 45)" located at Naval Station Roosevelt Roads (NSRR), located in Ceiba, Puerto Rico (Figure 1-1). This CMS work plan has been prepared under contract to the Atlantic Division, Naval Facilities Engineering Command (LANTDIV), Contract Number N62470-89-4814.

1.1 Basis for the Work Plan

SWMU 45 is comprised of the areas outside Building 38 which is the former power plant. Included are two 50,000 gallon USTs near the building and the cooling water tunnel which extends from the building out into Puerca Bay. Investigations conducted in Puerca Bay revealed that PCBs and semi-volatile organics were present in the sediments at levels which pose an unacceptable risk. In addition, an area of oil contaminated soil is present in the subsurface around the cooling water tunnel. Based on these conditions, a CMS for the site is warranted. When completed, the appropriate corrective measure will have been selected and design of the remedial alternative can be started.

1.2 Site Status Summary

SWMU 45 was initially addressed under the Navy's Installation Restoration Program (IRP) which followed a CERCLA pattern. A spatial display of all the samples collected at SWMU 45 is provided on Figure 1-2. Under the IRP, a Remedial Investigation (RI) was performed. PCB contamination was found in the soils immediately outside Building 38. Am Interim Corrective Measure was designed for the affected soils which included excavation of the contaminated soils, shipment off island for appropriate disposal and sampling the surrounding area to ensure that the cleanup goals were achieved. The soil removal took place in 1994. A report entitled "Final Closeout Report for Interim Remedial Action of PCB Contaminated Soils, Sites 15 and 16 at the Naval Station Roosevelt Roads, Puerto Rico" was submitted in May 1995. [It should be noted that the "Site 16" referenced in the report title is the IRP designation for what is now SWMU 45.]

Roosevelt Roads submitted a RCRA Part B Permit application for the storage of hazardous waste on the base. Recognizing that Corrective Action would apply to unpermitted waste management units, the Navy performed a Supplemental Site Investigation (SSI) at a variety of units (including SWMU 45) to provide additional site characterization information to the USEPA to assist in their permitting decisions. Included in the investigations were the sediments of Puerca Bay and the cooling water tunnel interior. The investigations were reported on in "Draft, Supplemental Investigation, Installation Restoration Program Activities, Naval Station Roosevelt Roads, Ceiba, Puerto Rico" (Baker, June 11, 1993).

The RCRA corrective action portion of the facility's permit (issued in October 1994) contained specific requirements for investigation and, potentially, remediation at the site. To accomplish the goals of the permit, a RCRA Facility Investigation (RFI) work plan was submitted to, and subsequently approved by, the USEPA. The work plan provided the framework for site characterization activities; its scope was guided by the results of the SSI.

An RFI at SWMU 45 was performed in 1996 in accordance with the work plan. The findings of the RFI confirmed those of the SSI and indicated that the USTs and cooling water tunnel represented a possible source of continuing release. On the basis of this finding the Navy decided to perform an Interim Corrective Measure (ICM) to eliminate the potential for further release. The plans for the ICM, which were submitted to the USEPA and approved, called for the cleaning and abandonment in place of the UST and tunnel. Inflow of groundwater to the tunnel necessitated a field design change (approved by the USEPA) which provided for the filling of the USTs and tunnel with low density concrete. This approach entombed and effectively immobilized any residual contamination.

During the ICM on the tunnel, an excavation was made at a point along the outside of the tunnel in an attempt to ascertain how groundwater was entering the tunnel. Soils contaminated with petroleum were observed. A work plan to investigate the outside of the tunnel was submitted to, and subsequently approved by, the USEPA. The work was performed and the results are presented in "Revised Draft, RCRA Facility Investigation Report, Operable Unit 3/5, Naval Station Roosevelt Roads, Ceiba, Puerto Rico" (Baker, April 1999). This report (and/or its precursor the initial "draft" report) recommended a CMS for the Puerca Bay sediments and the soils immediately adjacent to the cooling water tunnel.

1.3 Organization of the CMS Work Plan

This CMS Work Plan is organized into five sections. The first section, the Introduction, is designed to introduce the reader to the basis for the work plan and a summary of the site status. Section 2.0 provides the objectives, goals, and the corrective measure standards being utilized for this project. The additional investigations to be performed are discussed in Section 3.0. The tasks to be accomplished as part of the Corrective Measure Study are described in Section 4.0. The project schedule is provided in Section 5.0. Section 6.0 provides the references cited in this report.

2.0 CMS OBJECTIVES AND GOALS

2.1 Objectives and Goals

The objective of this CMS Work Plan is to identify those tasks required to assist in screening applicable remedial technologies for SWMU 45 at Naval Station Roosevelt Roads. This Work Plan documents the scope and objectives of the full CMS, and the activities required to implement the program. The Work Plan serves as a tool for assigning responsibilities and establishing the project schedule and costs.

2.2 Corrective Measures Standards

Corrective measure standards which may be applicable to SWMU 45 will be developed as part of the CMS "Task I" reporting effort which will include the results of the ecological evaluation to be performed. Once the possible corrective measures are selected for applicability to this site the appropriate standards will be developed.

The corrective measure standards to be considered will include the applicable Federal maximum contaminant levels (MCLs) established under the Safe Drinking Water Act and Toxic Substance Control Act (TSCA) regulations and the Puerto Rico Environmental Quality Bond (PREQB) standards. The Code of Federal Regulations (40 CFR§264.100) will also be reviewed for applicability to the site.

3.0 ADDITIONAL INVESTIGATIONS

3.1 Introduction

Human Health risks have been calculated for the various possible exposure scenarios at the sites; however, potential ecological risks have not been evaluated in detail. This evaluation is required to provide the information needed to completely assess the applicability of various remedial alternatives. Ecological risk evaluation is particularly important to the analysis of an "institutional controls" scenario.

3.2 Ecological Evaluation

The evaluation of ecological risks at SWMU 45 will be conducted in accordance with methodology contained in *Interim Final Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (USEPA, 1997), *Guidelines for Ecological Risk Assessment* (USEPA, 1998), and *Navy Policy for Conducting Ecological Risk Assessments* (CNO, 1990). The assessment will rely on a phased approach, with subsequent phases only made necessary by the finding of potential risks in earlier phases. At some point in the risk assessment process, additional data may need to be obtained to provide adequate information.

Given that ecological evaluations are iterative and dynamic processes, the entire scope of the ecological risk assessment can not be identified at this time. The description of ecological risk assessment activities presented in the sections that follow is limited to those activities that will be conducted as part of Phase 1 (Screening-Level Ecological Risk Assessment) and, if necessary, Phase 2 (Baseline Ecological Risk Assessment Problem Formulation). Any work conducted beyond Phase 2 will be identified and described in future ecological risk assessment reports, work plan updates, or task-specific work plans.

3.2.1 Phase 1: Screening-Level Ecological Risk Assessment

An initial, conservative ecological risk screening assessment will be conducted at SWMU 45 using existing analytical data for surface soil, surface water, sediment, and groundwater. The screening-level ecological risk assessment will consist of the of the following components (USEPA, 1997):

- Screening-level problem formulation
- Screening-level ecological effects evaluation
- Screening-level exposure estimate
- Screening-level risk calculation

Each component of the screening-level risk assessment is discussed in the sections that follow.

3.2.1.1 Screening-Level Problem Formulation

The screening-level problem formulation will involve the development of a preliminary conceptual site model that will address the environmental setting and the nature and extent of contamination, as well as chemical fate and transport mechanisms, toxicity mechanisms, potential ecological receptors, complete exposure pathways, and screening-level assessment endpoints.

As part of the screening-level problem formulation for SWMU 45, a habitat assessment will be conducted. The objective of the habitat assessment will be the identification of:

- Potential fate and transport mechanisms that might exist at SWMU 45
- Relevant habitat units, including ecologically sensitive habitats, within and adjacent to SWMU 45 that may potentially be impacted by previous waste management activities
- Ecological receptors utilizing the SWMU habitat units
- Current land usage
- Reference sites that closely resemble the SWMU 45 habitats with regard to their size and ecological traits

Parallel habitat assessments will be conducted for each SWMU 45 habitat and corresponding reference site habitat. The assessment within terrestrial and semi-aquatic habitats will be conducted at a level of detail that will allow for a qualitative comparison of wildlife utilization between the SWMU habitats and associated reference habitats. The qualitative comparison will most likely focus on such parameters as similarities/differences in species composition, absence/presence of species, and relative abundance of individuals within a species.

As discussed in Section 3.1.1.4, observations and information from the parallel habitat assessments will be used in conjunction with the screening-level risk assessment to determine if the investigation at SWMU 45 will proceed to Phase 2. For example, if the conservative screening-level risk assessment indicates the potential for minor ecological effects for specific exposure pathways but detectable impacts were not evident for these pathways based on observations and information obtained during the habitat assessment, the risk assessment process may end with Phase 1.

Field sampling activities will not be conducted as part of the habitat assessment; therefore, ecological receptors within those habitats where access or direct observation is restricted, such as Puerca Bay, will be identified by a literature review. The decision to proceed with a more thorough ecological risk assessment for these habitats and their associated exposure pathways will be based solely on conclusions drawn from the screening-level risk assessment.

The evaluation of potential exposure pathways and receptors will be a critical component of the screening-level problem formulation. Based on observations regarding wildlife utilization within site habitats, receptor species will be identified for evaluation by the screening-level ecological risk assessment. Factors that will be considered in the selection of receptor species include the physical and chemical properties of the chemicals that have been detected in the abiotic media. For example, if bioaccumulative chemicals or chemicals that tend to biomagnify through a food chain have been detected during previous sampling events, the receptor species selected for evaluation will include upper trophic level organisms. The selection of receptor species will also be based on the presence or absence of complete exposure pathways. Exposure pathways will be considered complete if the following four elements exist: (1) A source and mechanism of chemical release [Note: The source for contaminants in Puerca Bay was a cooling water tunnel for the old power plant. These is no continuing source since this tunnel was cleaned and filled with concrete as part of an Interim

Corrective Measure.]; (2) An environmental transport medium; (3) A receptor exposure route (i.e., inhalation, ingestion, dermal adsorption, etc.); and (4) A receptor exposure point. Only complete exposure pathways will be retained for evaluation.

3.2.1.2 Screening-Level Ecological Effects Evaluation

Ecological screening thresholds and toxicological benchmarks will be identified from the literature for all detected chemicals for which a complete exposure pathway exists. The ecological screening thresholds will consist of media-specific toxicological benchmarks, as well as chemical-specific exposure levels that have been shown to produce adverse effects. The media-specific toxicological benchmarks that may be utilized include benchmarks for soil (Efroymson, et. al., 1997a and 1997b), surface water and groundwater (USEPA, 1995, and USEPA, 1999), and sediment (Long, et. al., 1995 and Jones, et. al., 1997). If available, the chemical-specific exposure levels will consist of No Observed Adverse Effect Levels (NOAELs) for the receptor species selected for evaluation. In the absence of species-specific data, available NOAELs for similar species will be used. In those cases when only a Lowest Observed Adverse Effect Level (LOAEL) is available from the literature, the NOAEL will be estimated by multiplying the LOAEL by 0.1 (USEPA, 1997). The rational for selecting a given screening level will be discussed and documented in a screening-level ecological risk assessment report.

3.2.1.3 Screening-Level Exposure Estimate

The screening-level exposure estimate will be conservative in nature and involve a comparison of maximum detected surface soil, sediment, and/or groundwater concentrations to appropriate toxicological benchmarks. Depending on the specific ecological receptors identified during the habitat assessment, as well as the physical and chemical properties of the chemicals under evaluation, the screening-level exposure estimate may also use terrestrial and aquatic exposure models that address the complete exposure pathways identified during the screening-level problem formulation. The specific exposure pathways that may be addressed by the exposure models include ingestion of soil, ingestion of water, and/or food chain exposures. The degree of uncertainty associated with the use of exposure models will depend on the availability of model input parameters for the receptors utilized in the evaluation of risks (i.e., ingestion rates for soil, water, and food, body

weights, and dietary compositions). If these data are not available from the literature, The USEPA Region 2) will be consulted for identification and selection of appropriate model input parameters for the receptors identified for evaluation. When possible, conservative assumptions will be used to fill any data gaps encountered during the screening-level ecological risk assessment.

Because the screening-level ecological risk assessment will rely on existing analytical data, derivation of screening-level exposure estimates and risk estimates for one or more complete exposure pathways may not be feasible.

3.2.1.4 Screening-Level Risk Calculation

For the screening-level risk calculation, the Hazard Quotient (HQ) approach will be used to estimate risk (USEPA, 1997). For screening-level risk calculations based on direct exposures, the HQ can be expressed as a ratio of the maximum detected concentration in surface soil, sediment, surface water, or groundwater (mg/kg or mg/L) to the toxicological benchmark or NOAEL for surface soil, sediment, surface water, or groundwater (mg/kg or mg/L):

HQ = Maximum Detected Concentration/Toxicological Benchmark or NOAEL

For screening-level risk estimates based on modeled ingestion exposures (mg/kg/day), the HQ can be expressed as a ratio of the modeled dose (mg/kg/day) to the NOAEL (mg/kg/day):

HQ = Modeled Dose/NOAEL

A HQ less than unity (i.e., less than one) will indicate that the chemical is unlikely to cause adverse ecological effects. Conversely, a HQ greater than one will indicate that the chemical has the potential to cause adverse ecological effects. The significance of HQ values has previously been judged as follows (Menzie, et. al., 1993):

- HQ exceeds one but less than 10: some small potential for environmental effects

- HQ exceeds 10: significant potential that greater exposures could result in effects based on experimental evidence

- HQ exceeds 100: effects may be expected since this represents an exposure level at which effects have been observed in other species.

If detected chemical concentrations in the various abiotic media exceed media-specific toxicological benchmarks or chemical-specific NOAELs (i.e., the HQ is greater than one), those chemicals will be retained as ecological constituents of potential concern (COPCs). The decision to proceed with the ecological risk assessment will be based on an evaluation of the following:

- The degree that HQ values exceed unity

- Information obtained during the habitat assessment regarding wildlife utilization within site habitats and reference habitats

- The level of uncertainty associated with the screening-level risk assessment

A more thorough ecological risk assessment may not be warranted if the HQ values exceeding unity are less than 10 since the conservative exposure assumptions used in the screening-level exposure estimate are unlikely to represent actual exposure conditions. If this situation is encountered, information from the habitat assessment will be used in conjunction with the screening-level ecological risk assessment to determine if the risk assessment process should proceed to Phase 2. The decision to proceed will also be based on a preliminary re-evaluation and refinement of the conservative exposure assumptions used in the screening-level exposure estimate and risk calculation. The refinement will utilize existing information.

If one or more HQ values exceed 10, a more thorough ecological risk assessment maybe warranted since significant potential for ecological effects may exist (Menzie et. al., 1993). Again, the decision

to proceed under this situation will be based on information obtained from the habitat assessment and the re-evaluation and refinement of the conservative exposure assumptions.

If none of the screening-level exposure thresholds are exceeded and the available information (i.e., analytical data) is adequate to conclude that ecological risks are negligible for all complete exposure pathways identified by the screening-level problem formulation, the ecological risk assessment process will end with Phase 1. The decision to end or proceed with the ecological risk assessment will be documented in a screening-level ecological risk assessment report.

The screening-level risk calculation will include a detailed evaluation of uncertainties associated with the screening-level ecological risk assessment. The evaluation will include uncertainties associated with the available analytical data, media-specific toxicological benchmarks, chemical-specific NOAELs, and the screening-level exposure estimates.

3.2.2 Phase 2: Baseline Ecological Risk Assessment Problem Formulation

As described in Section 3.1.1.4, the baseline ecological risk assessment problem formulation will be conducted if the screening-level ecological risk assessment (Phase 1) indicates the potential for adverse ecological effects. In Phase 2, the components of the preliminary conceptual site model developed during Phase 1 will be refined based on more realistic site-specific exposure assumptions and/or additional media-specific analytical data.

If significant data gaps are identified during the screening-level ecological risk, the first step for Phase 2 will involve the development and implementation of a Sampling and Analysis Plan (SAP). The SAP will address abiotic media sampling activities that will provide data to better characterize the nature and extent of contamination and potential receptor exposures in the relevant habitat units. If additional sampling is necessary, the SAP will address abiotic media sample collection activities within the reference sites identified during the habitat assessment. The reference samples will provide information regarding inorganics that occur naturally and organic constituents that are anthropogenic but not related to waste management activities at SWMU 45. Analytes will include media-specific characteristics (i.e., total organic carbon and acid volatile sulfides for sediments and

total hardness and pH for surface waters) that can influence the bioavailability and toxicity of the COPCs identified in Phase 1.

If after refinement of the preliminary site conceptual model and re-evaluation of potential exposures potential risks to ecological receptors remain, a work plan for additional ecological investigations will be developed. The specific ecological investigations conducted will be contingent upon the measurement endpoints selected for SWMU 45 during Phase 2 and may include biological field studies/surveys and acute or chronic media-specific toxicity tests. Any field sampling activities and studies conducted within site habitats will be duplicated within the appropriate reference sites.

4.0 POTENTIAL CORRECTIVE MEASURES

This section of the CMS work plan describes the stepwise approach to be taken in performing the CMS. The CMS consists of four tasks which are described in the following sections.

4.1 Task I - Identification and Development of the Corrective Measure Alternative or Alternatives

This task will identify, screen, and develop the alternative or alternatives for removal, containment, treatment and/or other disposition of the contamination based on the objectives established for the corrective measure. The analysis will be based on the results of the investigations at SWMU 45.

4.1.1 Description of the Current Situation

The current situation and the known nature and extent of contamination at SWMU 45 will be described in this section. A statement of the purpose for the response, based on the results of the RFI investigations will be provided as will the actual or potential exposure pathways that will be addressed by the corrective measures.

4.1.2 Establishment of Corrective Action Objectives

Site specific objectives for the corrective action will be established in conjunction with the EPA. These objectives will be based on public health and environmental criteria, information obtained from site investigations, EPA guidance, and any applicable federal or Commonwealth of Puerto Rico statutes. The corrective action objectives will be consistent with 40 CFR §264.100 as applicable.

4.1.3 Screening of Corrective Measure Technologies

The preliminary corrective measure technologies screened in the Pre-Investigative Measures Screening Report (Baker, 1994), and any additional technologies which are applicable at the facility, will be reviewed based on all the available data and information at SWMU 45. This screening process focuses on eliminating those technologies which have severe limitations for a given set of

waste and site-specific conditions or due to inherent technology limitations. The screening of the technologies will look in detail at the site and waste characteristics as well as the technology limitations.

4.1.4 Identification of the Corrective Measure Alternative or Alternatives

The corrective measure alternative or alternatives will be developed based on the corrective action objectives and analysis of the corrective measure technologies. Those alternative which appear most suitable for the site based on sound engineering will be retained. Technologies can be combined to form the overall corrective action alternative or alternatives. The reasons for excluding any technology shall be documented.

4.2 Task II - Evaluation of the Corrective Measure Alternative or Alternatives

Each corrective measure technology and its components which passed through the initial screening in Task I will be described and evaluated. This evaluation will be based on technical, environmental, human health, and institutional concerns. Cost estimates for each corrective measure will also be developed.

4.2.1 Technical/Environmental/Human Health/Institutional

A description of each corrective measure alternative which includes but is not limited to preliminary process flow sheets, preliminary sizing and type of construction for buildings and structures, and rough quantities of utilities required will be provided. Each alternative will be evaluated in the following four areas:

4.2.1.1 Technical

Each corrective measure alternative will be evaluated based on performance, reliability, implementability, and safety.

4.2.1.2 Environmental

An environmental assessment will be performed for each alternative which will focus on the facility conditions and pathways of contamination actually addressed by each alternative. The environmental assessment for each alternative will include, at a minimum, an evaluation of: the short and long term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

4.2.1.3 Human Health

Each alternative will be assessed in terms of the extent to which it mitigates short and long term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected populations. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to the EPA.

4.2.1.4 Institutional

The relevant institutional needs for each alternative will be assessed. Specifically the effects of Federal, State, and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative will be examined.

4.2.2 Cost Estimate

A cost estimate of each corrective measure alternative will be developed. The cost estimate will include both capital and operation and maintenance costs.

4.3 Task III - Justification and Recommendation of the Corrective Measure or Measures

The corrective measure alternative will be recommended and justified using technical, human health, and environmental criteria. Tradeoffs among health risks, environmental effects, and other pertinent factors will be highlighted. The EPA will select the corrective measure alternative or alternatives to be implemented based on the results of Task II and III. At a minimum the criteria in the following sections will be used to justify the final corrective measure or measures.

4.3.1 Technical

4.3.1.1 Performance

Corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference.

4.3.1.2 Reliability

Corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proven effective under waste and facility conditions similar to those anticipated will be given preference.

4.3.1.3 Implementability

Corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred.

4.3.1.4 Safety

Corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

4.3.2 Human Health

The corrective measure or measures will comply with existing EPA criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

4.3.3 Environmental

The corrective measure or measures posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

4.4 Task IV - Reports

4.4.1 Progress

The EPA will be provided with signed progress reports as required by Condition B.8.(a) of Module III of the Permit.

4.4.2 Corrective Measure Study (CMS) Final Report

A CMS Final Report will be developed which includes all the information gathered under the approved CMS Work Plan. At a minimum the report will include a description of the facility, a summary of the corrective measure or measures, a summary of the previous investigations impact on the selected corrective measure or measures, design and implementation precautions, cost estimates and schedules.

5.0 SCHEDULE

The schedule for the CMS will be developed after the ecological evaluation is complete.

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FIGURES

277105WP

Baker
Baker Environmental, Inc.

LEGEND

13 – SWMUs

AOC D – AOCs

45/11 – AREA WHICH THIS INVESTIGATION PERTAINS TO

SOURCE: LANTDIV, FEB. 1992/1997

2500 0 1250 2500
1 inch = 2500 ft.

FIGURE 1-1
SWMU/AOC LOCATION MAP
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO

00770T R12

277246WP

CAMP MOSCRIP

PUERCA BAY

11-SD05
11-SD08
11-SD02
11-SD06
11-SD01
11-SD03
11-SD04
11-SD09
11-SD07

11-SB26
11-SB21
11-SB24
11-SB13
11-SB15
11-SB14
11-SB04
11-SB25

FORESTALL DRIVE

ACCESS ROAD

11-SB03
11-SB20
11-SB23
11-SB06
11-SB27

COOLING WATER INTAKE TUNNEL

COOLING WATER DISCHARGE TUNNEL

45MW02
45MW04
45MW03
45MW01
11-SB17
11-SB22

UNDERGROUND TANKS

CONC. SLAB

POWER PLANT (BLDG. 38)

APPROXIMATE TUNNEL LOCATION

BOILER BLDG. 1936

DITCH

24"ø STORM SEWER PIPE

GW01

LEGEND

- DIRECT PUSH SOIL SAMPLE LOCATION (1997 RFI)
- SEDIMENT SAMPLE LOCATION (1997 RFI)
- DIRECT PUSH SOIL AND GROUNDWATER SAMPLE LOCATION (1997 RFI)
- HYDROPUNCH LOCATION (1996 RFI)
- MONITORING WELL LOCATION (1996 RFI)
- EXISTING GROUNDWATER SAMPLE LOCATION

150 0 75 150

1 inch = 150 ft.

Baker

FIGURE 1-2
SWMU 45 SAMPLING LOCATIONS
NAVAL STATION ROOSEVELT ROADS
PUERTO RICO